White Paper on Small and Medium Enterprises in Taiwan, 2008

Small and Medium Enterprise Administration
Ministry of Economic Affairs
September, 2008

White Paper on
Small and Medium Enterprises in Taiwan, 2008

Published by

Small and Medium Enterprise Administration, Ministry of Economic Affairs
95, 3F, Section 2, Roosevelt Road,
Taipei, Taiwan, ROC, 106

Edited by

Chung-Hua Institution for Economic Research
75 Chang Hsing Street,
Taipei, Taiwan, ROC, 106

Editors:

Li-Min Hsueh, An-Loh Lin, Bruce S. Stewart

Proof Reader:

Pei-Ju Kuo

Designed and Printed by:

HONBO PRINTING CO., LTD.
No. 389, 7th F, Sec. 2, Chung San Rd., Chung Ho City,
Taipei County, Taiwan, ROC, 235

Foreword

In 2007, the sub-prime mortgage crisis in the US and the high oil prices triggered the worldwide economic downturn. However, the overall economic performance in Taiwan was still characterized by moderate growth, with a GDP growth rate of 5.72% being recorded, an 0.83 percentage point increase over 2006. As for the performance of SMEs in 2007, the indicators revealed a mixed picture. The number of enterprises (1,235,664 firms), the total sales (NT$10,172 billion), and the number of newly-established SMEs (92,880 firms) were all slightly lower compared to 2006. These SMEs employed 7,939,000 people in 2007, however, representing an increase of 2.42% over the previous year.

Nevertheless, during the first half of 2008, the stagflation is being clearly felt in Taiwan. The new administration of the ROC which took office in May 20th, 2008 has implemented a series of policies and measures to support the economic vitality. In addition to the effect of the macroeconomic downturn, various statistics on SMEs have shown that SMEs in Taiwan are faced with severe challenges from globalization, the rise of emerging economies, and ever-changing new technologies, etc. The SMEs need special strategies as well as help from outside in order to become stronger and larger.

In order to witness the development of SMEs in Taiwan, the Small and Medium Enterprise Administration has since 1992 published the *White Paper on Small and Medium Enterprises in Taiwan* on an annual basis, and the English version has been published since 1998. Each volume of the W*hite Paper* consists of three parts.

In Part One of the 2007 volume, an extensive array of statistical figures is provided to describe the development of SMEs from a wide variety of perspectives in 2007, which includes a comparison with their performance in previous years, as well as with large enterprises. A comparison of fifteen economies in terms of major SME indicators is also provided.

In Part Two of this volume, two special topics are tackled through an in-depth analysis to deal with the special challenges faced by SMEs. They are “SME Industry Clusters—Cluster Innovation and Strategic Development,” and “The Impact of Recent

Labor Law Revisions on Taiwan's SMEs."

The government has been helping the SMEs in various ways by ensuring that the necessary resources are available and that the overall business environment is conducive to them. In Part Three, the major government policies and measures related to SMEs are examined, along with their resulting effects over the past year. This section concludes with an examination and discussion of the prospects for future SME policies. The Appendix to this volume also provides, for reference purposes, important SME statistics covering 2003-2007.

Providing guidance to support the development of SMEs requires a long-term effort. It is hoped that the *White Paper* will give readers both in Taiwan and overseas a better understanding of Taiwan's SMEs, while at the same time providing a useful reference work to assist SME managers in their decision-making. Your comments on the content of the *White Paper* would be most welcome.

Dr. Robert Sun-Quae Lai
Director General
Small and Medium Enterprise Administration
September 2008

Contents

Foreword

Tables ..... **iv**

Figures ..... **viii**

Summary ..... **xi**

Part One Recent Development of SMEs

Chapter 1 Changes in the Macroeconomic Environment 1

I Changes in the International Living Environment 1

II Changes in the International Economic Environment 6

III The Chinese Economy – Major Trends and Key Issues 13

IV Changes in Taiwan's Economic Environment 19

Chapter 2 An Overview of SME Development 29

I The Status of SMEs in Taiwan 29

II Employment in the SME Sector 36

III The Development of Taiwan's SME Sector 39

IV Operational Performance of SMEs Owned by Female Entrepreneurs 43

V International Comparison 50

Chapter 3 Financial Status of SMEs 57

I Overall Financial Status of SMEs 57

II Financial Analysis by Industry 66

III Sources of Funding for Manufacturing Industry and Reasons for Experiencing Difficulty in Acquiring Funds 73

IV Financial Institutions and SME Financing 76

Chapter 4 The Current Status of SMEs' Labor Utilization 83

I Labor Usage in SMEs 83

II Labor Conditions in SMEs 95
III Manpower Cultivation in SMEs 101

Chapter 5 The Current State of SME Trade and Overseas Investment Activity 109

I Overview of Taiwan's Imports and Exports 110
II Trends in Overseas Investment by SMEs 111
III SME Investment in China 118
IV Areas that SMEs Need to Focus on in Their Overseas Investment Activities 130

Chapter 6 SME Innovation, R&D, and Technology Utilization 135

I Innovation and R&D Inputs 136
II Plans to Promote Innovation in Industry 142
III Other Innovation and R&D Initiatives, and Case Studies of Successful Projects 151
IV Strategies for Strengthening Innovation and R&D 156

Part Two Special Topics on SMEs

Chapter 7 SME Industry Clusters – Cluster Innovation and Strategic Development 161

I The Industry Cluster – Definition and Categorization 162
II Industry Cluster Case Studies – Geographically Concentrated Clusters 166
III Industry Cluster Case Studies – Cross-regional Clusters 172
IV SME Industry Cluster Development in Taiwan 179

Chapter 8 The Impact of Recent Labor Law Revisions on Taiwan's SMEs 185

I The Impact on SMEs of the Increase in the Minimum Wage 185
II The Impact on SMEs of the Extension of Compulsory Labor Insurance Coverage to Include Enterprises with Four or Fewer Employees 193
III The Impact on SMEs of the Revision of the Gender Equality in Employment Law 196
IV The Impact on SMEs of the Increase in the Period of Time for Which Foreign Laborers are Permitted to Remain in Taiwan 200

V Appraisal of the Impact of the Changes in Labor Laws on SMEs – Conclusions and Policy Recommendations 202

Part Three Government SME Policies and Prospects

Chapter 9 The Government's SME Policies and Measures 207

I Creating a First-rate Environment for SME Development 207

II Establishment of SME Start-up and Incubation Platforms 211

III Upgrading SMEs' IT Capabilities 217

IV Strengthening the SME Management Guidance Funtion 220

V Integration of SME Financing Mechanisms 224

VI Financing and Credit Guarantees – the SME Credit Guarantee Fund 230

VII The Resources Allocated by the Government for SME Development 237

Chapter 10 SME Policy in Taiwan – Perspectives and Future Trends 243

I Creating a First-class Environment for SME Development 243

II Building Up the Innovation and Start-up Incubation Platform 249

III Strengthening the IT Capabilities of Taiwan's SMEs 254

IV Provision of Guidance to Strengthen SMEs' Managerial Capabilities 258

V Integrating SME Financing Mechanisms 262

Appendix 267

Index 283

Tables

Table 1-2-1 Global Economic Growth Rates, 2003–2008 7
Table 1-4-1 Key Indicators for the Taiwanese Economy, 2003–2007 21
Table 1-4-2 Taiwan's Foreign Trade Performance, 2002–2007 24
Table 1-4-3 Taiwan's Trade with Its Main Trading Partners in 2007 25
Table 2-1-1 Enterprise Performance in 2007 – by Size 30
Table 2-1-2 The Number of Enterprises in 2007 – by Enterprise Age 31
Table 2-3-1 Trends in SME Age, 1995–2007 42
Table 2-3-2 Newly-established SMEs' Shares of All SMEs and of SME Sales, 2001–2007 43
Table 2-4-1 Number of Enterprises and Sales Performance in 2007 – by Sex of Business Owner 44
Table 2-4-2 Enterprise Age Structure in 2007 – by Sex of Enterprise Owner 47
Table 2-4-3 Individual Industries' Shares of the Number of Enterprises, Total Sales and Export Sales in 2007 – by Sex of Enterprise Owner 48
Table 2-4-4 Forms of Enterprise Organization in 2007 – by Sex of Enterprise Owner 49
Table 2-4-5 Changes in the Labor Force Participation Rate – by Sex 49
Table 2-4-6 No. of Female Employers and Self-employed Persons in 2007 50
Table 2-5-1 The Definition of SMEs Used in Different Countries and Regions 51
Table 2-5-2 International Comparison of SMEs 54
Table 3-1-1 Consolidated Financial Data for Taiwanese Enterprises, 2004–2006 58
Table 3-1-2 Profit and Loss of Taiwanese Enterprises, 2004–2006 61
Table 3-2-1 SMEs' Consolidated Balance Sheet in 2006 – by Industry 67
Table 3-2-2 Large Enterprises' Consolidated Balance Sheet in 2006 – by Industry 68
Table 3-2-3 Profit and Loss Structure in 2006 – by Industry 71
Table 3-2-4 Financial Ratios for Individual Industries in 2006 72
Table 3-3-1 Sources of Funds for the Operations or Investments of Manufacturers in 2007 74
Table 3-3-2 Reasons Given by Manufacturers for Experiencing Difficulty in Securing Funding, 2007 75
Table 3-4-1 Top 10 Banks by Amount of Loans to SMEs, 2007 76
Table 3-4-2 Top 10 Banks by the Percentage of Total Loans Going to SMEs in 2006 and 2007 77

Table 3-4-3 Outstanding Loans to SMEs by the Banking Subsidiaries of Financial Holding Companies in 2006 and 2007 78
Table 4-1-1 Characteristics of Employed Persons in Taiwan in 2006 and 2007..... 84
Table 4-1-2 Characteristics of Paid Employees in 2006 and 2007..... 85
Table 4-1-3 Characteristics of Employers in 2006 and 2007 86
Table 4-1-4 Characteristics of Self-employed Persons in 2006 and 2007 87
Table 4-1-5 Female Business Owners and Self-employed Persons in 2007 – by Industry..... 88
Table 4-1-6 Characteristics of Those Working in Hi-tech and Knowledge-intensive Industries in 2006 and 2007 90
Table 4-1-7 Characteristics of the Those Working in Important Emerging Industries in 2006 and 2007 91
Table 4-1-8 Characteristics of Those Working in the Cultural and Creative Industries in 2006 and 2007 92
Table 4-1-9 Characteristics of the Unemployed in 2006 and 2007 93
Table 4-1-10 Choice of New Employer by Former SME Employees..... 94
Table 4-1-11 The Number of Foreign Laborers Employed by Large Enterprises and SMEs, 2002–2007 95
Table 4-2-1 Average Monthly Salary (Main Income Source) in 2007 – by Industry 96
Table 4-2-2 Personnel Costs as a Percentage of Operating Costs and Operating Expenses in 2006..... 97
Table 4-2-3 Working Hours per Week in 2007 – by Industry 98
Table 4-2-4 Weekly Working Hours for Employees in the Private Sector in 2006 and 2007 99
Table 4-2-5 Number of Labor Disputes and Number of Persons Involved, 2002–2007 100
Table 4-3-1 Results of Training Integration, 2003–2007..... 101
Table 4-3-2 Number of Employees Participating in Professional Training, 2002–2006 102
Table 4-3-3 Expenditure on Training as a Percentage of Operating Costs and Operating Expenses, 2004–2006..... 103
Table 4-3-4 Areas Where SMEs Felt the Most Need for Training, 2005–2007..... 104
Table 4-3-5 Categories of Human Talent for Which SMEs Anticipate the Highest Demand in the Future..... 104
Table 4-3-6 Employees' Level of Enthusiasm for Participation in Training Activities.. 105

Table 4-3-7 SMEs' Manpower Cultivation Budgets 106
Table 4-3-8 Establishment of Incentive Systems to Encourage Employee Participation in In-service Training 107
Table 4-3-9 Incentive Methods Used by Business Enterprises to Encourage In-service Training 107
Table 5-1-1 Taiwanese Enterprises' Export Sales, 2003–2007 110
Table 5-2-1 Approved Overseas Investment by Region, 2001–2007 112
Table 5-2-2 The Ten Industries with the Highest Levels of Approved Investment in China in 2007 113
Table 5-2-3 The Top Ten Business Areas in Which Taiwanese Enterprises Invested Overseas in 2007 – by Enterprise Size 115
Table 5-2-4 Percentage of Enterprises Reporting Particular Factors Motivating Overseas Investment in 2006 116
Table 5-3-1 Profit or Loss of Main Overseas Operation in China in 2006 – by the Year in Which Investment in China Began 119
Table 5-3-2 Profit or Loss of Main Overseas Operation in China in 2006 – by Main Business Area in Taiwan 120
Table 5-3-3 Profit or Loss of Main Overseas Operation in China in 2006 – by Main Business Area in China 121
Table 5-3-4 Reasons for Failing to Make a Profit with their Main Overseas Operation in China in 2006 123
Table 6-1-1 R&D Spending by Business Enterprises, 2004–2006 (by enterprise size) .. 137
Table 6-1-2 R&D Spending Per Enterprise – R&D Spending in Taiwan and Overseas 138
Table 6-1-3 Percentage of Enterprises Whose Overseas R&D Expenditure Accounted for 10% or More of Total R&D Expenditure in 2006 139
Table 7-1-1 Definitions of the Term "Industry Cluster" 163
Table 7-1-2 Industry Cluster Classification 165
Table 8-1-1 The Rate of Increase in the Number of Persons Employed by SMEs Following the Increase in the Minimum Wage 191
Table 8-1-2 Measures Adopted by Directly Affected SMEs in Response to the Rise in the Minimum Wage 192
Table 8-3-1 Provision of Paternity Leave by SMEs 197
Table 8-3-2 Provision of Home Care Leave by SMEs 198
Table 8-3-3 Provision of Unpaid Parental Leave by SMEs 199
Table 8-4-1 The Impact on SMEs of the Extension of the Maximum Permitted Stay for

Foreign Laborers 202
Table 9-2-1 The Results Achieved in the Entrepreneur Success Plan, 2004–2007 213
Table 9-2-2 Results Achieved by Incubator Centers in 2006–2007 214
Table 9-2-3 Manpower Cultivation Achievements 215
Table 9-4-1 Results Achieved in the Provision of Guidance to Local Cultural Industries 224
Table 9-4-2 SME Awards 224
Table 9-5-1 Provision of Credit Guarantees to SMEs by the SME Credit Guarantee Fund 225
Table 9-5-2 Implementation of Policy Loans Handled by the SMEA 227
Table 9-5-3 The Results Achieved by the SME Troubleshooting Center in Recent Years 229
Table 9-6-1 The Number of Credit Guarantees Provided by the SME Credit Guarantee Fund and the Combined Value of the Guarantees, 2001–2007 235
Table 9-6-2 Cumulative Number of Cases and Value of Individual Types of Credit Guarantee as of the End of 2007 236
Table 9-7-1 Resources Allocated to SME Guidance by the Ministry of Economic Affairs 239
Table 9-7-2 Government Spending on SME Project Financing Loans in 2007 241
Table 10-2-1 Anticipated Results from the Plan to Create Value-added through Collaboration on New Business Incubation by Industry and the University Sector, 2008–2011 252
Table 10-3-1 Anticipated Results from the Plan for Reducing the Digital Divide in Industry, 2008–2011 254
Table 10-4-1 Anticipated Results from the Operational Management Guidance for Individual SMEs Plan, 2008–2010 261

Figures

Figure 1-2-1 Trends in Global Oil Prices (December 26, 2006 to June 30, 2008) 11
Figure 1-4-1 Taiwan's Economic Performance in 2007–Growth "Light" Indicators 20
Figure 2-1-1 The Shares of Key Performance Indicators Held by SMEs and Large Enterprises, 2006–2007 30
Figure 2-1-2 Newly-established SMEs' Shares of All Newly-established Enterprises and of All SMEs in 2007 34
Figure 2-1-3 Domestic Sales' and Export Sales' Shares of Newly-established Enterprises' Total Sales in 2007 – by Enterprise Size 35
Figure 2-2-1 Individual Sectors' Share of the Total Number of Employed Persons in Taiwan Working in SMEs 38
Figure 2-2-2 The Number of Paid Employees in Taiwan, 2001–2007 39
Figure 2-3-1 The Number of SMEs in Taiwan, and SMEs' Share of All Enterprises, 1982–2007 39
Figure 2-4-1 Domestic Sales' and Export Sales' Share of Total Sales in 2007 – by Sex of Business Owner 45
Figure 2-4-2 Taiwan's Industrial Structure in 2007 – by Sex of Enterprise Owner 46
Figure 3-1-1 Short-term Liquidity of Taiwanese Enterprises, 2005 and 2006 62
Figure 3-1-2 Long-term Stability of Enterprises in 2005 and 2006 63
Figure 3-1-3 Operating Capability of Enterprises in 2005 and 2006 64
Figure 3-1-4 Profitability of Enterprises in 2005 and 2006 65
Figure 3-4-1 Bank Lending to SMEs by Regular Commercial Banks, 1997–2007 79
Figure 3-4-2 Average Interest Rate on New Loans Extended by Five Leading Banks, 1997–2007 81
Figure 5-2-1 Percentage of Taiwanese Manufacturing Enterprises Investing in Individual Regions (Top Five Regions) 114
Figure 5-2-2 Profitability of Enterprises' Most Important Overseas Operation in 2006 .. 117
Figure 6-1-1 Private-sector Researchers in 2006 – by Age Group 142
Figure 6-2-1 Provision of Subsidies to SMEs under the Industrial Technology Development Plan Scheme 145
Figure 7-1-1 Industry Clustering and Strategic Resources 164
Figure 7-1-2 Factors Supporting the Formation of Hi-tech Industry Clusters 164
Figure 7-3-1 Northwest Education Vision Conference – Flow 173
Figure 8-1-1 Percentage Changes in SME Employment and Labor Costs Following the

Increase in the Minimum Wage 188
Figure 8-1-2 Percentage Changes in the Number of Persons Employed by SMEs 189
Figure 8-1-3 Percentage Changes in SMEs' Labor Costs 190
Figure 9-6-1 The Delinquent Loan Ratio and the Economic Growth Rate, 1988–2007 234

Summary

The Ministry of Economic Affairs has published the annual *White Paper on Small and Medium Enterprises* in Taiwan every year since 1992. The 2008 *White Paper* is presented in three parts, with the first part comprising six chapters that cover the macroeconomic environment in which small and medium enterprises (SMEs) have to operate, the overall performance of the SME sector as a whole, the SMEs' financial status, their current labor utilization, trade and overseas investment, and technology utilization, R&D and innovation. Each of these chapters presents statistics and analysis in a clear, concise manner. The second part consists of two chapters on special topics, which this year include SME cluster innovation and strategic development, and the impact of new labor legislation on Taiwan's SMEs. The last part comprises two chapters, one presenting a review of the guidance policies and measures adopted by the government to assist SMEs, and the other examining the shape that the government's SME policy can be expected to take in the future. A summary of the content of the *White Paper on Small and Medium Enterprises in Taiwan*, 2008 is presented below.

Part 1 – Overview of the Development and Current Status of the SME Sector

Macroeconomic and Social Environment

The impact of global warming and climate change continued to be felt in 2007, as did the emergence of the M-shaped society, in which the middle class shrinks while the working class grows. The prices of oil and raw materials rose, and the sub-prime mortgage crisis in the U.S. had global repercussions. The global economy as a whole grew steadily in the first half of 2007, but with much more volatility in the second half; the whole-year growth rate for 2007 was 3.9%, down from 4.1% in 2006. The situation in most countries and regions mirrored that in the global economy as a whole, although China and Taiwan were both exceptions to this trend. China's growth rate in 2007 was higher than in 2006, there being signs that the Chinese economy was overheating, together with the emergence of a bubble economy. In Taiwan, an economic downturn in the first part of the year was followed by an upturn later on. After a period in the second half of the year when it appeared that the economy might be overheating, by December

2007 growth had fallen off slightly.

The Overall Performance of the SME Sector

In 2007, Taiwan had a total of 1,237,000 SMEs, accounting for 97.63% of all enterprises in the country. Around 80.38% of these SMEs were in the service sector; 57.97% were sole proprietorships; 46.34% were located in Northern Taiwan; and 43.54% had been in existence for over 10 years. The largest share (52.89%) of Taiwan's SMEs was in the wholesaling and retailing industry. SMEs accounted for 28.34% of the total sales of all enterprises; domestic sales accounted for 83.92% of SME sales. 7,939,000 people (77.12% of the workforce) were working in SMEs in Taiwan in 2007; of those working in SMEs, the largest share (27.46%) was in SMEs in the manufacturing sector. SMEs accounted for 54.96% of the people working in the service sector.

In 2007, 35.20% of businesses in Taiwan were owned by women. Female-owned enterprises accounted for 13.25% of the total sales of all enterprises in Taiwan, with domestic sales accounting for 83.88% of their total annual sales. 86.08% of female-owned SMEs were in the service sector, with 55.47% being in the wholesaling and retailing industry. 64.98% of female-owned SMEs were sole proprietorships.

Financial Status of Taiwan's SMEs

The funds and long-term investments ratio of Taiwan's SMEs fell by 12.41 percentage points in 2006 compared to 2005, while the fixed assets ratio fell by 7.87 percentage points. The biggest increase was seen in the current assets ratio, which rose by 20.88 percentage points.

Liquidity

In 2006, Taiwan's SMEs had an average current ratio of 201.71% and a quick ratio of 164.26%. The current assets ratio was higher than in 2004 or 2005. The long-term liabilities ratio continued to rise, while the current liabilities ratio continued to fall. Although the operating costs ratio fell compared to 2005, a rise in the operating expenses ratio eroded operating profit. As regards key financial ratios, while both the current ratio and quick ratio rose substantially, the inventory ratio fell slightly. The ratio of liabilities to net worth fell, while the long-term funds ratio rose. The various turnover ratios all fell. Earnings ratios fell, but remained positive.

As of the end of December 2007, total outstanding loans to SMEs by ordinary

commercial banks (including the Taiwan branches of foreign banks), including past-due loans, came to NT$3,093.8 billion. This figure represented an increase of NT$263.4 billion compared to the December 2006 total of NT$2,830.3 billion.

SME Labor Utilization

The total number of persons working in SMEs in 2007 was 7,939,000. This figure, which represented 77.12% of the workforce, was 188,000 up on 2006. It can thus be seen that SMEs make an important contribution towards job creation in Taiwan. The number of SME employers rose by over 5,000 in 2007 compared to 2006, with the largest increase being seen in the manufacturing sector, followed by the wholesaling and retailing industry. By contrast, the number of self-employed persons fell compared to 2007, falling to 1,396,000 in 2008. In particular, the share of self-employed persons under the age of 40 fell by nearly 2 percentage points, possibly reflecting the gradual rise in operating costs and in the prices of raw materials. While the number of female SME business owners fell slightly in 2007 compared to 2006, this was offset by an increase in the number of female self-employed persons, so that the combined total of female SME business owners and self-employed was higher than in 2006. By far the largest share of these female SME business owners and self-employed persons was in the wholesaling and retailing industry, possibly reflecting a preference for this industry among female entrepreneurs.

While consumer prices continued to rise in 2007, most SME employees did not receive a pay increase; a similar situation was seen among large enterprises. For SMEs, the personnel costs' share of total operating costs remained at around 40% in 2006. In the large enterprise segment, the personnel costs' share of total operating costs has been rising steadily. The manufacturing sector is an exception here, with personnel costs accounting for only 22.09% of operating costs, a figure that is much lower than that found in most other industries; this may be linked to the widespread use of foreign contract laborers by large enterprises. In most enterprises, 2007 saw little change in average working hours. In most industries, average working hours in large enterprises were roughly the same as in SMEs in the same industry, belying the conventional view that large enterprises always have better working conditions than SMEs. The changes in the government's labor policy over the past two years have sparked an increase in both the number of labor disputes and the number of people participating in labor disputes.

SME Trade and Investment Activity

In 2007, Taiwan's total foreign trade (imports and exports) came to NT$15.3 trillion, representing an annual growth rate of 10.20%. Exports stood at NT$8.09 trillion (52.88% of the total), while imports came to NT$7.21 trillion (47.12%); the annual growth rates for exports and imports were 11.11% and 9.2%, respectively. China (including Hong Kong) remained Taiwan's most important export market, taking 40.70% of Taiwan's exports; the U.S. was in second place, with 13.00%. Japan was Taiwan's most important source of imports, accounting for 20.95% of the total, followed by China (including Hong Kong) with 13.61% and the U.S. with 12.09%.

Increasingly, business enterprises are basing production wherever they can find low production costs. Reflecting this trend, China accounted for 60.65% of Taiwan's total overseas investment in 2007, followed by the U.S. with 16.44%. The share of enterprises investing in the six largest member economies of ASEAN has fallen from 27.59% in 2001 to 21.98% in 2007, indicating that Southeast Asia has become a less popular investment target in the last few years.

Taiwan has close economic and trade ties with China. In the last few years, the Chinese economy has undergone a rapid process of transformation; today, Taiwanese enterprises operating in China find themselves having to cope with the challenges posed by the Chinese government's macroeconomic adjustment measures (adopted to prevent the economy from overheating), the revaluation of the Yuan, changes in the legal and regulatory environment, investment-related disputes, and the rising prices of fuel and raw materials. At the same time, SMEs are also feeling the effects of the ongoing process of economic globalization. To achieve sustainable operations, SMEs need to develop their key resources, focus on the two ends of the "smile curve," undertake resource integration and implement effective cost control and risk management.

SMEs' Utilization of Technology, R&D and Innovation

Currently, because of their small size and limited resources, coupled with the mindset created by a long-standing focus on standardized, large-volume manufacturing, Taiwan's SMEs are often reluctant to invest in R&D, and lack experience in this area. As a result, Taiwan's SMEs have become less competitive compared with those of China or India. In the new era of the knowledge economy, SMEs need to be able to make effective use of information technology to create new opportunities for the enterprise; only by leveraging innovation and R&D can firms hope to develop new markets effectively in the face of fierce competition. In 2006, after remaining stagnant

for three years, SMEs' spending on R&D increased substantially, up 13.78% from 2005.

The government's Industrial Sector Technology Development Plans scheme has been in operation since 1997. The scheme incorporates the Industrial Technology Development Plans (ITDPs), Small Business Innovation Research (SBIR) plans, Innovative Technology Applications and Services (ITAS), and the Industrial Technology Innovation Center Program. New incentive mechanisms and subsidy programs are being introduced all the time to meet industry's needs. The aim is to ensure that business enterprises can use the government resources available to them with maximum effect, thereby achieving the goals of the government's industrial policy. By helping enterprises to achieve R&D breakthroughs in key areas, these programs help Taiwanese industry (and the economy as a whole) to create new value.

Part 2 – Special Topics Relating to SMEs

SME Industry Clusters – Innovation and Strategic Development

While many traditional industry clusters in the developed nations are in decline, some SME clusters have bucked the trend by continuing to grow. These successful SME industry clusters are now a major focus of attention. In a report published in 2003, the United Nations Industrial Development Organization (UNIDO) stated that industry clusters were an important foundation for SME development. The close collaboration between the firms making up an industry cluster can help SMEs to overcome the limitations imposed by their small size, and provide opportunities to learn from and imitate one another; in this way, SMEs can enjoy many of the same benefits that economies of scale would provide for a large enterprise while continuing to focus on their core competencies. Industry cluster innovation can help SMEs to compensate for their small scale of operations and limited IT capabilities, as well as solving the problems caused by the difficulty in achieving information and communications technology (ICT) diffusion in the SME sector. Innovation of this type can help to reduce the disparity between SMEs and large enterprises in terms of technology standardization. Powerful integration mechanisms can be developed to cope with the special characteristics of particular areas, thereby enhancing the competitiveness of SME products and services. Industry cluster innovation constitutes an important strategy for helping SMEs to cope with the challenges created by the emergence of the

knowledge economy.

There has been a gradual diversification of the types of SME cluster that exist in Taiwan, and of the factors driving their growth. For both physical and virtual industry clusters, there is significant variation among clusters in terms of strengths and weaknesses. To be able to develop a comprehensive cluster development strategy, each individual cluster needs to integrate its growth with the local industrial development vision of the region in which it is located, in line with its own inherent advantages and the various external factors operating on it; it is simply no longer possible to apply a single, uniform strategy to every cluster. Many studies suggest that the SME cluster formation should be driven by the enterprises themselves, and that the government's role should be limited to creating an environment conducive to industry cluster formation and growth. The government should therefore focus its efforts on building the industry cluster and innovation system environment, serving as resource provider and coordinator. The main strategies available to the government include: classification and positioning of industry cluster categories; promoting the formation of the consensus needed for industry cluster network development; creation of an operational environment conducive to industry cluster growth; cultivation of linkages between industry, universities and research institutes; ensuring appropriate delegation of authority to local government authorities, while respecting the market mechanism; and establishment of performance appraisal mechanisms, etc. In this way, the government can ensure that national and regional development strategies do not come to act as an obstacle hindering industry cluster development; at the same time, the adoption of these strategies will help to stimulate interaction and collaboration within clusters. With the right assistance from the government, SME clusters can grow to become the foundations for future innovation in the SME sector in Taiwan.

The Impact of Taiwan's New Labor Legislation on SMEs

Besides having an immediate impact on the contractual relationship between employers and employees, changes in labor laws and regulations can also have a long-term impact on behavior and decision-making, which in turn can have a pronounced impact on the economy as a whole. 2007 saw legislative proposals being put forward for four major revisions to Taiwan's existing labor laws: (1) An increase in the minimum wage from NT$15,840 a month to NT$17,280 a month, and from NT$66 an hour to NT$95 an hour. (2) Making labor insurance compulsory for enterprises with four or less employees (revisions to Articles 6 and 8 of the Labor Insurance Law). (3) Elimination

of the length of service requirement that had previously restricted access to maternity leave, an increase in the period of paternity leave from two to three days, and an increase in the scope of entitlement to home care leave to include all enterprises with five or more employees (Gender Equality in Employment Law). (4) An increase in the maximum period for which foreign laborers may remain in Taiwan from six years to nine years (Employment Services Law). Of these, only the second revision has not yet been approved by the Legislative Yuan, and there is a strong possibility that this revision too may eventually come into effect. This chapter of the White Paper examines the impact of these changes in Taiwan's labor laws on SMEs, and puts forward policy suggestions in this regard.

Part 3 – SME Policy and the Outlook for the Future

The Government's SME Policy and SME-related Measures

The Small and Medium Enterprise Administration has set itself the vision of building the environment needed for SME start-up and growth. To achieve this, the Administration has been focusing on five key strategies and measures: working to build a business environment conducive to SME development, creating SME incubation platforms, strengthening the SMEs' ability to make effective use of information technology, enhancing the provision of managerial guidance to SMEs, and working to integrate SME financing mechanisms. This chapter presents an overview of the work performed and the results achieved in these areas in 2007.

Appraisal of the Government's SME Policy, and the Outlook for the Future

This chapter presents an appraisal of the key aspects of the work undertaken by the Small and Medium Enterprise Administration in 2007 towards the implementation of its five key strategies, while also seeking to forecast the areas on which the Administration will need to focus in 2008 and beyond, and the results that it can be expected to achieve.

Part One

Recent Development of SMEs

Chapter 1

Changes in the Macroeconomic Environment

What were the major changes taking place in the social and macroeconomic environment in 2007, both in Taiwan and overseas, that affected the operations of Taiwan's small and medium enterprises (SMEs)? This chapter will outline the key changes in society, before going on to consider the macroeconomic environment in Taiwan, China, and the global economy as a whole.

I Changes in the International Living Environment

1. The Continuing Impact of Environmental Transformations and Global Warming

According to the Third Assessment Report by the Intergovernmental Panel on Climate Change (IPCC), over the course of the twentieth century average global surface temperatures rose by 0.6°C, and sea levels rose by 0.1–0.2 meters. If preventive measures are not taken, by 2100 average global temperatures will be between 1.4°C and 5.8°C higher than in 1990, and sea levels will have risen by 0.09–0.88 meters, posing a serious threat to low-lying areas and island nations.

The greenhouse effect will have far-reaching, unpredictable effects on the global environment and global climate. Besides the rise in sea levels, there is also likely to be an increase in insect pests, a higher frequency of severe weather events such as hurricanes and droughts, and intensified desertification. The impact on ecosystems, soil and water resources, human economic activity and human safety will be immense. An even more worrying problem is the melting of the polar ice caps due to global warming. There is a risk that prehistoric viruses that have been encased in the ice for thousands of years will be able to escape, leading to serious epidemics.

The purpose of the Framework Convention on Climate Change (FCCC), established by the United Nations in 1992, was to get the nations of the world working

together to control greenhouse gas emissions; the aim was to keep the level of greenhouse gases in the atmosphere at a level where they will not disrupt climatic systems or pose a threat to human safety.

The third meeting of the signatory nations of the FCCC in 1997 saw the establishment of the Kyoto Protocol, which set clear targets for reducing six categories of greenhouse gas emissions: carbon dioxide, methane, nitrous dioxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons. Hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride have the most pronounced effect on the atmosphere, but it is carbon dioxide that accounts for by far the largest share of emissions; carbon dioxide is responsible for around 55% of the overall global warming effect.

Responding to the steady increase in calls for action on climate change, leading multinational chemical companies have begun to adopt new, long-term strategies. To take just one example, in November 2007 Bayer began implementation of its Bayer Climate Program, under which Bayer will allocate 1 billion Euros for investment in global warming–related R&D activity over the period 2008–2010. When deciding whether to go ahead with the new project worth more than US$10 million, Bayer will be using a new evaluation system that takes into account the impact on climate change. Bayer Material Science has committed itself to reducing its greenhouse gas emissions to 75% of the 2005 level by 2020.

In 2006, Dow Chemical joined the United States Climate Action Partnership, and announced that the company would be leveraging its expertise in chemical manufacturing and innovation to help solve the problem of climate change. Dow has set itself the target of bringing the absolute annual increase in the company's greenhouse gas emissions down to zero by 2025. By 2050, at least half of the energy that Dow uses will be derived from non-carbon and renewable energy sources. Around the world, both the R&D departments of chemical manufacturers and the laboratories of chemistry departments in universities are now playing a major role in developing the technologies needed to combat global warming.

The decision to award the 2007 Nobel Peace Prize to former US Vice President Al Gore and the IPCC for their efforts in the environmental arena reflected the seriousness with which environmental issues are now viewed. If the world is to succeed in mitigating the impact of global warming, people will need to recognize the importance

of natural resources, and the need to care for the environment by cutting energy use and making energy utilization more efficient.

2. The After-effects of the Sub-prime Mortgage Crisis in the US Are Still Being Felt

The impact of the sub-prime mortgage crisis that developed in the US in the summer of 2007 is continuing to spread. The health of the world's financial markets has continued to deteriorate, creating a serious threat to the global economy as a whole. Central banks around the world have been working to boost liquidity in the financial markets and prevent the situation from getting even worse. The Federal Reserve in the US, the European Central Bank (ECB), the Bank of Japan, the Bank of Canada, the Reserve Bank of Australia and the Bank of Russia have made unprecedented commitments to provide unlimited funding support to the financial markets, with the aim of easing the credit contraction and improving liquidity.

According to estimates given during a meeting of the finance ministers of the Group of Seven (G7) countries, the bad debts resulting from the sub-prime mortgage crisis in the US total around US$400 billion. This is significantly higher than the estimates of around US$120 billion that Wall Street has been making, or the Federal Reserve's estimate of US$100–150 billion. The G7 finance ministers went on to admit that the impact of the sub-prime mortgage crisis could turn out to be even more severe.

The effects of the sub-prime mortgage crisis have already spread from the financial sector to other industries. Banks have become more cautious about granting loans, affecting business activity in all sectors. The construction industry, which is closely linked to the real estate business, has been hardest hit, but the price of materials such as timber, cement and iron and steel have also risen.

With the US economy threatening to tip over into recession, while global financial markets continue to suffer the after-effects of the sub-prime mortgage crisis, there is a strong possibility that global economic growth will slow. If this does turn out to be the case, then the impact will be felt both in the developed nations and the developing nations.

3. A Worldwide Slow-down in Housing Price Growth

The *World Economic Outlook* report published by the IMF in April 2008 included a discussion on housing price trends based on the analysis of economic fundamentals

(including per capita income, population density, interest rates etc.) in 17 countries. The report found that, as of mid-2007, house prices in the US were 11% above the level that economic fundamentals would justify. House prices were 32% above this level in Ireland, 27% above it in the UK, and over 20% above it in the Netherlands, Australia, France, and Norway. By contrast, house prices in Canada and Austria were lower than economic fundamentals would suggest. After allowing for inflation, house prices in the US in 2007 were 42% higher than they had been in the first quarter of 2000. This was significantly lower than the corresponding figures for Spain (95%), the UK (90%), and France (85%).

In the US in 2006, the ratio of total outstanding mortgages to GDP was 76%; in the Netherlands and Denmark, the corresponding figures were 98% and 101% respectively. However, the IMF's data indicated that mortgage lending terms had been the laxest in the US, with Denmark and the Netherlands in second and third place, respectively. It is therefore no surprise that the mortgage crisis started in the US.

4. Skyrocketing Food Prices Are Causing Poverty to Worsen and Fueling Social Instability

Rapidly rising food prices have been a further blow to a global economy already suffering under the impact of the crisis in the financial sector. The number of people living in poverty has begun to rise again; many of the successes that the international community had achieved in the fight against poverty over the years appear to have been undone overnight. While more and more agricultural land is being used to produce biofuels, demand for food products in the emerging economies is growing rapidly. The result has been food shortages and rapidly rising food prices, which have been the cause of riots and disturbances in some countries.

In the developed nations, rising oil prices are making life miserable for drivers; in the developing nations, people are beginning to worry that they may not even have enough to eat. The populations of the developing nations include large numbers of poor people who spend over 75% of their incomes on food. These people have been hit hardest by rising food prices, and the problem is growing steadily more serious.

The World Bank believes that the increase in food prices is not just a short-term phenomenon. At the spring meetings of the IMF and the World Bank held in April 2008, the "food crisis" was the main focus of discussion. World Bank President Robert B. Zoellick stated that grain prices were estimated to have doubled over the past three

years, pushing as many as 100 million people in low-income nations back into poverty. Zoellick went on to stress the importance of long-term planning that gives priority to agriculture.

5. Inflation Has Become a Worldwide Problem

Besides the rising food prices resulting from the global food crisis, countries throughout the world are also beginning to experience more generalized inflation.

Seven years ago, global consumer price inflation was running at less than 2%; by February 2008, this figure had risen to nearly 5%. In all of the leading industrialized nations (except Japan) and many of the larger emerging economies, inflation already exceeds the government's inflation target. In China, inflation is at its highest level for 12 years. With demand still rising, prices continue to rise throughout the world.

In its semi-annual report published in April 2008, the World Bank noted that the steady rise in the prices of food and oil over the past couple of years represented a major challenge for the governments of East Asia. Since 2003, the price of oil has more than tripled, while commodity prices have doubled. Jim Adams, Vice President for the East Asia and Pacific Region at the World Bank, stated that the sub-prime mortgage crisis in the US had already had a serious impact on the countries of East Asia, but that the most pressing problem for the East Asian economies was the rise in the inflation rate to unacceptable levels.

The World Bank notes that the dramatic rise in the prices of food, oil and metals could knock a percentage point off GDP growth for the East Asia region as a whole in 2008. Inflation in China is at its highest level for 12 years; inflation is running at nearly 20% in Sri Lanka and Vietnam, and in Singapore it is at its highest level since 1982.

It is not just East Asia that is threatened by inflation; Europe is also at risk. According to an AFP report in early April 2008, both mature economies such as France, Italy, Germany and Spain and emerging economies such as Slovenia and Romania have recently seen a wave of large-scale strikes and demonstrations, sparked by the failure of wages to keep pace with inflation.

While the rise in consumer prices is mainly attributable to the high prices of oil and other energy sources, the strong demand for raw materials in China and other emerging economies has also contributed to the recent price rises in Europe. Official statistics indicate that inflation in the Euro zone had reached 3.5% by March 2008, the

highest level since the Euro was introduced in 1999.

6. The Rising Prices Are Affecting the Social Structure

The economic burden resulting from the high prices of oil and other raw materials is bringing about changes in the structure of society. There is a tendency for production activities to become more localized, and for people to travel less; at the same time, the perceived importance of agriculture within society has risen. Both economic and political relationships are being transformed.

The rise in oil prices that consumers have experienced so far may only be the beginning. It is not only the transportation sector that is being affected; changes are also taking place in agriculture and in business generally. In the future, people will increasingly find themselves confined to their local community, and agriculture will once more come to be seen as the central element in social and economic life. Both politics and international trade will be transformed, too. Politics will become more localized, and new socioeconomic classes will gradually emerge. The social structure of the future will be significantly different from that which exists today.

Fossil fuels are “single-use fuels”; once they have been used, they are gone forever, and once production has peaked, it will inevitably decline. Although substitute fuels have already been developed, they are still expensive compared to natural fossil fuels. Unfortunately, the structure of both society and the economy is heavily dependent on cheap oil. If this foundation is threatened, the social structure will inevitably experience changes.

While the sense of crisis is strong, opportunities are also being created. Those firms and countries that are able to adjust to the changes taking place in people’s lifestyles will be able to take advantage of the resulting business opportunities.

II Changes in the International Economic Environment

1. Continued Strong Growth in the Global Economy as a Whole in 2007

In the second half of 2007, the global economy began to feel the effects of the credit crunch and loss of confidence resulting from the sub-prime mortgage crisis in the US,

which is combined with the continuing rises in the prices of oil, agricultural products and industrial raw materials. Fortunately, consumer demand in the emerging economies remained high, helping the global economy as a whole to maintain positive growth. According to data published by Global Insight Inc. in June 2008, the global economic growth rate fell slightly from 4.1% in 2006 to 3.9% in 2007 (Table 1-2-1).

Table 1-2-1 Global Economic Growth Rates, 2003 – 2008

Unit: %

Region / Year	World	USA	European Union	Japan	China	Asia (ex. Japan, ex. China)
2003	2.7	2.5	1.3	1.5	10.0	5.1
2004	3.9	3.6	2.3	2.7	10.1	6.6
2005	3.5	3.1	2.0	1.9	10.4	6.1
2006	4.1	2.9	3.2	2.4	11.6	6.7
2007	3.9	2.2	2.9	2.0	11.9	6.7
2008*	3.2	1.4	1.8	1.7	10.2	5.7

Note: Data for 2008 are forecasts.
Source: Global Insight, June 2008.

The general trend in economic growth in 2007 saw slow but steady growth in the first half of the year followed by dramatic fluctuations in the second half. As anticipated, the year-on-year growth rate in the US in the first quarter was low, at just 1.5%, casting a pall over the year when it had only just begun. The US economy failed to pick up significantly in the second quarter, with a year-on-year growth rate of 1.9%. Fortunately, the European Union, Japan and the major emerging economies all posted strong growth in the first half of 2007. As a result, the whole-year growth rate for the global economy as a whole was a respectable 3.9%.

One point worth emphasizing is the impact that high oil prices, the turmoil in international stock markets and dramatic exchange rate fluctuations had on the global economy in the second half of 2007. The international oil, stock and currency markets are all markets in which market data are published on a daily basis; as a result, they are quick to reflect major events taking place around the world. The effects of the sub-prime mortgage crisis in the US were soon felt in the global stock market and currency markets, leading to uncertainty in the financial sector as a whole. The dramatic fluctuations in the financial markets continued despite active intervention by the Federal Reserve and the European Central Bank (ECB). The markets were still in turmoil as the year drew to a close, and it seemed certain that this situation would continue into 2008. Forecasting institutions anticipated that the annual growth rate for

the global economy as a whole would fall to 3.2% in 2008.

The following sections examine the situation in the global economy in the first half and second half of 2007, before going on to analyze the trends in the international stock markets, currency markets and oil markets.

2. The Performance of the Major Regional Economies in 2007

2007 saw significant variation in the performance of the major regional economies. The following sections examine the economic performance of the US, Japan, European Union, China, Southeast Asia, South Korea, India and Latin America in 2007.

(1) A Slowdown in the US in 2007

The downturn in the US economy in 2007 was mainly attributable to the housing market slump. From the first quarter on, housing sector investment began to fall dramatically, causing the economic growth rate to fall with it. The sub-prime mortgage crisis that hit the US economy in August 2007 caused the uncertainty in the financial markets to rise still further. The seriousness of the problem was reflected in the interest rate cuts implemented by the Federal Reserve in August, September, October and December, and by the government's announcement in late November that unlimited financial support would be made available to the banking sector. On the other hand, the economic downturn was accompanied by a weakening of the US dollar which helped to boost exports, and a pronounced fall in import growth ensured that the negative impact of an export surplus on economic growth was kept to a minimum. As a result, the decline in the USA's economic growth rate was a slow, steady fall rather than a dramatic collapse; the whole-year growth rate for 2007 was 2.2%, compared to 2.9% in 2006 (Table 1-2-1).

(2) Economic Growth in the European Union in 2007 Slightly Decreased

Despite the dramatic revaluation of the Euro against the US dollar in 2007, which held down export growth in the European Union, falling unemployment rates and rising salaries helped to boost consumption. At the same time, the 15 original member nations of the European Union were beginning to experience the benefits of EU expansion. As a result, the strong growth of 2006 continued into 2007, with a whole-year economic growth rate of 2.9% (Table 1-2-1). While unemployment continued to fall, it was still very high. The European Central Bank (ECB) continued to raise interest rates in the

first half of 2007 which led to the growth in consumer prices that was relatively slow. The impact of the US sub-prime mortgage crisis in the Euro-zone was relatively mild; even so, the ECB remained on alert.

(3) Slower Growth in Japan in 2007

Although Japan's economic performance in 2007 was affected by the downturn in the US, domestic demand remained strong. As a result, the growth that Japan achieved in 2007 was 2.0%, which was 0.4% percentage points lower than in 2006 (Table 1-2-1), and the unemployment rate fell. However, despite the rises in the prices of oil and raw materials, deflationary pressure was still present, thus discouraging the Bank of Japan from raising interest rates. The rise in the value of the Yen against the US dollar in the second half of 2007 had a negative impact on exports to the US; fortunately, exports to other countries in the Asian region remained strong, helping to compensate for this.

(4) Continuing Growth in Southeast Asia

The growth that the economies of Southeast Asia had seen in 2006 continued into 2007, with Singapore posting the most impressive performance. Despite a pronounced rise in the value of Southeast Asian currencies against the US dollar which held down export growth, the Southeast Asian economies were still able to maintain a respectable trade surplus. In Indonesia and the Philippines, where consumer prices had risen dramatically in 2006, the increase in 2007 was much less pronounced, causing the rate of price increase for the region as a whole to fall, too. As the Southeast Asian nations have been working to create an investment environment more conducive to foreign investment, they were able to attract a continuing flow of foreign direct investment in 2007.

(5) The Chinese Economy Continued to Grow Strongly in 2007

Strong domestic demand coupled with high demand for China's exports enabled the Chinese economy to maintain a high growth rate in 2007. The whole-year growth rate of 11.9% (Table 1-2-1) suggested that the economy was in fact starting to overheat. The real estate market remained buoyant, and the Yuan continued to rise against the US dollar. The high rate of growth in consumer prices led the Chinese government to continue with its implementation of macroeconomic adjustment measures to keep the economic growth rate down to a reasonable level; however, these measures, which consisted mainly of raising the deposit reserve ratio, appeared to have only limited success. A more detailed analysis of the state of the Chinese economy will be given in

Section 3 below.

(6) Slower Growth in South Korea in 2007

Despite continued steady growth in both investment and exports, consumer spending growth in South Korea remained weak in 2007, and the whole-year performance of the South Korean economy was slightly inferior to that for 2006. Rising oil prices pushed consumer prices up, and while other Asian currencies were rising against the US dollar, the Won gained only slightly against the greenback; as a result, South Korea's foreign trade expanded only at around the same rate as in 2006. However, it was anticipated that, in 2008, South Korea would start to feel the benefits from its free trade agreement (FTA) with the US.

(7) Steady Growth in India in 2007

Both consumer spending and investment grew strongly in India in 2007, fuelling continued economic growth; the estimated whole-year growth rate was 8.5%. India is forecast to maintain high growth rates of at least 8% over the next two years. Boosted by rising oil and food prices, the annual consumer price index (CPI) growth rate rose to 6.4% in 2007. To prevent the economy from overheating, the Reserve Bank of India increased the repo rate twice, in January and April 2007, bringing it up to 7.75%; the Reserve Bank was expected to continue with its tight monetary policy in 2008. Foreign trade continued to grow strongly in 2007; however, import growth (23.4%) was higher than export growth (19.2%), causing India's trade deficit to rise to a record US$70.6 billion. Other problems besides the steadily rising trade deficit include inadequate infrastructure, the poor quality of public services, and the danger of the economy overheating due to rising consumer prices, share prices and housing prices.

(8) A Slight Weakening of Economic Growth in Latin America

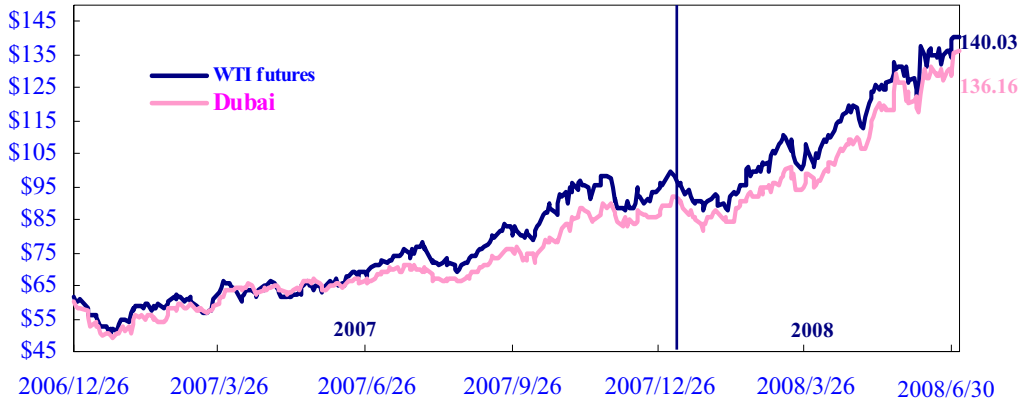
While Latin American economies benefited from rising commodity prices in 2007, the downturn in the US held the growth rate for the region as a whole down to below the 2006 level. However, the impact of the sub-prime mortgage crisis in the US on Latin America's financial markets was relatively mild. Governments throughout the region have been working to slash their deficits and overseas borrowings; the benefits from these efforts are already being felt, but the danger of expanding deficits and foreign debt still exists.

3. Global Oil Prices Continue to Rise

Global oil prices continued to rise steadily over the course of 2007. The spot price of West Texas Intermediate crude oil, which stood at US$61.06 in late 2006, had risen to US$70.31 by the end of June 2007, and toUS$98.47 by November 21. Although it then fell back to US$88.73 towards the end of November, the overall trend in global oil prices in the second half of 2007 was towards a significantly more rapid rise than in the first half of the year (Figure 1-2-1).

There are six main factors behind the continuing rise in the price of oil: (1) Strong market demand, but only a limited increase in supply; (2) OPEC's refusal to increase production (although reserve capacity is limited anyway); (3) Inadequate stockpiling of oil in the OECD member nations; (4) Political instability (particularly the standoff between the US and Iran over Iran's nuclear weapons program, the destruction of oil production facilities in Nigeria, and the Kurdish separatist movements in Turkey and Iraq). (5) The weakening of the US dollar; (6) Market manipulation by speculators.

Figure 1-2-1 Trends in Global Oil Prices (December 26, 2006 to June 30, 2008)



4. A General Weakening of the US Dollar against Other Currencies

In 2007, the US dollar has tended to weaken against most other major currencies. The main reasons for this situation include: (1) The series of interest rate reductions implemented by the Federal Reserve from the fourth quarter of 2007 onwards in response to the economic slowdown sparked by the sub-prime mortgage crisis. (2) An increase in arbitrage transactions; the growing disparity in interest rates between the US and other countries has encouraged investors to use the US dollar for arbitrage, putting further downward pressure on the dollar. (3) The reduction in US dollar holdings by

central banks throughout the world in order to reduce risk. (4) Other countries allowing their currencies to float. With oil and commodity prices continuing to rise, many countries have been allowing their currencies to rise in value in an attempt to prevent input inflation.

Given the strong possibility that the US government will adopt an expansionary fiscal policy to reduce the risk of a recession, it is unlikely that there will be any significant improvement in the US's double deficit any time soon. With no obvious factors that could support a strong dollar, it was anticipated that the dollar would continue to weaken in the first half of 2008.

5. A Worldwide Rise in Interest Rates

In the first half of 2007, the Euro-zone, Japan and South Korea all raised their interest rates in an attempt to head off inflation. In the second half of the year, the impact of the sub-prime mortgage crisis in the US and rapidly rising commodity prices added extra uncertainty to monetary policy. In response to the sub-prime mortgage crisis, the Federal Reserve announced six interest rate cuts between the second half of 2007 and April 30, 2008, bringing its target interest rate for overnight loans down from 5.26% to 2.28%.

With most major institutional investors anticipating further interest rate cuts in the US in the first half of 2008, while at the same time central banks in other leading economies are unlikely to cut interest rates in the near future, the interest rate difference that has been working to the US's advantage in the past will gradually disappear.

6. Dramatic Fluctuations in World Stock Markets

The rapid growth in the global economy during the period 2005–2007 was reflected in healthy stock markets. In many countries – including the US, China and India – stock market indices rose to record levels. However, beginning in the second half of 2007, world stock markets began to feel the impact of the sub-prime mortgage crisis in the US, and it was anticipated that the resulting fluctuations would continue into 2008.

7. A High Level of Global Economic Risk and Uncertainty

The impact of the sub-prime mortgage crisis in the US on the global economy as a whole has continued to grow, spreading from the financial sector to other sectors. The Federal Reserve initially estimated the total loss resulting from the sub-prime mortgage

crisis at US$100–150 billion; however, at a meeting of the Group of Seven (G7) finance ministers and central bank chiefs, this figure was revised upwards to US$400–500 billion. The losses incurred by financial institutions around the world as a result of the sub-prime mortgage crisis have continued to mount, threatening the trust that underpins inter-bank lending, and exerting a negative impact on global economic growth. In June 2008, Global Insight revised its global economic growth forecasts for 2008 downwards. The revision was most pronounced in the case of China (1.7percentage points), followed by the US and the European Union with 0.8 percentage point and 1.1 percentage points respectively; the global growth forecast for 2008 was revised downwards by 0.7 percentage points to 3.2% (Table 1-2-1).

III The Chinese Economy – Major Trends and Key Issues

1. Overview of the Chinese Economy in 2007

Broadly speaking, economic growth in China has been driven by foreign trade and capital accumulation. Growth in 2007 was relatively slow, although the agricultural sector continued to grow strongly, and the rate of growth in the service industries speeded up; the resulting imbalances posed a serious challenge to the Chinese government. The continuing process of capital accumulation has been the key factor behind China's rapid economic growth, and this investment has also had a major impact on China's foreign trade. Some of the important developments in 2007 included rising wages, higher land costs, a reduction in the tax drawback for exportation, and the imposition of higher export duty on energy-intensive products. While these changes have caused overall production costs to rise, so far there has been no significant reduction in China's export competitiveness.

Foreign investment and a trade surplus have enabled China to rapidly build up its foreign exchange reserves. As of the end of 2007, China's foreign currency reserves – which were already the highest in the world – had risen to around US$1.5 trillion. To keep export growth under control, the Chinese government has been steadily reducing the tax drawback for exportation; and at the same time the value of the Yuan has rapidly appreciated.

Recently, while allowing the Yuan to revaluate more rapidly, the Chinese government has also adopted a tight monetary policy, with higher interest rates and a

higher deposit reserve ratio requirement. The active promotion of overseas investment and the relaxation of the restrictions on investment in the Hong Kong stock market by private citizens have helped to slow the rise in China's foreign exchange reserves.

2. The Outlook for the Chinese Economy in 2008

The Chinese economy is starting to overheat, and the threat of inflation is drawing closer. High demand and low capacity utilization rates have so far helped to delay the onset of inflation. However, once China's trade surplus and consumer spending reach a certain level, inflation will become a serious problem, fueled by excess liquidity. Most forecasters believe that China's economic growth rate in 2008 will be slightly lower than in 2007, at around 10.2% (Table 1-2-1), but that consumer spending will increase, and investment and exports will remain at high levels, helping to drive economic growth. China's dangerously fast investment growth will slow slightly, mainly because of the reduction in infrastructure investment once the Olympic Games are over. Capital investment growth in 2008 is unlikely to exceed 20%, and will probably be more like 15%. Domestic demand and rural incomes will continue to rise, as will wage levels, leading to a growth in consumer spending and slower export growth. The CPI will continue to rise in 2008, carrying with it the risk of inflation; this reflects the consistently rapid pace of economic growth.

It is anticipated that the unemployment rate in China will be held down to around 4.5% in 2008. According to a World Bank Report, some parts of China are actually suffering from a labor shortage, which will put further upward pressure on wages. There is a general consensus that the stage in China's economic development in which the country benefited from an abundant labor supply is coming to an end, and that wages can be expected to start rising across the board.

3. Major Issues Affecting the Chinese Economy

(1) The Risk of a Bubble Economy Forming

In the last few years, the rapid growth of the Chinese export surplus and the massive inflow of foreign investment have stimulated a rapid increase in the money supply, while also driving up the prices of various types of assets. There is thus a danger that a bubble economy may begin to take shape. A rapidly growing money supply has resulted in excess liquidity, a high percentage of which has flowed into the stock market and real estate market. The stock market has already replaced the state as the main

source of funding for China's banks and large corporations. However, corporate earnings are not necessarily as high as stock market valuations would suggest. A fall in the stock price can result in a dramatic fall in the earnings of a listed company; this in turn tends to push the stock price down further, creating a vicious circle.

The rapid increase in share prices and real estate prices has attracted a flood of investment in these areas by ordinary members of the public. Stock market investments currently account for around 22% of the average Chinese household's total assets, which by international standards is a very high level. A fall in stock prices can thus have a dramatic negative impact on household wealth, reducing consumption power and slowing the growth of the economy as a whole.

(2) The Danger of a Fall in Housing Prices

The Chinese housing market is expected to enter a period of adjustment in the second half of 2008, with a falling off in the rate at which housing investment has been growing. The real estate market in China – and particularly residential property – has been booming for 10 years. This growth is forecast to continue up until the Beijing Olympics in the summer of 2008, but after the Olympics an adjustment phase may begin. The steady rise in house prices has led to a weakening in demand for housing; to this must be added the government's tight monetary policy, and the general expectation that house price growth may start to slow after the Olympic Games. A period of adjustment in the housing market will have a major impact on industries such as iron and steel and cement; the overall level of investment in the wider economy will tend to slow as a result.

(3) A Gradual Rise in Manpower Costs

China's new Labor Contracts Law has already come into effect in January 2008. This new law provides for minimum wages that will be adjusted at regular intervals, and requires employers that pay workers on a piece-work basis to agree to reasonable rates for the work through consultation with their employees, with the aim being to ensure that workers are not working excessively long hours and are paid an amount at least equivalent to the minimum wage for that category of work. Where employees perform piece-work outside regular working hours, on weekends or on public holidays, the employer is required to pay them an amount equivalent to 150%, 200% or 300% of the corresponding statutory minimum wage for the same type of work.

(4) A Steady Increase in the Social Insurance Contribution Burden

Social insurance contributions, which are closely linked to wage levels, are also rising. To ensure the maintenance of social stability, the Chinese government has been engaged in the establishment of a nationwide social insurance system. This system currently covers five categories of insurance: basic retirement insurance, basic medical insurance, unemployment insurance, industrial injury insurance, and maternity insurance. While maternity insurance coverage is still rather limited, the percentage of workers covered by the other four types of social insurance is growing steadily. As wage levels rise, the social insurance contributions that employers are required to pay for each employee rise with them. Taking the situation in Dongguan, Guangdong Province as an example, by and large the total amount of contributions that employers are required to pay for the four types of social insurance are equivalent to around 18% of the employee's wages. Assuming that expenditure on wages accounts for approximately 30% of the total production costs of a Taiwanese-invested manufacturing enterprise in Dongguan, then the need to pay social insurance contributions equivalent to 18% of salary means a roughly 5% increase in the employer's production costs, and a 20% rise in wages means a 1% increase in production costs. In industries that require skilled, experienced workers, the share of wages' in production costs may be as high as 40%; for enterprises in these industries, the impact of social insurance contributions is even greater.

(5) The Rising Price of Land

On January 1, 2007 the Chinese government promulgated the *Interim Regulations of the People's Republic of China on City and Town Land Use*, which roughly doubled the amount of Land Use Tax payable on land in urban areas. The tax rates per square meter of land were set at between 1.5 RMB and 30 RMB for land located in large cities, between 1.2 RMB and 24 RMB for land in medium-sized cities, between 0.9 RMB and 18 RMB for land in small cities, and between 0.6 RMB and 12 RMB for land located in county towns, new towns and industrial or mining districts. Foreign and foreign-invested companies, which in the past were exempt from urban Land Use Tax, are now liable to it just like any other company. In addition, January 1, 2007 saw the promulgation of the *National Standards for Minimum Prices of Industrial Land*, which specify that state-owned industrial land may only be sold by auction, and that neither the specified minimum bid nor the final transaction price may be lower than the minimum price for that category of land as given in the *Standards*. The National Land

Authority has thus linked the minimum price of land to the type of land, and the stipulated minimum price now varies considerably depending on the quality of the land; the stipulated minimum price for Category 1 industrial land (840 RMB per square meter) is 14 times the minimum price for Category 15 land (60 RMB per square meter). As a result, the average cost of acquiring land for factory construction has risen significantly.

(6) A Rapid Increase in the Price of Raw Materials

According to statistics compiled by China's National Bureau of Statistics, the price of items falling under the category of capital expenditure rose by 3.9% in 2007, while the price of industrial products increased by 3.1%, in which the price of production materials rose by 3.2%, and the price of consumer goods rose by 2.8%. The price of raw materials, fuel and power rose by 4.4%. These price increases have put business enterprises under heavy pressure. The rising price of metals has affected not only the cost of metal materials, but also the production cost of electronic components. Overall, manufacturers' profit margins have been badly squeezed by these materials price rises.

(7) The Revaluation of the Yuan Picks Up Speed

On April 10, 2008, the China Foreign Exchange Trading System & National Interbank Funding Center announced that the US Dollar – Yuan exchange rate had fallen to US$1 = 6.9920 RMB, marking the first time that the exchange rate had ever dropped below US$1 = 7 RMB. Since the first revaluation of the Yuan by the Bank of China on July 21, 2005 (which brought the exchange rate to US$1 = 8.11 RMB), the Yuan has risen in value by a cumulative total of 13.8% against the US dollar. Since January 1, 2008, the Yuan has already risen in value by 4.3%, the most ever in such a short period.

Currently, the vast majority of Taiwanese enterprises operating in China price their exports in US dollars. From the point of view of these companies, the revaluation of the Yuan vis-à-vis the US dollar means an increase in that part of their production costs that is denominated in Yuan; as a result, these manufacturers' profit margins are being eroded. Survey results indicate that the Yuan-denominated portion of a Taiwanese-invested enterprise's production costs varies between 20% and 45% of the total, with the average share being around 30%. If the Yuan rises in value against the US dollar by 10%, Taiwanese-invested companies operating in China will be faced with an increase in their production costs of between 2% and 4.5%. Furthermore, for textile manufacturers, it is estimated that a 1% rise in the exchange rate translates into a 2% to 6% fall in sales revenue; the problem is particularly serious for garment manufacturers,

which are heavily dependent on exports. Given the strong possibility that the Yuan will continue to rise in value against the US dollar, it can be anticipated that the cost pressure that Taiwanese-invested enterprises in China are now experiencing will become even more severe in the future.

(8) The Impact of the Chinese Government's New Foreign Trade Policy

The impact of the adjustments that the Chinese government has made to its foreign trade policy is being felt in three main areas. Firstly, there is the impact of the new list of goods where processing trade is prohibited. Taiwanese-invested enterprises operating in China can no longer import these products in the form of bonded imports; they are now required to pay import duty and import circulation tax, and there is no tax drawback after exportation. The resulting increase in costs is affecting the export competitiveness of these companies. The Chinese government has already announced that the list of prohibited items will be continuously reviewed; manufacturers of low-tech products have to face the risk that their products may be placed on the list at any time. This situation will add an extra dose of uncertainty to the operations of Taiwanese-invested firms in China.

The second area is the impact of adjustments made to the list of items with respect to which processing trade is restricted. Where Taiwanese-invested companies import raw materials for use in the production of items on the restricted list, they are required to provide a bank guarantee to the value of either 50% or 100% of the import duty plus value-added tax that would normally be payable. This new measure will significantly increase the cash-flow pressure on Taiwanese enterprises operating in China. Although the bank guarantee will eventually be returned with interest, the new system will still saddle firms engaged in export processing with higher export costs.

The third area is the impact on cash flow of the revisions made to the *Measures for the Classified Management of Enterprises*. On April 1, 2008, the General Administration of Customs promulgated the revised *Measures for the Classified Management of Enterprises*, which provide for differential treatment of enterprises depending on their past record. The new system integrates exportation with tax, factory inspection and intellectual property rights protection issues. In most cases, a newly-registered enterprise will initially be given a "B" classification. The revised *Measures* provide for a "AA" classification. To qualify for this status, an enterprise must have held category A status for at least one year, must have a total annual

export/import value of at least US$30 million, and must conform to the Customs, Enterprise Management and Trade Safety standards. AA enterprises will be able to benefit from expedited customs clearance. This represents a significant break with the situation in the past where only enterprises with a very large annual export volume were eligible for preferential customs clearance treatment; the fact that importers can now benefit from preferential treatment reflects the shift in emphasis in government policy away from encouraging export growth towards achieving a more satisfactory balance between imports and exports. Most of the trade between Taiwan and China involves export processing, and the Chinese Customs classify most of the Taiwanese-invested enterprises operating in China as either Class A or B. When Class B, A or AA enterprises engage in bonded importation of restricted items, they are required to provide a guarantee equivalent to 50% of the combined value of the import duty and value added tax. According to the new regulations that the Chinese government introduced on April 1, 2008, an enterprise that commits two or more breaches of intellectual property rights regulations or that fails to pay its taxes on schedule will be automatically downgraded from Class B to Class C, in which case not only will the enterprise no longer benefit from expedited customs clearance, but the size of the guarantee that the enterprise is required to provide will also be increased to 100% of the combined value of the import duty and value added tax, potentially creating serious cash flow problems.

IV Changes in Taiwan's Economic Environment

1. An Economic Downturn in the First Few Months of 2007, Followed by an Upturn and then a Further Downturn

The Taiwanese economy has always tended to follow the pattern of growth in the global economy as a whole. In 2007, Taiwan experienced a downturn in the first half of the year, followed by a slight improvement (but with continuing concern that a recession might be around the corner) in the second half of the year. The Council for Economic Planning and Development, Executive Yuan reported steady growth in January – February 2007, followed by relatively high growth in March, a slowdown in April – May, a renewed upturn in June, another slowdown in September – October, and then faster growth again in November – December, continuing into January – March 2008. The upturn in the last few months of 2007 has thus continued into early 2008

(Figure 1-4-1).

Figure 1-4-1 Taiwan's Economic Performance in 2007 – Growth "Light" Indicators

Item \ Month	January	February	March	April	May	June	New economic performance light index items	July	August	September	October	November	December
Overall score	Light												
	Score	18	19	23	18	20	25		30	30	32	32	28	29
Financial indicators	Rate of change in money supply (M1B)							Rate of change in money supply (M2B)						
	Rate of change in ratio of direct to indirect financing							Rate of change in ratio of direct to indirect financing						
	Rate of change in volume of bills settlement and inter-bank remittances							Stock price index						
	Stock price index							Industrial production index						
Fundamentals indicators	New orders index (manufacturing sector)							Employment (non-agricultural sector)						
	Rate of change in export value as reported by the Customs							Rate of change in export value as reported by the Customs						
	Rate of change in industrial production index							Value of machinery and electromechanical equipment imports						
	Finished goods inventory (manufacturing sector)							Manufacturing sector sales value						
	Employment (non-agricultural sector)							Sales revenue in the wholesale, retail and restaurant sectors						

Notes: 1. red light indicates buoyant; yellow-red light indicates transitional; green light indicates stable; yellow-blue light indicates transitional; blue light indicates slowdown.
2. The overall growth performance scores corresponding to each light are as follows: 45–38 = red light; 37–32 = yellow-red light; 31–33 = green light; 22–17 = yellow-blue light; 16–9 = blue light.
3. With the exception of stock prices, all of the items making up the growth performance index are seasonally adjusted. Please note that the items used in each year's index do not necessarily correspond exactly to those used in previous years; care should therefore be exercised when interpreting the scores.

Source: Council for Economic Planning and Development (http://www.cepd.gov.tw).

2. Rising Prices Accompanied by a Steady Devaluation of the New Taiwan Dollar

By the beginning of 2007, certain items within the consumer price index (including the prices of oil, gas, housing construction materials etc.) were already starting to reflect

the increase in global oil and metal prices. By May–June 2007, Taiwan was seeing a pronounced rise in the prices of cereals and cereal products and the prices of foods consumed away from home, reflecting the rise in international cereals prices. However, as the price of fruit and vegetables remained relatively low, the CPI as a whole remained reasonably stable until July. August saw a pronounced rise in the CPI; this was due to the impact of typhoons on agricultural production, the low base for comparison provided by August 2006, and the continuing rise in international oil and commodity prices. The average whole-year CPI increase was 1.80%. For the core CPI index, the whole-year growth rate was 1.35%; however, the core CPI rose steadily from March onwards.

In 2007, Taiwan's wholesale price index (WPI) was affected by the rise in global oil, metals and cereals prices. WPI growth rates of 7.11% and 7.14% in January and February 2007 were followed by a slightly lower growth rate of 4.20% in March; however, the rate of increase then rose again to 7.46% in the fourth quarter. The average WPI growth rate for the whole year was 6.45% (Table 1-4-1).

Table 1-4-1 Key Indicators for the Taiwanese Economy, 2003 – 2007

Unit: %

Indicator / Year	Economic Growth Rate	WPI	CPI	Tax Revenue	Money Supply		Labor Force Participation Rate	Unemployment Rate	Exchange Rate (NT$ to the US$)
					M1B	M2			
2003	3.50	2.48	-0.28	2.2	11.8	3.8	57.34	4.99	34.418
2004	6.15	7.03	1.61	10.7	19.0	7.5	57.66	4.44	33.422
2005	4.16	0.62	2.31	13.0	7.1	6.2	57.78	4.13	32.167
2006	4.89	5.63	0.60	2.1	5.3	6.2	57.92	3.91	32.531
2007	5.72	6.45	1.80	7.7	6.4	4.3	58.34	3.91	32.842

Note: With the exception of the labor force participation rate, unemployment rate and exchange rate, all other indicators are expressed as annual growth rates.

Source: Directorate-General of Budget, Accounting and Statistics (DGBAS); Ministry of Finance, Department of Statistics; Central Bank.

In 2007, the US Dollar – New Taiwan Dollar exchange rate fell initially before rising again. As of December 2007, the exchange rate stood at US$1 = NT$32.42, representing a year-on-year growth rate of 0.33%; the average exchange rate for the whole year was US$1 = NT$32.84, representing a 0.94% devaluation of the New Taiwan Dollar compared to 2006. Taking into account price rises, and allocating weightings for Taiwan's main trading partners, the real effective exchange rate in 2007 was 90.54, 0.75% down on 2006.

3. A Rise in Tax Revenue Compared to 2006

In 2007, the annual tax revenue of the Taiwanese government totaled NT$1,677.2 billion, representing an annual growth rate of 7.7%. While revenue from commodity tax fell by 6.8%, all other tax items saw positive growth. The highest growth was in securities transaction tax revenue (43.2%); income tax revenue rose by 13.0%, while the growth rates for other taxes were all in single figures.

Overall, tax revenue came to 106.9% of the budgetary target. The highest budgetary target achievement rate was in securities transaction tax (151.4%), followed by income tax (111.8%); surplus tax revenue totaled NT$107.8 billion.

4. Continuing High Liquidity in the Money Markets

In 2007, the daily average value for the annual growth rate in the M2 money supply fell steadily over the course of the year, and by the fourth quarter it had fallen below the lower threshold of the Central Bank's target zone of 3.5% to 7.5%. In December 2007, the M2 money supply growth rate fell to 1.4%, mainly because of a net outflow of foreign investor funds, the relaxation of bank lending policy and a slackening in investment. For the whole year, the daily average value for the annual growth rate in the M2 money supply was 4.3%, representing a decline of 1.9 percentage points compared to 2006. The daily average value for the annual growth rate in the M1B money supply alternatively rose and fell over the course of the year in line with stock market fluctuations. As of December, the daily average value stood at 1.1%, the lowest level since October 2001. The whole-year average was 6.4%, 1.1 percentage points up on 2006 (Table 1-4-1).

Responding to the fluctuations in prices and in the financial markets, in March, June, September and late December 2007 the Central Bank announced interest rate rises of between 0.125% and 0.25%, causing the discount rate to rise from 2.75% to 3.375%, while the rate on accommodations with collateral rose from 3.125% to 3.75% and the rate on accommodations without collateral rose from 5.0% to 5.625%.

As a result of the Central Bank's adjustments, interest rates in Taiwan rose slowly but steadily over the course of 2007. By December 2007, the inter-bank offered rate and the commercial paper interest rate stood at 2.05% and 2.03%, respectively; the whole-year averages for 2007 were 2.0% and 1.90%, representing an increase of 0.45 percentage points and 0.36 percentage points, respectively, compared to 2006.

The first half of 2007 saw a rise in the Taiwan stock market, although with some fluctuations. The fluctuations grew more dramatic in the second half of the year; after rising to nearly 10,000 points, the index had fallen back to 8,506 by the end of the year, representing a year-on-year decline of 683 points or 8.72%. The whole-year weighted average was 8,510 points, representing an increase of 1,668 points (24.4%) compared to 2006. The cumulative transaction value for the whole year was NT$33,043.9 billion, 38.3% up on 2006.

5. The Unemployment Rate Remains More or Less Unchanged

The workforce in Taiwan averaged 10,713,000 people in 2007, representing an increase of 191,000 (1.8%) compared to 2006. The labor force participation rate averaged 58.25%; this figure was 0.33 percentage points up on 2006, and represented the highest figure during the last decade. The number of employed persons averaged 10,294,000, giving an annual increase of 183,000 (1.8%). The unemployment rate averaged 3.91% in 2007, the lowest level for seven years (Table 1-4-1).

6. Foreign Trade Continues to Expand, and Taiwan's Trade Surplus Rises to Record Heights

The global economy and the volume of international trade continued to grow steadily in 2007. In Taiwan, both exports and imports rose to record levels, as did Taiwan's trade surplus. In 2007, Taiwan's foreign trade totaled US$465.93 billion, representing an annual growth rate of 9.2%. Imports totaled US$246.68 billion, giving an annual growth rate of 10.1%, while total exports came to US$219.25 billion, for a growth rate of 8.2% (Table 1-4-2).

The three main product categories – agricultural products, processed agricultural products, and industrial products – all saw positive export growth in 2007. Industrial products, which accounted for 99% of Taiwan's total exports, posted an export growth rate of 10.2% in 2007. Exports of heavy and chemical industry products rose to a record level of over US$200 billion, and their share of total exports increased from 81.9% in 2006 to 82.8% in 2007, reflecting the ongoing upgrading of Taiwan's industrial structure.

Taiwan's five main export items in 2007 were, in order: electronics products, optical devices, iron and steel and iron and steel products, machinery, and electromechanical equipment. All five of these items posted positive export growth in

2007. Electromechanical equipment had the highest annual growth rate, at 32.5%, followed by iron and steel and iron and steel products at 17.9%, machinery at 8.9%, optical devices at 8.5%, and electronics products at 4.4%.

Imports of agricultural and industrial raw materials, which accounted for 77% of Taiwan's total imports, rose by 9.9% in 2007, mainly because of a pronounced increase in imports of minerals and ores, basic metals and basic metal products, and chemical products. Having fallen for two years in a row, imports of capital goods (which accounted for 16% of total imports) rose by 3.0% in 2007, largely due to increased imports of precision machinery and instruments and aircraft. Imports of consumer goods, which accounted for just under 10% of total imports, fell by 2.3% in 2006, but rose by 3.5% in 2007. The five main import product categories were, in order: electronics products, crude oil, machinery, other metal products, and iron and steel and iron and steel products.

Table 1-4-2 Taiwan's Foreign Trade Performance, 2002 – 2007

Units: US$ billions; %

Indicator / Year	Total Foreign Trade (Imports + Exports)		Exports		Imports		Trade Surplus or Deficit	
	Amount	Annual Growth Rate	Amount	Annual Growth Rate	Amount	Annual Growth Rate	Amount	Annual Growth Rate
2002	248.56	6.1	135.32	7.1	113.24	4.9	22.07	20.3
2003	278.61	12.1	150.60	11.3	128.01	13.0	22.59	2.4
2004	351.13	26.0	182.37	21.1	168.76	31.8	13.61	-39.7
2005	381.05	8.5	198.44	8.8	182.62	8.3	15.82	16.2
2006	426.72	12.0	224.02	12.9	202.71	11.0	21.31	34.8
2007	465.93	9.2	246.68	10.1	219.25	8.2	27.43	28.6

Notes: 1. Total exports = exports + re-exports; total imports = imports + re-imports.
2. The figures for total imports and total exports may not add up exactly to the corresponding figure for total foreign trade due to rounding.

Source: Department of Statistics, Ministry of Finance, *Overview of Foreign Trade Performance Based on Customs Data*, April 2008.

7. China, Hong Kong, the US, Japan and South Korea Are Taiwan's Most Important Trading Partners

Taiwan's trade with its major trading partners continued to expand in 2007, with exports to China growing especially rapidly. Countries that accounted for more than 10% of Taiwan's exports included China (25.30%), Hong Kong (15.40%), and the U.S. (13.00%). Taiwan's exports to the U.S. fell by 0.88% in 2007, compared to an 11.17% increase in 2006. Imports from Hong Kong fell, but imports from Taiwan's other main import sources all rose (Table 1-4-3).

The most pronounced rise was in imports from the U.S., at 16.96%, followed by imports from China, with a 13.04% increase. Taiwan's exports to China and Hong Kong combined accounted for 40.70% in 2007, a higher share than in 2006. Imports from China and Hong Kong accounted for 13.61% of total imports; once again, this share was higher than the corresponding share for 2006. The highest import growth was in imports from the U.S., at 16.96%; imports from China grew by 13.04%.

Table 1-4-3 Taiwan's Trade with Its Main Trading Partners in 2007

Units: US$ billions; %

Indicator / Country/Region	Exports			Imports			Trade Surplus or Deficit	
	Amount	Share of total	Annual growth rate	Amount	Share of total	Annual growth rate	Amount	Annual growth rate
Total	**246.677**	**100.00**	**10.12**	**219.252**	**100.00**	**8.17**	**27.425**	**28.64**
China	62.417	25.30	20.48	28.015	12.78	13.04	34.402	27.29
Hong Kong	37.980	15.40	1.60	1.825	0.83	-2.96	36.155	1.84
USA	32.077	13.00	-0.88	26.508	12.09	16.96	5.569	-42.56
Japan	15.934	6.46	-2.25	45.937	20.95	-0.75	-30.003	0.06
South Korea	7.794	3.16	8.94	15.158	6.91	1.06	-7.364	-6.13
Other countries	90.476	36.68	14.51	101.808	46.43	10.56	-11.333	-13.32
China + Hong Kong	100.396	40.70	12.56	29.840	13.61	11.91	70.557	12.84

Source: DGBAS, *Monthly Bulletin of Statistics*, April 2008.

8. A Slowdown in Taiwan's Economic Growth Forecast for 2008

In its *World Economic Outlook* for 2008, published on April 10, 2008, the International Monetary Fund (IMF) forecast that a mild downturn in the US economy would have a knock-on effect on the global economy as a whole. The IMF revised its original global growth forecast for 2008 downwards from 4.2% to 3.7%; both the "Four Asian Dragons" and the Asian region's emerging economies were expected to see slower growth in the first half of 2008 than in the first half of 2007, and Taiwan's whole-year growth rate was forecast to fall from 5.7% in 2007 to 3.4% in 2008.

On the other hand, while agreeing that Taiwan's economic growth in 2008 would be slower than in 2007, Global Insight and Taiwanese forecasting institutions Polaris Research Institute, Chung-Hua Institution for Economic Research and the Taiwan Institute of Economic Research all anticipated that Taiwan would still be able to achieve a growth rate in excess of 4%. The whole-year growth forecasts produced by these four institutions were, respectively: 4.20%, 4.35%, 4.67% and 4.30%.

9. Uncertainty Factors Affecting the Taiwanese Economy in 2008

The most significant uncertainty factors that can be expected to affect the Taiwanese

economy in 2008 include: global warming, rising oil and commodity prices, the changes taking place in the international trading environment, a relaxation of cross-strait policy, and the continuing emergence of an "M-shaped society" in Taiwan.

(1) The Rising Price of Oil and Raw Materials

The issue of input inflation has attracted a great deal of attention in Taiwan recently. Input inflation is a phenomenon that reflects the pronounced rises in the prices of oil, metals, cereals and other raw materials. In February 2008, in US dollar terms import prices in Taiwan were 18.99% up on February 2007; this was the highest year-on-year growth rate recorded for 27 years and 4 months (i.e., since the "Second Oil Crisis" of 1979–1980), and there were no signs that the upward trend would cease any time soon.

Taiwan is almost entirely dependent on imported oil; the international oil price is thus an issue of great concern to every citizen of Taiwan. Up until May 2008, the government had kept the price of oil artificially low; after taking office on May 20, the new administration implemented a major price rise to bring the price of oil products closer to market levels. This dramatic price increase had a serious impact on both the production costs of Taiwan's SMEs and the economy as a whole.

(2) The Changing International Trade Environment

Foreign trade is one of the main foundations of the Taiwanese economy. While Taiwan still needs to keep an eye on the continuing fallout from the sub-prime mortgage crisis in the US, changes in the political and economic situation in China – whose economy is closely linked with Taiwan's – will have a more direct impact on Taiwan's economy. While on the surface the Chinese economy appears to be performing superbly, there is still a serious risk of a bubble economy developing. As of the end of May 2008, China's foreign exchange reserves had risen to US$1.8 trillion; the excess liquidity that this figure represents constitutes a severe latent threat. The disturbances in Tibet in March 2008 provoked international condemnation, which in turn sparked a vigorous nationalist response within China. The heavy snowstorms in the early part of 2008 which coincided with the Chinese New Year holiday, and the severe earthquake that hit Sichuan Province in May 2008, both reveal the extent to which the Chinese economy is vulnerable to climatic and environmental threats.

(3) A Relaxation of Cross-strait Policy

Since taking office on May 20, 2008, the new administration of President Ma Ying-jeou

has adopted a more relaxed policy with respect to cross-strait relations. This has included or will include easing restrictions on visits to Taiwan by Chinese tourists, allowing Taiwanese financial institutions to invest in China, negotiations for cross-strait charter cargo flights and direct marine transport links, allowing Chinese citizens to apply for business visas to enter Taiwan, relaxation of the restrictions governing the types of industry in which Chinese investment is permitted, revision of the laws governing Taiwanese investment in the securities, futures and investment trust businesses, permitting Chinese investment in the Taiwanese stock market, expansion of the existing plans for weekend passenger charter flights between Taiwan and China to include weekday flights, and plans for the establishment of new runways and new shipping routes to meet the needs of direct cross-strait links. It is anticipated that these new policies will have a major impact on the economic environment in Taiwan.

(4) The Continuing Emergence of an M-shaped Society in Taiwan

Over the last two years, countries all over the world have begun to take on the characteristics of an “M-shaped Society” (in which the middle class shrinks and the population becomes polarized between the wealthy and the impoverished). With the aging of the population, the trend towards small families, and the continuing slide of many members of the middle class into the ranks of the poor, accompanied by growing inequality of income distribution, Taiwan has been no exception to this global trend. Major structural changes are taking place in production, consumption, and the way of life of Taiwan’s citizens. One of the key issues facing Taiwan today is how to gain a clearer picture of this process of change, so that steps can be taken to direct its course and turn crisis into opportunity.

Chapter 2

An Overview of SME Development

The global economy grew steadily in the first half of 2007. However, growth slowed in the second half of the year due to the impact of the sub-prime mortgage crisis in the U.S. and the rising prices of oil and raw materials. Even so, strong growth in the emerging economies ensured that the global economy was able to maintain a whole-year growth rate of 3.9% in 2007. Taiwan posted steady growth in both industrial production and exports, achieving a whole-year growth rate of 5.72%; employment rose by 1.8%.

How have Taiwan's SMEs performed in this economic climate? Sections I to III of this chapter present an analysis of the changes in various key indicators, based on business tax data compiled by the Tax Data Center, Ministry of Finance, and the original data for the *Monthly Bulletin of Manpower Statistics* published by the Directorate-General of Budget, Accounting and Statistics (DGBAS), and examine the role that SMEs play within Taiwan's industrial structure.

I The Status of SMEs in Taiwan

According to the business income tax data and manpower statistics, in 2007 there were just over 1,237,000 SMEs in Taiwan, accounting for 97.63% of all business enterprises. Approximately 80.38% of these SMEs were in the service sector; 57.97% were sole proprietorships; 46.34% were located in Northern Taiwan; and 43.54% had been in existence for over 10 years. The largest share (52.89%) was in the wholesaling and retailing industry. SMEs accounted for 28.34% of the total sales of all Taiwanese business enterprises, while domestic sales accounted for 83.92% of SMEs' total sales. SMEs employed nearly 7,939,000 people, representing 77.12% of the workforce. 27.46% of the people working in SMEs were employed by SMEs in manufacturing industry. The service sector accounted for 55% of all SME employees.

How did Taiwan's SMEs perform in 2007, and what was their relative importance within the economy as a whole? The following sections will examine the changes in the SME sector in 2007, in terms of the number of enterprises, total sales, domestic sales and export sales, and the position occupied by SMEs within Taiwan's industrial

structure.

1. SMEs Accounted for 97.63% of All Enterprises in Taiwan, Representing a Slight Decline Compared to 2006

There were 1,236,586 SMEs in Taiwan in 2007, representing a decline of 7,513 SMEs (0.60%) compared to 2006. SMEs accounted for 97.63% of the 1,266,664 business enterprises in Taiwan, down from 97.77% in 2006. The number of large enterprises in Taiwan rose by 1,669 (5.87%) to 30,078, and the large enterprises' share of all business enterprises increased from 2.23% in 2006 to 2.37% in 2007 (Table 2-1-1 and Figure 2-1-1).

Table 2-1-1 Enterprise Performance in 2007 – by Size

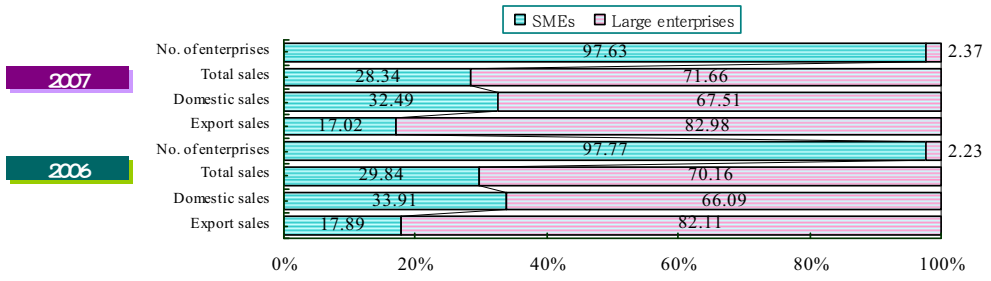
Units: enterprises; thousand persons; NT$ millions; %

Indicator \ Enterprise Size	All Enterprises	SMEs	Large Enterprises
No. of enterprises	**1,266,664**	**1,236,586**	**30,078**
Share	100.00	97.63	2.37
Annual growth rate	-0.46	-0.60	5.87
Total sales value	**35,886,186**	**10,171,750**	**25,714,436**
Share	100.00	28.34	71.66
Annual growth rate	4.54	-0.68	6.77
Domestic sales value	**26,277,862**	**8,536,591**	**17,741,271**
Share	100.00	32.49	67.51
Annual growth rate	2.67	-1.64	4.88
Export sales value	**9,608,324**	**1,635,159**	**7,973,165**
Share	100.00	17.02	82.98
Annual growth rate	10.04	4.67	11.21
No. of employed persons	***10,294**	**7,939**	**1,424**
Share	100.00	77.12	13.83
Annual growth rate	1.81	2.42	-0.16
No. of paid employees	***7,735**	**5,383**	**1,420**
Share	100.00	69.60	18.36
Annual growth rate	2.55	3.81	-0.16

Note: The totals for the number of employed persons and the number of paid employees for "all enterprises," marked with an asterisk, include 932,000 government employees.

Sources: 1. Ministry of Finance Tax Data Center, VAT data for 2007.
2. DGBAS, Executive Yuan, *Monthly Bulletin of Manpower Statistics*, 2007.

Figure 2-1-1 The Shares of Key Performance Indicators Held by SMEs and Large Enterprises, 2006 – 2007



Source: Ministry of Finance Tax Data Center, VAT data for 2007.

2. Newly-established SMEs Account for 7.52% of the Total, Compared to 0.89% for Large Enterprises

In 2007, 92,957 SMEs (7.52% of all SMEs) were newly-established SMEs that had been in existence for less than 1 year. 63.64% of SMEs had been in existence for over 5 years, and 43.54% for over 10 years. Only 0.92% of large enterprises had been in existence for less than 1 year; 83.73% had been in existence for over 5 years, and 60.81% had been in existence for over 10 years. It can thus be seen that SMEs display more flexibility than large enterprises in terms of market entry and exit; even so a substantial percentage (over 40%) of SMEs have been operating for over 10 years (Table 2-1-2).

Table 2-1-2 The Number of Enterprises in 2007 – by Enterprise Age

Units: enterprises; %

Enterprise Size / Enterprise Age	All Enterprises		SMEs		Large Enterprises	
	No. of Enterprises	Share	No. of Enterprises	Share	No. of Enterprises	Share
Total	**1,266,664**	**100.00**	**1,236,586**	**100.00**	**30,078**	**100.00**
Less than 1 year	93,233	7.36	92,957	7.52	276	0.92
1 – 2 years	106,945	8.44	106,082	8.58	863	2.87
2 – 3 years	101,216	7.99	100,057	8.09	1,159	3.85
3 – 4 years	79,252	6.26	78,070	6.31	1,182	3.93
4 – 5 years	73,889	5.83	72,474	5.86	1,415	4.70
5 – 10 years	255,435	20.17	248,543	20.10	6,892	22.91
10 – 20 years	306,246	24.18	296,163	23.95	10,083	33.52
20 years or more	250,448	19.77	242,240	19.59	8,208	27.29

Source: Ministry of Finance Tax Data Center, VAT data for 2007.

3. SMEs' Export Sales Rise by 4.67%, While Their Share of Total Export Sales Falls Slightly

In 2007, Taiwan's SMEs posted total export sales of NT$1,635.2 billion, representing an increase of NT$72.9 billion (4.67%) compared to 2006. After falling to a low of 16.91% in 2004, the SMEs' share of total export sales by all enterprises subsequently climbed back up to 17.89% in 2006. However, in 2007 large enterprises achieved higher export growth than SMEs, with an annual export sales growth rate of 11.21%, causing SMEs' share of total export sales to fall back slightly to 17.02%.

4. The Service Sector Accounted for the Largest Share of SMEs and the Largest Share of Total Sales; the Manufacturing Sector Held the Largest Share of Export Sales

Examination of the key SME indicators in 2007 by sector gives the following results:

(1) The agricultural sector accounted for the smallest share of the total number of SMEs, and for the smallest shares of SMEs' total sales and export sales. Less than 1% of SMEs were in the agricultural sector. The service sector accounted for the largest share of both SMEs and total sales, while the manufacturing sector accounted for the largest share of export sales.

(2) Number of enterprises: In 2007, there were 993,949 SMEs in the service sector, accounting for 80.38% of all SMEs in Taiwan. This figure represented a decline of 13,626 SMEs compared to 2006. There were 231,853 SMEs in the manufacturing sector (18.75% of all SMEs), 6,278 up on 2006. The number of SMEs in the agricultural sector fell by 165 to 10,784, or 0.87% of all SMEs in Taiwan.

(3) Total sales: SMEs in the service sector accounted for 51.33% of the total sales of all SMEs in 2007, while the manufacturing sector held a 48.52% share. The agricultural sector's share stood at just 0.15%. The total sales of SMEs in the service sector and in the manufacturing sector both fell in 2007 compared to 2006, while the total sales of SMEs in the agricultural sector rose.

(4) Domestic sales: SMEs in the service sector accounted for 55.63% of the total domestic sales of all SMEs in 2007, while the manufacturing sector held a 44.21% share, and the agricultural sector held a 0.16% share. The domestic sales of SMEs in the service sector and in the manufacturing sector both fell in 2007 compared to 2006, while the domestic sales of SMEs in the agricultural sector rose.

(5) Export sales: SMEs in the manufacturing sector accounted for 71.03% of the total export sales of all SMEs in 2007, while the service sector held a 28.86% share and the agricultural sector held a share of just 0.11%. Export sales increased compared to 2006 for SMEs in all three sectors.

(6) Average sales per enterprise in 2007 came to NT$5.25 million for SMEs in the service sector; average sales per enterprise for SMEs in the manufacturing sector were nearly 4 times as high, at NT$21.29 million.

5. The Wholesaling and Retailing Industry Accounts for the Largest Shares of SMEs and SME Domestic Sales; Manufacturing Industry Accounts for the Largest Share of Total Sales and Export Sales

Examination of the key SME indicators in 2007 by industry gives the following results:

(1) Number of enterprises: In 2007, there were 654,091 SMEs in the wholesaling and retailing industry, accounting for 52.89% of all SMEs in Taiwan. Manufacturing had the second largest number of SMEs, at 133,312, or 10.78% of all SMEs in Taiwan.

(2) Total sales: SMEs in manufacturing industry posted the highest combined total sales in 2007, at NT$4,024.1 billion (39.56% of the total for all industries). The wholesaling and retailing industry was in second place with NT$3,906.7 billion (38.41%). 2007 was the first year in which manufacturing's share of total sales for all industries exceeded that held by wholesaling and retailing.

(3) Average sales per enterprise came to NT$5.97 million for SMEs in the wholesaling and retailing industry; average sales per enterprise in manufacturing were nearly 5 timesas high, at NT$30.19 million.

(4) Domestic sales: SMEs in the wholesaling and retailing industry posted the highest domestic sales in 2007, at NT$3,457.1 billion (40.50% of the total for all industries).Manufacturing industry was in second place with NT$2,873.8 billion (33.66%).

(5) Export sales: SMEs in manufacturing industry accounted for by far the largest share of export sales in 2007, with combined export sales of NT$1,150.3 billion (70.35% of the total for all industries). The wholesaling and retailing industry was in second place with NT$449.6 billion (27.50%). Between them, these two industries held a 97.85% share of the total export sales of all SMEs in Taiwan; all of the other industries held shares of less than 1%.

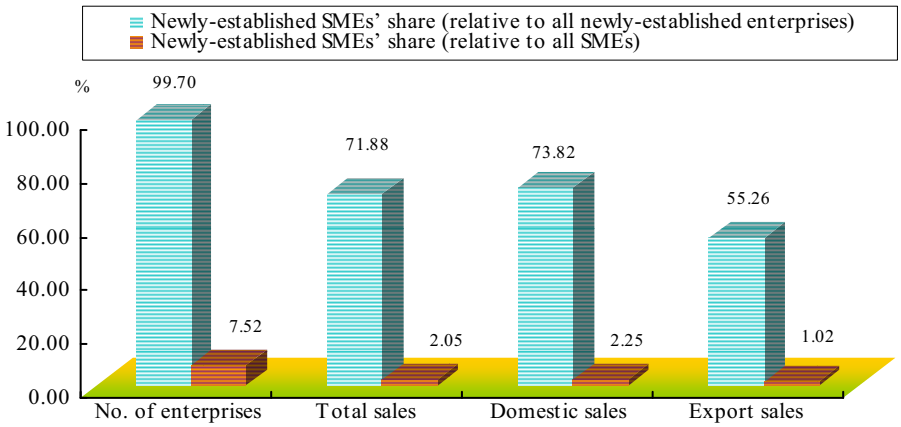
6. SMEs Still Account for the Vast Majority of Newly-established Enterprises, but the Percentage Is Falling

The term "newly-established enterprises" is used to refer to business enterprises that have been in existence for less than one year. In 2007, SMEs accounted for 99.70% of

all newly-established enterprises, and newly-established SMEs accounted for over 70% of the total sales and domestic sales of all newly-established enterprises; the shares were 71.88% in the case of total sales and 73.82% in the case of domestic sales, far higher than the corresponding percentages for large enterprises. However, the disparity was much less pronounced in export sales, where newly-established SMEs held a 55.26% share and newly-established large enterprises held a 44.74% share (Figure 2-1-2).

In 2007, newly-established SMEs accounted for 7.52% of all SMEs in Taiwan, 2.05% of total SME sales, and 2.25% of total SME domestic sales. These figures were all lower than the corresponding percentages in 2006 (which were 8.71%, 2.31% and 2.55% respectively). However, 2007 did see a slight increase in the newly-established SMEs' share of total SME export sales, from 0.99% in 2006 to 1.02% in 2007.

Figure 2-1-2 Newly-established SMEs' Shares of All Newly - established Enterprises and of All SMEs in 2007



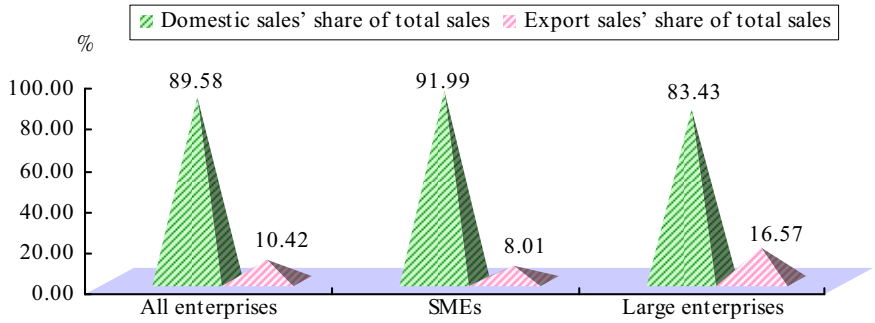
Source: Ministry of Finance Tax Data Center, VAT data for 2007.

7. Domestic Sales Account for 91.98% of the Total Sales of Newly-established SMEs

In 2007, domestic sales accounted for over 80% of the total sales of both newly-established SMEs and newly-established large enterprises. In the case of SMEs, the percentage was 91.99%, with export sales accounting for only 8.01% of total sales, giving a disparity of 83.98 percentage points; for large enterprises, the disparity was 66.86 percentage points (Figure 2-1-3). The orientation of newly-established SMEs towards the domestic market is thus even more pronounced than that of newly-

established large enterprises.

Figure 2-1-3 Domestic Sales' and Export Sales' Shares of Newly-established Enterprises' Total Sales in 2007 – by Enterprise Size



Source: Ministry of Finance Tax Data Center, VAT data for 2007.

8. Consumers' Growing Preference for Discount Stores and Online Shopping May Be Causing both the Number of SMEs and SME Sales to Fall

Examination of SME indicators for 2007 based on VAT data reveals the following:

1. The number of large enterprises in Taiwan rose by 1,629 in 2007 compared to 2006. However, only 266 were newly-established enterprises; the other 1,363 were SMEs that had grown into large enterprises.
2. The form of SME organization that saw the greatest decline in 2007 was the sole proprietorship; the number of sole proprietorships in Taiwan fell by 8,782 in 2007 compared to 2006. The numbers of partnerships, foreign-owned firms and branch offices rose by 208, 201 and 659, respectively. This pattern may reflect the impact of globalization and the growing importance of franchises and chain stores.
3. Of the 18 industry categories into which SMEs are divided, the wholesaling and retailing industry remained the largest, with 53% of SMEs falling into this category in 2007. However, in absolute terms the number of SMEs in the wholesaling and retailing industry fell by 3,492 compared to 2006. While the number of SMEs in the wholesaling business rose by more than 19,000, the number of retail SMEs fell by over 22,000.

According to the Commerce Department, Ministry of Economic Affairs, the main

factors behind the decline in the number of SME wholesalers and retailers in the last few years are as follows:

(1) Many sole proprietorships are small-scale operations where the proprietor's children have no interest in taking over the business. These businesses find it very hard to compete effectively against the big discount stores and other mass merchandisers, and against the franchise stores.

(2) SME retailers are generally characterized by a low level of e-enablement, and as a result suffer from weak managerial and marketing capabilities.

(3) The last few years have seen steady expansion by discount stores, department stores and shopping centers, resulting in intensified price competition; smaller retail businesses have found it increasingly difficult to stay in business.

(4) The rising price of raw materials has pushed costs up, putting further pressure on small retailers.

4. The rapid pace of development in technology (particularly the Internet) has brought about the emergence of new business models, including TV shopping, online shopping, virtual business start-up, online auctions, etc. Coupled with the growth of chain and discount stores, this trend has affected consumption patterns and made it more difficult for small retailers to survive.

The combined impact of economic globalization and the growth of the Internet has caused large enterprises to take on increased prominence within the Taiwanese economy; at the same time, the emergence of online/virtual business models has had a dramatic impact on the form that businesses take. Increasingly, consumers are shopping at discount and chain stores, or making use of TV shopping and online shopping. The impact of these changes on SMEs has been particularly painful; it remains to be seen how the situation will develop in the future.

II Employment in the SME Sector

1. An Increase in the Number of Employed Persons Working in SMEs, and in SMEs' Share of All Employed Persons

The number of people working in SMEs in Taiwan in 2007 was 7,939,000, representing an increase of 188,000 (2.42%) compared to the 2006 total. The SME's share of all

employed persons rose from 76.66% in 2006 to 77.12% in 2007, while the shares held by the large enterprise sector and by government fell by 0.16 percentage points and 0.21 percentage points, respectively.

In 2007, manufacturing industry accounted for the largest share of employed persons working for SMEs, with a total of 2.18 million employed persons (27.46% of all employed persons working in SMEs); the wholesaling and retailing industry was in second place with 1,667,000 employed persons (21%), followed by the construction industry with 827,000 (10.42%).

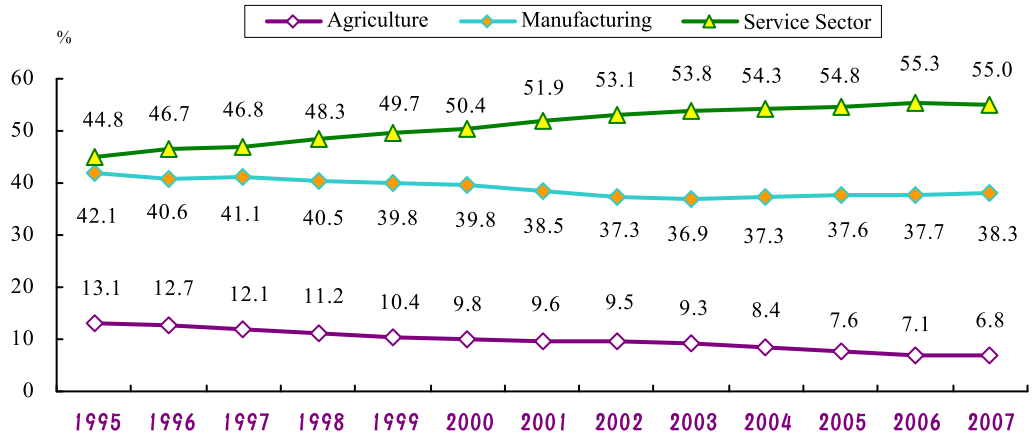
Viewed in terms of sectors, the service sector accounted for the largest share of employed persons working in SMEs in 2007, with 4,363,000 employed persons (54.96% of all employed persons working in SMEs in the service sector; this share represented an increase of 1.88 percentage points compared to 2006). There were 3,038,000 employed persons working in SMEs in the manufacturing sector (38.26%, up 3.99 percentage points from 2006), and 538,000 employed persons working in the agricultural sector (6.77%, down 1.90 percentage points from 2006). In the large enterprise segment, it was once again the service sector that accounted for the largest share of employed persons, at 54.41%, followed by the manufacturing sector (45.56%); the agricultural sector's share was just 0.12%.

An examination of the changes in the distribution of employed persons by sector over the period 1995–2007 shows that, in 1995, the service sector accounted for 44.8% of all employed persons in Taiwan, while the manufacturing sector accounted for 42.1%; there was thus a gap of 2.7 percentage points between the two sectors. Since then, the service sector's share has risen steadily, breaking through the 50% mark in 2000 to reach 50.4%, and then continuing to rise. The manufacturing sector's share of employed persons has fallen steadily. By 2007, 55% of all employed persons in Taiwan were working in the service sector, with 38.3% working in the manufacturing sector, for a gap of 16.7 percentage points. The agricultural sector's share of employed persons has been in steady decline over the last decade, having fallen by 6.3 percentage points (Figure 2-2-1).

As can be seen from the data presented above, the percentage of paid employees working in SMEs in the service sector has risen steadily, while the shares held by SMEs in the manufacturing and agricultural sectors have fallen. The manufacturing sector's share reached its lowest point (36.9%) in 2003. However, since then the upturn in the

business climate has led to a renewed increase in the number of employed persons working in manufacturing and in the construction industry; as a result, the share of all employed persons working in SMEs held by the manufacturing sector (including the construction industry) has started to rise again, climbing to 38.3% in 2007.

Figure 2-2-1 Individual Sectors' Share of the Total Number of Employed Persons in Taiwan Working in SMEs



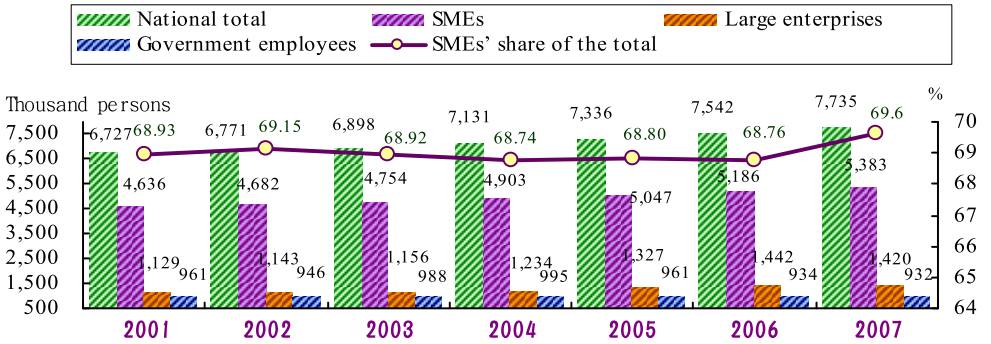
Source: DGBAS, *Monthly Bulletin of Manpower Statistics*, consecutive years.

2. An Annual Increase of 3.81% in the Number of Paid Employees Working in SMEs

The average number of paid employees in Taiwan in 2007 (including government employees) was 7,735,000. This figure represented an increase of 193,000 (2.55%) compared to 2006. 5,383,000 of these paid employees were working in SMEs; the SMEs' share of all paid employees in Taiwan rose from 68.76% in 2006 to 69.60% in 2007, while in absolute terms the number of paid employees working in SMEs rose by 197,000 (3.81%) (Figure 2-2-2). In comparison with the number of employed persons, the number of paid employees working in SMEs is noticeably lower; this situation is a reflection of the large number of employers and self-employed to be found among employed persons working in SMEs.

In 2007, there were 1,893,000 paid employees working in SMEs in manufacturing in Taiwan, accounting for 35.16% of all paid employees in Taiwan. The wholesaling and retailing industry was in second place with 869,000 paid employees (16.15% of the total), followed by the construction industry with 690,000 (12.82%).

Figure 2-2-2 The Number of Paid Employees in Taiwan, 2001 – 2007



Source: DGBAS, *Monthly Bulletin of Manpower Statistics*, consecutive years.

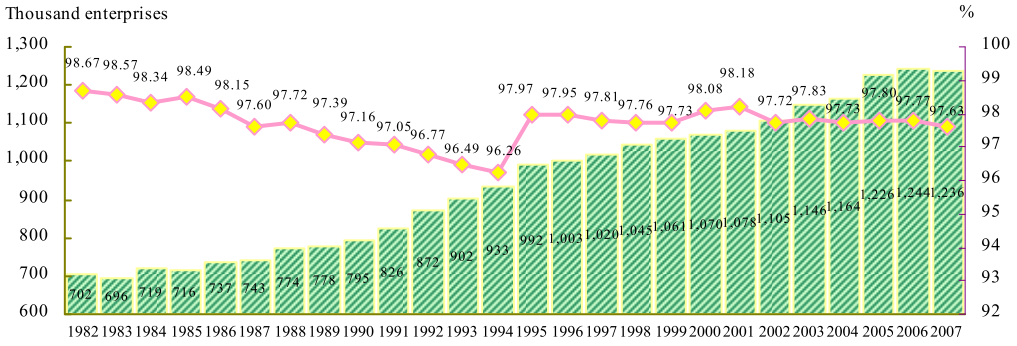
III The Development of Taiwan's SME Sector

SMEs have been the foundation for Taiwan's economic development. With their ability to adjust flexibly to a changing market environment, they have made an enormous and widely recognized contribution to Taiwan's economic growth. The following sections examine the way in which Taiwan's SME sector has developed over the long term.

1. The Number of SMEs in Taiwan Has Tended to Increase Over Time

As can be seen from the data presented in Figure 2-3-1, broadly speaking, the number of SMEs in Taiwan grew steadily over the period from 1982 to 2007, rising from 702,000 SMEs in 1982 to 1,236,000 in 2007.

Figure 2-3-1 The Number of SMEs in Taiwan, and SMEs' Share of All Enterprises, 1982 – 2007



Source: Small and Medium Enterprise Administration, *White Paper on Small and Medium Enterprises in Taiwan*, consecutive years.

During the period 1982–1986, SMEs' share of the total number of enterprises in Taiwan remained at over 98%. It fell to under 97% in 1992–1994, but since then has remained at over 97%. SMEs have thus always accounted for the vast majority of business enterprises in Taiwan.

The official definition of the term "SME" was revised in 1995, 2000 and 2005; on each occasion, the alteration of the definition caused the SMEs' share of all enterprises to rise. In the last few years, the growth of franchise and chain stores, and the establishment of large numbers of SOHO-type and online businesses resulting from the rapid pace of change in technology have had a substantial impact on the form of organization adopted by SMEs, and on the number of enterprises securing business registration.

2. Firms with Capitalization of Less Than NT$100,000 Account for the Largest Share of Enterprises

Firms with registered capital of less than NT$100,000 (hereinafter referred to as "very small enterprises") have consistently accounted for the largest share of business enterprises in Taiwan. In 1987 there were 505,000 very small enterprises, representing 66.27% of all business enterprises in the country. From 1987 to 1999 the number fluctuated between 505,000 and 522,000; however, apart from a spike in 1993 (when very small enterprises accounted for 62.4% of all enterprises in Taiwan), the very small enterprises' share of all business enterprises has tended to fall over time.

The number of very small enterprises rose during the period 2003–2005, but then started to fall again. The very small enterprises' share of all business enterprises also fell; by 2007 it had declined to 42.33%, the lowest level since 1987. Even so, very small enterprises continue to account for a large share of business enterprises.

3. SMEs' Sales Have Increased Over the Years, but Their Share of Total Sales Has Been Falling Slowly

In absolute terms, the total annual sales of Taiwan's SMEs have increased steadily over the period 1986–2007, rising from NT$2,620 billion in 1986 to NT$10,160 billion in 2007. However, the SMEs' share of the total sales of all enterprises in Taiwan peaked in 1986 at 40.28%, since when it has tended to fall. The relaxation of the definition of SMEs in 1995 caused the SMEs' share of total sales to rise again temporarily, but the further relaxation in 2000 resulted in only a very slight increase. In 2001, Taiwan

posted an economic growth rate of –2.17%, and SMEs' annual sales fell by 7.67%, causing the SMEs' share of total sales for all enterprises to fall to a historic low of 28.38%.

Although SMEs' annual sales have risen steadily in absolute terms since 2001, there has not been a corresponding increase in the SMEs' share of total sales for all enterprises. However, it is worth noting that, as the statistics presented above are based on the Ministry of Finance Tax Data Center's VAT data, they do not include those SMEs that are exempted from issuing (or which fail to issue) uniform invoices; actual SME sales revenue will thus be somewhat higher.

4. SMEs' Export Sales Have Increased Slowly in Absolute Terms, but Have Fallen as a Share of Total Export Sales by All Enterprises

The Taiwanese economy has always relied heavily on exports, and it is generally accepted that the strong export performance of Taiwan's SMEs played an important part in the country's economic development. Prior to 1997, the calculation of SME export sales was based on the export sales of trading companies combined with estimates based on customs export statistics, and the totals were expressed in US dollars. Since 1997, the calculation of SME exports has been based on the Ministry of Finance Tax Data Center's statistics for total sales at the zero VAT rate, with the resulting figures being expressed in NT dollars. It is thus not possible to make a direct comparison between the data for years prior to 1997 and the data for years after that date.

The combined export sales of Taiwan's SMEs rose from NT$1,250 billion in 1997 to NT$1,630 billion in 2007. Overall, SMEs' export sales have tended to rise over time, although with some slight fluctuations. The SME's share of export sales by all enterprises declined from 26.42% in 1997 to 16.91% in 2004. Although SMEs' exports began to grow rapidly from 2003 onwards, the rate of growth in large enterprises' exports was higher. In 2007, large enterprises' export sales rose by 11.06%, causing the SMEs' share of total export sales to fall slightly compared to 2006. Large enterprises are now the main source of Taiwan's exports.

In recent years, although SME's export sales have continued to grow in absolute terms, their share of total export sales by all enterprises has been falling steadily. The main reason for this trend is increased overseas investment by SMEs. Whereas in the

past SMEs were mainly oriented towards export markets while large enterprises focused on the Taiwanese domestic market, this situation is now changing; the collaborative relationship between large enterprises and SMEs is undergoing a transformation.

5. Steady Growth in the Number of Employed Persons Working in SMEs

The number of employed persons working in SMEs has risen steadily, from 6.27 million in 1987 to 7.94 million in 2007; the latter figure represented 5.6 times the number of employed persons working in large enterprises (1.42 million). The SMEs' share of all employed persons peaked in 1994–1995 at 79.8%; in the past decade the percentage has fallen more often than it has risen, with the lowest figure being the 76.7% recorded in 2006 (the SMEs' share rose again to 77.1% in 2007).

6. A Gradual Increase in the Percentage of SMEs That Have Been in Existence for 20 Years or More

Examination of the trends in the age of SMEs over the period 1995–2007 shows that the share of all SMEs held by newly-established SMEs that had been in existence for less than 1 year fell to its lowest point (7.52%) in 2007; the highest level was the 10.22% recorded in 2005. In 1995, only 8.84% of SMEs had been in existence for 20 years or more; by 2007, this figure had risen to 19.59% (Table 2-3-1).

Table 2-3-1 Trends in SME Age, 1995 – 2007

Enterprise Age / Year	Less than 1 year	1 – 2 years	2 – 3 years	3 – 4 years	4 – 5 years	5 – 10 years	10 – 20 years	20 years or more
1995	10.15	10.31	8.77	8.40	6.28	20.66	26.58	8.84
1996	9.30	10.02	8.47	7.36	7.24	20.72	27.26	9.63
1997	10.19	8.91	8.09	7.02	6.25	21.62	24.80	13.11
1998	9.94	9.77	7.23	6.83	6.03	21.68	24.31	14.22
1999	9.50	9.61	7.93	6.09	5.92	22.06	23.91	15.00
2000	9.04	9.27	7.86	6.72	5.30	22.57	23.58	15.66
2001	8.79	8.68	7.60	6.69	5.85	21.89	24.17	16.33
2002	8.28	8.51	7.01	6.39	5.78	21.16	25.26	17.61
2003	9.30	9.40	7.41	5.97	5.15	20.57	23.97	18.23
2004	10.17	8.79	7.73	6.32	5.18	19.83	23.71	18.28
2005	10.22	8.81	7.75	6.37	5.19	19.83	23.63	18.20
2006	8.71	9.69	7.35	6.69	5.64	19.87	23.32	18.73
2007	**7.52**	**8.58**	**8.09**	**6.31**	**5.86**	**20.10**	**23.95**	**19.59**

Note: Data for Lienchiang County (Fukien Province) are included in the calculations from 2005 onwards.
Source: Ministry of Finance Tax Data Center, VAT data, consecutive years.

7. Newly-established SMEs' Share of All SMEs Has Gradually Been Falling

Over the last three years, the number of newly-established SMEs, newly-established SMEs' combined sales, and the share of all SMEs held by newly-established SMEs, have all been falling steadily. The newly-established SMEs' share of total SME exports fell from 3.18% in 2001 to 0.99% in 2006, but then rose slightly in 2007 (Table 2-3-2).

Table 2-3-2 Newly-established SMEs' Shares of All SMEs and of SME Sales, 2001 – 2007

Units: enterprises; NT$ millions; %

Indicator \ Year		2001	2002	2003	2004	2005	2006	2007
No. of enterprises	All SMEs	1,078,162	1,104,706	1,147,200	1,176,986	1,226,095	1,244,099	1,236,586
	Newly-established SMEs	94,803	91,435	111,566	109,883	125,313	108,320	92,957
	Share	8.79	8.28	9.73	9.34	10.22	8.71	7.52
Total sales	All SMEs	6,841,565	7,495,287	8,708,904	9,726,721	10,000,220	10,241,215	10,171,750
	Newly-established SMEs	231,363	247,292	295,501	271,468	277,631	236,973	208,738
	Share	3.38	3.30	3.39	2.79	2.78	2.31	2.05
Domestic sales	All SMEs	5,541,613	6,144,404	7,381,065	8,278,347	8,481,397	8,678,992	8,536,591
	Newly-established SMEs	190,003	204,968	266,765	242,473	256,192	221,496	192,022
	Share	3.43	3.34	3.61	2.93	3.02	2.55	2.25
Export sales	All SMEs	1,300,385	1,350,884	1,327,839	1,448,374	1,518,823	1,562,224	1,633,159
	Newly-established SMEs	41,384	42,324	28,736	28,995	21,438	15,477	16,716
	Share	3.18	3.13	2.16	2.00	1.41	0.99	1.02

Note: Data for Lienchiang County (Fukien Province) are included in the calculations from 2003 onwards.
Source: Ministry of Finance Tax Data Center, VAT data, consecutive years.

IV Operational Performance of SMEs Owned by Female Entrepreneurs

The statistics presented in this section are based on the Ministry of Finance Tax Data Center's VAT data for 2007. Key indicators – including the number of enterprises, total sales, domestic sales and export sales – are used to examine the current status of SMEs owned or run by female entrepreneurs.

The Tax Data Center's VAT statistics do not break enterprises down by the sex of the owner, so this information had to be obtained by examining the ID card numbers given for enterprise owners (making use of the fact that, if the first roman numeral in the ID card number is a "1," this indicates a man, and if the first roman numeral is a "2," this indicates a woman). Enterprises where a company or a foreigner was listed as

the owner were excluded; however, it was not possible to identify and exclude those enterprises where a woman is the nominal owner but is not actually running the company, or holds only a very small share in the company. There is thus some discrepancy between the totals for all enterprises and the sum of the totals for male- and female-owned enterprises.

1. Around One-third of Enterprises in Taiwan Are Owned by Women

In 2007, there were 1,258,678 enterprises in Taiwan where it was possible to determine the sex of the business owner. 443,088 of these enterprises (35.20% of the total) were owned by women; 64.80% of the enterprises were owned by men (Table 2-4-1).

Only 18.22% of large enterprises were owned by women, but 35.59% of SMEs were owned by women. SMEs accounted for 98.83% of all female-owned enterprises.

Table 2-4-1 Number of Enterprises and Sales Performance in 2007 – by Sex of Business Owner

Units: enterprises; NT$ millions; %

Indicator \ Enterprise Size	All Enterprises	SMEs	Large Enterprises
No. of enterprises	1,258,678	1,230,338	28,340
Female-owned enterprises	443,088	437,924	5,164
Female-owned enterprises as share of total (%)	35.20	35.59	18.22
Total sales	32,877,347	9,918,597	22,958,750
Female-owned enterprises' total sales	4,356,030	2,246,760	2,109,270
Female-owned enterprises' total sales as share of total (%)	13.25	22.65	9.19
Domestic sales	24,576,616	8,389,809	16,186,807
Female-owned enterprises' domestic sales	3,653,920	2,000,126	1,653,795
Female-owned enterprises' domestic sales as share of total (%)	14.87	23.84	10.22
Export sales	8,300,731	1,528,788	6,771,944
Female-owned enterprises' export sales	702,110	246,635	455,475
Female-owned enterprises' export sales as share of total (%)	8.46	16.13	6.73

Note: 1. Whether an enterprise was male-owned or female-owned was determined using the registered identity of the business owner.
2. The totals for "all enterprises" given in this table do not conform to those given in Table 2-1-1 because some enterprises are registered as being owned by other enterprises or by foreigners; these enterprises were excluded from the data used in this table.

Source: Ministry of Finance Tax Data Center, VAT data for 2007.

2. Female-owned Enterprises Account for 13.25% of the Total Sales for All Enterprises

In 2007, Taiwan's female-owned enterprises posted combined sales of NT$4,356

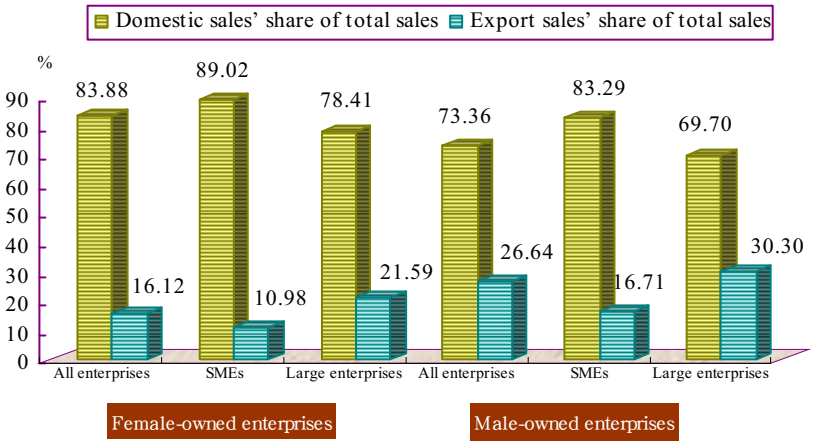
billion, representing 13.25% of the total sales for all enterprises. Female-owned enterprises' domestic sales totaled NT$3,653.9 billion, accounting for 14.87% of the total domestic sales for all enterprises; female-owned enterprises' export sales came to NT$702.1 billion, representing 8.46% of the total export sales for all enterprises. Overall, therefore, female-owned enterprises accounted for a significantly smaller share of total sales, domestic sales and export sales than did male-owned enterprises. Female-owned large enterprises' shares of total sales, domestic sales and export sales by large enterprises came to 22.65%, 23.84% and 16.13%, respectively.

Average annual sales per enterprise per female-owned enterprise in 2007 came to NT$9.83 million; average annual sales per enterprise for male-owned enterprises were 3.6 times as high, at NT$34.97 million. Overall, female-owned enterprises account for less than 20% of total sales by all enterprises.

3. Female-owned Enterprises are More Oriented Towards the Domestic Market

In 2007, domestic sales accounted for 83.88% of the total sales of female-owned enterprises, with export sales accounting for only 16.12% (giving a disparity of 67.76 percentage points). By contrast, export sales accounted for 26.64% of the total sales of male-owned enterprises, while domestic scales accounted for 73.36%, giving a disparity of only 46.72 percentage points. Female-owned enterprises are thus more oriented towards the domestic market than are male-owned enterprises (Figure 2-4-1).

Figure 2-4-1 Domestic Sales' and Export Sales' Share of Total Sales in 2007 – by Sex of Business Owner

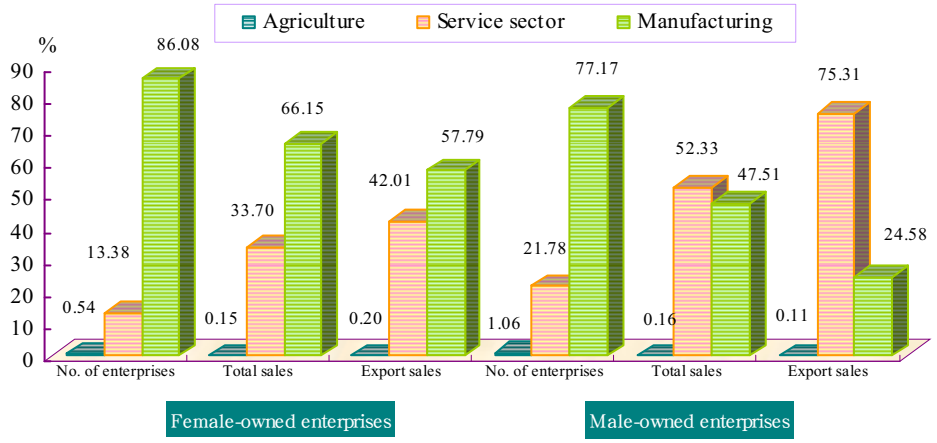


Notes and Source: See Table 2-4-1.

4. Female-owned Enterprises are Heavily Concentrated in the Service Sector

For both male-owned and female-owned enterprises, the agricultural sector accounts for only a very small share of the total number of enterprises, total sales and export sales. Female-owned enterprises in the service sector account for the largest share of all female-owned enterprises, the largest share of total sales for all female-owned enterprises, and the largest share of export sales for all female-owned enterprises. In particular, 86.08% of female-owned enterprises are in the service sector; the corresponding percentage for male-owned enterprises is 77.17%. For male-owned enterprises, the manufacturing sector accounts for the largest shares of both total sales and export sales (75.31% in the case of export sales) (Figure 2-4-2).

Figure 2-4-2 Taiwan's Industrial Structure in 2007 – by Sex of Enterprise Owner



Notes and Source: See Table 2-4-1.

Within the service sector, female-owned enterprises have average annual sales per enterprise of NT$8.28 million, while the figure for male-owned enterprises is 2.9 times as high, at NT$23.74 million. In the manufacturing sector, average annual sales per enterprise come to NT$20.08 million for female-owned enterprises; for male-owned enterprises, they are 3.8 times as high, at NT$76.05 million.

5. Around One-quarter of Female-owned Enterprises Have Been in Existence for 10 Years or More

Enterprise age structure is broadly the same for female-owned enterprises and

male-owned enterprises. 38.86% of female-owned enterprises have been in existence for less than 5 years, with 61.14% having been in existence for 5 years or more. The corresponding percentages for male-owned enterprises are 34.18% and 65.82%, respectively. 41.00% of female-owned enterprises have been in existence for 10 years or more, compared to 45.68% for male-owned enterprises. It is noticeable that the percentage of female-owned enterprises that have been in existence for 5 years or more is slightly lower than the percentage of male-owned enterprises that have been in existence this long (Table 2-4-2).

Table 2-4-2 Enterprise Age Structure in 2007 – by Sex of Enterprise Owner

Units: enterprises; %

Sex of Owner / Enterprise Age	All Enterprises		Female-owned Enterprises		Male-owned Enterprises	
	No. of enterprises	Share	No. of enterprises	Share	No. of enterprises	Share
Total	**1,258,678**	**100.00**	**443,088**	**100.00**	**815,590**	**100.00**
Less than 1 year	92,470	7.35	35,590	8.03	56,880	6.97
1 – 2 years	106,164	8.43	40,102	9.05	66,062	8.10
2 – 3 years	100,451	7.98	39,270	8.86	61,181	7.50
3 – 4 years	78,615	6.25	29,587	6.68	49,028	6.01
4 – 5 years	73,340	5.83	27,648	6.24	45,692	5.60
5 – 10 years	253,462	20.14	89,260	20.14	164,202	20.13
10 – 20 years	304,498	24.19	101,313	22.87	203,185	24.91
20 years or more	249,678	19.84	80,318	18.13	169,360	20.77

Notes and Source: See Table 2-4-1.

6. Female-owned Enterprises Account for More Than Half of the Total Number of Enterprises, Total Sales and Export Sales and the Wholesaling and Retailing Industry

Viewed in terms of individual industries, in 2007 the wholesaling and retailing industry accounted for the largest share of female-owned enterprises (55.47%), and for the largest shares of female-owned enterprises' total sales (51.48%) and export sales (64.91%). For male-owned enterprises, the wholesaling and retailing industry accounted for the largest share of enterprises (51.44%), but manufacturing industry accounted for the largest shares of total sales (40.15%) and export sales (69.56%) (Table 2-4-3).

Table 2-4-3 Individual Industries' Shares of the Number of Enterprises, Total Sales and Export Sales in 2007 – by Sex of Enterprise Owner

Item / Industry	No. of Enterprises		Total Sales		Export Sales	
	Female-owned Enterprises	Male-owned Enterprises	Female-owned Enterprises	Male-owned Enterprises	Female-owned Enterprises	Male-owned Enterprises
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Agriculture, forestry, fisheries and animal husbandry	0.54	1.03	0.12	0.09	0.08	0.03
Mining and quarrying	0.07	0.14	0.13	0.17	0.01	0.01
Manufacturing	7.80	12.57	18.23	40.15	28.97	69.56
Electric power and gas supply	0.01	0.04	0.85	1.93	0.00	0.14
Water supply and pollution prevention	0.44	0.57	0.74	0.45	0.22	0.09
Construction	5.08	8.55	7.44	4.87	0.43	0.29
Wholesaling and retailing	55.47	51.44	51.48	31.71	64.91	24.75
Transportation and warehousing	1.70	2.96	3.17	2.50	3.04	3.15
Hotel and restaurant industry	11.89	6.86	2.19	0.74	0.22	0.01
Information, communications and broadcasting	1.02	1.36	1.60	2.27	1.37	0.94
Finance and insurance	0.98	1.44	5.86	10.46	0.05	0.02
Real estate	1.25	1.75	3.73	2.11	0.18	0.03
Professional, scientific and technical services	2.72	2.85	2.18	1.32	0.42	0.89
Support services	2.25	2.01	1.03	0.62	0.09	0.07
Educational services	0.04	0.04	0.01	0.01	0.00	0.00
Medical, healthcare and social services	0.02	0.03	0.01	0.01	0.00	0.00
Arts, entertainment and leisure services	1.74	1.90	0.34	0.19	0.01	0.00
Other service industries	6.99	4.47	0.89	0.40	0.01	0.01

Notes and source: See Table 2-4-1.

7. Around 65% of Female-owned Enterprises Are Sole Proprietorships

As can be seen from Table 2-4-4, sole proprietorships were the most common form of organization for female-owned enterprises, accounting for 64.98% of all female-owned enterprises. Limited corporations were the next most common form of organization, with 25.08% of the total, followed by corporations limited by shares, with 6.67%. Apart from partnerships (1.41%), the shares held by other forms of organization were all under 1%. The most common forms of organization for male-owned enterprises were sole proprietorships (52.55%), limited corporations (28.93%) and corporations limited by shares (12.32%).

Table 2-4-4 Forms of Enterprise Organization in 2007 – by Sex of Enterprise Owner

Units: enterprises; %

Sex of Enterprise Owner / Form of organization	All Enterprises		Female-owned Enterprises		Male-owned Enterprises	
	No. of Enterprises	Share	No. of Enterprises	Share	No. of Enterprises	Share
Total	**1,258,678**	**100.00**	**443,088**	**100.00**	**815,590**	**100.00**
Corporations limited by share	130,015	10.33	29,560	6.67	100,455	12.32
Limited corporations	347,121	27.58	111,147	25.08	235,974	28.93
Unlimited corporations	50	0.00	18	0.00	32	0.00
Unlimited corporations with limited liability shareholders	16	0.00	5	0.00	11	0.00
Partnerships	19,147	1.52	6,232	1.41	12,915	1.58
Sole proprietorships	716,550	56.93	287,933	64.98	428,617	52.55
Foreign-owned companies	1,884	0.15	546	0.12	1,338	0.16
Representative offices of foreign companies	79	0.01	16	0.00	63	0.01
Branch offices	27,298	2.17	4,152	0.94	23,146	2.84
Other	16,518	1.31	3,479	0.79	13,039	1.60

Notes and Source: See Table 2-4-1.

8. The Female Labor Participation Rate Has Risen Steadily

There is a worldwide trend for women to participate more actively in economic activity. According to data compiled by the IMD in Switzerland, as of 2007 the female labor participation rate in Taiwan was the 35th highest in the world. A May 2007 survey by the Directorate-General of Budget, Accounting and Statistics (DGBAS), Executive Yuan indicated that the female labor participation rate in Taiwan was 49.35%, up 1.09 percentage points from 2006; the male labor participation rate was 67.12%, 0.24 percentage points down on 2006. Examination of the data for the last 20 years show that the female labor participation rate has increased in line with increased educational opportunities for women and the creation of new jobs in the service sector (Table 2-4-5).

Table 2-4-5 Changes in the Labor Force Participation Rate – by Sex

Year / Item	1987	1992	1997	2002	2003	2004	2005	2006	2007
Total	**60.14**	**59.10**	**58.11**	**57.31**	**57.13**	**57.59**	**57.72**	**57.72**	**58.14**
Men	74.41	73.83	70.43	68.13	67.53	67.74	67.72	67.36	67.12
Women	45.79	44.32	45.86	46.61	46.88	47.61	47.91	48.26	49.35
Single	56.40	52.60	49.91	52.53	52.99	54.55	55.49	55.96	57.14
Married or cohabiting	43.74	43.23	46.98	47.30	47.34	47.84	47.88	48.38	49.57
Divorced, separated or widowed	26.23	26.91	27.60	27.55	28.43	28.56	29.21	28.75	29.91

Source: DGBAS, Executive Yuan, *Taiwan Region Manpower and Employment Survey*, 2007.

9. Female Business Owners

There were just over 92,000 female employers in Taiwan in 2007, accounting for 17.79% of all employers. SME business owners accounted for by far the largest share of these. There were 350,000 female self-employed persons, representing 25.10% of all self-employed persons in Taiwan. The combined total of female employers and female self-employed was just over 443,000, accounting for 23.11% of all employers and self-employed persons in Taiwan (Table 2-4-6).

Table 2-4-6 No. of Female Employers and Self-employed Persons in 2007

Item	Total (Both Sexes)		Female		
	No. of Persons	Share	No. of Persons	Share	Female's Share of the Total for Both Sexes
Total	**1,918,722**	**100.00**	**443,338**	**100.00**	**23.11**
Employers	522,562	27.23	92,958	20.97	17.79
SME employers	518,727	27.04	92,419	20.85	17.82
Large enterprise employers	3,835	0.20	539	0.12	14.05
Self-employed	1,396,160	72.77	350,380	79.03	25.10

Source: DGBAS, Executive Yuan, *Monthly Bulletin of Manpower Statistics,* 2007.

V International Comparison

This section presents an international comparison of key SME indicators, covering 15 countries and regions, including Taiwan, Australia, Canada, Hong Kong, Japan, Malaysia, Mexico, New Zealand, the Philippines, Russia, Singapore, South Korea, Thailand, the U.K. and the U.S. (Table 2-5-1). Different countries define SMEs differently, and in some cases data for the years covered by the comparison are not available. As far as possible, appropriate adjustments have been made, but readers should be aware of these limitations when examining the data.

1. Definition of SMEs

Of the 15 countries and regions covered by the comparison, Canada has the broadest definition of SMEs; in Canada, any enterprise with 500 or fewer employees is classed as an SME. The U.S. uses the same definition for enterprises in the manufacturing sector. New Zealand has the most stringent criteria, setting the cut-off point for SMEs at 19 employees. In some countries, the definition of SMEs varies depending on the industry

Table 2-5-1 The Definition of SMEs Used in Different Countries and Regions

Country/Region	Industry	No. of Employees		Annual Sales Revenue	Capitalization	Other
Taiwan	Manufacturing, construction, and mining and quarrying	200	or		NT$80 million	
	Other industries	50	or	NT$100 million		
Australia		200				
Canada		500				
Hong Kong	Manufacturing sector	100				
	Non-manufacturing sector	50				
Japan	Other sectors	300	or		300 million Yen	
	Wholesaling sector	100	or		100 million Yen	
	Service sector	100	or		50 million Yen	
	Retail sector	50	or		50 million Yen	
Malaysia	Manufacturing	150	or		25 million Ringgit	
	Services	50	or		5 million Ringgit	
Mexico	Manufacturing	250				
	Retailing	100				
	Services	100				
New Zealand		19				
Philippines		200	or		100 million Pesos	
Russia						No precise definition
Singapore	Services	200				
	Manufacturing					Fixed assets worth 15 million Singaporean Dollars or more
South Korea	Manufacturing	300	or		8 billion Won	
	Mining, construction and transportation	300	or		8 billion Won	
	Large wholesalers, hotels, and information processing companies	300	or	30 billion Won		
	Seedling cultivation, broadcasting, fisheries and energy	200	or	20 billion Won		
	Wholesaling, telemarketing, leasing, communications equipment sales, and entertainment	100	or	10 billion Won		
	Other			5 billion Won		
Thailand	Manufacturing and services	200	or		200 million Baht	
	Wholesaling	50	or		100 million Baht	
	Retailing	30	or		60 million Baht	
U.K.		250		2.28 billion Pounds	1.14 billion Pounds	
U.S.A.	Manufacturing	500				
	Wholesaling	100				
	Retailing					Average annual operating revenue of less than US$6.5 million
	Services					Average annual operating revenue of less than US$6.5 million
	Construction					Average annual operating revenue of less than US$31 million

Sources: Taiwan: White Paper on Small and Medium Enterprises in Taiwan, consecutive years.
Australia: Australian Bureau of Statistics, /www.abs.gov.au/
Canada: Industry Canada, /www.ic.gc.ca/sbstatistics/
Hong Kong: Support and Consultation Centre of SMEs, /www.success.tid.gov.hk/
Japan: Small and Medium Enterprise Agency, /www.chusho.meti..go.jp/
Malaysia: Small and Medium Industries Development Corporation, /www.smidec.gov.my/
Mexico: *SMEs in Mexico: Issues and Policies.*
New Zealand: Ministry of Economic Development, /www.med.govt.nz/
Philippines: National Statistics Office, /www.census.gov.ph/
Russia: Russian SME Resource Centre, /docs.rcsme.ru/
Singapore: *International SME Development Strategies and Guidance Measures in 2008.*
South Korea: Small and Medium Business Administration, /www.smba.go.kr/
Thailand: Office of SMEs Promotion.
U.K.: *International SME Development Strategies and Guidance Measures in 2008.*
U.S.A.: Office of Advocacy, Small Business Administration, /www.sba.gov/advo/

to which the enterprise belongs. In Hong Kong, enterprises in the manufacturing sector with 100 or fewer employees are classed as SMEs, while for firms in the non-manufacturing sector the cut-off point is 50 employees. In Japan, the cut-off point is set at 100 employees in the wholesaling and service sectors, 50 employees in the retail sector, and 300 employees in other sectors. In South Korea, for most industries those firms with 300 or fewer employees are classed as SMEs, although a cut-off point of 200 employees applies in the seedling cultivation industry and the broadcasting industry, and a cut-off point of 100 employees applies in some other industries. The situation in Malaysia and Thailand is broadly similar. In Singapore, SME status is determined separately in the service and manufacturing sectors according to the number of employees and the size of the firm's fixed assets. Russia has no clear definition of what constitutes an SME (Table 2-5-1).

Taiwan uses two different standards for determining whether a firm should be classed as an SME or not; one system is based on the number of employed persons, while the other is based on annual sales revenue or capitalization. If sales revenue or capitalization is used, then SMEs are defined as enterprises with paid-in capital of less than NT$80 million in the manufacturing, construction, and mining and quarrying industries, and as enterprises with annual turnover of less than NT$100 million in other industries. If the number of employed persons is used, then SMEs are defined as enterprises with 200 or fewer employees in the manufacturing, construction, and mining and quarrying industries, and as enterprises with 50 or fewer employees in all other industries. For the purpose of this comparison, the data for Taiwan use the definition of SMEs based on annual sales revenue and paid-in capital, except with regard to the number of employed persons.

2. SME Development

(1) Number of Enterprises

In absolute terms, the U.S. has the largest number of SMEs. In 2005, there were 25.82 million SMEs in the U.S.; Russia is in second place with 8.73 million (2003), followed by Japan with 5.64 million (2004). In all of the 15 countries and regions that are compared in this section, SMEs account for a very high percentage of all enterprises. The percentage exceeds 90% in every country except the Philippines, and in 11 cases it exceeds 97%. It can thus be seen that SMEs play a vital role in the economic structure of almost every country. In 2007, Taiwan had 1,236,000 SMEs in the non-agricultural

sector, accounting for 97.63% of all enterprises; these figures show that, in Taiwan too, SMEs are very important to the economy.

(2) Employment

If SMEs in the agricultural sector are excluded, the U.S. ranks highest in terms of SME employment, with 76.46 million people working in SMEs in 2005. Japan and Russia are in second place, with 41.24 million people (2004) and 39.96 million people (2003), respectively. In every country except Australia and New Zealand, more than 50% of employed persons are working in SMEs; the percentage is particularly high in South Korea (86.53% in 2004). It can thus be seen that, in the vast majority of countries and regions, SMEs provide more than half of all employment. In Taiwan's case, there are 7.4 million people working in SMEs, representing 71.91% of all employed persons in the country; this percentage is exceeded only by South Korea, Japan, Thailand and Mexico.

(3) Sales

In Taiwan in 2007, SMEs accounted for 28.34% of the total sales of all enterprises; this figure was very close to that for the U.S. in 2002 (31%). Apart from Singapore (where, in 2005, SMEs accounted for 77.82% of sales in an economy that is dominated by the service sector), the countries where SMEs account for the largest share of total sales are the U.K., at 58.58% (2006), and Russia, at 53.78% (2003). In only three countries – Singapore, the U.K. and Russia – do SMEs account for more than 50% of total sales; in this respect, the importance of large enterprises significantly exceeds that of SMEs in most countries and regions.

(4) Export Sales

The country where SME export sales account for the largest share of total export sales for all enterprises is Australia, with a figure of 42% in 2004. South Korea is in second place with 39.06% (2004), followed by Canada with 35.06% (2002). In Taiwan, in 2007, SMEs accounted for 17.02% of total export sales value. This figure represented a decline of 0.87 percentage points compared to 2006. The relatively low export sales ratio for Taiwan's SMEs may reflect the fact that, whereas in the past Taiwan's SMEs exported finished goods directly themselves, they are now positioning themselves more as suppliers of components to large enterprises in Taiwan.

(5) New SMEs and SME Failure

The number of new enterprises being established and the number of enterprises going out of business are important indicators of the overall health of the economy. If the number of new enterprises being set up is significantly larger than the number of SMEs going out of business, this indicates that the economy is growing strongly. An examination of the number of newly-established SMEs and the number of SMEs going out of business can also help to indicate how flexibly SMEs are responding to changing economic circumstances.

Table 2-5-2 International Comparison of SMEs

Units: thousand enterprises; thousand persons; %

Item / Country / Region	Non-agricultural Sector SMEs				SMEs' Share of Total Sales	SMEs' Share of Export Sales	Newly-established SMEs as % of All SMEs	SMEs that Have Gone Out of Business as % of All SMEs
	No. of SMEs	Share of All Enterprises	No. of Employed Persons	Share of All Enterprises				
Taiwan[2] (2007)	1,236	97.63	7,400	71.91	28.34	17.02	7.52	—
Australia[3] (2005)	1,200	96.00	3,300	34.41	—	42.00 (2004)	—	—
Canada (2006)	2,310*	99.86*	6,760	63.60	—	35.06 (2002)	10.5 (2003)	9.7 (2003)
Hong Kong (2007)	260	98.00	1,210	50.00	—	—	2.7 (2002)	3.2 (2002)
Japan[5] (2004)	5,640	98.94	41,240	79.56	48.20 (2002)	—	2.7 (2002)	3.2 (2002)
Malaysia (2005)	520	99.20	2,940	63.91	—	16.59 (2003)	—	—
Mexico (2006)	4,000	99.00	—	72.00	—	27.8 (2004)	—	—
New Zealand (2005)	320	96.30	510	29.68	—	—	17.86	14.82
Philippines* (2004)	680	86.88	3,910	69.23	—	—	—	—
Russia[6] (2003) * 251persons	8,440	94.35	32,050	48.81	46.89	—	—	—
500persons	8,730	97.57	39,960	60.86	53.78	—	—	—
Singapore (2005)	138.2	99.65	733.3	70.01	77.82	—	—	—
South Korea (2004)	3,000	99.80	10,410	86.53	—	39.06	1.75	—
Thailand (2006)	2,270	99.50	11,550	76.70	47.91 (2003)	29.00	—	—
U.K. (2006)	4,290	95.94	13,800	61.62	58.58	—	4.8 (2002)	4.9 (2002)
U.S.A.[7] (2005)	25,820	99.70	76,460	50.70	31.00 (2002)	28.60 (2004)	2.60	2.26

Notes: 1. The percentages given represent the figures for SMEs as a percentage of all enterprises.
2. Details of the definitions of SMEs used in Taiwan are given in Appendix B.
3. Small businesses account for the bulk of Australian SMEs.
4. * indicates that the data include the agricultural sector.
5. In Japan, SMEs are defined as follows: enterprises in the mining, manufacturing, transportation and construction industries with less than 300 employees; enterprises in the wholesaling industry with less than 100 employees; enterprises in the retail industry and service industries with less than 50 employees.
6. Russia has no precise definition of SMEs. For the purpose of international comparison, Russian enterprises are grouped into those with less than 251 employees and those with less than 500.
7. In the U.S.A., SMEs are defined as those enterprises with less than 500 employees.

Sources: Japan: Statistics Bureau, /www.stat.go.jp/
Malaysia: SME Info One Stop SME Resources, /www.smeinfo.gov.my/
Thailand: *International SME Development Strategies and Guidance Measures in 2008.*
U.K.: Department for Business Enterprise & Regulatory Reform, /stats.berr.gov.uk/
Other countries and regions: See Table 2-5-1.

As can be seen from Table 2-5-2, there are only two countries in which the newly-established SMEs' share of all SMEs exceeds 10%: New Zealand (17.86%) and Canada (2003 data). However, New Zealand also has a very high percentage (14.82%) of SMEs going out of business every year. With a net annual growth rate in the number of SMEs of approximately 3%, New Zealand can be seen to have a strongly entrepreneurial culture. In both the U.S. and the U.K., the number of new SMEs established each year is roughly equal to the number of SMEs going out of business, creating a situation of zero growth. Canada experienced some slight growth in the number of SMEs in 2003; newly-established SMEs accounted for 10.5% of all SMEs, while those SMEs going out of business in that year accounted for 9.7% of the total, giving a growth rate of 0.8%. By contrast, in Japan in 2002 the number of SMEs going out of business was higher than the number of new SMEs being established, reflecting the continuing decline in Japan's economic vitality.

In South Korea, newly-established SMEs accounted for 1.75% of all SMEs in 2004, while in Taiwan in 2007 the percentage was 7.52%; unfortunately, comprehensive data on the number of SMEs going out of business are not available for either country, making it difficult to undertake a meaningful comparison.

Chapter 3

Financial Status of SMEs

Financial analysis is a vital tool for gaining a better understanding of the development of Taiwan's SMEs and of their current status; the various financial ratios can help to shed light on the way in which SMEs are managed and run. Sections I and II of this chapter examine the financial status of the SME sector as a whole. Unfortunately, owing to the difficulties involved in securing financial data for SMEs, the data have to be taken from business income tax return data supplied by the Ministry of Finance Tax Data Center; with these data, there is a one-year time lag as compared to the data presented in the other chapters of the white paper, and so the data presented this year are for 2006. Section III analyzes the sources of funds for the manufacturing sector and the reasons for the difficulty in acquiring funds. Section IV examines the interaction between banks and SMEs based on the changes that can be observed in the statistical data.

Due to the varying sources of data, the definition of SMEs used in different sections of this chapter also varies. In Section I and Section II, which use business income tax data compiled by the Ministry of Finance Tax Data Center, the definition of SMEs used is the revised definition announced by the Ministry of Economic Affairs in July 2005 (see Appendix B). The data in Section III are taken from the Status Survey Report on the Domestic Investment of Manufacturing Industry published by the Statistics Department, Ministry of Economic Affairs. The data in Section IV are taken from the Summary of Financial Statistics published by the Financial Supervisory Commission, Executive Yuan, and from data published by the Central Bank; the definitions of SMEs used are the same as those used in Sections I and II.

I Overall Financial Status of SMEs

In this section, consolidated balance sheet data (where the figures for each account in the balance sheet are converted into percentages of total assets) are used to examine the fund utilization and funding sources of large enterprises and SMEs; consolidated data are also used to examine enterprise profit/loss status.

1. Analysis of Fund Utilization by SMEs

(1) A Substantial Fall in Funds and Long-term Investments

As can be seen from Table 3-1-1, for large enterprises the share of total assets held by funds and long-term investment fell by 17.74 percentage points in 2006 compared to 2005, while for SMEs the share fell by 12.41 percentage points. For large enterprises, the biggest increase compared to 2005 was in current assets, at 9.22 percentage points, followed by fixed assets, with 7.23 percentage points. In the case of SMEs, while liquid assets rose by 20.88 percentage points compared to 2005, fixed assets fell by 7.87 percentage points.

Table 3-1-1 Consolidated Financial Data for Taiwanese Enterprises, 2004 – 2006

Unit: %

Size / Year / Item	Large Enterprises			SMEs		
	2004	2005	2006	2004	2005	2006
Current assets	66.40	65.03	74.25	60.01	55.96	76.84
Cash	27.78	28.26	21.79	16.15	15.61	49.32
Accounts receivable	29.93	26.64	37.36	16.99	15.84	10.87
Inventories	5.67	7.33	10.81	23.23	21.10	14.17
Advance payments	0.51	0.44	0.56	1.59	1.50	1.08
Other current assets	2.50	2.36	3.74	2.05	1.90	1.41
Funds and long-term investments	16.62	19.32	1.58	9.61	16.28	3.87
Fixed assets	13.08	11.99	19.22	27.39	24.87	17.00
Land and buildings	6.83	5.62	8.57	17.01	15.31	10.29
Machinery	5.13	5.41	9.17	8.42	7.80	5.50
Other fixed assets	1.12	0.96	1.48	1.95	1.76	1.21
Intangible and other assets	3.91	3.66	4.95	2.99	2.90	2.29
Total assets = Liabilities + net worth	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Liabilities	79.76	74.48	82.20	67.41	62.31	59.73
Current liabilities	59.91	56.27	62.78	60.45	55.33	52.13
Short-term loans	42.69	30.34	41.66	15.52	14.39	13.62
Accounts payable	8.79	11.58	11.55	16.70	15.17	13.65
Income received in advance	2.22	6.48	3.81	5.40	5.11	4.74
Other current liabilities	6.21	7.88	5.75	22.83	20.67	20.12
Long-term liabilities	12.86	10.09	10.93	5.10	5.33	5.93
Long-term loans repayable	3.42	3.05	3.85	4.69	4.45	4.98
Other long-term liabilities	9.44	7.04	7.09	0.41	0.88	0.94
Other liabilities	6.99	8.12	8.49	1.85	1.65	1.67
Net worth	20.24	25.52	17.80	32.59	37.69	40.27
Stockholders' equity	14.20	14.16	17.80	38.33	39.37	40.27
Reserves and operating surplus	6.04	11.37	0.01	-5.74	-1.67	0.00

Source: Ministry of Finance, business income tax return data.

(2) A Substantial Increase in SMEs' Current Assets

As a percentage of total assets, the current assets of Taiwan's large enterprises rose by 9.22 percentage points in 2006, climbing to 74.25%. Fixed assets rose by 7.23

percentage points to 19.22%. For SMEs, as with large enterprises, the greatest increase in 2006 as compared to the previous years was in current assets, which rose by 20.88 percentage points to 76.84%.

Overall, the share of total assets held by current assets was higher in 2006 than in either 2004 or 2005. The asset allocation of both large enterprises and SMEs displayed high liquidity.

The current ratio and quick ratio can be used to analyze enterprises' liquidity. In 2006, for both large enterprises and SMEs, current assets were higher than current liabilities, giving a current ratio of 100.92% for large enterprises and 201.71% for SMEs. The quick ratio compared current assets to current liabilities after deducting inventories from current assets; it provides a more accurate picture of enterprises' liquidity status. In 2006, the quick ratios for Taiwan's large enterprises and SMEs were 85.74% and 164.26%, respectively; SMEs can thus be seen to have significantly better liquidity than large enterprises.

(3) SMEs' Fixed Assets Ratio Continues to Fall

The fixed assets ratio of Taiwan's large enterprises fell slightly in 2005, declining to 11.99%; however, in 2006 it rose to 19.22%. This may have been a reflection of the superior earning performance of large enterprises in 2006 (the average operating margin for large enterprises in 2006, including both domestic and overseas operations, was 65.51%, compared to 54.10% for medium-sized enterprises and 41.77% for small enterprises), which enabled them to step up their investment in fixed assets. The increase in the "land and buildings" and "machinery" items was especially pronounced.

The situation with SMEs was exactly the opposite. In 2005, the fixed assets ratio of Taiwan's SMEs stood at 24.87%, down from 27.39% in 2004; 2006 saw a further decline, of 7.87 percentage points, down to 17.00%. The fall in the "land and buildings" and "machinery" items was most pronounced.

2. Analysis of SME Funding Sources

Overall, the situation with regard to SME funding sources in 2005 was significantly different from 2004. Although the economy had begun to pick up in 2004, profit margins remained low. It was not until 2005 that enterprises began to experience a significant improvement in their performance, an improvement that continued into 2006.

(1) A Continuing Rise in Long-term Liabilities, and a Continuing Fall in Current Liabilities

The SMEs' long-term liabilities ratio has been rising steadily for the last three years, from 5.1% in 2004 to 5.33% in 2005 and 5.93% in 2006. For large enterprises, the long-term liabilities ratio stood at 12.86% in 2004, fell to 10.09% in 2005, and then rose again slightly in 2006 to 10.93%. The long-term liabilities ratio of SMEs is approximately half that of large enterprises. This may be related to the fact that SMEs generally lack skilled financial and accounting specialists; their financial health is often questionable, and their finances are not always wholly transparent. As a result, banks tend to impose strict restrictions on lending to SMEs.

The current liabilities ratio of Taiwan's SMEs has been falling for three years, from 60.45% in 2004 to 55.33% in 2005 and 52.13% in 2006. As of 2006, SMEs' current liabilities accounted for 87.28% of their total liabilities. This very high figure reflects that fact that SMEs tend to rely on short-term borrowing to substitute for long-term loans.

(2) Reserves and Surplus Break Even

Ministry of Finance Tax Data Center data show that Taiwan's SMEs posted total annual sales of NT$10,241.2 billion in 2006, 2.41% up on 2005, and marking a third consecutive year of growth. With sales and earnings rising, reserves and operating surplus were out of negative territory by 2006. Combining the Tax Data Center data with survey results obtained by the Ministry of Economic Affairs confirms that there has been an improvement in the low level of reserves and surplus obtained from 2000 through 2004. This situation reflects the improvement in the overall SME business environment that began in 2005.

3. Analysis of SMEs' Profit and Loss

(1) A Fall in the Operating Cost Ratio Compared to 2005

In 2006, SMEs' operating costs amounted to 80.35% of their net operating income (Table 3-1-2), down 1.7 percentage points from 2005; for large enterprises, the decline was 2.14 percentage points. For both large enterprises and SMEs, gross profit margin had fallen dramatically in 2005, to 17.95% in the case of SMEs. However, in 2006 operating costs fell, causing the SMEs' gross profit margin to rise to 19.97%. Large enterprises had had to deal with an unfavorable operating environment since 2002 (with operating cost ratios of 90.57% in 2000, 94.26% in 2001, 94.60% in 2002, 94.45% in

2003, 94.52% in 2004, and 96.58% in 2005), causing their gross profit margin to fall to 3.42% by 2005. However, the fall in operating costs in 2006 pushed the gross profit margin back up to 5.92%. SMEs have continued to enjoy a significantly higher gross profit margin than large enterprises.

Table 3-1-2 Profit and Loss of Taiwanese Enterprises, 2004 – 2006

Unit: %

Size / Year / Item	Large Enterprises			SMEs		
	2004	2005	2006	2004	2005	2006
Net operating income	100.00	100.00	100.00	100.00	100.00	100.00
Less: Operating costs	94.52	96.58	94.44	81.02	82.05	80.35
Gross operating profit	5.49	3.42	5.92	18.98	17.95	19.97
Less: Operating expenses	3.96	2.36	3.98	18.17	16.80	18.26
Net operating profit	1.52	1.06	2.39	0.81	1.15	3.82
Plus: Non-operating profit	0.67	0.60	1.15	1.31	1.38	1.46
Less: Interest expenses	0.38	0.21	0.66	0.77	0.75	1.29
Less: Other non-operating expenses	0.23	0.13	0.25	0.60	0.58	0.75
Profit (loss)	1.59	1.33	1.82	0.75	1.20	0.80

Source: Ministry of Finance, business income tax return data.

(2) SMEs' Operating Expenses Ratio Rises, and Remains Far Higher Than That of Large Enterprises

Operating expenses are expenses arising from operations, including salaries, rentals, advertising, depreciation, insurance, etc. In 2006, the operating expenses ratio of Taiwan's SMEs amounted to 18.26% of net operating income, up from 16.80% in 2005, and far higher than the corresponding figure of 3.98% for large enterprises. The relatively weak bargaining position (as compared to large enterprises) of SMEs when negotiating with suppliers makes it difficult for them to keep operating expenses down. Large enterprises benefit from economies of scale; SMEs are often left to scrabble around for the resources that are left over after the large enterprises have cherry-picked the best. Given this situation, it is not surprising that SMEs have a higher operating expenses ratio than large enterprises.

(3) Erosion of Net Operating Profit by High Operating Expenses

Although SMEs have lower operating costs than large enterprises, their operating expenses tend to be higher. In 2006, operating costs and operating expenses combined amounted to 98.61% of the net operating income of Taiwan's SMEs, giving a net profit margin of just 3.82%. SMEs have much higher gross operating profit than large enterprises, but their operating expenses are higher, too. SMEs' high gross profit margins are eroded by high operating costs, resulting in net profit performance that is

inferior to that of large enterprises. However, the SMEs' net operating profit ratio more than doubled in 2006 compared to 2005, marking three consecutive years of growth in this ratio. The net operating profit ratio of large enterprises, which had fallen for two years in a row, more than doubled in 2006.

(4) A Fall in Current Profit/Loss

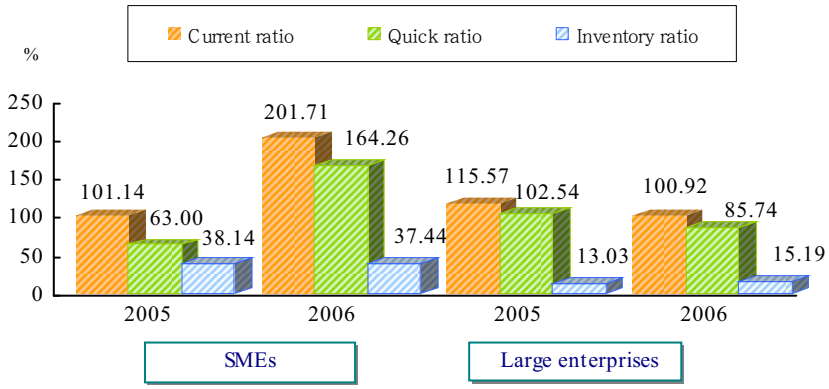
The SMEs' net profit margin more than doubled in 2006 compared to 2005. While non-operating income rose, interest expenditure and other non-operating expenses also rose, so the SMEs' net profit margin after tax in 2006 was lower than in 2005, at 0.80% (compared to 1.82% for large enterprises).

4. Analysis of SMEs' Financial Ratios

(1) An Increase in the Current Ratio and Quick Ratio, and a Slight Fall in the Inventory Ratio

The current ratio and quick ratio of Taiwan's SMEs both rose dramatically in 2006, by 100.57 percentage points and 101.26 percentage points, respectively. The inventory ratio remained more or less the same as in 2005, falling by just 0.7 percentage points. The main cause of the rapid increase in the current ratio and quick ratio was the fall in current liabilities and the increase in current assets. Overall, 2006 saw a significant improvement in the SMEs' short-term repayment ability (Figure 3-1-1).

Figure 3-1-1 Short-term Liquidity of Taiwanese Enterprises, 2005 and 2006



Notes: 1. Current ratio = current assets ÷ current liabilities × 100% (reference value = 200; ideally, the ratio should be higher than the reference value).
2. Quick ratio = (current assets – inventories) ÷ current liabilities × 100% (reference value = 100; ideally, the ratio should be higher than the reference value).
3. Inventory ratio = inventories ÷ current liabilities × 100%.

Source: Ministry of Finance, business income tax return data.

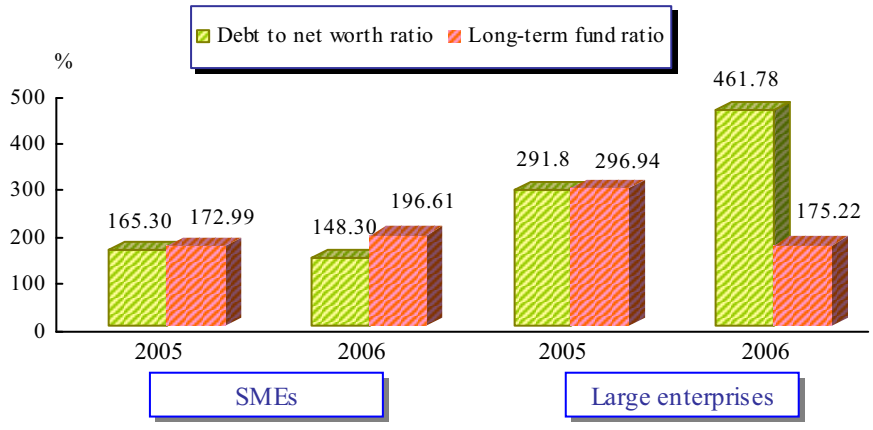
The current ratio and quick ratio of Taiwan's large enterprises both fell in 2006 compared to 2005, while the inventory ratio rose slightly. The current ratio fell by 14.65 percentage points to 100.92%, the quick ratio fell by 16.8 percentage points to 85.74%, and the inventory ratio rose by 2.16 percentage points to 15.19%.

Both the current ratio and quick ratio of Taiwan's SMEs are significantly higher than those of large enterprises, indicating that SMEs benefit from superior liquidity.

(2) A Fall in the Debt-to-Net Worth Ratio and a Rise in the Long-term Fund Ratio

The debt-to-net worth ratio of Taiwan's SMEs fell from 186.93% in 2004 to 165.30% in 2005, and then to 148.30% in 2006. The large enterprises' debt-to-net worth ratio has fluctuated more, falling dramatically from 506.64% in 2004 to 291.80% in 2005, before shooting up again to 461.78% in 2006 (Figure 3-1-2). The generally superior financial health of large enterprises makes it easier for them to secure bank loans; as a share of total assets, large enterprises' total liabilities stood at 82.20% in 2006 (Table 3-1-1), representing an increase of 7.72 percentage points compared to 2005. It is therefore not surprising that the debt-to-net worth ratio of large enterprises should be higher than that of SMEs. However, the large enterprises debt-to-net worth ratio has been significantly higher than the reference value for three years in a row. Managers should exercise caution to make sure that they do not become over-leveraged; doing so could lead to serious financial problems.

Figure 3-1-2 Long-term Stability of Enterprises in 2005 and 2006



Notes: 1. Debt to net worth ratio = debt ÷ net worth × 100% (reference value = 100; ideally, the ratio should be below the reference value).
2. Long-term fund ratio = (equity + long-term debt) ÷ fixed assets × 100% (reference value = 100; ideally, the ratio should be higher than the reference value).

Source: Ministry of Finance, business income tax return data.

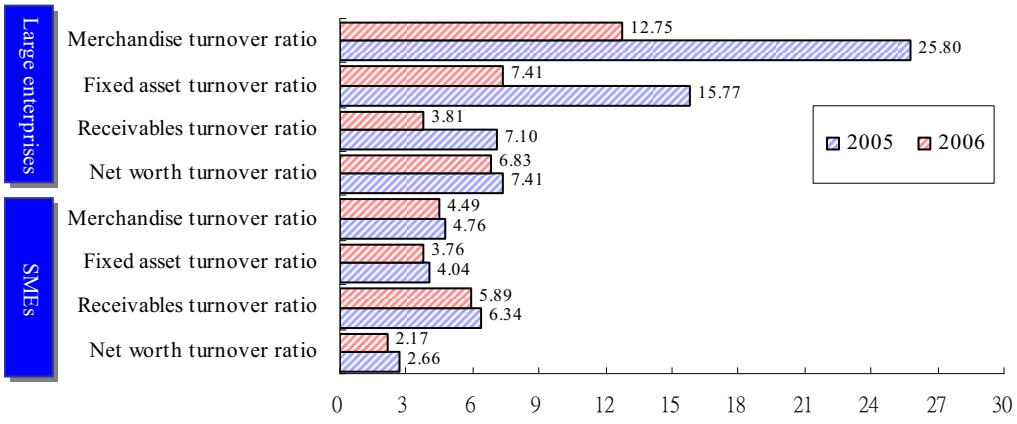
The main reason for the continuing fall in the SMEs' debt-to-net worth ratio is the steady fall in the SMEs' debt ratio, from 67.41% in 2004 to 59.73% in 2006. The debt-to-net worth ratio is a measure of the long-term solvency of an enterprise; a fall in this ratio indicates an improvement in the enterprise's ability to meet its obligations to creditors.

The SMEs' long-term fund ratio stood at 172.99% in 2005, which was inferior to the large enterprises' 296.94%. However, by 2006 the SMEs' long-term fund ratio had risen to 196.61%, while the large enterprises' ratio had fallen to 175.22%. Relatively speaking, SMEs are now making more use of long-term funds than large enterprises.

(3) An Across-the-board Fall in Turnover Ratios

The operational performance of an enterprise depends on the effective utilization of its assets. The level of turnover reflects the extent to which assets are being effectively utilized, the company's credit policy, and its inventory policy. Receivables turnover can be used to measure the operating capability of an enterprise; a high ratio suggests better operating capability and the efficient collection of receivables. Looking at the data for 2006, it can be seen that SMEs' receivables turnover fell from 6.34 turns in 2005 to 5.89 turns in 2006; merchandise turnover also fell, from 4.76 turns to 4.49 turns (Figure 3-1-3). The decline in these two figures reflects a worsening of SMEs' operational capability compared to 2005.

Figure 3-1-3 Operating Capability of Enterprises in 2005 and 2006



Notes: 1. Net worth turnover ratio = net sales / average net worth.
2. Receivables turnover ratio = net sales / average receivables.
3. Fixed asset turnover ratio = net sales / average fixed assets.
4. Merchandise turnover ratio = net sales / average inventories.
Source: Ministry of Finance, business income tax return data.

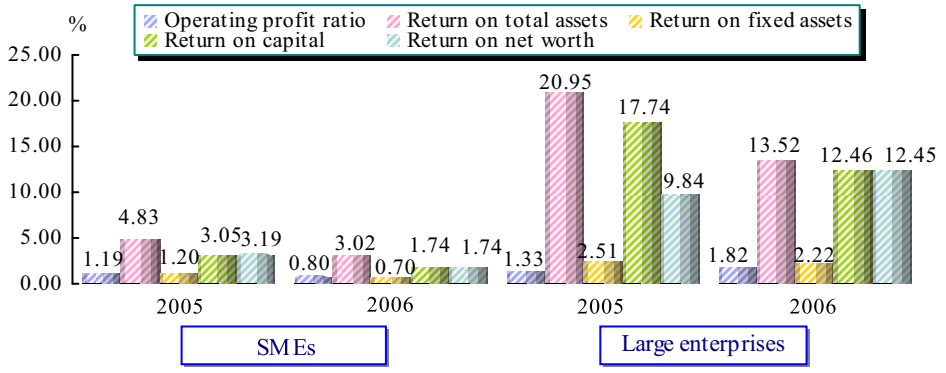
The net worth turnover ratio and fixed asset turnover ratio are used to evaluate how efficiently own capital and fixed assets are used; higher ratios mean that the enterprise is able to make more effective use of its own capital and fixed assets. The fixed asset turnover ratio for Taiwan's SMEs fell slightly from 4.04 turns in 2005 to 3.76 turns in 2006, while net worth turnover fell from 2.66 turns to 2.17 turns. It can thus be seen that the SMEs' operating ability and their ability to make effective use of their fixed assets and own capital both deteriorated in 2006.

(4) Profitability Indicators Fall, but Remain Positive

Profitability can be observed from an enterprise's ability to use its funds and capital to generate profit. With domestic demand rising again, Taiwan's SMEs had been able to see a profit in 2003 after two consecutive years of loss in 2001 and 2002. SMEs dipped into a year of loss again in 2004, before recovering again in 2005. However, Taiwan's economic growth slowed in 2005–2006; in 2006, the Central Bank raised the discount rate four times, putting the brakes on a nascent economic recovery. All of the key profitability indicators fell; the indicators for SMEs in 2006 were as follows: the operating profit ratio was 0.80%, the return on total assets was 3.02%, the return on fixed assets was 0.7%, the return on capital was 1.74%, and the return on net worth was 1.74% (Figure 3-1-4).

Although all of the major profitability indicators fell in 2006 compared to 2005, they remained in positive territory, indicating that the performance of Taiwan's SMEs remained reasonably sound.

Figure 3-1-4 Profitability of Enterprises in 2005 and 2006



Note: Operating profit ratio = current profit / net operating income; return on fixed assets = current profit / fixed assets; return on total assets = current profit / total assets; return on capital = current profit / net worth; return on net worth = current profit / net worth.

Source: Ministry of Finance, business income tax return data.

II Financial Analysis by Industry

This section makes use of Ministry of Finance business income tax return data to examine the financial status of SMEs in different industries. A rough comparison is made with the data for 2005, with the aim being to give a clearer picture of the direction in which SME finances were headed in 2006.

1. Overall Financial Analysis by Industry

2006 consolidated balance sheet data for SMEs and large enterprises (by industry) are shown in Table 3-2-1 and 3-2-2. The profit and loss structure is shown in Table 3-2-3, and the consolidated financial ratios are shown in Table 3-2-4. As can be seen from the data presented in the tables, considerable disparities exist between the financial structures of different industries; these are summarized below:

(1) Among SMEs, the Medical, Healthcare and Social Services Industry Had the Highest Current Asset Ratio, While the Hotel and Restaurant Industry Had the Lowest

In 2004 and 2005, the construction industry had the highest SME current asset ratio. In 2006, the construction industry's current asset ratio increased slightly compared to 2005, rising to 87.29%, but the industry was pushed back into second place by the medical, healthcare and social services industry, whose current asset ratio shot up by around 10% to reach 94.39%. The greatest increase in the current asset ratio was seen in the manufacturing sector; the manufacturing industry's current asset ratio rose by around 27% to 87.06%, putting manufacturing into third place overall.

The main reason for the dramatic increase in the current asset ratio of SMEs in the manufacturing sector was an increase in the cash accounting item, which rose by 57.71 percentage points compared to 2005, more than either accounts receivable or inventories. Given that the industry's fixed assets ratio fell by 24.02 percentage points in 2006 compared to 2005, this was probably mainly due to the disposal of fixed assets. Both the receivables ratio and sales increased in 2006 (with accounts receivable and inventories falling), hence the pronounced increase in cash, which in turn caused the current asset ratio to rise.

The main reason for the high current asset ratio in the construction industry (87.29%) is the fact that current assets (particularly inventories – mostly houses) have always accounted for a large share of total assets in this industry. In 2006, inventories

accounted for 42.69% of current assets in the construction industry. This high figure is probably related to the slump in the housing market which has continued for several years now, causing housing inventories to pile up. However, the inventory ratio did fall slightly in 2006, due to the mild upturn in the economy as a whole.

Table 3-2-1 SMEs' Consolidated Balance Sheet in 2006 – by Industry

Unit: %

Item \ Industry	Agriculture, forestry, fisheries and animal husbandry	Mining and quarrying	Manufacturing	Water, electricity and gas	Construction	Wholesaling and retailing	Hotel and restaurant	Transportation, warehousing and communications	Finance and insurance	Real estate and leasing	Professional, scientific and technical services	Educational services	Medical, health Care and social services	Cultural, sporting and leisure services	Other services
Current assets	48.18	53.76	87.06	45.30	87.29	74.62	29.27	55.26	39.34	42.72	54.19	39.78	94.39	31.23	59.76
Cash	15.79	13.37	71.73	10.06	17.87	20.62	11.91	27.78	22.11	7.62	22.65	27.69	31.39	11.27	30.48
Accounts receivable	10.71	17.29	7.46	17.66	21.86	19.93	3.84	19.60	10.88	4.17	19.84	8.64	15.71	7.98	14.79
Inventories	6.52	17.33	7.01	6.69	42.69	29.89	9.32	1.52	2.54	25.67	6.42	0.84	45.39	7.70	9.10
Advance payments	11.93	3.31	0.46	0.49	1.54	1.94	2.19	3.76	0.58	1.90	2.18	1.03	0.42	2.45	3.09
Other current assets	3.24	2.46	0.40	10.39	3.34	2.23	2.02	2.60	3.22	3.36	3.11	1.58	1.49	1.84	2.30
Funds and long-term investments	4.46	0.56	0.34	1.97	0.52	3.48	1.33	1.47	47.40	4.54	19.30	1.44	0.03	2.89	2.60
Fixed assets	42.82	41.87	11.99	51.78	9.65	18.80	61.41	37.17	9.86	43.76	21.31	47.04	4.30	59.13	29.60
Land and buildings	10.21	15.45	6.39	17.35	3.43	11.70	44.48	8.97	8.43	36.56	13.56	35.28	0.002	40.58	15.30
Machinery	26.63	23.08	4.99	24.12	5.68	6.02	9.36	26.14	0.85	2.41	6.09	9.41	3.68	10.54	11.99
Other fixed assets	5.98	3.34	0.61	10.32	0.55	1.08	7.58	2.06	0.58	4.79	1.65	2.35	0.63	8.02	2.31
Intangible and other assets	4.54	3.81	0.60	0.95	2.54	3.10	7.99	6.10	3.41	8.98	5.21	11.74	1.28	6.75	8.04
Total assets = liabilities + net worth	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Liabilities	60.83	63.47	68.68	50.85	69.74	58.43	65.03	31.96	37.07	70.76	53.54	56.25	67.60	66.18	46.04
Current liabilities	53.30	57.34	61.92	48.14	67.62	54.11	49.98	26.98	28.98	56.46	35.83	48.17	65.97	43.98	39.01
Short-term loans repayable	12.14	19.78	18.23	13.21	7.90	11.12	11.18	6.61	10.74	23.04	6.34	16.43	3.16	8.25	6.77
Accounts payable	12.25	14.95	21.01	19.45	13.91	16.70	8.77	7.96	4.52	7.15	9.91	6.84	7.36	8.66	9.37
Income received in advance	1.04	0.69	1.61	2.55	33.43	1.01	0.36	0.34	0.14	3.24	3.95	2.05	28.25	1.89	2.11
Other	27.86	21.92	21.07	12.94	12.38	25.28	29.67	12.07	13.58	23.03	15.63	22.86	27.20	25.18	20.76
Long-term liabilities	5.81	5.20	5.76	1.96	1.53	3.17	13.56	2.72	6.75	10.83	15.48	4.30	0.76	8.97	4.24
Long-term loans repayable	5.81	3.42	5.29	1.70	1.40	2.75	9.95	2.51	2.85	10.43	14.98	4.29	0.76	8.81	3.96
Other long-term liabilities	0.00	1.78	0.47	0.26	0.13	0.42	3.61	0.21	3.90	0.41	0.50	0.01	0.00	0.16	0.28
Other liabilities	1.72	0.93	1.00	0.76	0.59	1.16	1.49	2.26	1.34	3.48	2.23	3.78	0.87	13.23	2.79
Net worth	39.17	36.53	31.32	49.15	30.26	41.57	34.97	68.04	62.93	29.24	46.47	43.75	32.40	33.82	53.96
Stockholders' equity	39.17	36.51	31.32	49.15	30.26	41.57	34.97	68.04	62.93	29.24	46.47	43.75	32.40	33.82	53.96
Reserves and operating surplus	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: Ministry of Finance, business income tax return data.

Table 3-2-2 Large Enterprises' Consolidated Balance Sheet in 2006 – by Industry

Unit: %

Item \ Industry	Agriculture, forestry, fisheries and animal husbandry	Mining and quarrying	Manufacturing	Water, electricity and gas	Construction	Wholesaling and retailing	Hotel and restaurant	Transportation, warehousing and communications	Finance and insurance	Real estate and leasing	Professional, scientific and technical services	Educational services	Medical, healthcare and social services	Cultural, sporting and leisure servies	Other services
Current assets	50.79	37.85	47.40	16.21	81.82	65.42	17.47	31.45	92.34	56.82	75.22	42.92	—	26.97	52.90
Cash	9.19	12.64	11.28	3.92	5.78	11.52	6.78	13.86	29.89	4.14	24.59	28.95	—	9.50	13.90
Accounts payable	10.85	16.72	21.35	7.62	17.04	34.20	5.31	8.52	50.10	6.51	24.70	9.78	—	10.15	16.21
Inventories	13.27	5.38	12.15	2.66	54.37	16.01	3.18	1.62	7.60	41.21	19.00	0.56	—	3.03	11.18
Advance payments	14.47	0.72	0.96	0.52	1.49	1.54	1.36	0.73	0.13	1.58	3.16	2.26	—	1.39	1.66
Other current assets	3.02	2.39	1.66	1.50	3.15	2.15	0.83	6.73	4.63	3.38	3.78	1.37	—	2.90	9.96
Funds and long-term investments	2.48	0.00	1.78	2.59	2.39	1.30	1.19	1.17	1.48	2.24	1.43	0.00	—	1.18	6.00
Fixed assets	34.38	51.17	44.58	77.50	10.81	28.39	70.93	61.10	2.26	32.39	16.66	43.63	—	53.37	30.58
Land and buildings	22.86	15.39	18.63	9.88	6.54	16.61	53.26	12.76	1.86	22.10	10.01	19.62	—	33.82	19.11
Machinery	7.83	9.90	23.55	62.53	3.00	9.52	7.55	42.77	0.21	1.51	3.98	7.15	—	9.81	10.42
Other fixed assets	3.68	25.88	2.40	5.10	1.27	2.25	10.11	5.57	0.18	8.78	2.67	16.86	—	9.75	1.05
Intangible and other assets	12.35	10.98	6.24	3.70	4.99	4.90	10.41	6.28	3.93	8.55	6.69	13.46	—	18.48	10.52
Total assets = liabilities + net worth	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**—**	**100.00**	**100.00**
Liabilities	62.79	64.90	56.76	59.44	79.96	72.31	61.55	58.91	93.46	74.46	56.90	69.62	—	65.72	72.76
Current liabilities	32.90	34.58	36.22	22.17	71.40	59.94	38.45	31.51	73.93	55.18	47.36	68.32	—	36.55	51.61
Short-term loans repayable	12.64	19.17	11.05	7.39	15.13	17.79	17.31	5.61	57.69	30.69	6.30	0.00	—	11.61	6.82
Accounts payable	8.59	4.98	21.38	8.61	13.72	33.98	14.79	18.84	5.85	10.10	23.68	13.31	—	13.56	17.84
Income received in advance	2.50	0.39	1.30	3.05	38.89	2.12	1.29	3.36	3.51	6.02	12.24	41.49	—	4.41	22.74
Other	9.18	10.05	2.48	3.12	3.67	6.05	5.07	3.70	6.88	8.37	5.14	13.52	—	6.98	4.21
Long-term liabilities	18.10	18.60	16.89	34.98	5.93	8.61	16.20	17.31	8.73	14.66	6.91	0.82	—	20.22	18.92
Long-term loans repayable	17.95	18.60	10.92	22.89	3.91	7.66	14.66	10.21	0.26	14.10	5.28	0.82	—	19.70	11.34
Other long-term liabilities	0.15	0.00	5.97	12.08	2.02	0.95	1.54	7.11	8.47	0.56	1.64	0.00	—	0.52	7.58
Other liabilities	11.80	11.72	3.65	2.29	2.63	3.76	6.90	10.09	10.81	4.62	2.62	0.48	—	8.95	2.24
Net worth	37.21	35.10	43.24	40.57	20.04	27.69	38.45	41.09	6.54	25.54	43.10	30.38	—	34.28	27.24
Stockholders' equity	37.21	35.10	43.22	40.57	20.04	27.69	38.45	41.09	6.54	25.54	43.10	30.38	—	34.28	27.24
Reserves and operating surplus	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00

Source: Ministry of Finance, business income tax return data.

The main factor behind the rise of the medical, healthcare and social services industry into first place, with a current asset ratio of 94.39%, was the rapid increase in the share of current assets held by inventories. In 2005, inventories accounted for only 3.91% of total assets in the medical, healthcare and social services industry; by 2006,

this figure had risen to 45.39%, suggesting that enterprises in this industry have been busily stockpiling medical equipment and consumables. The difficulty in obtaining relevant data has prevented further analysis of this phenomenon, a phenomenon that certainly warrants further investigation and research by the relevant authorities.

In 2005, the finance and insurance industry was the industry with the lowest current asset ratio. By 2006, this was no longer the case; the industry's current asset ratio had risen by 16.34 percentage points to 39.34%. The biggest increase was in cash and accounts receivable. The industry with the lowest current asset ratio in 2006 was the hotel and restaurant industry, at 29.27%. This probably reflects the fact that the nature of this industry requires a high percentage of assets to be tied up in land, buildings and facilities.

(2) The Hotel and Restaurant Industry Has the Highest Fixed Asset Ratio

In 2006, SMEs in the hotel and restaurant industry had the highest fixed asset ratio, at 61.41%. The cultural, sporting and leisure services industry was in second place, with 59.13%. The medical, healthcare and social services industry had the lowest fixed asset ratio, at 4.30%, followed by the construction industry with 9.65%, and the finance and insurance industry, with 9.86%.

(3) The Real Estate and Leasing Industry Posts the Highest Debt Ratio

The debt ratio in most industries has remained at around 55% to 70%. In 2006, the real estate and leasing industry posted the highest debt ratio, at 70.76%. The construction industry was in second place, at 69.74%. The industries which had posted the highest debt ratios in 2005 – the cultural, sporting and leisure services industry, at 88.97%, and the hotel and restaurant industry, at 83.91% – fell back to 66.18% and 65.03%, respectively, in 2006, indicating that these industries had become less over-leveraged.

For SMEs in the real estate and leasing industry, current liabilities accounted for the largest share of total liabilities, at 56.46%. Short-term loans repayable accounted for more than half of these current liabilities, reflecting this industry’s widespread use of short-term loans to purchase real estate or lease assets. The construction industry had the highest current liabilities ratio, at 67.62%. In this industry, income received in advance accounted for around 33% of current liabilities. This reflects the common practice in the construction industry of collecting advance payments from the sale of pre-sold housing products, and for construction work. Along with the receipt of advance payments, there is usually a contractual requirement that the work be

completed on schedule; construction companies thus run the risk of incurring huge penalties if they fail to monitor the progress of their work properly.

(4) Negative Reserves and Surplus in Most Industries

In 2005, while the SMEs in four industries – finance and insurance, mining and quarrying, manufacturing, and water, electricity and gas – made a small profit, all other industries posted a negative surplus. Seven industries had losses in excess of 10%: the cultural, sporting and leisure services industry (-29.31%), hotel and restaurant industry (-27.84%), professional, scientific and technical services industry (-27.71%), other service industries (-17.38%), wholesaling and retailing (-14.29%), and transportation, warehousing and communications (-12.87%). In 2006, SMEs in all of these industries displayed reasonable performance, breaking even rather than posting negative reserves and surplus. The four industries that had made a small profit in 2005 – finance and insurance, mining and quarrying, manufacturing, and water, electricity and gas – fell back to merely breaking even in 2006.

(5) Reasonable Gross Profit Levels and a Positive Outlook for Profitability

An examination of the profit and loss structure of Taiwan's SMEs in 2006 shows that, in three-fifths of the 15 industry categories, the SMEs in that industry (as a whole) made a profit: mining and quarrying, manufacturing, water, electricity and gas, construction, wholesaling and retailing, transportation, warehousing and communications, medical, healthcare and social services, and other service industries. SMEs in all other industries posted a loss. In 2005, SMES in around half of the industries had an average gross profit margin of less than 30%; 2006 saw a slight improvement in this respect, with most industries recording an average profit margin of 35% or higher. The educational services industry had the highest gross profit margin, at 61.39%. There were six industries in which the average gross profit margin was less than 30%: agriculture, forestry and fisheries, mining and quarrying, manufacturing, water, electricity and gas, construction, and wholesaling and retailing. Even so, no industry had a gross profit margin of less than 16% (Table 3-2-3).

Of the 15 industries, there were only four – agriculture, forestry and fisheries, mining and quarrying, water, electricity and gas, and the hotel and restaurant industry – in which the SMEs' gross profit margin was lower than that of large enterprises in the same industry. However, despite their respectable performance in terms of the gross profit margin, the SMEs' ability to keep operating expenses low remains far inferior to

that of large enterprises; there were only three industries in which the SMEs' net operating profit margin was higher than that of large enterprises in the same industry.

Table 3-2-3 Profit and Loss Structure in 2006 – by Industry

Unit: %

Item \ Industry	Agriculture, forestry and fisheries	Mining and quarrying	Manufacturing	Water, electricity and gas	Construction	Wholesaling and retailing	Hotel and restaurant	Transportation, warehousing and communications	Finance and insurance	Real estate and leasing	Professional, scientific and technical services	Educational services	Medical, healthcare and social services	Cultural, sporting and leisure services	Other services
SMEs															
Net operating income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Less: operating costs	88.45	78.76	84.33	78.09	84.05	79.70	57.72	65.23	67.87	68.21	54.01	39.03	62.25	60.23	52.30
Gross operating profit	16.06	21.36	15.77	21.87	16.03	20.39	42.41	34.94	43.27	35.16	47.38	61.39	37.21	41.22	48.04
Less: operating expenses	15.82	16.01	12.90	19.79	12.23	20.72	47.02	33.40	30.08	33.71	51.98	76.53	39.22	49.14	46.97
Net operating profit	3.80	5.99	3.62	5.82	4.46	2.72	3.15	4.20	21.68	9.39	6.08	5.35	2.60	3.62	4.54
Plus: non-operating income	9.40	0.86	1.13	3.02	0.34	1.54	0.93	1.49	9.77	8.01	3.50	7.55	4.74	4.97	0.91
Less: interest expenses	5.15	0.20	1.63	0.51	0.21	0.61	1.16	0.87	10.38	9.07	1.50	0.79	0.51	1.62	0.58
Less: other non-operating expenses	1.13	0.54	0.80	0.45	0.27	0.46	0.76	0.60	5.49	5.85	1.15	2.03	0.13	1.16	0.41
Current profit (loss)	-1.14	5.36	1.48	4.19	3.58	0.04	-5.73	1.39	-4.05	-8.83	-5.14	-10.81	2.64	-7.17	0.66
Large enterprises															
Net operating income	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	—	100.00	100.00
Less: operating costs	83.54	77.28	87.17	77.47	93.93	87.30	48.90	78.40	98.74	80.00	70.84	38.63	—	64.28	74.32
Gross operating profit	17.11	23.00	13.64	22.53	7.25	12.80	51.11	21.55	1.51	22.28	29.66	61.37	—	36.49	25.75
Less: operating expenses	14.55	25.44	6.93	3.45	4.64	10.40	45.50	13.85	1.44	10.98	20.41	60.54	—	31.80	18.13
Net operating profit	4.87	8.53	7.31	19.16	3.46	2.79	7.05	9.13	0.44	12.34	10.37	1.02	—	8.43	8.17
Plus: non-operating profit	2.57	31.18	2.70	1.40	2.60	1.43	2.83	4.00	0.52	2.27	2.59	1.61	—	3.33	1.54
Less: interest expenses	2.67	10.89	1.87	1.17	1.09	0.79	3.83	1.12	0.22	1.71	2.36	0.78	—	2.20	0.76
Less: other non-operating expenses	1.64	10.26	0.66	2.89	0.99	0.43	1.72	1.05	0.02	2.70	0.46	0.08	—	2.09	0.88
Current profit (loss)	0.17	7.32	6.07	16.41	1.94	2.51	2.90	9.57	0.11	6.89	8.51	1.59	—	2.98	7.45

Source: Ministry of Finance, business income tax return data.

When costs and expenses are deducted from the gross profit margin, the current profit level of SMEs lags far behind that of large enterprises in the same industry. This probably reflects the fact that the SMEs' ability to control costs and non-operating expenses is inferior to that of large enterprises. There may also be some falsification of expenditure reporting by some SMEs in order to reduce their tax liability. Of the 7 industries (out of 15) where SMEs made a loss in 2006, the most severe losses were seen in the educational services industry (-10.81%), the real estate and leasing industry (-8.83%), and the cultural, sporting and leisure services industry (-7.17%).

It can thus be seen that, overall, the profitability of Taiwan's SMEs had improved in 2006 compared to 2005, with SMEs in eight industries making a profit, compared to only 5 in 2005.

2. Analysis of Short-term Solvency by Industry

The indicators used in this section are the same as those used in Section I, although they have been recalculated to provide financial ratios for examining the changes in the financial status of enterprises in each industry.

As can be seen from Table 3-2-4, over half of the industries had a current ratio below 100% in 2006. Four-fifths of industries had a quick ratio below 100%, indicating that SMEs' short-term solvency is far from satisfactory. Only three industries posted a quick ratio higher than 100%: manufacturing (398.87%), transportation, warehousing and communications (170.70%), and other service industries (108.95%). Overall, the poor liquidity that characterized the SME sector in 2005 continued into 2006.

Table 3-2-4 Financial Ratios for Individual Industries in 2006

Unit: %

Item \ Industry	Agriculture, forestry and fisheries	Mining and quarrying	Manufacturing	Water, electricity and gas	Construction	Wholesaling and retailing	Hotel and restaurant	Transportation, warehousing and communications	Finance and insurance	Real estate and leasing	Professional, scientific and technical services	Educational services	Medical, healthcare and social services	Cultural, sporting and leisure services	Other service industries
SMEs															
Current ratio	78.88	97.00	433.99	97.38	126.72	115.12	43.12	175.54	61.84	62.80	106.81	72.92	116.69	52.32	128.57
Quick ratio	68.20	65.72	398.87	82.99	64.71	68.73	29.07	170.70	57.80	24.37	93.43	71.38	60.58	38.98	108.95
Inventory ratio	10.68	31.27	35.12	14.39	62.01	46.39	14.06	4.84	4.04	38.43	13.38	1.54	56.11	13.34	19.62
Debt-to-net worth ratio	155.32	173.76	219.29	103.46	230.42	140.56	185.98	46.97	58.91	242.04	115.22	128.56	208.68	195.70	85.33
Long-term fund ratio	120.39	96.32	100.18	95.36	335.47	285.13	107.30	222.06	1551.66	110.34	411.78	115.68	944.90	98.21	234.25
Net worth ratio	1.41	3.68	4.74	1.59	3.94	2.68	1.98	0.99	0.11	0.38	0.91	1.02	1.49	1.01	1.68
Receivables turnover	5.92	7.50	6.44	4.27	5.55	6.69	24.48	4.01	1.39	3.17	3.01	5.83	3.77	5.79	7.29
Fixed asset turnover	1.48	3.10	4.01	1.46	12.58	7.10	1.53	2.11	1.53	0.30	2.81	1.07	13.77	0.78	3.64
Merchandise turnover	9.72	7.49	6.82	11.26	2.84	4.44	9.84	51.50	5.88	0.51	8.81	59.91	1.31	5.80	11.83
Operating profit ratio	-1.14	5.36	1.48	4.18	3.58	0.04	-5.73	1.39	-4.05	-8.83	-5.14	-10.81	2.64	-7.17	0.66
Return on total assets	-1.69	16.60	5.94	6.09	45.08	0.28	-8.75	2.93	-6.21	-2.67	-14.42	-11.58	36.31	-5.60	2.39
Return on fixed assets	-0.63	7.19	2.20	3.26	4.27	0.04	-3.96	0.93	-0.28	-0.97	-2.17	-4.81	1.27	-2.44	0.59
Return on capital	-1.61	19.69	7.02	6.64	14.12	0.11	-11.32	1.37	-0.44	-3.31	-4.67	-10.99	3.93	-7.22	1.10
Return on net worth	-1.61	19.68	7.02	6.64	14.12	0.11	-11.32	1.37	-0.44	-3.31	-4.67	-10.99	3.93	-7.22	1.10
Large Enterprises															
Current ratio	111.04	65.34	132.83	83.77	107.19	110.77	37.97	129.15	94.44	97.53	143.31	54.12	0.00	71.26	97.27
Quick ratio	81.69	53.52	96.39	69.84	35.18	82.66	31.00	122.20	86.58	24.16	103.85	53.39	0.00	62.71	76.45
Inventory ratio	29.35	11.82	36.44	13.93	72.00	28.10	6.97	6.95	7.86	73.37	39.47	0.73	0.00	8.54	20.82
Debt-to-net worth ratio	168.74	184.89	131.25	146.52	399.05	261.10	160.07	143.37	1428.64	291.57	132.00	229.17	0.00	191.70	267.15
Long-term fund ratio	223.68	175.76	132.91	85.08	256.97	125.98	92.19	73.87	895.63	131.02	332.67	83.01	0.00	105.76	159.03
Net worth turnover	1.49	0.33	2.65	1.30	2.40	7.93	1.53	1.43	19.06	1.53	2.44	4.18	0.00	1.54	3.45
Receivables turnover	7.11	1.17	5.29	6.05	3.02	6.33	13.25	5.34	3.29	6.33	4.72	15.06	0.00	5.38	6.10
Fixed assets turnover	2.24	0.38	2.53	0.59	4.76	7.62	0.99	0.74	73.14	1.27	7.00	3.38	0.00	1.02	3.23
Merchandise turnover	5.74	2.84	8.68	17.10	0.94	13.04	21.93	26.88	21.47	0.96	5.63	256.12	0.00	16.88	8.73
Operating profit ratio	0.17	7.32	6.07	16.41	1.94	2.51	2.90	9.57	0.11	6.89	8.51	1.58	0.00	2.97	7.45
Return on total assets	0.39	2.79	15.37	9.76	9.25	19.17	2.88	7.12	8.00	8.77	59.63	5.35	0.00	3.04	24.08
Return on fixed assets	0.10	0.85	6.95	8.67	0.93	5.52	1.70	5.63	0.14	2.69	8.97	2.01	0.00	1.57	6.99
Return on capital	0.26	2.43	16.09	21.37	4.66	19.94	4.43	13.70	2.08	10.53	20.80	6.62	0.00	4.57	25.66
Return on net worth	0.26	2.43	16.08	21.37	4.66	19.94	4.43	13.70	2.08	10.53	20.80	6.62	0.00	4.57	25.66

Source: Ministry of Finance, business income tax return data.

One point worth noting is that the hotel and restaurant industry, real estate and leasing industry, and cultural, sporting and leisure services industry rank at the bottom in terms of both the current ratio and quick ratio. Given this poor short-term solvency, a temporary shortage of working capital could have a severe impact on enterprises in these industries. The current ratio and quick ratio for these three industries in 2006 were as follows: the hotel and restaurant industry – 43.12% and 29.07%; the real estate and leasing industry – 62.80% and 24.37%; and the cultural, sporting and leisure industry – 52.32% and 38.98%.

Overall, while the financial ratios of Taiwan's SMEs did show some deterioration in 2006 compared to 2005, they remained at a broadly acceptable level. There is a danger that rising oil and raw materials prices may have a severe negative impact on SMEs' earning ability. SMEs will need to exercise more rigorous cost control in the future.

III Sources of Funding for Manufacturing Industry and Reasons for Experiencing Difficulty in Acquiring Funds

1. Main Sources of Funds for Operations or Investment

Taiwan has robust financial and capital markets that offer a wide variety of funding sources for businesses. Aside from companies' own funds and borrowing from private lenders, bank loans and the issuance of bills and notes, bonds or shares have become important funding sources for Taiwanese enterprises. According to the *2007 Survey of Domestic Investment by Manufacturing Industry* published by the Statistics Department, Ministry of Economic Affairs, around 75% of Taiwanese manufacturers (both large enterprises and SMEs) make use of loans from domestic banks to provide funding for operations and investments. 34.56% use their retained earnings or capital surplus, and 30.99% make use of cash capital increments (Table 3-3-1).

In 2006, 16.4% of medium-sized enterprises obtained funding from the issuance of commercial paper, depository receipts and corporate bonds, up from 14.81% in 2005. The direct use of financial tools for financing by medium-sized enterprises was less common in 2006 than in either of the previous two years. The percentage of medium-sized enterprises obtaining funding from friends and relatives has declined steadily over the past three years, falling from 6.18% in 2005 to 4.36% in 2006, and to

3.16% in 2007. The share of small enterprises obtaining funding from friends and relatives has fallen dramatically, from 35.01% in 2005 to 9.37% in 2006, and to 7.68% in 2007. The percentage of small enterprises obtaining funding through the issuance of commercial paper, depository receipts and corporate bonds stood at 5.74% in 2007, compared to 6.01% in 2006, and to 2.12% in 2005.

Table 3-3-1 Sources of Funds for the Operations or Investments of Manufacturers in 2007

Unit: %

Source of Funds \ Enterprise Size	All Enterprises	Large Enterprises	Medium-sized Enterprises	Small Enterprises
Borrowing from domestic banks	75.95	74.34	76.40	76.80
Retained earnings or capital surplus	34.56	46.24	34.91	26.14
Cash capital increment	30.99	31.31	31.55	30.41
Borrowing from foreign banks	9.54	15.27	6.58	7.37
Issuance of commercial paper or depository receipts	9.44	17.04	9.81	3.88
Issuance of corporate bonds	5.74	12.94	3.85	1.86
Borrowing from friends or relatives	4.27	1.22	3.11	7.14
Borrowing from credit cooperatives or farmers' and fishermen's associations	1.37	0.33	1.24	2.17
Revolving credit associations	0.37	0.00	0.50	0.54
Other	9.91	7.63	9.81	11.56

Note: Large enterprises are those with 200 or more employees; medium-sized enterprises are those with 100–199 employees; small enterprises are those with fewer than 100 employees.
Source: Statistics Department, Ministry of Economic Affairs, *Survey of Domestic Investment by Manufacturing Industry*, 2007.

For enterprises of all sizes – large, medium, and small – the three main sources of funding are loans from domestic banks, the utilization of reserves and surplus, and cash capital increments. Among large enterprises, the share of enterprises making use of loans from foreign banks, the issuing of commercial paper and the issuing of corporate bonds varies between 13% and 17%, which are significantly higher than the equivalent percentages for SMEs, which range between 1.9% and 9.8%. The share of SMEs making use of the issuance of commercial paper, depository receipts and corporate bonds has fallen slightly, possibly due to the eight interest rate hikes implemented by the Central Bank in 2005–2007, which have led to increased funding costs for commercial paper and corporate bonds. The percentage of enterprises raising funds through loans from friends, relatives or traditional informal revolving credit associations has been falling steadily for several years. As Taiwan's financial markets mature and the range of financing channels available to business enterprises expands, these types of informal funding sources are no longer an important source of financing for business enterprises.

2. Major Difficulties Encountered by Manufacturers in the Acquisition of Funds

According to the *2007 Survey of Domestic Investment by Manufacturing Industry*, medium-sized enterprises were the most likely to feel that they were experiencing difficulties in securing funding: 21.49% of medium-sized enterprises reported experiencing difficulty in this regard. The next highest percentage was found among small enterprises, at 19.47%.

Over the last few years, the government has implemented a number of measures to help SMEs to secure the working capital they need. These have included expanding the services provided by the SME Troubleshooting Center, helping SMEs engaged in innovation to secure working capital, helping SMEs to improve their accounting systems (thereby making it easier for them to secure financing), introducing new low-interest loan programs, and strengthening the capabilities of the SME Credit Guarantee Fund, as well as encouraging domestic banks to provide more funding for SMEs. The percentage of enterprises reporting difficulty in securing funding has fallen from 30.16% in 2005 to 19.10% in 2006 and to 18.81% in 2007. In particular, small and medium-sized enterprises are finding it much easier to secure funding. The percentage of medium-sized enterprises that reported difficulty in securing funding fell from 31.48% in 2005 to 21.49% in 2007, while among small enterprises the percentage fell from 34.73% to 19.47%.

Table 3-3-2 Reasons Given by Manufacturers for Experiencing Difficulty in Securing Funding, 2007

Unit: %

Item \ Enterprise Size	All Enterprises	Large Enterprises	Medium-sized Enterprises	Small Enterprises
Experienced difficulty in securing funding?				
Yes	81.19	84.51	78.51	80.53
No	18.81	15.49	21.49	19.47
Reasons given for having difficulty in securing funding:				
Banks have tightened up lending policy	57.62	55.71	61.85	55.78
Interest rates on loans too high	50.18	47.14	49.13	52.59
Banks have tightened up lending policy due to a downturn in the industry to which the enterprise belongs	49.65	50.00	45.66	52.19
Unable to furnish adequate collateral	27.84	25.00	30.64	27.49
Banks unable to process loan requests fast enough	16.49	17.14	18.50	14.74
Procedures for cash capital increments and bond issuance are too complicated	11.17	18.57	8.67	8.76
Low share prices make it difficult to implement a public or private offering	8.16	17.86	4.05	5.58
Unable to secure venture capital funding	6.74	4.29	2.89	10.76
Other	5.50	5.00	4.05	6.77

Source: Statistics Department, Ministry of Economic Affairs, *Survey of Domestic Investment by Manufacturing Industry*, 2007.

IV Financial Institutions and SME Financing

Financing is the lifeline of any enterprise, and this is particularly true for SMEs, which tend to suffer from inadequate funds. Ready access to funds and flexible funding utilization are among the keys to sustainable operations. The range of funding channels available to SMEs is somewhat limited; SMEs are mainly reliant on indirect financing via banks. The following section examines the provision of funding to Taiwan's SMEs by the banking sector.

1. Top Ten Banks' Outstanding Loans to SMEs

Taiwan Cooperative Bank has the highest outstanding loans to SMEs of any bank in Taiwan. As of December 2007, its outstanding loans to SMEs totaled NT$343.1 billion, representing an increase of NT$38.9 billion compared to the end of December 2006, and giving Taiwan Cooperative Bank a 11.23% share of the SME loan market. First Commercial Bank was in second place, with outstanding loans to SMEs that totaled NT$328.3 billion, giving it a market share of10.74% (Table 3-4-1).

Table 3-4-1 Top 10 Banks by Amount of Loans to SMEs, 2007

Units: NT$ millions; %

Bank	Loans Outstanding	Market Share	Loans to SMEs as % of Total Loans
Total	**2,194,151**	**71.79**	**20.98**
Taiwan Cooperative Bank	343,144	11.23	20.09
First Commercial Bank	328,298	10.74	34.96
Taiwan Business Bank	280,102	9.16	34.71
Hua Nan Commercial Bank	274,823	8.99	27.62
Chang Hwa Commercial Bank	215,675	7.05	25.85
Mega International Commercial Bank	190,465	6.23	22.17
Bank of Taiwan	185,080	6.06	10.14
Land Bank of Taiwan	177,144	5.80	12.56
E. Sun Commercial Bank	113,777	3.72	23.53
Taipei Fubon Commercial Bank	85,643	2.80	14.39

Source: Financial Supervisory Commission, Executive Yuan, *Statistics of Banking Business*, January 2008.

According to the Statistics of Banking Business compiled by the Financial Supervisory Commission, Executive Yuan, as of the end of December 2007, the total amount of outstanding loans to SMEs by Taiwanese commercial banks was NT$3,093.8 billion, representing an increase of NT$263.4 billion compared to the end of 2006.

2. Smaller Banks Had a Higher Percentage of Loans Extended to SMEs

Of the banks with the highest percentage of loans going to SMEs, the top two are King's Town Bank (a relatively small bank) and First Commercial Bank. Taiwan Business Bank, in third place, is a specialist SME bank; as such, loans to SMEs have always accounted for a high percentage of its total lending. Taichung Commercial Bank, in fourth place, is also a small bank. Overall, small banks tend to have a higher share of their total lending going to SMEs. In the case of King's Town Bank, loans to SMEs account for over half of the bank's total loans outstanding (Table 3-4-2).

Table 3-4-2 Top 10 Banks by the Percentage of Total Loans Going to SMEs in 2006 and 2007

Units: NT$ millions; %

Bank	2006		2007	
	Loans Outstanding	Loans to SMEs as % of Total Loans	Loans Outstanding	Loans to SMEs as % of Total Loans
King's Town Bank	79,822	56.00	80,975	61.51
First Commercial Bank	303,692	34.99	328,298	34.96
Taiwan Business Bank*	237,496	32.41	280,102	34.71
Taichung Commercial Bank	51,565	27.56	66,156	34.29
EnTie Commercial Bank	68,463	29.96	60,619	33.26
Shanghai Commercial and Savings Bank	62,704	28.63	66,623	27.71
Hua Nan Commercial Bank	255,850	26.30	274,823	27.62
Chang Hwa Commercial Bank	198,678	24.95	215,675	25.85
E.Sun Commercial Bank**	72,533	17.45	113,777	23.53
Cosmos Bank**	29,530	21.29	27,043	22.81

Note: * denotes a specialist SME bank; ** denotes a bank entering the top ten for the first time in 2007.
Source: Bureau of Monetary Affairs, Financial Supervisory Commission, Executive Yuan, *Statistics of Banking Business*, December, 2007.

3. High Market Concentration in the Provision of Loans to SMEs by Regular Banks

According to Financial Supervisory Commission data, as of the end of 2007 there were 39 domestic banks (including 38 regular domestic banks and 1 specialist SME bank) and 32 foreign banks operating in Taiwan. As of the end of December 2007, outstanding loans to SMEs by the banking sector as a whole had increased by NT$263.4 billion compared to the end of December 2006. The combined market share of the top ten banks with the highest outstanding loans to SMEs rose from 68.01% in 2006 to 71.79% in 2007. This represents a very high level of market concentration. Foreign banks' outstanding loans to SMEs totaled NT$37.2 billion, giving them a combined market share of 1.2%, up from 1.19% at the end of December 2006.

4. A Continued Increase in Outstanding Loans to SMEs by Banking Subsidiaries of Financial Holding Companies

In response to the development of the financial markets, the diversification of the demand for financial services, and the government's desire to expand the scale of the financial sector, improve its operational performance and enhance its international competitiveness, the Financial Holding Company Law came into effect towards the end of 2001. By the end of 2007, a total of 14 financial holding companies had been established. As of the end of December 2007, these 14 financial holding companies had combined outstanding loans to SMEs of NT$1,314.4 billion, accounting for 18.46% of their total loans outstanding, and representing an increase of NT$144.2 billion (12.33%) compared to the end of 2006. There has thus been an increase in the provision of funding to SMEs by financial holding companies. However, the annual rate of increase in loans to SMEs by financial holding companies has been falling steadily, from 20.79% in 2005 to 18.20% in 2006, and to 12.33% in 2007 (Table 3-4-3).

Table 3-4-3 Outstanding Loans to SMEs by the Banking Subsidiaries of Financial Holding Companies in 2006 and 2007

Units: NT$ millions; %

Bank	2006		2007			
	Outstanding Loans to SMEs	Loans to SMEs as % of Total Loans	Outstanding Loans to SMEs	Loans to SMEs as % of Total Loans	Increase in Loans to SMEs	Annual Growth Rate
Total	**1,170,213**	**17.23**	**1,314,444**	**18.46**	**144,231**	**12.33**
First Commercial Bank	303,692	34.99	328,298	34.96	24,606	8.10
Hua Nan Commercial Bank	255,850	26.30	274,823	27.62	18,973	7.42
Taipei Fubon Commercial Bank	72,237	12.68	85,643	14.39	13,406	18.56
Cathay United Bank	63,504	10.09	75,561	10.76	12,057	18.99
Export-Import Bank of the ROC	3,806	17.66	4,584	15.64	778	20.44
Megabank	158,071	17.85	190,465	22.17	32,394	20.49
China Development Industrial Bank	3,672	5.64	3,688	4.84	16	0.44
Shin Kong Commercial Bank	22,490	9.71	27,016	9.91	4,526	20.12
Yuanta Bank	33,374	15.26	40,380	17.43	7,006	20.99
Bank SinoPac	77,041	14.26	72,765	13.59	-4,276	-5.55
E. Sun Commercial Bank	72,533	17.45	113,777	23.53	41,244	56.86
Taishin International Bank	20,283	4.04	21,024	4.01	741	3.65
Jih Sun Commercial Bank	21,510	12.04	14,369	8.65	-7,141	-33.20
Chinatrust Commercial Bank	62,150	8.88	62,051	8.75	-99	-0.16

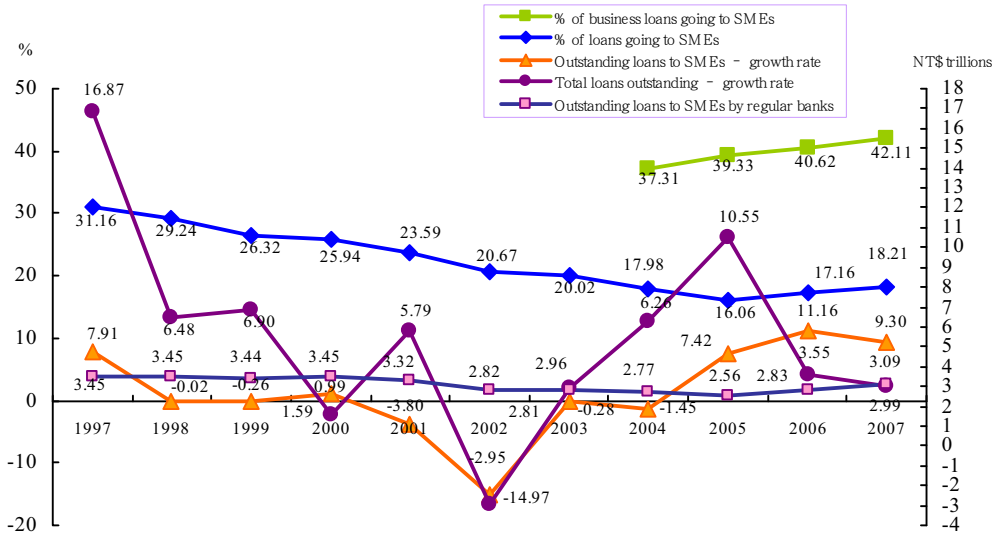
Source: Bureau of Monetary Affairs, *Statistics of Banking Business*, December 2007.

5. Total Bank Loans to SMEs Increased Compared to the End of 2007

As of the end of 2007, regular commercial banks' total outstanding loans (excluding

overseas loans) had increased by 2.99% compared to the end of 2006. Total outstanding loans to SMEs were up 9.3% year-on-year, having risen from NT$2.83 trillion to NT$3.09 trillion. The share of total loans outstanding going to SMEs rose from 17.16% in 2006 to 18.21% in 2007 (Figure 3-4-1).

Figure 3-4-1 Bank Lending to SMEs by Regular Commercial Banks, 1997 – 2007



Note: "Total loans outstanding" was calculated using the following formula: regular banks' outstanding loans to SMEs (including overdue loans) divided by loans to SMEs as a percentage of total loans.
Source: Bureau of Monetary Affairs, Financial Supervisory Commission, Executive Yuan, *Statistics of Banking Business*, consecutive years.

The performance of the Taiwanese economy in 2007 was quite impressive, with an annual growth rate of 5.70%. Imports and exports both rose to record levels, encouraging business enterprises to invest in new equipment; as a result, private-sector spending rose significantly. At the same time, the government has been working to give business enterprises easier access to financing, for example through the Financial Supervisory Commission's Plan to Increase Lending to SMEs by Domestic Banks. An upturn in the real estate market also helped to boost domestic demand.

Banks have traditionally been less wiling to extend loans to SMEs due to their sometimes questionable financial health. However, with the economic climate improving, and with the government having injected more funds into the SME Credit Guarantee Fund in the last few years to help SMEs overcome the difficulties that they experience as a result of their inability to provide sufficient collateral, banks have now

become more willing to lend money to SMEs. According to Financial Supervisory Commission statistics, as of the end of December 2007, regular domestic banks' total outstanding loans to SMEs (including overdue loans) stood at NT$3,056.5 billion, of which, according to Small and Medium Enterprise Administration data, NT$527.7 billion (17.27% of the total) was covered by credit guarantees granted by the SME Credit Guarantee Fund.

One point worth noting is that the definition of "loans outstanding" used in this section includes overdue receivables, but not guarantees or acceptances. Inclusion of these items would make a significant difference to both the amount of loans outstanding granted to SMEs and the share of all outstanding loans accounted for by these loans. In addition, while the data presented above are based on direct loans to SMEs, many SME owners also secure personal loans in their own name that are used for business purposes. These personal loans are not classed as loans to SMEs, but in reality they do constitute a form of SME financing.

6. Banks' Outstanding Loans to SMEs Have Risen, Both in Absolute Terms and as a Percentage of Total Bank Loans

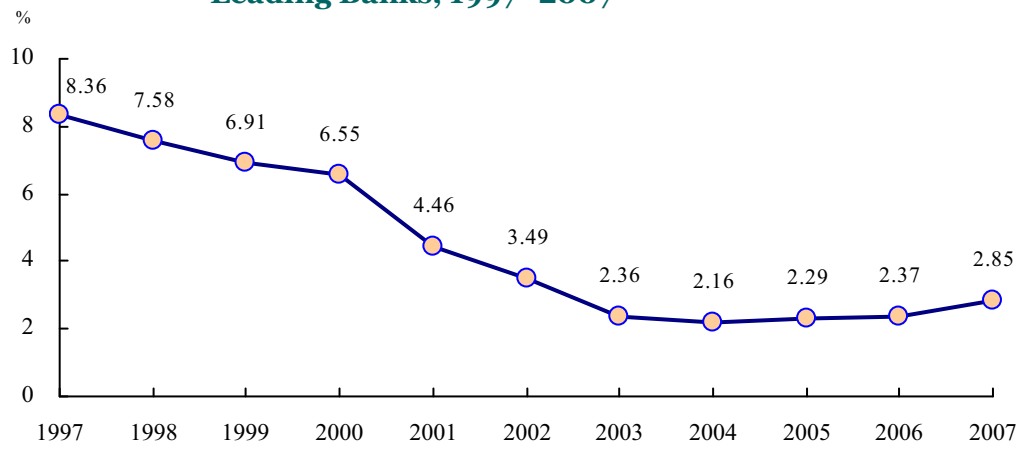
Implementation of the Financial Supervisory Commission's Plan for Increasing Lending to SMEs by Domestic Banks began in July 2005. The target for each of the first three years of implementation was an increase of NT$200 billion in lending to SMEs. As a result of the effective use of incentive measures to facilitate the flow of funding to SMEs, by the end of December 2007, total outstanding loans to SMEs by domestic banks had risen to NT$3,056.5 billion, representing an increase of 29.15% compared to July 1, 2005, when implementation of the Plan began. Over the same period, the share of domestic banks' total lending going to SMEs rose from 15.72% to 18.58%.

As of the end of 2007, the domestic banks' non-performing loan (NPL) ratio (using a broad definition) stood at 1.84%, compared to 2.13% at the end of 2006, and a historic high of 11.74% in the first quarter of 2002. Total non-performing loans had fallen to NT$328 billion, compared to NT$1,661.9 billion in the first quarter of 2002. The overall health of Taiwan's banking sector is thus gradually improving. It can be anticipated that, in the future, financial institutions in Taiwan will be able to play their intermediary role even more effectively, helping to ensure smooth access to financing for SMEs to meet their funding needs.

7. A Continuing Rise in the Cost of Financing in 2007

The Taiwanese economy began to pick up again in 2002, with an annual economic growth rate of 4.64% (compared to –2.17% in 2001). By 2004, the economic growth rate had risen to 6.15%, the highest level since 2001. To prevent the economy from overheating, from late 2004 onwards the Central Bank began to adopt a tighter monetary policy. Interest rates rose steadily; by 2007, the Central Bank had increased the discount rate 13 times. As a result, business enterprises found themselves having to cope with higher financing costs.

Figure 3-4-2 Average Interest Rate on New Loans Extended by Five Leading Banks, 1997–2007



Note: The interest rates shown in the figure are a weighted average of the interest rates in each month of the year.
Source: Central Bank.

Central Bank data show that the average interest rate on new loans extended by the Bank of Taiwan, Taiwan Cooperative Bank, First Commercial Bank, Hua Nan Commercial Bank and Chang Hwa Commercial Bank had fallen steadily from 8.32% in 1995 to 2.16% in 2004, before rising again to 2.37% in 2006, and 2.85% in 2007 (Figure 3-4-2). Although the Central Bank data were not broken down by enterprise size, it is clear from Figure 3-4-2 that, for Taiwan's SMEs, the cost of bank loans had been falling until 2004, but then began to increase slightly after the Central Bank started raising the discount rate in late 2004.

Chapter 4

The Current Status of SMEs' Labor Utilization

Taiwan's economic performance in 2007 was quite impressive, with a whole-year economic growth rate of 5.72%. The state of the labor market improved steadily over the course of the year; the number of employed persons rose by 1.81% compared to 2006, the overall unemployment rate remained at around the same level as in 2006, and the number of people employed by SMEs rose substantially, by 2.43%. This chapter will examine the current status of labor utilization among Taiwan's SMEs, focusing on manpower resources, working conditions, the government's labor policy, and the SMEs' own manpower cultivation efforts.

In this chapter, enterprise size is defined according to the number of employees. Enterprises in the mining and quarrying industry, manufacturing industry and the construction industry with less than 200 employees, and enterprises in other industries with less than 50 employees, are classed as SMEs. However, in some cases limited availability of data makes it impossible to use this classification system; in such cases, SMEs are defined as enterprises with less than 100 employees. This is pointed out in the text where appropriate.

I Labor Usage in SMEs

In 2005, Taiwan's total available workforce amounted to 10,294,000 persons, of which 419,000 were unemployed, giving a labor force participation rate of 58.25% and an average unemployment rate of 3.91%. Both the available workforce and the number of people in work rose in 2007, and the labor force participation rate increased by 0.33 percentage points. However, in absolute terms the number of unemployed persons rose slightly (by 8,000) compared to 2006. Overall, the labor market remained in a reasonably healthy state in 2007. The following sections examine labor utilization in Taiwan's SMEs in 2007.

1. The Number of Persons Working in SMEs Increases Substantially, by 188,000

In 2007, the number of employed persons working in SMEs in Taiwan stood at 7,939,000, representing an increase of 188,000 compared to 2006. As a percentage of all those in work, the number of people working in SMEs rose by 2.43 percentage points in 2007, climbing to 77.12%. The shares of those in work that were working for large enterprises and for the government fell by 0.14 percentage points and 0.21 percentage points, respectively; this was the first time for some years that either of these shares had fallen. It can thus be seen that SMEs made an important contribution towards job creation in Taiwan in 2007 (Table 4-1-1).

Table 4-1-1 Characteristics of Employed Persons in Taiwan in 2006 and 2007

Units: thousand persons; %

Item	2006			2007		
	SMEs	Large Enterprises	Government Employees	SMEs	Large Enterprises	Government Employees
Total No. of Persons	**7,751**	**1,426**	**934**	**7,939**	**1,424**	**932**
(Share of Total)	**(76.66)**	**(14.11)**	**(9.24)**	**(77.12)**	**(13.83)**	**(9.05)**
Age	100.00	100.00	100.00	100.00	100.00	100.00
15~24	9.39	9.62	3.95	8.99	8.36	4.04
25~40	44.86	59.54	42.77	44.31	60.13	42.05
41~55	36.93	27.61	46.29	37.18	27.68	45.94
56~65	7.09	3.07	6.70	7.61	3.65	7.68
Over 65	1.73	0.16	0.28	1.90	0.18	0.28
Sex	100.00	100.00	100.00	100.00	100.00	100.00
Male	58.62	53.80	53.43	58.11	54.05	52.11
Female	41.38	46.20	46.57	41.89	45.95	47.89
Education	100.00	100.00	100.00	100.00	100.00	100.00
Illiterate	0.64	0.04	0.02	0.59	0.03	0.03
Self-taught	0.15	0.01	0.03	0.14	0.01	0.02
Primary school	13.95	2.35	3.11	12.87	2.14	2.80
Junior high school	18.70	5.30	4.23	18.20	4.90	4.09
Senior high school	9.21	6.36	6.39	9.28	6.39	6.22
Senior vocational school	29.57	22.90	15.76	29.59	21.54	14.78
Junior college	15.18	25.13	24.01	15.13	24.30	23.27
University	11.00	27.33	33.61	12.33	29.44	34.44
Master's	1.51	9.01	10.48	1.78	9.60	11.78
Ph.D.	0.09	1.57	2.36	0.10	1.64	2.56

Source: DGBAS, *Monthly Bulletin of Manpower Statistics*, 2006 and 2007.

2007 did not see any significant change in the composition of SME employees – in terms of age structure, sex and level of education – compared to 2006. As in 2006, SME employees were mostly aged between 25 and 55; the share of SME employees held by those aged 41–55 rose. Although SME employees are still mostly male, the women's share of all SME employees continues to rise steadily. The average level of education of SME employees has also been rising steadily. The number of SME employees

educated to junior college level now exceeds those educated to primary school level; SME employees educated to junior college level currently constitute the largest group apart from those educated to senior vocational school and those educated to the junior high school level. The number of university graduates working in SMEs has also been rising, and is now almost as large as the share held by those educated to primary school level; this may reflect the pronounced rise in university admissions in Taiwan over the past few years (Table 4-1-1).

2. A 3.80% Increase in the Number of Paid Employees Working for SMEs

The total number of paid employees in Taiwan in 2007 (including government employees) was 7,735,000; this figure represented an increase of 193,000 (2.56%) compared to 2006. The number of paid employees working in SMEs stood at 5,383,000 in 2007; as a share of all paid employees, it increased from 68.76% in 2006 to 69.60% in 2007, while in absolute terms the number of paid employees working in SMEs grew by 197,000 (3.80%). The SMEs' share of paid employees is noticeably lower than their share of employed persons, reflecting the relatively large number of persons working in SMEs who fall under the category of employers or self-employed.

Table 4-1-2 Characteristics of Paid Employees in 2006 and 2007

Units: thousand persons; %

Item	2006			2007		
	SMEs	Large Enterprises	Government Employees	SMEs	Large Enterprises	Government Employees
Total No. of Persons	**5,186**	**1,421**	**934**	**5,383**	**1,420**	**932**
(Share of Total)	**(68.77)**	**(18.85)**	**(12.38)**	**(69.60)**	**(18.36)**	**(12.04)**
Age	100.00	100.00	100.00	100.00	100.00	100.00
15~24	12.90	9.65	3.95	12.22	8.39	4.04
25~40	52.41	59.72	42.77	52.37	60.27	42.05
41~55	30.84	27.50	46.29	31.14	27.62	45.94
56~65	3.55	2.99	6.70	3.97	3.55	7.68
Over 65	0.30	0.14	0.28	0.31	0.17	0.28
Sex	100.00	100.00	100.00	100.00	100.00	100.00
Male	56.11	53.71	53.43	55.62	53.96	52.11
Female	43.89	46.29	46.57	44.38	46.04	47.89
Education	100.00	100.00	100.00	100.00	100.00	100.00
Illiterate	0.22	0.04	0.02	0.17	0.03	0.03
Self-taught	0.05	0.01	0.03	0.04	0.01	0.02
Primary school	9.17	2.35	3.11	8.34	2.14	2.80
Junior high school	17.56	5.29	4.23	17.08	4.91	4.09
Senior high school	9.03	6.35	6.39	9.13	6.38	6.22
Senior vocational school	31.04	22.92	15.76	30.62	21.57	14.78
Junior college	17.55	25.15	24.01	17.32	24.33	23.27
University	13.41	27.29	33.61	15.06	29.40	34.44
Master's	1.86	9.03	10.48	2.14	9.60	11.78
Ph.D.	0.11	1.56	2.36	0.10	1.63	2.56

Source: DGBAS, *Monthly Bulletin of Manpower Statistics*, 2006 and 2007.

The composition of those paid employees working in SMEs is similar to that of employed persons working in SMEs. The concentration in the 25–40 age group is more pronounced, at 52.37% of the total, and the women's share of the total is higher, at just under 45%. The average education level of paid employees working in SMEs is significantly lower than the average education level of employed persons working in SMEs (Table 4-1-2).

3. There are Approximately 519,000 SME Employers

The number of SME employers in Taiwan rose by just over 5,000 in 2007, climbing from 513,000 in 2006 to 519,000 in 2007. SME employers are mostly aged between 25 and 55, with those aged between 41 and 55 accounting for over half of the total (a share which continues to rise). SME employers tend to be younger than employers in the large enterprise sector, reflecting the relative lack of age restrictions applying to entrepreneurial activity in the SME sector (Table 4-1-3).

Table 4-1-3 Characteristics of Employers in 2006 and 2007

Units: thousand persons; %

Item	2006		2007	
	SMEs	Large Enterprises	SMEs	Large Enterprises
Total No. of Persons	**512.86**	**4.22**	**518.73**	**3.83**
(Share of Total)	**(99.18)**	**(0.82)**	**(99.27)**	**(0.73)**
Age	100.00	100.00	100.00	100.00
15~24	0.53	–	0.52	–
25~40	30.36	4.77	27.70	8.14
41~55	56.73	58.99	57.89	48.45
56~65	10.65	29.03	12.02	39.45
Over 65	1.74	7.22	1.87	3.95
Sex	100.00	100.00	100.00	100.00
Male	81.80	87.81	82.18	85.94
Female	18.20	12.19	17.82	14.06
Education	100.00	100.00	100.00	100.00
Illiterate	0.07	–	0.08	–
Self-taught	0.06	–	0.04	–
Primary school	9.23	1.41	9.62	2.95
Junior high school	15.98	8.04	16.33	1.72
Senior high school	10.31	7.76	10.69	11.67
Senior vocational school	28.62	15.86	28.45	10.94
Junior college	18.34	18.56	17.36	11.69
University	14.79	40.84	14.25	45.37
Master's	2.37	4.32	2.93	10.31
Ph.D.	0.22	3.22	0.24	5.35

Source: DGBAS, *Monthly Bulletin of Manpower Statistics*, 2006 and 2007.

4. A Rise in the Percentage of Older Self-employed Persons

The self-employed either work alone or as part of a partnership; they may be assisted by

persons who are working without pay, but do not have any paid employees. Self-employed persons can thus all be classified as SMEs. The number of self-employed persons in Taiwan peaked in 1991–1992 at around 1,572,000. However, the number of self-employed persons began to decline in 2006, and in 2007 it fell by around 10,000 to 1,396,000. It was particularly noticeable that the number of self-employed persons aged 40 or under fell by nearly 2 percentage points; this trend may be related to the rise in prices and higher operating costs (Table 4-1-4).

Table 4-1-4 Characteristics of Self-employed Persons in 2006 and 2007

Units: thousands; %

Item \ Year	2006	2007
Total No. of Persons	**1,406**	**1,396**
Age	100.00	100.00
15~24	0.93	0.83
25~40	25.48	23.67
41~55	49.86	50.00
56~65	17.47	18.38
Over 65	6.26	7.12
Sex	100.00	100.00
Male	75.39	74.90
Female	24.61	25.10
Education	100.00	100.00
Illiterate	1.65	1.62
Self-taught	0.44	0.43
Primary school	29.18	27.36
Junior high school	23.43	22.84
Senior high school	9.59	9.49
Senior vocational school	23.24	24.53
Junior college	8.18	8.69
University	3.79	4.29
Master's	0.48	0.68
Ph.D.	0.01	0.08

Source: DGBAS, *Monthly Bulletin of Manpower Statistics*, 2006 and 2007.

5. An Increase of 3,552 in the Number of Female Business Owners

As can be seen from Tables 4-1-3 and 4-1-4, the number of female SME owners fell slightly in 2007 compared to 2006, while the number of female self-employed persons rose slightly. Overall, the number of female business owners rose by 3,552 in 2007 compared to the previous year, representing an annual growth rate of 0.81%. The long-term trend is for the share of business owners who are female to increase, reflecting a gradual rise in entrepreneurial activity among women. For a woman seeking to start her own business, becoming self-employed is often the most practical starting

point; as a result, 79% of self-employed persons in Taiwan are women. Wholesaling and retailing enterprises account for the vast majority of SMEs where the business owner is a woman; by contrast, educational services enterprises account for the biggest share of large enterprises owned by women. An examination of the types of businesses that have high shares of female business owners can shed light on the areas in which women prefer to undertake entrepreneurial activity (Table 4-1-5).

Table 4-1-5 Female Business Owners and Self-employed Persons in 2007 – by Industry

Units: persons; %

Item / Industry	Total No. of Business Owners		Total No. of Self-employed	Female Business Owners		Female Self-employed
	SMEs	Large Enterprises		SMEs	Large Enterprises	
Total No. of Persons (Share of total)	**518,727 27.04**	**3,835 0.20**	**1,396,160 72.77**	**92,419 20.85**	**539 0.12**	**350,380 79.03**
Agriculture, forestry, fisheries and animal husbandry	7,592	0	329,543	684	0	37,321
Mining and quarrying	330	0	17	36	0	0
Manufacturing	133,389	1,102	79,312	9,405	0	6,562
Electric power and gas	78	0	0	0	0	224
Water supply and pollution remediation	2,461	0	2,017	305	0	615
Construction	61,157	11	56,280	2,081	0	—
Wholesaling and retailing	128,866	563	442,579	25,916	29	142,588
Transportation and warehousing	8,353	301	90,252	19,787	—	60,082
Hotel and restaurant industry	52,136	217	150,974	640	49	1,557
Information, communications and broadcasting	7,389	207	5,514	1,206	—	461
Finance and insurance	1,056	103	2,096	299	103	712
Real estate	4,762	167	4,842	1,014	118	891
Professional, scientific and technical services	29,011	166	36,769	6,773	—	12,212
Support services	9,724	466	10,784	8,004	155	11,401
Educational services	13,910	435	16,388	1,413	—	1,368
Medical, healthcare and social services	17,028	97	12,122	2,175	—	3,817
Arts, entertainment and leisure services	6,129	0	13,393	1,713	86	3,063
Other service industries	35,357	0	143,278	10,969	—	67,505

Note: Major changes were made to the standard industry classification in 2007; this should be borne in mind when making comparisons with previous years.
Source: DGBAS, *Monthly Bulletin of Manpower Statistics*, 2007.

6. More Than Half of Those Employed in Hi-tech and Knowledge-intensive Industries Are Women

The OECD defines hi-tech and knowledge-intensive industries as including the following: chemical materials manufacturing; chemical products manufacturing; machinery manufacturing, repair and distribution; computer, communications and audiovisual product manufacturing; transportation equipment manufacturing, repair and distribution; precision, optical and medical instruments and clock and watch

manufacturing; postal and express delivery services; telecommunications; the financial industry and its supporting industries; the securities and futures industry; the insurance industry; the legal and accounting services industry; the construction and engineering services industry; the specialist design services industry, the computer system design services industry; the data processing and data applications services industry; the consulting services industry; the R&D services industry; the advertising industry, other professional, scientific and technical service industries; the educational services industry; and the medical and healthcare services industry. In 2008, Taiwan revised its standard industry classification. The industry categories that can now be classed as hi-tech and knowledge-intensive industries include: chemical materials manufacturing; chemical products manufacturing; machinery manufacturing; computer, electronics and optoelectronics product manufacturing; motor vehicle and motor vehicle parts manufacturing; other transportation equipment manufacturing; postal and express delivery services; telecommunications; financial intermediary services; the securities, futures and other financial industries; the insurance industry; legal and accounting services; the construction and engineering services and measurement and analysis services industry; the specialist design services industry; the computer system design services industry; the data processing and data application services industries; the business administration and management consulting services industry; the R&D services industry; the advertising and market research industry; other professional, scientific and technical service industries; the educational services industry; and the medical and healthcare services industry.

Due mainly to the revision of the standard industry classification, although Taiwan had more than 2.43 million people working in the hi-tech and knowledge-intensive industries in 2007, this total was 80,000 down on 2006. At just over 1.34 million, the number of people working in SMEs in the hi-tech and knowledge-intensive industries was 68,000 down on 2006, while for large enterprises the decline was just over 25,000. Only the state sector (government employees) saw an increase, of 13,000 (Table 4-1-6).

One point worth noting is that employees of enterprises in the hi-tech and knowledge-intensive industries are heavily concentrated in the 25–40 age group, far more so than is the case for the working population as a whole. Women also account for a higher percentage of those working in the hi-tech and knowledge-intensive industries than they do in the economy as a whole, suggesting that these industries are well suited to female employment.

Table 4-1-6 Characteristics of Those Working in Hi-tech and Knowledge-intensive Industries in 2006 and 2007

Units: thousand persons; %

Item	2006			2007		
	SMEs	Large Enterprises	Government Employees	SMEs	Large Enterprises	Government Employees
Total No. of Persons	**1415.26**	**674.95**	**428.47**	**1347.14**	**649.09**	**441.58**
(Share of total)	**(56.19)**	**(26.80)**	**(17.01)**	**(55.26)**	**(26.63)**	**(18.11)**
Age	100.00	100.00	100.00	100.00	100.00	100.00
15~24	10.24	8.40	5.51	9.41	7.70	5.22
25~40	57.05	59.86	48.61	56.49	58.99	47.59
41~55	28.93	28.60	40.87	29.95	29.29	41.41
56~65	3.38	2.93	4.79	3.69	3.81	5.58
Over 65	0.40	0.21	0.22	0.47	0.21	0.20
Sex	100.00	100.00	100.00	100.00	100.00	100.00
Male	51.68	48.97	39.27	48.80	49.27	38.40
Female	48.32	51.03	60.73	51.20	50.73	61.60
Education	100.00	100.00	100.00	100.00	100.00	100.00
Illiterate	0.04	0.03	0.01	0.02	0.03	0.02
Self-taught	0.02	—	—	0.01	0.01	0.02
Primary school	3.54	1.29	1.40	3.00	1.09	1.20
Junior high school	7.53	2.92	2.13	6.07	2.66	2.14
Senior high school	6.81	4.62	3.64	6.33	4.43	3.65
Senior vocational school	26.08	16.67	8.46	23.95	15.55	7.80
Junior college	25.76	26.78	16.61	25.54	25.78	15.58
University	25.43	32.46	48.07	29.22	34.50	47.65
Master's	4.47	12.20	15.35	5.50	12.83	17.10
Ph.D.	0.31	3.03	4.33	0.36	3.13	4.82

Source: DGBAS, *Monthly Bulletin of Manpower Statistics*, 2006 and 2007.

7. The Number of People Employed in SMEs in Important Emerging Industries Rose by Over 160,000 in 2007

In 2007, a total of just over 1.36 million people were employed in the "important new emerging industries" (chemical materials manufacturing; chemical products manufacturing; electrical machinery and electronics manufacturing, repair and distribution; transportation vehicle manufacturing; and precision machinery manufacturing, repair and distribution). This figure represented an increase of over 176,000 compared to 2006. The number of people working in SMEs in these industries rose by around 166,000 (Table 4-1-7), and the SMEs' share of all persons working in the important emerging industries increased by 4.62 percentage points. The number of persons working in large enterprises in these industries rose by over 10,000; the apparent dramatic increase in the number of persons working in SMEs in the important emerging industries may have been partly attributable to the revision of the standard industry classification that was implemented in 2007.

Table 4-1-7 Characteristics of the Those Working in Important Emerging Industries in 2006 and 2007

Units: thousand persons; %

Item	2006			2007		
	SMEs	Large Enterprises	Government Employees	SMEs	Large Enterprises	Government Employees
Total No. of Persons	**694.04**	**487.31**	**9.74**	**860.15**	**497.96**	**9.55**
(Share of total)	**(58.27)**	**(40.91)**	**(0.82)**	**(62.89)**	**(36.41)**	**(0.70)**
Age	100.00	100.00	100.00	100.00	100.00	100.00
15~24	11.63	11.91	1.55	10.62	10.04	2.86
25~40	59.09	67.92	22.95	57.60	68.82	26.34
41~55	26.58	18.92	67.31	28.58	19.45	63.50
56~65	2.49	1.20	8.19	2.97	1.67	7.30
Over 65	0.22	0.05	—	0.23	0.02	—
Sex	100.00	100.00	100.00	100.00	100.00	100.00
Male	55.76	58.07	84.86	60.41	58.86	82.10
Female	44.24	41.93	15.14	39.59	41.14	17.90
Education	100.00	100.00	100.00	100.00	100.00	100.00
Illiterate	0.05	0.01	—	0.03	0.01	—
Self-taught	0.04	—	—	0.01	0.02	—
Primary school	5.55	1.65	0.89	5.60	1.47	1.00
Junior high school	12.13	5.19	3.49	11.83	4.76	4.65
Senior high school	8.54	6.80	4.53	8.31	6.95	7.02
Senior vocational school	29.91	28.47	27.41	31.37	27.06	29.94
Junior college	22.42	24.05	27.96	21.76	22.79	26.60
University	16.89	23.32	24.19	17.13	25.73	24.03
Master's	4.12	10.00	11.54	3.79	10.49	6.75
Ph.D.	0.33	0.51		0.17	0.71	

Note: In 2006, the "important emerging industries" included: chemical materials manufacturing; chemical products manufacturing; electrical machinery and electronics manufacturing, repair and distribution; transportation vehicle manufacturing; and precision machinery manufacturing, repair and distribution. The revised list of industries for 2007 included: chemical materials manufacturing; chemical products manufacturing; electronic components manufacturing; computer, electronics and optoelectronics products manufacturing; electrical equipment manufacturing; machinery manufacturing; motor vehicle and motor vehicle component manufacturing; and other transportation equipment manufacturing.

Source: DGBAS, *Monthly Bulletin of Manpower Statistics*, 2006 and 2007.

8. An Increase in the Number of Employed Persons Working in SMEs in the Cultural and Creative Industries

The scope of the "cultural and creative industries" as revised in 2007 includes the following: the creative and artistic performance industry; film, video, recording and music publishing industry; TV and radio broadcasting industry; publishing industry; advertising and market research industry; specialist design services industry; construction and engineering services and testing and analysis services; and sporting, entertainment and leisure services. Table 4-1-8 shows the various categories in 2006 and 2007 for comparison.

Overall, the number of people working in the cultural and creative industries in Taiwan rose from 297,000 in 2006 to 306,000 in 2007. Persons working in SMEs accounted for 76.57% of this total, up from 75.97% in 2006. The cultural and creative

industries thus constitute an area that is highly suited to SME development. Within the cultural and creative industries, the sporting, entertainment and leisure services accounted for the largest share of those working in SMEs in this sector, at 25.57% (down from 26.63% in 2006). Once again, the adjustments made to the standard industry classification in 2007 make it difficult to draw direct comparisons between 2007 and previous years. Whereas in the past individuals educated to senior vocational school level accounted for the largest share of those working in SMEs in the cultural and creative industries, in 2007 those educated to university level constituted the largest share, at 27.11% (up from 23.18% in 2006). There has thus been a significant improvement in overall manpower quality in the cultural and creative industries.

Table 4-1-8 Characteristics of Those Working in the Cultural and Creative Industries in 2006 and 2007

Units: thousand persons; %

Item	2006			2007		
	SMEs	Large Enterprises	Government Employees	SMEs	Large Enterprises	Government Enterprises
Total no. of persons (Share of total)	**225.75 (75.97)**	**65.35 (21.99)**	**6.04 (2.03)**	**234.63 (76.57)**	**65.58 (21.40)**	**6.19 (2.02)**
Industry	100.00	100.00	100.00	100.00	100.00	100.00
Artistic and sporting services	13.06	9.38	33.69	—	—	—
Creative and artistic performance industry	—	—	—	5.08	0.64	16.23
Film industry	1.55	0.95	—	—	—	—
Film, video, recording and music publishing	—	—	—	4.26	5.57	—
Broadcasting	4.37	33.48	11.84	—	—	—
TV and radio broadcasting	—	—	—	3.83	21.92	9.66
Publishing	11.42	28.55	—	10.92	27.33	2.15
Advertising	20.95	3.00	—	—	—	—
Advertising and market research	—	—	—	20.81	4.81	0.85
Specialist design services	10.71	8.53	—	11.52	1.22	—
Construction and engineering services	11.31	7.68	5.72	—	—	—
Construction and engineering services and testing and analysis services	—	—	—	18.01	23.32	31.29
Leisure services	26.63	8.42	48.75	—	—	—
Sporting, entertainment and leisure services	—	—	—	25.57	15.18	39.83
Sex	100.00	100.00	100.00	100.00	100.00	100.00
Male	51.29	55.24	50.68	52.63	55.08	57.72
Female	48.71	44.76	49.32	47.37	44.92	42.28
Education	100.00	100.00	100.00	100.00	100.00	100.00
Illiterate	0.09	0.07	—	0.04	0.13	—
Self-taught	—	—	0.88	0.05	—	—
Primary school	4.34	1.88	5.33	3.40	2.56	5.03
Junior high school	10.02	3.96	9.42	8.43	4.57	3.85
Senior high school	8.47	5.14	8.71	8.10	6.10	9.31
Senior vocational school	30.10	17.33	26.81	25.81	16.49	25.16
Junior college	19.57	26.54	19.83	20.72	20.01	19.14
University	23.18	33.77	19.44	27.11	35.07	19.46
Master's	4.05	10.83	9.58	6.16	13.96	16.80
Ph.D.	0.18	0.48	—	0.18	1.11	1.23

Source: DGBAS, *Monthly Bulletin of Manpower Statistics*, 2006 and 2007.

9. The Number of Unemployed Persons Who Previously Worked in SMEs Continues to Fall

In absolute terms, the number of unemployed persons in Taiwan rose by around 8,000 in 2007 compared to 2006; however, the unemployment rate remained more or less unchanged, at 3.91%. The number of unemployed persons who had previously worked in SMEs rose from 272,000 in 2006 to 281,000 in 2007, while the number of unemployed persons who had previously worked in large enterprises fell from 39,000 to 36,000 (Table 4-1-9). This situation reflects the major changes that have taken place in the government's labor policy and in the labor market over the past few years.

Table 4-1-9 Characteristics of the Unemployed in 2006 and 2007

Units: thousand persons; %

Year/ Enterprise Size / Item	2006			2007		
	SMEs	Large Enterprises	Government Employees	SMEs	Large Enterprises	Government Employees
Total No. of Persons	**272.31**	**38.95**	**99.73**	**281.23**	**36.22**	**101.33**
(Share of total)	**(66.26)**	**(9.48)**	**(24.27)**	**(67.15)**	**(8.65)**	**(24.20)**
Age	100.00	100.00	100.00	100.00	100.00	100.00
15~24	16.10	16.25	53.59	15.76	12.63	54.12
25~40	52.63	60.15	37.76	51.81	57.27	38.03
41~55	27.55	21.07	6.20	29.13	27.18	6.59
56~65	3.63	2.54	2.40	3.23	2.90	1.26
Over 65	0.10	—	0.05	0.07	0.02	—
Sex	100.00	100.00	100.00	100.00	100.00	100.00
Male	61.77	52.33	56.82	61.11	55.97	54.90
Female	38.23	47.67	43.18	38.89	44.03	45.10
Education	100.00	100.00	100.00	100.00	100.00	100.00
Illiterate	0.13	0.04	0.10	0.15	—	0.03
Self-taught	0.07	0.01	—	0.03	—	—
Primary school	8.75	2.47	3.07	8.06	2.33	2.23
Junior high school	19.61	8.62	6.53	18.95	8.34	6.85
Senior high school	10.03	7.63	6.98	9.59	8.50	6.49
Senior vocational school	34.86	32.05	20.94	35.09	30.11	19.20
Junior college	14.67	24.04	15.52	14.42	22.58	12.48
University	11.03	22.06	40.12	12.80	23.21	45.40
Master's	0.83	2.72	6.74	0.91	4.94	7.13
Ph.D.	0.02	0.35	0.01	0.00	—	0.19

Note: The enterprise types given in the table are those in which the unemployed worked before becoming unemployed.
Source: DGBAS, *Monthly Bulletin of Manpower Statistics*, 2006 and 2007.

10. An Increase of Around 10,000 in the Number of SME Employees Changing Jobs

A total of 439,000 SME employees changed their job in 2007; this figure represented an

increase of 11,000 compared to 2006 (roughly the same increase as in 2005). Most of those changing jobs (88.65% of the total) took jobs that were also in the SME sector. Only 38,000 found work in large enterprises, with another 12,000 becoming government employees; these two groups together amount to only just over 10% of all SME employees changing jobs in 2007, a percentage that has remained more or less the same over the past few years. It appears that former SME employees do not find it easy to get work in large enterprises or in the public sector (Table 4-1-10).

Table 4-1-10 Choice of New Employer by Former SME Employees

Units: thousand persons; %

Year	Total	Going to Work for Another SME		Going to Work for a Large Enterprise		Going to Work for the Government	
		No. of Persons	Share of Total	No. of Persons	Share of Total	No. of Persons	Share of Total
2003	455	405	89.01	36	7.91	14	3.08
2004	501	433	86.32	43	8.62	25	5.05
2005	438	394	89.95	36	8.22	8	1.83
2006	428	367	85.79	48	11.27	13	2.95
2007	439	390	88.65	38	8.62	12	2.73

Source: DGBAS, *Monthly Bulletin of Manpower Statistics*, consecutive years.

11. A Slight Increase in the Number of Foreign Laborers Employed by SMEs

The Taiwanese government's policy with regard to the importation of foreign laborers has always emphasized the plugging of gaps in the domestic labor supply. However, after the use of foreign laborers was first formally authorized in 1989, the number of foreign laborers working in Taiwan grew steadily. In 2001, the Council of Labor Affairs began to implement a new policy of restricting the number of foreign laborers allowed into Taiwan. Subsequently, both the number of foreign laborer approvals and the number of foreign laborers actually in Taiwan fell steadily over the period 2001–2003. Subsequently, however, the government began to backtrack in response to complaints about labor shortages in industry, and the number of foreign laborers started to rise again. In 2007, the number of approvals rose by 5,436 compared to 2006, while the number of foreign laborers actually working in Taiwan increased by 10,275 (Table 4-1-11). Most of this increase was attributable to increased demand for foreign laborers on the part of SMEs; the number of foreign laborers working in large enterprises has tended to fall. In 2007, while the gradual increase in the number of foreign laborers employed has helped Taiwan's SMEs to cope with labor shortages and the resulting rise

in labor costs, in the long term, SMEs need to focus on upgrading their technology and achieving higher levels of automation, so as to reduce their dependence on foreign laborers.

Table 4-1-11 The Number of Foreign Laborers Employed by Large Enterprises and SMEs, 2002 – 2007

Units: persons; %

Enterprise Size / Year	Foreign Labor Approvals			No. of Foreign Laborers Actually in Taiwan		
	Total	SMEs	Large Enterprises	Total	SMEs	Large Enterprises
2002	203,235	85,965 (42.30)	117,270 (57.70)	180,038	76,846 (42.68)	103,192 (57.32)
2003	196,638	83,322 (42.37)	113,316 (57.63)	176,156	75,824 (43.04)	100,332 (56.96)
2004	199,346	81,996 (41.13)	117,350 (58.87)	179,878	75,224 (41.82)	104,654 (58.18)
2005	197,283	83,614 (42.38)	113,669 (57.62)	180,504	76,419 (42.25)	104,085 (57.75)
2006	206,385	93,507 (45.31)	112,878 (54.69)	181,648	79,388 (43.70)	102,260 (56.30)
2007	211,821	100,064 (47.24)	111,757 (52.76)	191,923	90,632 (47.22)	101,291 (52.78)

Notes: 1. Data includes only foreign laborers employed by manufacturing and construction firms.
2. SMEs are defined as firms with less than 200 employees.
3. Figures in parentheses are percentages of the total.

Source: Bureau of Employment and Vocational Training, Council of Labor Affairs, Executive Yuan.

II Labor Conditions in SMEs

1. Employees of SMEs in the Educational Services Industry Have the Highest Average Income

As can be seen from the data in Table 4-2-1, in 2007 SMEs in the educational services industry had the highest average employee incomes, followed by the financial and insurance industry; the agriculture, forestry, fisheries and animal husbandry industry had the lowest average incomes. Among large enterprises, the highest incomes were found in the professional, scientific and technical services industry and in the finance and insurance industry; here again, the agriculture, forestry, fisheries and animal husbandry industry had the lowest average incomes. Among government employees and employees of state-owned enterprises, the highest average incomes were in the finance and insurance industry, followed by the mining and quarrying industry; the real estate business had the lowest average incomes.

Table 4-2-1 Average Monthly Salary (Main Income Source) in 2007 – by Industry

Unit: NT$ thousands

Industry \ Enterprise Size	SMEs	Large Enterprises	Government Employees
Agriculture, forestry, fisheries and animal husbandry	14.63	23.74	37.46
Mining and quarrying	38.20	–	60.03
Manufacturing	31.88	36.76	50.95
Electric power and gas supply	29.04	34.34	59.61
Water supply and pollution remediation	30.06	31.11	34.71
Construction	34.86	49.58	47.07
Wholesaling and retailing	30.23	39.45	41.93
Transportation and wholesaling	24.88	31.48	41.48
Hotel and restaurant industry	35.60	44.99	43.14
Information, communications, and broadcasting	39.08	49.03	42.08
Finance and insurance	40.11	52.26	64.12
Real estate	36.74	42.00	32.46
Professional, scientific and technical services	39.27	52.27	50.08
Support services	29.31	47.97	48.78
Educational services	44.17	46.44	50.47
Medical, healthcare and social services	27.50	27.83	33.60
Arts, entertainment and leisure services	28.24	43.18	33.24
Other service industries	28.71	34.64	40.48

Source: DGBAS, *Taiwan Region Manpower and Employment Survey*, 2007.

2. Personnel Costs Account for Around 30% to 40% of SMEs' Total Costs

An enterprise's operating expenses include wages, rental, travel expenses, advertising, water, electricity and gas bills, postal costs, insurance premiums, entertainment expenses, training costs, etc. Personnel costs account for a significant share of operating expenses. Among SMEs, this share is highest in the medical, healthcare and social services industry, where it was 51.76% in 2006 (Table 4-2-2), and lowest in the mining and quarrying industry (16.26%). In most other industries, personnel expenses account for around 40% of total operating expenses. 2006 saw a slight rise in the personnel costs' share of large enterprises' total operating expenses. Whereas in the past it was the mining and quarrying industry where personnel costs accounted for the largest share of overall operating expenses, in 2006 this was no longer the case; it was the "other service industries," i.e., the water, electricity and gas industry, educational services industry and construction industry where the percentage was the highest, at over 40% for all four industries. In the manufacturing sector, the personnel costs' share of overall operating expenses was only 22.09%, which was significantly lower than in other industries; this may reflect the widespread use of foreign laborers by manufacturing

enterprises.

If business costs are added to operating expenses, then the personnel costs' share of total operating costs is significantly lower. For SMEs in 2006, the industry in which personnel costs accounted for the largest share of operating costs was educational services. The difference is more apparent in the manufacturing sector than in the service sector, mainly because manufacturing firms need to purchase raw materials, which account for a large share of operating costs. In the service sector, the expenditure on raw materials is much smaller, hence the disparity in the share of operating costs accounted for by personnel costs.

Table 4-2-2 Personnel Costs as a Percentage of Operating Costs and Operating Expenses in 2006

Unit: %

Industry \ Enterprise Size	Personnel Costs as a Percentage of Operating Expenses		Personnel Costs as a Percentage of Operating Costs	
	SMEs	Large Enterprises	SMEs	Large Enterprises
Agriculture, forestry, fisheries and animal husbandry	32.66	39.79	4.95	5.90
Mining and quarrying	16.26	36.35	2.75	9.00
Manufacturing	34.76	22.09	4.61	1.63
Water, electricity and gas	43.75	46.33	8.84	1.97
Construction	37.25	41.92	4.73	1.97
Wholesaling and retailing	42.87	33.52	8.85	3.57
Hotel and restaurant industry	38.20	37.74	17.15	18.19
Transportation, warehousing and communications	38.37	34.78	12.99	5.22
Finance and industry	37.84	38.01	11.62	0.55
Real estate and leasing	33.99	19.97	11.24	2.41
Professional, scientific and technical services	42.36	35.15	20.78	7.86
Educational services	45.40	43.09	30.06	26.30
Medical, healthcare and social services	51.76	—	20.01	—
Cultural, sporting and leisure services	39.70	32.37	17.84	10.71
Other service industries	45.95	47.54	21.74	9.32
All industries	39.08	30.78	7.24	1.25

Note: Operating costs include both business costs and operating expenses.
Source: Ministry of Finance, Tax Data Center, business income tax data for 2006.

3. Little Change in the Number of Hours Worked per Week for All Industries

In the SME sector, the hotel and restaurant industry has consistently had the longest working hours. Average working hours in this industry in 2007 were 49.98 hours per week; "other service industries" was in second place with 48.10 hours a week, followed

by the wholesaling and retailing industry with 48 hours (Table 4-2-3). The educational services industry had the shortest working hours, at 39.44 hours per week. For most industries, 2007 saw little change in the number of hours worked per week, although the hotel and restaurant industry, the real estate industry, and the arts, entertainment and leisure industry saw a slight increase compared to 2006. Working hours in large enterprises were normally roughly the same as or slightly lower than hours in SMEs in the same industry, although there were some exceptions, including the agriculture, forestry, fisheries and animal husbandry industry, the construction industry, the real estate industry, and the support services industry; it can thus be seen that the conventional image of workers in large enterprises as having shorter working hours and higher salaries than workers in SMEs is not necessarily accurate.

Table 4-2-3 Working Hours per Week in 2007 – by Industry

Unit: hours per week

Industry \ Enterprise Size	SMEs	Large Enterprises	Government Employees
Agriculture, forestry, fisheries and animal husbandry	40.30	45.30	40.49
Mining and quarrying	43.51	40.00	40.05
Manufacturing	43.65	43.86	41.20
Electric power and gas supply	44.01	42.49	40.40
Water supply and pollution remediation	45.16	42.75	41.83
Construction	42.04	43.96	40.69
Wholesaling and retailing	48.00	44.91	41.10
Transportation and warehousing	49.98	45.79	41.70
Hotel and restaurant industry	47.94	44.90	40.97
Information, communications and broadcasting	43.08	43.18	42.28
Finance and insurance	43.90	43.93	41.05
Real estate	47.07	49.33	39.68
Professional, scientific and technical services	43.28	41.12	40.51
Support services	39.44	36.85	35.64
Educational services	45.99	44.93	42.11
Medical, healthcare and social services	47.29	44.86	39.78
Arts, entertainment and leisure services	44.67	47.50	40.75
Other service industries	48.10	46.45	41.93
Public administration, police and armed forces	40.40	42.00	41.86

Note: Major changes were made to the standard industry classification in 2007; this should be borne in mind when making comparisons with previous years.
Source: DGBAS, *Monthly Bulletin of Manpower Statistics*, original data, 2006 and 2007.

Among workers in the private sector, working hours for SME employees were longest for those aged 25–40, and declined with age; however, for workers aged over 65, average working hours in 2007 were not only longer than the average working hours of those aged 56–65, but they were also longer than in 2006 (Table 4-2-4). The average working hours of female SME employees were shorter than those of male

employees, and fell in 2007 compared to 2006. For male employees, average working hours were slightly higher than in 2006; the disparity between the sexes in this respect appears to be growing. In the SME sector, there has been a slight improvement in the working hours of those educated to senior high school and senior vocational school level (the groups with the longest average working hours); average working hours for those educated to senior high school level fell to 44.14 hours a week in 2007. By contrast, the average working hours of those educated to junior high school level or below rose compared to 2006. Among employees of large enterprises, employees in the 41–55 age group work the longest hours. In the large enterprise sector, the trend for average working hours to fall as the level of education rises is more pronounced than it is in the SME sector.

Table 4-2-4 Weekly Working Hours for Employees in the Private Sector in 2006 and 2007

Unit: hours per week

Enterprise Size / Item	SMEs		Large Enterprises	
	2006	2007	2006	2007
Average working hours per week	**43.60**	**43.75**	**44.02**	**43.98**
Age				
15~24	43.65	43.57	43.16	42.77
25~40	44.68	44.74	44.00	44.72
41~55	43.76	43.90	44.44	44.79
56~65	42.37	42.51	44.03	42.35
Over 65	41.63	42.69	42.40	38.82
Sex				
Male	43.81	44.49	45.00	44.57
Female	43.39	43.00	42.98	43.36
Education				
Illiterate	41.12	42.03	44.23	45.55
Self-taught	40.69	41.75	45.33	42.70
Primary school	42.88	44.16	44.90	44.11
Junior high school	44.52	44.55	45.82	46.03
Senior high school	44.64	44.14	44.63	45.78
Senior vocational school	44.70	44.41	45.07	45.02
Junior college	43.92	43.67	43.69	43.48
University	42.90	43.13	42.98	41.93
Master's	41.71	41.93	41.57	42.11
Ph.D.	41.61	41.42	40.02	39.54

Source: DGBAS, *Monthly Bulletin of Manpower Statistics*, original data, 2006 and 2007.

4. A Decline in the Number of SME Employees Involved in Labor Disputes

Implementation of the new Labor Insurance pension system began on July 1, 2005, leading to a rash of pension-related labor disputes. On July 1, 2007, the government

raised the minimum monthly wage to NT$17,280, and the minimum hourly wage from NT$66 to NT$95; this also gave rise to a number of labor disputes. In both 2006 and 2007, the number of persons involved in labor disputes was significantly higher than in previous years. Around 10,000 labor disputes were formally registered with government agencies in 2007; the shares of these disputes accounted for by large enterprises and by SMEs were roughly the same as in 2006. The number of disputes registered with non-government organizations rose by 78%; here again, there was little change in the shares held by large enterprises and SMEs, respectively. For both disputes registered with government agencies and disputes registered with non-government organizations, and for both disputes involving large enterprises and those involving SMEs, the number of individuals involved in labor disputes increased in 2007. The number of people involved in labor disputes registered with government agencies rose to over 100,000 in 2007; the increase was particularly pronounced in the case of disputes involving large enterprises, while the number of individuals involved in labor disputes relating to SMEs remained more or less unchanged. On the other hand, the number of people involved in SME-related disputes registered with non-government organizations rose by nearly 5,000, the highest figure for several years. It would thus appear that the adjustments made to the government's labor policy over the past few years have had a significant impact on business enterprises in Taiwan (Table 4-2-5).

Table 4-2-5 Number of Labor Disputes and Number of Persons Involved, 2002 – 2007

Units: disputes; persons; %

Size / Year	Disputes Registered with Government Agencies			Disputes Registered with Private Arbitration Organizations		
	Total	Large Enterprises	SMEs	Total	Large Enterprises	SMEs
No. of Labor Disputes						
2002	7,768	1,428(18.38)	6,340(81.62)	4,625	683(14.77)	3,942(85.23)
2003	4,546	724(15.93)	3,822(84.07)	5,323	740(13.90)	4,583(86.10)
2004	4,327	844(19.51)	3,483(80.49)	4,784	741(15.49)	4,043(84.51)
2005	8,173	1,680(20.56)	6,493(79.44)	6,083	910(14.96)	5,173(85.04)
2006	10,105	1,982(19.61)	8,123(80.39)	5,359	856(15.97)	4,503(84.03)
2007	10,188	1,957(19.21)	8,231(80.79)	9,541	1,528(16.02)	8,013(83.98)
No. of Persons Involved						
2002	89,242	74,813(83.83)	14,429(16.17)	8,278	2,879(34.78)	5,399(65.22)
2003	17,012	8,385(49.29)	8,627(50.71)	8,019	1,865(23.26)	6,154(76.74)
2004	21,038	13,541(64.37)	7,497(35.64)	6,271	1,234(19.68)	5,037(80.32)
2005	77,642	63,390(81.64)	14,252(18.36)	7,902	1,151(14.57)	6,751(85.43)
2006	74,811	60,513(80.89)	14,298(19.11)	6,828	988(14.47)	5,840(85.53)
2007	109,242	94,713(86.70)	14,529(13.30)	12,321	2,221(18.03)	10,100(81.97)

Notes: 1. Firms with under 100 employees are classified as SMEs; all other firms are classified as large enterprises.
2. Figures in parentheses are percentages of the total number of disputes or persons.
Source: Statistics Department, Council of Labor Affairs, Executive Yuan.

III Manpower Cultivation in SMEs

1. Training Integration to Provide the Manpower

In order to bring down the unemployment rate, which had been rising steadily, and to help business enterprises secure the manpower that they needed, in the second half of 2001 the government began to implement the "Plan for Promoting the Integration of Training and Placement for the Unemployed." The aim of this plan was to match up job-seekers with enterprises' manpower needs. It was anticipated that the implementation of this plan would help to cultivate the types of manpower that enterprises need, and help enterprises to maintain a steady supply of new employees.

In 2007, 50 enterprises participated in the program, and a total of 2,147 people received training. Of these, 95.51% were hired on completion of their training. Both the number of enterprises participating and the number of people hired were down on 2006; this was mainly due to the wider range of channels that enterprises are now using to recruit staff, and the growing popularity of temporary staffing. Even so, the percentage of trainees hired on completion of their training remained high, indicating that training integration of this kind still has an important intermediary role to play in bridging the gap between employers and job-seekers.

Table 4-3-1 Results of Training Integration, 2003 – 2007

Units: enterprises; persons; %

Item / Year	No. of Enterprises Involved	No. of Trainees Hired	Percentage of Trainees Hired
2003	64	11,548	99.59
2004	77	3,841	99.05
2005	69	6,005	98.20
2006	60	3,853	98.21
2007	50	2,147	95.51

Note: Implementation of this project began in the second half of 2001.
Source: Bureau of Employment and Vocational Training, Council of Labor Affairs, Executive Yuan.

2. A Decline in SME Participation in Professional Training in 2006

Since 2002, the number of people participating in professional training in Taiwan has increased steadily. By 2005, the annual total had risen to over 1 million, and in 2006 it reached a record 1,139,902. The number of employees of public and private companies and agencies with 200 or more employees participating in professional training has

grown dramatically, climbing to 842,866 by 2006. By contrast, the corresponding number of employees of small companies and agencies with under 200 employees has actually declined; in 2006, it fell to just 107,882, below the 2002 level (Table 4-3-2). The number of persons employed in the "Other" category of organizations also fell in 2006, by nearly 20,000. Clearly, the government needs to do more to encourage participation in professional training by SME employees.

Table 4-3-2 Number of Employees Participating in Professional Training, 2002 – 2006

Unit: instances of training

Item / Year	Total Instances of Participation in Professional Training	Employees of Public or Private Companies/Agencies with Less than 200 Employees	Employees of Public or Private Companies/Agencies with 200 or More Employees	Other
2002	738,580	160,498	399,128	178,954
2003	859,308	145,503	499,079	214,726
2004	883,921	175,682	541,872	166,367
2005	1,090,745	164,146	718,483	208,116
2006	1,139,902	107,882	842,866	189,154

Notes: 1. The category "public or private companies/agencies with 200 or more employees" includes training organized by public and private companies and agencies with 200 or more employees or staff.
2. The category "public or private companies/agencies with less than 200 employees" includes training organized by public and private companies and agencies with less than 200 employees or staff; it also includes training provided by training facilities attached to universities, foundations, public training institutions, etc.
3. The "other" category includes "cultivation training" provided by government training institutions and by training facilities attached to universities, foundations, public training institutions, etc.

Source: Bureau of Employment and Vocational Training, Council of Labor Affairs, Executive Yuan.

3. A Slight Increase in Business Enterprises' Spending on Professional Training

When it comes to expenditure on training, there is not necessarily any direct correlation between training expenses as a percentage of total operating costs or operating expenses and the size of the enterprise. For SMEs in the agriculture, forestry, fisheries and animal husbandry industry, the mining and quarrying industry, the manufacturing sector, the water, electricity and gas industry, the finance and insurance industry, the real estate and leasing industry, the professional, scientific and technical services industry, and the "other service industries" category, on average, the training expenses' share of total operating costs is lower than it is among large enterprises in these industries. A similar situation is seen with training expenses as a share of total operating expenses (Table 4-3-3). An examination of the changes in the ratios over the last three years shows that, whether as a share of operating costs or operating expenses, training expenses have

risen in most years. These data suggest that Taiwan's SMEs are gradually coming to recognize the contribution that professional training can make towards strengthening their human capital.

Table 4-3-3 Expenditure on Training as a Percentage of Operating Costs and Operating Expenses, 2004 – 2006

Unit: %

Enterprise Size / Industry	SMEs						Large Enterprises					
	Expenditure on Training as a Percentage of Operating Costs			Expenditure on Training as a Percentage of Operating Expenses			Expenditure on Training as a Percentage of Operating Costs			Expenditure on Training as Percentage of Operating Expenses		
	2004	2005	2006	2004	2005	2006	2004	2005	2006	2004	2005	2006
Agriculture, forestry, fisheries and animal husbandry	0.14	0.15	0.13	1.15	1.10	0.87	0.04	0.17	0.08	0.45	1.40	0.53
Mining and quarrying	0.04	0.04	0.06	0.23	0.26	0.33	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing	0.16	0.13	0.35	1.15	1.13	2.62	0.15	0.20	0.14	1.84	2.63	1.94
Water, electricity and gas	0.31	0.76	0.41	1.16	3.57	2.05	0.04	0.06	0.08	1.07	1.50	1.78
Construction	0.12	0.13	0.16	1.05	1.11	1.27	0.09	0.08	0.10	2.03	1.84	2.12
Wholesaling and retailing	0.17	0.19	0.19	0.84	0.96	0.92	0.23	0.20	0.25	1.96	1.77	2.30
Hotel and restaurant industry	0.25	0.27	0.31	0.57	0.61	0.69	0.46	0.74	1.00	1.14	1.72	2.07
Transportation, warehousing and communications	0.37	0.37	0.38	1.16	1.14	1.12	0.29	2.15	1.05	1.94	11.03	7.00
Finance and insurance	1.76	2.17	2.77	6.32	6.80	9.01	0.04	0.02	0.04	3.02	2.98	2.48
Real estate and leasing	0.21	0.31	0.36	0.73	1.10	1.08	0.13	0.16	0.18	1.18	1.39	1.48
Professional, scientific and technical services	1.28	1.16	1.54	2.60	2.34	3.14	1.21	1.04	0.81	4.98	4.60	3.61
Educational services	1.41	1.04	1.40	2.16	1.51	2.11	0.39	0.77	2.49	0.66	1.57	4.07
Medical, healthcare and social services	0.96	0.17	0.33	2.19	0.40	0.84	0.29	0.00	—	0.65	—	—
Cultural, sporting and leisure services	0.29	0.46	0.44	0.65	1.05	0.98	0.66	0.41	0.46	2.04	1.36	1.38
Other service industries	0.42	0.78	0.90	0.93	1.69	1.91	0.92	0.71	0.65	3.86	3.34	3.33

Source: Ministry of Finance, Tax Data Center, business income tax data for 2004, 2005 and 2006.

4. The Enterprises' Main Motivation for Providing Training is to Strengthen Employees' Professional Capabilities

The main motivation for SMEs to arrange professional training for their employees is to strengthen the employees' professional capabilities. In 2005–2007, the Northern Region SME Training Center conducted a survey of SMEs in six counties and cities in Northern Taiwan (Taipei City, Taipei County, Keelung City, Ilan County, Hualien County, Taoyuan County, Hsinchu City, and Hsinchu County) to examine their training needs over the past three years. The results obtained in each year were reasonably consistent; every year, the main reason given by SMEs for implementing training was the desire to upgrade employees' specialist skills. Other areas where SMEs appeared to

feel considerable need for training included communications skills, self-management, teamwork, and leadership ability, although the level of demand for leadership ability was significantly lower than that reported for the other three areas (Table 4-3-4).

Table 4-3-4 Areas Where SMEs Felt the Most Need for Training, 2005 – 2007

Training Area	2005		2006		2007	
	Share of Enterprises (%)	Ranking	Share of Enterprises (%)	Ranking	Share of Enterprises (%)	Ranking
Total	**100.0**		**100.0**		**100.0**	
Specialist skills	42.0	1	41.9	1	28.3	1
Leadership ability	4.3	7	5.3	6	11.9	5
Self-management ability	6.6	5	9.4	5	14.9	4
Teamwork	8.3	3	11.2	4	15.8	3
Communications skills	7.5	4	12.8	3	19.3	2
Other	6.2	6	4.5	7	0.0	8
None	23.8	2	15.5	2	9.2	6
Refused to answer / Don't know	1.4	8	1.3	8	0.6	7

Source: National Chengchi University, Northern Region SME Training Center, August 2007.

As regards the types of human talent that SMEs will need in the future, in all three years the area where the highest level of demand was reported was technical and service talent, followed by marketing and sales talent. Demand for other types of human talent was significantly lower; this situation reflects a pronounced emphasis on business development among SMEs (Table 4-3-5).

Table 4-3-5 Categories of Human Talent for Which SMEs Anticipate the Highest Demand in the Future

Talent Category	2005		2006		2007	
	Share of total (%)	Ranking	Share of total (%)	Ranking	Share of total (%)	Ranking
Total	**100.0**		**100.0**		**100.0**	
Technical / service talent	52.7	1	38.2	1	38.2	1
Managerial talent	18.7	2	17.1	3	14.0	3
Administrative talent	4.6	5	1.7	6	2.1	6
E-Business talent	5.9	4	3.7	5	3.4	5
Sales and marketing talent	0.0	–	31.8	2	30.9	2
None	11.3	3	6.0	4	10.3	4
Other	2.2	7	0.0	–	–	–
All	3.3	6	0.0	–	0.7	7
Refused to answer / Don't know	1.4	8	1.4	7	0.4	8

Source: National Chengchi University, Northern Region SME Training Center, August 2007.

5. Employees Show Little Enthusiasm for Participating in Training

The business enterprises' main goal in implementing training activities is the desire to strengthen the productivity of their employees or the quality of service that the enterprise provides. It is noticeable that SME employees (in northern Taiwan at least) show little enthusiasm for participation in training. The results of the survey of SMEs in six counties and cities in northern Taiwan conducted by the Northern Region SME Training Center in 2007 showed that only around 24.4% of employees were highly enthusiastic about participating in training organized by their employer. Most employees demonstrated a passive attitude with respect to training; 26% of employees said that they had little interest in participating in training activities. This may go some way to explaining why business owners are reluctant to invest in training for their employees (Table 4-3-6).

Table 4-3-6 Employees' Level of Enthusiasm for Participation in Training Activities

Item	Total		Manufacturing Sector		Service Sector	
	No. of Persons	Share of Total	No. of Persons	Share of Total	No. of Persons	Share of Total
Total	**1,211**	**100.0**	**608**	**100.0**	**603**	**100.0**
High level of interest	296	24.4	145	23.8	151	25.0
Moderate level of interest	485	40.0	239	39.3	246	40.8
Little interest	317	26.2	181	29.8	136	22.6
No interest / no need	76	6.3	33	5.4	43	7.1
Refused to answer / Don't know	37	3.1	10	1.6	27	4.5

Source: National Chengchi University, Northern Region SME Training Center, August, 2007.

6. SMEs Spend Relatively Little on Manpower Cultivation

By and large, SMEs in Taiwan spend relatively little on the cultivation of human talent. The results of the survey of SMEs in six counties and cities in northern Taiwan conducted by the Northern Region SME Training Center in 2007 showed that, of those enterprises that had a manpower cultivation system in place, less than half allocated a budget for manpower cultivation, and 22.4% had a budget of less than NT$100,000. On the other hand, 5.2% of enterprises allocated NT$1 million or more to manpower cultivation every year. By and large, however, it is still relatively uncommon for SMEs to allocate a budget for manpower cultivation (Table 4-3-7).

Table 4-3-7 SMEs' Manpower Cultivation Budgets

Item	Total		Manufacturing Sector		Service Sector	
	N o. of Persons	Share of Total	No. of Persons	Share of Total	No. of Persons	Share of Total
Total	**383**	**100.0**	**200**	**100.0**	**183**	**100.0**
Less than NT$50,000	48	12.5	23	11.5	25	13.7
NT$50,000 – 100,000	38	9.9	15	7.5	23	12.6
NT$100,000 – 150,000	10	2.6	7	3.5	3	1.6
NT$150,000 – 200,000	12	3.1	4	2.0	8	4.4
NT$200,000 – 300,000	14	3.7	9	4.5	5	2.7
NT$300,000 – 500,000	14	3.7	7	3.5	7	3.8
NT$500,000 – 1,000,000	10	2.6	8	4.0	2	1.1
Over NT$1,000,000	20	5.2	14	7.0	6	3.3
None / No need	69	18.0	34	17.0	35	19.1
Other	13	3.4	7	3.5	6	3.3
Refused to answer / Don't know	135	35.3	72	36.0	63	34.4

Source: National Chengchi University, Northern Region SME Training Center, August, 2007.

7. Most SMEs Have Failed to Establish Incentive Systems to Encourage Employees to Participate in In-service Training

As can be seen from Tables 4-3-6 and 4-3-7, SME employees are generally unenthusiastic about participating in training activities; furthermore, even in those SMEs where a manpower cultivation system has been established, the size of the budget allocated for manpower cultivation is usually relatively small. The main reason for this situation would appear to be the failure by most SMEs to establish an incentive system to encourage employees to participate in training. The results of the survey of SMEs in six counties and cities in northern Taiwan conducted by the Northern Region SME Training Center in 2007 showed that only 36.8% of SMEs in these counties and cities had set up an incentive mechanism of this kind. With little incentive to participate in training activities, employees naturally showed little enthusiasm for such activities. Another issue is the high employee turnover rate in the SME sector. If an SME invests in the development of its human resources, it has no guarantee that those human resources will remain with the company; this is another reason why SMEs are reluctant to spend money on manpower cultivation (Table 4-3-8).

Table 4-3-8 Establishment of Incentive Systems to Encourage Employee Participation in In-service Training

Does your enterprise have an incentive system in place?	Total		Manufacturing Sector		Service Sector	
	No. of Enterprises	Share of Total	No. of Enterprises	Share of Total	No. of Enterprises	Share of Total
Total	**383**	**100.0**	**200**	**100.0**	**183**	**100.0**
Yes	141	36.8	73	36.5	68	37.2
No / Don't need one	225	58.7	120	60.0	105	57.4
Refused to answer / Don't know	17	4.5	7	3.5	10	5.5

Source: National Chengchi University, Northern Region SME Training Center, August 2007.

Among those SMEs that had established an incentive system, the most common method of encouraging employee participation was to pay part of the training cost for the employee; 65.3% of SMEs with an incentive system used this method. In addition, 30.1% made participation in in-service training one of the criteria for promotion. Most enterprises paid only part of the cost of training, with the employee being expected to shoulder part of the financial burden; it seems likely that this is another reason for the lack of enthusiasm on the part of SME employees to participate in training activities. At the same time, business owners do not generally see immediate benefits from encouraging their employees to take part in training activities, thus reinforcing the tendency for SME owners to ignore the need for training and other manpower cultivation activities (Table 4-3-9).

Table 4-3-9 Incentive Methods Used by Business Enterprises to Encourage In-service Training

Incentive Method	All Enterprises		Manufacturing Sector		Service Sector	
	No. of Enterprises	Share of Total	No. of Enterprises	Share of Total	No. of Enterprises	Share of Total
Total	**176**	**100.0**	**92**	**100.0**	**84**	**100.0**
Paying part of the cost of training	115	65.3	60	65.2	55	65.5
Making participation in training one of the criteria for promotion	53	30.1	26	28.3	27	32.1
Other	8	4.6	6	6.5	2	2.4

Source: National Chengchi University, Northern Region SME Training Center, August 2007.

Chapter 5

The Current State of SME Trade and Overseas Investment Activity

As the process of economic globalization continues, the rapid pace of change in the external environment has created new difficulties for Taiwan's SMEs. For example, China has recently introduced a number of new laws and measures – including the reduction in tax drawback rates for exportation for certain categories of product in 2007, and the new Labor Contracts Law and Business Income Tax Law of 2008 – which have made China a much less attractive investment location; the advantages that investing in China used to offer, including tax breaks and low labor costs, are gradually being eroded. Although China still has an enormous domestic market for business enterprises to develop, the increasingly intense competition in many industries has led to a situation where a growing percentage of Taiwanese enterprises operating in China are making a loss. In 1998–2000, only 7.91% of Taiwanese manufacturing firms whose main overseas operation was located in China were making a loss; by 2006, this figure had risen to 35.42%. This situation reflects the gradual transformation of the overall economic environment in China.

In the past, SMEs accounted for the lion's share of Taiwan's exports, playing a vital role in Taiwan's "economic miracle." Although the SMEs' share of total exports has fallen significantly over the last 10 years or so, SMEs continue to account for a substantial share of Taiwan's export trade. Just how have Taiwan's SMEs performed in terms of foreign trade and overseas investment activity in recent years? The limitations imposed by the available data make answering this question a difficult task. The analysis in this chapter is based on those data sources that are available, including the Ministry of Economic Affairs' Survey on Overseas Investment by Manufacturing Industry in Taiwan (2007 edition), Ministry of Finance import/export trade data and business income tax collection data, the Survey of Taiwanese Enterprises Investing in China compiled by the Investment Commission, Ministry of Economic Affairs, the National Federation of Industries' Survey of Taiwanese Investment in China in 2007, and other data obtained from Ministry of Economic Affairs websites.

I Overview of Taiwan's Imports and Exports

1. Imports and Exports

According to customs statistics, in 2007 Taiwan's imports and exports totaled NT$15.3 trillion, representing an increase of 10.20% compared to 2006. Exports totaled NT$8.09 trillion (52.88% of the total), while imports came to NT$7.21 trillion (47.12%). The annual rates of increase for exports and imports were 11.11% and 9.2%, respectively. Manufactured products have consistently accounted for over 99% of Taiwan's total exports for many years now; in 2007, heavy industry and chemical industry products combined accounted for 82.8% of total exports. Raw materials for agriculture and for industry account for the bulk of Taiwan's imports; raw materials' share of total imports stood at 76.5% in 2007, with capital goods and consumer goods holding shares of just 16.2% and 7.3%, respectively. China (including Hong Kong) was Taiwan's most important export market in 2007, taking 40.70% of all Taiwanese exports, followed by the U.S. with 13.00%. The main source of imports was Japan (20.95% of total imports), followed by China and Hong Kong (13.61%) and the U.S. (12.09%) (Table 1-4-3).

2. SME Export Sales

As the customs data are not broken down by enterprise size, for the purpose of this chapter the export sales figures from the Ministry of Finance Tax Data Center's sales tax collection data have been used to gain some idea of what percentage of Taiwan's export sales are accounted for by SMEs. According to these data, Taiwanese enterprises' export sales totaled NT$9,595.8 billion in 2007, with large enterprises

Table 5-1-1 Taiwanese Enterprises' Export Sales, 2003 – 2007

Units: NT$ millions; %

Year	Total Exports	Exports by Large Enterprises	Exports by SMEs
Export sales (NT$ millions)			
2003	7,332,745 (100)	6,004,906 (81.89)	1,327,839 (18.11)
2004	8,491,702 (100)	7,042,909 (82.94)	1,448,794 (17.06)
2005	8,629,131 (100)	7,110,068 (82.40)	1,519,063 (17.60)
2006	8,731,753 (100)	7,169,529 (82.11)	1,562,224 (17.89)
2007	9,595,785 (100)	7,962,342 (82.98)	1,633,443 (17.02)
Annual growth rate (%)			
2004	15.81	17.29	9.11
2005	1.62	0.95	4.85
2006	1.19	0.84	2.84
2007	9.90	11.06	4.56

Source: Ministry of Finance Tax Data Center, business value-added tax collection data.

accounting for NT$7,962.3 billion of this (82.98% of the total), while the SMEs' share stood at NT$1,633.4 billion (17.02% of the total). While total export sales for all enterprises grew by 15.81% in 2004, they grew by only 1.62% in 2005 and only 1.19% in 2006. However, the situation improved in 2007, with an annual growth rate of 9.90%. For large enterprises, export sales grew by 17.29% in 2004, but only by 0.95% in 2005 and 0.84% in 2006, before the growth rate rose again to 11.06% in 2007. For SMEs, export sales grew by 9.11% in 2004, 4.85% in 2005, 2.84% in 2006, and 4.56% in 2007 (Table 5-1-1).

II Trends in Overseas Investment by SMEs

1. Overview of Overseas Investment

The ongoing trend towards economic globalization and the increase in trans-national capital flows have encouraged business enterprises – particularly multinational corporations – to invest in locations with low production costs. For Taiwanese manufacturing firms, overseas investment has been an important strategy for boosting international competitiveness since the 1980s. China, which is geographically close to Taiwan, and offers low costs and a huge domestic market, currently accounts for the lion's share of Taiwanese overseas investment, at 60.65%, followed by the U.S., with 16.44%. The share of overseas investment going to the six leading ASEAN member nations has fallen from 27.59% in 2001 to 21.98%, reflecting a dampening of the previous enthusiasm for investment in Southeast Asia.

Broadly speaking, over the past ten years Taiwan's overseas investment has been heavily concentrated in Asia (particularly in China), with a secondary concentration in the Americas; Europe's share has remained low.

(1) Approved Overseas Investment

According to the statistics on approved overseas investment compiled by the Investment Commission, Ministry of Economic Affairs, the annual total of approved overseas investment (not including investment in China) peaked in 2001 at US$4,392 million, after which it began to fall. However, in 2006 approved overseas investment rose again, to US$4,315 million, representing an increase of US$1,868 million (76.32%) compared to 2005. In 2007, overseas investment rose further, to a record high of US$6,470 million, 49.93% up on 2006. There was negative growth in investment Hong

Kong, Indonesia, the Philippines, Vietnam, Europe and Oceania (negative growth of nearly 100% in the case of Europe and Oceania), but positive growth in investment in the U.S., Thailand and Malaysia; Taiwanese investment in Thailand displayed the highest annual growth rate, at 771.92% (Table 5-2-1).

Table 5-2-1 Approved Overseas Investment by Region, 2001 – 2007

Units: US$ millions; %

Year	Total	USA	Japan	Hong Kong	Singapore	Thailand	Malaysia	Indonesia	Philippines	Vietnam	Europe	Oceania	Other Regions
2001	4,392	1,093	169	95	378	16	46	6	46	31	46	63	2,403
2002	3,370	578	24	167	26	6	32	9	83	55	123	193	2,075
2003	3,969	467	100	641	26	49	50	13	2	157	77	63	2,322
2004	3,382	557	149	140	822	9	35	2	2	95	62	143	1,365
2005	2,447	315	43	108	98	20	28	9	15	94	299	86	1,334
2006	4,315	485	11	272	806	82	31	9	13	124	51	30	2,402
2007	6,470	1,346	19	190	1,194	712	65	1	13	109	2	1	2,818
Annual growthrate	**49.93**	**177.75**	**72.20**	**-30.31**	**48.10**	**771.92**	**108.15**	**-92.02**	**-1.70**	**-11.68**	**-96.56**	**-96.66**	**17.33**

Source: Investment Commission, Ministry of Economic Affairs, *Approved Overseas Investment Statistics.*

(2) Approved Investment in China

Statistics on investment in China compiled by the Investment Commission, Ministry of Economic Affairs show that approved Taiwanese investment in China reached a historic high of US$6,941 million in 2004 before falling off slightly in 2005, then rising again to US$7,642 million in 2006 and US$9,971 million in 2007; the 2007 total represented an annual growth rate of 30.46% compared to 2006. Three industries – the electronic components manufacturing industry, the computer, communications and audiovisual electronics product manufacturing industry, and the electrical machinery and equipment manufacturing and repair industry – have consistently accounted for the largest share of Taiwanese investment in China (44.80% in 2006, rising to 51.76% in 2007). The growth rates achieved by the chemical materials and chemical products manufacturing industry and the precision, optical and medical instruments and clock and watch manufacturing industry were also very impressive, at 165.63% and 134.81%, respectively (Table 5-2-2).

Table 5-2-2 The Ten Industries with the Highest Levels of Approved Investment in China in 2007

Industry	Amount (US$ millions)	Share of Total (%)	Annual Growth Rate (%)
Electronic components manufacturing industry	24,263	24.33	49.90
Computer, communications and audiovisual electronics product manufacturing industry	16,884	16.93	14.69
Electrical machinery and equipment manufacturing and repair industry	10,470	10.50	57.51
Chemical materials and chemical products manufacturing industry	5,837	5.85	165.63
Basic metals and metal products manufacturing industry	5,179	5.19	191.04
Precision, optical and medical instruments and clock and watch manufacturing industry	5,042	5.06	134.81
Machinery manufacturing and repair industry	4,119	4.13	31.69
Non-metal mineral products manufacturing industry	3,094	3.10	-30.07
Wholesaling and retailing industry	2,315	2.32	-40.17
Professional, scientific and technical services industry	1,788	1.79	181.48

Notes: 1. The "share of total" is the share of all approved investment in China (all industries) held by the industry in question.
2. The annual growth rate is the rate of increase in 2007 compared to 2006.
Source: Investment Commission, Ministry of Economic Affairs, *Approved Overseas Investment Statistics.*

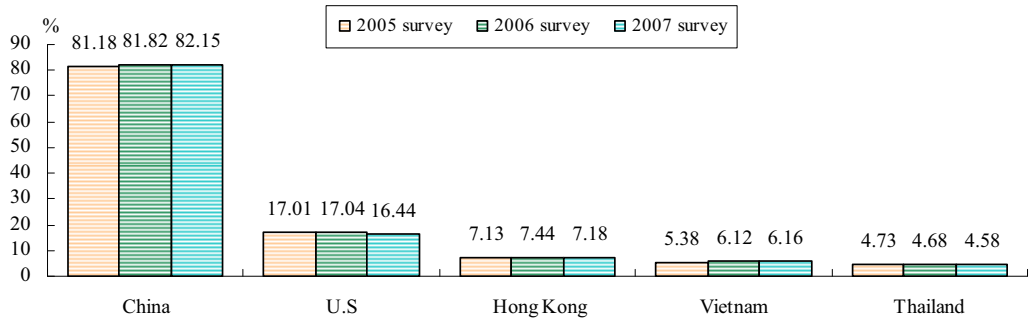
2. Overseas Investment by Manufacturing Firms

The following sections examine the changes in overseas investment by Taiwanese manufacturing industry over the last three years in terms of regional distribution, enterprise size (based on the size of the parent company in Taiwan), business areas invested in, motivation for investment, and profitability.

(1) Regional Distribution

The immense business opportunities that China offers, its strong domestic demand and the absence of a language barrier have made China the most popular target for Taiwanese investment. The percentage of Taiwanese manufacturing enterprises investing in China has risen every year for the last three years, climbing from 81.18% to 82.15%. The U.S. is still the second most popular investment target, with 16.44% of enterprises investing there in 2007; however, this percentage has fallen for three years in a row. None of the other three countries ranked among the top five investment targets (Hong Kong, Vietnam and Thailand) had had more than 10% of Taiwanese manufacturing enterprises investing there during the last three years (Figure 5-2-1).

Figure 5-2-1 Percentage of Taiwanese Manufacturing Enterprises Investing in Individual Regions (Top Five Regions)



Note: The figure shows the five countries that Taiwanese manufacturing enterprises are most likely to invest in (respondents were allowed to list more than one country).
Source: Ministry of Economic Affairs, *Survey on Overseas Investment by Manufacturing Industry in Taiwan*, 2005–2007.

(2) Enterprise Size

The percentage of small enterprises investing in China rose from 81.22% in 2005 to 82.56% in 2007, while the percentage of large enterprises investing there increased from 82.58% in 2005 to 83.56% in 2006, before falling back to 83.33% in 2007. The share of enterprises investing in the U.S. is highest among large enterprises, but even here the last three years have seen a slow but steady decline, from 26.64% to 25.35%. The percentage of small enterprises investing in the U.S. has also decreased over the past three years, falling to 9.9% in 2007.

(3) Business Areas Invested In

Most Taiwanese manufacturing enterprises that invest overseas do so in the same industry; in the wood and bamboo products industry, the textile industry, the electronic components industry and the food and beverage industry, over 72% of enterprises that invest overseas invest in the same industry as the Taiwanese parent company. Where companies do invest in an industry different from that of the parent company in Taiwan, the industry in question is usually a related one. For example, 55.47% of firms in the electrical machinery and equipment manufacturing and repair industry that had invested overseas did so in the electronic components industry, as did 47.71% of firms in the computer, communications and audiovisual electronics product manufacturing industry that had invested overseas. 49.02% of companies in the basic metals industry that invested overseas invested in the metal products industry, and 40.00% of chemical materials manufacturers that invested overseas invested in the chemical products

industry.

In the last three years, more than 40% of overseas investment projects involving large enterprises have been in the electronics components industry or the computer, communications and audiovisual electronics product manufacturing industry. In the medium-sized enterprise segment, the percentage of firms investing overseas in the textile industry or in the computer, communications and audiovisual electronics product manufacturing industry is higher than it is for either large enterprises or small enterprises. The industries in which small enterprises are more likely than large or medium-sized enterprises to be investing overseas include metal products manufacturing, plastics manufacturing, machinery and equipment manufacturing, and chemical products manufacturing (Table 5-2-3).

Table 5-2-3 The Top Ten Business Areas in Which Taiwanese Enterprises Invested Overseas in 2007 – by Enterprise Size

Unit: %

Enterprise Size	Electronic components manufac-turing	Computer, communica-tions and audiovisual electronics manufacturing	Metal products manu-facturing	Basic metals	Plastics manufac-turing	Wholesal-ing and retailing	Machi-nery and equip-ment manufac-turing	Chemical product manufac-turing	Textile manufac-turing	Transpor-tation equipment manufac-turing
All enterprises	29.15	9.83	9.77	2.60	8.64	7.57	6.27	5.31	3.95	2.94
Small enterprises	25.98	9.67	**11.59***	2.47	**11.92***	5.85	**6.97***	**6.07***	3.26	2.47
Medium enterprises	30.49	**10.16***	7.87	1.97	5.57	8.85	6.23	5.25	**5.25***	3.28
Large enterprises	**33.33***	9.90	7.99	**3.13***	5.21	**9.55***	5.21	4.17	4.34	**3.47***

Note: Asterisks denote the enterprise size category with the highest level of investment in that particular industry.
Source: Ministry of Economic Affairs, *Survey on Overseas Investment by Manufacturing Industry*, 2007.

(4) Motivation for Overseas Investment

According to the resurts of the 2007 *Survey on Overseas Investment by Manufacturing Industry in Taiwan*, the main reason given by manufacturing firms for investing overseas (firms were allowed to give more than one reason) was that the "local market has high development potential". This was the main motivation for small, medium and large enterprises, although the percentage of firms giving this as a reason was highest among large enterprises (67.01%). "Access to an abundant supply of cheap labor" was the second most important factor (52.09% of enterprises), followed by "pressure from

overseas customers" (35.37%) (Table 5-2-4). The percentage of enterprises reporting "easy access to cheap raw materials" as a motivating factor has been falling steadily for several years. In 2007, the percentages of enterprises giving "opportunity to boost export competitiveness" and "falling profit margins in the industry to which the enterprise belongs" as a reason for investing overseas stood at 22.20% and 15.88%, respectively. It would thus appear that, if the government wishes to revitalize the Taiwanese economy, it will need to focus on developing strategies to boost the competitive advantage of Taiwanese firms and to create a superior business environment in Taiwan (Table 5-2-4).

Table 5-2-4 Percentage of Enterprises Reporting Particular Factors Motivating Overseas Investment in 2006

Unit: %

Motivating Factor	All Enterprises	By Size of Taiwanese Parent Company		
		Small Enterprises	Medium Enterprises	Large Enterprises
Development potential of local market	60.28	55.46	61.64	67.01
Abundant cheap labor	52.09	52.42	48.20	53.65
Pressure from overseas customers	35.37	36.67	29.51	36.46
Following the lead of major Taiwanese customer	27.91	31.95	25.57	22.92
Opportunity to boost export competitiveness	22.20	20.36	22.30	25.00
Easy access to cheap raw materials	18.31	22.16	14.75	14.24
Falling profit margins in the industry to which the enterprise belongs	15.88	21.03	14.10	8.85
Ready availability of land	12.37	12.49	13.11	11.81
Incentives offered by the government of the country in question to encourage foreign investment	8.93	7.99	6.89	11.46
Opportunity to make effective use of the enterprise's capital and technology	8.81	6.30	9.84	12.15
Opportunity to exploit most-favored nation status and preferential tariff rates	7.23	7.31	7.21	7.12
Opportunity to strengthen firm's brand image	7.06	5.74	6.23	9.55
Desire to strengthen strategic alliance with overseas company	5.37	4.16	5.90	6.94
Easy access to technology and skills	3.22	3.49	2.30	3.30
Other	2.66	2.36	3.28	2.78

Note: Respondents were allowed to give more than one reason for investing overseas.
Source: Ministry of Economic Affairs, *Survey on Overseas Investment by Manufacturing Industry*, 2007.

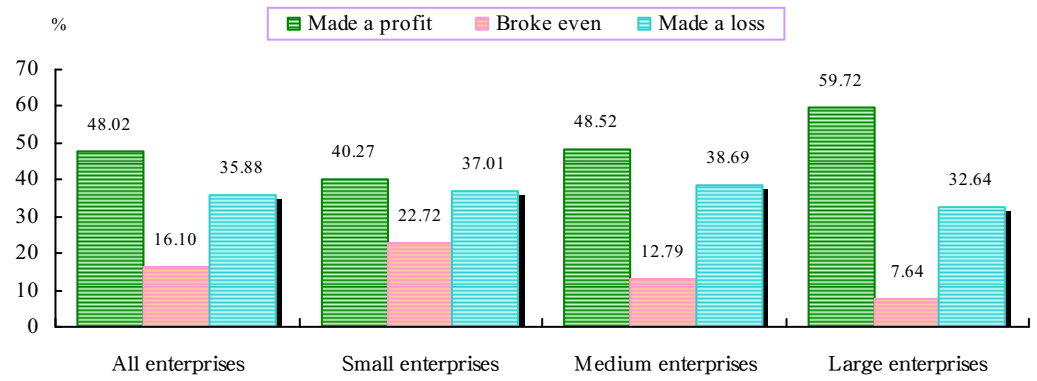
The major changes in motivation for investing overseas that were seen in 2007 (as compared to 2006) were as follows. The percentage of large enterprises that had invested overseas in response to requests from an overseas customer rose slightly, from 35.56% in 2006 to 36.46% in 2007, while the percentage of large enterprises investing overseas because they were following the lead of an important Taiwanese customer fell

from 28.11% to 22.92%. Among medium-sized enterprises, the share of enterprises that had invested overseas because they were following the lead of a Taiwanese customer rose from 24.30% to 25.57%, while the percentage for which the development potential of the local market was an important factor fell from 67.96% to 61.64%. In the small enterprise segment, the shares of enterprises giving access to an abundant supply of cheap labor and following the lead of an important Taiwanese customer as motivating factors remained more or less unchanged, while the share for which the ready availability of land (for factory construction, etc.) was an important reason fell from 14.53% to 12.49% (Table 5-2-4).

(5) Profitability of Overseas Operations

According to the data presented in the 2007 *Survey on Overseas Investment by Manufacturing Industry in Taiwan*, over 46% of manufacturing enterprises made a profit in all of their overseas operations in 2006, with 48.02% making a profit in their main overseas operation, while 35.88% made a loss in their main overseas operation. It can thus be seen that, overall, the profitability of Taiwanese manufacturing enterprises' overseas operations improved in 2006 compared to the previous year (Figure 5-2-2).

Figure 5-2-2 Profitability of Enterprises' Most Important Overseas Operation in 2006



Source: Ministry of Economic Affairs, *Survey on Overseas Investment by Manufacturing Industry*, 2007.

Further analysis of the situation with regard to the major overseas operations of Taiwanese manufacturing enterprises shows significant fluctuations. In 2004, 57.17% of the major overseas operations of Taiwanese manufacturing enterprises made a profit. This percentage fell to 52.77% in 2005, before rising again to 59.72% in 2006. For medium-sized enterprises, the percentage of firms where the major overseas operation

made a profit rose from 44.06% in 2004 to 47.54% in 2005, and then to 48.52% in 2006. The picture with regard to small enterprises is more complex. In 2002, roughly one third of the major overseas operations of small enterprises made a profit, one third broke even and one third made a loss. In 2003, the percentage making a profit rose to 47.60%; in 2004, 37% made a profit, 25.40% broke even and 37% made a loss. In 2005, more of the major overseas operations of small manufacturing enterprises made a loss (39.65%) than made a profit (36.63%), but in 2006 the percentage making a profit exceeded the percentage making a loss by over 3 percentage points (40.27% compared to 37.01%).

III SME Investment in China

A total of 82.15% of the overseas investment by Taiwanese manufacturing enterprises is concentrated in China. This section uses original data from the Ministry of Economic Affairs' 2007 Survey on Overseas Investment by Manufacturing Industry, supplemented by the National Federation of Industries' Survey of Taiwanese Investment in China in 2007, to examine the size, profitability, etc. of those enterprises whose main overseas operation is located in China, with the aim being to gain a clearer understanding of the current status of Taiwanese manufacturing industry's investment in China.

1. Characteristics of Manufacturing Firms Investing in China

According to the original data from the 2007 Survey on Overseas Investment by Manufacturing Industry, out of a sample of 1,454 Taiwanese manufacturing enterprises whose main overseas operation was located in China, 974 (66.99% of the total) were classed as SMEs (having less than 200 employees in Taiwan), and 480 (33.01% of the total) were classed as large enterprises. 939 enterprises (64.58% of the total) made a profit or broke even in 2006, with 515 (35.42%) making a loss. Of the 364 enterprises where the Taiwan parent company was an SME and which made a loss, 74.45% had 99 or fewer employees in Taiwan, and 25.55% had between 100 and 199 employees in Taiwan. Of the enterprises where the Taiwan parent company was an SME and which made a profit or broke even, 75.90% had 99 or fewer employees in Taiwan, and 24.1% had between 100 and 199.

The operational performance of Taiwanese enterprises in China is an issue of great concern to Taiwan's citizens. The results obtained in the National Federation of

Industries' Survey of Taiwanese Investment in China in 2007 indicated that, out of an effective sample of 470 Taiwanese firms operating in China, 62.8% reported making a small profit (up from 55.1% in 2006), while 3.8% reported making a substantial profit (down from 6.3% in 2006). In all, 66.6% of the firms surveyed had made a profit in 2007. 15.4% reported making a loss (up from 14.3% in 2006), and 17.9% reported breaking even (compared to 23.3% in 2006). In comparison with the results obtained in the 2006 survey, it appears that the percentage of firms making a profit has risen, but that profit margins have been squeezed.

(1) Year in Which Investment in China Commenced

According to the 2007 *Survey on Overseas Investment by Manufacturing Industry*, out of a sample of 1,454 Taiwanese manufacturing firms investing in China, 36.93% began to invest there in 2001 or after; 64.58% of these enterprises made a profit or broke even in 2006, while 35.42% made a loss. On average, among those enterprises that began to invest in China during the period 1995–1997 or 1998–2000, the share of all enterprises making a profit or breaking even was around 7.16 percentage points and 5.71 percentage points (respectively) higher than the share that made a loss; among those that began to invest in China in 2001 or after, the share of enterprises making a profit or breaking even was 5.29 percentage points higher than the share making a profit (Table 5-3-1).

Table 5-3-1 Profit or Loss of Main Overseas Operation in China in 2006 – by the Year in Which Investment in China Began

Units: enterprises; %

Year in Which Investment in China Began	All Enterprises	Made a Profit or Broke Even	Made a Loss
Sample size (enterprises)	**1,454**	**939**	**515**
Share of Total	**100.00**	**64.58**	**35.42**
1986 or earlier	1.99	1.30	0.69
1987 – 1991	9.49	6.33	3.16
1992 – 1994	14.10	10.46	3.64
1995 – 1997	15.96	11.56	4.40
1998 – 2000	21.53	13.62	7.91
2001 or after	36.93	21.11	15.82

Source: Ministry of Economic Affairs, *Survey on Overseas Investment by Manufacturing Industry in Taiwan*, 2007.

(2) Main Business Area of the Taiwan Parent Company

According to the data presented in the 2007 *Survey on Overseas Investment by Manufacturing Industry*, of those Taiwanese manufacturing enterprises whose main

overseas operation was located in China, the largest shares were in the heavy industry (processing) segment (62.17%) and the light industry (processing) segment (23.73%). The share of enterprises where the main overseas operation (in China) was making a profit or breaking even was highest in the heavy industry (materials) segment, at 68.52%; the share making a loss was highest in the light industry (materials) segment, at 41.24%. The share of enterprises making a loss was above the overall average of 35.60% in the light industry (materials) segment, at 41.24%, and in the heavy industry (processing) segment, at 36.62%, suggesting that the earnings potential in these segments may be slightly lower than in other segments (Table 5-3-2).

Table 5-3-2 Profit or Loss of Main Overseas Operation in China in 2006 – by Main Business Area in Taiwan

Unit: %

Main Business Area	Total	Heavy Industry (Processing)	Light Industry (Processing)	Heavy Industry (Materials)	Light Industry (Materials)
Share of total	**100.00**	**62.17**	**23.73**	**7.43**	**6.67**
Made a profit or broke even	64.40	63.38	67.25	68.52	58.76
Made a loss	35.60	36.62	32.75	31.48	41.24

Source: Ministry of Economic Affairs, *Survey on Overseas Investment by Manufacturing Industry*, 2007.

(3) Main Business Areas in China

The survey results presented in the 2007 *Survey on Overseas Investment by Manufacturing Industry* indicate that, of those Taiwanese manufacturing enterprises whose main overseas operation was in China, 42.37% were in the IT and electronics industry, 24.90% were in the metals and machinery industry, 17.47% were in the chemical industry, and 15.27% were in the consumer goods manufacturing industry (Table 5-3-3). The IT and electronics industry had the highest percentage of China operations that were making a loss, at 39.77%; the chemical industry had the highest percentage of China operations that had made a profit or had broken even, at 71.66%. The metals and machinery industry, which had the highest percentage of China operations making a profit or breaking even in 2005, fell back into second place in 2006, with 68.51%. Only the IT and electronics industry had a percentage of China operations making a loss that was higher than the 35.6% average for the manufacturing sector as a whole, at 39.77%.

The three industries that accounted for the largest share of the China operations of Taiwanese companies in 2006 were the electronic components industry (24.33%), the computer, communications and audiovisual electronics product manufacturing industry

(16.93%), and the electrical machinery and equipment manufacturing and repair industry (10.5%).

Table 5-3-3 Profit or Loss of Main Overseas Operation in China in 2006 – by Main Business Area in China

Unit: %

Industry	Top Four Industries Combined	IT and Electronics Industry	Metals and Machinery Industry	Chemical Industry	Consumer Goods Industry
Total	**100.00**	**42.37**	**24.90**	**17.47**	**15.27**
Made a profit or broke even	64.40	60.23	68.51	71.66	60.81
Made a loss	35.60	39.77	31.49	28.34	39.19

Source: Ministry of Economic Affairs, *Survey on Overseas Investment by Manufacturing Industry*, 2007.

2. Business Strategies Adopted in the China Operations of Taiwanese Manufacturing Enterprises

(1) Form of Organization

According to the data presented in the 2007 *Survey of Overseas Investment by Manufacturing Industry*, 73.04% of the China operations of Taiwanese manufacturing enterprises whose main overseas operation was in China took the form of wholly-owned subsidiaries, 9.01% were joint ventures with foreign companies, and 7.29% were collaborative ventures with other Taiwanese firms.

68.5% of the respondents in the *Survey of Taiwanese Investment in China in 2007* were wholly-owned subsidiaries (down from 79.2% in 2006), 18.3% were joint ventures (up from 14.7% in 2006), and 5.1% were collaborative ventures. It can thus be seen that the percentage of Taiwanese enterprises' China operations that take the form of joint ventures has risen significantly, reflecting the forming of joint ventures with local Chinese companies to facilitate development of the Chinese domestic market.

(2) Scale of Operations

The survey results presented in the *Survey of Taiwanese Investment in China in 2007* indicated that 20.4% of Taiwanese enterprises investing in China in 2007 had invested US$1 million or less (down from 26.6% in 2006). 47.2% had invested between US$1.01 million and US$5 million (up from 35.0% in 2006), 11.1% had invested between US$5.01 million and US$10 million (compared to 12.5% to 2006), 5.1% had invested between US$10.01 million and US$20 million (down from 9.8% in 2006), and

13.2% had invested over US$20 million (up from 5.1% in 2006). Comparison with 2005 (when only 4.7% of enterprises had invested over US$20 million) and 2006 shows that the scale of Taiwanese investment in China has tended to rise over the last three years.

(3) Business Type

According to the 2007 *Survey on Overseas Investment by Manufacturing Industry*, in 2006, 60.28% of the China operations of Taiwanese enterprises whose main overseas operation was in China were mainly engaged in the manufacturing and sale of own-brand products. The next most common business type was Original Equipment Manufacturing (OEM) production (39.10%), followed by Original Design Manufacturing (ODM) production (13.16%). These shares were more or less the same as in 2005.

(4) Technology Sources

The data presented in the 2007 *Survey on Overseas Investment by Manufacturing Industry* indicate that, for 84.75% of the China operations of Taiwanese enterprises whose main overseas operation was in China in 2006, the Taiwan parent company was the main source of technology; the figure was 87.85% in the case of large enterprises. In 22.54% of China operations, the China operation undertook its own R&D activities; in 12.60% of cases, technology was supplied by a partner company.

(5) Marketing Methods

According to the 2007 *Survey on Overseas Investment by Manufacturing Industry*, of those Taiwanese companies whose main overseas operation was in China in 2006, 65.25% had the China operation handle its own marketing, while in 53.45% the Taiwan parent directed the China operation's marketing activities. The strategy of having a local (Chinese) company handle marketing was used by 14.24% of enterprises.

41.78% of respondents in the *Survey of Taiwanese Investment in China in 2007* reported that their goods were sold in the Chinese market (down from 61.50% in 2006), 30.54% reported that their goods were exported to other countries (down from 31.07% in 2006), and 27.69% reported that their goods were shipped back to Taiwan (compared to 7.43% in 2006). The decrease in the share of firms selling their goods in China and the increase in the share shipping their goods back to Taiwan suggests that demand in the Taiwanese domestic market is picking up. However, the Chinese domestic market

remains the most important target market; finding ways to develop the Chinese market efficiently is thus the key issue facing Taiwanese enterprises.

3. Problems Experienced by Taiwanese Manufacturing Enterprises When Investing in China

(1) Reasons Why Companies Make a Loss in Their China Operations

According to the 2007 *Survey on Overseas Investment by Manufacturing Industry*, among those Taiwanese companies whose main overseas operation was in China and which were making a loss in that operation, the main reason given for making a loss was "fierce competition in the local market" (60.81% of enterprises), followed by "the rising cost of raw materials" (44.02%), and "the cost of investing in China is very high / we are currently engaged in constructing a production facility" (26.83%).

Table 5-3-4 Reasons for Failing to Make a Profit with their Main Overseas Operation in China in 2006

Units: enterprises; %

Item	Total	Taiwan Parent Company is a Large Enterprise	Taiwan Parent Company is an SME	
			99 or fewer employees	100 – 199 employees
Sample size (no. of enterprises)	518	153	294	71
Fierce competition in the local market	60.81	59.74	64.21	52.69
Rising cost of raw materials	44.02	34.42	52.77	34.41
High cost of investing in China / currently building a factory	26.83	33.77	21.03	32.26
Inadequate marketing network	16.80	18.18	16.24	16.13
Poor export performance	12.93	8.44	15.50	12.90

Source: Ministry of Economic Affairs, *Survey on Overseas Investment by Manufacturing Industry*, 2007.

Of the enterprises whose China operation was making a loss, in 29.54% of cases the Taiwan parent company was a large enterprise, with 67.56% being SMEs. For large enterprises, besides intense competition from other companies in China, the high cost of investing in China and/or the fact that they were currently engaged in building a production facility in China was also a major factor; for SMEs, the rising cost of raw materials was the single biggest factor.

(2) Difficulties Encountered by the China Operations of Taiwanese Enterprises

According to the 2007 *Survey on Overseas Investment by Manufacturing Industry*, among those Taiwanese companies whose main overseas operation was in China and which were making a loss in that operation, 63.55% reported that fierce market

competition was one of the main problems that they were experiencing in China. This percentage represented a significant increase over the 2005 figure of 58.80%, suggesting that the level of competition in China is growing more intense. The next most commonly reported difficulty was rising local labor costs (35.76%), followed by cash flow problems (27.79%).

In the *Survey of Taiwanese Investment in China in 2007*, 81.1% of respondents reported experiencing significant competition from Chinese enterprises, followed by South Korean firms, at 17.2%. Hong Kong was in third place with 15.9%, followed by Japan with 14.5%, and the U.S. with 11.0%. Local Chinese companies – which enjoy significant advantages because of their status as local firms – are now the main competitive threat to Taiwanese enterprises operating in China.

(3) Types of Assistance and Guidance That SMEs Would Like to See the Government Provide

The results presented in the 2007 *Survey on Overseas Investment by Manufacturing Industry* indicated that, among those Taiwanese SMEs whose main overseas operation was in China and where that China operation was making a loss, the types of government assistance the SMEs most wished to see provided were for the government to arrange investment protection and dual taxation prevention agreements (59.97% of SMEs), and for the government to provide consulting services with regard to investment-related laws and regulations (58.73%).

According to the *Survey of Taiwanese Investment in China in 2007*, the main types of assistance that Taiwanese enterprises investing in China hoped for from the government were, in order: assistance with trade dispute resolution (53.6%), legal and tax consulting services (53.2%), the provision of information regarding China-related economic and trade affairs (40.8%), assistance in securing bank loans (34.8%), and assistance in solving problems relating to factory management in China (33.5%). In comparison with the results obtained in the 2006 survey, there has been a significant increase in demand for assistance with trade dispute resolution and for legal and tax consulting services; these two areas appear to constitute the main source of difficulty for Taiwanese enterprises operating in China at present.

4. Difficulties and Challenges Experienced by Taiwanese Enterprises Investing in China

(1) The Macroeconomic Adjustment Policies Adopted by the Chinese Government

The Chinese economy has continued to grow rapidly over the last few years. According to data published by China's State Bureau of Statistics, GDP rose to 24,953 billion RMB in 2007, up 11.9% from 2006. As of the end of March 2008, consumer prices had risen by 8.3% compared to March 2007. These data suggest that the Chinese economy is starting to overheat. The Chinese government adopted "dual defense" as its main priority in macroeconomic adjustment in 2008, aiming both to prevent the economy from overheating and to keep inflation under control.

To stop the economy from overheating, China's central bank has relied on open market operations, discount rate adjustments and tweaking of the deposit reserve requirement. From the point of view of Taiwanese companies investing in China, the biggest challenge is posed by the impact of the Chinese government macroeconomic adjustment policies on cash flow and financing. According to the *Survey of Taiwanese Investment in China in 2007*, 16.6% of Taiwanese enterprises operating in China felt that the Chinese government's macroeconomic adjustment measures had had a major impact on their operations, and 46.4% felt that they had had some impact, giving a combined total of 63% of enterprises that believed that they had been impacted by these measures. With the increase in capital risk that has accompanied the Chinese government's macroeconomic adjustment measures, Taiwanese companies need to watch their cash management, otherwise they may find themselves in difficulties.

(2) Revaluation of the Yuan

In mid-July 2005, the Chinese government announced that the Yuan would no longer be pegged to the U.S. Dollar, but would instead be pegged to a basket of currencies. Since then, the Yuan has risen in value against the U.S. Dollar, from US$1 = 8.27 Yuan in July 2005 to US$1 = 7.30 Yuan by the end of December 2007 (an increase of approximately 12% in just over two years). Experts believe that the Yuan is still undervalued by around 20% to 30%. With speculative international funds continuing to pour into China, China's foreign exchange holdings had risen to US$1.53 trillion by the end of 2007, putting immense inflationary pressure on the Yuan.

As regards the impact of the revaluation of the Yuan, according to the *Survey of Taiwanese Investment in China in 2007*, 26.0% felt that the rise in the value of the Yuan had had a major impact on the cost of raw materials, while 48.9% felt that it had had some impact. 27.4% felt that the revaluation of the Yuan had had a major impact on

export sales, while 48.3% felt that it had had some impact. 15.3% felt that the revaluation had had a pronounced impact on their companies' development of the Chinese domestic market, and 46.0% felt that it had had some impact. 17.4% felt that revaluation would have a major impact on the outlook for future investment in China, while 51.1% felt that it would have some impact.

It is anticipated that the Yuan will continue to rise in value over the course of 2008. While the revaluation of the Yuan has had a negative impact on Taiwanese enterprises' export performance, it has been beneficial with respect to the raw material purchasing costs and the development of the Chinese domestic market. As long as they undertake the necessary hedging and risk management, Taiwanese firms investing in China should find that they are able to cope with the revaluation of the Yuan.

(3) Changes in Chinese Government Policy

The last few years have seen a steady stream of new legislation in China, starting with the Property Law, which came into effect on October 1, 2007, and continuing with the Enterprise Income Tax Law of January 1, 2008 and the Labor Contracts Law. The implementation of these new laws is having a major impact on Taiwanese investment in China, as described below:

a. The Property Law: As noted in the *National Administration Research Report – The Impact of China's Property Law on Taiwanese Enterprises, and Their Response* by Ts'ai Kang-shuang (June 26, 2007), China's new Property Law delineates the boundaries of property belonging to the state, to organizations, and to private individuals. The law clarified the rights and obligations related to collective ownership, to the long-term rental of land, the ownership of the land on which residential properties are built, and the rights of occupancy, etc. According to the *Survey of Taiwanese Investment in China in 2007*, 48.5% of Taiwanese enterprises operating in China felt that the introduction of the new Property Law would have no impact on their land use rights, 28.5% felt that it would either be beneficial or highly beneficial, and 18.3% felt that it would have either a negative or a highly negative impact. 48.5% felt that the new law would have no impact on future investment activity in China, 33.6% felt that it would either be beneficial or highly beneficial, and 17.1% felt that it would have either a negative or a highly negative impact. As regards the strategies being adopted by Taiwanese firms in response to the enactment of the Property Law, 65.5% of enterprises reported that they had not taken any

special measures in response, 24.9% said that they had purchased real estate property in China, 25.8% said that they would be using the land on which their China factory was built as collateral to secure bank loans, and 0.4% said that they would be purchasing one of the four categories of "wasteland" specified by the Property Law (mountainous wasteland, gully land, hilly wasteland, and flat wasteland). These survey results indicate that, so far, the implementation of the Property Law has had relatively little impact on Taiwanese enterprises operating in China. However, the reaction to China's Property Law in the international community as a whole has been mixed. While the new law accepts the existence of private property, this does not necessarily mean that private property will be properly protected. Taiwanese companies would be advised to adopt a cautious attitude towards this issue. To ensure that their own interests are protected, Taiwanese enterprises will need to keep in mind the gap that so often still exists in China between the goals of a piece of legislation and its actual implementation.

b. The Labor Contracts Law: According to a report in the September 2007 issue of *Cross-strait Trade Monthly*, published by the Straits Affairs Foundation, the main impact of China's new Labor Contracts Law on Taiwanese enterprises will lie in the fact that, while strengthening the rights of China's workers, the new law will also have a negative impact on labor usage flexibility. It will lead to an increase in management costs and business risk for Taiwanese firms; the impact on SMEs will be significantly more severe than the impact on large enterprises and business groups. According to survey results presented in the *Survey of Taiwanese Investment in China in 2007*, 58.0% of enterprises felt that the introduction of the Labor Contracts Law had had a negative impact on their China operations, and 10.6% felt that it had had a severe negative impact (giving a combined total of 68.6%). As regards the areas in which the Labor Contracts Law had had a negative impact on firms' operations, the most commonly reported issue was personnel costs (43.2% of enterprises), followed by labor disputes (32.7%), management mechanisms (25.5%), and manpower churn (14.1%). It would thus appear that the implementation of the Labor Contracts Law has indeed had a negative impact on Taiwanese enterprises operating in China.

c. The Enterprise Income Tax Law: Over the past decade, the tax rates applying to foreign enterprises operating in China have differed from those applying to local enterprises. Following the enactment of the Enterprise Income Tax Law, a uniform

enterprise income tax rate of 25% will apply to both domestic and foreign-invested firms. Furthermore, whereas in the past the China subsidiaries of Taiwanese business enterprises were able to remit dividend, interest and profit-sharing income overseas with no tax liability, they will now have to pay tax on these remittances at a rate of 10%. The Enterprise Income Tax Law has thus led to a substantial increase in the tax burden on Taiwanese enterprises operating in China. According to the survey results presented in the *Survey of Taiwanese Investment in China in 2007*, 57.5% of enterprises felt that the impact of the Enterprise Income Tax Law on the outlook for future investment would be either "adverse" or "highly adverse."

As regards the strategies being adopted by Taiwanese enterprises in response to the introduction of the new law, 29.4% of firms reported that they would continue to invest in the current location, 29.9% said that they would move future investment to areas where tax incentives were available, 22.6% said that they planned to transform themselves into a "hi-tech enterprise," 25.8% reported that they would stepping up investment outside China, and 10.0% said that they would engage in future investment in Taiwan rather than China. These results suggest that the introduction of the Enterprise Income Tax Law has encouraged Taiwanese firms operating in China to consider relocating investment to other regions. On the other hand, a sizeable share of the firms canvassed reported that they would continue to invest in the current location. Taiwanese enterprises will need to keep monitoring new developments in this area, familiarize themselves with the new tax system, and adopt effective tax-planning strategies.

Besides introducing the three new laws discussed above, on July 1, 2007 the Chinese government reduced the tax drawback rate (for exportation) for a total of 2,831 product categories, representing 37% of all product categories recognized by China's customs authorities. In some cases, the tax drawback rate was reduced to zero. This measure has had a severe impact on the cost structure and cash-flow situation of Taiwanese enterprises operating in China. According to the *Survey of Taiwanese Investment in China in 2007*, Taiwanese companies' export performance is already starting to suffer because of the adjustment of tax drawback rates, with 60.5% of enterprises reporting either "severe adverse effects" or "some adverse effects." Furthermore, 54.4% of enterprises said that the adjustment would have either "severe adverse effects" or "some adverse effects" on the outlook for future investment. With the new tax system leading to higher costs, in the future Taiwanese companies seeking

to boost their export performance will need to find ways to keep costs down, or undertake an overhaul of their pricing strategy.

(4) Issues Related to the Investment Environment and Dispute Resolution

According to the *Survey of Taiwanese Investment in China in 2007*, the 12 main investment environment problems reported by Taiwanese enterprises operating in China were, in order: difficulty in securing repayment of loans (52.6% of enterprises), complex and time-consuming customs procedures (46.6%), high entertainment and other miscellaneous expenses (35.0%), Chinese enterprises' refusal to honor contracts (32.9%), difficulty in developing the Chinese domestic market (27.4%), labor disputes (27.4%), interference by local government authorities (26.5%), inadequate electric power, communications and transportation infrastructure (25.2%), rising materials and inventory costs (22.2%), difficulty in remitting profits out of China (20.1%), cash-flow problems and difficulty in securing bank loans (18.8%), and problems caused by Taiwanese personnel assigned to work at the firm's Chinese operation finding it difficult to adjust to life in China (15.0%).

The results presented in the *Survey of Taiwanese Investment in China in 2007* show that the continuing weakness of the rule of law in China has a major impact on the China operations of Taiwanese business enterprises, with difficulty in securing repayment of loans, complex and time-consuming customs procedures, high entertainment and other miscellaneous expenses and Chinese enterprises' refusal to honor contracts being the most commonly reported issues. Complex customs procedures are another major issue, reflecting a high level of governmental interference in the economy and the restrictions imposed by the customs authorities. The fact that many Taiwanese enterprises are finding it difficult to develop the Chinese domestic market is something that firms will need to keep in mind when making investment decisions in the future.

(5) Rising Fuel and Raw Materials Costs

The price of oil has risen from just under US$50 a barrel in early 2007 to over US$100 in 2008. This has affected the price of both fuel and raw materials in many parts of the world, and China is no exception. Besides leading to a gradual rise in labor costs, China's rapid economic growth over the past few years has also led to a dramatic increase in demand for electric power, with a consequent rise in the price of electricity. In some parts of China, the supply of electricity is no longer able to keep pace with

demand. According to the results presented in the *Survey of Taiwanese Investment in China in 2007*, 84.6% of Taiwanese enterprises operating in China reported that the rising price of fuel had had either an adverse or highly adverse impact on their operations, 90.7% reported either an adverse or highly adverse impact from the rise in the cost of raw materials, and 86.9% reported an adverse or highly adverse impact from rising electricity prices. 90.7% felt that rising labor costs had had either an adverse or highly adverse impact. It can thus be seen that rising oil, raw materials, electricity and labor costs have had a significant negative impact on Taiwanese enterprises operating in China. In the future, Taiwanese firms will need to keep an eye on rising costs and on the extent to which these price rises are eroding their profit margins.

IV Areas that SMEs Need to Focus on in Their Overseas Investment Activities

The rapid evolution of information technology has speeded up the process of economic globalization. In 1985, the annual value of global trade totaled only US$1.8 trillion. By 2004, this figure had risen to US$9.6 trillion, and by 2006 it had increased still further to US$24 trillion, or over 12 times the figure for 1985. At the same time, regional economic integration continues to pick up speed. Three major regional economic groupings – the European Union, the North American Free Trade Agreement (NAFTA) area, and the Asia Pacific Economic Cooperation (APEC) zone – are already in existence, and new ones are being formed all the time. The process of regional economic integration means new business opportunities, but from the point of view of the individual enterprise it also means more competition, more risk, and more instability. The Taiwanese economy has always been highly trade-dependent, and so will have no choice but to face up to the challenges posed by globalization.

SMEs, which account for over 95% of all enterprises in Taiwan, generally lack the resources and management capabilities that large enterprises possess. Faced with the challenges resulting from globalization, SMEs can compensate for their inability to achieve economies of scale through flexibility, and by being able to respond rapidly to the changing business environment. By building competitive advantage in key areas, SMEs can still develop international markets successfully. This section offers a few suggestions which it is hoped will serve as a useful reference for SMEs when planning their business strategy, helping them to become more competitive in today's globalizing

environment.

(1) Identifying Key Resources

In 1984, Birger Wernerfelt put forward the concept of the "resource-based view of the firm". He suggested that, when analyzing their own operations, enterprises should adopt this view of the firm instead of the traditional product and market-based view, emphasizing that, in order to build competitive advantage, an enterprise must possess resources that its competitors do not have access to (either directly or indirectly). Barney (1991) took the analysis of competitive advantage a step further, proposing that competitive advantage is derived mainly from strategic resources that have the characteristics of being valuable, rare, difficult to imitate, and non-substitutable, thereby preventing the firm's competitors from undertaking value creation activities of the same type.

While SMEs may not be able to match large enterprises in terms of the resources available to them, their smaller scale of operations gives them greater flexibility than large enterprises, helping them to adjust rapidly to the changing environment that globalization has created. Those SMEs that can secure access to key resources should still find it possible to build competitive advantage.

(2) Focusing on the Two Ends of the Smile Curve

Faced with the competitive pressure arising from globalization, competitive firms are constantly transforming themselves, striving to overtake the leading players in their industry. Those firms that have already established a dominant position still need to be able to achieve breakthroughs when they encounter technology-related issues or other problems. In many industries, the number of competing players is very high, resulting in a saturated market; in these circumstances, price competition is the inevitable result. In a globalized economy, only the fittest enterprises can hope to survive.

Mr. Shih Chen-jung, a leading entrepreneur in Taiwan has developed the concept of the "smile curve." Moving further towards the left-hand end of the smile curve signifies a focus on R&D, intellectual property, and competing globally; moving towards the right-hand end implies a focus on branded marketing and service provision in which business strategies are tailored to the local market; the mid-point of the curve represents a heavy focus on manufacturing. In a globalized business environment, manufacturing offers only very low profit margins. SMEs need to concentrate on R&D

and innovation to acquire key technologies, or else focus on brand development and the provision of customized, tailor-made products. Only then will SMEs be able to achieve high levels of value creation.

(3) Resource Integration and Developing International Markets

SMEs have access to fewer resources than do large enterprises. However, effective resource integration can enable SMEs to create synergy. Resource integration involves the re-allocation and effective coordination of resources within the organization, and between the organization and external partners, to create a unified system. By implementing resource integration, enterprises can reduce the negative impact on manufacturing costs, management costs, transaction costs and communication costs on the value creation process, thereby achieving greater overall managerial efficiency. Resource integration makes it possible for SMEs to compete effectively against large enterprises.

The new legislation that the Chinese government has introduced over the last few years – including the Enterprise Income Tax Law and the Labor Contracts Law – has had a pronounced impact on the business environment in China. SMEs need to avoid becoming too heavily dependent on China as a manufacturing location; they should be on the lookout for other regions to invest in. Global economic growth has been held back by the fallout from the sub-prime mortgage crisis in the U.S. and by high oil prices. However, the impact of these problems has been less pronounced in emerging markets, whose economies have continued to grow strongly. When planning their global business strategies, SMEs should consider investing in emerging markets other than China; by not concentrating all of their overseas investment in one market, SMEs will be able to spread their operational risk.

SMEs' main sources of competitive advantage are flexibility and speed. While large enterprises are still considering whether or not to invest in an emerging market, SMEs can often secure first mover advantage. However, this requires an international mindset and a high level of determination on the part of the SME's managers. Careful evaluation and strategy formulation can make it possible for SMEs to gradually expand their operations into global markets.

(4) Emphasizing Cost Management and Risk Management

The ongoing trend towards economic globalization has made funding costs and risk

management particularly important for SMEs. SMEs often display poor financial management and planning, a tendency to rely on short-term loans to support long-term investment, a lack of financing knowledge and skills, excessive emphasis on new product R&D, over-confidence and ignorance of risks, and a tendency to undertake excessive, inappropriate cross-investment. While working to develop their own financial management capabilities, SME managers should also be looking to recruit talented individuals with international financial management skills. SMEs need to familiarize themselves with the tax laws in different countries so as to be able to engage effective tax planning, along with the financing channels and the legal and regulatory framework that governs business financing in different parts of the world; at the same time, SMEs should exercise a high level of caution when planning financial leverage. All of these are key areas for any SME seeking to achieve sustainable operations over the long term while faced with the challenges of globalized competition.

Chapter 6

SME Innovation, R&D, and Technology Utilization

The vast majority of Taiwan's SMEs belong to secondary or tertiary industries; their role within the supply chain is usually that of specialist contract manufacturers. In the last few years, China's low manufacturing costs have enabled it to develop into the world's leading manufacturing center; to maintain their international competitiveness, Taiwanese companies have been forced to relocate production to China. This shift has disrupted the center-satellite systems on which SMEs depended, increasing the pressure on SMEs to differentiate themselves from their competitors by adopting new business models. Due to their small size and limited resources, and as a result of their long-standing focus on large-volume, standardized production, many of Taiwan's SMEs have only limited experience in (or enthusiasm for) innovation and R&D. This is one of the main reasons why Taiwanese SMEs have found it increasingly hard to compete effectively against companies in China or India in the past few years.

From the SMEs' point of view, the competitive environment in which they have to operate is more challenging than it was in the past. The cost advantage that was the main source of Taiwanese firms' competitiveness in the past has been eroded by increased pressure in terms of time, price and functionality requirements, rapidly changing technologies, and steadily shortening product lifespans. For example, the success of Amazon's online bookseller business has overturned conventional bricks-and-mortar business models; this represents the classic example of a business enterprise making effective use of new technology. In today's era of knowledge integration, SMEs need to be able to utilize technology effectively in order to open up new growth paths for their business. Technology innovation and R&D are the keys to developing new markets and achieving steady growth in an environment of intense competition.

This chapter will examine the innovation and R&D activity of Taiwan's SMEs in the past few years, and their utilization of technology, and will present an analysis of the results achieved by the government's SME guidance programs in this area.

I Innovation and R&D Inputs

Noted economic thinker J. Schumpeter put forward the concept of "innovation" in his 1911 work *Theory of Economic Development*, suggesting that innovation was the motive power for the development of capitalism. Innovation can take one of five main forms: the development of new or improved products, the adoption of new production methods, the development of new markets, the development of new sources of raw materials or semi-finished products, and the adoption of new forms of organization. Spending on R&D can serve as an indicator for innovation. The following sections analyze R&D spending in Taiwan at the national level, by sector, and within the manufacturing sector.

1. R&D Spending

(1) National R&D Expenditure

According to the 2007 edition of the *Science and Technology Statistics Yearbook* published by the National Science Council, expenditure on R&D in Taiwan in 2006 totaled NT$307,037 million. Private-sector R&D spending accounted for the largest share of this, at NT$206,177 million (67.2% of the total); public-sector R&D spending totaled NT$96,443 million (31.4%), while R&D spending in the higher education and non-profit sectors (along with overseas R&D activity) came to just NT$4,419 million (1.4%). As regards where this money was used, NT$207,238 million (67.5%) was used in the private sector, NT$60,965 million (19.9%) was used by government agencies, NT$37,565 million (12.2%) was used by higher education institutions, and NT$1,270 million (0.4%) was used by non-profit organizations. It can thus be seen that the private sector accounts for the bulk (over six-tenths) of R&D expenditure in Taiwan, whether in terms of funding sources or where the funds are actually employed, with the public sector in second place. Between them, the private and government sectors account for over 90% of all R&D spending in Taiwan.

(2) R&D Spending in the Private Sector

An examination of the trends in R&D spending over the years shows pronounced growth in R&D expenditure in the private sector. R&D spending in this sector rose from NT$139,569 million in 2002 to NT$207,237 million in 2006, representing a compound annual growth rate (CAGR) of 10.4%. Over the same period, the private sector's share of total national R&D spending increased from 62.2% to 67.5%. The

private sector was the only sector where R&D inputs increased every year between 2002 and 2006. Overall, both R&D funding and R&D execution are becoming increasingly concentrated in the private sector (Table 6-1-1).

As can be seen from Table 6-1-1, 2006 saw a pronounced increase in R&D spending by SMEs (defined as enterprises with less than 200 employees) in 2006, after a decline in spending in the previous two years; SME R&D spending rose by 13.78% in 2006 compared to 2005. R&D spending by large enterprises has been rising steadily for several years, with an average annual growth rate of 11.22% over the period 2004–2006. Although the growth rate in large enterprise R&D spending in 2006 was the lowest for several years, at 9.31% it was still a respectable rate of increase. The fact that the SME R&D spending growth rate exceeded that in the large enterprise segment suggests that Taiwan's SMEs are finally starting to recognize the need to allocate more resources to R&D.

Table 6-1-1 R&D Spending by Business Enterprises, 2004 – 2006 (by enterprise size)

Unit: NT$ millions

Item	2004	2005	2006
Total	**170,293**	**188,390**	**207,237**
Total R&D spending by SMEs	29,251	29,143	33,159
SMEs with 99 or fewer employees	15,024	16,048	17,803
SMEs with 100 – 199 employees	14,497	13,095	15,356
Total R&D spending by large enterprises	140,772	159,247	174,078
Large enterprises with 200 – 499 employees	24,768	24,017	27,417
Large enterprises with 500 or more employees	116,004	135,230	146,661

Source: National Science Council, Executive Yuan, 2007.

(3) R&D Spending in the Manufacturing Sector

Over the years, R&D spending by business enterprises in Taiwan has consistently been concentrated in the manufacturing sector. The service sector has been in second place, followed by other industries such as water, electricity and gas supply, construction, mining and quarrying, and the agriculture, forestry, fisheries and animal husbandry sector. In the last five years, spending on R&D in the manufacturing sector has risen steadily; manufacturing firms' R&D expenditure now accounts for around 91.6–92.4% of total R&D spending by all business enterprises. The steady increase in R&D spending in the manufacturing sector is the main factor behind the rise in overall private sector R&D expenditure. Given that the manufacturing industry's share of total private sector R&D spending has remained above the 90% level for five years in a row, the manufacturing sector can reasonably be taken as a proxy for the private sector as a

whole when analyzing R&D spending trends.

In 2006, among those manufacturing firms that were investing overseas, average spending per enterprise on R&D in Taiwan was NT$90 million, accounting for 86.2% of total R&D spending per enterprise (both in Taiwan and overseas). For medium-sized and large enterprises, average spending per enterprise on R&D in Taiwan was NT$27 million (representing 88.70% of total R&D spending) and NT$250 million (86.66%), respectively. The fact that a high percentage of R&D spending is concentrated in Taiwan rather than overseas should be beneficial to the transformation and upgrading of Taiwan's manufacturing industry, and will facilitate the cultivation of a large pool of R&D talent in Taiwan. Domestic R&D spending's share of total R&D spending for enterprises in the main industry categories is as follows: the share is highest in the metals and machinery industry (92.75%), followed by the consumer products industry (89.00%), and the IT and electronics industry (86.98%). It can thus be seen that, in the last few years, most Taiwanese manufacturing enterprises have continued to concentrate their R&D spending in Taiwan rather than overseas (Table 6-1-2).

Table 6-1-2 R&D Spending Per Enterprise – R&D Spending in Taiwan and Overseas

Units: NT$ millions; %

Item	Average Total R&D Spending Per Enterprise (Taiwan and Overseas)	Average R&D Spending Per Enterprise (Taiwan Only)	R&D Spending Per Enterprise in Taiwan as Share of Total R&D Spending Per Enterprise
All Enterprises	**105**	**90**	**86.20**
By Enterprise Size			
Small enterprises	11	8	76.02
Medium-sized enterprises	31	27	88.70
Large enterprises	288	250	86.66
By Industry Category			
Metals and machinery	33	30	92.75
IT and electronics	197	171	86.98
Chemical	52	37	71.98
Consumer products	23	20	89.00

Source: Ministry of Economic Affairs, *Survey on Overseas Investment by Manufacturing Industry*, 2007.

(4) Overseas R&D Expenditure in the Manufacturing Sector

In 2006, overseas R&D expenditure's share of total R&D expenditure (both overseas and in Taiwan) exceeded 10% in only 26.39% of Taiwanese manufacturing firms with overseas operations. For small enterprises, the percentage was 29.58%, slightly higher than the corresponding percentage for medium-sized and large enterprises. Of the four main industry categories, the percentage was highest in the IT and electronics industry,

at 29.38%, and lowest in the chemical industry, at 23.60%. One point worth noting is the significant increase in overseas investment in the consumer products segment, where the share of enterprises whose overseas R&D spending exceeds 10% has risen from 19.93% in 2005 to 24.29% (Table 6-1-3).

Table 6-1-3 Percentage of Enterprises Whose Overseas R&D Expenditure Accounted for 10% or More of Total R&D Expenditure in 2006

Item	All Overseas Operations			China-based Operations		
	No. of Enterprises	Total	Share of Enterprises Where Overseas R&D Accounted for 10% or More of Total R&D Spending	No. of Enterprises	Total	Share of Enterprises Whose Overseas R&D Accounted for 10% or More of Total R&D Spending
Total	**1,770**	**100.00**	**26.39**	**1,454**	**100.00**	**28.47**
By Enterprise Size						
Small enterprises	889	100.00	29.58	734	100.00	31.75
Medium-sized enterprises	305	100.00	25.57	240	100.00	28.33
Large enterprises	576	100.00	21.88	480	100.00	23.54
By Industry Category						
Metals and machinery	426	100.00	24.41	362	100.00	25.97
IT and electronics	759	100.00	29.38	616	100.00	31.66
Chemical	305	100.00	23.60	254	100.00	25.20
Consumer products	280	100.00	24.29	222	100.00	27.48

Source: Ministry of Economic Affairs, *Survey on Overseas Investment by Manufacturing Industry*, 2007.

In 2006, of those enterprises investing in China, 28.47% were spending at least 10% of their total R&D expenditure in China; this figure was slightly higher than the figure for overseas investment as a whole. 31.75% of small enterprises and 28.33% of medium-sized enterprises were spending at least 10% of their total R&D expenditure in their Chinese operations; these figures were higher than the corresponding percentage for large enterprises. It thus appears that SMEs are more willing than large enterprises to invest in R&D in China. Of the four main industry categories, the IT and electronics industry and the consumer products industry had the highest shares of enterprises spending at least 10% of their total R&D expenditure in China, at 31.66% and 27.48%, respectively.

2. Manpower Inputs

Besides R&D spending, R&D manpower allocation also constitutes an important indicator of technology utilization, innovation and R&D activity. Broadly speaking, there are two main methods used to calculate R&D manpower: either counting the

number of R&D personnel, or counting the number of man-hours spent on R&D activity. "R&D personnel" are normally considered to include both full-time R&D staff and those personnel who spend only part of their time on R&D activity; the total man-hours spent on R&D activity are calculated according to the percentage of total working time spent on R&D related items. International comparisons normally use man-hours as the unit of comparison; in this section, the analysis of R&D manpower allocation in the private sector uses man-years.

The following sections examine R&D manpower status both for the nation as a whole and for the private sector, with the aim of gaining a clearer picture of how R&D manpower is divided between different sectors.

(1) National R&D Manpower

R&D personnel can be divided into researchers, technical staff, and support staff. The statistics indicate that, over the years, researchers have consistently accounted for the largest share of R&D personnel in Taiwan; over the last five years, the researchers' share of the total has remained in the range of 58.2–59.6%. Technical staff represent the next largest group; support staff account for only a relatively small share of the total. Using man-years as the unit of calculation, Taiwan's total R&D manpower in 2006 came to 161,314 man-years. Researchers constituted the largest group, with 95,176 man-years (59.0% of the total), representing a decline of 0.58 percentage points compared to 2005. Technical staff constituted the next largest group, with 54,514 man-years (33.8% of the total), representing a slight increase of 0.63 percentage points compared to 2005. Support staff were the smallest group, with 11,619 man-years (7.2% of the total), down 0.06 percentage points from 2005.

During the five-year period from 2002 to 2006, researchers displayed the fastest growth, rising from 69,887 man-years to 95,176 man-years. Technical staff increased from 40,972 man-years to 54,514 man-years, while support staff increased from 9,154 man-years to 11,619 man-years.

(2) R&D Manpower in the Private Sector

a. Researchers Account for the Largest Share of R&D Manpower

As with the national totals, in 2006 researchers accounted for the largest share of private-sector R&D manpower, with 56,117 man-years (52.8% of the total, down 0.1 percentage points from 2005). Technical staff constituted the second largest group, with

43,819 man-years (41.2% of the total, up 0.2 percentage points compared to 2005); support staff held the smallest share, with 6,325 man-years (6.0% of the total, roughly the same as in 2005). Over the five-year period from 2002 to 2006, the number of researchers rose from 37,527 man-years to 56,117 man-years, representing a CAGR of 10.6%.

b. Masters Degree Holders Account for the Largest Share of Researchers

As of 2006, holders of masters' degrees represented the largest share of private-sector R&D manpower in Taiwan, with 29,226 man-years (52.1% of the total, 0.7 man-years down on 2005). Holders of bachelors' degrees held the next largest share, with 24,326 man-years (43.3% of the total, up 0.9 percentage points from 2005); holders of doctorates held the smallest share, with 2,565 man-years (4.6% of the total, down 0.2 percentage points from 2005).

c. A Concentration in the 25–34 Age Range

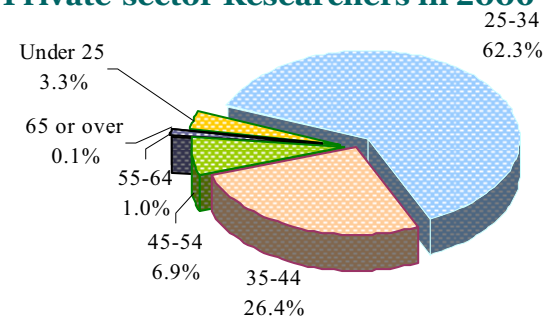
When comparing the age of researchers in different countries, the OECD uses the number of personnel as the basis for comparison; the same method was adopted for the analysis presented in this section. As can be seen from Figure 6-1-1, in the private sector in 2006, researchers were heavily concentrated in the 25–34 age group, which accounted for 62.3% of all researchers (up 0.6 percentage points from 2005), with a total of 39,569 individuals in this age group. The next largest group comprised those in the 35–44 age range, with 16,765 individuals, representing 26.4% of the total (down 0.3 percentage points from 2005), followed by those in the 45–54 age range and those in the under-25 age range. Researchers aged 65 or over made up the smallest group, accounting for less than 1% of the total.

It can be seen from the above analysis that, in both the public and private sectors, researchers account for the largest share of R&D manpower, followed by technical staff. In the private sector, researchers with a masters' degree account for the largest share of R&D manpower, and researchers are mainly concentrated in the 25–34 age range.

Due to the difficulty in obtaining accurate information about R&D manpower in the SME sector, the best that can be done is to produce an estimate based on the national R&D manpower totals. As part of its efforts to encourage SMEs to undertake innovation and R&D, in the last few years the government has been promoting the Small Business Innovation Research (SBIR) project (part of the Industrial Technology Development Plan scheme). According to data compiled by the Department of

Industrial Technology, Ministry of Economic Affairs, between the commencement of the SBIR initiative and the end of December 2007, more than 23,000 SME personnel had been involved in innovation and research plans. Details of the some of the individual plans are given in the following sections.

Figure 6-1-1 Private-sector Researchers in 2006 – by Age Group



Source: National Science Council, Executive Yuan, *Science and Technology Statistics Yearbook*, 2007.

II Plans to Promote Innovation in Industry

The global economy is undergoing a rapid process of transformation, in which the production and utilization of knowledge and innovation have become the main drivers of national competitiveness and economic growth. In this new era of rapid growth in the knowledge economy, Taiwanese business enterprises find themselves faced with the globalization of competition, the growth of the emerging economies, and falling profit margins on OEM/ODM production. This makes it all the more vital for Taiwan to focus on innovation in industrial technology, so as to achieve a new breakthrough in economic development. The SMEs that make up around 98% of Taiwan's manufacturing enterprises generally suffer from a lack of technology and shortage of funds. Faced with a rapidly changing business environment, and handicapped by their small size, they are often unwilling to take the risk of investing heavily in R&D. On the other hand, while SMEs may be small in size, they possess flexibility, speed, efficiency, and the ability to respond rapidly to changes in demand in international markets. The key to survival for Taiwan's SMEs is not to compete on cost, but rather to make an ongoing effort in innovation and R&D (tailored to the changes in their markets, customers and the overall business environment), and to develop high-value-added products that can differentiate them from their competitors. Only then will Taiwanese SMEs be able to achieve sustainable development in the face of the intense competition from leading international corporations.

To encourage SMEs to upgrade their innovation and R&D capabilities, and to help them cut R&D costs and reduce the level of risk associated with R&D activity, the Ministry of Economic Affairs has developed a range of guidance measures and subsidy programs. These include the Small Business Innovation Research (SBIR) program, the Industrial Technology Development Plan (ITDP), the Innovative Technology Applications and Services (ITAS) program, the Conventional Industry Technology Development (CITD) initiative, and the Assist Service Sector Technology Development (ASSTD) plan. Through these programs, the Ministry of Economic Affairs aims to encourage SMEs to allocate more resources to innovation and R&D, thereby helping SMEs to upgrade and transform themselves. This section presents an overview of these various plans and initiatives, in the hope that this will strengthen SMEs' awareness of these programs and help them to make effective use of the government guidance resources available to them.

1. The Industrial Technology Development Plan

As part of its efforts to encourage business enterprises to develop innovative new technologies and applications, and to build up their R&D capabilities and systems, in 1999 the Ministry of Economic Affairs began to accept applications for funding support under the Industrial Technology Development Plan scheme, in accordance with the provisions of the Measures for Subsidizing R&D Activity by Business Enterprises. By providing funding support to cover part of the cost of R&D activity, the Ministry aimed to reduce both the cost of R&D and the level of risk that accompanies innovation and R&D. It was intended that the scheme would encourage Taiwanese enterprises to develop innovative, cutting-edge technologies, key technologies vital for industrial development, and integrated technologies, thereby providing a significant boost to industrial technology development in Taiwan. The Industrial Technology Development Plan scheme covers not only funding support but also the provision of guidance to help enterprises establish R&D management systems, strengthen their R&D organization, and cultivate and make effective use of R&D talent. Through this initiative, the government encourages business enterprises to undertake further investment in R&D themselves. The scheme also helps to promote exchange and collaboration between industry, universities and research institutes, thereby strengthening the R&D capabilities of the nation as a whole and achieving the government's goal of "rooting technology development in the private sector."

The following types of support are available to companies that participate in an Industrial Technology Development Plan:

(1) Funding Support

Business enterprises that undertake Industrial Technology Development Plans are eligible for R&D funding support from the government. In the case of cutting-edge technologies and key technologies vital for industry development, the R&D subsidy is capped at 40% of total R&D expenditure; for other projects the upper limit is 30%. SMEs usually find it more difficult than large enterprises to secure financing; making it possible for them to receive funding support from the government can reduce the financial pressure that they face on and encourage them to dedicate more resources to R&D, thereby contributing to the process of industrial upgrading in Taiwan.

(2) Vesting Individual Companies Participating in the Projects with Intellectual Property Rights

The intellectual property rights derived from the R&D results achieved in Industrial Technology Development Plans belong to the companies taking part in the Plans and receiving subsidies; this system thus encourages SME owners to continue to invest in innovation and R&D.

(3) R&D Management System / Integration Capability Diagnostic Guidance

SMEs lack the extensive resources available to large enterprises; when they experience managerial difficulties, they often have nowhere to turn. The Ministry of Economic Affairs helps companies participating in Industrial Technology Development Plans to establish R&D management systems and strengthen their project management capabilities, thereby enhancing their overall R&D capabilities and promoting industrial upgrading.

(4) Promoting Collaboration and Exchange between Industry, Universities and Research Institutes

Some Industrial Technology Development Plan items can be implemented through collaborative projects or by obtaining technology from outside sources. This part of the scheme has been implemented in collaboration with the University Technology Development Plans for Helping Local Industries to Create Value segment of the University Technology Development Plans initiative. Inter-university and inter-disciplinary research teams leverage the university sector's R&D capabilities to

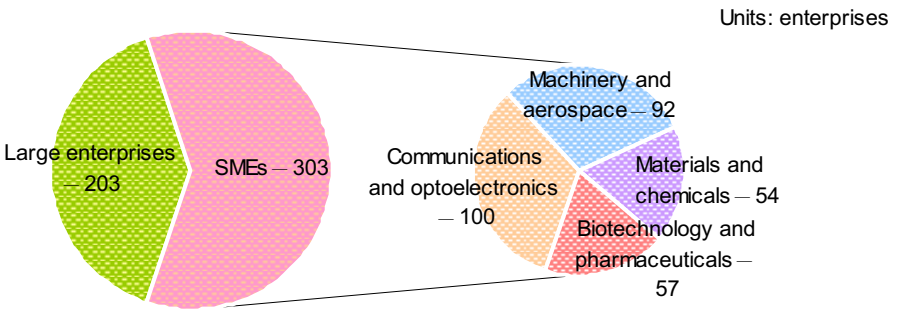
strengthen the value-added creation potential of existing types of industrial technology; projects of this type help to strengthen collaboration between industry and the university sector, while also stimulating the development of local industries. From the universities' point of view, access to government subsidies and private-sector funding can support manpower cultivation and the adoption of new technologies. By enabling SMEs to make use of universities' resources and R&D talent, this type of project contributes to the expansion of SMEs' R&D capabilities.

(5) Manpower Cultivation

Participation in Industrial Technology Development Plans encourages business enterprises to step up recruitment of masters' degree and Ph.D. holders (both in Taiwan and from overseas), thereby making a major contribution to manpower cultivation.

Since implementation of the Industrial Technology Development Plan scheme began in 1999, there has been a flood of applications to undertake these Plans. The range of industries covered is very broad, and includes communications, optoelectronics, machinery manufacturing, aerospace, materials manufacturing, the chemical industry, biotechnology and pharmaceuticals. As of December 2007, 245 plans had been approved, and contracts had been signed with a total of 310 individual companies. Over the period between 1999 and the end of March 2008, subsidies were provided to 506 enterprises, of which 303 were SMEs (Figure 6-2-1). The Industrial Technology Development Plan program has thus made a significant contribution towards encouraging SMEs in Taiwan to undertake innovation and develop new technology applications.

Figure 6-2-1 Provision of Subsidies to SMEs under the Industrial Technology Development Plan Scheme



Source: Industrial Technology Development Plan website.

2. The Small Business Innovation Research (SBIR) Plan

The Small Business Innovation Research (SBIR) plan was formulated by the Ministry of Economic Affairs to encourage SMEs to engage in the development of innovative new technologies and products, in accordance with the provisions of the Ministry of Economic Affairs Measures for Promoting the Development of Industrial Technology by Business Enterprises. The aim was to help Taiwan's SMEs to undertake innovation and R&D activity, thereby speeding up the upgrading of the competitiveness of the SME sector as a whole. As SMEs constitute the backbone of Taiwan's economy, it was decided to adopt a method similar to that used in the U.S.'s Small Business Innovation Research initiative. Under Taiwan's SBIR plan, SMEs can apply for subsidies covering up to 50% of the total cost of R&D. This government funding support helps to reduce the costs and the level of risk that SMEs must bear when engaging in innovation or R&D. By encouraging SMEs to undertake the development of new industrial technologies and products, the SBIR plan aims to boost overall private-sector R&D spending, speed up industrial upgrading and strengthen Taiwan's international competitiveness.

Under the SBIR plan, subsidies are available for two types of R&D project: "innovative technologies" and "innovative services." Application for funding assistance is a two-stage process. Phase I involves the preliminary research and planning; Phase II comprises the actual R&D activity and the detailed planning. In Phase I, enterprises undertake research and appraisal on innovative or cutting-edge concepts that have potential benefits for industry; in Phase II, they undertake the development of specific new technologies, products or services on the basis of the results achieved in Phase I. Applications for funding support under the SBIR plan can be further broken down into "individual applications," where the application for a subsidy is submitted by a single company or office, and "R&D alliance" applications, where the application is submitted by a group of three or more firms, at least half of which must be SMEs, and where one of these SMEs submits the application on behalf of the alliance. Alliances of this type will normally involve collaboration between the upstream and downstream segments of a supply chain, or a cross-industry alliance, with the aim of establishing a new industry standard, formulating new technology specifications, establishing a joint platform, promoting the upgrading of an emerging industry, or supporting the transformation of a traditional industry.

To apply for funding support under the SBIR plan, an enterprise must conform to

the following criteria:

(1) It must be an SME, as defined in the Standard Definition of SMEs.

(2) It must owe no back taxes to the government, and must have no record of contract cancellation when participating in government-related technology development plans over the past five years.

(3) A foreign company may submit an application for funding support, as long as the company in question conforms to the above two requirements by the time its application is approved.

(4) "Innovative service" project applicants may be business offices or medical juridical persons that are engaged in R&D activity and registered for tax purposes.

(5) In the case of R&D alliance applications, the applicant must be an SME; however, the application may be submitted jointly with a university or college, foundation, or other domestic or foreign organization. At least half of the members of the alliance must be SMEs; in principle, each SME must participate in at least one of the project sub-items.

Implementation of the SBIR plan began in February 1999. As of the end of December 2007, Taiwanese SMEs had submitted a total of 3,958 applications for subsidy under the plan. A total of 2,334 innovation and R&D projects were approved, with the government subsidies awarded reaching a cumulative total of NT$4.85 billion (stimulating a total of NT$9.89 billion in SME investment in R&D). According to data compiled by the Department of Industrial Technology, Ministry of Economic Affairs, these projects involved the allocation of over 23,000 SME personnel to R&D activity. The SBIR plan has thus made a significant contribution to R&D manpower cultivation and helping SMEs to build up their R&D capabilities, thereby upgrading the overall technology capabilities of Taiwan's SME sector, boosting the competitiveness of Taiwanese industry and helping Taiwan's traditional industries to transform and upgrade themselves; the plan has also provided support for Taiwan's development into a leading global center for R&D.

3. The Innovative Technology Applications and Services (ITAS) Program

In 2008, in line with the government's goal of leveraging the twin engines of high-value-added manufacturing and knowledge-intensive service industries to drive

economic growth, the Ministry of Economic Affairs combined its existing Model Technology Applications Plan and Innovative Services Industrial Technology Development Plan schemes to create the Innovative Technology Applications and Services (ITAS) program. The goal of ITAS is to encourage business enterprises to undertake planning and development of applications and services that are innovative, can serve as models for other enterprises or have high integration or joint use potential, and have significant technology content. It was anticipated that, through the development of a wide range of innovative business models, the ITAS program would help to create new business opportunities and drive industrial development. In the implementation of the ITAS initiative, besides getting business enterprises to develop innovative, cutting-edge applications and services, the government will be focusing on certain key aspects of industrial policy development, with the aim of encouraging businesses to identify new trends and gaps in the market related to industrial, social and lifestyle innovation. Through the integration and effective application of technology, companies will develop innovative new services and business models that can speed up the transformation of the manufacturing sector as a whole towards service-oriented manufacturing, integrating technology with services to create new types of application service in the fields of service innovation and technology-enabled services.

Under the ITAS project, the Ministry of Economic Affairs is providing funding support to help SMEs undertake the following:

(1) Basic industrial technology R&D.

(2) Development of innovative industrial technology, products or services.

In the awarding of subsidies, priority will be given to SMEs that have been in existence for less than three years, or that are located in an incubator center.

As part of its efforts to encourage the development of innovative new services and business models through technology integration and new technology applications, over the years the programs that have now been combined to form ITAS have provided funding support for over 300 projects, helping business enterprises to raise own capital of over NT$10 billion, and supporting the assignment of over 5,000 personnel to R&D activity. The industries to which these enterprises belonged included the IT and electronics industry, as well as traditional manufacturing industries such as machinery manufacturing, car and car parts manufacturing, textiles, papermaking, die-making, etc. The projects have also helped to drive the development of new service industries.

Individual projects have included: Plans A and B for E-Enablement in the Information Industry; Plans C, D and E for the Digitalization of Money Flow, Materials Flow and Collaborative Design; the Plan for Deepening the E-Enablement of Global Logistics in Industry; the Green Plan; the Plan for the Promotion of Mobile Payments; the Innovative Services Plan, etc. ITAS has successfully guided business enterprises towards the integration of technology with market needs, supporting the establishment of innovative new business models across a wide range of industries.

4. The Conventional Industry Technology Development (CITD) Plan – New Product Development, Product Design and Joint Development

Under the Conventional Industry Technology Development (CITD) plan, the government provides funding support for R&D to encourage companies in traditional industries to develop new products, new technologies, and attractive new designs. Implementation of the CITD plan began in 2001; as of 2007, SMEs accounted for 85% of the firms that had received subsidies under this project.

In 2007, the government provided a total of NT$3.67 million in funding under the CITD plan. The subsidized companies invested a further NT$405 million. Of the 271 individual projects, 225 have already been completed. The results achieved can be summarized as follows:

(1) The companies involved saw an NT$8.2 billion increase in annual production value, a NT$3.6 billion increase in investment, and a NT$360 million reduction in costs.

(2) A total of 16 patents were applied for; 3,098 new products were developed, along with 8,968 derivative products.

(3) 530 technology transfer and technology collaboration projects were implemented.

(4) The collaborating companies posted a NT$170 million increase in annual production value; 1,609 new jobs were created.

5. The Plan for the Provision of Guidance for the Development of Key New Products

In 1991, the Industrial Development Bureau, Ministry of Economic Affairs began implementation of the Plan for the Provision of Guidance for the Development of Key New Products. The aim was to speed up the enhancement of the overall level of

technology in existing industries, while leveraging new technologies and new products to drive the upgrading of peripheral product technologies, thereby contributing to improved competitiveness and faster economic growth.

The results achieved in the implementation of the Plan for the Provision of Guidance for the Development of Key New Products have been impressive. Between July 1991 and the end of 2006, a total of 1,410 applications for guidance were received, of which 704 were approved. These projects involved total R&D spending of around NT$68.12 billion; government subsidies covered NT$12.55 billion of this, while the companies concerned invested a combined total of NT$55.57 billion. In all, over 18,000 R&D personnel were involved in these projects.

A 2005 report on the results achieved in the Plan for the Provision of Guidance for the Development of Key New Products noted that the 363 projects studied in the report had resulted in the development of 658 innovative new technologies and 736 non-innovative new technologies, for a combined total of 1,394 technologies. 619 patents had been secured, and 614 derivative technologies and 806 derivative products developed. The cumulative total of 704 projects that were underway in 2005 involved total R&D investment of approximately NT$71.8 billion and volume production investment of around NT$199 billion; they had created sales totaling around NT$383 billion.

Examination of the experience of companies participating in the Plan for the Provision of Guidance for the Development of Key New Products shows that individual firms benefit from the funding support, easier access to R&D talent, technology support from the members of the project steering committee, and the opportunity to build core competitiveness.

6. The Assist Service Sector Technology Development (ASSTD) Plan – Innovative R&D Projects

On October 7, 2005, the Commerce Department, Ministry of Economic Affairs announced the Measures for the Provision of Guidance for Promoting R&D in the Commercial Sector, formulated in accordance with the Statute for Upgrading Industries to strengthen awareness of the importance of R&D activity in the commercial sector, respond to the new business environment in which Taiwanese industry finds itself, raise the level of value-added created in service provision, and transform attitudes towards service value creation. These Measures provided the basis for the Assist Service Sector

Technology Development (ASSTD) plan, whereby the government would cover part of the cost of commercial sector R&D and innovation projects, thereby encouraging service sector firms to attach more importance to R&D. It was anticipated that the ASSTD plan would contribute to the promotion of innovative commercial activity, and guide the evolution of new businesses and new business types, thereby strengthening the core competitiveness of the enterprises making up Taiwan's commercial sector.

In accordance with the provisions of the Measures for the Provision of Guidance for Promoting R&D in the Commercial Sector, subsidies would be made available for enterprises in the wholesaling, retailing, distribution, restaurant, management consulting, international trade, e-commerce, conference and exhibition, advertising, commercial design, chain and franchise store operation and other related industries to undertake innovation and R&D activity, with the aim of encouraging companies in these industries to invest in the development of new products and services, new business models, new sales models, and new application technologies. One-year subsidies were capped at NT$2.5 million, and two-year subsidies were capped at NT$5 million. As of 2007, a total of 489 applications for funding assistance under the ASSTD plan had been received, of which 171 had been approved. In 2008, the deadline for Innovative R&D Project funding under the ASSTD plan was May 9, 2008; the total amount of subsidies provided for Innovative R&D Projects in the first quarter of 2008 was just under NT$128 million.

III Other Innovation and R&D Initiatives, and Case Studies of Successful Projects

Over the past few years, the Taiwanese government has introduced a wide range of programs to encourage SMEs to upgrade and transform themselves. Besides the Technology Development Plan schemes referred to above, there have been numerous other initiatives designed to get SMEs investing in innovation and R&D. The total amount spent on R&D by SMEs in the past few years (and the manpower allocated to R&D activity) have not increased significantly. However, examination of the significance of innovation in the SME sector should not be limited to funding and manpower inputs; outputs – in terms of research results and the value-added created from them – also need to be considered. This section will examine some of the other schemes initiated by the government to stimulate innovation and R&D in the SME

sector, and the results achieved.

1. The New-generation Innovative e-Enabled Service Cultivation Platform

In line with the Executive Yuan's policy of encouraging the leveraging of new technologies to drive the growth of innovative services, the Department of Industrial Technology of the Ministry of Economic Affairs has been implementing the New-generation Networking Application Cultivation Program to support the development of cutting-edge, innovative e-enabled services. The first stage of this program was implemented in April 2007; a total of 193 innovative service project applications were received, of which 22 projects that were considered to have significant potential in terms of the development of innovative e-enabled services were chosen to receive guidance. In order to speed up the provision of assistance to the innovation project teams, ensure effective integration of private-sector resources and capabilities, and create effective mechanisms for mutually beneficial collaboration, the Program was designed to facilitate active integration of government and private-sector resources through the joint creation of the New-generation Innovative E-Enabled Service Cultivation Platform, comprising broadband central office equipment and guidance and cultivation mechanisms.

The participants in this project include the Taiwan Internet Association and 10 leading companies: Chunghwa Telecom, SeedNet, Taiwan Telecom, Yahoo!, Yam, So-Net, Taiwan Fixed Network, APOL, FreePay, and KB Telecom. They are working together to provide the bandwidth, control room facilities, servers and other resources needed to support e-enabled service innovation; they have also assisted with the provision of technical and commercial guidance to get new services up and running. It is anticipated that these companies will be investing resources totaling over NT$20 million a year in the project. In the future, these resources will be integrated with those provided by the government through its Technology Development Plan scheme, to encourage a further expansion of the program's scope and speed up the development of innovative new e-enabled services. The Platform is forecast to support the establishment of 150 new innovative e-enabled services over the next three years, along with the emergence of a number of new industry clusters, thereby creating significant new business opportunities for the Internet industry.

2. The Plan for Helping SMEs to Access Government Funding Resources

The goals behind the implementation of this plan are to increase SMEs' awareness of the government funding resources available to them, and to make it easier for them to access these resources. The plan will help SMEs to upgrade their R&D capabilities, and to develop their own unique sources of competitiveness. Special presentations are held to help SMEs access the various types of government subsidies available to them; these presentations cover the application and implementation processes for the Plan for the Provision of Guidance for the Development of Key New Products, the Conventional Industry Technology Development Plan, the Assist Service Sector Technology Development Plan, the R&D Service (Alternative Service) program, etc.

3. The Plan for the Provision of Guidance to Support R&D in the Service Sector

The Plan for the Provision of Guidance to Support R&D in the Service Sector was established to support the development of the business services industry, with the aim of encouraging enterprises in this industry to invest in the development of new products and services, new marketing models, and new application technologies. The government provides subsidies to cover part of the cost of R&D; funding is capped at NT$2.5 million for 1-year subsidies, and NT$5 million for 2-year subsidies. In principle, any given enterprise is limited to one project, and the government funding provided may not exceed 50% of the total R&D cost.

4. Case Studies of Successful Projects

In the last few years, thanks to the government's aggressive promotion of its various strategies for encouraging innovation and R&D, there have been numerous examples of successful innovation within the SME sector. Those SMEs that are willing to innovate, and that adapt flexibly to changes in the business environment, have been able to achieve impressive operational performance and earnings results. The following case studies are examples of SMEs that received funding support under the Innovative Technology Applications and Services (ITAS) program initiated by the Department of Industrial Technology, Ministry of Economic Affairs; by outlining the business models used and the special features of the projects, it is hoped that these examples will encourage SMEs to make effective use of the resources available to them, and to invest

in innovation and R&D.

Case Study 1: Globe Union Industrial Corp.'s Global Logistics and Innovative Value-added Services Project

Global Union Industrial Corp. is a specialist manufacturer of bathroom and kitchen products. The company's three main markets are North America, Europe, and the Asia region. In Europe, Global Union has leveraged its global logistics and innovative value-added services model to break the stranglehold that European distributors had previously held on the local market, and has succeeded in getting European discount store chains to stock its products without going through a middleman. Global Union's global logistics system involves vertical integration of own-brand products, distributor-branded products, design, R&D, manufacturing and after-sales service, creating a seamless process that covers every stage from the securing of the initial sales contract through materials purchasing to final shipment. The operation of Global Union's global logistics system is directed from the group's headquarters in Taiwan. By concentrating decision-making at its headquarters, Global Union is able to respond rapidly to customer needs, providing its customers with the best possible value-added services.

Case Study 2: Toplife's Comprehensive, Ubiquitous Service Plan for Long-stay Customers

Toplife runs a chain of leisure resorts in Southern Taiwan. Its Comprehensive, Ubiquitous Plan for Long-stay Customers involves the deployment of RFID and WSN technology to provide innovative new services to long-stay customers in collaboration with the International Tourism Alliance. Toplife's aim is to provide considerate, personalized, proactive, interactive value-added services, establishing itself as a model resort operator that can drive forward the process of industrial upgrading and transformation in Southern Taiwan.

Case Study 3: Grandsy's Software Development Plan for Customer Service Center Manpower Upgrading

Grandsys, which started out as the Taiwan agent for foreign customer service center systems, has since transformed itself into an own-brand system vendor. Its Software Development Plan for Customer Service Center Manpower Upgrading aims to leverage the know-how and experience that Grandsys has built up over the years to undertake preliminary planning for new prototype systems. The aim is for Grandsys to be able to

develop its own flexible shift assignment software system, which will be integrated with consulting services to help Grandsys develop the monthly salary and weekly salary customer service market. Grandsys' vision is to help customer service centers enter a new era of ultra-efficient management that will enable customer service center providers to reduce their operating costs and strengthen the international competitiveness of the Taiwanese customer service center industry as a whole.

Case Study 4: SimpleAct's 2D Barcode Payments Service Plan

SimpleAct Inc. is a Taiwanese software firm engaged in the development of mobile barcode technology. SimpleAct's 2D Barcode Payments Service Plan will help to make 2D barcodes safer to use. Through shared platform development, SimpleAct hopes to expand the range of applications for 2D barcodes to include inter-bank transactions and transactions between telecommunications operators. In this way, SimpleAct will be able to grow the size of the 2D barcode services market, improve the operational efficiency of the mobile payments value chain, and provide a higher level of security for companies in related industries.

Case Study 5: Great Mountain Poultry Farm's Plan for the Utilization of UBS Technology in Smart Poultry Feeding Applications

The Great Mountain Poultry Farm runs an own-brand egg products business. Its Plan for the Utilization of UBS Technology in Smart Poultry Feeding Applications involves the leveraging of information technology to digitalize the know-how and experience of the Farm's staff. RFID (Radio Frequency ID), wireless sensor technology and other "ubiquitous" technology tools are used to achieve information system integration, linking the Farm's operations with those of its upstream feed suppliers and its downstream distributors, and creating an innovative poultry feeding model characterized by rigorous controls at every stage. Besides enhancing food safety and providing Taiwan's citizens with higher-quality egg products, the adoption of this new system has also paved the way for the Great Mountain Poultry Farm to expand into overseas markets.

Cast Study 6: A.S.O.'s Plan for the Development and Establishment of an e-Enabled Expert Service System for Shoe Products

A.S.O. manufactures men's and women's shoes and shoe accessories. Within Taiwan, it markets its products under three brands – A.S.O., Beso and Freno – with a total of over 200 retail outlets. A.S.O.'s Plan for the Development and Establishment of an

E-Enabled Expert Service System for Shoe Products aims to integrate shoe technology, medicine, digital technologies and remote, interactive design to create customer-oriented tailor-made shoe sales service, thereby strengthening the company's image and boosting the value of its brands. In the future, customers will be able to access A.S.O.'s services through both physical and virtual channels, enjoying professional foot measurement, participative design and customization services suited to today's "experiential economy."

What these SMEs have in common is a commitment to constant, ongoing innovation and improvement in their products, production processes and operational management, and a willingness to transform themselves when necessary. For an SME, a commitment to R&D is one of the most important factors in building competitiveness and achieving steady growth.

IV Strategies for Strengthening Innovation and R&D

Innovation and R&D need not be limited to an enterprise's products; they have a role to play in every area that affects the firm's market value. From the point of view of business operations, the purpose of R&D is to create value-added for the enterprise and help it build competitive advantage. If SMEs can make effective use of the various guidance and funding programs developed by the government in their innovation and R&D activity, not only will this help them to save on R&D costs, but it will also contribute to the building of R&D capabilities, the enhancement of competitive advantage, and the development of truly world-class technologies. Besides utilizing the government resources available to them, SMEs should also be working to adopt innovative management methods and to integrate these with the use of government resources; this will help them to strengthen their innovation and R&D capabilities and achieve twice the results at half the cost. This section presents several suggestions for the reference of SME managers.

1. Innovation Management and Innovation Strategy Management

SMEs should try to learn from those enterprises that have already achieved impressive results in their innovation and R&D activity. Active participation in relevant

associations can also be useful here. Both of these methods will help SMEs to cultivate an enthusiasm for innovation, and show them how to go about establishing the mechanisms needed for successful innovation.

In addition, SMEs should try to maintain close links with their customers, attend trade fairs and exhibitions (both in Taiwan and overseas), and engage in interaction with domestic and overseas universities and research institutes. Adopting these strategies can help firms to develop new customers, and to access the latest information regarding industry, product and technology trends, which in turn will help them to forecast future developments in the field of technology.

2. Innovation Capability

SMEs should strive to acquire an innovation capability that will enable them to apply new technologies to their existing product lines. One viable strategy is to collaborate with Taiwanese universities and research institutes; by leveraging these institutions' R&D capabilities in collaborative innovation, SMEs can exploit technology transfer to build up their own in-house R&D capabilities. Strategic alliances with upstream suppliers and downstream customers can also be used to achieve product or process innovation.

Smaller enterprises generally suffer from a low level of e-enablement, inflexible management systems, difficulty in retaining specialist expertise and other structural problems. If SMEs can step up their use of technology – exploiting the power of the Internet to expand their distribution networks and exchange information, establishing efficient warehouse management, database and dispatching systems, and making effective use of management and process innovation – then this will help SMEs to achieve significant savings in terms of time and manpower costs. In specialist technical fields, SMEs can collaborate with universities and with other companies, working together to develop cutting-edge technologies with significant market value and to strengthen their innovation capabilities. At the same time, SMEs need to acquire a more in-depth understanding of market demand, which will help them to develop higher quality, reasonably priced products to meet the market's needs, and they need to learn to protect their intellectual property rights more effectively by applying for patents, etc.

3. Practical Aspects of Innovation

The availability of sufficient funding is a vital prerequisite for successful innovation.

Investment in R&D is often a long-term process; it takes some time before companies start to see the benefit of their investment. Having access to stable, ongoing funding support is thus of key importance. Enterprises need to plan their long-term R&D funding strategy carefully, making sure that a set percentage of total funding is made available for innovation and R&D every quarter. While ensuring that innovation activity does not suffer due to a lack of funds, the adoption of this strategy will also strengthen the enterprise's overall budget management capability. SMEs generally suffer from inadequate capitalization and an insufficiently complete understanding of financial management. While making use of the various guidance mechanisms and subsidy programs provided by the government (such as the SME Credit Guarantee Fund), SMEs should also engage in careful planning to evaluate the anticipated benefits from their investment in R&D; this will help to reduce the level of risk that SMEs take on, while also encouraging more SMEs to undertake innovation and R&D.

To maximize the benefits of R&D, SMEs should seek to leverage Taiwan's existing manufacturing capabilities to ensure efficient management of contracted manufacturing. Online marketing can be used to promote innovative new products, and SMEs can also make use of the Bureau of Foreign Trade's Plan for Helping Internationally Competitive Industries to Develop Overseas Markets and TAITRA's International Market Development Project.

4. Innovation Inputs and Knowledge Management

Besides funding, the availability of sufficient R&D talent is also an important factor in innovation; in fact, it is the foundation on which successful innovation is built. SMEs should seek to establish a corporate culture and innovation systems that will attract R&D talent to their company, while also allocating resources to R&D manpower cultivation and training. By applying for an R&D Service (Alternative National Service) quota or participating in collaborative projects with universities, SMEs can build relationships with individuals who may be interested in joining the company after completing their period of service or after graduation. SMEs can organize regular training programs, organize seminars on innovation and R&D-related topics, and work to strengthen the sharing of knowledge and know-how between different departments, individual experts, members of industry and other associations, universities and research institutes. Efficient knowledge management helps to strengthen the professional capabilities of R&D personnel, thereby improving R&D performance for

the enterprise as a whole.

The government is fully aware of the important role that innovation – and the effective utilization of the results of innovation – has to play in national competitiveness and economic growth. Recognizing that SMEs, which constitute the foundation on which Taiwan's ongoing economic development rests, generally suffer from limited innovation and R&D capabilities, the government has worked actively to develop a range of guidance and incentive programs to help SMEs overcome the inherent weaknesses caused by their small size, low capitalization, limited access to information and low bargaining power. While making effective use of these government resources, SMEs should also be strengthening their own capabilities and working towards innovation breakthroughs. To keep their finger on the pulse of change in global markets and achieve major R&D results, SMEs need to strengthen their managerial capabilities, work constantly to access new sources of information, monitor changes in market demand, and gradually expand their own network of relationships.

Part Two

Special Topics on SMEs

Chapter 7

SME Industry Clusters – Cluster Innovation and Strategic Development

In 1990, leading competitiveness theorist Michael Porter analyzed industrial development in nine highly competitive nations. Porter found that industry clustering was one of the most important factors affecting a nation's competitive advantage. As a result of this finding, industry clustering became an important subject of research for economists, geographers, management theorists and sociologists. Following Porter's suggestion that clustering could help industries to become more competitive, encouraging the development of industry clusters became an increasingly important concept in regional planning. Governments sought to use industry clusters to strengthen intra-industry interaction within particular regions, seeking to ensure the efficient allocation of resources and to stimulate regional industrial development.

The industry clusters that have taken shape over time are made up, in the majority of cases, of SMEs in traditional or labor-intensive industries. These clusters have often been in existence for decades or even centuries without attracting a great deal of attention. In the 1970s, when the developed nations found themselves in recession, a number of SME industry clusters bucked the trend by continuing to achieve respectable growth rates. Researchers began to take an interest in the special characteristics of industry clusters in Northern Italy, Southern Germany, the UK and Denmark. They found that the close collaboration between the enterprises that made up these industry clusters helped SMEs to overcome the disadvantages imposed by their small size, while also enabling them to learn from one another. The existence of industry clusters helped firms to focus on their core competencies, while also benefiting from the economies of scale that clusters provide.

Faced with the challenges that have accompanied the dawning of the era of the knowledge economy, one important strategy for strengthening the competitiveness of SMEs and their products and services is to leverage the power of cluster innovation to help overcome the problems deriving from the SMEs' small scale of operations and

their limited IT capabilities, and the difficulty in achieving widespread adoption of new networking and communications technology in the SME sector, while also securing a high level of technology standardization and creating effective integration mechanisms in line with the special needs of particular regions. This chapter begins by defining the term "industry cluster" and identifying the main cluster types, before going on to examine the relationship between clustering and innovation and putting forward suggestions regarding cluster innovation and clustering strategy development, in the hope that these suggestions will help Taiwan's SMEs to find new opportunities for ongoing development.

I The Industry Cluster – Definition and Categorization

Although the concept of the industry cluster has been around a long time, it is a concept that many people still do not fully understand. Even Porter's concept of the industry cluster was somewhat vague from a geographical point of view, reflecting the immense variety of cluster types, each with its own particular characteristics and development potential (Markusen, 1996). Over the years, scholars have adopted a wide range of different definitions of the industry cluster (Table 7-1-1).

As a result of the dramatic advances that have been achieved in information and communications technology, the world has moved beyond nationalist ways of thinking, and the extent of mutual dependence between nations – in terms of production, finance, logistics and trade – is expanding all the time (Dicken, 1998). Any definition of the industry cluster that is based solely on geographical proximity is no longer adequate. One of the key factors that enables industry clusters to create synergy is the network relationship between the enterprises that make up the cluster. Johanson & Mattsson (1988) define the "network" as being the long-term relationship between a group of companies that trust one another, where a division of labor exists between the firms, and where they interact with one another through a process of communication and coordination. Besides mutual support and competition, exchange and adaptation also take place within the network.

On the basis of the above definitions, an industry cluster can be described as a phenomenon of clustering between geographically proximate enterprises, where the geographical boundary of the cluster is usually imprecise. The firms making up the

cluster include firms in different segments of the value chain (upstream and downstream), with a close network relationship that involves both competition and collaboration.

Table 7-1-1 Definitions of the Term "Industry Cluster"

Researchers	Definitions Used
Simmie and Sennett (1991)	The term "innovation cluster" is used to refer to a situation where a high-level collaborative relationship exists between companies in related industries or that are engaged in providing related services, and where these companies are all operating within the same market model framework.
Joseph & Rugman (1992)	An effective industry clustering strategy must embrace suppliers, consumers, competitors, and infrastructure providers (including research institutes, universities and government agencies).
Enright (1996)	A regional cluster is defined as an industry cluster where the firms making up the cluster are in close geographical proximity to one another.
Swann and Prevezer (1996)	A cluster is defined as the presence of firms from the same industry or the same group of enterprises within the same geographical space.
Rosenfeld (1997)	A cluster has traditionally been defined as the existence of concentration of and mutual dependence between enterprises that are in geographical proximity with one another. This concentration or mutual dependence creates synergy, but does not necessarily lead to any significant increase in the overall number of persons employed.
Porter (1998)	An industry cluster is the presence within a particular area of a group of geographically proximate enterprises and related institutions between which linkagse exist, and where the enterprises share resources in common and reinforce one another.
Feser (1998)	The element of competition between the enterprises and organizations in an economic cluster is more important than the mutual linkage and support aspect.
Swann (1998)	The term industry cluster is used to refer to the presence of a large group of linked enterprises within a specific geographical area.
Roelandt and den Hertog (1999)	The chief characteristic of a cluster is that it is formed from a network of producers and other firms dependent on them (including specialist suppliers) that are linked together via the creation of value-added.
Van den Berg, Braun and Van Winden (2001)	The most widely used definition of a cluster is that it is a network relationship that is closely linked to a particular region or area; the main underlying concept is the sharing of a localized network specialized organization. The production process is characterized by intensive linkages that operate through the exchange of goods, services and knowledge.
SAN DIEGO (2001)	A cluster exists where manufacturers and related firms collaborate within a given geographical area in order to achieve common goals, and where close linkages and a close working relationship exist. Within this competitive/collaborative relationship, firms may form strategic alliances. The relationship may be limited to a single industry, or may extend between more than one industry. Different clusters and regions may be linked together in this way.

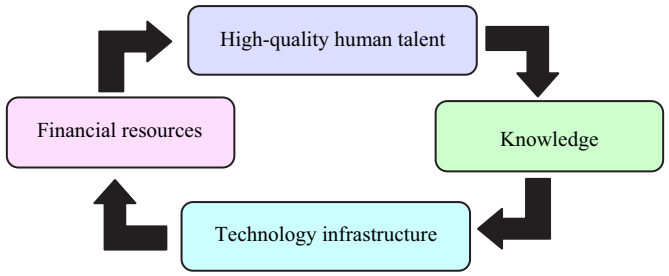
Source: Martin & Sunley (2003).

Gwynne (1993) suggested that one of the key factors behind the successful development of hi-tech industries in Japan, Taiwan, Singapore and South Korea was the establishment of science parks to create an industry clustering effect similar to that found in Silicon Valley in the U.S. These science parks provide firms with basic

resources, and with networks through which the firms can access support from, and collaboration with, universities and research institutes.

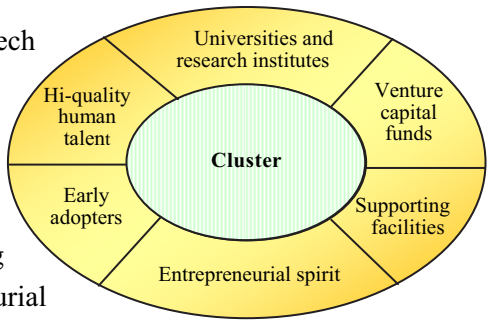
Porter (1993) put forward the "diamond model" for analyzing regional and national economic competitiveness. He suggested that the diamond model lay at the heart of the factors that drive the development of industry clusters, and that the cluster could thus be thought of as a spatial representation of the diamond model. Sabourin & Pinsonneault (1997) used Porter's industry clustering model as a basis for extrapolating the causal relationship between strategic resources and competitiveness. They proposed that the strategic resources available to the firms making up an industry cluster included high-quality human talent, technology infrastructure, knowledge, and capital, with high-quality human talent playing the initiating role, driving the formation of the highly competitive cluster. The knowledge resources served to protect knowledge assets; technology infrastructure represented the capabilities needed to develop new products and technologies; and capital drove the process of technology development and commercialization, and enabled firms to benefit from the multiplier effect (Figure 7-1-1).

Figure 7-1-1 Industry Clustering and Strategic Resources



Source: Sabourin & Pinsonneault (1997).

Figure 7-1-2 Factors Supporting the Formation of Hi-tech Industry Clusters



Source：Bahram & Evans (1995).

Barham & Evans (1995) identify six aspects of the development of the hi-tech industry cluster in Silicon Valley (Figure 7-1-2). They show how various business environment factors – including the presence of universities and research institutes, venture capital funds, supporting facilities, high-quality manpower, entrepreneurial

spirit and early adopters – help to determine whether a cluster develops successfully. Olson (1998) suggests that hi-tech industry is characterized by four core capabilities – technological capacity, the presence of universities and research institutes, transportation and communications infrastructure, and quality of life – that stimulate industry cluster formation.

Classification of industry clusters can be performed according to the type of value chain, the positioning of the individual firms or the business development environment. In a compilation of the factors that should be taken into consideration when allocating government resources or formulating government policy, the Institute for Information Industry suggested in 2007 that industry clusters could be classified according to their special characteristics, the purposes for which they were established, and the factors driving their growth. Special features included whether the cluster was a single-region or cross-regional cluster, whether it was a new or long-established cluster, and whether or not the cluster belonged to a hi-tech industry (Table 7-1-2).

Table 7-1-2 Industry Cluster Classification

Industry Cluster Type	Characteristics	Purpose	Factors Driving Cluster Growth
Type A – Compound Industry Cluster	Mature, hi-tech, single-region cluster	Achieving economies of scale and scope through the integration of multiple industries	Intra-industry linkage Cross-industry integration
Type B – Service-type Innovation Cluster	Mature, "soft technology", single-region cluster	Growing the market through local brand development	Leveraging the advantages of being local Brand-based marketing
Type C – Hi-tech Niche Cluster	Newly established, hi-tech, single-region cluster	Using standardized production process to reduce costs	Cost advantage Shared infrastructure
Type D – Innovative Local Cluster	Newly established, "soft technology", single-region cluster	Using the exchange of information to stimulate innovation	Information exchange Learning mechanisms Stimulus for innovation
Type E – Mature Networked Cluster	Mature, hi-tech, cross-regional cluster	Building a global brand	Global branding Growing the market
Type F – Value Network Cluster	Mature, "soft technology", cross-regional cluster	Building a global brand	Global branding Growing the market
Type G – Emerging Hi-tech Cluster	Emerging, hi-tech, cross-regional cluster	Careful strategic positioning; cross-regional value chain integration	Technology niche
Type H – Innovative Networked Cluster	Emerging, "soft technology", cross-regional cluster	Value-based positioning; cross-regional value chain integration	Unique innovation

Source: Institute for Information Industry, *Recommendations Regarding Policy and Guidance Tools for the Promotion of Industry Clusters in Taiwan*, 2007.

II Industry Cluster Case Studies – Geographically Concentrated Clusters

This section presents case studies of geographically concentrated, single-region industry clusters, while Section III focuses on case studies of cross-regional clusters.

1. The Kangshan Screw and Nut Industry Cluster (Compound Industry Cluster)

The term "compound industry cluster" is used to refer to mature, hi-tech, geographically concentrated (single-region) clusters. The development of this type of cluster focuses on technology innovation derived from basic research, creating platforms for the exchange of knowledge and technology that integrate universities, research institutes, companies and markets, and promoting the transfer of technology and managerial talent between universities and enterprises.

The development of the Taiwanese screw and nut industry can be traced back to the period immediately following the end of the Second World War, when a gradual increase in both domestic and overseas demand stimulated the establishment of screw and nut factories. Chun Yu was the first of these companies to be founded, and grew to become the largest. For geographical reasons, and because of factors relating to the availability of manpower and technology, the growth of the screw and nut industry in Taiwan took the form of industry cluster development. Close relationships developed between suppliers and customers in the mid-stream and downstream segments of the industry. In geographical terms, the industry was mainly concentrated in Southern and Northern Taiwan, particularly Southern Taiwan. Within Southern Taiwan, the largest concentration of screw and nut factories was found in the Kangshan and Luchu districts, which became the main centers for screw and nut production in Taiwan, and one of the most important production centers in the world. Taiwan came to be known as the "Screw Kingdom," and the Kangshan District became known as Taiwan's "Screw Warehouse."

The Kangshan screw and nut industry had its origins in the Chun Yu Works, established in 1949. Originally, Chun Yu was mainly oriented towards the Taiwanese domestic market, although export sales picked up during the Vietnam War. Difficulty in securing access to raw materials and production machinery made it difficult for the company to boost production capacity. To reduce their dependence on foreign suppliers

and improve their competitiveness, Chun Yu and its fellow Taiwanese screw makers began to purchase production equipment from Germany; after a long learning process, these companies were eventually able to manufacture their own production equipment. In screw and nut production, raw materials account for around 60% of total production cost. Following the establishment of China Steel in 1971, the Kangshan screw and nut makers enjoyed access to a steady supply of high quality steel wire, freeing them from dependence on foreign materials suppliers, and enabling the industry as a whole to build competitive advantage. As low-end screw and nut production technology matured and the entry barriers were lowered, while at the same time demand for screws and nuts was growing, many former employees of Chun Yu, Sanhsing and Lu Chu Shin Yee established their own screw and nut factories, creating a large number of new small and medium-sized screw and nut factories.

To save on transportation costs and benefit from economies of scale, most of these small and medium-sized screw and nut makers were located in or near Kangshan. As the screw and nut industry grew, peripheral industries such as the manufacturing of screw and nut forming machinery, die makers, heat-treatment providers and electroplating firms also began to develop in the Kangshan area. This trend accelerated the growth of the screw and nut industry, and helped to create a comprehensive industry cluster.

As regards support from the government, the Ministry of Economic Affairs helped the screw and nut industry to establish trademark and inspection and testing systems, and invited leading academics to assist in the development of high-quality, high-tensile screws. By improving the quality of the industry's products, the Ministry hoped to boost the screw manufacturers' export sales capability. At the same time, the assistance of the Bureau of Foreign Trade was sought in easing the difficulties created by the high tariffs that the European Union imposed on imports of screw and nut products into Europe. The government also intervened to persuade China Steel to reduce the price it charged for steel materials, thereby helping to give the screw and nut industry the potential for further growth.

The growth of the Kangshan screw and nut industry cluster was largely attributable to the successful development of production machinery and dies in the early stages of the industry's emergence, the focus on niche products during the growth stage, effective collaboration between upstream and downstream manufacturers, and extensive horizontal integration. Most of the companies that made up the industry network had

been born within that network. Companies within the industry cluster found it relatively easy to access the information, technology and capital they needed; the existence of the cluster also made for improved managerial performance, and facilitated the improvement of new product development and production processes, etc. Currently, the main export markets for Taiwan's screw and nut industry include the U.S., Germany, Japan, Canada, the U.K., Australia, and Hong Kong. The U.S. is still the largest single export market, taking around half of all Taiwan's screw and nut exports. Although the Taiwanese screw and nut industry is now faced with intense price competition from emerging economies such as China and the countries of Southeast Asia, Taiwan is still one of the world's leading screw and nut producer nations.

2. The Yingko Ceramics Industry (Service-type Innovation Cluster)

A service-type innovation cluster is a geographically concentrated (within a single region), mature cluster the development of which is driven by "soft" technology. "Soft technology" refers to knowledge or service innovation; competitiveness derives mainly from innovation, knowledge, culture, etc. Rather than merely satisfying consumers' physical needs, companies in industries of this type aim to create desires and thus create consumer demand.

The ceramic manufacturing district of Yingko Township is located around Wenhua Road and Chienshanpu Road. This is where the township's ceramics industry was born; in the past, these streets were lined with potteries. Ceramics have been made in Yingko for around 200 years, with the original production techniques having been brought to Taiwan by Chinese master potters. Today, Yingko's "Historic Ceramics Street" extends for 750 m, of which 330 have been pedestrianized. Of the more than 100 shops along the street, around 85 are engaged in selling ceramics (both wholesaling and retailing, and production to order). These stores rely heavily on image-based marketing. They offer high quality at fixed, low prices, as well as sale by auction. The adoption of new business concepts has enabled this area to flourish, and has provided stimulus for innovation and the exchange of ideas by master ceramists. Yingko has become a popular destination for both domestic and overseas tourists.

Yinkgo's rapid development after the Second World War into Taiwan's main center of ceramics production was partly due to the area's inherent advantages in terms of the availability of resources, but also to the town's proximity to Taipei, Taiwan's capital city; this proximity gave Yingko ready access to human talent, new technologies

and ideas, and Taipei's flourishing art market.

By 1967, 50–60% of all ceramics products sold in Taiwan were made in Yingko, which had become known as the "Ceramics Kingdom." Yingko was home to a very large number of individual manufacturers, including both large-scale operations and small workshops. These enterprises produced a wide variety of different products, including ceramic construction materials, toys, *objets d'art*, bathroom and kitchen fittings, etc. Yingko was not only the largest ceramics production center in Taiwan, but one of the largest in the world; the entire town served as a kind of permanent "ceramics exhibition."

In the late 1940s and 1950s, Yingko's ceramics industry adopted advanced Japanese kiln technology, and began using new types of glazes and clays. Responding to the intensification of market competition, in 1971 Yingko's potteries began to use tunnel kilns, which increased productivity and made it possible to achieve even higher quality standards. The adoption of this new technology marked the beginning of a new stage in the history of the Yingko ceramics industry cluster.

The 1990s saw a new wave of technology upgrading. For example, HCG and Prince Ceramics both purchased turnkey production lines from Italy that enabled them to begin production of homogeneous ceramic tiles. During Taiwan's construction boom, the manufacturing of ceramic tiles and bathroom and kitchen fittings became an important business area for Yingko's ceramics industry; Yingko soon became the world's fourth largest producer of ceramic tiles and fittings.

By 2000, Taiwan's ceramics industry was faced with growing competition from China. Ceramics makers were relocating production overseas; at the same time, the construction industry was experiencing an unprecedented slump. However, Yingko's ceramics manufacturers continued to develop innovative new products and highly collectable works of art, along with new hi-tech ceramic materials. At the same time, the Yinkgo ceramics industry cluster began to transform itself into a tourist-oriented "traditional local industry." This transformation was a joint effort by government agencies, business enterprises, cultural foundations and local residents. Yingko began to host the "Yingko Ceramics Carnival," turning what had been a purely commercial trade fair into an event that combined commercial, cultural, artistic and tourism aspects. Events of this kind provided stimulus for the continued development of the local ceramics industry. The opening of the Yingko Ceramics Museum and the establishment

of a Ceramics Division at Yingko Senior Vocational High School helped to ensure the continued transmission of ceramics knowledge and skills. All of this has helped to maintain the high standards that have traditionally characterized Yingko's ceramics industry.

3. The Nankang Software Park (Hi-tech Niche Cluster)

A hi-tech niche cluster is an emerging, geographically concentrated (single-region) cluster the growth of which is driven by high technology. The clustering of firms in the same area results from their ability to complement each other's resources and areas of expertise; external agencies may also play an important role in the formation of the cluster. The main drivers of growth for a cluster of this type are technology and innovation; such clusters are generally characterized by a high level of risk and uncertainty.

The Nankang Software Park's Biotechnology Building opened in October 2003. Since then, a large number of enterprises have established themselves in this facility. The growth of a biotech industry cluster in the Nankang district of Taipei City has also benefited from the establishment of the Nankang Biotechnology Incubator Center. There are currently around 36 biotech firms in the Nankang district, plus another 16 start-ups in the Nankang Biotechnology Incubator Center. Nankang has a higher concentration of biotechnology firms than any other area in Taiwan.

The Nankang Software Park is also in close proximity to many biotechnology research facilities, and an abundant supply of high-quality manpower. The firms located in the Park also benefit from ready access to funding, and from superior infrastructure. The presence nearby of so many leading universities and research facilities has been a particularly important factor behind the emergence of the Nankang Software Park as Taiwan's main biotech industry cluster.

The Nankang Software Park has all the elements necessary for the development of a comprehensive innovation system, including support from government agencies, and the presence of the necessary research institutes and enterprises. The availability of this support has provided a solid foundation for the development of the biotech cluster within the Park. At the same time, the bringing together in the Park of such a high concentration of human talent has facilitated the diffusion of knowledge and ideas, the formation and cementing of collaborative partnerships, and ready access to funding. The cluster effect has helped to reduce operating costs and strengthen R&D capabilities,

enabling biotech firms to transform knowledge into products with significant commercial value.

4. Huashan Arts District (Innovative Local Cluster)

An innovative local cluster is an emerging, geographically concentrated (single-region) cluster the development of which is driven by "soft technology." What distinguishes an innovative local cluster from a service-type innovation cluster is that the cluster is still relatively small, and that the benefits from resource sharing have yet to make themselves felt.

Huashan Arts District was established by the Council for Cultural Affairs as a multi-function "cultural and creative zone" that would provide focus, diffusion, a model for other areas to follow, and a comprehensive range of cultural facilities and services. The District was created on the former site of the Taipei Wine Factory, which had been returned to the government by the state-owned Taiwan Tobacco and Wine Corporation; it was intended that the Huashan Arts District would help to drive the development of the cultural and creative industries, and to provide a venue for artistic and cultural events and a platform for inter-disciplinary exchange. The Huashan Arts District was positioned around the themes of "cool" (fashionable, cutting-edge, experimental) and "fun" (play, enjoyment and entertainment); the District was to provide a space for inter-disciplinary innovation and creativity, and for promoting interaction between industry and the arts. While serving as a platform for the building of heterogeneous, cross-industry alliances, the District would also function as an incubator center for cultivating cultural and creative industry talent.

The Taipei Wine Factory site was located in the center of Taipei City. While some of the historic buildings on the site have been preserved, part of the site was transferred to the Association for Improving the Environment for Culture and the Arts to operate the Huashan Arts District. The District is divided into five zones: exhibition zone, functional zone, consumption zone, administration and support zone, and Open Space. The purpose of the exhibition zone is to promote inter-disciplinary collaboration and the cultivation of human talent, to help bring Taiwan onto the international stage. The periodic rotation of exhibition planners ensures that a range of different themes are presented; the results achieved in the creative activity taking place within the Huashan Arts District are taken on touring exhibitions that visit every part of Taiwan, and also overseas. The functional zone provides artists with a forum for exchange, while also

providing exhibition planning support and information and consulting services; in addition, this zone is intended to further the development of peripheral industries (such as exhibition planning, stage design, lighting design, collection and documentary recording, agency operation, etc.). The consumption zone uses the process of consumption and the provision of artistic and cultural information to provide a window for showcasing the achievements of Taiwan's cultural and creative industries. The administration and support zone is the central administrative hub of the Huashan Arts District, and is responsible for venue allocation and management, the provision of administrative assistance and support, and marketing system establishment. The Open Space zone provides a venue for inter-disciplinary exchange; this space can be used flexibly for open-air exhibitions, art fairs, or simply as an entrance plaza.

In the past, Taiwan has focused on the development of manufacturing industry and the hi-tech sector. The inclusion of the cultural and creative industries in the Challenge 2008 National Development Plan marked the start of a new effort to leverage the cultural and creative industries in the integration of local knowledge and culture. The establishment of the Huashan Arts District provided a focus for this activity and for the formation, growth and sustainable development of a cultural and creative industry cluster. It was also intended that the Huashan Arts District would provide ordinary members of the public with an environment in which they could steep themselves in an atmosphere of aesthetic endeavor and experience high-quality culture.

Through the clustering process, the Huashan Arts District has helped to integrate the elements of design and branding into the cultural and creative industries, building a model for the future commercialization of cultural and creative industry product and for the upgrading of the industry as a whole. Most of the enterprises located in the District are small-scale operations that lack resources; the provision of government support and the linking together of enterprises through the networking effect has become an important driver of growth for these firms and for the District.

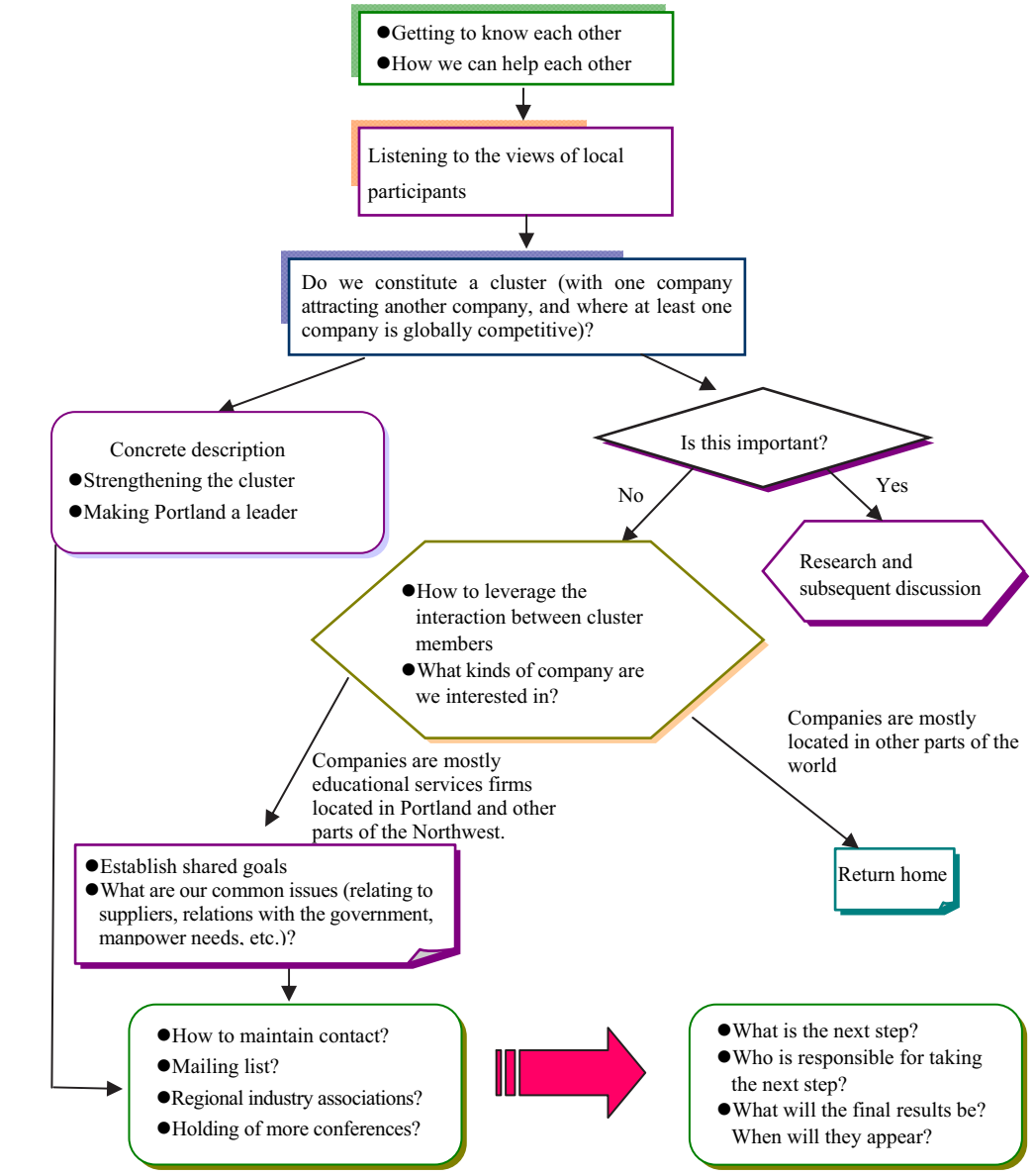
III Industry Cluster Case Studies – Cross-regional Clusters

This section presents case studies of cross-regional industry clusters, with examples of mature network clusters, value network clusters, emerging hi-tech clusters and innovative networked clusters.

1. Northwest Education (Mature Network Cluster)

A mature network cluster is a mature, cross-regional cluster the growth of which is driven by high technology. In most cases, clusters of this type employ e-enabled methods to link together the organizations that make up the cluster; this linkage through the exchange of knowledge is one of the chief characteristics of this kind of cluster.

Figure 7-3-1 Northwest Education Vision Conference – Flow



Source: /www.portlandedcluster.com/

The Northwest Education Cluster (NEC) aims to provide member companies with education and training information. It also plays an indirect business matching role; member companies are able to use the NEC network to showcase their products and services to potential customers. When the cluster was first established in August 2003, the operational flow shown in Figure 7-3-1 was used to structure the formation of the cluster. As can be seen from the flow chart, the building of consensus and shared vision, goals and strategies requires a clear understanding of the needs of the individual member companies and of the types of assistance that they require; only then will it be possible for the cluster to grow and develop.

NEC was the brainchild of Dr. Fred Philips. The idea was to leverage the Internet to link together companies within the same area (Portland, Oregon); the exchange and communications between these companies would then help the firms within the cluster to access the best possible customers and suppliers, overcoming the restrictions imposed by geography and acquiring knowledge, employees and strategic partners.

When first established, NEC had 25 member companies. A dozen or so CEOs of local companies met on the campus of a local university to discuss issues relating to every aspect of education from pre-school education through to adult education. By 2008, membership had increased to 260, with 40 plus educational sector enterprises participating. Benefiting from the support provided by the Oregon Business Council and from the passage into law of the No Child Left Behind Act (2001), the companies within the Northwest region education cluster have experienced steady revenue growth.

NEC relies on the linkages provided by the Internet to enable member companies to learn from one another and share experiences, while working to build synergy (for example, through shared training programs and other opportunities for collaboration). The participating companies include e-learning providers, content providers, testing and appraisal services firms, learning management system providers, and various other types of enterprise. By leveraging e-enablement, NEC has helped to strengthen the various different functions that make up the industry value chain, while making use of strategic alliances to build joint cluster brands and grow market share. NEC is an example of an organization established by non-governmental actors to promote the development of the educational system. The interconnection provided by the Internet allows knowledge transfer and education and training to take place within the cluster innovation system with maximum effectiveness.

2. Canadian Photonics Consortium (Value Network Cluster)

A value network cluster is a mature, cross-regional cluster, the development of which is driven by "soft technology." A cluster of this type, relying on soft technology, depends on intensive interpersonal exchange and interaction to promote innovation and cultural development; this is not something that technology can substitute for effectively. Clusters of this type are relatively rare.

Canadian Photonics Consortium (CPC) is a national trade organization that links together the different companies in the Canadian photonics (optoelectronics) industry. CPC's vision is to promote the development of the Canadian photonics industry, with the aim of making Canada one of the world's leading centers of photonics production. Currently, CPC has over 300 member companies from various different segments of the photonics industry, including communications, healthcare and life sciences, defense and security, environmental protection, manufacturing, energy and lighting. Horizontal interaction helps to ensure that the interests of CPC's members are met. CPC has established platforms for collaboration between industry, government and the university sector. Besides large enterprises and SMEs, this platform also integrates research institutes and foundations, and government agencies. CPC's individual members include engineers, scientists, management consultants, tax lawyers and other professionals with an interest in the photonics industry.

CPC is a nationwide cluster covering a large geographical area. The cluster is organized into five regions: British Columbia, Ontario, Ottawa, Montreal, and Quebec City. CPC also embraces several individual industry clusters/associations, including the British Columbia Photonics Industry Association (BCPIA), Ontario Photonics Technologies Industry Cluster (OPTIC), Ottawa Photonics Cluster (OPC), and Quebec Photonic Network.

CPC was established in February 2000 to serve as a cross-regional body that would help to integrate the various different photonics industry clusters that existed in Canada. CPC's members include both individuals and organizations from a variety of sectors, including government agencies, business enterprises, academic and research institutes, and professionals associations, etc. The membership includes 17 photonics research and application-related organizations, which undertake R&D, basic research and enhance the network effect to stimulate technology and service innovation. The aim is to help Canadian photonics companies and organizations to work together and

undertake collaborative knowledge management, thereby strengthening the capabilities and global competitiveness of the photonics industry as a whole, developing the photonics technology that will be in use 10 years from now. CPC supports collaborative technology development, and seeks to influence government policy, thereby helping Canada to maintain its status as a world leader in photonics.

3. The Santimen Indigenous Peoples Cultural Affairs Network (Emerging Hi-tech Cluster)

An emerging hi-tech cluster is a newly-established cross-regional cluster the growth of which is driven by high technology. It is characterized by cross-industry linkages with respect to key resources (such as human capital and financial capital), key processes (such as innovation, product development and supply chain management) and key capabilities (such as key technologies and innovation speed); it constitutes a commercial network based purely on transactions.

Santimen Rural Township is located in the north of Pingtung County; it is the largest of the eight Pingtung rural townships that have a significant indigenous (aboriginal) population. The mountainous terrain offers a wealth of beautiful scenery, and has made Santimen a tourist hotspot. Santimen Rural Township comprises 10 individual villages; members of the Paiwan Tribe make up around 90% of the population, with the remainder being Rukai. In the past, farming and hunting were the mainstays of the local economy. The traditional social structure and traditional culture have been preserved to a remarkable extent, as have traditional arts such as pottery making, lapis carving, woodcarving and leatherwork. These traditional arts and crafts are one of the main features that attract tourists to Santimen.

The Santimen Indigenous Peoples Cultural Affairs Network is an online platform established by local business owners and artists with guidance from the Program to Reduce the Digital Divide in Industry formulated by the Small and Medium Enterprise Administration of the Ministry of Economic Affairs. The Network's goal is to support the creation and provision of aspects of indigenous culture, including local specialties and handicrafts. Through the promotion of indigenous culture and the presentation of this culture to as wide an audience as possible, the Network aims to establish itself as a model of successful cluster development.

The Santimen Indigenous Peoples Cultural Affairs Network links together 10 local arts and crafts workshops, helping to bring Paiwan and Rukai art online. The Network's

website offers visitors suggested itineraries for visits to the Santimen area, and the Network's organizers have joined forces with local businesses to create a Santimen Indigenous Culture e-Paper, enabling Internet users to share the special features of local culture (in the hope that this will encourage them to come and visit the area, thereby boosting awareness of Santimen and leading to increased consumption). Works created by local indigenous artists can also be purchased online through the Network's website.

The establishment of the Santimen Indigenous Peoples Cultural Affairs Network was completed in 2007. In the future, the Network hopes to increase the number of business enterprises participating in the cluster and its activities, expand the content of the Network's website, and help local industries to develop new business opportunities. The Network also plans to establish an English-language portal site, and to help member companies set up their own English-language websites, so that Internet users in other countries will also be able to experience the beauty of Santimen's traditional arts, thereby creating opportunities for international marketing.

The Santimen Indigenous Peoples Cultural Affairs Network leverages high technology to help local business enterprises reduce costs and boost productivity. The introduction of an e-business model has made it possible for local firms to achieve significant improvements in terms of both technology and resources, creating transaction-oriented linkages between enterprises while at the same time enhancing the draw of the Network's website to achieve maximum benefit from cluster operation.

Thanks to the coordination provided by the government, the Santimen Indigenous Peoples Cultural Affairs Network has been able to facilitate the successful commercialization of the Santimen district's unique cultural and creative products, and to promote tourism in the area. The creation of the Network has expanded the range of marketing channels available to local businesses, while helping to develop a common brand for every aspect of local culture (including food, traditional clothing, tourist accommodation, etc.). Effective knowledge transfer, close collaboration between business enterprises and the support provided by the government have been key factors in the successful development of this industry cluster.

4. Taipei Artist Village (Innovative Networked Cluster)

An innovative networked cluster is a newly-established cross-regional cluster the growth of which is driven by "soft technology." With the impetus provided by soft technology, innovation, cultural and artistic exchange and the movement of individual

artists build a creative atmosphere that can overcome spatial limitations.

Since its establishment, Taipei Artist Village has been working actively to develop artistic exchange with cities in other parts of the world. Through the implementation of a systematic artist selection mechanism, the Village has succeeded in integrating artistic and cultural objectives. As of May 2008, a total of 213 artists from 36 different countries had undertaken creative activity at the Village as artists-in-residence, while 76 Taiwanese artists had been sent to act as artists-in-residence in 21 foreign countries. Taipei Artist Village is the largest artist village in Taiwan, and is the only institution of its kind in Taipei able to provide funding support for international exchange activities; this makes the Village one of Taiwan's most important artistic and cultural exchange platforms.

Taipei Artist Village provides a completely open, stimulating environment for artistic, musical, literary and performance activity, and seeks to promote artistic and cultural exchange activity between Taiwan and other countries. More than 30 national governments and overseas organizations have collaborated with the Village on artistic exchange programs; a particularly strong network has been built up within the Asia region. Besides providing ordinary citizens with opportunities for interaction with artists in different fields, the Village also organizes a wide range of promotional activities, including the arranging of artists-in-residence for schools and colleges, arranging open days on which the public can visit artists' workshops, organizing art classes, and holding exchange activities for exhibition planners, etc. Taipei Art Village has grown into one of the most important artistic and cultural centers in Asia.

Located in Taipei's bustling city center, Taipei Artist Village was originally designed as a project for redeveloping a derelict area. The planners studied the experience of leading international cities such as New York, Paris and London in artist village development, while making sure that the new Village would reflect the unique characteristics of Taipei. As Taiwan's first international artist village, the Village was endowed with an important new mission. Today, it has become an important, influential center for the diffusion of artistic experience; in the future, the Village will continue to expand the range of artistic activities that it undertakes and organizes.

Taipei Artist Village selects artists through three different channels: the International Artist Village Exchange Program, the International Artist-in-Residence Program, and the Domestic Artist Support Program. Through interaction and

collaboration with other organizations and the artistic and cultural community in Taipei, the Village works to overcome cultural boundaries, promoting free and open dialog, and giving Taiwanese artists and artists from other parts of the world the opportunity to exchange ideas and learn from each other, thereby helping to create “borderless” artistic exchange.

The successful development of Taipei Artist Village has been helped by aggressive promotion on the part of the government. The movement of both domestic and international artists into this artistic community helps to integrate different artistic traditions, strengthening value creation in the arts through the concept of the value chain, and creating a fountain of artistic knowledge creation. The exchange of ideas between artists is further diffused through the networking effect, which in turn helps to strengthen the atmosphere of innovation.

IV SME Industry Cluster Development in Taiwan

There is widespread agreement among scholars that the formation of industry clusters is the most effective means of fostering innovation. The diffusion of knowledge is a particularly important factor; governments need to establish a set of organizations and systems that can speed up the development and diffusion of knowledge, while promoting healthy interaction between industry, research institutes and universities.

An examination of the measures adopted by the Japanese and Korean governments shows that both Japan and Korea have focused on promoting linkage between the members of individual regional innovation systems to transform the innovation system into a comprehensive, complete, operational unit. This in turn can speed up the knowledge diffusion effect, providing support for innovation and helping to boost value-added creation.

Japan’s industry cluster development planning has been based on the assignment of clear roles to industry, government, and the university sector, and the allocation of the necessary resources so that industry cluster systems can take shape outside the direct control of government. At the same time, collaboration and mutual support between regional clusters helps to ensure efficient utilization of technology, human talent and other resources. Finally, the links between large enterprises and SMEs need to be strengthened, while also working to encourage the establishment of new start-ups and the spinning off of new firms from existing enterprises; in this way, a “virtuous

circle" of business creation can be set in motion.

The key factor in South Korea's industry cluster development strategy has been the successful creation of open networks linking industry, government, universities and research institutes, and the establishment of "micro-clusters" integrating these different sectors to strengthen the innovation function, in line with the special characteristics of particular industries and different technologies. However, Korea has tended to focus on growing those clusters that were already reasonably strong; as a result, a pronounced gap has developed between these successful clusters and other, weaker industry clusters.

Taiwan's industry clusters consist largely of SMEs; Taiwan is very similar to Japan and South Korea in this respect. While some of these clusters continue to enjoy competitive advantage, in many cases the impact of intense price competition emanating from the emerging economies has forced manufacturers to relocate production overseas or reduce their scale of operations, and profit margins have tended to fall.

Recognizing the benefits that cluster development has been shown to bring in terms of raising SME competitiveness in other countries, in 2008 the Small and Medium Enterprise Administration of the Ministry of Economic Affairs began to implement the Plan for the Provision of Integrated Services to Support SME Industry Cluster Innovation to stimulate the development of clusters in key industries, promote industry cluster innovation integration, and build up an industry cluster service network. The Administration anticipates that the adoption of cutting-edge business models can help to drive the growth of industry clusters, creating model clusters from which other, nascent clusters can learn. The combination of horizontal and vertical integration will make it possible to achieve differentiation in every area from design and R&D through to marketing and after-sales service, helping SMEs to develop new market opportunities. The goals are to build 110 innovative SME clusters within four years, raise the combined annual sales revenue of Taiwan's knowledge-intensive services industry, the SOHO (Small Office, Home Office) sector, innovative SMEs and information services providers to NT$25 billion, boost R&D funding by NT$1.1 billion, help 1,800 SMEs to transform themselves into knowledge-intensive service providers, cultivate 18 model enterprises and 40 examples of successful resource integration, and boost investment by NT$1.2 billion.

However, other countries' experiences in this area suggest that, besides the three key factors of human capital, innovative technology and partnership networks, the development of successful industry clusters also requires facilitators who can direct the allocation of shared resources and the creation of incentives. From the point of view of the SME, leveraging the power of clustering to reach one of the end points on the "smile curve" (either a focus on R&D and design, or a focus on marketing and services) necessitates a strengthening of R&D design capabilities and effective vertical integration, but also a strengthening of those aspects of horizontal integration in which the industry in question is weak, to support the active development of new business opportunities. The range of different industry cluster types in Taiwan is extremely broad; although they share some things in common, the individual clusters have all evolved in different circumstances and along different lines. It is simply not possible to apply a "one size fits all" strategy to every industry cluster in Taiwan. The government should be focusing on building an environment conducive to the growth of industry clusters and innovation systems, supporting cluster development by playing the role of resource provider and impartial coordinator. Individual clusters will need to align their development strategy with the development vision adopted for local industry in that region, in line with their own strengths and the external factors operating upon their industry.

The following section presents a number of SME cluster development strategy recommendations that are applicable to all types of cluster, which it is hoped may serve as a useful reference in future policy formulation.

1. Classification and Positioning of Industry Cluster Categories

There are a wide variety of different types of industry cluster, with each category requiring different types of support and resources. If the government is to provide meaningful assistance for industry cluster development, the first step must be to acquire a clear understanding of what drives cluster formation, as well as of the key factors behind successful cluster development. Only then will the government have a clear idea of just what kind of help industry clusters need. Is innovation the main driver of growth for different types of cluster (such as emerging, mature or declining clusters)? Do clusters need support in the form of hi-tech resources? To be able to formulate appropriate strategies for cluster development, government agencies need to have a comprehensive understanding of the different types of cluster and of their respective

strengths and weaknesses. The government can then play a supporting role, providing guidance and initiating development plans, projects and activities, working to stimulate innovation and thereby promote cluster development.

2. Building Consensus and Promoting the Development of Cluster Networks

Intensive communication and dialog with the companies that make up industry clusters is a vital step in any government effort to promote cluster development. It is vitally important for the government and the companies in a cluster to possess a shared vision and to be working towards the same goals; only then can they hope to overcome the many obstacles that will inevitably be encountered in the process of cluster development and move forwards towards making the vision a reality. The government should also seek to encourage both formal and informal information exchanges with other clusters, both in Taiwan and overseas, for example through conferences, seminars and cross-industry alliances. This promotion of physical and virtual communication and linkages can contribute to the diffusion and transmission of knowledge.

3. Creation of a Comprehensive Operating Environment

One of the key factors behind the development of SMEs clusters is the desire of SMEs to overcome their own limited resources by building economies of scale through clustering. The government should work proactively to provide the resources that SME clusters need, including energy, transportation links, funding and the various other production factors that individual SMEs have traditionally lacked. The government also needs to focus on the development of a business environment conducive to innovation. Building up infrastructure (including transportation routes, academic institutions, research centers and other public facilities), ensuring ready access to information and improving the legal and regulatory framework are all important factors that can help to drive the diffusion of knowledge. This infrastructure needs to be in place if industry clusters are to serve as effective hotbeds of innovation.

Incentive measures should be put in place to ensure that research institutions undertake effective knowledge transfer, and to make sure that the non-government sector's extensive R&D capabilities are fully exploited. Research institutes can provide technology to the enterprises that need it, in return for either equity or royalty payments. By promoting this activity, the government can create a win-win situation,

strengthening the operation of the knowledge transfer function while at the same time giving SMEs ready access to technology. The firms making up a cluster will then be able to share resources, reduce operating risk, and enjoy the full benefits of clustering; this is of great importance to SMEs, which, individually, often find it hard to obtain the technology they need.

4. Cultivating the Development of Networks That Link Industry with Universities and Research Institutes

One of the main functions of universities is to undertake basic research; as such, they are engaged in knowledge creation and technology innovation. Vocational schools and technical colleges have as their main function the practical application of knowledge. Collaboration between industry and the university sector represent a concrete expression of the commercialization of innovation activity. Whether universities develop technology alone and then transfer it to industry, or whether the technology is developed through collaboration between universities and local firms, partnerships of this type help to strengthen the links between business enterprises and academic institutions. Besides the university sector, research institutes also have an important role to play in technology transfer. The technology that they develop tends to be highly market oriented; as such, they have the potential to make a major contribution to technology diffusion. From the point of view of SMEs, research institutes are an important source of technology. Besides helping to compensate for those areas where universities (with their focus on basic research) are weak, research institutes can support technology upgrading, helping to ensure the smooth adoption of new technologies in the market.

Human talent is, without question, one of the most important elements in the innovation system. The innovation resources within the innovation system are derive from the technology innovation activity undertaken by high-end manpower. Both the in-service training provided by individual enterprises and the R&D capabilities of academic institutions and research institutes help to drive innovation for the innovation system as a whole. By strengthening the quality of human resources and arranging training to suit the special needs of the innovation system, the goal of emerging innovation activity can be achieved. In-house training should focus on areas of specialist expertise, and should be designed so as to help the enterprise retain outstanding employees. In this way, firms will be able to steadily build up their

innovation capabilities.

5. Respecting the Market Mechanism and Devolving Decision-making Power to the Local Level

The importance of regional innovation systems is gradually coming to surpass that of the national innovation system. Local industry clusters specializing in a particular field are often able to establish an important place for themselves in the global market; the successful fostering of local industry clusters is thus a key factor in the larger process of industry cluster development. However, the government must refrain from micromanaging the process of cluster development. Business enterprises have a better understanding of market conditions and business opportunities than the government can hope to acquire; too much interference by the government can in fact become an obstacle to the cluster's operation. Innovation systems can not be "cloned"; they must be developed individually in line with local conditions. Local government authorities have an important role to play here. However, given the financial difficulties that many of Taiwan's county and city governments are experiencing at the moment, the central government will need to allocate more resources to ensure the successful development of local industry clusters and traditional industry clusters.

6. Establishment of Performance Appraisal Mechanisms

While the government should not be trying to exercise direct, close control over the process of industry cluster development, it still has an important supervisory role to play, to ensure that industry clusters do not fail because of a lack of focus. Besides providing infrastructure and resources, the implementation of performance appraisal by the government is also a key aspect of industry cluster development. Effective performance appraisal can ensure that resources are allocated as efficiently as possible, thereby maximizing the benefits that clustering provides.

Chapter 8

The Impact of Recent Labor Law Revisions on Taiwan's SMEs

Besides their immediate impact on the contractual relationship between employer and employee, changes in the labor laws also affect the decision-making process for both employer and employee over the long term.

2007 saw several changes in labor laws and regulations in Taiwan, including: (1) Compulsory Labor Insurance coverage was extended to include enterprises with 4 or fewer employees. (2) All companies are now required to provide unpaid parental leave, paternity leave has been increased from 2 to 3 days, and the requirement to provide home care leave for employees has been extended to include all enterprises with 5 or more employees. (3) The maximum period that foreign laborers can spend working in Taiwan has been increased from 6 to 9 years. This chapter will examine the impact of recent labor legislation changes on Taiwan's SMEs, by focusing on these major changes.

A telephone survey of SMEs was conducted in April 2008, taking the companies listed in the Taiwan Business Directory database as the population for the survey. This gave an effective sample of 601 enterprises, for a success rate of 15.8%. The following sections examine each of the key changes in the labor laws and the survey results. Section V presents the conclusions and recommendations.

I The Impact on SMEs of the Increase in the Minimum Wage

1. The Revisions to the Law – Key Aspects

In July 2007, the Taiwanese government raised the minimum wage from NT$15,840 to NT$17,280 per month (an increase of 9.09%), and from NT$66 to NT$95 per hour (an increase of 43.94%) for those employees paid by the hour. The increase in the hourly minimum wage was thus especially pronounced. Besides base salary, this adjustment also took into consideration payment for work on weekends and the 6-hour reduction in

the working week. The aim was to ensure that employees receive equal pay for equal work, regardless of whether they are paid monthly or hourly.

2. The Impact on Business Enterprises

In November 2007, the Council of Labor Affairs conducted a survey of hourly-paid workers with Labor Insurance coverage. The results showed that 7.2% of hourly-paid workers were still being paid less than NT$95 an hour; of those hourly-paid employees whose pay rate had been increased to NT$95 an hour, 13% reported that their employer had laid off some hourly-paid employees (5.9% reported an increase in the number of hourly-paid employees, and the remaining four-fifths reported no change). These reports suggest that the increase in the minimum wage has in fact had a significant impact on business enterprises.

3. The Ancillary Measures Introduced by the Council of Labor Affairs to Accompany the Rise in the Minimum Wage

To mitigate the negative impact of the increase in the minimum wage and help business enterprises to adjust, the Council of Labor Affairs introduced five major ancillary measures:

(1) In the case of certain specific industries (including the fast food, restaurant, hotel, beverage retailing, mass merchandiser, department store, convenience store and petrol station businesses, as well as other industries designated by the regulatory authorities at the central government level), SMEs with less than 50 employees who were employing hourly-paid workers would be eligible for a NT$10 per hour subsidy for each such worker working less than 32 hours a week. (This scheme is being implemented on a trial basis for a period of one year.)

(2) Enterprises (regardless of size) that employ individuals belonging to specified disadvantaged groups (such as women returning to the workforce after a period as homemakers, the mentally or physically disabled, and the middle-aged unemployed) would be entitled to receive a monthly subsidy of NT$5,000 per employee, or NT$10 per hour in the case of hourly-paid workers. This subsidy will be paid for a maximum of one year.

(3) Recognizing that the increase in the minimum wage may lead to some employees being laid off, the Council of Labor Affairs has introduced a new “three-in-one” service that integrates job-finding assistance, vocational training and unemployment

benefit, to help members of disadvantaged groups find new jobs.

(4) The amount that employers can deduct from a foreign laborer's salary for food and accommodation has been raised from NT$4,000 to NT$5,000, with the exact amount to be agreed upon between the employer and employees.

(5) The subsidy for enterprise vocational training has been raised to 80%.

In all, hourly wage subsidies (first application) have been awarded for 897 employees in 184 enterprises. In 2007, there were 701 applications by employers for subsidies to support the hiring of unemployed individuals, of which 594 were approved; this figure represented a significant increase compared to 2006. Even so, when compared to the large number of enterprises and the number of workers in Taiwan, the impact of these subsidies is limited; it would appear that the ancillary measures have a mostly symbolic significance.

4. Analysis of the Questionnaire Survey Results

A rise in the minimum wage does not directly affect all SMEs; whether an individual SME is affected depends on whether current salaries are lower than the new minimum wage. If an enterprise is already paying all of its employees more than the minimum monthly wage of NT$17,280 or the minimum hourly pay rate of NT$95 per hour, then that enterprise will not be directly affected by the adjustment of the minimum wage. However, it may still be affected indirectly; for example, average pay rates in the economy as a whole may be driven up by the rise in the minimum wage.

On the basis of the pay that employees were receiving prior to the increase in the minimum wage that came into effect at the end of June 2007, the SMEs included in the sample were divided into two groups: (1) Those enterprises that would need to adjust their pay rates to conform to the new minimum wage, i.e., those enterprises where some employees were being paid less than NT$17,280 a month or NT$95 an hour prior to the end of June 2007, and which would thus be directly affected by the adjustment of the minimum wage, being forced to raise their pay rates to conform to the requirements of the law. (2) Those enterprises that would not need to adjust their pay rates, i.e., those enterprises where pay rates for all employees were already equal to or higher than NT$17,280 a month or NT$95 an hour prior to the end of June 2007, and would thus not be directly affected by the adjustment of the minimum wage.

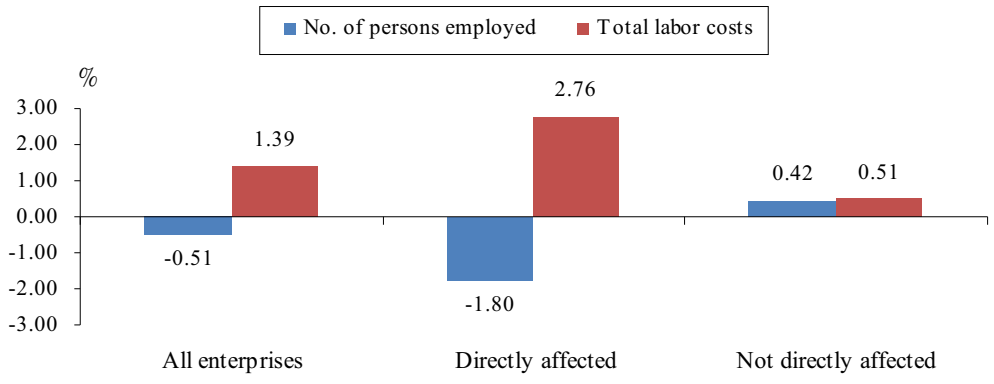
The impact of the change in the minimum wage on these two groups is analyzed

below.

(1) The Impact of the Rise in the Minimum Wage on the Number of Persons Employed by SMEs and on SME Labor Costs

Figure 8-1-1 compares the number of persons employed by SMEs, and SMEs' labor costs, prior to and after the adjustment of the minimum wage (in June 2007 and March 2008, respectively). It can be seen from these data that, in the nine months following the increase in the minimum wage, the total number of persons employed by the SMEs included in the sample fell by 0.51%, while their labor costs rose by 1.39%. Among those enterprises directly affected by the rise in the minimum wage, the number of persons employed fell by 1.8%, compared to a fall of just 0.42% among those enterprises not directly affected; the increase in labor costs reported by the enterprises that had been directly affected by the adjustment of the minimum wage was 2.76%, significantly higher than the 0.51% increase reported by those enterprises that were not directly affected. There are insufficient data to determine whether the fall in the number of persons employed and the rise in labor costs reported by those enterprises not directly affected by the minimum wage adjustment was due to the indirect impact of the adjustment, but in the case of those enterprises that were directly affected, it would appear that the adjustment has had a negative impact, resulting in a fall in the number of people employed and an increase in labor costs. If the changes reported by those enterprises not directly affected by the adjustment are assumed to represent the impact

Figure 8-1-1 Percentage Changes in SME Employment and Labor Costs Following the Increase in the Minimum Wage

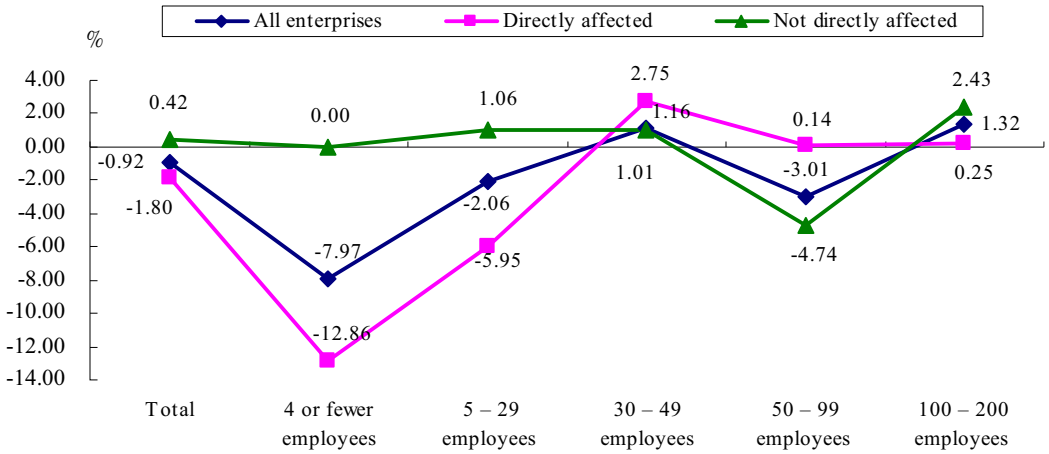


Note: Data cover the period from the end of June 2007 to the end of March 2008.
Source: Small and Medium Enterprise Administration, *The Impact of the New Labor Legislation on SMEs*, Hui-lin Wu, Ying-yi Tu, and Chia-hui Lin, 2008.

of market forces on employment and labor costs, then the 2.22% decline in the number of persons employed and the 2.25% rise in labor costs that remain after allowing for the impact of market forces can be taken to represent the impact of the rise in the minimum wage.

It can be seen from Figure 8-2-1 that the decline in the number of persons employed was especially pronounced among directly affected enterprises with under 30 employees; in particular, micro-enterprises with 4 or fewer employees saw a decline in the number of persons employed of nearly 13%, the largest decline seen for any single category of enterprise. On the other hand, a decline in the number of persons employed was not seen among larger directly affected enterprises (medium-sized enterprises with 30 or more employees). It would thus appear that the reduction in employment caused by the adjustment of the minimum wage has mainly affected smaller enterprises.

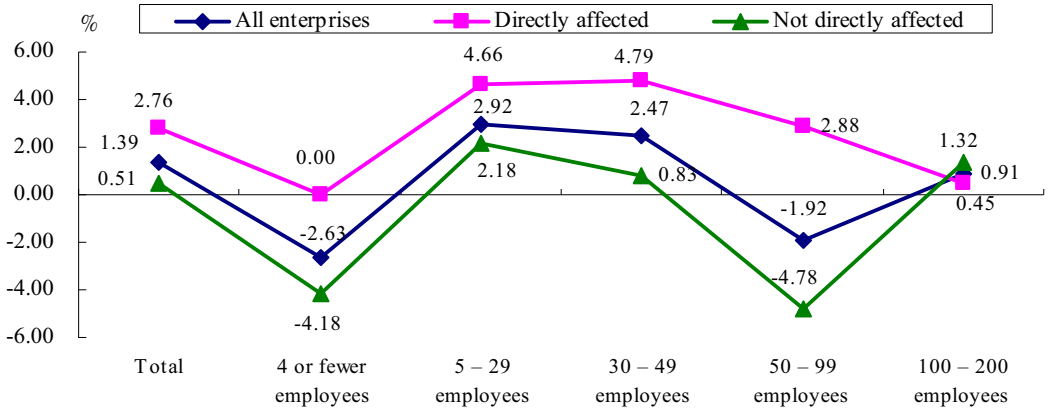
Figure 8-1-2 Percentage Changes in the Number of Persons Employed by SMEs



Note & Source: see Figure 8-1-1.

As regards changes in labor costs, it can be seen from the data in Figure 8-1-3 that, with the exception of enterprises with 100–200 employees, directly affected enterprises have experienced a higher rate of increase in labor costs than enterprises that are not directly affected by the change in the minimum wage. It would thus appear that the rise in the minimum wage has in fact caused the labor costs of SMEs directly affected by the adjustment to rise.

Figure 8-1-3 Percentage Changes in SMEs' Labor Costs



Note & Source: see Figure 8-1-1.

(2) The Impact of the Increase in the Minimum Wage on the Employment of Different Categories of Workers by SMEs

Changes in the minimum wage can affect enterprises' employment of different categories of worker. Given that the recent increase in the minimum wage is a relatively large one, will this increase lead to a decline in the employment of hourly-paid workers?

As can be seen from Table 8-1-1, during the first nine months after the adjustment of the minimum wage, the total number of persons employed by directly affected enterprises fell by 1.8%, while the number of persons employed by enterprises that were not directly affected rose by 0.42%. There was a 1.76% decline in the number of Taiwanese workers employed full-time by directly-affected enterprises, and a 0.22% decline in the number of hourly-paid Taiwanese workers (who include part-time workers). However, the number of foreign laborers employed increased by 0.19%. Among enterprises that were not directly affected, the number of Taiwanese workers employed full-time fell by 1.49%, the number of hourly-paid Taiwanese workers rose by 0.70%, and the number of foreign laborers employed increased by 1.21%. These data suggest that the recent increase in the minimum wage has not had a significant negative impact on enterprises' employment of hourly-paid workers, but that it has tended to encourage the hiring of foreign laborers, and has had a slightly negative effect on the employment of full-time Taiwanese workers.

Further analysis of the changes in employment in different sizes of enterprise

shows that, among these enterprises not directly affected by the increase in the minimum wage, there has been a relatively large decline in the number of people employed by micro-enterprises with 4 or fewer employees (a fall of 12.8%), and by small enterprises with 5–30 employees (5.95%). This decline is mainly due to a decrease in the number of hourly-paid workers and of Taiwanese workers working full-time. None of the micro-enterprises included in the sample was employing foreign laborers, but there was a slight increase in the number of foreign laborers employed by small enterprises with 5–30 employees. The situation in enterprises with 30 or more employees was slightly different. Among enterprises with 30–99 employees that were not directly affected by the adjustment in the minimum wage, the number of Taiwanese workers employed full-time fell, but among directly affected enterprises the number of persons employed in each employment category remained roughly stable, with no significant decline in any category.

Table 8-1-1 The Rate of Increase in the Number of Persons Employed by SMEs Following the Increase in the Minimum Wage

Unit: %

Enterprise Category		Taiwanese Workers Employed Full-time	Foreign Laborers	Hourly-paid Workers	Total Number of Employed Persons
All Enterprises	Not directly affected	-1.49	1.21	0.70	0.42
	Directly affected	-1.76	0.19	-0.22	-1.80
4 or fewer employees	Not directly affected	-3.85	0.00	3.85	0.00
	Directly affected	-4.15	0.00	-8.71	-12.86
5 – 29 employees	Not directly affected	-0.32	0.57	0.81	1.06
	Directly affected	-4.82	0.24	-1.37	-5.95
30 – 49 employees	Not directly affected	-3.92	3.98	0.95	1.01
	Directly affected	-0.73	0.55	2.93	2.75
50 – 99 employees	Not directly affected	-5.91	0.90	0.27	-4.74
	Directly affected	0.42	-0.28	0.00	0.14
100 – 200 employees	Not directly affected	2.43	0.00	0.00	2.43
	Directly affected	0.12	0.12	0.00	0.25

Note: The growth rates shown in the table are relative to the total number of persons employed by the enterprise; the growth rate for employee category Y in enterprise category X = (number of employees in category Y in enterprise category X as of March 2008 minus the number of employees in category Y in enterprise category X as of June 2007) divided by the total number of persons employed in enterprise category X as of June 2007.

Source: see Figure 8-1-1.

The survey results show that the negative impact of the rise in the minimum wage has been felt mainly by micro-enterprises with 4 or fewer employees, and by small enterprises with 5–30 employees, causing a decline in the employment of hourly-paid workers and full-time Taiwanese workers in these enterprise categories. There appears to have been no significant negative impact among medium-sized enterprises with 30 or more employees.

(3) SMEs' Response to the Rise in the Minimum Wage

How have SMEs responded to the impact of the increase in the minimum wage? As can be seen from Table 8-1-2, 52.8% of SMEs reported that they had not taken any special action in response. In all three enterprise size categories – micro-enterprises, small enterprises and medium-sized enterprises – around 40% to 60% of enterprises had taken no special action.

Among those enterprises that had taken action in response to the rise in the minimum wage, regardless of enterprise size the most common measure adopted was to "increase product/service value," followed by "hire employees with superior skills" and "terminate less competent employees." 27.3% of enterprises with 50–99 employees reported increasing their investment in new equipment, and 18.2% of enterprises with 100–200 employees reported that they had raised the salaries of employees who were already being paid more than the new minimum wage.

Table 8-1-2 shows the number of persons employed by SMEs and SME labor costs before and after the change in the minimum wage.

Table 8-1-2 Measures Adopted by Directly Affected SMEs in Response to the Rise in the Minimum Wage

Units: enterprises; %

Item		Directly Affected SMEs	No. of Employees				
			4 or fewer	5 – 29	30 – 49	50 – 99	100 – 200
Effective sample size (no. of enterprises)		**212**	**42**	**120**	**28**	**11**	**11**
Measures adopted in response		Share of sample (%)					
1	Adjust the ratio of full-time employees (receiving monthly salaries) to hourly-paid employees	4.2	11.9	2.5	3.6	0.0	0.0
2	Cut benefits and allowances	5.7	4.8	6.7	7.1	0.0	0.0
3	Cut spending on employee training	1.9	0.0	3.3	0.0	0.0	0.0
4	Raise the salaries of employees who were already being paid more than the new minimum wage as well as those who were not	8.0	11.9	5.8	10.7	0.0	18.2
5	Increase spending on new equipment (such as automation equipment)	11.8	7.1	12.5	10.7	27.3	9.1
6	Terminate less capable employees	14.2	19.0	11.7	14.3	18.2	18.2
7	Hire more employees with superior skills	14.2	16.7	13.3	14.3	18.2	9.1
8	Boost product/service value	22.6	23.8	20.0	25.0	45.5	18.2
9	Other measures	2.8	7.1	1.7	3.6	0.0	0.0
10	No special action taken	52.8	42.9	56.7	53.6	45.5	54.5
11	Don't know	1.9	2.4	1.7	3.6	0.0	0.0

Source: see Figure 8-1-1.

II The Impact on SMEs of the Extension of Compulsory Labor Insurance Coverage to Include Enterprises with Four or Fewer Employees

1. The Revisions to the Law – Key Aspects

Currently, under the provisions of the Labor Insurance Act, only public and private sector enterprises with 5 or more employees are required to arrange Labor Insurance cover for their employees; Labor Insurance coverage is not compulsory for small enterprises with 4 or fewer employees. The employees of small firms falling into this category whose employers have not arrange Labor Insurance coverage for them have the option of apply for coverage through their union; however, in this case the employee has to pay 60% of the premiums, whereas normally the employer pays 40% and the employee pays only 20%. To ensure that workers' rights are protected, the draft revision of Articles 6 and 8 of the Labor Insurance Act stipulate that the employees of enterprises with 4 or fewer employees should also be included within the scope of compulsory Labor Insurance coverage. This revision has yet to be passed by the Legislative Yuan, mainly because of concerns over the impact that the revision might have on micro-enterprises.

While the proposed revision has yet to come into law, it may well be submitted to the Legislative Yuan for approval again in the future. This section will examine the possible impact of this legislation on business enterprises in Taiwan.

2. The Possible Impact on Business Enterprises

Not all micro-enterprises would be affected by the revision of the Labor Insurance Act to make Labor Insurance coverage compulsory for the employees of enterprises with 4 or fewer employees. According to estimates compiled by the Council of Labor Affairs, currently there are already around 800,000 employees of small enterprises of this type who have arranged Labor Insurance cover by themselves. This still leaves over 600,000 employees (working in more than 30,000 enterprises) who do not have Labor Insurance coverage. These micro-enterprises would be directly affected by the passage into law of the draft revision of the Labor Insurance Act. Besides paying the employer's Labor Insurance contributions, these enterprises would also have to begin paying National Health Insurance contributions on behalf of their employees, and would be required to

allocate an amount equivalent to 6% of the employee's salary into the employee's Labor Insurance pension fund. In other words, if the revision does come into effect, the enterprises affected by it will experience an 15.68% increase in labor costs per employee (4.55% for Labor Insurance contributions, 4.86% for National Health Insurance contributions, and 6% for the employee's Labor Insurance pension fund).

3. Analysis of the Questionnaire Survey Results

(1) Labor Insurance Coverage for SME Employees

While the law requires all public and private sector enterprises with 5 or more employees to arrange Labor Insurance coverage for their employees, in reality, this is not always the case. Some employees prefer to have cover provided through their union rather than the employer, to avoid having coverage disrupted in the event of becoming unemployed. Furthermore, some enterprises fail to arrange cover for their employees for reasons of cost. Analysis of the way in which Labor Insurance coverage is provided for SME employees is thus of great importance, as it can help to show which types of enterprise would be affected if the proposed revision in the law were to come into effect.

For the sample as a whole, 88.7% said that all of their employees had Labor Insurance coverage provided by the employer, 5.3% said that they had coverage provided through their union, and 5.5% said that some of their employees had coverage provided by the employer, while others obtained coverage through the union. 0.5% of enterprises reported that they did not known whether or how their employees had secured Labor Insurance coverage, but that it was not through the enterprise. Among these enterprises with 4 or fewer employees, in 93% of cases the employer arranged coverage for all employees; coverage was arranged by the individual employees through their union in only 2% of enterprises, while in 5% of enterprises both situations could be found simultaneously.

Among micro-enterprises with 4 or fewer employees that are not currently required to arrange Labor Insurance cover for their employees, nearly 74% are already arranging this cover for all of their employees. Coverage is arranged only through the union in 15.7% of cases, with both forms of coverage provision existing simultaneously in 8.2% of cases. Only 2.2% of enterprises reported that they did not know if or how their employees had obtained Labor Insurance coverage.

If the law as it stands were to be enforced rigorously, almost all of the enterprises affected would be in the 5–29 employee category; the enterprises concerned account for 2% of all enterprises with 5–200 employees. If the obstacles that currently restrict coverage were to be eliminated, the negative impact of an expansion in the scope of compulsory Labor Insurance coverage to include micro-enterprises with 4 or fewer employees could be significantly reduced. Overall, around 26% of micro-enterprises would be affected by the revision in the law (along with 2% of other enterprises).

(2) The Impact of the Proposed Revision on SME Operations

Proactive arrangement of Labor Insurance coverage for their employees has already gone a long way to reducing the negative impact that a change in the law would have. Even so, making Labor Insurance compulsory for enterprises with 4 or fewer employees would still lead to a significant increase in micro-enterprises' labor costs. The arrangement of Labor Insurance compulsory would lead to a 15.68% increase in labor costs. Just how big an impact would this have on SMEs' operations?

In the sample as a whole, 37.9% of enterprises reported that the proposed revision would not affect their operations. Among the 62.1% of enterprises that felt that it would affect their operations, there was considerable variation in the anticipated extent of the impact. If firms are divided into those that are already arranging cover for all employees, and those that are not arranging cover for all employees, it can be seen that, among those firms that are not arranging cover for all employees, the percentage reporting that their operations would not be affected by the proposed revision was significantly lower, at 24.6%, while the share reporting that they would experience a major impact rose to 30.8%. These figures suggest that the proposed change to the Labor Insurance Act would indeed have a significant impact on those enterprises directly affected by it; the average weighting here is 2.6, which is close to a moderate level of impact.

The smaller the enterprise, the more likely it was that enterprise was to report that the proposed revision in the law would have a major impact on it. For enterprises with 49 or fewer employees, the average weighting was 2 or 2.2; enterprises with 50–200 employees generally felt that the impact of the revision would be limited; the average weighting for this group was only 1 or 1.4.

It can thus be seen that the anticipated impact of the revision to the Labor Insurance Act making Labor Insurance compulsory for enterprises with 4 or fewer employees varies depending on whether the enterprise is already providing coverage for

its employees; the correlation with enterprise is less pronounced.

(3) Strategies Available to Micro-enterprises with Four or Fewer Employees

Faced with the increased labor costs resulting from the revision to the Labor Insurance Act, the three main response strategies that the respondents felt micro-enterprises with four or fewer employees should adopt were as follows: switch over to using part-time employees, not take any special action (i.e., absorb the increased labor costs), or switch over to using temporary employees.

Enterprises that were not currently arranging cover for all employees felt that the most appropriate strategies for micro-enterprises to adopt were to switch over to using part-time workers, or to take no special action. Enterprises that were arranging cover for all employees felt that the best response strategy was to switch over to using temporary workers. For enterprises of all sizes, a significant percentage felt that taking no special action was a sensible response; in addition, enterprises with 50–200 employees felt that switching over to using temporary employees was an advisable response strategy, and enterprises with 49 or fewer employees felt that switching over to using part-time workers was a feasible response.

III The Impact on SMEs of the Revision of the Gender Equality in Employment Law

1. The Revisions to the Law – Key Aspects

The Gender Equality in Employment Law, which was formulated to ensure equality between the sexes in the sphere of work, eliminate sexual discrimination in accordance with the requirements of the Constitution, and ensure that men and women enjoy equal status, came into effect on March 8, 2002. A revised version of the law passed its final reading in the Legislative Yuan on December 19, 2007, and was signed into law by the President on January 16, 2008. The revisions to the Gender Equality in Employment Law relate to: (1) A declaration of the importance of gender equality. (2) An expansion in the scope of the measures to boost female employment (in terms of the types of enterprise covered). (3) Increased administrative liability by employers with respect to their obligations under the Gender Equality in Employment Law. The key revisions cover paternity leave, home care leave, guaranteeing the right of women who leave work to take care of young children to return to work, and the effect on business

enterprises. The impact of the revisions is analyzed in the following sections using data from the questionnaire survey.

2. Analysis of the Questionnaire Survey Results

(1) Paternity Leave

Of the effective sample of 601 enterprises, 49.3% provided paternity leave, while 50.7% did not. The larger the enterprise, the more likely it was to provide paternity leave; the percentage of enterprises with 4 or fewer employees that did not provide paternity leave was relatively high. In enterprises where 80% or more of the employees were female, 63.3% did not provide paternity leave; in enterprises where less than 10% of the employees were female, 66.7% did not provide it. There therefore does not appear to be a significant correlation between the percentage of employees that are female and whether the enterprise provides paternity leave (Table 8-3-1).

Table 8-3-1 Provision of Paternity Leave by SMEs

Item	All Enterprises		Provide Paternity Leave		Do Not Provide Paternity Leave	
	No. of Firms	%	No. of Firms	%	No. of Firms	%
Total	**601**	**100**	**296**	**49.3**	**305**	**50.7**
No. of enterprises						
4 or fewer	134	100	46	34.3	88	65.7
5 – 29	348	100	157	45.1	191	54.9
30 – 49	70	100	49	70.0	21	30.0
50 – 99	26	100	21	80.8	5	19.2
100 – 200	23	100	23	100.0	0	0.0
Share of full-time employees that are female						
Less than 10%	33	100	11	33.3	22	66.7
10 – 29%	111	100	63	56.8	48	43.2
30 – 49%	130	100	69	53.1	61	46.9
50 – 79%	237	100	120	50.6	117	49.4
80% or higher	90	100	33	36.7	57	63.3

Source: see Figure 8-1-1.

Among those enterprises that did provide paternity leave, just under 30% had employees apply for paternity leave in 2007. The percentage was 43.8% in the case of manufacturing firms, and just under 20% in the case of firms in the service sector. The larger the enterprise, the more likely it was that the enterprise had employees apply for paternity leave.

Among the 305 enterprises that did not provide paternity leave, the main reason given was “employees do not need it” (61.6% of enterprises), followed by “employees can apply for personal leave or other forms of leave instead” (20%), and “were not

aware of the requirement to provide paternity leave" (10.8%).

Regarding the revision of the Gender Equality in Employment Law that extends the guaranteed period of paternity leave from two days to three days, of the 601 enterprises in the survey, 70% felt that this was a positive move (60% in favor, 10.1% very much in favor). 15.8% were opposed to the revision, 2.2% were strongly opposed, and 11.3% had no opinion on the matter.

Of the 108 enterprises that disapproved of the extension of paternity leave to 3 days, the main reasons given were "will create difficulty in arranging manpower allocation" (36.1%), "will raise costs" (32.4%), and "will affect work progress" (29.6%).

(2) Home Care Leave

Of the 601 enterprises in the effective sample, only 9.2% provided home care leave; 90.8% did not provide this type of leave. The larger the enterprise, the more likely it was to provide home care leave. There was no clear correlation between the percentage of employees who were female and whether the enterprise provided home care leave (Table 8-3-2).

Table 8-3-2 Provision of Home Care Leave by SMEs

Item	All Enterprises		Provide Home Care Leave		Do Not Provide Home Care Leave	
	No. of Firms	%	No. of Firms	%	No. of Firms	%
Total	**601**	**100**	**55**	**9.2**	**546**	**90.8**
No. of employees						
4 or fewer	134	100	5	3.7	129	96.3
5 – 29	348	100	10	2.9	338	97.1
30 – 49	70	100	17	24.3	53	75.7
50 – 99	26	100	7	26.9	19	73.1
100 – 200	23	100	16	69.6	7	30.4
Share of full-time employees that are female						
Less than 10%	33	100	4	12.1	29	87.9
10 – 29%	111	100	18	16.2	93	83.8
30 – 49%	130	100	11	8.5	119	91.5
50 – 79%	237	100	17	7.2	220	92.8
80% or higher	90	100	5	5.6	85	94.4

Source: see Figure 8-1-1.

Among the 55 enterprises that were providing home care leave, slightly less than 30% had employees apply for home care leave in 2007, with the average period of leave being 7.1 days. Enterprises providing home care leave tended to have a relatively high percentage of female employees.

Among the 546 enterprises that did not provide home care leave, the main reasons

given for not providing it were: "Employees can apply for personal leave or other forms of leave instead" (55.1%), "were not aware of the requirement to provide home care leave" (21.4%), and "employees don't need it" (20.9%).

Regarding the extension of compulsory home care leave provision from enterprises with 30 or more employees to enterprises with 5 or more employees, of the 601 enterprises in the effective sample, 61.4% approved of this change, and 5.5% strongly approved of it. 17.6% disapproved, 2.8% strongly disapproved, and 12.6% had no opinion on the matter.

Among the 123 enterprises that did not approve, the main reasons given were: "Will increase costs" (43.9%), "will create difficulty in arranging manpower allocation" (30.9%), and "will affect work progress" (22.8%).

(3) Unpaid Parental Leave

Of the 601 enterprises that made up the effective sample, 73.7% did not provide unpaid parental leave (whereby a woman can leave work to look after young children and have her job kept open for her to return to later); only 26.3% did provide unpaid parental leave. The larger the enterprise, the more likely it was to provide unpaid parental leave. There does not appear to be any significant correlation between the share of an enterprise's employees that are women and whether the enterprise provides unpaid parental leave (Table 8-3-3).

Table 8-3-3 Provision of Unpaid Parental Leave by SMEs

Item	All Enterprises		Provide Unpaid Parental Leave		Do Not Provide Unpaid Parental Leave	
	No. of Firms	%	No. of Firms	%	No. of Firms	%
Total	**601**	**100**	**158**	**26.3**	**443**	**73.7**
No. of employees						
4 or fewer	134	100	25	18.7	109	81.3
5 – 29	348	100	69	19.8	279	80.2
30 – 49	70	100	31	44.3	39	55.7
50 – 99	26	100	15	57.7	11	42.3
100 – 200	23	100	18	78.3	5	21.7
Share of full-time employees that are female						
Less than 10%	33	100	4	12.1	29	87.9
10 – 29%	111	100	24	21.6	87	78.4
30 – 49%	130	100	37	28.5	93	71.5
50 – 79%	237	100	72	30.4	165	69.6
80% or higher	90	100	21	23.3	69	76.7

Source: see Figure 8-1-1.

Among those enterprises that did provide unpaid parental leave, in 2007 only 6.96% had employees apply for unpaid parental leave. The larger the enterprise, the

more likely it was that employees would apply to use unpaid parental leave.

As regards the measures adopted by companies in response to employees taking unpaid parental leave, the most common response (42.4% of enterprises) is to have the other personnel in the employee's department take over their duties. 26.3% of enterprises recruit additional, full-time staff, and 20.8% take on temporary or part-time staff.

As to whether the provision of unpaid parental leave should be extended to include enterprises with less than 30 employees in the future, of the 601 SMEs in the sample, 48.1% were in favor of this idea, and 4.3% were strongly in favor. 33.4% were opposed, 3% were strongly opposed, and 11.1% expressed no opinion.

Among the 219 SMEs that did not approve of extending unpaid parental leave to include enterprises with less than 30 employees, the main reasons given were: "Will create difficulty in arranging manpower allocation" (44.7%), "will raise costs" (31.1%), and "will affect work progress" (22.8%).

(4) The Impact of the Revision of the Gender Equality in Employment Law on SMEs

72 enterprises (12% of the sample) felt that the revision of the Gender Equality in Employment Law had had a very pronounced impact on their operations, and another 45 (7.5%) felt that it had had a pronounced impact. 199 enterprises (33.1%) felt that the revision had had no significant impact. The average weighting (based on enterprise size) for the sample as a whole was 2, significantly lower than the median value of 3, indicating that revision of the Gender Equality in Employment Law has had only a limited impact on SMEs' operations.

As regards the strategies adopted by SMEs in response to the impact of the revision of the Gender Equality in Employment Law, the most widely adopted strategy was to increase the number of temporary or part-time workers, followed by reducing the employment of married and pregnant women.

IV The Impact on SMEs of the Increase in the Period of Time for Which Foreign Laborers are Permitted to Remain in Taiwan

1. The Revisions to the Law – Key Aspects

To meet Taiwan's social and economic development needs and help manufacturers recruit the unskilled and semi-skilled labor they required, in 1989 the Taiwanese government began to permit the large-scale recruitment of foreign laborers. The basic aim was to fill those manual positions that Taiwanese citizens were increasingly unwilling to take on. The range of jobs for which the recruitment of foreign laborers was permitted was gradually expanded from 15 jobs in 6 industries to 68 industries and then 73 industries, including 6 ceramics manufacturing related industries, the "dirty, difficult and dangerous" industries, 7 woven-fabric manufacturing-related industries, companies engaged in production facility expansion, special projects involving firms located in Science-based Industrial Parks, and businesses making use of special production processes or work schedules. In addition, as part of the government's efforts to revitalize the economy, companies in both traditional and non-traditional manufacturing industries have also been permitted to recruit foreign laborers for projects involving large-scale investment. As of the end of 2007, there were approximately 195,000 foreign laborers in Taiwan.

The Employment Services Act stipulates that blue-collar foreign laborers may not work in Taiwan for more than a cumulative total of 6 years. However, foreign laborers who have been in Taiwan for this length of time will have become highly skilled and efficient, and will have established a stable relationship with their employer. If these laborers are not allowed to continue working in Taiwan, the employer will be forced to recruit and train new foreign laborers; not only will the employer incur increased training costs, the process of adjustment whereby the employer and the foreign laborers get used to one another will need to begin all over again, and managerial problems are likely to arise. The law has therefore been revised to allow foreign laborers to remain in Taiwan for a cumulative period of up to 9 years, rather than 6 years, thereby enabling employers to make more efficient use of foreign labor, ensure stable labor relations, reduce the frequency of disputes, and prevent the current situation where foreign laborers often disappear (rather than being deported). This revision of the Employment Services Act came into effect on July 13, 2007.

2. Analysis of the Questionnaire Survey Results

Of the 601 SMEs included in the sample, 82 were employing foreign laborers. The largest number of enterprises employing foreign laborers was found in the 5–29 employees category (30 firms), followed by the 30–49 employees category (26 firms).

Among the 82 SMEs that were employing foreign laborers, 67% felt that the extension of the maximum period for which foreign laborers can work in Taiwan would be either extremely beneficial or highly beneficial to them; only 7 firms (8.5% of the total) felt that it would have no impact on them. Using weighting based on enterprise size, the average weighting for the whole sample was 3.7, which was significantly higher than the median value of 3, indicating that SMEs as a whole do feel that the extension of the maximum stay for foreign laborers will benefit them (Table 8-4-1).

Table 8-4-1 The Impact on SMEs of the Extension of the Maximum Permitted Stay for Foreign Laborers

Units: enterprises; %

Item	Total No. of Enterprises (Share of Total)	Extremely Beneficial	Highly Beneficial	Some Benefit	Little Benefit	Very Little Benefit	No Impact	Average Weighting
Total	**82**	**40.2**	**26.8**	**15.9**	**2.4**	**6.1**	**8.5**	**3.7**
No. of employees								
4 or less	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15 – 29	30	40.0	33.3	16.7	3.3	3.3	3.3	3.9
30 – 49	26	53.8	26.9	15.4	0.0	0.0	3.8	4.2
50 – 99	11	8.2	27.3	9.1	0.0	18.2	27.3	2.5
100 – 200	15	33.3	13.3	20.0	6.7	13.3	13.3	3.1

Source: see Figure 8-1-1.

V Appraisal of the Impact of the Changes in Labor Laws on SMEs – Conclusions and Policy Recommendations

The survey results indicate that, while the impact of the four major labor law revisions that were implemented in 2007 on the SME sector as a whole has been limited, the negative impact on micro-enterprises and on workers belonging to disadvantaged groups has been more pronounced. Furthermore, the ancillary measures introduced by the government to accompany the changes in the law appear to have had only a limited effect. These results conform broadly to what might have been expected. While the revisions in question were intended to protect the interests of workers in disadvantaged groups, these workers account for only a relatively small share of the SME workforce, and are highly concentrated in micro-enterprises, where survey interviews are difficult to perform, and where the rate at which enterprises go out of business and new enterprises are established is very high. Overall, the survey results indicate that it is smaller firms that have been most affected by the changes in the labor laws.

In reality, the fact that the survey results indicate that the impact of the revisions is relatively slight does not necessarily mean that the negative impact of the changes has been a small one. The enterprises most affected by the revisions are mostly weaker firms that have only a limited ability to withstand shocks. Many of the marginalized workers affected by the legislation have already lost their jobs, and so do not appear in the survey results. The fact that some measures that have yet to be made compulsory have already been widely adopted by SMEs reflects the fact that enterprises will adopt the strategies that offer the most benefits for their firm. The government should limit its role to providing information and letting businesses choose for themselves, rather than forcing new requirements on them.

Based on the analysis of the impact that these changes in the labor legislation are having on SMEs, the following policy recommendations are put forward:

1. The Increase in the Minimum Wage

The increase in the minimum wage has undoubtedly had a negative impact on some SMEs, particularly micro-enterprises with 4 or fewer employees and small enterprises with 5–29 employees. These enterprises have responded by cutting employment of hourly-paid workers and full-time Taiwanese workers. However, the impact on medium-sized enterprises with 30 or more employees has been limited. The adjustment of the minimum wage appears to have had little impact on SMEs' willingness to invest. As regards the ways in which SMEs have responded to the increase, nearly 60% of firms reported that they had not made any special adjustments or taken any special measures in response; 23% said that they had upgraded product or service value, and 14% said that they had increased recruitment of workers with strong skills, or cut back on the recruitment of less able workers.

One area that warrants discussion is the ancillary measures that the government has introduced to help business enterprises cope with the rise in the minimum wage. The survey results indicate that the effectiveness of these measures – including the subsidies for retaining existing hourly-paid workers and for the employment of workers belonging to disadvantaged groups – has been very limited. Few SMEs have applied for these subsidies, and even fewer have had their applications approved. Overall, the support that the ancillary measures have provided for SMEs has been far more limited than the negative impact that the increase in the minimum wage has had. In the future, when planning further adjustments to the minimum wage, the Council of Labor Affairs

should undertake a thorough analysis of the impact that the increase will have on SMEs, and should formulate measures with real practical value to help small enterprises and micro-enterprises, where the process of applying for help is made as easy and as convenient as possible.

2. The Impact on SMEs of the Extension of Compulsory Labor Insurance Coverage to Include Enterprises with 4 or Fewer Employees

Currently, the Labor Insurance Act makes the arranging of Labor Insurance coverage for an enterprise's employees compulsory only for those public and private sector enterprises with 5 or more employees; the majority of smaller firms with 4 or fewer employees are excluded. However, the survey results showed that the state of competition in the labor market has already forced many of these smaller firms to offer Labor Insurance coverage as a means of attracting and keeping workers. As a result, if the extension of compulsory Labor Insurance coverage to include enterprises with 4 or fewer employees does come into effect in the future, the negative impact will be smaller than might have been expected; only around 26% of micro-enterprises and 2% of other SMEs will be affected.

However, the extension of the scope of compulsory Labor Insurance provision will still lead to a significant increase in micro-enterprises' labor costs. In all, it will result in a 15.68% rise in labor costs per employee for these enterprises. The survey results show that the extension of compulsory Labor Insurance coverage to include micro-enterprises would have a definite impact on those firms that were not currently arranging Labor Insurance coverage for all of their employees, and that the severity of the impact would be close to medium. If this change in the law does come into effect, the three strategies that SMEs are most likely to adopt in response are: switching over to using part-time workers, doing nothing (and absorbing the extra costs), and switching over to using temporary workers.

Broadly speaking, while the negative impact of extending compulsory labor insurance coverage to include enterprises with 4 or fewer employees would affect fewer enterprises that might originally have been thought, policy-makers should still be thinking carefully about how severe that impact will be. If the revision does come into effect, it is suggested that the government should introduce ancillary measures to help micro-enterprises. Besides "passive" measures such as providing a grace period,

offering financing support or providing SMEs with information about temping services, there is also room for more active assistance, for example providing guidance to help SMEs upgrade themselves and strengthen their managerial capabilities.

3. The Impact on SMEs of the Revision of the Gender Equality in Employment Law

The main revisions to the Gender Equality in Employment Law include: extending the range of enterprises that are required to provide unpaid parental leave, extending the range of enterprises that are required to provide home care leave, and extending the period of paternity leave that enterprises are required to provide from 2 days to 3 days. The survey results show that larger enterprises already tend to have better welfare provision; among these larger enterprises, the percentage of firms that are already providing paternity leave, home care leave and unpaid parental leave is already relatively high. Most SMEs approved of the revisions to the Gender Equality in Employment Law; the weighted value for the anticipated impact of the revisions was significantly lower than the median value. However, it is worth noting that the strategies that SMEs said they were most likely to adopt in response to the revisions included making more use of temporary and part-time workers, and reducing their employment of married and pregnant women. Another point worth noting is the very small percentage of employees applying for unpaid parental leave. This is probably due mainly to economic factors and concern on the part of the employee as to whether they will in fact be able to return to the same job. If the government's objectives in this area are to be achieved, the regulations governing the awarding of subsidies will need to be worked out carefully, and suitable ancillary measures will need to be introduced.

The purpose of the revision of the Gender Equality in Employment Law – protecting women's right to work – is a laudable one. However, given the way that business enterprises actually operate, there is the risk that the revisions may create a "lose-lose" situation, in which business development is retarded without achieving any real improvement in the protection of women's employment rights. Large enterprises are already offering employee welfare provision (in terms of maternity leave, availability of unpaid parental leave, etc.) that is significantly more comprehensive than that offered by SMEs. SMEs' human resources arrangements tend to involve a much higher level of reliance on particular employees; if the requirement to provide unpaid parental leave is extended to smaller firms, this could have a severe negative impact on

these firms' manpower allocation planning. This is an area where the relevant government authorities need to undertake detailed appraisal; both the regulations governing subsidy awards and other ancillary measures will need to be carefully thought out if the government's goals are to be achieved.

4. Extension of the Cumulative Period for Which Foreign Laborers are Permitted to Work in Taiwan

Originally, the Employment Services Act stipulated that the period of time that blue-collar foreign laborers spent working in Taiwan could not exceed a cumulative total of 6 years. As foreign laborers who have been in Taiwan for this length of time will have become highly skilled and efficient, and will have established a stable relationship with their employer, it was decided that the maximum stay should be extended to 9 years. The survey results showed that 67% of SMEs felt that this revision of the law to extend the maximum stay for foreign laborers would be beneficial to their enterprise.

Part Three

Government SME Policies and Prospects

Chapter 9

The Government's SME Policies and Measures

There are approximately 1,237,000 SMEs in Taiwan, accounting for 97.63% of all business enterprises in the country. The total number of people working in SMEs is 7,939,000, equivalent to 77.12% of the workforce. SMEs are the foundation of the Taiwanese economy, and play a vital role in job creation. However, with the changes taking place in the economic environment, many SMEs will find it increasingly difficult to compete effectively and achieve sustainable development. The government has an important supporting role to play here; a comprehensive industrial policy and relevant guidance mechanisms will be needed.

The Small and Medium Enterprise Administration (SMEA) has set itself the vision of building Taiwan into an environment conducive to SME growth and development. To make this vision a reality, the Administration has adhered to five key principles: (1) Ensuring that guidance provision is carefully focused and meets SMEs' real needs, with a gradual build-up of results; (2) Providing service to all, proactively, and with rapid response; (3) Maintaining close collaboration between the central government, local government authorities and specialist service providers. (4) Formulation of clear objectives that are regularly reviewed; (5) Making effective use of both internal and external resources to create synergy.

This chapter will discuss the key work items and results achieved by the SMEA in the implementation of its key strategies and measures in 2007.

I Creating a First-rate Environment for SME Development

To ensure that SMEs understand the laws and regulations that affect them, to make sure that their legal rights are protected, and to enhance SMEs' ability to adopt to changes in the regulatory environment, the SMEA has been working actively to build up a sound legal and regulatory environment conducive to innovation and growth. The SMEA has

been coordinating the revision of laws and regulations affecting SMEs, and has provided legal and regulatory information and consulting services. In addition, the SMEA has undertaken surveys relating to SME development policy, in line with its goal of creating a superior environment for SME development. The key work items and the results achieved in this area in 2007 were as follows:

1. Strengthening the Legal and Regulatory Environment

In 1991 the government promulgated the SME Development Statute to provide a legal basis for the provision of guidance to SMEs. In 2000, an additional clause (Article 12-1) was added to the Statute, stipulating that, whenever government agencies are engaged in drawing up or revising laws or regulations that would affect SMES, they should take into consideration the special characteristics of SMES (in terms of size, etc.), and the impact that these laws and regulations could have on SMEs. The projects implemented in 2007 and the results achieved are outlined in the following sections.

(1) Implementation of Mechanisms for Analyzing SME Compliance with New Laws and Regulations

Since 2004, the Ministry of Economic Affairs has been working actively to formulate mechanisms to analyze SME compliance with new laws and regulations, taking into consideration the special features of the business environment in Taiwan. These proposals have won the support of the Executive Yuan, which has instructed all agencies reporting to the Executive Yuan to include analysis of SME compliance when submitting legislative proposals to the Executive Yuan for approval, in accordance with the requirements of Article 12-1 of the SME Development Statute. The main achievements in 2007 with regard to the development mechanisms for analyzing SME regulatory compliance were as follows:

a. Pilot projects: Two draft items of legislation – the Industrial Development Bureau's Statute for the Establishment of Industrial Parks, and the Bureau of Standards, Metrology and Inspection's Product Safety Statute – were selected to be used for pilot projects. The SMEA worked closely with two agencies to analyze SME compliance in line with the relevant operational procedures for mechanism planning.

b. Compilation of the *Points to Note and Q&A Manual Regarding Analysis of SME Compliance with News Laws and Regulations*: The *Manual* has been drawn up to ensure that government agencies undertaking analysis of SME compliance with new

laws and regulations have a clear operational handbook to follow. The manual will help agencies to rapidly familiarize themselves with the operational requirements relating to the mechanisms for analysis of SME compliance with new laws and regulations, thereby helping to ensure smooth operation of the analytical mechanisms.

c. Ancillary measures with respect to design and planning: Taiwanese legal affairs and economics experts were invited to prepare case studies demonstrating the most commonly used methods of analysis, to provide a reference for the relevant agencies. In addition, planning is underway for the establishment of an SME Legal and Regulatory Compliance Consulting Center and the formation of a group of expert consultants.

d. Holding of SME legal and regulatory compliance analysis mechanism presentations: Two presentations have been held, one in Taipei and one in Kaohsiung.

(2) Strengthening SMEs' Legal and Regulatory Awareness

As part of its efforts to strengthen SMEs' legal and regulatory awareness, the SMEA also provides consulting services, with the aim of boosting SMEs' knowledge and awareness in this area, thereby reducing the loss and injury suffered by SMEs as a result of limited understanding of legal and regulatory issues. The results achieved in the provision of legal and regulatory consulting services to SMEs in 2007 were as follows:

a. Establishment of an SME Legal Information Services Website: A website has been established in order to provide SMEs with a wider range of legal and regulatory information services. In 2007, the website received over 1,200,000 visitors. The site ranks number one in Taiwan in terms of legal and regulatory consulting keywords on two leading search engines.

b. Compilation of the *SME Legal and Regulatory Guidance Manual*: The SMEA has compiled and published an *SME Legal and Regulatory Guidance Manual* for the reference of SMEs.

c. Promotion of the SME Honorary Attorneys System: In 2007, there were a total of 150 SME Honorary Attorneys providing legal consulting services for SMEs. Consulting service was provided (by telephone and over the Internet) on a total of

1,909 occasions; the largest share of these (557 inquiries) related to Civil Law issues, with 507 relating to labor disputes, and 182 relating to financial and tax matters.

(3) Spreading Awareness of Legal and Regulatory Issues among SMEs

a. Holding of presentations to spread awareness of legal and regulatory issues of relevance to SMEs: In 2007, a total of 18 presentations were held in various counties and cities, with 963 SMEs participating.

b. Holding presentations to publicize the impact of the Consumer Protection Law: In 2007, a total of 11 presentations were held with 573 SMEs participating.

2. Research and Analysis Relating to SME Development Policy

To gain a more in-depth understanding of the problems encountered by Taiwan's SMEs, the SMEA has undertaken research and analysis in several key areas, and has formulated suggested preliminary measures to provide assistance in these areas, to provide a reference for policy implementation in this regard. In 2007, research was undertaken on eight topics, including: "Future Development Strategy for SME Incubator Centers," "The Policies Adopted by OECD Member Nations to Promote New Business Establishment and Anticipated Future Trends in this Area," "Planning Guidance Mechanisms for SME Financial Restructuring – the London Approach," "International SME Start-up Policy," and "Strategies and Measures for Promoting the Creation of Hi-tech SME Industry Clusters."

3. Active Provision of SME Care

(1) The key measures implemented by the SMEA to support SME development: The SMEA has formulated 6 core strategies and 4 ancillary measures to support SME development; in 2007, a budget of over NT$23 billion was allocated for the implementation. The 6 core plans for active provision of SME care include: strengthening SME financing, enhancing SMEs' R&D capabilities, helping SMEs to transform and upgrade themselves, promoting the development of new business opportunities and new marketing methods, encouraging new business start-up and incubation, and revitalizing local economies. The 4 ancillary measures include: adjustment of the legal and regulatory framework, human resources development, making land available to SMEs on preferential terms, and service network development.

(2) Holding of Active SME Care presentations: To help SMEs acquire a full understanding of the government's SME care policy, beginning in August 2007 Active SME Care presentations have been held in counties and cities throughout Taiwan. In 2007, a total of 7 such presentations were held.

(3) Compilation of the Active SME Care handbook: The Active SME Care handbook contains details of the resources available to SMEs from different government agencies, the 6 core strategies and the 4 ancillary measures. It is anticipated that this Handbook will help SMEs to access the assistance they need in accordance with their own special requirements.

II Establishment of SME Start-up and Incubation Platforms

The SMEA has been working to create new support mechanisms for new business start-up and innovation. By making effective use of start-up and innovation knowledge platforms, incubation mechanisms, venture capital funding, human resources development schemes and international exchange, the SMEA has been able to provide the SME sector with comprehensive support for new business creation and for innovation activity. The key work items and results achieved in this area in 2007 were as follows:

1. Development of a Start-up Knowledge Platform – the Entrepreneur Success Plan

Implementation of the Entrepreneur Success Plan began in 2004. The Plan incorporates three sub-plans: provision of business start-up consulting services, the Start-up and Innovation Cultivation Institute, and the Entrepreneur Success Plan itself.

(1) Provision of Business Start-up Consulting and Information Services

The SMEA provides business start-up information and consulting services to help entrepreneurs turn their ideals into reality. The idea is to help citizens get the preparatory work for new business start-up right, thereby increasing the likelihood that their entrepreneurial ventures will be successful. The main channels through which consulting and information services are provided are as follows:

a. Start-up consulting service: Start-up consulting service centers have been established at 24 locations throughout Taiwan. These centers provide consulting service free of charge over a toll-free hotline.

b. Entrepreneur Success Network: The Entrepreneur Success Network website provides business start-up knowledge and news about training programs. It incorporates the Electronic Shop Window virtual marketing platform, which helps SMEs to publicize their products, a resource matching platform to reduce the cost of business start-up, and an entrepreneurship e-paper (http://sme.moeasmea.gov.tw).

c. Business start-up publications: The SMEA has published a range of brochures introducing entrepreneurial opportunities in key sector, entrepreneur handbooks and academic research on entrepreneurship.

d. Business start-up seminars and other activities.

(2) The Start-up and Innovation Cultivation Institute

The Start-up and Innovation Cultivation Institute provide training programs both for budding entrepreneurs and for people whose business is already up and running, using both conventional and online learning methods. The conventional, classroom-based courses are oriented more towards would-be entrepreneurs. The online school (http://emba.moeasmea.gov.tw) provides a range of e-learning courses. As of the end of 2007, a total of 2,329 individuals had undergone training provided by the Start-up and Innovation Cultivation Institute.

(3) The Entrepreneur Success Plan

The Entrepreneur Success Plan targets entrepreneurs seeking to establish a knowledge-intensive business with innovative new products or services, and other start-ups that have been in existence for less than 3 years. Guidance is provided on a one-to-one basis on the entrepreneur's premises. The SMEA provides on-site diagnostic service, in-depth guidance, online guidance, technology matching service, diagnostic recommendations, and provision of strategic alliance resources, etc.

In 2007, the resources of the SME Service Centers in individual counties and cities throughout Taiwan were leveraged to establish 24 Entrepreneur Success Plan Workshops, with entrepreneurship consultants being attached to them to provide on-site guidance, at a cost of NT$38.5 million. A total of 235 entrepreneurs were successfully helped to establish their own businesses, creating enterprises with combined

capitalization of NT$978 million, and creating 1,078 new jobs. The results are detailed in Table 9-2-1.

Table 9-2-1 The Results Achieved in the Entrepreneur Success Plan, 2004 – 2007

Item \ Year	2004	2005	2006	2007	Total
Amount invested (NT$ thousand)	43,490	43,470	38,300	38,500	163,760
Enterprises assisted	205	222	232	235	894
Total capitalization of the enterprises created (NT$ millions)	580	980	1,104	978	3,600
No. of jobs created	1,247	1,327	1,285	1,078	4,937

Source: Small and Medium Enterprise Administration.

(4) The Holding of the New Enterprise Awards

The New Enterprise Awards are held to encourage new business start-up and the development of new technologies, new designs, new products and new services, helping to identify Taiwanese enterprises with significant growth potential. The Awards comprise four sections: the Hi-tech Niche Industry Section, the Innovative Traditional Industries Section, the Strategic Knowledge-intensive Service Industry Section, and the Micro-enterprise Section. The top three entrants in each section receive a cash prize of NT$300,000, NT$200,000 and NT$100,000, respectively, along with a certificate and plaque.

2. Strengthening the New Business Incubation Function

In 1996 the SMEA began working with other government agencies, research institutes, universities and the private sector to support SME incubation by providing newly established SMEs with office space and facilities, and technical, manpower, commercial, information and administrative support, as well as funding and managerial consulting services, with the aim of reducing the cost of initial start-up and early-stage R&D, thereby helping to increase the likelihood of successful business development.

As of the end of 2007 there were 100 incubator centers in Taiwan, located in 22 different counties and cities. Of these, 81 were receiving subsidies from the SME Development Fund. The incubator centers fell into the following categories:

a. University incubator centers: A total of 79 incubator centers, of which 72 were in receipt of SME Development Fund subsidies.

b. Incubator centers with foundation status: A total of 8 incubator centers, of which 5 were in receipt of SME Development Fund subsidies.

c. Government-run incubator centers: A total of 11 incubator centers, of which 6 were in receipt of SME Development Fund subsidies.

d. Privately-run incubator centers: 2 incubator center (not receiving an SME Development Fund subsidy).

As of the end of December 2007, a total of 1,356 additional enterprises had "graduated" from the 72 incubator centers that were in receipt of funding support from the SME Development Fund, giving a cumulative total of 2,991 enterprises that have graduated from Taiwan's incubator centers over the past 11 years. Incubator centers stimulated investment totaling around NT$5,216.42 million in 2007, with a cumulative total of over NT$45 billion in investment over the past 11 years.

Table 9-2-2 Results Achieved by Incubator Centers in 2006 – 2007

Cultivation Performance \ Year		2006	2007	1997 – 2007 (cumulative total)
Inputs	Subsidies provided to incubator centers (NT$ millions)	164	171	1,680
Outputs	No. of SMEs graduated	1,285	1,359	2,991
	Total capitalization of graduated SMEs (NT$ millions)	41,500	42,400	114,800
	Increase in capitalization (NT$ millions)	5,300	5,200	45,000
	Output/input multiplier	32	30	27
	No. of jobs created and maintained	25,316	27,133	–
	No. of patents secured with support from the incubator center	400	416	1,542
	No. of technology transfer transactions undertaken with support from the incubator center	205	149	667
	No. of enterprises securing stock market or OTC listing	0	3	36

Note: The output/input multiplier is the total increase in capitalization divided by the subsidy received.
Source: Small and Medium Enterprise Administration.

3. Establishment of the Integrated Government Education and Training Network

To make information about government education and training provision available from a single convenient source, and provide a "one-stop shopping" contact point, the SMEA has established a large-scale Integrated Government Education and Training Network website (http://get.nat.gov.tw) to integrate information about education and training

provision from 10 government agencies. Through the establishment of this website, the SMEA aims to make training and education information available to those who need it more rapidly and more conveniently. The website content includes information about commercial, industrial, healthcare, homemaking, artistic, agricultural and "other" training programs.

4. Holding of SME Manpower Cultivation Cources

The SME manpower cultivation courses organized by the SMEA in 2007 included SME Managerial Talent Cultivation courses, Discussion of Key Trends in SME Development, SME Managerial Leadership courses, and training courses for SME management consultants and guidance providers. The SMEA presents all trainees with a "lifelong learning passport" to encourage lifelong learning among SME employees. As of the end of December 2007, a total of 6,525 individual had undergone training; a cumulative total of 138,000 lifelong learning passports have been awarded (Table 9-2-3).

Table 9-2-3 Manpower Cultivation Achievements

Item	Results	Item	Results
SME Training Center	Over 138,000 lifelong learning passports awarded over the period 2000–2007	Financial manager, financial consultants, accountants	1,792 persons trained over the period 2001–2007
	580 enterprises registered for training over the period 2000–2007	Management consultants	636 persons trained over the period 1992–2007
SME Online College	3.55 million visitors during the period 2003–2007	SME leaders	613 persons trained over the period 2003–2007
	741 classes held over the period 2003–2007	R&D talent cultivation	87 persons trained over the period 2005–2007
	275,000 members (2003–2007)	Managerial knowledge	3,397 persons trained over the period 2006–2007

Source: Small and Medium Enterprise Administration.

5. Active Participation in International SME Activities to Promote International Exchange and Collaboration

The achievements of Taiwan's SMEs have won widespread international recognition, and Taiwan's SME sector has been the object of intensive study in other countries. Active participation in the meetings and activities of international economic and trade organizations has helped to raise Taiwan's international visibility, while also providing opportunities to share Taiwan's experience in SME development with other nations,

and to learn from them in turn. While promoting international exchange and business collaboration, these activities also help Taiwan's SMEs to achieve sustainable development. The main aspects of Taiwan's participation in international SME activities in 2007 are outlined below:

(1) Attendance at the 14th APEC SME Ministerial Meeting and Working Group Meeting

The 14th APEC SME Ministerial Meeting was held on March 8–9, 2007 in Hobart, Australia. The topic of the 14th Ministerial Meeting was "Driving SME Growth through Economic Reform." The Chinese Taipei delegation was headed by Deputy Minister Yen-shiang Shih of the Ministry of Economic Affairs, who read a report on "Reducing SME Operating Costs," in which he shared Taiwan's experience in assisting SMEs with legal and regulatory issues through the "Honorary SME Attorney" system and the provision of legal affairs consulting services. Deputy Minister Shih also described Taiwan's achievements in encouraging SMEs to make effective use of information technology and e-commerce to reduce the digital divide, the provision of online learning programs, and the guidance measures implemented by Taiwan to support the development of local industries.

With regard to the Ministerial Meeting sub-topic "Encouraging SME Innovation in Developing More Energy Efficient Industry to Assist in Cutting Greenhouse Gas Emissions," Vice Minister Shih noted Taiwan's establishment in June 2006 of an Office to Promote the Reduction of Greenhouse Gas Emissions in Industry. During the Ministerial Meeting, the Chinese Taipei delegation held bilateral discussions with several member economies, helping to promote international collaboration in the field of SME development.

(2) Holding of the APEC Local Cultural Industry Virtual Exposition

Local cultural industries consist mainly of SMEs; the aspects of local culture and artistic beauty that they embody give these industries significant development potential in international markets; at the same time, these industries can make a significant contribution towards job creation and towards revitalizing local economies. On August 20, 2007, Taiwan opened the Second APEC Local Cultural Industry Virtual Exposition, with the aim of helping local cultural industries to expand into international markets. In all, 10 APEC member economies – Chinese Taipei, Japan, Thailand, the Philippines, Malaysia, Indonesia, Peru, Mexico, Chile and Papua New Guinea – and one observer

(the South Pacific Forum) took part in the Exposition.

The theme of the 2007 Exposition was local tourist industries. Each of the participating economies provided information on less well-known tourist activities in their economy, supported by photographs, textual description, animation and video clips, etc. The Virtual Exposition will run for one year (http://www.alcive.tw).

(3) Holding of the APEC OVOP e-Commerce Conference and Training Workshop

The APEC OVOP (One Village One Product) e-Commerce Conference was held on August 20, 2007 in Taipei. Through discussion of the latest trends in e-business, it was intended that the conference would help those industries making use of e-commerce and to keep up to date with the latest trends.

The APEC OVOP e-Commerce Training Workshop was held to cultivate e-commerce trainers who can support the adoption of e-commerce in APEC's local cultural industries. In all, 11 APEC member economies sent a total of 23 trainees to participate in the Training Workshop. The training content includes website establishment, and e-commerce technologies and strategies, including money flow, logistics, legal affairs, market development, and overall business development strategy.

(4) Attendance at the APEC Small Business Summit in Melbourne

The 2007 APEC Small Business Summit was held on August 30–31, 2007 in Melbourne, Australia. Taking advantage of the opportunity to share Taiwan's experience in SME development and to promote collaboration and exchange with other APEC member economies in this area, representatives of some of Taiwan's most outstanding SMEs were invited to join the Chinese Taipei delegation. The Forum provided opportunities for business matching, along with visits to Australian SMEs.

III Upgrading SMEs' IT Capabilities

The main aim of IT application guidance services is to leverage e-enablement guidance programs to help business enterprises make effective use of computers and information technology to simplify operating procedures, and to reduce operating, management and marketing costs. At the same time, these programs also help firms to keep pace with global trends through e-enablement, and to develop new, online markets that would previously have been invisible to them.

1. Development of the ESMENET Website

The ESMENET portal site (http://sme.nat.gov.tw) was established to serve as an integrated information services portal site for SMEs, providing up-to-date, practical, value-added information (including information relating to SME start-up, marketing, business information, financing, operational management, international trade, and value-added content development). The site also provides access to information from projects commissioned by the SMEA, offers a range of value-added services (including product display, business matching, talent recruitment, details of financing sources, activity news, public opinion poll information, a case study database, and e-papers). The site can also be used to implement online application for various types of government services.

2. Promoting e-Learning in the SME Sector – the SME e-Learning University

The SMEA began implementation of the SME Learning project in 2003, with the aim of establishing a high-quality online learning environment that would stimulate SME employees' interest in learning, and would help to make e-learning more popular in the SME sector. The first stage in this process was the establishment of the SME e-Learning College. Subsequently, demand for both theoretical (management knowledge) and practical courses has increased steadily. In 2006 the SME e-Learning College was expanded and upgraded to create the SME e-Learning University, with four "faculties": information technology, general knowledge, marketing and distribution, and finance and financing. In all, the SME e-Learning University provides over 700 different courses free of charge. As of the end of 2007, more than 260,000 individuals had registered to become members of the SME e-Learning University. The University's website has received over 3 million visitors, and more than 500 SMEs have used the University's training programs successfully for their own internal training purposes (http://www.smelearning.org.tw).

3. Implementation of the Plan to Reduce the Digital Divide between Industries

The main emphasis in the Plan to Reduce the Digital Divide between Industries is on promoting e-enablement in rural areas. The SME Digitalization Teams provides guidance and considerate service to help SMEs in rural areas to make more effective

use of computers and broadband internet access, and to adopt e-commerce, to provide the foundations for development of "digital industry clusters."

The Plan has been implemented through the establishment of 12 SME Digitalization Teams, in collaboration with the Taiwan Computer Association and with individual information service providers. At the local level, e-enablement support is provided to SMEs with 20 or fewer employees. Efforts are also being made to strengthen the digital capabilities of female-owned enterprises, through the holding of both introductory and advanced seminars. Taiwan's 25 counties and cities have been divided into three categories according to the level of e-adoption, with e-enablement services to combat the digital divide being tailored to the specific needs of each of these three groups.

4. Establishment of the SME e-Enablement Service Teams

The SME e-Enablement Service Teams provide e-enablement guidance to industry clusters, supply chains and cross-industry alliances, tailoring its guidance to meet the special needs of individual industries. The Teams help firms to adopt e-enablement systems that are appropriate to their needs, and support the development of model e-enabled SMEs that other SMEs can learn from, thereby achieving imitation and diffusion effects.

Over the period 2005–2007, the SMEA supported the establishment of 34 SME e-Enablement Service Teams, which have provided consulting, diagnostic and guidance services to a total of 3,165 SMEs.

5. Promoting the Adoption of e-Commerce by SMEs

The main types of guidance provided by the SMEA in this area include: (1) Helping industry associations to establish their own portal sites, and providing guidance to help their member companies develop e-commerce. (2) Depending the provision of guidance for autonomous operation and online marketing, along with the establishment of model e-commerce enterprises. (3) Helping industry associations to integrate their marketing activities and to provide business information services that can help to create new business opportunities and transactions.

Over the period 2005–2007, the SMEA provided guidance to 88 industry associations, and helped over 9,000 member companies belonging to these associations to develop new business opportunities through the adoption of e-commerce.

6. Implementation of the SME Knowledge Management Plan

The SMEA has been working to build an environment conducive to the sharing of knowledge, integrating the knowledge and capabilities of industry and the university sector, and formulating models for knowledge management application architecture. The SMEA has also been working actively to spread awareness of knowledge management among business enterprises in Taiwan, so that SMEs can make effective use of knowledge management to accumulate core knowledge, thereby reducing the steepness of the learning curve for new employees, enabling enterprise operations to be completed more quickly, and stimulating the emergence of a corporate culture oriented towards the sharing of knowledge.

IV Strengthening the SME Management Guidance Function

The key work items and results achieved in this area in 2007 were as follows:

1. Guidance System Integration

Paragraph 2 of Article 12 of the SME Development Statute, which mandates the establishment of the SME guidance system and guidance methods, provides for 11 individual guidance systems: financing, operational management, new business incubation, information management, mutual assistance, quality upgrading, pollution prevention, R&D, industrial safety, production technology, and marketing. Responsibility for overseeing these 11 individual guidance systems was assigned to several different government agencies. Coordinating meetings for the SME guidance systems are chaired by a Vice Minister for Economic Affairs. Academics and experts are invited to participate in the discussion of key policies at these coordinating meetings; the resolutions reached during the meeting are followed up to improve overall guidance performance, thereby helping Taiwan's SMEs to strengthen their competitive advantage. The implementation plans for 2007 drawn up by the agencies with responsibility for each system can be viewed at (http://www.smecs.org.tw).

2. Promotion of Business Matching

The SMEA organizes new technology and new product presentations and publicization activities in collaboration with other Ministry of Economic Affairs agencies. The SMEA aims to assist SMEs with the following: (1) Achieving intense exposure of new

products with a short space of time, so that consumers can become familiar with these new products, and so that channels for collaborative marketing can be established. (2) Rapid securing of funding sources for the successful commercialization of new technologies, leveraging of key technologies in collaborative projects, and ensuring that technology conforms to market requirements. (3) Making effective use of online resources for product marketing and technology demonstrations.

In 2007, the SMEA organized 14 SME Business Matching and Technology Exchange activities. These activities fell into three categories: new product presentation and business matching fairs; new technology presentation and collaboration activities; online demonstration, marketing and business matching. In all, these activities brought about collaborative projects involving transactions worth a total of NT$270 million.

3. Helping SMEs to Strengthen their Operational Capabilities

(1) Provision of Assistance with Turnkey Factory Equipment Exports

Taiwan's SMEs have established a solid industrial foundation, and Taiwan possesses several key advantages with respect to turnkey factory exportation. The SMEA has had responsibility for providing turnkey factory exportation guidance since 1995, and has worked to create an environment conducive to SME turnkey factory exportation, providing guidance to help companies active in this area to innovate, upgrade their capabilities, and enhance their international competitiveness.

(2) Promoting Adoption of Intellectual Property Rights Management Systems

By promoting the adoption of intellectual property rights management systems, the SMEA aims to help SMEs to build competitive advantage by securing and protecting intellectual property. The SMEA also helps SMEs to apply for and secure Taiwan Intellectual Property Standard (TIPS) certification from the Industrial Development Bureau.

The guidance results achieved in 2007 included the provision of short-term diagnostic service to 40 enterprises, arranging individual guidance programs for 12 enterprises, and assisting with the introduction of 6 intellectual property rights management systems.

(3) Helping SMEs to Develop Branded Marketing

Taiwanese industry has for many years been oriented towards ODM/OEM contract

manufacturing. As competition from emerging economies with lower production costs has intensified, Taiwan's competitive advantage in manufacturing has been eroded. It is clear that Taiwanese industry needs to focus on upgrading itself and developing branded manufacturing if it is avoid being dragged into vicious price competition. To help SMEs develop their own brands, the SMEA provides SME brand management guidance. The key measures include: provision of branding consulting service, short-term diagnostic guidance, provision of general guidance to individual firms, and the holding of presentations to publicize the results of successful guidance provision.

The results achieved in SME brand development guidance in 2007 were as follows: on-site consulting service was provided for 32 enterprises; diagnostic service was provided for 10 enterprises; 3,500 copies of the *Branded Marketing Resources Handbook* were distributed; individual guidance was provided to 4 SMEs to help them develop their own brands.

(4) Provision of Operational Management Guidance to Individual SMEs

The SMEA has been working to strengthen the provision of operational management guidance to individual SMEs. The key implementation items here include: provision of operational management consulting service, short-term diagnostic guidance, general guidance for individual enterprises, and the holding of presentations to publicize the results of successful guidance provision.

The results achieved in operational management guidance over the period 2005–2007 were as follows: consulting service was provided to a total of 760 enterprises, short-term diagnostic service was provided to 400 enterprises, and general guidance was provided to 30 enterprises. On average, fail rates were reduced by 5%, operational efficiency was raised by 12%, and turnover per enterprise was increased by NT$320 million.

4. Strengthening the Capabilities of Management Consultants

The SMEA has established a Management Consultant Training Program to cultivate consultants who are familiar with modern management techniques and who possess an international outlook, a Management Consultant Guidance Capability Strengthening Program to enhance consultants' guidance capabilities and the quality of the service that they provide, and an International Management Consultant Forum to promote international exchange and help management consultants in Taiwan keep up to date

with global trends.

The results achieved in management consultant cultivation over the period 2005–2007 were as follows: 6 management consultant training courses were held, with a total of 167 trainees; 96 seminars were held to upgrade the capabilities of management consultants, with a total of 5,280 participants.

5. Promotion of Mutual Assistance and Collaboration among SMEs to Create Synergy

Collaboration between enterprises that can complement one another has the potential to create significant economies of scale. Such collaboration can help to strengthen not only the quality of internal operations, but also competitiveness vis-à-vis external competitors. The main forms of guidance provided in this area are as follows:

(1) The organizing of collaboration and exchange groups: In 2007, a total of 45 collaboration and exchange groups with organized, each with at least 15 member companies. In all, guidance was provided to 1,660 individual enterprises through these collaboration and exchange groups in 2007.

(2) Promotion of practical collaboration projects: Practical collaboration projects involve the formation of groups of at least 4 enterprises that have shared needs and have drawn up a concrete plan for practical collaboration. In 2007, a total of 7 practical collaboration projects were organized, with 65 firms participating. These projects created additional sales revenue totaling NT$3.8 billion, along with 1,195 new jobs.

6. Provision of Guidance for Local Cultural Industries and Community Enterprises

The provision of guidance for local cultural industries began back in 1989, while the provision of guidance for community enterprises commenced in 1994. The overall strategy for the provision of guidance to local cultural industries and community enterprises involves focusing on a single township or district, using a comprehensive range of guidance measures to achieve effective integration of local industry, creating linkages to build synergy and support the growth of a prosperous local economy.

The implementation items and results achieved in this area over the period 2004–2007 are shown in Table 9-4-1.

Table 9-4-1 Results Achieved in the Provision of Guidance to Local Cultural Industries

Item \ Year	2004	2005	2006	2007
No. of enterprises cultivated	1,964	2,046	2,142	2,273
No. of jobs created	1,413	1,461	1,491	1,644
No. of enterprises to which guidance was provided	365	360	388	430
Additional sales revenue created (NT$ thousands)	114,942	115,086	116,010	178,730

Source: Small and Medium Enterprise Administration.

7. Holding of SME Awards to Encourage Aggressive Business Development

The SMEA organizes a number of annual award activities. In 2007, all of these activities were implemented successfully; Table 9-4-2 below shows the main focus of each award, the number of times it has been held, and the results achieved.

Table 9-4-2 SME Awards

Award Type	Name of Award	Purpose	Results Achieved
Commendation of outstanding SMEs	National Award for Small and Medium Enterprises	To honor SMEs that have achieved steady growth, thereby promoting industrial upgrading and economic development.	Has been held 16 times; 175 enterprises have received awards.
	Small and Medium Enterprise Innovation Research Awards	To encourage SMEs to undertake innovative research, thereby upgrading their technology capabilities.	Has been held 14 times; 534 enterprises have received awards.
	Little Giant Awards	To honor those SMEs that have achieved particularly impressive export performance, thereby encouraging other SMEs to develop international markets.	Has been held 10 times; 180 enterprises have received awards.
Commendation of individuals who have made an important contribution to SME development	Outstanding Contribution to SME Development Awards	To honor individuals who have made an important contribution to SME guidance or the provision of other services to SMEs.	Has been held 14 times; 186 enterprises have received awards.
	SME Studies Masters and Ph.D. Thesis Awards	To encourage Masters and Doctoral candidates to undertake research on SME related issues.	Has been held 13 times; 166 Masters' candidates and 58 Doctoral candidates have received awards.
	Golden Book Awards	To encourage the writing and publication of books that can help business enterprises to enhance their competitiveness.	Has been held 13 times; 169 books have received awards.

Source: Small and Medium Enterprise Administration.

V Integration of SME Financing Mechanisms

To help SMEs strengthen their financial management capabilities, the SMEA has been working to formulate accounting systems suitable for SMEs, and has been collaborating with the SME Credit Guarantee Fund, the Taiwan Small Business Integrated Assistance

Center and private-sector venture capital firms to help SMEs secure the financing and credit guarantees they need. The key work items in this area, and the results achieved in 2007, are outlined below:

1. Financing and Credit Guarantees

It is harder for SMEs to secure financing from financial institutions than it is for large enterprises. The government has worked actively to establish mechanisms to help SMEs secure financing. Besides encouraging SMEs to make use of the various types of policy loan available to them, the government has also arranged for the establishment of SME Financing Contact Points at major banks to make it easier for SMEs to obtain information about loans, and to exploit the various preferential financing schemes that the government provides for SMEs.

(1) Credit Guarantees

In 1974, the government established the SME Credit Guarantee Fund to provide credit guarantees for SMEs. On May 15, 2003, responsibility for supervising SME Credit Guarantee Fund operations was transferred from the Ministry of Finance to the Ministry of Economic Affairs, with the aim of ensuring that the functioning of both the credit guarantee system and the SME guidance system were more closely in tune with government policy. Following this change, the SME Credit Guarantee Fund has continued

Table 9-5-1 Provision of Credit Guarantees to SMEs by the SME Credit Guarantee Fund

Units: cases; NT$ billions

Period	Actual Expenditure	No. of Credit Guarantee Applications Accepted	Combined Value of Credit Guarantees	Amount of Financing Secured	Amount Awaiting Repayment
The year immediately prior to the change of regulatory authority (June 2002 to May 2003)	6.00	161,940	147.1	252.1	5.07
The year immediately after the change of regulatory authority (June 2003 to May 2004)	10.32	230,197	237.8	402.5	5.33
Growth rate	72%	42.1%	61.7%	59.7%	5%
2004	9.32	260,322	302.7	497.5	4.66
2005	5.25	267,264	322.6	522.3	4.52
2006	5.50	257,806	308.6	513.9	5.09
2007	5.00	235,354	284.9	481.9	7.45

Notes: 1. As a result of mergers among the banks with which the SME Credit Guarantee Fund has signed agreements and changes in bank lending policy, the financing channels available to SMEs have become more limited. This, coupled with the adoption of new risk control measures by the Fund, caused the number of credit applications that were approved by the Fund to fall in 2006 and 2007.

2. The expenditure of NT$10.32 billion in the year following the change in the regulatory authority comprised the 2003 budget of NT$1 billion plus the 2003 secondary reserve of NT$3.5 billion and the 2004 budget of NT$5.82 billion.

Source: SME Credit Guarantee Fund.

to expand the scope of its credit guarantee operations; both the amount of credit guarantees provided and the amount of financing secured by SMEs using these guarantees have increased substantially (Table 9-5-1). For more details about the functioning of the SME Credit Guarantee Fund, see Section VI of this chapter.

(2) Implementation of the Plan to Strengthen the Provision of Loans to SMEs by Domestic Banks

The help SMEs obtain the working capital they need by strengthening the intermediary role played by banks, on July 1, 2005 the Financial Supervisory Commission launched Plan to Strengthen the Provision of Loans to SMEs by Domestic Banks, to be implemented over a period of three years. The results achieved in the implementation of this plan have been as follows:

a. The target for the first year of implementation (July 1, 2005 to June 30, 2006) was to increase outstanding loans to SMEs by NT$200 billion. As of the end of June 2006, outstanding loans to SMEs by domestic banks stood at NT$2,688.3 billion, representing an increase of NT$321.7 billion compared to 2005.

b. The target for the second year of implementation (July 1, 2006 to June 30, 2007) was to increase outstanding loans to SMEs by NT$200 billion. As of the end of June 2007, outstanding loans to SMEs by domestic banks stood at NT$2,945.4 billion, representing an increase of NT$257.1 billion compared to 2006.

c. The target for the third year of implementation (July 1, 2007 to June 30, 2008) was to increase outstanding loans to SMEs by NT$200 billion. The SME Credit Guarantee Fund also increased the funds available for batch-type credit guarantees by NT$100 billion, increasing the quotas for each bank in line with the individual banks' operational status. As of the end of June 2008, outstanding loans to SMEs by domestic banks stood at NT$3,223.8 billion, representing an increase of NT$278.4 billion compared to the end of June 2007.

(3) Policy Loans

The SMEA has arranged for the provision of a range of policy loans through government agencies to help SMEs secure the financing they need. Unlike conventional financing, these loans are granted for specific purposes, and have preferential interest rates. In all, the government provides 26 types of policy loan to SMEs in 11 categories. Those handled by the SMEA are shown in Table 9-5-2.

Table 9-5-2 Implementation of Policy Loans Handled by the SMEA

Units: cases; NT$ billions

Loan Type	Stage	Quota	Date of Commencement	Date of Termination	Cumulative Cases Awarded	Total Value of Loans Awarded	Available Balance
Small Loans for SMEs (Simplified Procedures)	***	Bank funding	1999.03	***	195,970	204.15	***
SME Development Fund Project Loans	***	0.5	1992.05	2008.12	3,761	48.48	0.36
SME Root Establishment Project Loans	Stage 1	20	1996.07	1997.11	1,510	19.70	0
	Stage 2	30	1997.12	1999.03	2,017	29.95	0
	Stage 3	30	1999.04	2000.03	2,173	29.53	0
	Stage 4	50	2000.04	2002.12	3,619	48.34	0
	Stage 5	50	2003.01	***	3,199	37.24	12.76
Loans to Help SMEs Recover From Natural Disasters and Economic Downturns	***	-	1992.05	2005.12	133	0.74	Already terminated
SME Disaster Recovery Loans	***	Bank funding	2006.01.01	***	4	0.02	***
Micro-enterprise Start-up Loans	***	Bank funding	2003.01.22	2007.02.28	8,077	6.74	Transferred to the Council of Labor Affairs on March 1, 2007
Loans to Help Taiwanese Enterprises Fight International Patent Lawsuits	***	0.7	2004.04.01	***	4	0.18	0.52
Local Cultural Industry Loans	Stage 1	10	2006.03	***	12	0.04	9.96
Loans to Help Enterprises Adjust to the New Labor Insurance Pension System	***	Bank funding	2005.09	2007.07.01	0	0.00	Already Terminated
Total					**220,479**	**425.11**	**23.60**

Source: Small and Medium Enterprise Administration.

2. Providing a Wider Range of Channels for SME Sector Investment

(1) Investment in the SME Sector via the Executive Yuan Development Fund

To stimulate joint investment in SMEs by the private sector (including venture capital funds), on April 17, 2007 the Executive Yuan Development Fund approved the Plan for Strengthening Investment in the SME Sector, whereby the Executive Yuan Development Fund would allocated NT$10 billion for investment in SMEs. Implementation of this plan was to take place over 10 years, with investment in the first 7 years being followed by project wind-up in the last 3 years. Implementation of this plan commenced on August 30, 2007.

As of the end of December 2007, the Executive Yuan Development Fund had

invested NT$343,596,000 in 10 projects, supplemented by NT$357,965,000 of investment by asset management companies, for a combined total of NT$701,561,000 of investment.

(2) Establishment of SME Development Corporations

The SME Development Corporations were established in accordance with the provisions of the SME Development Statute, which provided for the establishment of the SME Development Fund and the formulation of the SME Development Corporation Management Regulations. Besides investing (both directly and indirectly) in the SME sector and helping SMEs to secure the funding they need, the SME Development Corporations also undertake international technology collaboration projects, provide consulting and information services in the areas of market and product development and operational management, and assist SMEs with mid- and long-term financial planning.

The share of SME Development Corporation investment going to individual industries is as follows: optoelectronics industry, 18%; biotechnology, 10%; electronic components, 28%; software and IC design, 15%; other industries (including nanotechnology), 29%.

As of the end of December 2007, the SME Development Corporations had invested in a total of 219 companies, with cumulative investment totaling NT$3,500 million. The revenue from this investment was as follows: Stock dividends – NT$68.4 million; Cash dividends – NT$52.42 million.

(3) Establishment of the Start-up Incubation Trust-type Investment Account

On May 29, 2003, having secured the approval of the Executive Yuan, the SMEA allocated NT$2 billion from the SME Development Fund to establish the SME Start-up Incubation Trust-type Investment Account system, whereby management of the funds would be entrusted to a bank. Investment began in October 2003.

The share of investment going to individual industries is as follows: optoelectronics, 24%; biotechnology, 7%; electronic components, 26%; software and IC design, 21%; other industries (including nanotechnology), 22%.

As of the end of December 2007, the system had invested in 72 SMEs. The SME Development Fund invested a total of NT$1,315,263,400, with asset management companies providing a further NT$1,436,665,100 of investment, for a combined total of

NT$2,751,928,500. The cash dividends on this investment totaled NT$33 million; disposal of gains yielded over NT$141,800,000.

3. Financing Diagnostics and Guidance

The SME Financial Guidance System and the SME Troubleshooting Center provide a wide range of guidance and information services, helping to coordinate the provision of financing assistance by financial institutions to enterprises that are experiencing financial difficulties. The SME Financial Guidance System and SME Troubleshooting Center also help enterprises to strengthen their financial and accounting systems and their overall financial management capabilities.

(1) The Finance and Financing Coordination Mechanism

The SME Troubleshooting Center (TEL: 0800-056-476) was established to leverage existing SME guidance and service resources in handling SMEs' queries and requests for assistance as promptly and efficiently as possible. The Center provides a range of consulting services, and can offer assistance in the areas of financial diagnostic guidance, reaching settlements with debtors/creditors, and referrals. The results achieved by the SME Troubleshooting Center in the last few years are shown in Table 9-5-3.

Table 9-5-3 The Results Achieved by the SME Troubleshooting Center in Recent Years

Types of Cases		2005	2006	2007	Total
Telephone consulting service (non-financial)		995	628	1,089	3,432
Telephone consulting service (financial)		4,355	8,245[1]	2,085	14,685
Assistance with securing funding	Cases handled by the SME Troubleshooting Center[2]	2,412	1,387	1,474	5,273
	Diagnostic guidance provision	208	510[3]	310	820
	Arranging creditor/debtor settlement	20	22	21	63
	Funds obtained, and repayments rescheduled (NT$ millions)	5,797	7,369	3,317	16,483
Intellectual property rights financing guidance	Diagnostic guidance provision	117	118	81	316
	No. of enterprises assisted	24	10	12	46
	Amount of financing secured (NT$ millions)	304	232	167	703

Notes: 1. Includes 4,525 cases in which business owners were given assistance with respect to credit card debt by the Credit Card Debt Support Team established by the Executive Yuan in 2006.
2. The dual-track financing guarantee system that was in operation from November 2002 to December 2005 was not continued into 2006. The post-settlement financing ratio was approximately 50%.
3. In 2006, the Young Entrepreneurs Association provided financing diagnostics service on 300 occasions, while the Integrated Assistance Center provided follow-up service for 210 cases.

Source: Small and Medium Enterprise Administration.

(2) Promoting the Use of SMEs' Intellectual Property Rights for Financing Purposes

To help SMEs leverage their intellectual property rights to securing financing, the SMEA has been providing guidance service, investment matching, and cultivation activities, with the aim of increasing the range of financial channels available to SMEs, while at the same time working to enhance financial institutions' understanding of intellectual property rights, so that they will be wiling to undertake intellectual property rights based financing for SMEs.

The implementation results achieved in 2007 were as follows: (1) Arranging for academics and experts to provide intellectual property rights management and financial health diagnostic and guidance service to 81 SMEs; (2) Leveraging the resources of the SME Credit Guarantee Fund to provide credit guarantees for intellectual property rights financing, thereby helping 12 SMEs to secure financing totaling NT$167 million (Table 9-5-3).

VI Financing and Credit Guarantees – the SME Credit Guarantee Fund

SMEs' small size, limited earning ability, lack of collateral and frequently unsound accounting systems make it difficult for them to secure financing from financial institutions. Recognizing the seriousness of this problem, in 1974 the government provided funding assistance to establish the SME Credit Guarantee Fund, the first specialist credit guarantee institution to be set up in Taiwan.

1. The Principles behind the SME Credit Guarantee Fund's Establishment, Its Functions, and Its Transformations

The SME Credit Guarantee Fund was established to provide credit guarantees to SMEs, and to collaborate with banks on the development of a range of financing guidance services for SMEs, thereby helping SMEs to secure financing from financial institutions.

The SME Credit Guarantee Fund has the following basic functions: (1) Implementation of the government's SME guidance policy, helping SMEs to overcome the difficulties imposed by their lack of collateral when attempting to secure financing; (2) Increasing financial institutions' willingness to provide financing to SMEs; (3)

Working with other guidance agencies to ensure that SME guidance efforts create maximum benefits.

On May 15, 2003, responsibility for supervising the SME Credit Guarantee Fund was transferred from the Ministry of Finance to the Ministry of Economic Affairs, and the Fund began to provide both direct and indirect credit guarantees.

2. Credit Guarantee Items and Operations

(1) Expanding the Range of Credit Guarantee Services Provided in Line with Government Policy

Besides regular SME credit guarantee service, the SME Credit Guarantee Fund also collaborates on the provision of various other types of credit guarantee service in line with government policy requirements. As of the end of December 2007, the following types of credit guarantee service were being provided:

a. Credit guarantees for Young Entrepreneur Loans: Since October 1986, the Fund has provided credit guarantees for Young Entrepreneur Loans to support the establishment of new business enterprises by young entrepreneurs, create new jobs, and support national economic development.

b. Credit guarantees for Brand Development Loans: In October 1990, the SME Credit Guarantee Fund began providing credit guarantees to support the development of international brands by Taiwanese enterprises. In December 2006, the maximum size of credit guarantee was increased to NT$200 million in line with the Ministry of Economic Affairs' Branding Taiwan initiative. This type of credit guarantee is also available to large enterprises.

c. Credit guarantees for Micro-enterprise Start-up Loans: Since January 2003, the Fund has provided credit guarantees for Micro-enterprise Start-up Loans to encourage entrepreneurial activity among the middle-aged and elderly, and provide stimulus for job creation.

d. Credit guarantees for R&D Loans for Industrial Upgrading: Since January 2003, the Fund has helped enterprises to secure funding for R&D activity, in line with government policy.

e. Credit guarantees for R&D Environment Construction Loans: Since October 2005, the Fund has provided credit guarantees for R&D Environment Construction Loans

in line with the government's aim of encouraging R&D activity by private-sector enterprises, so as to build Taiwan into a leading international center for innovation and R&D.

f. Credit guarantees for Digital Content Industry and Cultural and Creative Industry Development Loans: Since October 2004, the Fund has provided credit guarantees for Digital Content Industry and Cultural and Creative Industry Development Loans in line with the government's aim of developing Taiwan into a major Asia Pacific region digital content design, development and production hub, and enhancing the importance of the cultural and creative industries within the industrial structure and within social policy. This type of credit guarantee is also available to large enterprises.

g. Credit guarantees for Loans to Help Taiwanese Enterprises Fight International Patent Lawsuits: Provision of this service began on July 1, 2005, with the aim of helping Taiwanese enterprises secure the funding they need to fight patent lawsuits initiated by foreign companies.

h. Credit guarantees for Loans to Help Taiwanese SMEs Invest in Countries that Have Formal Diplomatic Relations with Taiwan: Provision of this service began in January 2006, with the aim of helping SMEs seeking to invest in countries that have diplomatic relations with Taiwan to secure the funding they need, in line with the government's Co-prosperity Project.

i. Credit guarantees for Disaster Recovery Loans: Provision of this service began in May 2006, to help SMEs that have suffered damage to their place of business, factory, products, raw materials or works in process as a result of natural disaster to secure the funding they need for recovery.

(2) Development of Innovative New Services by the SME Credit Guarantee Fund

Over the years, the SME Credit Guarantee Fund has been vigorous in its implementation of credit guarantee services in accordance with the government's SME guidance policy. In the last few years, the Fund has introduced a range of innovative new services in line with the changes in the financial environment and in customer needs.

a. Credit guarantees for Firefly Counterpart Guarantee Fund Loans

Since March 2006, the SME Credit Guarantee Fund has been providing credit

guarantees to help enterprises recommended by companies that have donated to the Firefly Counterpart Guarantee Fund (enterprises that may include their suppliers, customers, associate companies, distributors or franchisees), with the aim of ensuring payment for goods sold, and stimulating investment in innovation and R&D so as to boost value-added and stimulate industrial upgrading. Several leading enterprises, including China Steel, Chunghwa Telecom and Lih Pao Construction, have already contributed to the Firefly Counterpart Guarantee Fund.

b. Credit Guarantees for the Phoenix Micro Fund for Entrepreneurial Women

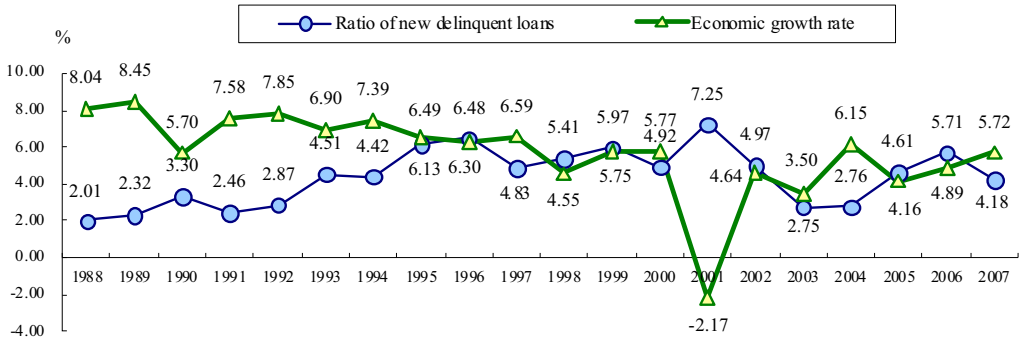
The Phoenix Micro Fund for Entrepreneurial Women project was launched to boost female participation in the work-force, and to help build an environment conducive to entrepreneurial activity by women, thereby helping women to establish their own micro-enterprises and create jobs. The project involves the provision of both partner service and credit guarantees. As of May 2007, the SME Credit Guarantee Fund and the Council of Labor Affair's Employment Stability Fund had each contributed NT$50 million for the provision of credit guarantees to help female entrepreneurs obtain the funding they need to start their own business.

As of the end of June 2008, 127 Phoenix introductory classes had been held, with a total of 10,471 undergoing training; 45 advanced classes had been held, with 2,568 people undergoing training. In all, 245 Phoenix loan applications had been approved, with a total of NT$89.52 million being disbursed.

3. Controlling the SME Credit Guarantee Fund Delinquent Loan Ratio

As the SME Credit Guarantee Fund provides credit guarantees that enable SMEs to secure loans without collateral, the level of risk is inherently rather high. In the last few years, the Fund has had to collaborate with government initiatives to expand the scale of credit guarantee provision, resulting in a further increase in the level of risk that the Fund has to bear. The Fund has adopted a variety of risk control measures to try to keep the delinquent loan ratio below a reasonable level. Comparison of the trend in the delinquent loan ratio with the economic growth rate (Figure 9-6-1) shows that an upturn in the economy has generally been accompanied by a fall in the delinquent loan ratio. The delinquent loan ratio for loans obtained using credit guarantees provided by the SME Credit Guarantee Fund fell from 5.17% in 2006 to 4.18% in 2007.

Figure 9-6-1 The Delinquent Loan Ratio and the Economic Growth Rate, 1988 – 2007



Notes: 1. The ratio of new delinquent loans = the amount of new delinquent loans / the total amount of loans that have come due.
2. The SME Credit Guarantee Fund classifies as delinquent loans those that have not yet been repaid two months after becoming due; this is different from the method used by most banks, which classify as delinquent those loans that have not yet been repaid three months after becoming due. The basis for calculation of delinquent loans that is used by the Fund is thus different from that used by the banks.

Source: SME Credit Guarantee Fund.

4. The Results Achieved Through the Provision of Credit Guarantees by the SME Credit Guarantee Fund

During the 33 years in which it has been existence, the SME Credit Guarantee Fund made major strides, whether in terms of the types of companies to which credit guarantees are provided, the types of credit guarantee provided, the industries serviced, credit guarantee size, the number of participating financial institutions, or the promotion of new SME financing measures. The total amount of credit guarantees provided has grown rapidly over this period.

(1) The Benefits of SME Credit Guarantees to SMEs

Funding is the lifeblood of a business enterprise; the availability of sufficient funding plays a key role in determining whether a business succeeds or fails. Enterprises may raise capital themselves, or obtain funding from outside sources; SMEs are often particularly reliant on external funding because of their limited own capital. Different enterprises have different funding needs depending on the stage of development that they have reached and the business goals that they have set themselves. The SME Credit Guarantee Fund provides a range of different credit guarantees to meet these different needs, along with a variety of different guarantee provision models – including indirect guarantees, special project guarantees, direct guarantees and batch-type

guarantees – to help SMEs secure the funding they need.

As of the end of December 2007, the SME Credit Guarantee Fund had given assistance to a total of 273,215 enterprises, providing credit guarantees that enabled SMEs to secure 3,370,178 individual loans from financial institutions; the total amount of financing provided came to NT$5,852.1 billion. The Fund has thus made a substantial contribution towards helping Taiwan's SMEs to grow, and to the Taiwanese economy as a whole. The total number of credit guarantee cases handled over the past seven years, and the amount of financing secured, are shown in Table 9-6-1 below.

Table 9-6-1 The Number of Credit Guarantees Provided by the SME Credit Guarantee Fund and the Combined Value of the Guarantees, 2001 – 2007

Item / Year	Cumulative Number of SMEs in Receipt of Credit Guarantees	Number of Credit Guarantee Applications Accepted	Combined Value of Credit Guarantees (NT$ millions)	Total Amount of Financing Secured (NT$ millions)
2001	144,402	149,610	147,804	233,913
2002	162,293	160,123	151,028	250,977
2003	187,517	199,783	205,179	347,852
2004	216,964	265,137	315,449	516,775
2005	243,325	271,401	333,020	538,947
2006	262,441	261,824	319,604	530,459
2007	273,215	238,801	290,611	495,257
Cumulative total (1974 – 2007)	**273,215**	**3,370,178**	**3,944,532**	**5,852,097**

Source: SME Credit Guarantee Fund.

(2) The Benefits to the SME Sector from the Operation of the SME Credit Guarantee Fund

According to statistics compiled by the SME Credit Guarantee Fund, as of the end of 2007, 68.29% of the SMEs in receipt of SME credit guarantees had been granted guarantees of less than NT$2 million, 86.27% had been granted guarantees of less than NT$5 million, and 94.19% had been granted guarantees of less than NT$10 million. 95.26% of the SMEs in receipt of SME credit guarantees had capitalization of less than NT$30 million. It can thus be seen that small enterprises are the main recipients of SME credit guarantees.

Most of the SMEs that receive credit guarantees from the SME Credit Guarantee Fund subsequently grow strong enough and establish a sufficiently good credit record not to need further assistance from the Fund, being able to secure the funding they need

from the capital markets or through bank loans that they arrange themselves. As of 2007, of the 175 SMEs that had won the National Award of Small and Medium Enterprises over the years, 133 had previously been recipients of credit guarantees from the SME Credit Guarantee Fund; the same was true of 128 of the 179 winners of the Little Giant Award, 312 out of 543 winners of the Small and Medium Enterprise Innovation Research Award, and 7 out of 10 winners of the National Quality Award. Furthermore, more than 2,000 of the SMEs that have been granted credit guarantees in the past have since grown sufficiently large to be classed as "large enterprises" rather than SMEs, 542 of which have secured stock market or OTC listing.

In 2007, the SME Credit Guarantee Fund provided credit guarantees with a combined value of NT$290.6 billion, helping approximately 154,000 enterprises to secure financing from financial institutions that totaled NT$495.3 billion. The number and value of the various types of credit guarantees as of the end of 2007 are shown in Table 9-6-2 below.

Table 9-6-2 Cumulative Number of Cases and Value of Individual Types of Credit Guarantee as of the End of 2007

Type of Credit Guarantee	Cumulative No. of Guarantees Provided	Cumulative Value of Guarantees Provided (NT$ millions)
Credit guarantees for Young Entrepreneur Loans	13,198	9,612
Credit guarantees for Brand Development Loans	99	2,195
Credit guarantees for Traditional Industry Loans	38,792	142,392
Credit guarantees for Digital Content Industry and Cultural and Creative Industry Development Loans	147	1,275
Credit guarantees for Micro-enterprise Start-up Loans	8,182	6,766
Credit guarantees for R&D Loans for Industrial Upgrading	296	3,803
Credit guarantees for R&D Environment Construction Loans	6	90
Credit guarantees for Loans to Help Taiwanese Enterprises Fight International Patent Lawsuits	9	141
Credit guarantees for Disaster Recovery Loans	4	18
Direct credit guarantees	886	4,552
Credit guarantees for Knowledge Economy Enterprise Financing	149	726
Batch-type credit guarantees	68,029	220,911
Credit guarantees for Firefly Counterpart Guarantee Loans	1,298	1,127
Credit guarantees for Phoenix Micro Fund for Entrepreneurial Women Loans	145	57
Total	**131,240**	**393,665**

Source: SME Credit Guarantee Fund.

(3) The Contribution Made by the SME Credit Guarantee Fund towards Taiwan's Economic Growth

A report compiled by the Small and Medium Enterprise Administration of the Ministry of Economic Affairs in 2006 entitled *Increasing Financial Institutions' Willingness to Extend Financing to SMEs* notes that the SME Credit Guarantee Fund functions as a kind of buffer between financial institutions and SMEs, reducing the potential negative impact of SME default on the financial institutions. The Fund also provides a vital helping hand for SMEs that lack collateral and SMEs, although possessing excellent growth potential, are still just getting off the ground.

Professor Hsiu-Wei Lin of National Taiwan University showed in *The Contribution Made by the SME Credit Guarantee Fund towards Taiwan's Economic Growth* (2007) that every NT$1 of credit guarantees provided by the Fund helps SMEs to add an extra NT$0.23 to Taiwan's GDP. Given that, in 2007, the Fund provided credit guarantees totaling NT$290.6 billion, this represented an extra NT$66.8 billion in GDP created by SMEs as a result.

VII The Resources Allocated by the Government for SME Development

To support SME development, the government provides resources in the form of guidance, project loans, awards etc. every year. The SME Development Statute clearly stipulates that the *White Paper on Small and Medium Enterprises in Taiwan* should describe all of the resources available for promoting SME development, and since 2001 the *White Paper* has included a section outlining these resources. However, the SME Development Statute provision in question does not clearly define the scope of "resources allocated for SME development." For the purposes of this section, with the exception of government purchasing of goods, construction work or services from SMEs, all other resources – such as government resources allocated for SME guidance or for the provision of project loans to SMEs – are limited to resources provided by agencies at the central government level. The data presented in this section are based on the actual amounts spent. In all, government resources allocated for SME development in 2007 amounted to NT$522,611 million (including donations to the SME Credit Guarantee Fund), representing a substantial decrease of NT$212,772 million compared to the 2006 total of NT$735,383 million. This was mainly due to a NT$221,607 million

decline in government purchasing from SMEs, which is described further below.

1. Government Purchasing from SMEs – NT$482,752 million

Tender award statistics from the Government Procurement Information System show that, in 2007, total government purchasing from SMEs (regardless of whether the SMEs were being used as contractors or sub-contractors) came to NT$482,752 million, down from NT$704,359 million in 2006. The share of total government purchasing going to SMEs (whether as contractors or subcontractors) also fell, from 74.69% in 2006 to 42.61% in 2007. The main reason for this situation was that many agencies failed to meet the target of ensuring that 30% of purchasing by that agency went to SMEs. The situation was particularly serious in the case of the Supreme Court and Taichung County Council, where SMEs' share of government purchasing by that agency was zero.

2. Government Spending on the Provision of Guidance to SMEs – NT$24,473 million

In the past, the statistics for government resources allocated to SME guidance used by the SMEA covered only the Eleven Major Guidance Systems established by the SMEA in concert with other Ministry of Economic Affairs agencies such as the Industrial Development Bureau, Bureau of Foreign Trade, Commerce Department, Department of Industrial Technology, and the Industrial Development and Investment Center. Subsequently, the manpower cultivation funding provided by the Council of Labor Affairs was also included. Since 2005, the government's contribution to the SME Credit Guarantee Fund has been included in the statistics, and in 2007 relevant spending by the Intellectual Property Office also began to be included. In 2007, several financial institutions made donations to the SME Credit Guarantee Fund to strengthen the Fund's ability to provide credit guarantees; these donations have also been included in the calculation of expenditure on SME guidance.

Table 9-7-1 shows the settled account of expenditures for each of the agencies involved in providing guidance to SMEs in 2007. The grand total comes to NT$35,316 million, of which NT$22,304 million (63.16% of the total) was applied to SME guidance. In 2007, the Department of Industrial Technology made the single largest contribution to SME guidance, at NT$10,253 million, followed by the Industrial Development Bureau with NT$2,628 million, and the Bureau of Foreign Trade with

NT$2,355 million. Besides allocating NT$1,567 million for SME guidance, the SMEA also made a contribution of NT$5 billion to the SME Credit Guarantee Fund; this expenditure also falls under the category of SME financing guidance.

Table 9-7-1 Resources Allocated to SME Guidance by the Ministry of Economic Affairs

Units: NT$ thousands ; %

Agency \ Annual Amount	Settled Account of Expenditures (2007)	Total Expenditure on SME Guidance	Increase / Decrease (percentage point change shown in brackets)
Small and Medium Enterprise Administration (including the SME Development Fund)	6,567,421	6,567,421 （100.00）	-353,711 （0.00）
Industrial Development Bureau (industrial technology guidance and the Industrial District Development Fund)	4,429,923	2,628,291 （59.33）	-93,029 （-1.66）
Bureau of Foreign Trade (overseas marketing guidance and the Trade Promotion Fund)	3,615,089	2,355,396 （65.15）	-573,315 (-19.77)
Commerce Department (promoting the modernization of commercial operations and the development of relevant technology)	1,698,542	488,301 （28.75）	-4,950 (-5.32)
Department of Industrial Technology	17,780,908	10,252,836 （57.66）	2,127,882 (13.89)
Intellectual Property Office	1,224,554	11,683 （0.95）	—
Total	**35,316,437**	**22,304,239** **63.16**	**1,041,413** **(2.44)**

Notes: 1. Figures in parentheses are the percentage of the total settled account of expenditures for the agency in question.
2.The SMEA's expenditure includes a contribution of NT$5 billion made to the SME Credit Guarantee Fund.
Source: The respective agencies.

As regards comparison of the data for 2007 with 2006, the Industrial Development and Investment Center did not undertake any SME-related investment in 2007 and so can not be included in the comparison, while this year, for the first time, SME-related investment by the Intellectual Property Office was included in the data. Overall, government spending on the provision of guidance to SMEs increased by NT$1,041

million. However, while spending by the Department of Industrial Technology increased by NT$2,128 million, all of the other agencies reported a decrease in their spending on SME guidance. While all of the SMEA's expenditure was SME guidance related, its total spending fell by NT$354 million. The share of the Ministry of Economic Affairs' total spending going towards SME guidance rose by 2.44 percentage points. However, while the Department of Industrial Technology's share rose by 13.89 percentage points, the SMEA's share remained roughly unchanged, and other agencies' shares all fell. In most cases, this decline was due to a reduction in the budget available to the agencies in question (Table 9-7-1).

Besides spending on SME guidance by agencies falling under the Ministry of Economic Affairs, in 2007 nearly 40 financial institutions donated a combined total of NT$1,971 million to the SME Credit Guarantee Fund, with the aim of strengthening the Fund's ability to provide credit guarantees. Adding together public-sector and private-sector spending on SME guidance in 2007, the grand total came to NT$24,275 million.

As regards investment in manpower resources, the Council of Labor Affairs allocated around NT$400 million for manpower cultivation (including both single-enterprise projects and joint projects) in 2007. Single-enterprise manpower cultivation projects target individual enterprises, encouraging business owners to make use of their existing facilities and resources (and specialist manpower cultivation service providers, if necessary) to achieve improvements in productivity and quality. Joint projects involve 5 or more enterprises. They involve the provision of joint in-service training for the enterprises' employees, emphasizing the diffusion and sharing of training and other resources; by enhancing the overall quality of the enterprises' human resources, they contribute to the upgrading of particular industries and regions. Overall, spending on SME manpower cultivation totaled around NT$198 million; total government spending on SME cultivation in 2007 was therefore approximately NT$24,473 million.

3. SME Project Financing Loans Totaled Approximately NT$15,386 million

The government provides six types of project financing loans that target SMES. Total government spending on SME project financing loans in 2007 was approximately NT$15,386 million (Table 9-7-2).

Table 9-7-2 Government Spending on SME Project Financing Loans in 2007

Unit: NT$ millions

Loan Type	Targets	Funding Sources	Amount	
			Total Loan Amount	Govt. Expenditure
SME Upgrading Loans	SMEs	The Executive Yuan Development Fund provides one-quarter of the funds for each loan, with the remainder being provided by banks.	2,152	538
Young Entrepreneur Loans (National Youth Commission)	Young entrepreneurs aged 20 – 45 who are starting their first business	The Sino-American Fund for Economic and Social Development provides half of the funds for each loan, with the other half being provided by banks.	992	496
SME Development Fund Project Loans	SMEs	The SME Development Fund provides all funding.	419	419
SME Root Establishment Project Loans	SMEs	The Council for Economic Planning and Development provides funding support from medium- and long-term funds.	8,549	8,549
Loans for Indigenous People (including Agriculture, Forestry, Fisheries and Animal Husbandry Loans, Leisure Agriculture Loans, Enterprise Loans, Transportation Industry Loans, Commercial Loans, Housing Loans, and Service Industry Loans)	Indigenous people	Council for Indigenous People	4,800	4,800
Micro-enterprise start-up loans	Enterprises established by the middle-aged or elderly unemployed (aged 45 – 65) that have been in existence for less than one year.	The Council of Labor Affairs makes up the interest differential.	7,000	584
Total			**23,912**	**15,386**

Source: The respective agencies.

Chapter 10

SME Policy in Taiwan – Perspectives and Future Trends

The previous chapter outlined the five key strategies and measures implemented by the Small and Medium Enterprise Administration (SMEA) in 2007, focusing on their main content and on the results achieved. In any given year, some projects will inevitably fall behind schedule, while others proceed smoothly and with impressive results; at the same time, new strategies will be formulated and new key work areas identified. This chapter will examine the SMEA's performance with respect to the key work items undertaken in 2007, while also seeking to forecast the areas on which the SMEA will be focusing in 2008, and the results that it can be expected to achieve.

I Creating a First-class Environment for SME Development

1. Establishment of Mechanisms to Facilitate Analysis of the Potential Impact on SMEs of Changes in the Legal and Regulatory Environment

The size of a business enterprise affects how well that enterprise is able to cope with new legal and regulatory requirements. Often, new legislation that is unsuited to current circumstances or that does not take into account the special characteristics of smaller businesses puts severe pressure on SMEs. Currently, proposals for new legislation or the revision of existing legislation are drawn up by individual government agencies and then submitted to the Executive Yuan's Legal Affairs Committee. No appraisal is made of the likely impact on SMEs prior to submitting legislative proposals to the Legal Affairs Committee. As a result, disputes often arise after new laws have come into effect. Due to the limited resources available to them, SMEs often find it difficult to adapt to new laws and regulations. It is therefore very important that government agencies should take into consideration the possible impact on SMEs when drawing up legislative proposals. In 2004 the SMEA began to develop mechanisms for analyzing

the potential impact of new legislation on SMEs, and for related legislative proposal appraisal work.

The results achieved in the SME legal and regulatory adjustment analysis mechanism pilot project that was implemented in 2007 showed that many agencies have concerns about how a mechanism of this type would work in practice. Their main concern is that the introduction of this kind of mechanism will make the process of formulating legal and regulatory proposals more burdensome. In addition, government agencies are worried that they lack the necessary analytical capabilities; they are also concerned about the possible impact of the increased disclosure of information that will be required. It can thus be seen that manpower cultivation and promoting awareness are vital preconditions for the introduction of impact analysis mechanisms. Although case studies have some value here, many administrative personnel will find it difficult to utilize these effectively, and it may still be necessary to outsource the work of impact appraisal to specialist bodies; this is one of the reasons for the slow adoption of mechanisms of this type. Another issue is that there is still room for improvement in the operation of the SMEA's Consulting Center; this is an area that the SMEA will need to work on in the future in order to achieve ongoing promotion of legislative and regulatory impact appraisal mechanisms.

2. Promotion of SME Legal and Regulatory Information and Consulting Services

(1) Compilation and Publication of the Legal and Regulatory Guidance Handbooks

The main objective behind the compilation of the SME Legal and Regulatory Guidance Handbooks is to give SMEs a better understanding of the purpose of particular laws, and to render them more aware of their rights and obligations under these laws. For example, the *Points to Note for SMEs When Drawing Up Contracts*, compiled in 2007, shows SMEs how to go about drawing up a contract, what clauses a contract should contain, and the remedies that should be specified for breach of contract; it also includes sample contracts. However, sample contracts cannot cover the requirements of every single SME; it is important for SMEs to be able to draw up their own contracts in accordance with their own individual circumstances.

With the growing importance of temporary staffing, the issues of employee termination and severance have become increasingly important. In 2008, the SMEA

intends to publish *SME Labor Disputes – Points to Note Regarding Employee Termination and Severance*, to provide a reference for SMEs when dealing with labor disputes.

(2) Provision of Legal and Regulatory Consulting and Guidance Services to SMEs

Besides helping SMEs to strengthen their legal and regulatory knowledge through its website and through the publication of guides and handbooks, the SMEA also offers legal consulting services, provided by a team of enthusiastic attorneys working pro-bono. The three areas in which legal consulting service (including telephone, online and in-person consulting) were provided most often in 2007 were: issues relating to the Civil Code, labor disputes, and corporate finance. The five most commonly seen individual legal issues were: contract disputes (Civil Code), labor disputes regarding termination and severance, disputes relating to debt obligations (Civil Code), sequestration and compulsory enforcement in arbitration, and intellectual property right violations.

In 2008, the SMEA will continue to provide legal and regulatory consulting services for SMEs, and to strengthen SMEs' awareness of legal and regulatory issues. In addition, to ensure proactive service by the honorary SME legal consultant team members, Article 11 of the *Guidelines for Implementation of the SMEA Honorary Legal Consultant System* will be revised to provide for evaluation of the extent to which members of the team continue to provide proactive service; this appraisal will constitute one of the criteria for continued membership of the team. This revision will come into effect in 2008.

3. The Organizing of the 2008 National SME Development Conference

As part of its efforts to support the sustainable development of the SME sector, leveraging the collective wisdom of government, industry, the university sector and research institutions to undertake collaborative planning for the future of Taiwan's SMEs, in 2005 the SMEA organized the first National SME Development Conference. It was intended that the conference would be held every three years to provide a foundation for the formulation of long-term SME sector development strategy. The key themes of the 2005 conference were Innovation, Clustering, and New Vitality for Taiwan. There were 5 major topics, 1 special topic, 19 sub-topics and 57 presentation

items. The conference was extremely productive, and its conclusions have provided a useful reference for policy formulation by relevant government agencies in the three years that have followed.

The second National SME Development Conference is scheduled to be held on November 10–11, 2008. This year's theme will be Revitalizing Local Economies while Thinking Globally – Creativity, Innovation and New Business Start-up. It is provisionally intended that there will be 1 common topic, 2 special topics, and 5 sub-topics, as follows:

★ Common topic: Formulating a New-generation SME Development Statute to cope with a new environment.

◆ Special topic 1: Stimulating collaboration between industry and the university sector, and promoting innovation and new business incubation.

◆ Special topic 2: Integrating national and local resources to develop local industry clusters.

► Sub-topic 1: Helping SMEs to transform and upgrade themselves, and to enhance their operational capabilities.

► Sub-topic 2: Strengthening financing mechanisms and helping SMEs to improve their financial health.

► Sub-topic 3: Speeding up the innovation process and building up R&D capabilities.

► Sub-topic 4: Improving manpower cultivation and ensuring effective utilization of human resources.

► Sub-topic 5: Promoting marketing efforts and developing new market opportunities.

4. Reviewing the Enterprise Size Determination Standards

The annual *White Paper on Small and Medium Enterprises in Taiwan* presents statistics on SMEs for the most recent year. However, different government agencies classify enterprises by size in different ways; there is an urgent need for greater integration in this area.

Of the various types of indicator that can be used to define SMEs, the number of employees is easy to measure, and is clearly directly related to the division of labor in enterprise management and the level of specialization. Using the number of employees

as the chief criterion also has the advantage of eliminating the need to worry about currency conversion. As a result, many countries use the number of employees as the indicator for determining SME status, although annual sales and capitalization are also widely used. Total assets or fixed assets are used by some countries, including Singapore and the European Union.

When determining SME status, a single criterion may be used, or a dual-indicator system may be adopted. While most countries use the number of employees as the chief criterion for SME status, the number of employees that an enterprise must have to be classed as an SME varies considerably from country to country depending on the economic structure, market size etc. Many countries also apply different cut-off points to different industries. Of those countries using a dual-indicator system, some use capitalization as a criterion, while others use annual sales revenue.

The definition of SMEs used in Taiwan has been revised seven times since 1967 in line with changes in relevant laws and guidance measures. Broadly speaking, Taiwan has continued to use a dual-indicator system. Currently, SMEs are defined as enterprises in the manufacturing, construction and mining and quarrying industries that have paid-in capital of less than NT$80 million or fewer than 200 regular employees, and enterprises in other industries that had annual operating revenue of less than NT$100 million in the previous year, or that have fewer than 50 regular employees.

Currently, the data sources used for SME statistics in Taiwan are as follows: Data for the number of enterprises and annual sales revenue are derived from the VAT collection data (including audit data) compiled by the Ministry of Finance Tax Data Center. Data for the number of employed persons and the number of paid employees are derived from the manpower resources surveys conducted by the Directorate General of Budget, Accounting and Statistics (DGBAS), Executive Yuan; these are survey data based on an estimated population. These two sets of data are fundamentally different, and there is considerable variation between them. As the VAT data do not provide information on the number of employees, data for the number of enterprises and annual sales are based on the definition of SMEs used in the VAT data, while data on the number of employed persons and the number of paid employees are based on the definition of SMEs used in the manpower surveys. It is not possible to perform cross-tabulation between the two sets of data, nor is it possible to calculate average productivity per employee for the SME sector. The data are often used in inappropriate ways by people who are unaware of this problem.

As the two sets of data are derived from different sources, misunderstandings often arise when performing international comparisons. To overcome this problem, there are various measures that can be adopted in the short, medium and long term.

In the short term, the uniform invoice number given with the VAT data can be used to compare the VAT data with the number of employees as registered at the year-end with the Labor Insurance Bureau and the National Health Insurance Bureau. This method has the advantage that the Labor Insurance and National Health Insurance coverage data are reasonably accurate. On the other hand, many enterprises arrange coverage for their employees via their industry association, so data for the number of employees at the level of the individual enterprise may only be available for around 40% of firms; with the other 60%, estimates will need to be made, resulting in some loss of accuracy.

In the medium term, once the new law making it compulsory for enterprises with fewer than 5 employees to arrange labor insurance and national health insurance cover for their employees has come into effect, the quality of the data obtained by cross-checking the VAT uniform invoice number against the year-end Labor Insurance Bureau and National Health Insurance Bureau coverage data will be significantly improved. This would facilitate use of the reliable insurance coverage data, while eliminating the problem of enterprises not registering their employees independently. However, it is still far from certain just when this new law making labor insurance and national health insurance compulsory for enterprises with fewer than 5 employees will be passed by the Legislative Yuan.

In the long-term, the Ministry of Finance should be asked to study the methods used in other countries, whereby national tax data are integrated with company registration data, so that tax data incorporate information regarding the number of employees, and where enterprises are asked to update the data when making their annual tax declaration (these data constitute one of the items examined when performing VAT audits). In this way, employee data and tax data would be derived from the same database, thus eliminating the need to compare and integrate two different sets of data; a single, unified definition of “SMEs” could be adopted. However, this would require extensive consultation with the Ministry of Finance regarding the details of the new tax reporting system, and the establishment of new penalties for those enterprises that failed to accurately report the number of employees.

II Building Up the Innovation and Start-up Incubation Platform

Technology innovation and new business start-up are key drivers of continued economic growth. The Ministry of Economic Affairs has been working to establish a comprehensive platform for SME start-up and innovation, utilizing incubator centers, information services and the provision of funding support.

1. Support for New Business Start-up

(1) The Entrepreneur Success Plan

Implementation of the Entrepreneur Success Plan began in 2004. By April 2007, a comprehensive business start-up database had been established, and a total of over NT$160 million had been invested over a 4-year period. Business start-up consulting service have been provided on approximately 7,000 occasions each year, and the guidance provided under the Plan has helped to create 1039 new enterprises and 5,337 new jobs, while stimulating an additional NT$3.99 billion in private-sector investment.

Different types of assistance and services are provided to SMEs at different points in the business start-up process. During the initial stage, the SMEA provides consulting services; this is followed by innovation support during the next stage, and the provision of benchmarks for new businesses that are already growing strongly. The key areas on which implementation of the Entrepreneur Success Plan will focus in 2008 will include the following: (1) Business start-up database establishment, talent cultivation and provision of assistance for new business development to increase the success rate in SME entrepreneurial activity. (2) The holding of new business start-up awards to encourage the adoption of innovative new services, technologies and business models, thereby driving the growth of technology-intensive enterprises.

It is anticipated that business start-up consulting and information services will be provided on 7,000 occasions in 2008 under the Entrepreneur Success Plan, along with the cultivation of 840 start-up managers and the provision of guidance for the establishment of 200 new businesses, thereby stimulating over NT$500 million in private-sector investment, and creating at least 1,000 new jobs; 12 new enterprises will be chosen to receive awards.

(2) Provision of Guidance for Female-owned Businesses

According to data compiled by the International Institute for Management Development (IMD) in Switzerland, over the period 2001–2007 Taiwan's ranking in the international female labor force participation rate rankings rose from 38th to 35th place. Responding to the steady increase in the number of female entrepreneurs, the Ministry of Economic Affairs has been working actively to develop new guidance services to help female-owned businesses get off the ground. The Ministry has already established a Female Entrepreneurial Activity Guidance Plan within the framework provided by the Entrepreneur Success Plan. This plan provides for a range of start-up consulting services and the creation of an online platform for the exchange of information between female entrepreneurs, together with learning activities oriented towards the provision of mutual support, the holding of seminars, etc.

The five main services provided to female entrepreneurs in 2008 will be as follows:

a. Establishment of information exchange platforms for female-owned enterprises: These include the Taiwan Women's Business Network portal site, Women Village, and the Entrepreneur Success Plan Female Entrepreneur Zone.

b. Cultivating the managerial capabilities of female entrepreneurs: The emphasis here is on strengthening entrepreneurial and business administration capabilities, as well as the cultivation of IT and e-commerce skills.

c. Making it easier for female entrepreneurs to secure financing.

d. Organizing self-help networks for female entrepreneurs: The Ministry's efforts in this area have included the establishment of a Female-owned Enterprise Consultative Committee and the appointment of Female-owned Enterprise Service Volunteers.

e. Provision of consulting and guidance services for female-owned enterprises: This includes the establishment of a female-owned enterprise consulting service hotline and local consulting service contact points.

2. Supporting Innovation and Start-up Incubation

(1) Improving the Operation of Taiwan's SME Incubator Centers

As of July 2008, there were a total of 103 incubator centers in Taiwan, of which 82 were receiving guidance from the Ministry of Economic Affairs. Over the period

1997–2008 these incubator centers received a cumulative total of NT$1.86 billion in subsidies. The 3,120 enterprises that graduated from these incubator centers secured a total of 1,542 patents and implemented a combined total of 667 technology transfer projects. 36 of these enterprises have since secured stock market or OTC listing.

In 2008, the Ministry of Economic Affairs planned to provide a total of NT$176 million in subsidies to 69 incubator centers. Important individual projects include the establishment of the Kaohsiung Software Incubator Center and the Hsinchu Biomedicine Park Incubator Center. It is anticipated that the creation of the Kaohsiung Software Incubator Center will help to drive the development of the digital content, multimedia and IT and communications services industries in Southern Taiwan. The Ministry is currently also appraising plans for the creation of an Incubator Center in Chiayi.

(2) Deepening Collaboration between Industry and the University Sector

By leveraging Taiwan's existing innovation and start-up incubation systems, and working to strengthen innovation and incubation within universities and research institutes, it should be possible to create significant new value-added; in this way, Taiwan will be able to continue creating new SMEs with explosive growth potential. This area should be a major focus of government policy formulation in the future.

The Plan for the Promotion of Collaboration between Industry and the University Sector, which forms part of the Executive Yuan's Industrial Manpower Development Initiative, involves coordinating the allocation of resources by the Ministry of Education, the National Science Council and the Ministry of Economic Affairs, using universities and colleges as the vehicle for building a highly efficient, high-quality Creativity – Innovation – Business Start-up system that will speed up the upgrading of Taiwan's industrial structure, helping to drive Taiwan's economic growth over the next 10–15 years.

Through the Plan to Create Value-added through Collaboration on New Business Incubation by Industry and the University Sector, the SMEA aims to achieve effective promotion of collaboration between industry and universities over the next four years, working in concert with the National Science Council and the Ministry of Education, thereby meeting the policy targets of "doubling the income received by universities and colleges from the transfer of intellectual property rights, doubling the R&D funding that universities and colleges receive from industry, and doubling the number of new

enterprises cultivated by universities and colleges."

The SMEA will be allocating NT$1.55 billion to achieve these goals. The main content of the Plan to Create Value-added through Collaboration on New Business Incubation by Industry and the University Sector falls into the following three areas:

a. Building up a network of specialist incubator centers: This will include strengthening the service provision capabilities of the incubator center network, promoting incubator center grading and classification, and establishing incubation feedback mechanisms.

b. Cultivation of incubation talent: This will include strengthening incubator center management capabilities, the establishment of capability verification systems, and publicizing the achievements of model incubator centers.

c. Creating an environment conducive to incubator center development: This will include the formulation of comprehensive incubator center development strategies, the establishment of incubation databases, and publicization of the results achieved in the implementation of incubator center development policy.

The targets that have been set for the next four years are shown in Table 10-2-1 below:

Table 10-2-1 Anticipated Results from the Plan to Create Value-added through Collaboration on New Business Incubation by Industry and the University Sector, 2008 – 2011

Performance Indicator \ Year		2008	2009	2010	2011	Total
Funds allocated (NT$ billions)		**31,495**	**31,495**	**31,495**	**31,495**	**125,980**
Benefits	New start-ups cultivated (enterprises)	200	200	200	200	800
	SMEs cultivated (enterprises)	1,100	1,150	1,200	1,300	4,750
	Increase in capitalization (NT$ billions)	4.0	4.3	4.8	5.2	18.3

Source: Small and Medium Enterprise Administration.

(3) Encouraging SMEs to Internationalize, and Promoting International Collaboration

As part of its efforts to promote the internationalization of Taiwan's SMEs, encouraging international collaboration and expanding participation in international communities, the government has been working together with the private sector to boost the visibility of Taiwan's SMEs, develop international collaboration networks, expand practical interchange with the international community, and help SMEs to grow and to internationalize and globalize their operations. The main strategies that the SMEA will be implementing in 2008 in this area will include the following:

(1) Active participation in the activities of regional and other multilateral trade organizations, including Asia Pacific Economic Cooperation (APEC), the APEC Business Advisory Council (ABAC), the ABAC SME Summit, the Organisation for Economic Co-operation and Development (OECD), the International Small Business Council (ISBC), the International Council for Small Business (ICSB), and the Confederation of Asia-Pacific Chambers of Commerce and Industry (CACCI).

(2) Strengthening bilateral collaboration on SME development: The SMEA participates in the formulation of action plans, and the negotiation of memoranda, for bilateral collaboration, in line with the holding of bilateral ministerial and sub-ministerial meetings on economic collaboration. The SMEA also helps to organize international seminars to support the activities of the International Cooperation and Development Fund.

(3) Exchanging experiences with regard to the provision of guidance to SMEs: The SMEA participates in the activities of organizations that promote the exchange of experiences and knowledge regarding the provision of guidance for SME development, including organizations dedicated to incubator center development, such as the National Business Incubation Association (NBIA) in the U.S. and the Asian Association of Business Incubation (AABI), and organizations focusing on the provision of guidance to, e-enablement of and provision of credit guarantees for local industries, such as the Asian Credit Supplementation Institution Confederation (ACSIC).

(4) Undertaking of research on SME development policy, guidance measures and key issues in different countries around the world.

III Strengthening the IT Capabilities of Taiwan's SMEs

1. E-Enablement Guidance

Over the period 2002–2007, the SMEA helped 88 industry associations to establish member company databases, thereby helping over 9,000 individual SMEs to develop e-commerce. The SMEA also arranged for 34 SMEA e-Enablement Service Teams to provide diagnostic and in-depth guidance service for 3,165 SMEs, helped 70,000 micro-enterprises to adopt broadband Internet access and begin using e-commerce, and provided guidance for the development of 67 e-enabled industry clusters, thereby stimulating business opportunities worth NT$1.63 billion for the information services industry, and enabling SMEs to secure online business opportunities to the tune of NT$4.3 billion. In 2008, the SMEA will continue to implement e-enablement guidance, and will focus on the following areas:

(1) E-Enablement Guidance – Reducing the Digital Divide in Industry

2008 will see the beginning of a new stage in the implementation of the Plan for Reducing the Digital Divide in Industry. The 11 SME e-Enablement Service Teams will be providing assistance for small enterprises in traditional industries, and newly-established enterprises, helping them to adopt suitable e-commerce solutions, and providing a "one-stop shopping" service that will help these enterprises to build up their basic digital capabilities.

Table 10-3-1 Anticipated Results from the Plan for Reducing the Digital Divide in Industry, 2008 – 2011

Performance Indicator \ Year		2008	2009	2010	2011	Total
Funds allocated (NT$ millions)		143	145	454	948	1,690
Benefits	Increase in the no. of enterprises using e-commerce (thousand enterprises)	20	20	40	60	140
	E-enabled industry clusters created (clusters)	40	40	40	40	160
	IT services business opportunities created (NT$ billions)	0.6	0.6	1.0	2.0	4.2
	Online business opportunities created for SMEs (NT$ billions)	1.6	1.6	4.0	6.8	14.0

Source: Small and Medium Enterprise Administration.

Particular emphasis will be placed on supporting the e-enablement of SMEs in small towns and rural areas, and on the development of digital industry clusters. The Service Teams will help SMEs to choose reasonably priced e-enablement solutions that are suited to their own particular needs. A nationwide service network will be created, with effective publicization of success stories, while ensuring the provision of comprehensive after-sales service, thereby helping SMEs to boost their competitiveness through e-enablement. The targets to be achieved over the next four years are outlined in Table 10-3-1 below.

(2) E-Enablement Guidance – The Industry-specific SME e-Enablement Service Teams

The SME e-Enablement Service Teams project utilizes e-enablement models for industry clustering, supply chain integration and cross-industry alliances to help enterprises adopt appropriate e-enablement systems that are suited to the special characteristics and needs of the industry to which the enterprise belongs. By creating model e-enabled enterprises, the Service Teams help to diffuse e-enablement knowledge throughout the industries concerned. The Service Teams also provide consulting and diagnostic service to help enterprises clarify their e-enablement requirements. The implementation models used are as follows:

a. Working with industry associations and IT service providers, the SME e-Enablement Service Teams provide SMEs with the guidance they need to digitalize their operations, while also establishing model e-enabled industry clusters and individual model enterprises.

b. Helping SMEs to create value through supply chain integration and cross-industry collaboration, by leveraging the power of the community to integrate resources. In this way, the Service Teams help SMEs to enhance their competitiveness.

It is anticipated that, in 2008, the SME e-Enablement Service Teams will be providing 120 instances of e-enablement system adoption guidance (including guidance for industry clusters), and will be providing e-enablement consulting and diagnostic services for 240 SMEs.

(3) Promotion of SME Knowledge Management Guidance Services

In 2008, implementation of the SME Knowledge Management Initiative will focus on the creation of a knowledge-sharing environment, integrating the knowledge and

capabilities of industry and the university sector, the formulation of model knowledge management application architecture, strengthening business enterprises' awareness of knowledge management, and helping SMEs to make effective use of knowledge management and to accumulate core enterprise knowledge. By concentrating on these areas, the SME Knowledge Management Initiative will help SMEs reduce the amount of time that employees spend acquiring the knowledge they need, reduce the time taken to complete operational processes, build a corporate culture that emphasizes knowledge sharing, and ensure that core knowledge is used effectively to create value for the enterprise, thereby enhancing overall enterprise competitiveness.

Priority will be given to the provision of guidance to SMEs that conform to the standard definition of SMEs, with between 30 and 200 employees, and that already have a relatively high level of e-enablement, are in a position to make effective use of knowledge management, and are operating in industries that conform to the OECD definition of knowledge-intensive industries. The key work items for 2008 will be as follows:

(1) Building an environment conducive to effective knowledge management utilization and knowledge sharing;

(2) Strengthening service provision capabilities and service quality;

(3) Providing knowledge management diagnostic and guidance services;

(4) Strengthening business enterprises' awareness of the importance of knowledge management.

2. Provision of Guidance to Improve Quality Standards

Following Taiwan's accession to the World Trade Organization (WTO), which has ushered in a new era of globalized competition, Taiwan's SMEs have been forced to adjust their management philosophy to put greater emphasis on product quality and brand image. By adopting this strategy, SMEs can avoid being dragged down into vicious price competition. To help SMEs strengthen themselves and build competitive advantage, in 2003 the SMEA began implementation of a 5-year plan to improve SME quality management, to be implemented over the period 2003–2007. Impressive results have already been achieved in the areas of infrastructure, basic quality management, and quality certification, bringing Taiwan into line with international practice, and creating new value through quality management.

In 2008, the SMEA will continue to provide quality management guidance to help SMEs improve their quality standards, and will be working to promote the development of "quality clusters" in line with the special characteristics of individual industries, thereby helping to enhance the competitiveness of Taiwan's industrial clusters. The key areas on which the SMEA will be focusing in 2008 are as follows:

(1) Encouraging large enterprises to act as models for SMEs, building up the capabilities of SME clusters and helping them to create new value;

(2) Implementing industry-specific quality management guidance for industry clusters, encouraging SMEs to take part in national quality award schemes, and giving priority to the provision of diagnostic and guidance resources to SMEs;

(3) Providing guidance to help enterprises secure TS16949, ISO 14001 and QC080000 quality standard certification, thereby making it easier for them to become accredited suppliers to leading international corporations, and helping to improve overall quality levels in the SME sector as a whole;

(4) Providing guidance to help SMEs achieve conformity to European Union environmental protection directives, thereby strengthening the "green" competitiveness of both upstream and downstream manufacturers;

(5) Formulation of industry-specific quality standards; introduction of advanced management techniques from overseas, and cultivation of high-quality human talent.

3. Guidance to Encourage Coordinated Innovation by Industry Clusters

The SMEA has been working to promote the adoption of new technology and knowledge by SME clusters so as to create new value, and has been actively integrating the various guidance resources needed to support cluster development, helping existing SME clusters to transform themselves into high-value-added clusters. In 2008, the SMEA began implementation of the Plan to Encourage Coordinated Innovation by SME Clusters, whereby the SMEA assists in the development of technology- and knowledge-intensive, high-value-added industry clusters, and provides the SMEs that make up these clusters with comprehensive guidance, covering technology R&D, product commercialization, marketing services, business development, etc. The key areas that guidance is provided are as follows:

(1) The SMEA is providing guidance to both innovative technology-intensive clusters and innovative knowledge-intensive clusters. Initially, guidance is being offered to clusters in the following industries: tourism and leisure, beauty and nutrition, healthcare services, precision instruments, etc.

(2) The SMEA is providing SMEs with guidance in the areas of technology, networking technology, specialist knowledge and service provision, making effective use of the cluster guidance model to help enterprises transform and upgrade themselves through product, business model and service innovation, thereby helping to boost domestic demand and stimulate economic growth.

IV Provision of Guidance to Strengthen SMEs' Managerial Capabilities

1. The Integrated Guidance System

The *Strategies for Enhancing the Functionality of the SME Guidance System* research report compiled in 2007 recognized the important role that the SME Guidance System had played since its establishment, but noted that, due to the changing business environment both in Taiwan and overseas, SMEs were now facing new types of problem, and required new forms of guidance, possibly necessitating adjustments to the SME Guidance System. Some of the areas to which attention should be paid include: strengthening horizontal and vertical coordination between the different agencies that make up the guidance system; encouraging local government authorities to provide more in the way of guidance resources; the need to establish new industry cluster guidance models; development of a multi-level guidance system; and the need for more effective plan implementation and performance appraisal, etc.

The chief objective for the SME Guidance System in 2008 is to "integrate guidance resources to help strengthen SMEs' competitive advantage". The key measures that will be adopted to achieve this goal include: (1) Establishment of mechanisms to facilitate coordination between individual systems. (2) Exchange of guidance personnel between systems. (3) Making guidance application and information services available online. (4) Collation of data relating to current guidance status and guidance results. (5) Publicization of guidance measures and resources. The implementation plans for each individual system can be found at: (http://www.smecs.org.tw).

The total funding allocated for the SME Guidance System in 2008 by the various agencies concerned is NT$27.1 billion. Every quarter, a Ministry of Economic Affairs Vice Minister chairs a meeting at which reports on the work undertaken by the SME Guidance System are presented. Academics and experts are invited to participate in the discussion of key policies during the meeting; the resolutions passed during the meeting are then designated as requiring follow-up and monitoring, in order to enhance guidance performance.

2. Promotion of Business Matching

Regarding the provision of assistance to SMEs to help them develop new business opportunities, the Ministry of Economic Affairs has arranged for the SMEA to work together with the Bureau of Foreign Trade and the Commerce Department on the provision of marketing guidance tailored to meet the needs of both the Taiwanese domestic market and international markets. The aim of these initiatives is to boost acceptance of new products, and to help Taiwan's SMEs leverage the power of branding in market development.

(1) New product presentations and business matching: By arranging new product presentations and business matching fairs, the Ministry of Economic Affairs provides SMEs with opportunities to disseminate information about new products, develop new business opportunities and investigate the possibility of collaboration with new partners.

(2) New technology presentations and exchange activities: New technology presentations and exchange and business matching activities help SMEs to upgrade their technology and identify new opportunities for investment and business start-up.

(3) Online marketing and business matching: The Ministry is promoting the use of virtual, online platforms for product and technology presentations and marketing, thereby helping SMEs to identify new business opportunities and promote themselves.

3. Strengthening SMEs' Operational Capabilities

(1) Providing Assistance for Turnkey Factory Exportation

In 2008, the SMEA will continue to provide support for turnkey production facility

exportation, building an integrated service platform to provide the following services:

a. Integrated services: Supplier and product inquiry service, supply chain integration, new plant establishment plan consulting service, turnkey plant planning and operation consulting service, turnkey plant purchasing and financing consulting service, and technology consulting service.

b. System-based marketing promotion: International exhibitions, global marketing network development and service network establishment.

(2) Promoting the Adoption of Intellectual Property Management Systems

The SMEA is helping SMEs to adopt intellectual property management systems. By providing assistance to enable SMEs to set up their own intellectual property management systems, the SMEA also helps those firms to which it has provided guidance to apply for Taiwan Intellectual Property Management System(TIPS) certification from the Industrial Development Bureau. The provision of guidance in this area will continue in 2008, including the following concrete measures: (1) Provision of guidance to larger SMEs; (2) Free, short-term diagnostic service and the holding of presentations, seminars and press conferences; and (3) Provision of ongoing, on-site guidance for periods of six months.

(3) Provision of Guidance by the Government to Support Brand Development

The SMEA holds presentations to encourage SMEs to develop their own brands, while using questionnaire surveys to gain a clearer understanding of SMEs' needs in this respect. Customized brand management support services are provided in the form of consulting, diagnostic and guidance services. The key measures include: (1) Brand development consulting service; (2) Short-term diagnostic guidance; (3) General brand development guidance to individual firms; and (4) Presentations to publicize the results achieved in guidance provision.

(4) Operational Management Guidance for Individual Enterprises

In line with the goals of providing effective operational management guidance for SMEs, in 2008 the Ministry of Economic Affairs will continue to implement the Operational Management Guidance for Individual SMEs plan.

The key work items in the implementation of this plan are as follows: provision of operational management consulting service, short-term diagnostic guidance, general

guidance for individual enterprises, and the holding of presentations to publicize the results achieved. The anticipated results over the next three years are shown in Table 10-4-1 below.

Table 10-4-1 Anticipated Results from the Operational Management Guidance for Individual SMEs Plan, 2008 – 2010

Performance Indicator \ Year		2008	2009	2010	Total
Funds allocated (NT$ billions)		**39.5**	**40.0**	**45.0**	**124.5**
Benefits	Guidance plan presentations (sessions)	4	4	4	12
	Operational management consulting service (instances of service provision)	225	245	290	760
	Short-term diagnostic guidance (enterprises)	125	125	150	400
	General guidance for individual firms (enterprises)	10	10	10	30
	Presentations to publicize the results achieved (sessions)	2	2	2	6

Source: Small and Medium Enterprise Administration.

4. Cultivation of Management Consulting Capabilities

The main objectives behind the cultivation of management consulting capabilities, and the methods used to achieve these goals, are as follows:

(1) Holding of management consulting training programs to cultivate management consultants who are familiar with modern management techniques and possess an international outlook;

(2) Organizing management consulting guidance classes to strengthen management consultants' ability to provide effective guidance and enhance the quality of the service that they provide;

(3) Holding of international management consulting forums to promote international exchange in the field of management consulting and help management consultants to keep up-to-date with new trends.

In addition, implementation of the 4-year Plan for Management Consulting Service

Technology Development will begin in 2009, with the aim of upgrading SME management consulting capabilities in Taiwan. The annual budget for this project will be NT$20 million.

V Integrating SME Financing Mechanisms

1. Integration and Merger of Policy Loan Programs

Policy loans are loans provided in line with government policy objectives, such as the special loans provided to encourage industrial automation, and the adoption of pollution prevention technologies, etc. These loans have the advantage of constituting a long-term, stable form of financing. Currently, the government provides 25 individual types of policy loan in 11 categories. In the current era of low interest rates, in which the banks are awash with funds, financial institutions have become less willing to process this type of loan on the government's behalf.

In the future, where there is significant overlap between different classes of policy loan, the SMEA and the other agencies involved will consider the feasibility of integrating or merging them. Discussions between the SMEA and the Council for Economic Planning and Development and the Executive Yuan Development Fund regarding the integration and merger of policy loans began in 2005 and are currently still continuing.

2. Helping SMEs to Secure Access to Financing

The government is planning to allocate NT$10 billion every year to help SMEs secure access to financing. The key work items in this area are as follows:

(1) Strengthening the provision of financial and accounting guidance;

(2) Supporting the government's industrial development policy: The upper limit on the total amount of credit guarantees that can be provided to any given industry will be increased, with 70% to 90% of credit guarantees going to emerging industries. The SMEA will also be encouraging the leading companies in each industry to help provide credit guarantees for SMEs in that industry;

(3) Caring for disadvantaged groups: The government will be working to reduce the negative impact of the Statute for Settling Consumers' Outstanding Debt on SMEs' finances, and to help SMEs affected by this Statute secure the working capital they

need;

(4) Introduction of innovative credit guarantee services: New financing products and credit guarantee services will be developed to help both Taiwanese SMEs and their overseas branches and subsidiaries obtain credit guarantees;

(5) Strengthening customer service: The SMEA will be actively seeking to establish service contracts with more financial institutions, and a multi-level review system will be adopted with respect to those services that are outsourced to financial institutions;

(6) Strengthening monitoring and auditing functions: Credit guarantee risk management will be improved, with an increase in the number of seats held by the Ministry of Economic Affairs and other regulatory authorities on the SME Credit Guarantee Fund's board.

3. Helping Local Cultural Industries to Create Value

The government has been working to promote the growth of local cultural industries in cities and counties throughout Taiwan, adopting a philosophy of "One Town, One Product" in rural areas with low income levels or where there is a high level of out-migration in order to strengthen the development of local industries. In the future, the government will be employing a NT$30 billion Local Cultural Industry Development Fund to implement the Plan to Create Value through Local Differentiation. The idea is that local government authorities will draw up projects for local cultural industry development, while the central government provides funding support. It is anticipated that the Plan will help to strengthen local economies and create new jobs. The Ministry of Econmic Affairs is collaborating with other government agencies on the following four key strategies to promote the sustainable development of local cultural industries. These four strategies, and the related work items, are as follows:

(1) Tourist industry integration: Guiding the development of the tourist industry to achieve a deepening of the local cultural industry network, and planning the establishment of multi-function product display, sales and leisure facilities;

(2) Expanding marketing networks: Building joint distribution and sales channels, achieving increased exposure in the media, strengthening overseas sales promotion capabilities, and building a One Town, One Product (OTOP) brand image;

(3) Developing well-designed, high-quality products and services: Matching designers with local cultural industry enterprises to strengthen these enterprises' utilization of hi-tech applications, encourage adoption of experiential marketing, and raise the customer return rate;

(4) Guidance system development: Establishing platforms for knowledge exchange, organizing touring presentations to introduce the government's guidance policy, assisting in the training of local guidance personnel, and establishing mechanisms for the development of proposals at the local level.

4. The Outlook for the SME Credit Guarantee Fund

Given the development of the knowledge-based economy and the emergence of new industries, there are four areas in which the SME Credit Guarantee Fund has a key role to play: (1) Continuing to collaborate on the implementation of the government's various special project loan schemes, and formulating suitable credit guarantee mechanisms so that resources can be effectively channeled towards the development of the knowledge economy and towards driving the growth of emerging industries; (2) Spreading awareness of the services that the Fund provides to ensure that both business enterprises and financial institutions fully understand the role that the Fund plays, thereby increasing banks' willingness to provide financing for business enterprises; (3) Active collaboration with financial institutions to jointly develop new financing and guidance services for SMEs; and (4) Leveraging the Fund's possession of operational and credit data for over 270,000 SMEs to establish data warehousing and information service platforms and to develop new credit rating services, etc., along with related value-added services, thereby helping to create a financing and credit management environment conducive to the growth of the SME sector.

In 2008, the SME Credit Guarantee Fund will begin implementation of several new credit guarantee services and projects, as follows:

(1) Firefly Mutual Guarantee Credit Guarantees to Support Sustainable Development on Offshore Islands: The Council for Economic Planning and Development will be providing NT$100 million through the Offshore Island Development Fund; the SME Credit Guarantee Fund will allocate an equivalent amount of funding to support this new business area.

(2) Credit Guarantees for Loans for Business Establishment by Rehabilitated Offenders:

The SME Credit Guarantee Fund will be collaborating with the Taiwan Aftercare Association to provide credit guarantees to help rehabilitated offenders to obtain loans to start their own business.

(3) Credit Guarantees for Loans to Support Larger Medium-sized Enterprises: The SME Credit Guarantee Fund will be providing credit guarantees for Loans to Support Larger Medium-sized Enterprises. These credit guarantees will help larger medium-sized enterprises that are too big to conform to the Executive Yuan's approved definition of SMEs, but which have not yet secured a stock market or OTC listing, to obtain the financing they need.

Appendix

Appendix Contents

Appendix A

Table A-1 Number of Enterprises by Industry, 2007 ····· 268

Table A-2 Enterprise Size and Sales Value by Industry, 2007 ····· 269

Table A-3 Domestic Sales Value by Industry, 2007 ····· 270

Table A-4 Export Sales Value by Industry, 2007 ····· 271

Table A-5 Total Employment by Industry, 2007 ····· 272

Table A-6 Number of Paid Employees by Industry, 2007 ····· 273

Table A-7 Overview of Newly-established SMEs in 2007–by Industry ····· 274

Table A-8 Female Owned Enterprises in 2007–Number of Enterprises and Sales Value by Industry ····· 276

Table A-9 Female Owned Enterprises in 2007–Domestic Sales Value and Export Sales Value by Industry ····· 278

Appendix B

Table B The Evolving Definition of SMEs in Taiwan ····· 280

Appendix C

References for Chapter 5 ····· 281

References for Chapter 7 ····· 281

Appendix A

Table A-1 Number of Enterprises by Industry, 2007

Units: Number of enterprises; %

Size / Industry	Total	Share	SMEs	Share	Large enterprises	Share
Total	**1,266,664**	**100.00**	**1,236,586**	**97.63**	**30,078**	**2.37**
Agriculture, Forestry, Fishing and Animal Husbandry	10,816	100.00	10,784	99.70	32	0.30
Mining and Quarrying	1,509	100.00	1,485	98.41	24	1.59
Manufacturing	137,961	100.00	133,312	96.63	4,649	3.37
Electricity and Gas Supply	368	100.00	248	67.39	120	32.61
Water Supply and Remediation Services	6,625	100.00	6,539	98.70	86	1.30
Construction	92,426	100.00	90,269	97.67	2,157	2.33
Wholesale and Retail Trade	670,031	100.00	654,091	97.62	15,940	2.38
Transportation and Storage	31,802	100.00	30,807	96.87	995	3.13
Accommodation and Food Services	109,052	100.00	108,801	99.77	251	0.23
Information and Communication	15,948	100.00	15,282	95.82	666	4.18
Finance and Insurance	16,364	100.00	13,597	83.09	2,767	16.91
Real Estate	19,870	100.00	18,683	94.03	1,187	5.97
Professional, Scientific and Technical Services	35,834	100.00	35,191	98.21	643	1.79
Support Services	26,491	100.00	26,211	98.94	280	1.06
Education	514	100.00	508	98.83	6	1.17
Human Health and Social Work Services	310	100.00	304	98.06	6	1.94
Arts, Entertainment and Recreation	23,203	100.00	23,108	99.59	95	0.41
Other Services	67,540	100.00	67,366	99.74	174	0.26

Note: 1. The industries are classified according to the 8th revision of Industry Classification Standard.
2. Data of Lienchiang County, a small offshore island, are included in the calculation of all figures.
Source: Ministry of Finance Tax Data Center, VAT data, 2007.

Table A-2 Enterprise Size and Sales Value by Industry, 2007

Units: NT millions; %

Size / Industry	Total	Share	SMEs	Share	Large enterprises	Share
Total	**35,886,186**	**100.00**	**10,171,750**	**28.34**	**25,714,436**	**71.66**
Agriculture, Forestry, Fishing and Animal Husbandry	31,648	100.00	15,587	49.25	16,062	50.75
Mining and Quarrying	53,058	100.00	44,446	83.77	8,612	16.23
Manufacturing	13,327,698	100.00	4,024,135	30.19	9,303,562	69.81
Electricity and Gas Supply	591,154	100.00	3,354	0.57	587,800	99.43
Water Supply and Remediation Services	163,806	100.00	131,342	80.18	32,465	19.82
Construction	1,791,864	100.00	731,872	40.84	1,059,992	59.16
Wholesale and Retail Trade	12,613,353	100.00	3,906,720	30.97	8,706,633	69.03
Transportation and Storage	989,690	100.00	243,675	24.62	746,015	75.38
Accommodation and Food Services	321,276	100.00	226,581	70.53	94,695	29.47
Information and Communication	774,345	100.00	93,927	12.13	680,418	87.87
Finance and Insurance	3,380,015	100.00	184,428	5.46	3,195,587	94.54
Real Estate	774,671	100.00	148,186	19.13	626,485	80.87
Professional, Scientific and Technical Services	590,300	100.00	169,642	28.74	420,658	71.26
Support Services	240,586	100.00	103,855	43.17	136,731	56.83
Education	4,305	100.00	2,577	59.86	1,728	40.14
Human Health and Social Work Services	2,729	100.00	1,461	53.53	1,268	46.47
Arts, Entertainment and Recreation	71,525	100.00	43,410	60.69	28,115	39.31
Other Services	164,162	100.00	96,552	58.82	67,610	41.18

Note: 1. The industries are classified according to the 8th revision of Industry Classification Standard.
2. Data of Lienchiang County, a small offshore island, are included in the calculation of all figures.
Source: Ministry of Finance Tax Data Center, VAT data, 2007.

Table A-3 Domestic Sales Value by Industry, 2007

Units: NT millions; %

Size / Industry	Total	Share	SMEs	Share	Large enterprises	Share
Total	**26,277,862**	**100.00**	**8,536,591**	**32.49**	**17,741,271**	**67.51**
Agriculture, Forestry, Fishing and Animal Husbandry	28,402	100.00	13,711	48.28	14,691	51.72
Mining and Quarrying	52,263	100.00	44,067	84.32	8,196	15.68
Manufacturing	7,074,196	100.00	2,873,824	40.62	4,200,372	59.38
Electricity and Gas Supply	577,154	100.00	3,297	0.57	573,857	99.43
Water Supply and Remediation Services	155,255	100.00	125,634	80.92	29,621	19.08
Construction	1,763,161	100.00	726,916	41.23	1,036,246	58.77
Wholesale and Retail Trade	9,855,285	100.00	3,457,108	35.08	6,398,177	64.92
Transportation and Storage	654,868	100.00	236,403	36.10	418,465	63.90
Accommodation and Food Services	318,729	100.00	226,075	70.93	92,654	29.07
Information and Communication	687,217	100.00	87,580	12.74	599,638	87.26
Finance and Insurance	3,377,713	100.00	183,720	5.44	3,193,993	94.56
Real Estate	771,388	100.00	147,901	19.17	623,487	80.83
Professional, Scientific and Technical Services	494,767	100.00	163,804	33.11	330,963	66.89
Support Services	232,084	100.00	102,950	44.36	129,134	55.64
Education	4,219	100.00	2,577	61.08	1,642	38.92
Human Health and Social Work Services	2,667	100.00	1,428	53.53	1,239	46.47
Arts, Entertainment and Recreation	71,347	100.00	43,312	60.71	28,036	39.29
Other Services	157,147	100.00	96,285	61.27	60,862	38.73

Note: 1. The industries are classified according to the 8th revision of Industry Classification Standard.
2. Data of Lienchiang County, a small offshore island, are included in the calculation of all figures.
Source: Ministry of Finance Tax Data Center, VAT data, 2007.

Table A-4 Export Sales Value by Industry, 2007

Units: NT millions; %

Size / Industry	Total	Share	SMEs	Share	Large enterprises	Share
Total	**9,608,324**	**100.00**	**1,635,159**	**17.02**	**7,973,165**	**82.98**
Agriculture, Forestry, Fishing and Animal Husbandry	3,247	100.00	1,876	57.77	1,371	42.23
Mining and Quarrying	796	100.00	379	47.69	416	52.31
Manufacturing	6,253,502	100.00	1,150,311	18.39	5,103,191	81.61
Electricity and Gas Supply	14,000	100.00	57	0.41	13,944	99.59
Water Supply and Remediation Services	8,551	100.00	5,708	66.75	2,843	33.25
Construction	28,703	100.00	4,956	17.27	23,747	82.73
Wholesale and Retail Trade	2,758,068	100.00	449,612	16.30	2,308,456	83.70
Transportation and Storage	334,822	100.00	7,271	2.17	327,550	97.83
Accommodation and Food Services	2,547	100.00	506	19.88	2,041	80.12
Information and Communication	87,128	100.00	6,347	7.29	80,780	92.71
Finance and Insurance	2,301	100.00	708	30.76	1,593	69.24
Real Estate	3,283	100.00	285	8.67	2,998	91.33
Professional, Scientific and Technical Services	95,533	100.00	5,839	6.11	89,695	93.89
Support Services	8,503	100.00	906	10.65	7,597	89.35
Education	86	100.00	0	0.41	86	99.59
Human Health and Social Work Services	62	100.00	33	53.44	29	46.56
Arts, Entertainment and Recreation	177	100.00	98	55.30	79	44.70
Other Services	7,015	100.00	267	3.81	6,748	96.19

Note: 1. The industries are classified according to the 8th revision of Industry Classification Standard.
2. Data of Lienchiang County, a small offshore island, are included in the calculation of all figures.
Source: Ministry of Finance Tax Data Center, VAT data, 2007.

Table A-5 Total Employment by Industry, 2007

Units: Thousand persons; %

Size / Industry	Total	Share	SMEs	Share	Large enterprises	Share	Govern-ment	Share
Total	**10,294**	**100.00**	**7,939**	**77.12**	**1,424**	**13.83**	**932**	**9.05**
Agriculture, Forestry, Fishing and Animal Husbandry	543	100.00	538	98.99	2	0.30	4	0.71
Mining and Quarrying	6	100.00	5	82.40	0	0.42	1	17.18
Manufacturing	2,842	100.00	2,180	76.69	634	22.30	29	1.01
Electricity and Gas Supply	28	100.00	3	9.81	3	9.85	23	80.34
Water Supply and Remediation Services	65	100.00	23	34.43	2	2.54	41	63.03
Construction	846	100.00	827	97.75	9	1.05	10	1.21
Wholesale and Retail Trade	1,782	100.00	1,667	93.54	105	5.90	10	0.56
Transportation and Storage	415	100.00	281	67.61	80	19.27	55	13.13
Accommodation and Food Services	681	100.00	653	95.96	27	3.97	0	0.07
Information and Communication	206	100.00	116	56.20	90	43.43	1	0.37
Finance and Insurance	404	100.00	223	55.20	166	41.17	15	3.63
Real Estate	74	100.00	66	89.63	6	8.33	2	2.03
Professional, Scientific and Technical Services	301	100.00	232	77.05	41	13.61	28	9.35
Support Services	215	100.00	182	84.57	32	14.75	1	0.67
Public Administration and Defence; Compulsory Social Security	332	100.00	0	0	0	0	332	100.00
Education	588	100.00	210	35.63	85	14.42	294	49.95
Human Health and Social Work Services	340	100.00	147	43.10	119	35.14	74	21.77
Arts, Entertainment and Recreation	101	100.00	79	78.67	11	10.59	11	10.73
Other Services	523	100.00	507	97.11	12	2.39	3	0.50

Note: 1. The industries are classified according to the 8th revision of Industry Classification Standard.
2. Data of Lienchiang County, a small offshore island, are included in the calculation of all figures.
Source: Ministry of Finance Tax Data Center, VAT data, 2007.

Table A-6 Number of Paid Employees by Industry, 2007

Units: Thousand persons; %

Industry \ Size	Total	Share	SMEs	Share	Large enterprises	Share	Govern-ment	Share
Total	**7,735**	**100.00**	**5,383**	**69.60**	**1,420**	**18.36**	**932**	**12.04**
Agriculture, Forestry, Fishing and Animal Husbandry	73	100.00	68	92.52	2	2.23	4	5.25
Mining and Quarrying	6	100.00	5	81.03	0	0.45	1	18.52
Manufacturing	2,554	100.00	1,893	74.10	633	24.78	29	1.12
Electricity and Gas Supply	28	100.00	3	9.35	3	9.90	23	80.75
Water Supply and Remediation Services	59	100.00	16	27.77	2	2.79	41	69.44
Construction	709	100.00	690	97.32	9	1.25	10	1.44
Wholesale and Retail Trade	984	100.00	869	88.36	105	10.63	10	1.01
Transportation and Storage	311	100.00	177	56.87	80	25.61	55	17.52
Accommodation and Food Services	366	100.00	339	92.55	27	7.32	0	0.13
Information and Communication	193	100.00	102	53.18	89	46.42	1	0.40
Finance and Insurance	401	100.00	220	54.82	166	41.52	15	3.66
Real Estate	63	100.00	56	88.13	6	9.49	2	2.38
Professional, Scientific and Technical Services	222	100.00	153	69.01	41	18.34	28	12.65
Support Services	190	100.00	157	82.73	31	16.50	1	0.76
Public Administration and Defence; Compulsory Social Security	332	100.00	0	0	0	0.00	332	100.00
Education	551	100.00	173	31.42	84	15.30	294	53.28
Human Health and Social Work Services	304	100.00	110	36.30	119	39.32	74	24.38
Arts, Entertainment and Recreation	77	100.00	56	72.11	11	13.85	11	14.03
Other Services	311	100.00	296	95.15	12	4.01	3	0.84

Note: 1. The industries are classified according to the 8th revision of Industry Classification Standard.
2. Data of Lienchiang County, a small offshore island, are included in the calculation of all figures.
Source: Ministry of Finance Tax Data Center, VAT data, 2007.

Table A-7 Overview of Newly-established SMEs in 2007–by Industry

Units: Number of enterprises; NT millions; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share
Total	**Number of enterprises**	**93,233**	**100.00**	**92,957**	**99.70**	**276**	**0.30**
	Sales value	**290,385**	**100.00**	**208,738**	**71.88**	**81,647**	**28.12**
	Domestic value	**260,136**	**100.00**	**192,022**	**73.82**	**68,114**	**26.18**
	Export value	**30,249**	**100.00**	**16,716**	**55.26**	**13,532**	**44.74**
Agriculture, Forestry, Fishing and Animal Husbandry	Number of enterprises	313	100.00	313	100.00	0	0.00
	Sales value	310	100.00	310	100.00	0	0.00
	Domestic value	249	100.00	249	100.00	0	0.00
	Export value	60	100.00	60	100.00	0	0.00
Mining and Quarrying	Number of enterprises	141	100.00	140	99.29	1	0.71
	Sales value	888	100.00	888	100.00	0	0.00
	Domestic value	888	100.00	888	100.00	0	0.00
	Export value	0	0.00	0	0.00	0	0.00
Manufacturing	Number of enterprises	4,208	100.00	4,130	98.15	78	1.85
	Sales value	49,696	100.00	26,200	52.72	23,496	47.28
	Domestic value	38,582	100.00	19,188	49.73	19,394	50.27
	Export value	11,114	100.00	7,012	63.09	4,102	36.91
Electricity and Gas Supply	Number of enterprises	20	100.00	20	100.00	0	0.00
	Sales value	37	100.00	37	100.00	0	0.00
	Domestic value	37	100.00	37	100.00	0	0.00
	Export value	0	100.00	0	100.00	0	0.00
Water Supply and Remediation Services	Number of enterprises	720	100.00	715	99.31	5	0.69
	Sales value	2,223	100.00	2,057	92.51	166	7.49
	Domestic value	2,168	100.00	2,001	92.32	166	7.68
	Export value	56	100.00	56	100.00	0	0.00
Construction	Number of enterprises	8,227	100.00	8,219	99.90	8	0.10
	Sales value	26,217	100.00	24,523	93.54	1,694	6.46
	Domestic value	25,981	100.00	24,421	94.00	1,560	6.00
	Export value	236	100.00	102	43.27	134	56.73
Wholesale and Retail Trade	Number of enterprises	44,701	100.00	44,562	99.69	139	0.31
	Sales value	147,855	100.00	109,802	74.26	38,053	25.74
	Domestic value	131,147	100.00	100,728	76.81	30,419	23.19
	Export value	16,707	100.00	9,074	54.31	7,634	45.69
Transportation and Storage	Number of enterprises	1,137	100.00	1,133	99.65	4	0.35
	Sales value	5,207	100.00	3,601	69.15	1,606	30.85
	Domestic value	3,625	100.00	3,453	95.25	172	4.75
	Export value	1,582	100.00	148	9.35	1,434	90.65
Accommodation and Food Services	Number of enterprises	15,530	100.00	15,527	99.98	3	0.02
	Sales value	15,344	100.00	14,938	97.35	407	2.65
	Domestic value	15,344	100.00	14,938	97.35	407	2.65
	Export value	0	100.00	0	50.28	0	49.72

Table A-7 Overview of Newly-established SMEs in 2007–by Industry (continued)

Units: Number of enterprises; NT millions; %

Industry \ Size		Total	Share	SMEs	Share	Large enterprises	Share
Information and Communication	Number of enterprises	1,496	100.00	1,490	99.60	6	0.40
	Sales value	5,020	100.00	3,021	60.17	1,999	39.83
	Domestic value	4,885	100.00	2,917	59.71	1,968	40.29
	Export value	135	100.00	104	77.07	31	22.93
Finance and Insurance	Number of enterprises	1,061	100.00	1,049	98.87	12	1.13
	Sales value	13,425	100.00	6,065	45.17	7,361	54.83
	Domestic value	13,415	100.00	6,055	45.13	7,361	54.87
	Export value	10	100.00	10	100.00	0	0.00
Real Estate	Number of enterprises	2,331	100.00	2,324	99.70	7	0.30
	Sales value	5,102	100.00	4,232	82.95	870	17.05
	Domestic value	5,101	100.00	4,230	82.94	870	17.06
	Export value	2	100.00	2	100.00	0	0.00
Professional, Scientific and Technical Services	Number of enterprises	3,233	100.00	3,225	99.75	8	0.25
	Sales value	10,840	100.00	5,578	51.46	5,262	48.54
	Domestic value	10,500	100.00	5,435	51.76	5,065	48.24
	Export value	340	100.00	143	42.13	197	57.87
Support Services	Number of enterprises	2,281	100.00	2,280	99.96	1	0.04
	Sales value	2,535	100.00	2,433	96.00	101	4.00
	Domestic value	2,530	100.00	2,429	96.01	101	3.99
	Export value	5	100.00	5	92.56	0	7.44
Education	Number of enterprises	123	100.00	123	100.00	0	0.00
	Sales value	179	100.00	179	100.00	0	0.00
	Domestic value	179	100.00	179	100.00	0	0.00
	Export value	0	0.00	0	0.00	0	0.00
Human Health and Social Work Services	Number of enterprises	24	100.00	23	95.83	1	4.17
	Sales value	214	100.00	38	17.84	175	82.16
	Domestic value	214	100.00	38	17.84	175	82.16
	Export value	0	0.00	0	0.00	0	0.00
Arts, Entertainment and Recreation	Number of enterprises	2,610	100.00	2,610	100.00	0	0.00
	Sales value	1,813	100.00	1,813	100.00	0	0.00
	Domestic value	1,813	100.00	1,813	100.00	0	0.00
	Export value	0	100.00	0	0.00	0	0.00
Other Services	Number of enterprises	5,077	100.00	5,074	99.94	3	0.06
	Sales value	3,480	100.00	3,025	86.91	455	13.09
	Domestic value	3,479	100.00	3,024	86.91	455	13.09
	Export value	0	100.00	0	0.00	0	0.00

Note: 1. The industries are classified according to the 8th revision of Industry Classification Standard.
2. Data of Lienchiang County, a small offshore island, are included in the calculation of all figures.
Source: Ministry of Finance Tax Data Center, VAT data, 2007.

Table A-8 Female Owned Enterprises in 2007–Number of Enterprises and Sales Value by Industry

Units: NT$ millions; %

Industry/Size \ Item		Number of Enterprises			Sales Value		
		Total	Women owned Enterprises	Women owned Enterprises' Share	Total	Women owned Enterprises	Women owned Enterprises' Share
Total	**Total**	**1,258,678**	**443,088**	**35.20**	**32,877,347**	**4,356,030**	**13.25**
	SMEs	**1,230,338**	**437,924**	**35.59**	**9,918,597**	**2,246,760**	**22.65**
	Large enterprises	**28,340**	**5,164**	**18.22**	**22,958,750**	**2,109,270**	**9.19**
Agriculture, Forestry, Fishing and Animal Husbandry	SMEs	10,768	2,384	22.14	15,586	3,420	21.95
	Large enterprises	31	5	16.13	15,951	1,665	10.44
Mining and Quarrying	SMEs	1,484	329	22.17	44,273	5,762	13.02
	Large enterprises	24	0	0.00	8,612	0	0.00
Manufacturing	SMEs	132,794	34,198	25.75	3,865,568	534,530	13.83
	Large enterprises	4,344	380	8.75	8,380,005	259,625	3.10
Electricity and Gas Supply	SMEs	243	45	18.52	3,272	364	11.14
	Large enterprises	119	16	13.45	583,589	36,606	6.27
Water Supply and Remediation Services	SMEs	6,521	1,929	29.58	129,793	29,978	23.10
	Large enterprises	79	11	13.92	30,472	2,079	6.82
Construction	SMEs	90,105	22,092	24.52	729,090	186,568	25.59
	Large enterprises	2,094	414	19.77	984,694	137,307	13.94
Wholesale and Retail Trade	SMEs	650,282	242,513	37.29	3,837,111	1,115,014	29.06
	Large enterprises	14,986	3,255	21.72	7,448,498	1,127,288	15.13
Transportation and Storage	SMEs	30,705	7,368	24.00	243,215	64,247	26.42
	Large enterprises	916	151	16.48	607,245	73,733	12.14
Accommodation and Food Services	SMEs	108,363	52,629	48.57	222,230	80,171	36.08
	Large enterprises	242	46	19.01	84,974	15,240	17.93

Table A-8 Female Owned Enterprises in 2007–Number of Enterprises and Sales Value by Industry (continued)

Units: NT$ millions; %

Industry/Size \ Item		Number of Enterprises			Sales Value		
		Total	Women owned Enterprises	Women owned Enterprises' Share	Total	Women owned Enterprises	Women owned Enterprises' Share
Information and Communication	SMEs	15,009	4,417	29.43	89,700	24,270	27.06
	Large enterprises	592	88	14.86	627,383	45,440	7.24
Finance and Insurance	SMEs	13,381	3,951	29.53	181,518	38,162	21.02
	Large enterprises	2,664	378	14.19	3,057,234	217,252	7.11
Real Estate	SMEs	18,625	5,306	28.49	147,462	35,722	24.22
	Large enterprises	1,174	242	20.61	616,668	126,815	20.56
Professional, Scientific and Technical Services	SMEs	34,766	11,952	34.38	164,455	48,831	29.69
	Large enterprises	548	106	19.34	308,007	46,118	14.97
Support Services	SMEs	26,133	9,918	37.95	102,542	33,106	32.29
	Large enterprises	259	43	16.60	118,095	11,963	10.13
Education	SMEs	502	166	33.07	2,555	610	23.87
	Large enterprises	6	0	0.00	1,728	0	0.00
Human Health and Social Work Services	SMEs	300	101	33.67	1,405	492	35.00
	Large enterprises	6	1	16.67	1,268	126	9.94
Arts, Entertainment and Recreation	SMEs	23,079	7,678	33.27	43,133	11,221	26.01
	Large enterprises	90	14	15.56	27,065	3,584	13.24
Other Services	SMEs	67,278	30,948	46.00	95,690	34,290	35.83
	Large enterprises	166	14	8.43	57,260	4,429	7.73

Note: The figure in total do not include those enterprises that owners are legal perons or foreigners for which gender cannot be identified.

Source: Ministry of Finance Tax Data Center,VAT tax data, 2007.

Table A-9 Female Owned Enterprises in 2007–Domestic Sales Value and Export Sales Value by Industry

Units: NT$ millions; %

Industry/Size \ Item		Domestic Sales			Export Sales		
		Total	Women owned Enterprises	Women owned Enterprises' Share	Total	Women owned Enterprises	Women owned Enterprises' Share
Total	**Total**	**24,576,616**	**3,653,920**	**14.87**	**8,300,731**	**702,110**	**8.46**
	SMEs	**8,389,809**	**2,000,126**	**23.84**	**1,528,788**	**246,635**	**16.13**
	Large enterprises	**16,186,807**	**1,653,795**	**10.22**	**6,771,943**	**455,475**	**6.73**
Agriculture, Forestry, Fishing and Animal Husbandry	SMEs	13,710	2,935	21.41	1,876	485	25.86
	Large enterprises	14,580	1,554	10.66	1,371	110	8.05
Mining and Quarrying	SMEs	44,021	5,719	12.99	252	43	17.13
	Large enterprises	8,196	0	0.00	416	0	0.00
Manufacturing	SMEs	2,806,962	433,590	15.45	1,058,605	100,940	9.54
	Large enterprises	3,949,491	157,192	3.98	4,430,514	102,434	2.31
Electricity and Gas Supply	SMEs	3,251	364	11.21	21	0	0.66
	Large enterprises	572,668	36,606	6.39	10,921	0	0.00
Water Supply and Remediation Services	SMEs	124,122	28,581	23.03	5,671	1,397	24.63
	Large enterprises	27,835	1,953	7.02	2,637	126	4.77
Construction	SMEs	724,398	185,338	25.59	4,692	1,231	26.23
	Large enterprises	964,653	135,520	14.05	20,040	1,787	8.92
Wholesale and Retail Trade	SMEs	3,401,073	977,892	28.75	436,038	137,121	31.45
	Large enterprises	5,548,020	808,702	14.58	1,900,478	318,586	16.76
Transportation and Storage	SMEs	235,168	62,506	26.58	8,047	1,741	21.64
	Large enterprises	354,719	54,147	15.26	252,527	19,586	7.76
Accommodation and Food Services	SMEs	221,777	80,019	36.08	452	152	33.65
	Large enterprises	82,943	13,815	16.66	2,032	1,425	70.13

Table A-9 Female Owned Enterprises in 2007–Domestic Sales Value and Export Sales Value by Industry (continued)

Units: NT$ millions; %

Industry/Size \ Item		Domestic Sales			Export Sales		
		Total	Women owned Enterprises	Women owned Enterprises' Share	Total	Women owned Enterprises	Women owned Enterprises' Share
Information and Communication	SMEs	83,892	23,111	27.55	5,808	1,159	19.96
	Large enterprises	552,309	36,962	6.69	75,074	8,478	11.29
Finance and Insurance	SMEs	180,833	37,840	20.93	685	322	47.03
	Large enterprises	3,055,928	217,250	7.11	1,306	2	0.18
Real Estate	SMEs	147,178	35,630	24.21	285	93	32.62
	Large enterprises	613,670	125,673	20.48	2,998	1,141	38.07
Professional, Scientific and Technical Services	SMEs	159,289	47,232	29.65	5,166	1,599	30.96
	Large enterprises	242,656	44,758	18.44	65,350	1,360	2.08
Support Services	SMEs	101,748	32,797	32.23	795	309	38.89
	Large enterprises	112,614	11,629	10.33	5,482	334	6.09
Education	SMEs	2,555	610	23.88	0	0	11.04
	Large enterprises	1,642	0	0.00	86	0	0.00
Human Health and Social Work Services	SMEs	1,372	492	35.84	33	0	0.00
	Large enterprises	1,239	123	9.92	29	3	10.50
Arts, Entertainment and Recreation	SMEs	43,036	11,203	26.03	97	18	18.38
	Large enterprises	26,986	3,505	12.99	79	79	99.77
Other Services	SMEs	95,425	34,267	35.91	265	23	8.78
	Large enterprises	56,658	4,404	7.77	602	25	4.07

Note: The figure in total do not include those enterprises that owners are legal perons or foreigners for which gender cannot be identified.

Source: Ministry of Finance Tax Data Center,VAT tax data, 2007.

Appendix B

Table B The Evolving Definition of SMEs in Taiwan

Industry / Year of modification	Manufacturing	Construc-tion	Mining and quarrying	Commerce, transportation services and other services
September 1967	Capital under NT$ 5 million; and regular employees under 100 persons.			Annual operating revenue under NT$ 5 million; and regular employees under 50 persons.
March 1973	Registered capital under NT$ 5 million and total assets not exceeding NT$ 20 million, or registered capital under NT$ 5 million and the number of regular employees in accordance with the standards as below: (1) under 300 persons for garments, clothing and electronics industry; (2) under 200 persons for food products industry; (3) under 100 persons for others.			No change
August 1977	Paid-in capital under NT$ 20 million and total assets amount not exceeds NT$ 60 million, and the number of regular employees not exceeds 300 persons.		Paid-in capital under NT$ 20 million and the number of regular employees not exceed 500 persons.	Annual operating revenue under NT$ 20 million; and regular employees under 50 persons.
February 1979	No change		Paid-in capital under NT$ 40 million.	No change
July 1982	Paid-in capital under NT$ 40 million and total assets amount not exceed NT$ 120 million.		No change	Annual operating revenue under NT$ 40 million.
November 1991	No change, except for extending industry terms into construction.		No change	No change
September 1995	Paid-in capital not exceeds NT$ 60 million; or regular employees not exceed 200 persons.			Total operating revenue in the preceding year not exceeds NT $80 million; or its regular employees not exceed 50 persons (extending industry terms to agriculture).
May 2000	Paid-in capital not exceeds NT$ 80 million; or regular employees not exceed 200 persons.			Total operating revenue in the preceding year not exceeds NT$ 100 million; or its regular employees not exceed 50 persons (extending industry terms to agriculture).
July 2005	Paid-in capital not exceed NT$ 80 million; or regular employees not exceed 200 persons.			Total operating revenue in the preceding year not exceeds NT$ 100 million; or its regular employees not exceed 50 persons (Industrial classification has changed according to the 7th edition).

Appendix C

References for Chapter 5

Barney, J. B. (1991), "Firm Resources and Sustained Competitive Advantage," *Journal of Management*, 17(1): 99-120.

Wernerfelt, B. (1984), "A Resource-Based View of the Firm," *Strategic Management Journal*, 5: 171-180.

References for Chapter 7

Bahrami, H., and S. Evans (1995), "Flexible Re-Cycling and High-Technology Entrepreneurship," *California Management Review*, 37(3): 62-87.

Dicken, P. (1998), *Global Shift*, 3rd edition, New York: Guilford.

Gwynne, P. (1993), "Directing Technology in Asia's Dragons," *Research-Technology Management*, 32(2): 12-15.

Johanson, J., and L. G. Mattsson (1988), "Internationalization in Industrial System—A Network Approach," in N. Hood and J. E. Vahlne eds., *Strategies in Global Competition*, London: Croom Helm.

Markusen, A. (1996), "Sticky Places in Slippery Space: A Typology of Industrial Districts," *Economic Geography*, 72(3): 293-313.

Martin, R., and P. Sunley (2003), "Deconstructing Clusters: Chaotic Concept or Policy Panacea?" *Journal of Economic Geography*, 3(1): 5-35.

Olson, K. (1998), "Strategic Clustering," *Executive Excellence*, 15, 12-18.

Porter, Michael E. (1980), *Competitive Strategy: Techniques for Analysing Industries and Competitors*, New York: Free Press.

Porter, Michael E. (1990), *New Global Strategies for Competitive Advantage*, ABI/ INFORM Global.

Porter, Michael E. (1990), *The Competitive Advantage of Nations*, New York: Free Press.

Sabourin, V., and I. Pinsonneault (1997), "Strategic Formation of Competitive High Technology Clusters," *International Journal of Technology Management*, 13(2): 165-178.

Index

A

APEC conferences 216-217

B

branded marketing 221-222

Business Income Tax Law 109

C

consolidated balance sheet 66-69

D

definition of SMEs 50-52, 57, 83, 280

digital divide 176

E

e-commerce 217

employment 84-86, 93
- in cultural and creative industries 91-92
- in new emerging industries 90-91
- labor disputes 99-100
- of foreign laborers 94-95
- professional training 101-104

Entrepreneur Success Plan 211-213

export 53
- female owned enterprises 43-50
- international comparison 50-52, 54-55
- newly-established enterprises 31, 33-35

F

female-owned enterprises 43-50

financial analysis 66-71

financial ratio 62-65
- by industry 72-73

financing 76, 81
- by intellectual property right 230
- from bank loans 76-81

foreign trade 109

fund utilization 57-59

funding
- in manufacturers industries 75
- sources of 57, 73-74

G

global warming 1-3

growth 3-4, 6-10
- Chinese 9-10, 14-15
- global 6-8,
- Taiwan 19-26

guidance System 220, 225, 229, 238

I

incubator center 210, 213-214

India 10

industry clusters 179-184
- case studies 166-172
- definition 162-165

inflation 5-6, 12, 14, 26

investment 109, 111-113
by manufacturing firms 113-118
difficulties 124-130
in China 112-113
suggestions 130

L

Labor Contracts Law 109, 126-127, 132
legal and regulatory environment 243-244

K

knowledge management 158-159

M

M-shaped society 27

N

National SME Development Conference 245-246
newly-established enterprises 33-34, 35

P

Plan to Encourage Coordinated Innovation 257
profit and loss 60-62, 70-71
overseas operations 117-118

R

R&D and innovation 151

S

SBIR 146-147

service sector 32, 37, 46, 150-151, 153
SME Credit Guarantee Fund 225
SMEs' labor conditions 95-100
sub-prime mortgage 132

U

unemployment 83, 93, 101