

East Asian Corporates: Growth, Financing and Risks over the Last Decade

by

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Summary

Using a database of 5,550 firms in nine countries over the period 1988-1996, we find large differences in performance and financial structures across East Asian countries. Profitability, as measured by real return on assets in local currency, was relatively low in Hong Kong, Japan, Korea, and Singapore throughout the period, while corporates in Indonesia, the Philippines, and Thailand had high returns, on average twice higher than those recorded in Germany and the US. Nominal returns in dollars were high too, but reflected in part the real appreciation of currencies. In 1994-1996, measured performance declined in several countries, especially Japan and Korea. This did not show up as much in sales growth as investment rates were high and continued to drive output growth rates in many countries. The combination of high investment and relatively low profitability in some countries meant that much external financing was needed. As outside equity was used sparingly, leverage was high in most East Asian countries, also relative to other countries, and increasing in Korea, Malaysia and Thailand. Short-term borrowing became increasingly important, especially in Malaysia, Taiwan, and Thailand. Some of the vulnerabilities in corporate financial structures that have now become a very apparent factor in triggering and aggravating East Asia's financial crisis, were thus already in existence in the early 1990s.

The opinions expressed do not necessarily reflect those of the World Bank. We thank Jack Glen, Ejaz Ghani, Campbell Harvey, Guy Pfeffermann, S. Ramachandran, and Charles Woodruff for helpful suggestions.

1. Introduction

The East Asian financial crisis has in part been attributed to the weak performance and risky financial structures of corporates. Ex-post, it has become clear that the operational performance of East Asian corporates was indeed not as stellar as many had thought and in fact involved investment with high risks. Also ex-post, it has become apparent that the financial structures of many East Asian corporates could not withstand the combined shocks of increased interest rates, depreciated currencies, and large drops in domestic demand. This poor performance and risky financing structures of East Asian corporates were, however, not notably featured among observers writing on East Asia prior to the financial crisis. Quite the opposite, East Asian corporates were considered an important contributing part of the East Asian miracle and were generally viewed upon as very competitive and adept at exploiting new market opportunities, and consequently attracted considerable amounts of (foreign) capital.

Reconciling the differences between these ex-post and ex-ante view will likely be a topic of much future research.¹ A first in-depth analysis of East Asian corporate performance was made by Harvey and Roper (1999). They argue that corporate managers bet their companies by trying to offset declining profitability with ever increasing amounts of borrowing in foreign currency. Those bets clearly turned sour when the currency crises hit, because much of the borrowing was in foreign currency and companies couldn't generate enough of their weaker, local currencies to service it. While capital markets in the region mobilized substantial amounts of new funds and enhancing liquidity, Harvey and Roper found that shares of Southeast Asian companies earned returns in the 1990s that, adjusted for risk, were well below those generated in equity markets in other countries, especially in the West.

In this note, we are less ambitious and start with documenting the basic record in corporate performance and financing structures for East Asian corporates over the last decade. Analyzing whether this record led or contributed to a financial crisis will be pursued in future work. We use a database of balance sheet and income statement data for 5550 East Asian firms in nine countries over the period 1988-1996 for establishing the stylized facts on corporate performance and financing structures. The main data source are annual reports of the companies listed on the major stock exchanges in the region.

We find large differences in performance and financial structures across countries. Profitability, as measured by real return on assets (ROA) in local currency, was relatively low in Hong Kong, Japan, Korea, and Singapore throughout the period, while corporates in Indonesia, the Philippines, and Thailand had high returns, on average twice higher than those recorded in Germany and the United States over the same period. In the years 1994-1996, measured performance declined somewhat in several East Asian countries, especially Japan and Korea.

¹ Several companion papers use the same data to study specific aspects of the behavior of corporations in East Asia. Claessens et al. (1998) investigates the pattern of diversification into vertically related, complementary related, and unrelated businesses. Claessens, Djankov and Lang (1999) document the ultimate ownership of East Asian corporations and Claessens et al. (1999a and b) examine the link between ownership structure and corporate performance and diversification.

These differences in performance did not show up as much in sales growth as investment rates were high and continued to drive output growth rates in all countries. These stylized facts suggest that the East Asian miracle was indeed based on a vibrant corporate sector.

However, the combination of high investment and relatively low profitability in some countries meant that much external financing was needed. As outside equity was used sparingly, partly as stock markets were depressed (Japan) or because insiders preferred to retain control, leverage was high in most East Asian countries, and increasing in Korea, Malaysia and Thailand. This created large risks as short-term (foreign exchange) borrowing became increasingly important in the last few years, especially in Malaysia, Taiwan, and Thailand. Some of the vulnerabilities in corporate financial structures that have now become a very apparent factor in triggering and aggravating East Asia's financial crisis, were thus already in existence in the early 1990s.

2. Data

The data come from annual reports of the companies listed on the major stock exchanges in the region and come from Worldscope and Extel databases. The datasets are unbalanced, i.e., the number of observations varies from year to year. We have excluded companies, which report data less than three times over the period 1988-96. We have also excluded financial and banking institutions (SIC6000-6999). Finally, in any given year, we exclude companies which do not include all of the following variables – net sales, net income after taxes, cost of goods sold, total assets, and the value of common equity. The data set consists of 588 companies in Hong Kong, 317 companies in Indonesia, 2526 companies in Japan, 392 companies in Korea, 772 companies in Malaysia, 170 companies in Philippines, 348 companies in Singapore, 265 companies in Taiwan, and 564 companies in Thailand.

Several caveats apply to the data. First, the statistics we report do not attempt to correct for cross-country differences in industrial structure. If a country data set has many utility firms, for example, average leverage might be higher and profitability lower. A forthcoming companion paper breaks down the sample into sectors (based on two-digit SIC codes) to provide a more accurate comparison of company performance across countries. The data also cover mainly large firms—the median size of the 5550 firms is 4273 employees, with the largest company employing more than 150,000 employees. This selection pattern arises since firms have to be listed on a stock exchange in order to enter the database, and listed companies tend to be large. The bias towards larger companies may be problematic if one were studying the effect of the Asian financial crises on the corporate sector. It does not pose a problem here, since we focus on the years preceding the crisis, when (as critics argue) large companies were at the root of the corporate and financial sector difficulties.

Whenever possible, we have compared the main variables of interest with those reported in other studies, in particular Demircug-Kunt and Maksimovic (1995), Glen et al. (1998), and Goldman Sachs (1998).² We also cross-checked the data for Japan with the *Comparative Economic and Financial Statistic for Japan and other Major Countries*, published by the Bank of

² Pomerleano (1999) also analyzes East Asian corporations. He uses alternative measures of performance and leverage that are not easily comparable with the statistics in this study.

Japan and the OECD Financial Statistics Part 3, *Financial Statements of Non-Financial Enterprises*. The similarity in calculations—large companies are also used there—provides some comfort in the robustness of our results.

3. Performance Measures

As our first measure of performance we use the real rate of return on assets (ROA) in local currency. This is calculated at the firm level as the earnings before interest and taxes (EBIT) in local currency over total assets minus the annual inflation rate in the country. The advantage of this measure is that it is not influenced by the liability structure of the corporate, as it excludes interest payments, financial income, and other income or expenses. Table 1 shows that across countries, East Asian corporates have had quite different ROAs. Relatively low profitability rates have been recorded by corporates from Hong Kong, Japan, Korea, and Singapore with real ROAs on average of about 5%. High-profitability countries, at least for most of the period we study, have been Indonesia, the Philippines, and Thailand. Corporates in these countries averaged real ROAs of about 9%-10% for the whole period. ROAs for corporates in Malaysia and Taiwan fall in between these two groups, but their returns of about 7% are still closer to the high performers. These ROAs can be compared to ROAs in Germany and the United States³ of about 5 percent, providing support to the notion that the corporate sector contributed significantly to the East Asian Miracle during most of this period.

Table 1: Return on Assets for Nine Asian Countries, Germany and the US
(%, medians, in real local currency)

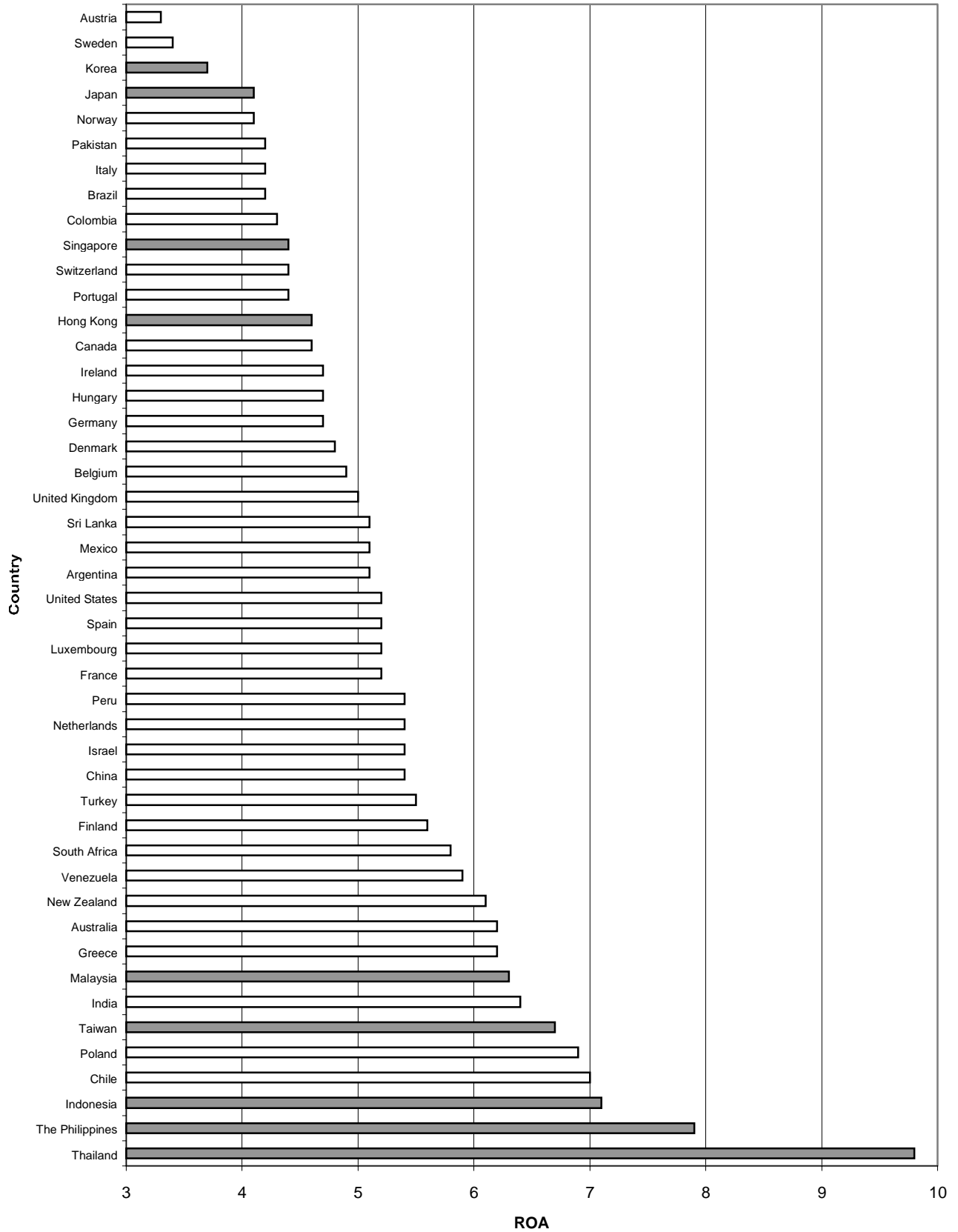
| Country | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1988-96 |
|-------------|------|------|------|------|------|------|------|------|------|---------|
| Hong Kong | 5.1 | 5.3 | 4.9 | 4.8 | 4.5 | 3.8 | 3.9 | 3.9 | 4.1 | 4.6 |
| Indonesia | n.a. | n.a. | 9.4 | 9.1 | 8.6 | 7.9 | 7.4 | 6.2 | 6.5 | 7.1 |
| Japan | 5.7 | 5.4 | 4.6 | 4.7 | 4.8 | 4.5 | 4.1 | 3.8 | 3.6 | 4.1 |
| Korea | 4.4 | 3.9 | 4.1 | 4.0 | 3.9 | 3.6 | 3.4 | 3.6 | 3.1 | 3.7 |
| Malaysia | 5.4 | 5.6 | 5.4 | 6.2 | 6.0 | 6.5 | 6.3 | 6.1 | 5.6 | 6.3 |
| Philippines | n.a. | n.a. | n.a. | 7.1 | 6.4 | 8.1 | 8.5 | 6.8 | 8.4 | 7.9 |
| Singapore | 4.9 | 4.5 | 4.2 | 3.9 | 5.2 | 4.6 | 4.5 | 3.9 | 4.0 | 4.4 |
| Taiwan | n.a. | n.a. | n.a. | 5.1 | 6.2 | 6.5 | 6.8 | 6.5 | 6.6 | 6.7 |
| Thailand | 10.8 | 11.0 | 11.7 | 11.2 | 10.2 | 9.8 | 9.3 | 7.8 | 7.4 | 9.8 |
| US | 4.7 | 4.8 | 5.1 | 4.9 | 5.2 | 5.4 | 5.3 | 5.2 | 5.2 | 5.3 |
| Germany | 5.3 | 5.5 | 5.5 | 5.7 | 5.6 | 5.2 | 5.1 | 4.9 | 5.0 | 4.7 |

Note: Table A1 reports means, standard deviations, and sample sizes.

As a further comparison of the performance of East Asian corporates, we plot the average 1988-96 ROA for corporates in all other countries that report to *Worldscope* (Figure 1). Thailand, the Philippines, and Indonesia have the highest ROAs in this sample of 46 countries, while Taiwan and Malaysia are close behind. At the other end, Korea and Japan have the lowest ROAs in the sample, together with Norway, Sweden, and Austria. Singapore and Hong Kong also have relatively low ROAs in real local currency.

³ For all companies listed on the DAX in Frankfurt, and for all NYSE companies in the US.

Figure 1: International Comparison on ROAs



Next we calculate the return on assets in US dollars, adjusted for the effects of currency movements (Table 2). This measure of performance presents the point of view of an international investor who can allocate resources across several countries. With the exception of Japan (6.6%) and Taiwan (8.4%), all East Asian countries have US dollars ROAs higher than the US median (8.7%). The Philippines (18.7%), Thailand (14.7%), and Indonesia (13.0%) have the highest average returns over the 1988-96 period.

Table 2: Return on Assets for Nine Asian Countries, Germany and the US
(%, medians, in nominal US dollars)

| Country | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1988-96 |
|-------------|------|------|------|------|------|------|------|------|------|---------|
| Hong Kong | 8.0 | 8.4 | 7.2 | 12.9 | 14.3 | 12.5 | 11.5 | 8.0 | 10.3 | 10.3 |
| Indonesia | n.a. | n.a. | 16.0 | 13.7 | 12.6 | 15.3 | 11.7 | 10.7 | 11.2 | 13.0 |
| Japan | 6.5 | -6.0 | 13.3 | 14.8 | 7.0 | 16.2 | 15.6 | 1.0 | -9.2 | 6.6 |
| Korea | 25.1 | 10.3 | 7.3 | 7.2 | 6.4 | 5.9 | 12.1 | 9.9 | -1.0 | 9.2 |
| Malaysia | -0.8 | 8.8 | 7.2 | 9.9 | 14.8 | 6.1 | 15.5 | 12.2 | 9.5 | 9.2 |
| Philippines | n.a. | n.a. | n.a. | 23.2 | 21.2 | 5.4 | 29.4 | 7.5 | 16.5 | 17.2 |
| Singapore | 8.9 | 9.4 | 15.6 | 13.6 | 6.9 | 9.3 | 16.4 | 9.0 | 6.8 | 10.7 |
| Taiwan | n.a. | n.a. | n.a. | 6.2 | 12.0 | 4.6 | 12.4 | 6.3 | 8.9 | 8.4 |
| Thailand | 13.9 | 14.6 | 19.3 | 16.9 | 13.4 | 13.1 | 16.6 | 13.2 | 11.5 | 14.7 |
| US | 8.7 | 9.6 | 10.5 | 9.1 | 8.3 | 8.4 | 7.9 | 8.0 | 8.1 | 8.7 |

The high returns in Table 2 are driven to some extent by the real exchange rate appreciation in the respective countries. Correcting for the real exchange rate appreciation vis-à-vis the US dollar, we find significantly lower ROAs. For example, the return in US dollars once a correction is made for real currency appreciation is 8.4% in Korea in 1988. Mathematically, this is nothing else than the sum of the real ROA in Korean won (4.4%) and the inflation rate in the United States (4.0%)—all other terms cancel out in the calculation. This implies that the relative comparisons of the ROAs corrected for real exchange rate appreciations are the same as those in Table 1.

Our third measure of profitability is operational margin, calculated as the difference between sales and costs of good sold, as a share of sales (Table 3). The liability structure or other income and expenses of the corporate do not influence this measure either, but the capital intensity of the individual corporate does. The operational margin measure shows less cross-country differences and has been stable for most countries throughout the period. The cross-country differences may indicate that firms across East Asia were exposed to differing degree of (international) competition. Relatively lower-margin producers seem to be Singapore, followed by Hong Kong, Malaysia and Korea. Surprisingly, Japanese firms have higher-margins on goods sold ratios than these developing countries, which may reflect the high capital intensity of Japanese firms and the, often-argued, lower level of competition within Japan. Relatively high-margin producers are the Philippines, Indonesia and Thailand, which may reflect the degree of domestic competition, the lower wages and high share of natural resources in their exports (the later especially for Indonesia). No strong trend appears over time, albeit there is some decrease in operational margins for Hong Kong, Indonesia and Singapore, possibly reflecting their higher wage growth while at the same time they were facing increased competition.

Table 3: Operational Margin for Nine Asian Countries, US and Germany
(%, medians)

| Country | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1988-96 |
|-------------|------|------|------|------|------|------|------|------|------|---------|
| Hong Kong | 23.5 | 19.5 | 22.2 | 19.6 | 17.4 | 16.6 | 17.3 | 14.6 | 14.2 | 18.7 |
| Indonesia | n.a. | n.a. | n.a. | 35.7 | 33.3 | 34.4 | 32.8 | 31.2 | 30.6 | 32.9 |
| Japan | 22.2 | 22.7 | 22.9 | 22.4 | 21.9 | 21.8 | 21.8 | 23.1 | 23.3 | 22.1 |
| Korea | 13.7 | 16.8 | 17.3 | 16.9 | 19.2 | 18.7 | 19.6 | 21.4 | 22.1 | 19.6 |
| Malaysia | 16.4 | 16.3 | 17.1 | 17.3 | 17.6 | 17.4 | 18.4 | 19.5 | 25.5 | 18.1 |
| Philippines | n.a. | n.a. | n.a. | 36.1 | 26.4 | 26.4 | 27.5 | 30.8 | 33.3 | 27.7 |
| Singapore | 17.3 | 16.7 | 16.8 | 15.5 | 15.5 | 15.2 | 14.1 | 13.6 | 13.1 | 14.9 |
| Taiwan | n.a. | n.a. | n.a. | 25.4 | 21.4 | 22.7 | 22.6 | 22.3 | 21.9 | 22.6 |
| Thailand | 21.9 | 24.3 | 25.7 | 27.3 | 25.9 | 25.1 | 24.9 | 24.7 | 22.7 | 25.2 |
| US | 14.1 | 13.9 | 14.1 | 14.3 | 15.5 | 14.0 | 14.7 | 14.8 | 14.6 | 14.4 |
| Germany | 13.2 | 13.4 | 13.7 | 13.5 | 13.8 | 14.1 | 15.6 | 16.7 | 17.1 | 14.6 |

Note: Table A2 reports means, standard deviations, and sample sizes.

The cross-country differences in returns on assets do not reflect themselves directly in differences in sales growth, which are also more variable over time (Table 4). Most East Asian corporates recorded on average high, real sales growth over the period. Malaysia, Indonesia and Thailand stand out, with 11.9%, 10.6% and 9.7% on average, followed by Taiwan with 9.3%. Other countries also had high sales growth rates, which are about double those of Germany (2.6%) and the US (3.7%). The country with the lowest corporate sales growth in East Asia is Japan, averaging 7.7%. These high sales growth rates mirror the high growth in export and domestic demand that has characterized this region over the last decade. We do observe some slowdown, however, in 1996 in sales growth for Indonesia, Japan, Singapore, Taiwan, and Thailand, possibly reflecting lower exports growth rates.

Table 4: Real Sales Growth (Year-on-Year) for Nine Asian Countries, Germany and the United States
(%, medians)

| Country | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1988-96 |
|-------------|------|------|------|------|------|------|------|------|---------|
| Hong Kong | 10.1 | 11.6 | 10.2 | 12.4 | 9.8 | 9.4 | 9.7 | 11.8 | 9.2 |
| Indonesia | n.a. | n.a. | n.a. | 10.7 | 12.1 | 12.4 | 9.4 | 8.3 | 10.6 |
| Japan | 7.4 | 8.2 | 8.4 | 8.3 | 8.8 | 8.5 | 7.2 | 4.3 | 7.7 |
| Korea | 8.4 | 8.7 | 8.2 | 8.3 | 7.6 | 7.3 | 7.2 | 8.6 | 8.2 |
| Malaysia | 9.7 | 12.3 | 11.8 | 12.7 | 13.1 | 12.6 | 11.7 | 11.9 | 11.9 |
| Philippines | n.a. | n.a. | n.a. | 8.4 | 6.7 | 7.6 | 10.6 | 12.2 | 8.2 |
| Singapore | 8.4 | 8.6 | 8.1 | 9.4 | 11.6 | 11.8 | 10.2 | 7.7 | 8.7 |
| Taiwan | n.a. | n.a. | n.a. | 7.1 | 11.3 | 10.3 | 9.7 | 8.4 | 9.3 |
| Thailand | 11.6 | 10.3 | 10.8 | 9.6 | 8.3 | 10.1 | 10.7 | 5.7 | 9.7 |
| US | 4.3 | 3.4 | -1.8 | 4.3 | 2.8 | 6.9 | 4.1 | 4.3 | 3.7 |
| Germany | 5.0 | 4.4 | 5.1 | 1.1 | -4.2 | 2.3 | 1.3 | 4.7 | 2.6 |

Note: Table A3 reports means, standard deviations, and sample sizes.

That these sales growth rates were maintained at such a high level—and at rates very similar across countries—reflects in part the high investment rates in this region (Table 5). We measure investment growth as new dollar investments as a share of existing fixed assets. Over this period, Indonesia, Korea, and Thailand stand out, with investment rates of up to 13%, and in some years even or more, followed by Malaysia, the Philippines, and Singapore, with rates averaging about 10%. Hong Kong, Japan and Taiwan had growth in investment in fixed assets of about 8. Japan has had low investment rates especially since 1990. This probably reflects in part its sustained financial and corporate crisis since the early 1990s.

Table 5: Capital Investment for Nine East Asian Countries, Germany, and the United States, 1988-1996
(%, medians)

| Country | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1988-96 |
|-------------|------|------|------|------|------|------|------|------|------|---------|
| Hong Kong | 14.3 | 16.6 | 8.3 | 7.6 | 7.2 | 19.8 | 7.6 | 5.8 | 9.3 | 8.3 |
| Indonesia | n.a. | n.a. | n.a. | 12.4 | 13.4 | 8.6 | 15.8 | 13.8 | 11.8 | 12.7 |
| Japan | 11.6 | 14.2 | 8.3 | 4.6 | 7.6 | 6.8 | 7.3 | 7.5 | 7.1 | 8.0 |
| Korea | 15.6 | 13.8 | 13.2 | 19.6 | 11.6 | 11.2 | 12.2 | 12.4 | 13.7 | 13.6 |
| Malaysia | 8.6 | 7.6 | 8.9 | 9.6 | 11.3 | 13.4 | 15.2 | 14.6 | 16.1 | 10.7 |
| Philippines | n.a. | n.a. | n.a. | 9.1 | 8.9 | 7.8 | 13.5 | 14.1 | 14.5 | 10.8 |
| Singapore | 7.8 | 7.6 | 7.4 | 8.8 | 9.6 | 11.3 | 13.4 | 12.5 | 13.5 | 10.4 |
| Taiwan | n.a. | n.a. | n.a. | 14.3 | 8.2 | 8.4 | 8.7 | 11.2 | 8.6 | 8.7 |
| Thailand | 10.4 | 12.9 | 12.3 | 15.0 | 14.9 | 15.0 | 14.7 | 14.5 | 5.8 | 13.8 |
| US | 3.8 | 4.1 | 3.0 | -1.4 | 4.0 | 2.6 | 6.4 | 3.7 | 3.8 | 3.4 |
| Germany | 4.9 | 4.8 | 4.2 | 5.0 | 0.9 | -3.8 | 2.1 | 1.3 | 4.6 | 2.5 |

Note: Table A4 reports means, standard deviations, and sample sizes.

4. Financial structures

The degree of riskiness inherent in the liability structures of East Asian corporates is evident in the data.⁴ The high investment rates, and relatively low ROAs for some countries, meant that external financing had to be large as internal sources of capital, i.e., retained earnings, were limited. This high external financing, mostly from the banking systems, has been always a characteristic of the East Asian Miracle. Leverage, defined as total debt over equity, remained then also high for many East Asian countries, much above that in other developing countries and many developed countries (Table 6). The highest leverage over this period was in case of Korea, about five times the lowest, Taiwan. Malaysia and Singapore were also low; leverage in the Philippines, while rising, was still much below that of Indonesia and Thailand.

⁴ Claessens, Djankov and Ferri (1999) investigate the degree of financial distress associated with these risky financial structures.

**Table 6: Leverage for Nine Asian Countries,
Germany and the US**
(%, means)

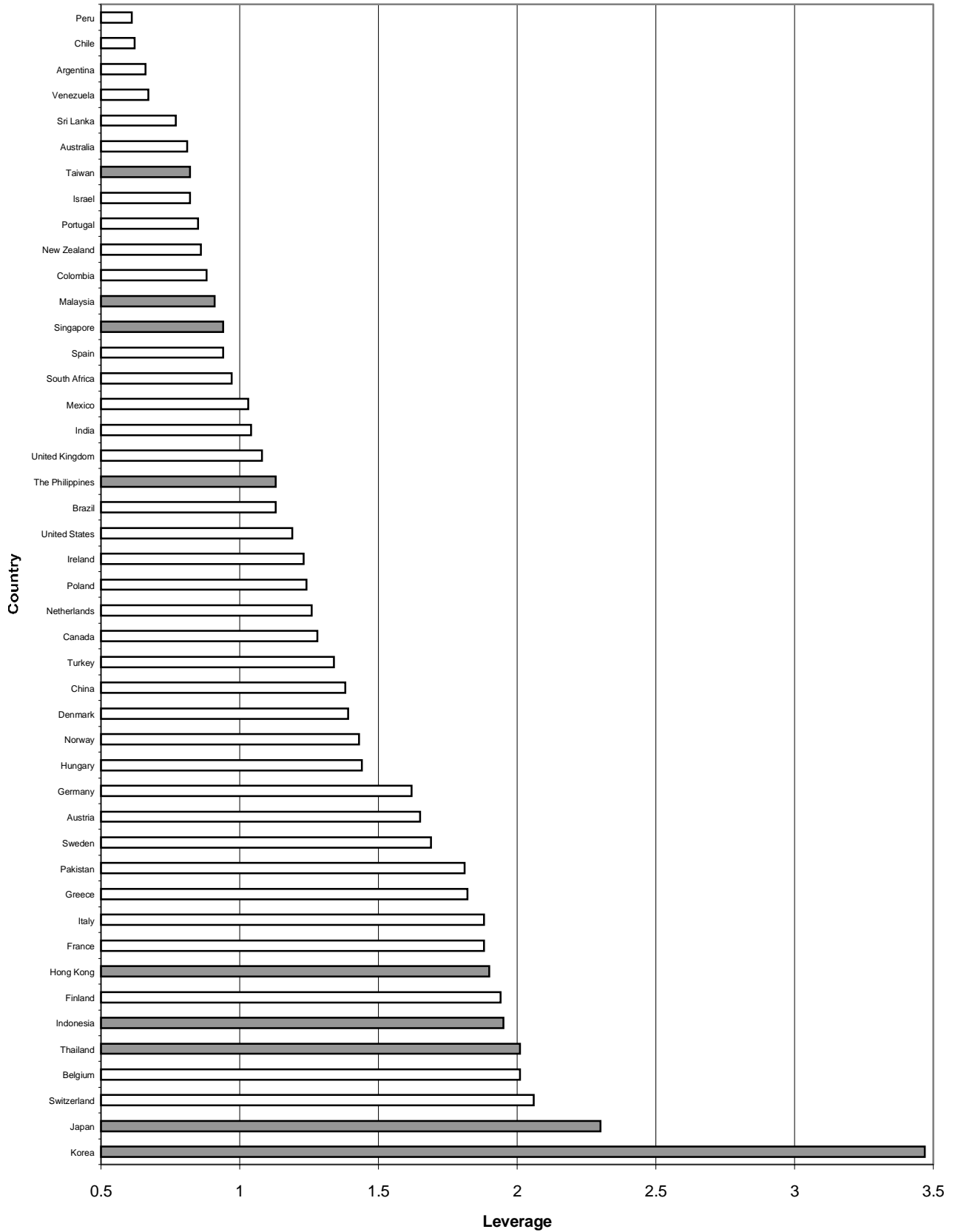
| Country | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1988-96 |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| Hong Kong | 1.832 | 2.311 | 1.783 | 2.047 | 1.835 | 1.758 | 2.273 | 1.980 | 1.559 | 1.902 |
| Indonesia | n.a. | n.a. | n.a. | 1.943 | 2.097 | 2.054 | 1.661 | 2.115 | 1.878 | 1.951 |
| Japan | 2.994 | 2.843 | 2.871 | 2.029 | 2.042 | 2.057 | 2.193 | 2.367 | 2.374 | 2.302 |
| Korea | 2.820 | 2.644 | 3.105 | 3.221 | 3.373 | 3.636 | 3.530 | 3.776 | 3.545 | 3.467 |
| Malaysia | 0.727 | 0.810 | 1.010 | 0.610 | 0.627 | 0.704 | 0.991 | 1.103 | 1.176 | 0.908 |
| Philippines | n.a. | n.a. | n.a. | 0.830 | 1.186 | 1.175 | 1.148 | 1.150 | 1.285 | 1.129 |
| Singapore | 0.765 | 0.922 | 0.939 | 0.887 | 0.856 | 1.102 | 0.862 | 1.037 | 1.049 | 0.936 |
| Taiwan | n.a. | n.a. | n.a. | 0.679 | 0.883 | 0.866 | 0.894 | 0.796 | 0.802 | 0.820 |
| Thailand | 1.602 | 1.905 | 2.159 | 2.010 | 1.837 | 1.914 | 2.126 | 2.224 | 2.361 | 2.008 |
| US | 0.798 | 0.848 | 0.904 | 0.972 | 1.059 | 1.051 | 1.066 | 1.099 | 1.125 | 1.034 |
| Germany | 1.535 | 1.552 | 1.582 | 1.594 | 1.507 | 1.534 | 1.512 | 1.485 | 1.472 | 1.514 |

Note: Table A5 reports medians, standard deviations, and sample sizes.

Most East Asian countries saw some increase in leverage in the last few years: this was most notable for Japan, Korea, Malaysia and Thailand. Japan had seen some de-leveraging earlier in the decade, possibly as there was some financial retrenchment, in the early 1990s, but lack of equity and corporate sector difficulties may have meant that no new equity was raised and loans were rolled over in the later part of the period. Leverage consequently rose. The rise in leverage in the Philippines is probably the result of its reforms in the mid-1980s, which led to revived corporate and financial sectors and better financing possibilities.

To study the riskiness of the financial structures of East Asian corporates, we next compare their average 1988-96 leverage ratios with the leverage ratios in the other Worldscope countries (Figure 2). Korean and Japanese firms have the highest leverage among all corporates in this group of countries, while companies in Thailand, Indonesia, and Hong Kong also have among the ten highest leverage ratios. At the opposite extreme, Taiwanese firms show relatively low leverage ratios. Firms in the Philippines, Singapore, and Malaysia also have below-average ratios. The pattern across other regions is also interesting. Western European countries typically display high leverage ratios, with Swiss firms having leverage almost as high as Japanese firms. In contrast, corporates in South American countries (Peru, Chile, Argentina, Venezuela, Colombia) have low leverage, reflecting the less deep banking systems of these countries.

Figure 2: International Comparison of Leverage



Long-term debt (as a share of total debt) has been low across the whole period in all East Asian countries (Table 7). Malaysia, Taiwan and Thailand stand out with less than 1/3. Japan and the Philippines have the highest share, ½, while the others are about 0.43. In contrast, about ¾ of debt of US corporates is long term, while in Germany the ratio is 0.55. In spite of the large attention to the role of short-term debt in the East Asian financial crisis, these data do not suggest a massive buildup in short-term debt for the East Asian countries, at least up to the end of 1996, but rather a consistently low share of long-term debt. In fact, only Japan saw some decrease in the share of long-term debt. As these data do not distinguish foreign exchange from domestic debt, it can of course be that the composition may have shifted away from short-term domestic debt toward short-term foreign exchange debt.

Table 7: Long Term Debt Share for Nine Asian Countries, Germany, and the US
(%, medians)

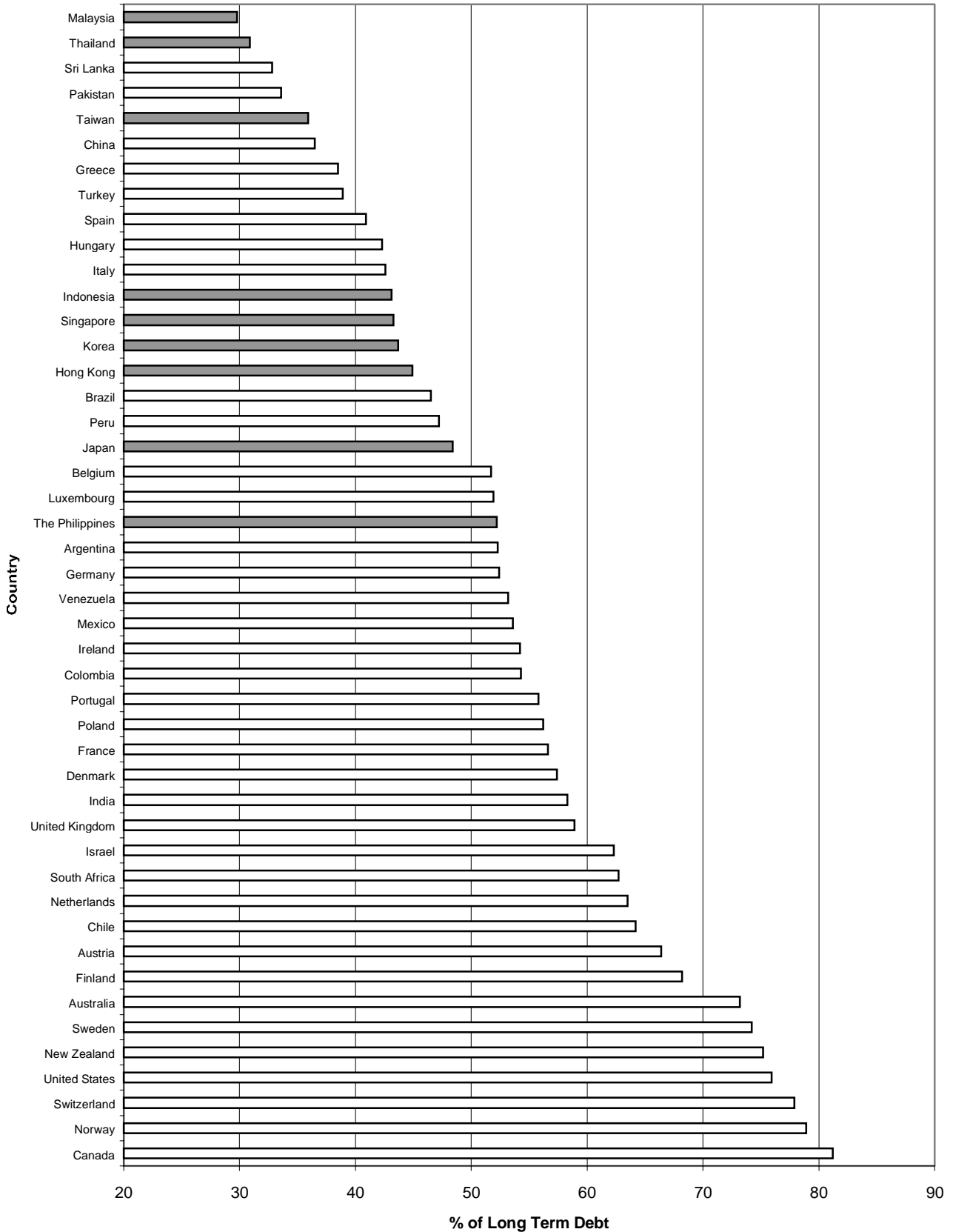
| Country | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1988-96 |
|-------------|------|------|------|------|------|------|------|------|------|---------|
| Hong Kong | 59.7 | 59.5 | 53.8 | 56.5 | 44.7 | 44.7 | 40.7 | 37.3 | 36.4 | 44.9 |
| Indonesia | n.a. | n.a. | n.a. | 52.4 | 40.8 | 39.6 | 41.6 | 41.8 | 43.3 | 43.1 |
| Japan | 49.9 | 54.1 | 53.8 | 49.9 | 49.4 | 51.7 | 47.7 | 44.4 | 40.8 | 48.4 |
| Korea | 55.7 | 47.2 | 49.8 | 49.8 | 44.2 | 43.7 | 41.4 | 40.4 | 41.5 | 43.7 |
| Malaysia | 35.8 | 35.5 | 32.5 | 27.1 | 26.9 | 26.6 | 27.2 | 27.8 | 29.9 | 29.2 |
| Philippines | n.a. | n.a. | n.a. | 57.2 | 53.1 | 50.3 | 50.2 | 49.8 | 51.4 | 52.2 |
| Singapore | 57.2 | 55.4 | 54.1 | 33.8 | 33.8 | 33.9 | 40.2 | 38.6 | 41.1 | 43.3 |
| Taiwan | n.a. | n.a. | n.a. | 53.9 | 44.4 | 32.8 | 34.6 | 34.3 | 38.9 | 35.9 |
| Thailand | 58.1 | 49.8 | 38.8 | 34.3 | 25.2 | 26.4 | 27.6 | 32.9 | 32.8 | 30.9 |
| US | 77.7 | 77.2 | 76.3 | 76.7 | 75.8 | 76.2 | 75.2 | 74.6 | 74.1 | 75.9 |
| Germany | 56.8 | 55.4 | 54.5 | 53.9 | 55.2 | 55.4 | 55.4 | 55.3 | 54.7 | 55.3 |

Note: Table A6 reports means, standard deviations, and sample sizes.

The international comparison of the maturity of debt structure (Figure 3) reveals that most East Asian countries rank below European and Latin American countries in their share of long term debt.⁵ Among East Asian countries, only corporations from the Philippines have an average share of long-term debt greater than 50%. There is a general tendency for corporates in richer countries to have more long-term debt, as observed by Demirguc-Kunt and Maksimovic (1998) and others. Some other, low-income Asian countries (Sri Lanka, Pakistan, China) have indeed low shares of long term debt. But many of the higher-income East Asian countries are outliers to this pattern, as they rely less on long-term debt than what would be expected on the basis of their per-capita income level. Japan, for example, ranks below many other OECD-countries. Among developing countries, Chile stands out as country with a very high share of long-term debt.

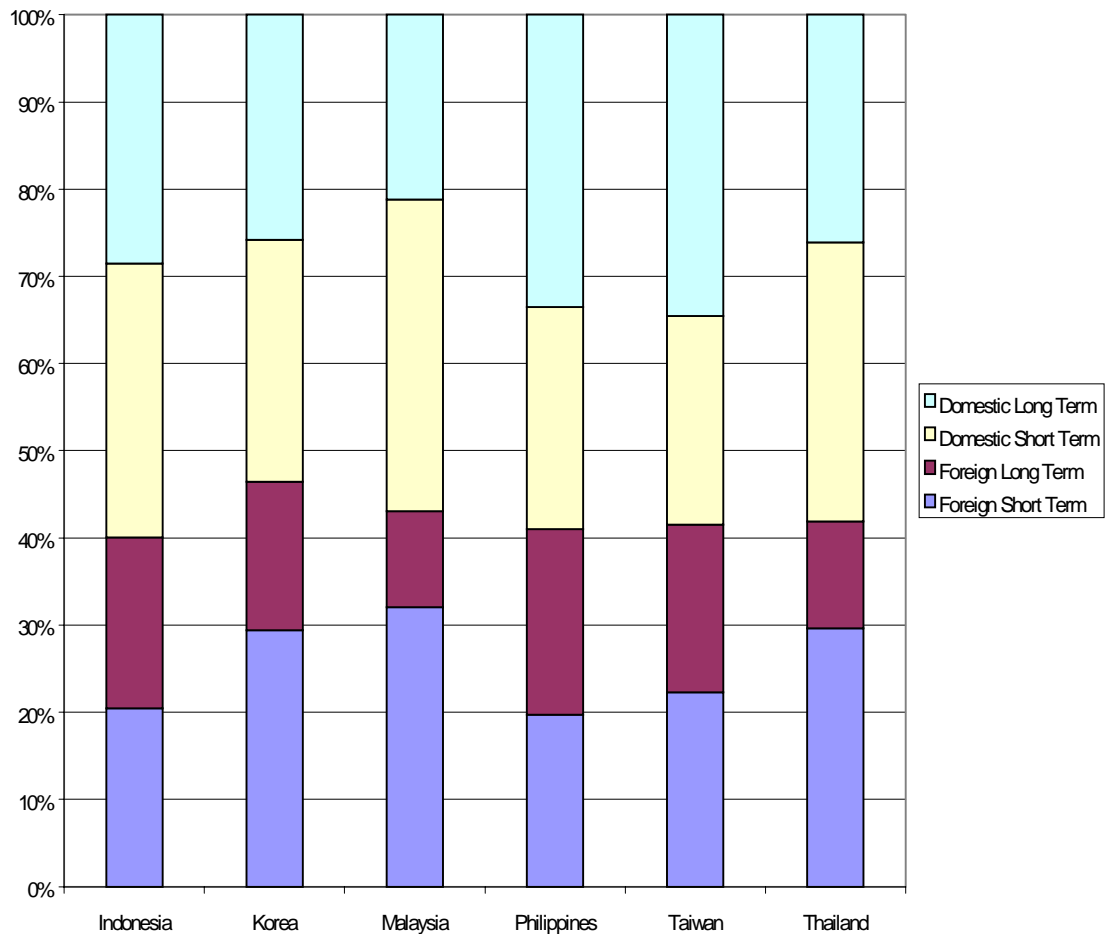
⁵ We present the share of long-term debt, rather than the share of short-term debt as the latter can underestimate the amount of liabilities with a short maturity as it excludes, for example, trade credits.

Figure 3: International Comparison of Long Term Debt Share



The structure of debt (domestic vs. foreign: short vs. long term) was different across countries, however. Figure 4 and table A7 report the distribution of debt across these four categories in 1996 for the six countries most affected by the crisis. Korea has the highest share of foreign short-term debt share, followed by Malaysia and Thailand. In contrast, the Philippines and Taiwan have the largest share of domestic long-term debt.

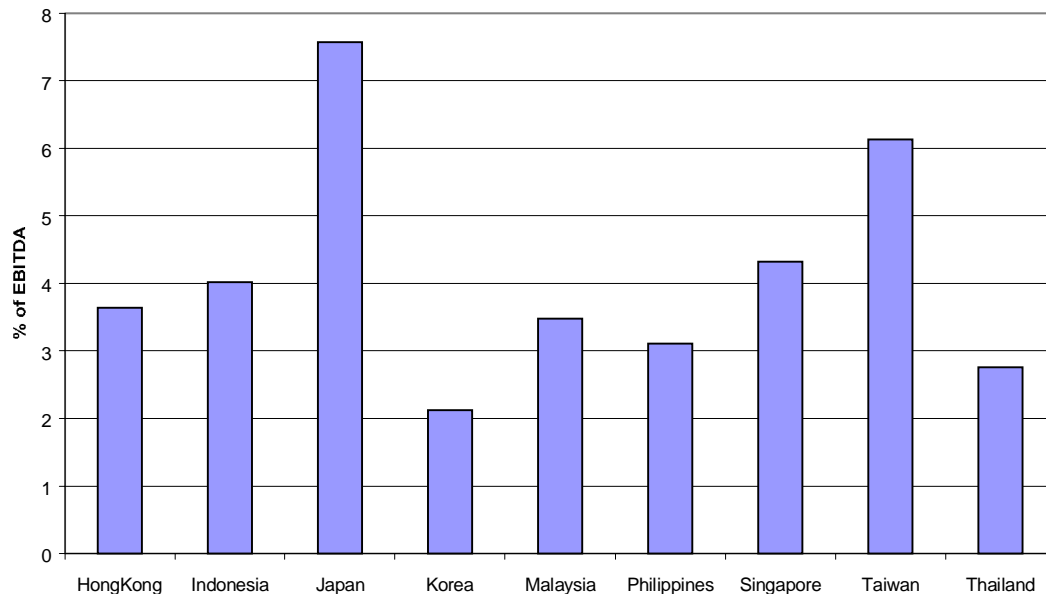
**Figure 4: Distribution of Debt in Six East Asian Countries:
Foreign Vs. Domestic and Short Vs. Long Term**



The data also suggest large differences across countries in interest payment coverage. This is calculated as the ratio of earnings before interest and taxes (but adding back depreciation)—that is, EBITDA or operational cash flow—to interest expenses (Figure 5). With the low interest rates in Japan, Japanese corporates needed to devote only a small fraction of EBITDA on interest payments, so the interest coverage ratio is about 8 in 1996, followed by Taiwan with 6.1. Thai and Korean corporates had the lowest interest coverage ratios, about 2.7 and 2.1 respectively.

Hong Kong, Malaysian, Indonesian and Philippine corporates averaged between 3 and 4 while Singaporean firms averaged 4.5.

Figure 5: Interest Coverage in Nine Asian Countries, 1996



5. Summary

There were large differences in performance across countries as measured by return on assets. These differences did not show up as much in sales growth as investment rates were high and driven output rates in many countries. The high investment and relatively low profitability meant that external financing had to remain high in most countries, with high leverage as outside equity was used sparingly. While there were no strong trends in the early 1990s, leverage did increase in Korea and Thailand in the later years, signaling the vulnerability in corporate financial structures, that now has become a very apparent factor in triggering and aggravating the financial crisis. Across countries, the share of (foreign) short-term debt differed considerably in 1996, as did the ability of firms to cover interest payments from earnings. The underlying causes of decreased profitability and increased leverage are still elusive, and will be studied more extensively in future research.

References

- Claessens, Stijn, Simeon Djankov, Joseph Fan, and Larry Lang. 1998. "Diversification and Efficiency of Investment by East Asian Corporations," World Bank, Research Paper 2033. Paper is available at the Web at <http://www.worldbank.org/html/dec/Publications/Workpapers>
- Claessens, Stijn, Simeon Djankov, Joseph Fan, and Larry Lang. 1999a. "Expropriation of Minority Shareholders: Evidence from East Asia," World Bank, Research Paper 2088. Paper is available at the Web at <http://www.worldbank.org/html/dec/Publications/Workpapers>
- Claessens, Stijn, Simeon Djankov, Joseph Fan, and Larry Lang. 1999b. "Corporate Diversification in East Asia: The Role of Ultimate Ownership Structure Group Affiliation," World Bank, Research Paper 2089. Paper is available at the Web at <http://www.worldbank.org/html/dec/Publications/Workpapers>.
- Claessens, Stijn, Simeon Djankov, and Larry Lang. 1999. "Who Controls East Asian Corporations?," World Bank, Research Paper 2054. Paper is available at the Web at <http://www.worldbank.org/html/dec/Publications/Workpapers>.
- Claessens, Stijn, Simeon Djankov and Giovanni Ferri, 1999. "Corporate Distress in East Asia: Assessing the Impact of Interest and Exchange Rates Shocks," *Emerging Markets Quarterly*, Vol. 3: 2, Summer 1999.
- Demirguc-Kunt, Asli and Vojislav Maksimovic. 1995. "Stock Market Development and Firm Financing Choices," Policy Research Paper 1461, World Bank, Washington DC.
- Demirguc-Kunt, Asli and Vojislav Maksimovic. 1998. "Institutions, Financial Markets, and Firm Debt Maturity," *Journal of Financial Economics*, forthcoming.
- Glen, Jack, Ajit Singh, and Rudolph Matthias. 1998. "How Competitive are the Emerging Markets? An Analysis of Corporate Rates of Return from Nine Emerging Markets," International Finance Corporation, Washington DC, mimeo.
- Goldman Sachs. 1998. "Asian Banks NPLs: How High, How Structural? Tying NPL Estimates to the Real Sector," Goldman Sachs Investment Research, mimeo.
- Harvey, Campbell and Andrew H. Roper. 1999. "The Asian Bet." in Robert Litan, Michael Pomerleano, Alison Harwood, (eds.), Financial Markets and Development: Preventing Crises in Emerging Markets, Brooking/World Bank, September 1999.
- Pomerleano, Michael. 1998. "The East Asia Crisis and Corporate Finances: The Untold Micro Story," Emerging Markets Quarterly

Annex: Comparisons of Main Results with Other Studies

To check the accuracy of our calculations (and the reliability of the data), we compare some of our main results with other studies that have looked at the same financial data for the same countries and similar time periods. First, we compare the results of real ROA with the calculations in Demirguc-Kunt and Maksimovic (1995) and Glen, Singh, and Matthias (1998). For consistency, we convert the nominal ROAs of these studies also to real ROAs using the same source for inflation rates. The results are remarkably consistent across the three studies. Next, we look at the leverage ratios we generate and compare them with the Demirguc-Kunt and Maksimovic calculations. With the exception of Japan and Singapore, where our leverage figure is smaller than theirs, the other numbers are similar. Finally, we compare the interest coverage variable with those reported by Goldman Sachs (1998). Overall, there don't seem to be any major differences.

Comparisons with Other Studies (averages over the sample period)

| Study | Real ROA | | | Leverage | | Interest Coverage | |
|-------------|-----------|----------|-----------|-----------|----------|-------------------|----------|
| | Our study | DM, 1995 | GSM, 1998 | Our study | DM, 1995 | Our study | GS, 1998 |
| Time Period | 1988-96 | 1983-93 | 1980-94 | 1988-96 | 1983-93 | 1996 | 1996 |
| Hong Kong | 4.4 | 4.6 | n.a. | 2.273 | 1.322 | 3.64 | 6.71 |
| Indonesia | 10.7 | n.a. | n.a. | 1.661 | n.a. | 4.02 | n.a. |
| Japan | 4.8 | 5.2 | n.a. | 2.302 | 3.688 | 7.57 | n.a. |
| Korea | 4.3 | 4.4 | 4.6 | 3.531 | 3.662 | 2.12 | 2.74 |
| Malaysia | 7.5 | 7.0 | 7.3 | 0.991 | 0.935 | 3.48 | n.a. |
| Philippines | 9.4 | n.a. | n.a. | 1.148 | n.a. | 3.11 | 3.09 |
| Singapore | 5.5 | 5.8 | n.a. | 0.862 | 1.232 | 4.32 | 4.06 |
| Taiwan | 6.8 | n.a. | n.a. | 0.894 | n.a. | 6.13 | n.a. |
| Thailand | 10.2 | 9.2 | 11.3 | 2.126 | 2.215 | 2.76 | 3.34 |

Source: DM – Demirguc-Kunt and Maksimovic (1995); GSM – Glen, Singh, Matthias (1998); GS – Goldman Sachs (1998)

TABLE A1: Real ROA in Local Currency (EBIT over Total Assets, Adjusted for Inflation), 1988-96

| Country | | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1988-96 |
|-------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| Hong Kong | Mean | 0.053 | 0.055 | 0.047 | 0.045 | 0.042 | 0.044 | 0.038 | 0.042 | 0.044 | 0.044 |
| | Std. Dev. | 0.044 | 0.052 | 0.041 | 0.038 | 0.044 | 0.051 | 0.035 | 0.051 | 0.052 | 0.048 |
| | Median | 0.051 | 0.053 | 0.049 | 0.048 | 0.045 | 0.038 | 0.039 | 0.039 | 0.041 | 0.046 |
| | No. of Obs. | 88 | 117 | 189 | 236 | 293 | 331 | 388 | 491 | 476 | 2465 |
| Indonesia | Mean | - | - | 0.128 | 0.126 | 0.122 | 0.112 | 0.108 | 0.098 | 0.095 | 0.107 |
| | Std. Dev. | - | - | 0.116 | 0.114 | 0.105 | 0.082 | 0.073 | 0.068 | 0.076 | 0.088 |
| | Median | - | - | 0.094 | 0.091 | 0.086 | 0.079 | 0.074 | 0.062 | 0.065 | 0.071 |
| | No. of Obs. | - | - | 8 | 107 | 235 | 248 | 260 | 279 | 268 | 1396 |
| Japan | Mean | 0.068 | 0.065 | 0.060 | 0.053 | 0.054 | 0.051 | 0.047 | 0.044 | 0.043 | 0.048 |
| | Std. Dev. | 0.052 | 0.053 | 0.049 | 0.041 | 0.042 | 0.040 | 0.038 | 0.039 | 0.039 | 0.045 |
| | Median | 0.057 | 0.054 | 0.046 | 0.047 | 0.048 | 0.045 | 0.041 | 0.038 | 0.036 | 0.041 |
| | No. of Obs. | 749 | 806 | 921 | 2004 | 2178 | 2230 | 2259 | 2250 | 2217 | 15893 |
| Korea | Mean | 0.047 | 0.050 | 0.048 | 0.046 | 0.045 | 0.042 | 0.048 | 0.043 | 0.039 | 0.043 |
| | Std. Dev. | 0.058 | 0.056 | 0.057 | 0.054 | 0.053 | 0.047 | 0.053 | 0.049 | 0.046 | 0.053 |
| | Median | 0.044 | 0.039 | 0.041 | 0.040 | 0.039 | 0.036 | 0.034 | 0.036 | 0.031 | 0.037 |
| | No. of Obs. | 66 | 79 | 82 | 151 | 208 | 314 | 329 | 325 | 258 | 1789 |
| Malaysia | Mean | 0.071 | 0.072 | 0.076 | 0.082 | 0.084 | 0.079 | 0.078 | 0.074 | 0.069 | 0.075 |
| | Std. Dev. | 0.096 | 0.091 | 0.091 | 0.093 | 0.112 | 0.088 | 0.082 | 0.096 | 0.092 | 0.092 |
| | Median | 0.054 | 0.056 | 0.054 | 0.062 | 0.060 | 0.065 | 0.063 | 0.061 | 0.056 | 0.063 |
| | No. of Obs. | 193 | 218 | 298 | 360 | 408 | 485 | 545 | 620 | 658 | 3567 |
| Philippines | Mean | - | - | - | 0.117 | 0.092 | 0.089 | 0.101 | 0.084 | 0.091 | 0.094 |
| | Std. Dev. | - | - | - | 0.175 | 0.141 | 0.124 | 0.137 | 0.124 | 0.126 | 0.125 |
| | Median | - | - | - | 0.071 | 0.064 | 0.081 | 0.085 | 0.068 | 0.084 | 0.079 |
| | No. of Obs. | - | - | - | 40 | 89 | 106 | 123 | 152 | 145 | 675 |
| Singapore | Mean | 0.069 | 0.059 | 0.053 | 0.051 | 0.054 | 0.057 | 0.061 | 0.058 | 0.048 | 0.055 |
| | Std. Dev. | 0.072 | 0.062 | 0.064 | 0.076 | 0.067 | 0.061 | 0.087 | 0.092 | 0.094 | 0.076 |
| | Median | 0.049 | 0.045 | 0.042 | 0.039 | 0.052 | 0.046 | 0.045 | 0.039 | 0.040 | 0.044 |
| | No. of Obs. | 107 | 123 | 159 | 186 | 208 | 249 | 270 | 294 | 298 | 1789 |
| Taiwan | Mean | - | - | - | 0.070 | 0.071 | 0.072 | 0.067 | 0.066 | 0.068 | 0.068 |
| | Std. Dev. | - | - | - | 0.066 | 0.074 | 0.074 | 0.059 | 0.074 | 0.080 | 0.073 |
| | Median | - | - | - | 0.051 | 0.062 | 0.065 | 0.068 | 0.065 | 0.066 | 0.067 |
| | No. of Obs. | - | - | - | 24 | 70 | 119 | 205 | 247 | 214 | 894 |
| Thailand | Mean | 0.114 | 0.113 | 0.122 | 0.116 | 0.113 | 0.108 | 0.104 | 0.094 | 0.091 | 0.102 |
| | Std. Dev. | 0.132 | 0.129 | 0.143 | 0.137 | 0.126 | 0.117 | 0.116 | 0.124 | 0.115 | 0.119 |
| | Median | 0.108 | 0.110 | 0.117 | 0.112 | 0.102 | 0.098 | 0.093 | 0.078 | 0.074 | 0.098 |
| | No. of Obs. | 116 | 157 | 220 | 275 | 310 | 403 | 437 | 437 | 427 | 2880 |

TABLE A2: OPERATIONAL MARGIN, 1988-96

| Country | | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1988-96 |
|-------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| Hong Kong | Mean | 0.261 | 0.254 | 0.266 | 0.247 | 0.237 | 0.234 | 0.220 | 0.192 | 0.191 | 0.236 |
| | Std. Dev. | 0.061 | 0.063 | 0.078 | 0.067 | 0.062 | 0.062 | 0.060 | 0.046 | 0.048 | 0.062 |
| | Median | 0.235 | 0.195 | 0.222 | 0.196 | 0.174 | 0.166 | 0.173 | 0.146 | 0.142 | 0.187 |
| | No. of Obs. | 75 | 94 | 145 | 182 | 230 | 252 | 304 | 406 | 403 | 2091 |
| Indonesia | Mean | - | - | - | 0.386 | 0.360 | 0.362 | 0.358 | 0.345 | 0.334 | 0.358 |
| | Std. Dev. | - | - | - | 0.098 | 0.087 | 0.089 | 0.087 | 0.088 | 0.085 | 0.088 |
| | Median | - | - | - | 0.357 | 0.333 | 0.344 | 0.328 | 0.312 | 0.306 | 0.329 |
| | No. of Obs. | - | - | - | 91 | 196 | 209 | 216 | 235 | 226 | 1173 |
| Japan | Mean | 0.242 | 0.246 | 0.247 | 0.247 | 0.245 | 0.242 | 0.244 | 0.255 | 0.256 | 0.247 |
| | Std. Dev. | 0.044 | 0.045 | 0.045 | 0.045 | 0.046 | 0.046 | 0.048 | 0.051 | 0.051 | 0.047 |
| | Median | 0.222 | 0.227 | 0.229 | 0.224 | 0.219 | 0.218 | 0.218 | 0.231 | 0.233 | 0.221 |
| | No. of Obs. | 739 | 793 | 906 | 1954 | 2124 | 2179 | 2209 | 2200 | 2168 | 15272 |
| Korea | Mean | 0.188 | 0.210 | 0.230 | 0.210 | 0.237 | 0.212 | 0.225 | 0.232 | 0.233 | 0.220 |
| | Std. Dev. | 0.039 | 0.049 | 0.065 | 0.035 | 0.051 | 0.034 | 0.037 | 0.038 | 0.035 | 0.040 |
| | Median | 0.137 | 0.168 | 0.173 | 0.169 | 0.192 | 0.187 | 0.196 | 0.214 | 0.221 | 0.196 |
| | No. of Obs. | 66 | 78 | 82 | 136 | 162 | 264 | 282 | 279 | 214 | 1563 |
| Malaysia | Mean | 0.181 | 0.189 | 0.196 | 0.201 | 0.209 | 0.202 | 0.210 | 0.205 | 0.221 | 0.202 |
| | Std. Dev. | 0.024 | 0.030 | 0.033 | 0.032 | 0.038 | 0.037 | 0.041 | 0.051 | 0.046 | 0.037 |
| | Median | 0.164 | 0.163 | 0.171 | 0.173 | 0.176 | 0.174 | 0.184 | 0.195 | 0.255 | 0.181 |
| | No. of Obs. | 150 | 175 | 218 | 275 | 308 | 340 | 351 | 384 | 373 | 2574 |
| Philippines | Mean | - | - | - | 0.374 | 0.299 | 0.284 | 0.283 | 0.304 | 0.300 | 0.307 |
| | Std. Dev. | - | - | - | 0.131 | 0.093 | 0.101 | 0.108 | 0.133 | 0.135 | 0.125 |
| | Median | - | - | - | 0.361 | 0.264 | 0.264 | 0.275 | 0.308 | 0.333 | 0.277 |
| | No. of Obs. | - | - | - | 33 | 71 | 84 | 99 | 123 | 115 | 525 |
| Singapore | Mean | 0.207 | 0.203 | 0.211 | 0.193 | 0.195 | 0.200 | 0.191 | 0.187 | 0.172 | 0.194 |
| | Std. Dev. | 0.038 | 0.036 | 0.043 | 0.040 | 0.039 | 0.044 | 0.041 | 0.040 | 0.050 | 0.042 |
| | Median | 0.173 | 0.167 | 0.168 | 0.155 | 0.155 | 0.152 | 0.141 | 0.136 | 0.131 | 0.149 |
| | No. of Obs. | 85 | 98 | 122 | 145 | 163 | 180 | 197 | 208 | 195 | 1393 |
| Taiwan | Mean | - | - | - | 0.290 | 0.238 | 0.234 | 0.247 | 0.254 | 0.248 | 0.252 |
| | Std. Dev. | - | - | - | 0.072 | 0.043 | 0.047 | 0.047 | 0.051 | 0.049 | 0.051 |
| | Median | - | - | - | 0.254 | 0.214 | 0.227 | 0.227 | 0.223 | 0.219 | 0.226 |
| | No. of Obs. | - | - | - | 24 | 60 | 103 | 187 | 231 | 199 | 804 |
| Thailand | Mean | 0.255 | 0.291 | 0.289 | 0.293 | 0.288 | 0.285 | 0.280 | 0.284 | 0.261 | 0.281 |
| | Std. Dev. | 0.051 | 0.067 | 0.068 | 0.078 | 0.076 | 0.075 | 0.071 | 0.076 | 0.069 | 0.074 |
| | Median | 0.219 | 0.243 | 0.257 | 0.273 | 0.259 | 0.251 | 0.249 | 0.247 | 0.227 | 0.252 |
| | No. of Obs. | 115 | 155 | 216 | 257 | 287 | 349 | 380 | 380 | 376 | 2515 |

TABLE A3: REAL SALES GROWTH (Year-on-year)

| Country | | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1988-96 |
|-------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| Hong Kong | Mean | 0.117 | 0.135 | 0.121 | 0.159 | 0.114 | 0.108 | 0.126 | 0.163 | 0.130 |
| | Std. Dev. | 0.178 | 0.214 | 0.198 | 0.234 | 0.192 | 0.176 | 0.257 | 0.312 | 0.248 |
| | Median | 0.101 | 0.116 | 0.102 | 0.124 | 0.098 | 0.094 | 0.097 | 0.118 | 0.092 |
| | No. of Obs. | 77 | 96 | 142 | 196 | 260 | 287 | 307 | 352 | 1717 |
| Indonesia | Mean | - | - | - | 0.128 | 0.141 | 0.169 | 0.115 | 0.104 | 0.131 |
| | Std. Dev. | - | - | - | 0.189 | 0.227 | 0.243 | 0.196 | 0.216 | 0.206 |
| | Median | - | - | - | 0.107 | 0.121 | 0.124 | 0.094 | 0.083 | 0.106 |
| | No. of Obs. | - | - | - | 106 | 224 | 236 | 241 | 250 | 1057 |
| Japan | Mean | 0.090 | 0.106 | 0.097 | 0.095 | 0.118 | 0.108 | 0.102 | 0.072 | 0.099 |
| | Std. Dev. | 0.182 | 0.196 | 0.207 | 0.213 | 0.224 | 0.206 | 0.186 | 0.177 | 0.207 |
| | Median | 0.074 | 0.082 | 0.084 | 0.083 | 0.088 | 0.085 | 0.072 | 0.043 | 0.077 |
| | No. of Obs. | 725 | 763 | 815 | 1534 | 1526 | 1533 | 1633 | 1717 | 10246 |
| Korea | Mean | 0.112 | 0.124 | 0.116 | 0.124 | 0.105 | 0.095 | 0.097 | 0.106 | 0.110 |
| | Std. Dev. | 0.182 | 0.186 | 0.191 | 0.217 | 0.187 | 0.230 | 0.213 | 0.223 | 0.226 |
| | Median | 0.084 | 0.087 | 0.082 | 0.083 | 0.076 | 0.073 | 0.072 | 0.086 | 0.082 |
| | No. of Obs. | 61 | 64 | 71 | 122 | 169 | 258 | 249 | 155 | 1149 |
| Malaysia | Mean | 0.127 | 0.168 | 0.159 | 0.153 | 0.178 | 0.192 | 0.146 | 0.149 | 0.157 |
| | Std. Dev. | 0.245 | 0.289 | 0.310 | 0.324 | 0.351 | 0.362 | 0.317 | 0.299 | 0.325 |
| | Median | 0.097 | 0.123 | 0.118 | 0.127 | 0.131 | 0.126 | 0.117 | 0.119 | 0.119 |
| | No. of Obs. | 147 | 168 | 245 | 316 | 376 | 504 | 562 | 585 | 2903 |
| Philippines | Mean | - | - | - | 0.122 | 0.086 | 0.123 | 0.141 | 0.153 | 0.124 |
| | Std. Dev. | - | - | - | 0.235 | 0.196 | 0.214 | 0.271 | 0.305 | 0.278 |
| | Median | - | - | - | 0.084 | 0.067 | 0.076 | 0.106 | 0.122 | 0.082 |
| | No. of Obs. | - | - | - | 32 | 71 | 87 | 104 | 114 | 409 |
| Singapore | Mean | 0.109 | 0.112 | 0.098 | 0.152 | 0.142 | 0.159 | 0.121 | 0.097 | 0.117 |
| | Std. Dev. | 0.221 | 0.196 | 0.217 | 0.317 | 0.296 | 0.324 | 0.274 | 0.195 | 0.193 |
| | Median | 0.084 | 0.086 | 0.081 | 0.094 | 0.116 | 0.118 | 0.102 | 0.077 | 0.087 |
| | No. of Obs. | 75 | 104 | 135 | 158 | 182 | 234 | 245 | 252 | 1392 |
| Taiwan | Mean | - | - | - | 0.089 | 0.142 | 0.122 | 0.113 | 0.104 | 0.098 |
| | Std. Dev. | - | - | - | 0.178 | 0.271 | 0.289 | 0.271 | 0.241 | 0.208 |
| | Median | - | - | - | 0.071 | 0.113 | 0.103 | 0.097 | 0.084 | 0.093 |
| | No. of Obs. | - | - | - | 21 | 62 | 104 | 176 | 180 | 543 |
| Thailand | Mean | 0.133 | 0.115 | 0.134 | 0.128 | 0.109 | 0.126 | 0.138 | 0.072 | 0.118 |
| | Std. Dev. | 0.293 | 0.284 | 0.301 | 0.277 | 0.201 | 0.294 | 0.311 | 0.176 | 0.223 |
| | Median | 0.116 | 0.103 | 0.108 | 0.096 | 0.083 | 0.101 | 0.107 | 0.057 | 0.097 |
| | No. of Obs. | 113 | 151 | 207 | 251 | 261 | 347 | 367 | 332 | 2029 |

TABLE A4: CAPITAL GROWTH (new investment as a share of existing fixed assets)

| Country | | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1988-96 |
|-------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| Hong Kong | Mean | 0.165 | 0.190 | 0.122 | 0.116 | 0.121 | 0.265 | 0.123 | 0.077 | 0.151 | 0.145 |
| | Std. Dev. | 0.271 | 0.298 | 0.262 | 0.307 | 0.331 | 0.354 | 0.246 | 0.232 | 0.307 | 0.274 |
| | Median | 0.143 | 0.166 | 0.083 | 0.076 | 0.072 | 0.198 | 0.076 | 0.058 | 0.093 | 0.083 |
| | No. of Obs | 46 | 51 | 70 | 115 | 156 | 201 | 227 | 279 | 352 | 1497 |
| Indonesia | Mean | - | - | - | 0.150 | 0.206 | 0.163 | 0.271 | 0.166 | 0.164 | 0.184 |
| | Std. Dev. | - | - | - | 0.254 | 0.327 | 0.362 | 0.382 | 0.245 | 0.284 | 0.286 |
| | Median | - | - | - | 0.124 | 0.134 | 0.086 | 0.158 | 0.138 | 0.118 | 0.127 |
| | No. of Obs | - | - | - | 85 | 107 | 232 | 247 | 253 | 267 | 1191 |
| Japan | Mean | 0.128 | 0.167 | 0.099 | 0.055 | 0.085 | 0.076 | 0.082 | 0.081 | 0.076 | 0.094 |
| | Std. Dev. | 0.119 | 0.140 | 0.109 | 0.106 | 0.104 | 0.111 | 0.109 | 0.109 | 0.096 | 0.096 |
| | Median | 0.116 | 0.142 | 0.083 | 0.046 | 0.076 | 0.068 | 0.073 | 0.075 | 0.071 | 0.080 |
| | No. of Obs | 732 | 749 | 808 | 911 | 1996 | 2156 | 2214 | 2230 | 2225 | 14021 |
| Korea | Mean | 0.204 | 0.195 | 0.178 | 0.245 | 0.157 | 0.128 | 0.142 | 0.136 | 0.154 | 0.171 |
| | Std. Dev. | 0.186 | 0.196 | 0.191 | 0.267 | 0.132 | 0.253 | 0.288 | 0.214 | 0.218 | 0.204 |
| | Median | 0.156 | 0.138 | 0.132 | 0.196 | 0.116 | 0.112 | 0.122 | 0.124 | 0.137 | 0.136 |
| | No. of Obs | 57 | 64 | 72 | 81 | 148 | 203 | 309 | 308 | 242 | 1484 |
| Malaysia | Mean | 0.146 | 0.132 | 0.172 | 0.179 | 0.162 | 0.212 | 0.237 | 0.175 | 0.189 | 0.178 |
| | Std. Dev. | 0.284 | 0.264 | 0.243 | 0.271 | 0.265 | 0.275 | 0.334 | 0.246 | 0.274 | 0.216 |
| | Median | 0.086 | 0.076 | 0.089 | 0.096 | 0.113 | 0.134 | 0.152 | 0.146 | 0.161 | 0.107 |
| | No. of Obs | 147 | 190 | 217 | 297 | 359 | 398 | 481 | 541 | 593 | 3223 |
| Philippines | Mean | - | - | - | 0.121 | 0.115 | 0.137 | 0.166 | 0.190 | 0.213 | 0.157 |
| | Std. Dev. | - | - | - | 0.257 | 0.263 | 0.275 | 0.300 | 0.333 | 0.289 | 0.278 |
| | Median | - | - | - | 0.091 | 0.089 | 0.078 | 0.135 | 0.141 | 0.145 | 0.108 |
| | No. of Obs | - | - | - | 31 | 43 | 95 | 110 | 128 | 148 | 555 |
| Singapore | Mean | 0.112 | 0.113 | 0.107 | 0.118 | 0.121 | 0.177 | 0.179 | 0.137 | 0.176 | 0.138 |
| | Std. Dev. | 0.252 | 0.254 | 0.341 | 0.153 | 0.179 | 0.358 | 0.285 | 0.277 | 0.292 | 0.284 |
| | Median | 0.078 | 0.076 | 0.074 | 0.088 | 0.096 | 0.113 | 0.134 | 0.125 | 0.135 | 0.104 |
| | No. of Obs | 82 | 105 | 120 | 158 | 185 | 206 | 247 | 267 | 281 | 1651 |
| Taiwan | Mean | - | - | - | 0.171 | 0.124 | 0.119 | 0.123 | 0.168 | 0.125 | 0.138 |
| | Std. Dev. | - | - | - | 0.192 | 0.096 | 0.127 | 0.184 | 0.325 | 0.213 | 0.186 |
| | Median | - | - | - | 0.143 | 0.082 | 0.084 | 0.087 | 0.112 | 0.086 | 0.087 |
| | No. of Obs | - | - | - | 16 | 24 | 70 | 118 | 201 | 212 | 641 |
| Thailand | Mean | 0.152 | 0.176 | 0.233 | 0.234 | 0.237 | 0.195 | 0.217 | 0.180 | 0.074 | 0.189 |
| | Std. Dev. | 0.312 | 0.356 | 0.438 | 0.350 | 0.395 | 0.295 | 0.308 | 0.376 | 0.223 | 0.284 |
| | Median | 0.104 | 0.129 | 0.123 | 0.150 | 0.149 | 0.150 | 0.147 | 0.145 | 0.058 | 0.138 |
| | No. of Obs | 110 | 116 | 156 | 219 | 274 | 310 | 403 | 430 | 423 | 2441 |

TABLE A5: LEVERAGE (Total Debt Over Common Equity)

| Country | | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1988-96 |
|-------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| Hong Kong | Mean | 1.832 | 2.311 | 1.783 | 2.047 | 1.835 | 1.758 | 2.273 | 1.980 | 1.559 | 1.902 |
| | Std. Dev. | 2.351 | 3.215 | 3.102 | 4.085 | 3.624 | 3.508 | 4.917 | 4.907 | 3.799 | 4.568 |
| | Median | 1.236 | 1.426 | 1.365 | 1.586 | 1.446 | 1.453 | 1.485 | 1.476 | 1.423 | 1.428 |
| | No.of Obs | 86 | 114 | 176 | 218 | 275 | 303 | 355 | 475 | 463 | 2465 |
| Indonesia | Mean | - | - | - | 1.943 | 2.097 | 2.054 | 1.661 | 2.115 | 1.878 | 1.951 |
| | Std. Dev. | - | - | - | 2.893 | 2.992 | 3.158 | 2.626 | 2.958 | 2.137 | 2.857 |
| | Median | - | - | - | 1.785 | 1.826 | 1.817 | 1.764 | 1.847 | 1.827 | 1.814 |
| | No.of Obs | - | - | - | 166 | 216 | 230 | 244 | 269 | 264 | 1396 |
| Japan | Mean | 2.994 | 2.843 | 2.871 | 2.029 | 2.042 | 2.057 | 2.193 | 2.367 | 2.374 | 2.302 |
| | Std. Dev. | 3.102 | 2.901 | 3.014 | 3.817 | 4.228 | 4.541 | 4.218 | 5.107 | 4.857 | 4.676 |
| | Median | 2.186 | 2.055 | 1.946 | 1.784 | 1.798 | 1.713 | 2.045 | 2.108 | 2.109 | 2.061 |
| | No.of Obs | 847 | 898 | 1009 | 2206 | 2194 | 2227 | 2260 | 2252 | 2234 | 16117 |
| Korea | Mean | 2.820 | 2.644 | 3.105 | 3.221 | 3.373 | 3.636 | 3.530 | 3.776 | 3.545 | 3.467 |
| | Std. Dev. | 2.362 | 2.001 | 2.019 | 3.573 | 3.512 | 4.454 | 5.001 | 4.397 | 4.853 | 4.962 |
| | Median | 2.432 | 2.412 | 2.819 | 3.046 | 3.162 | 3.341 | 3.272 | 3.388 | 3.248 | 3.124 |
| | No.of Obs | 66 | 79 | 82 | 146 | 203 | 310 | 324 | 321 | 258 | 1789 |
| Malaysia | Mean | 0.727 | 0.810 | 1.010 | 0.610 | 0.627 | 0.704 | 0.991 | 1.103 | 1.176 | 0.908 |
| | Std. Dev. | 0.946 | 1.091 | 1.687 | 0.827 | 1.100 | 1.070 | 1.604 | 1.748 | 1.426 | 1.618 |
| | Median | 0.612 | 0.642 | 0.689 | 0.615 | 0.628 | 0.647 | 0.728 | 0.824 | 0.898 | 0.775 |
| | No.of Obs | 176 | 199 | 265 | 338 | 391 | 460 | 514 | 587 | 636 | 3567 |
| Philippines | Mean | - | - | - | 0.830 | 1.186 | 1.175 | 1.148 | 1.150 | 1.285 | 1.129 |
| | Std. Dev. | - | - | - | 1.566 | 1.811 | 1.930 | 1.652 | 1.751 | 1.954 | 1.842 |
| | Median | - | - | - | 0.745 | 0.869 | 0.882 | 0.875 | 0.877 | 0.925 | 0.873 |
| | No.of Obs | - | - | - | 44 | 94 | 110 | 123 | 154 | 146 | 675 |
| Singapore | Mean | 0.765 | 0.922 | 0.939 | 0.887 | 0.856 | 1.102 | 0.862 | 1.037 | 1.049 | 0.936 |
| | Std. Dev. | 1.082 | 1.610 | 1.551 | 2.571 | 2.041 | 2.254 | 2.111 | 2.118 | 2.685 | 2.241 |
| | Median | 0.722 | 0.789 | 0.812 | 0.768 | 0.754 | 0.826 | 0.749 | 0.768 | 0.814 | 0.762 |
| | No.of Obs | 106 | 121 | 149 | 181 | 198 | 229 | 247 | 275 | 283 | 1789 |
| Taiwan | Mean | - | - | - | 0.679 | 0.883 | 0.866 | 0.894 | 0.796 | 0.802 | 0.820 |
| | Std. Dev. | - | - | - | 0.691 | 0.879 | 0.906 | 1.082 | 0.991 | 1.162 | 0.945 |
| | Median | - | - | - | 0.632 | 0.746 | 0.737 | 0.752 | 0.732 | 0.736 | 0.735 |
| | No.of Obs | - | - | - | 37 | 66 | 111 | 206 | 245 | 222 | 894 |
| Thailand | Mean | 1.602 | 1.905 | 2.159 | 2.010 | 1.837 | 1.914 | 2.126 | 2.224 | 2.361 | 2.008 |
| | Std. Dev. | 2.163 | 3.382 | 2.662 | 3.095 | 2.648 | 2.409 | 2.653 | 2.261 | 2.778 | 2.524 |
| | Median | 1.254 | 1.378 | 1.517 | 1.508 | 1.487 | 1.502 | 1.568 | 1.724 | 1.853 | 1.576 |
| | No.of Obs | 161 | 197 | 235 | 272 | 309 | 400 | 431 | 434 | 427 | 2880 |

TABLE A6: LONG TERM DEBT SHARE OF TOTAL DEBT

| Country | | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1988-96 |
|-------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| Hong Kong | Mean | 0.576 | 0.565 | 0.522 | 0.527 | 0.495 | 0.442 | 0.424 | 0.398 | 0.404 | 0.455 |
| | Std. Dev. | 0.349 | 0.330 | 0.307 | 0.326 | 0.295 | 0.251 | 0.231 | 0.209 | 0.205 | 0.256 |
| | Median | 0.597 | 0.595 | 0.538 | 0.565 | 0.447 | 0.447 | 0.407 | 0.373 | 0.364 | 0.449 |
| | No.of Obs | 111 | 114 | 167 | 192 | 231 | 256 | 315 | 442 | 440 | 2301 |
| Indonesia | Mean | - | - | - | 0.472 | 0.406 | 0.418 | 0.417 | 0.428 | 0.465 | 0.433 |
| | Std. Dev. | - | - | - | 0.280 | 0.213 | 0.218 | 0.210 | 0.224 | 0.259 | 0.232 |
| | Median | - | - | - | 0.524 | 0.408 | 0.396 | 0.416 | 0.418 | 0.433 | 0.431 |
| | No.of Obs | - | - | - | 72 | 151 | 167 | 176 | 207 | 201 | 978 |
| Japan | Mean | 0.520 | 0.541 | 0.527 | 0.495 | 0.492 | 0.510 | 0.472 | 0.443 | 0.416 | 0.491 |
| | Std. Dev. | 0.288 | 0.306 | 0.285 | 0.270 | 0.265 | 0.289 | 0.247 | 0.222 | 0.197 | 0.266 |
| | Median | 0.499 | 0.541 | 0.538 | 0.499 | 0.494 | 0.517 | 0.477 | 0.444 | 0.408 | 0.484 |
| | No.of Obs | 701 | 788 | 894 | 1941 | 2108 | 2151 | 2181 | 2160 | 2124 | 15572 |
| Korea | Mean | 0.507 | 0.496 | 0.499 | 0.481 | 0.410 | 0.413 | 0.414 | 0.412 | 0.432 | 0.432 |
| | Std. Dev. | 0.243 | 0.208 | 0.170 | 0.173 | 0.163 | 0.161 | 0.157 | 0.158 | 0.172 | 0.168 |
| | Median | 0.557 | 0.472 | 0.498 | 0.498 | 0.442 | 0.437 | 0.414 | 0.404 | 0.415 | 0.437 |
| | No.of Obs | 65 | 78 | 82 | 146 | 195 | 305 | 317 | 313 | 256 | 1743 |
| Malaysia | Mean | 0.375 | 0.373 | 0.364 | 0.321 | 0.304 | 0.324 | 0.328 | 0.333 | 0.362 | 0.339 |
| | Std. Dev. | 0.187 | 0.182 | 0.171 | 0.135 | 0.122 | 0.135 | 0.139 | 0.146 | 0.170 | 0.150 |
| | Median | 0.358 | 0.355 | 0.325 | 0.271 | 0.269 | 0.266 | 0.272 | 0.278 | 0.299 | 0.292 |
| | No.of Obs | 147 | 171 | 222 | 269 | 326 | 389 | 447 | 518 | 572 | 3061 |
| Philippines | Mean | - | - | - | 0.541 | 0.495 | 0.459 | 0.471 | 0.487 | 0.517 | 0.493 |
| | Std. Dev. | - | - | - | 0.356 | 0.308 | 0.299 | 0.325 | 0.329 | 0.394 | 0.316 |
| | Median | - | - | - | 0.572 | 0.531 | 0.503 | 0.502 | 0.498 | 0.514 | 0.522 |
| | No.of Obs | - | - | - | 44 | 87 | 85 | 91 | 121 | 127 | 558 |
| Singapore | Mean | 0.593 | 0.586 | 0.489 | 0.407 | 0.392 | 0.397 | 0.446 | 0.408 | 0.420 | 0.442 |
| | Std. Dev. | 0.457 | 0.427 | 0.322 | 0.233 | 0.213 | 0.219 | 0.261 | 0.224 | 0.232 | 0.261 |
| | Median | 0.572 | 0.554 | 0.541 | 0.338 | 0.338 | 0.339 | 0.402 | 0.386 | 0.411 | 0.433 |
| | No.of Obs | 101 | 108 | 121 | 159 | 178 | 203 | 221 | 250 | 267 | 1608 |
| Taiwan | Mean | - | - | - | 0.507 | 0.459 | 0.377 | 0.379 | 0.348 | 0.413 | 0.394 |
| | Std. Dev. | - | - | - | 0.232 | 0.207 | 0.178 | 0.185 | 0.163 | 0.233 | 0.196 |
| | Median | - | - | - | 0.539 | 0.444 | 0.328 | 0.346 | 0.343 | 0.389 | 0.359 |
| | No.of Obs | - | - | - | 67 | 68 | 104 | 189 | 235 | 206 | 868 |
| Thailand | Mean | 0.517 | 0.496 | 0.431 | 0.387 | 0.261 | 0.301 | 0.332 | 0.361 | 0.369 | 0.363 |
| | Std. Dev. | 0.336 | 0.303 | 0.223 | 0.179 | 0.094 | 0.128 | 0.146 | 0.166 | 0.174 | 0.162 |
| | Median | 0.581 | 0.498 | 0.388 | 0.343 | 0.252 | 0.264 | 0.276 | 0.329 | 0.328 | 0.309 |
| | No.of Obs | 101 | 134 | 159 | 193 | 260 | 347 | 370 | 378 | 378 | 2323 |

TABLE A7: DISTRIBUTION OF DEBT; FOREIGN Vs DOMESTIC, SHORT Vs LONG TERM
 (Shares, Median 1996)

| | Foreign Short Term | Foreign Long Term | Domestic Short Term | Domestic Long Term |
|-------------|--------------------|-------------------|---------------------|--------------------|
| Indonesia | 0.205 | 0.196 | 0.314 | 0.285 |
| Korea | 0.294 | 0.170 | 0.277 | 0.258 |
| Malaysia | 0.321 | 0.110 | 0.357 | 0.212 |
| Philippines | 0.197 | 0.213 | 0.255 | 0.335 |
| Taiwan | 0.223 | 0.192 | 0.239 | 0.346 |
| Thailand | 0.296 | 0.123 | 0.320 | 0.261 |