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The East Asia Crisis and Corporate Finances

The Untold Micro Story

Michael Pomerleano

Empirical findings about corporate finance support Krugman's view that crony capitalism lay at the core of Asia's recent financial crisis. Implicit government guarantees and poor banking supervision led to poor decisions about credit allocation in Asia's banking-dominated financial systems.

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Summary findings

Explanations of what caused the Asian crisis have focused on macroeconomic factors. Pomerleano offers a complementary perspective focusing on corporate distress and corporate finance.

He presents key ratios for companies in various countries. Using global benchmarking, he imposes a consistent cross-border analysis of financial risk and performance. He provides a statistical review of corporate financial practices and performance in Hong Kong, Indonesia, the Republic of Korea, Malaysia, the Philippines, Taiwan (China), and Thailand — benchmarked against corporate financial data for other countries in Latin America and for four industrial countries: France, Germany, Japan, and the United States.

One common pattern emerges from the analysis: unsustainable rapid (and probably excessive) investment in fixed assets financed by excessive borrowing in some Asian countries (for example, Indonesia, Korea, and Thailand).

The result of the East Asian investment spending spree was poor profitability, reflected in low and declining returns on equity and capital.

At the core of the corporate crisis were financial excesses that violated prudent financial practices and eventually led to the inevitable financial distress.

The empirical findings support Krugman's view: that crony capitalism lay at the core of the crisis. Crony capitalism was manifested in poor policies — implicit government guarantees and poor banking supervision — that led to poor decisions about credit allocation in the banking-dominated financial system.

Preliminary findings also suggest vast differences in economic value-added among countries (both industrial and developing). In an era of increasing capital mobility, corporations are not adhering to global standards in creating shareholder value.

The implications for enhanced regulation and supervision of the financial system are unmistakable. The recent introduction of improved loan classification systems and capital adequacy norms are encouraging first steps toward better regulation and supervision. But they must be supplemented by an improved regulatory framework and better enforcement.

This paper is a product of the Development Prospects Group, Office of the Senior Vice President, Development Economics. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Noemi Dacanay, room F6P-198, telephone 202-473-4068, fax 202-974-4802, Internet address ndacanay@worldbank.org. The author may be contacted at mpomerleano@worldbank.org. October 1998. (36 pages)

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THE EAST ASIA CRISIS AND CORPORATE FINANCES – THE UNTOLD MICRO STORY

by

MICHAEL POMERLEANO¹

Abstract: Explanations of the causes of the Asian crisis have focused on macroeconomic factors leading to the crisis. This paper offers a complementary corporate distress perspective linking the crisis to corporate finances. Key ratios for companies in various countries are presented in the paper. The global benchmarking imposes a consistent cross-border analysis of financial risk and performance, and sheds light on the crisis. The study provides a statistical review of the financial practices and performance of corporates in Asia: Hong Kong, Indonesia, Korea, Malaysia, Philippines, Taiwan, and Thailand benchmarked against financials of corporates in other countries: Latin America, and industrialized countries: France, Germany, Japan and USA. A thematic point that comes across in all the results of the corporate financial analysis is unsustainable rapid (and probably excessive) investment in fixed assets financed by excessive borrowing in some Asian countries- e.g., Indonesia, Korea and Thailand. The East Asian investment-spending spree resulted in poor profitability, reflected in low, and declining return on equity, and return on capital employed. It leads to the conclusion that at the core of the corporate crisis were financial excesses that violated prudent financial practices, and eventually lead to the inevitable financial distress we are witnessing. Therefore, the empirical findings presented in the paper lend credence to the view advanced by Krugman that crony capitalism was at the core of the crisis. Crony capitalism was manifested in supportive bad policies-e.g., implicit government guarantees, and poor banking supervision- that lead to poor credit allocation decisions in the banking dominated financial system. Preliminary findings suggest as well vast differences in Economic Value Added between countries- developing and developed alike. The conclusions from an economic value added approach indicate, that in an era of increasing capital mobility, corporates are not adhering to global standards in creating shareholder value. The analysis leads to policy conclusions.

¹ Jack Glen provided most useful comments. I am grateful for dedicated research assistance from Margaret Enis.

"With leveraging, there will always exist the possibility ... of a cascading sequence of defaults that will culminate in financial implosion if it proceeds unchecked," Federal Reserve Chairman Alan Greenspan, at a May 8, 1998 Federal Reserve Bank of Chicago conference. This statement was made regarding banks in developing countries relying excessively on borrowing from abroad. It is, as well, very much applicable to the corporate financing patterns of corporates in some Asian countries.

OVERVIEW

What Caused Asia's economic and currency crisis, and the ensuing contagion is the subject of much debate. Most of the explanations on the causes of the crisis of the Asia crisis have focused on macroeconomic factors, including underlying vulnerabilities² (financial sector vulnerabilities, and inconsistent macro economic policies), emphasis on the role of financial panic as an essential element in the crisis³, and the distortionary impact of guarantees on the financial system⁴.

This paper provides an perspective on the corporate roots of the financial crisis in Asia. McKinsey Global Institute recently studied how Germany, Japan, and the US put their capital to use, examining capital productivity within the entire economy as well as in five separate industries⁵. The study addresses the productive use of capital: use of physical capital (machinery and buildings) and by reference the implication for derived financial assets-stocks. The findings are that the US outperforms Japan and Germany by roughly one-third: the US average returns of 9 percent over a 20-year period compare with just over 7 percent in Germany and Japan. The higher capital productivity translated into higher financial returns for equity investors. Michael Jensen's Presidential Address to the American Finance Association documents that a large number of US corporations do not

² World Bank, *Global Development Finance*, 1998

³ Radelet, Steven and Jeffrey Sachs, *The Onset of the East Asian Financial Crisis*, Harvard Institute for International Development, March 30, 1998.

⁴ Krugman argues that a system of implicit guarantees lead to incentives to choose the highest return investments regardless of risk (referred to as the Pangloss value) See Krugman, Paul *What happened to Asia?* January 1998

⁵ Agrawal, Raj et al in *Capital Productivity: Why the US Leads and Why it Matters*, The McKinsey Quarterly, 1996 Number 3

earn the cost of capital⁶. It pursues the line of argument advanced by Frank Veneroso and Robert Wade in *The Asian Financial Crisis: the Unrecognized Risk of the IMF's Asia Package*, 1998⁷. Veneroso and Wade argue that Asia's high-debt model of economic development is a consequence of the intermediation process for savings in the Asian economies, and quest for rapid economic growth. In a similar line of inquiry the paper explores the financial profile and performance of capital in developing countries. Key ratios for companies in various countries are presented in the paper. The global benchmarking imposes a consistent cross-border analysis of financial risk and performance, and sheds light on the crisis.

The analysis extends empirically, and complements the macro leverage argument of Veneroso and Wade by reviewing the financial profile and performance of corporations. It concludes that there were serious problems at the micro level - excess leverage, and poor profitability. The findings support the view advanced by Krugman that crony capitalism, and the supportive bad policies- implicit guarantees, and poor banking supervision- lead to poor credit decisions in the banking system, and misallocation of resources. The evident policy implications virtually write themselves, and ensue from the analysis.

The structure of the paper is as follows. Section A presents the financial analysis methodology, key results and their interpretation. Section B offers a discussion of the implications of the crisis on corporate finances, and documents that it was not an accident that the crisis started in Thailand, in light of the profound excesses. The concluding section offers an interpretation of the causes of the high leverage of corporates, and policy implications for financial sector development.

⁶ Jensen, Michael C, *The modern industrial revolution, exit, and the failure of internal control systems*, The Journal of Finance, Jul 1993

⁷ Wade, Robert and Frank Veneroso, "The Asian Crisis: The High Debt Model vs. the Wall Street-Treasury-IMF Complex", New Left Review 228, March-April, 1998, pp.3-23

SECTION A: KEY SUMMARY OF FINANCIALS

The objective of the analysis in this section is to determine the performance of corporations in Asia: Hong Kong, Indonesia, Korea, Malaysia, Philippines, Taiwan, and Thailand. It benchmarks their financial profile and performance against the corporates in the other countries. Their financial profile and performance is compared to corporations in Latin America⁸, and industrialized countries: France, Germany, Japan and USA. For this purpose, I have obtained financial information on companies for 1992- 1996 from the Financial Times Information's Extel Card database⁹. Table 1 presents the sample size, and coverage of GDP for the respective countries. We used as a basis for our analysis the financial data- i.e., balance sheets; income statements and cash flows analysis of listed non-financial companies. The companies selected for the analysis were classified as general manufacturing, extractive industries, and utilities for which there was 5 years of consecutive financials ending in 1996 for the respective countries. The resulted are presented are *weighted averages (by sales) of the constant sample*.

Table 1- The Sample

Country	Companies in the Sample ¹⁰	Sales Revenue as a Percent of GDP ¹¹
Hong Kong	47	7
Indonesia	122	2
Korea	44	14
Malaysia	211	21
Philippines	29	2
Singapore	92	17
Taiwan	16	n/a
Thailand	173	5
Latin America	21	n/a
France	143	28
Germany	232	26
Japan	254	24
USA	289	28

⁸ I lumped Latin America because of the small number of companies in any one country and lack of a representative sample.

⁹ Financial Times Information's Extel database is a database with fundamental data on over 13, 000 companies worldwide.

¹⁰ General manufacturing, extractive industries, utilities, and consumer goods

¹¹ Average 1992-1996

Reviews of corporate financial practices and performance focus on relative ratio analysis. The financing patterns are recorded in ratios: Leverage (Debt-equity), Debt sustainability (EBITDA/Interest), Liquidity (Current Liabilities to Total Liabilities), Tangible Fixed Assets Growth and their financing. The corporate performance profitability is captured in ratios of Return on Equity supplemented by Return on Capital Employed and Economic Value Added. The ratios analysis is supplemented by an indicator of corporate financial fragility- Altman's Z Score. Another indicator of corporate vitality calculated for this study is Tobin q .

At the onset, it is important to point out a caveat. Due to different accounting standards and conventions¹², possible reporting errors and, and potential bias in a limited sample, in isolation, any one individual statistic, might not be fully representative, and should be interpreted with caution. However the combined evidence is reflective of underlying patterns.

FINANCING PATTERNS

Leverage. I use the debt-equity ratio equals a company's debt divided by shareholder's equity, and indicates how much borrowed money a company is using relative to its equity. Table 2 and Figures 1 and 2 presents the findings. Two aspects are notable. First, the wide differences in the Debt/Equity Ratios in Asia. The high leverage contrasts with moderate debt-equity ratios in Hong Kong (39 percent on 12/31/96), Philippines and Taiwan. An interesting finding is that debt-equity ratios vary widely in our sample. Latin American, German and US companies have modest debt-equity ratios (90 percent in the US), whereas Thai, and Korean companies generally have high debt-equity ratios (around

¹² International comparison of accounting results has relevance if measured consistently, however this meaning can be blurred in a cross-border analysis. For instance, depreciation and asset revaluation practices differ in various countries. Although the Extel data base makes adjustments to the financial statements of companies to enable international comparisons, and domestic accounting conventions are converted to international common denominators, such as calculated cash flow potential inconsistencies remain. For instance, non-consolidated statements are also common in Korea and Indonesia, and the possibility of companies with cross shareholdings and double-leverage is not factored into the analysis.

150 percent)¹³. The ratios presented also are lower than other reported findings of leverage. When calculating debt/equity ratios for firms, I calculate only explicitly reported short and long term debt, rather than liabilities, because consideration of liabilities varies internationally¹⁴. Therefore the analysis understates the extent of leverage. Further possible explanations for the differences are attributable to using only reported debt, as well as a weighted average, rather than medians. Second, the *rapidly increasing* debt equity ratios in Asia. For instance, in Thailand leverage increased from 71 percent on 12/31/92 to 155 percent on 12/31/96. Similar growth is evident in Korea, Malaysia, and Indonesia. As subsequently documented, the build up of leverage is attributable to the financing of rapid acquisition of fixed assets.

Table 2- Leverage See footnote ¹⁵

Total Debt/Equity	12/31/92	12/31/93	12/31/94	12/31/95	12/31/96
Hong Kong	26%	23%	33%	36%	39%
Indonesia	59%	54%	58%	81%	92%
Korea	123%	129%	127%	132%	N/A
Malaysia	31%	29%	38%	45%	62%
Philippines	81%	78%	50%	49%	69%
Singapore	37%	34%	33%	45%	58%
Taiwan	71%	73%	71%	67%	65%
Thailand	71%	81%	103%	135%	155%
Latin America	31%	35%	34%	33%	31%
France	141%	133%	117%	112%	111%
Germany	61%	67%	61%	59%	58%
Japan	136%	139%	139%	135%	138%
USA	106%	102%	97%	94%	90%

¹³ Corporate data on foreign exchange indebtedness was not reported in the Financial Times Information's Extel database. However, evidence on *aggregate* corporate indebtedness is available from BIS. The data suggests excessive reliance on foreign debt by corporates in Indonesia and Thailand, most of it not hedged.

¹⁴ Balance-sheet obligations can often be significant and subject to differing methods of calculation. For example, pensions are handled very differently in different countries: U.S. firms explicitly reflect the pension asset/liability on their balance sheet, while German firms do not. Therefore

¹⁵ Korea debt/equity as of 12/31/1995

Figure 1

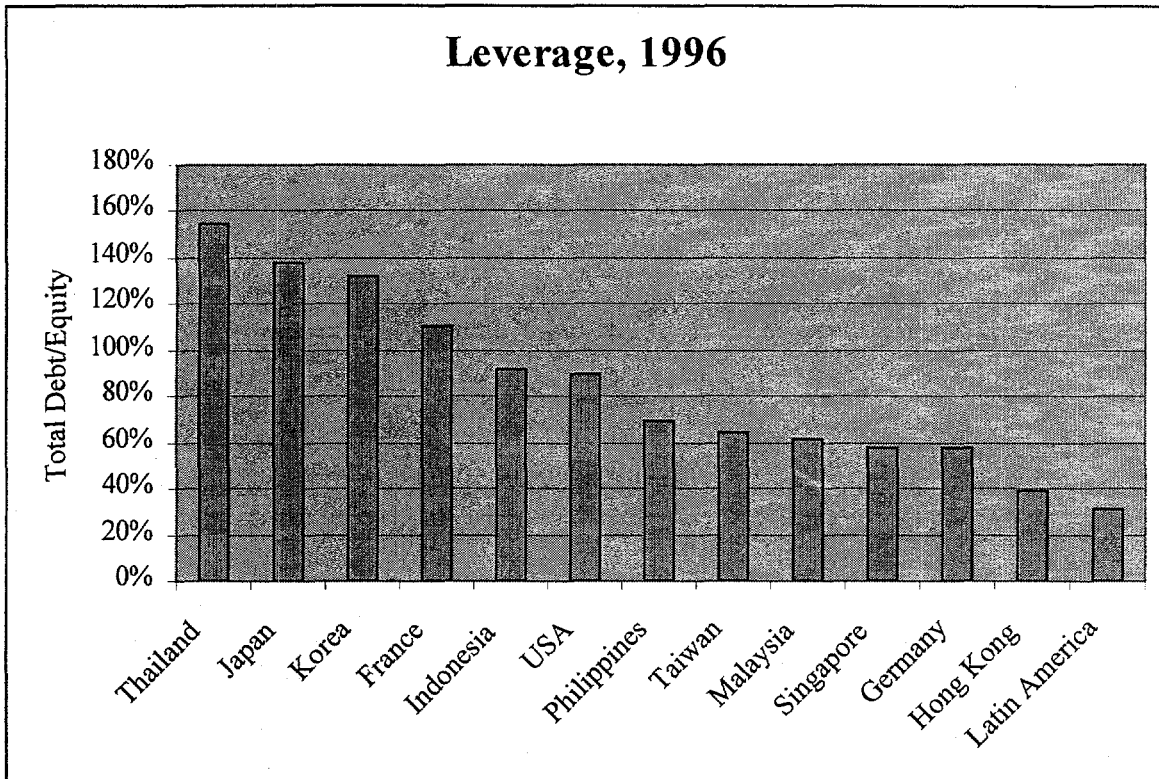
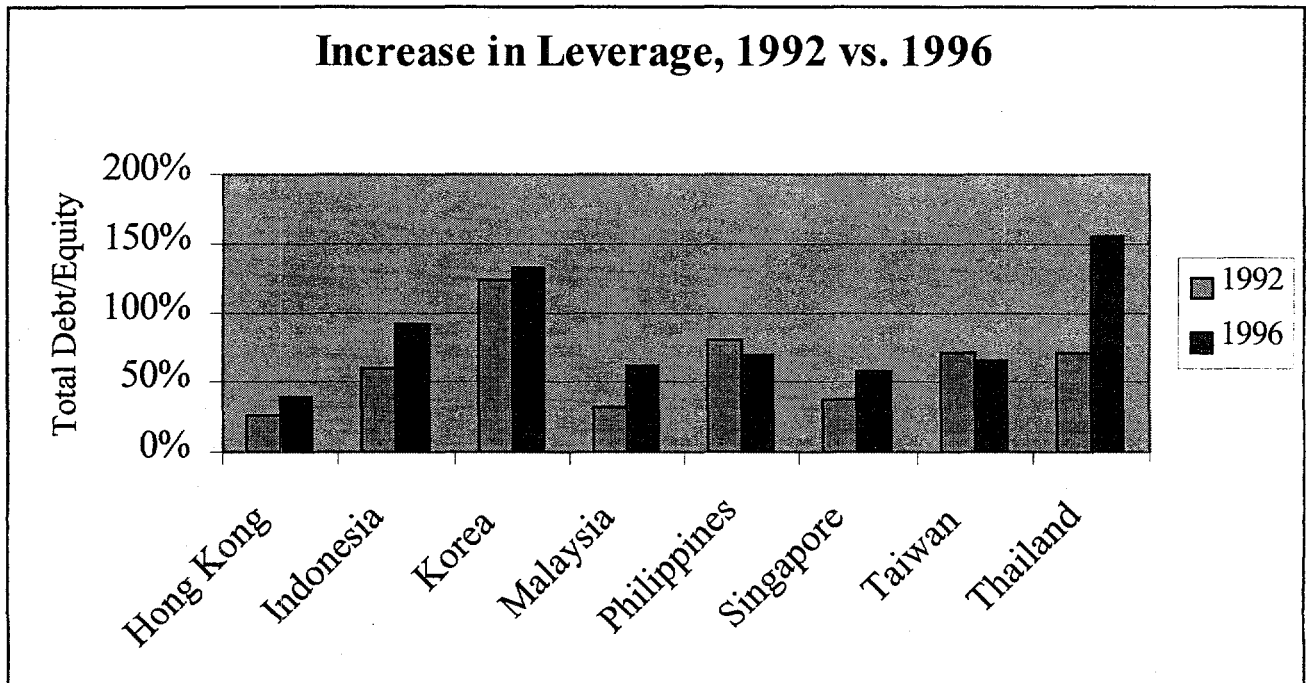


Figure 2

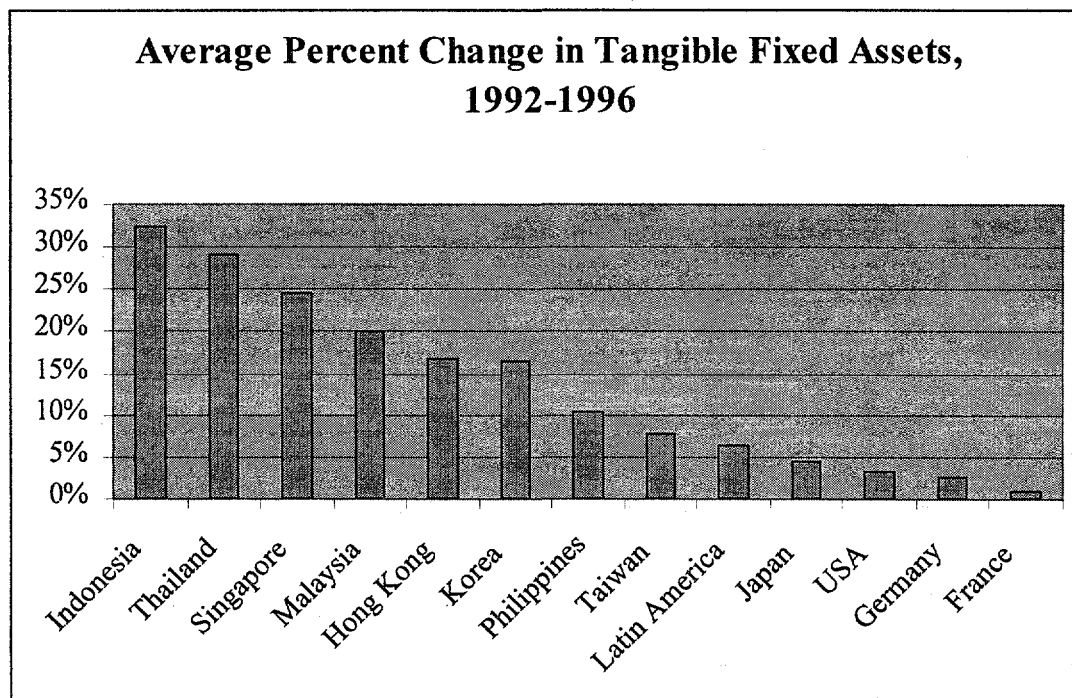


Tangible Fixed Assets Growth and their financing. Capital assets are tangible "fixed assets." The analysis in Table 3 and graph in Figure 3 suggests a rapid built up of Fixed Assets in Asia. The average percent change in tangible Fixed Assets during the 1992-97 period is 33 percent in Indonesia ; Malaysia- 20 percent; and Thailand - 29 percent. This growth is in stark contrast the more moderate pattern Hong Kong-17 percent, and 1 –5 percent in developed countries.

Table 3 – Percent Change in Tangible Fixed Assets

	12/31/92	12/31/93	12/31/94	12/31/95	12/31/96	Average
Hong Kong	n/a	22%	17%	15%	13%	17%
Indonesia	n/a	22%	37%	36%	35%	33%
Korea	n/a	11%	15%	24%	n/a	17%
Malaysia	n/a	15%	21%	18%	26%	20%
Philippines	n/a	13%	9%	5%	15%	11%
Singapore	n/a	19%	32%	20%	27%	25%
Taiwan	n/a	9%	3%	-5%	24%	8%
Thailand	n/a	25%	47%	27%	17%	29%
Latin America	n/a	-2%	8%	12%	8%	7%
France	n/a	2%	1%	-1%	2%	1%
Germany	n/a	2%	1%	1%	6%	3%
Japan	n/a	5%	5%	5%	3%	5%
USA	n/a	2%	3%	3%	5%	3%

Figure 3



I estimate the financing patterns of new investment based on an analysis of Sources and Uses of Funds¹⁶. In Table 4 I use the cash flow analysis to estimate the total percent debt funding of investment in fixed assets, and calculate Total debt financing of investment as a ratio of investments for each year¹⁷.

Table 4- Debt Raised & Repaid as a % of Investments

Country	93	94	95	96	Average
Hong Kong	23%	62%	36%	58%	45%
Indonesia	37%	56%	103%	70%	67%
Korea	86%	52%	75%	62%	69%
Malaysia	19%	44%	57%	61%	45%
Philippines	46%	-46%	28%	73%	25%
Singapore	14%	19%	66%	58%	39%
Taiwan	55%	62%	50%	23%	47%
Thailand	71%	72%	102%	69%	78%
Latin America	34%	17%	13%	10%	19%
France	-13%	-18%	-26%	-1%	-14%
Germany	16%	-8%	8%	8%	6%
Japan	11%	17%	15%	9%	13%
U S A	-9%	11%	21%	10%	8%

The results support the conclusion of the increasing reliance on debt in Asian countries. The wide disparity in funding patterns are striking. Figure 4 shows that while Latin American, German, Japanese and US companies relied on roughly 8-19 percent debt financing, the ratios in the vulnerable countries in Asia ranges around 45- 78 percent, with Indonesia averaging 69 percent from 93 to 96, Korea 69 percent , Malaysia 45

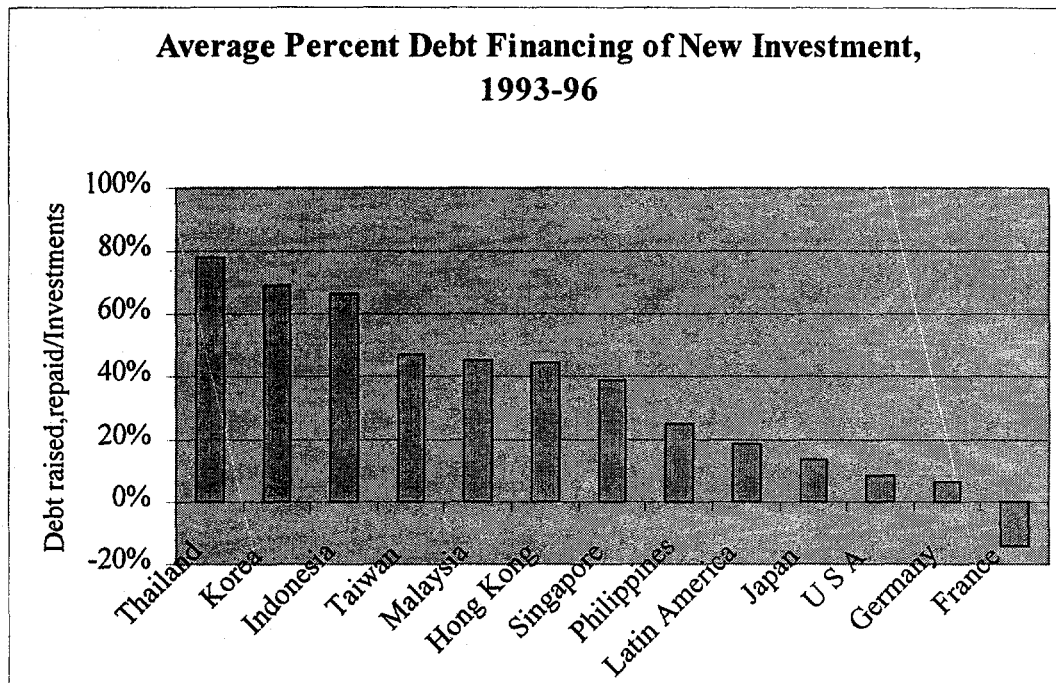
¹⁶ Cash flow is computed as the difference between incoming and outgoing payments. Cash Flow is derived from the Operating Profit by adjusting for items, which do not affect payments (e.g. depreciation and amortization), and items (e.g. changes in working capital) which affect payments but are not recorded in the Operating Profit.

Cash Flow statement explains the difference between cash at the beginning of the period, and cash at the end of the period. Free Cash Flow before income taxes and financial income is available for payment to stockholders, and creditors income tax payments, and *for investments*.

¹⁷ Although money is fungible, and such limited analysis in isolation has deficiencies (without reviewing dividend policies, etc), the relative values are indicative of the funding profile.

percent, and Thailand 78 percent vs. moderate ratios in Hong Kong (45 percent), and Philippines 25 percent.

Figure 4



In this context, the key ratio medians for U.S. industrial companies (Table 5) calculated by Standard and Poor¹⁸, and factored in the rating process are illustrative¹⁹. Although what is a sustainable ratio differs by country (and industry), it is the norm to expect companies with solid potential, and stable earnings and prudent financial policies to total debt to capitalization is 40 percent (a Debt/Equity ratio of 66 percent). A thematic point that comes across from the evidence on the corporate investment and funding analysis is unsustainable rapid investment in fixed assets financed by excessive borrowing in some Asian countries. These findings manifest the untenable business growth in Asian countries. It is a reasonable premise that no well managed company²⁰ can digest in a

¹⁸ Explanations and medians for the ratios for U.S. companies can be found in Standard & Poor Rating Services, Corporate Ratings Criteria .

¹⁹ The benign interest rate environment and availability of term financing in the US suggests that the US numbers represent an upper bound on acceptable financial practices.

²⁰ With the possible exception of software companies.

prudent fashion annual growth of 30- 40 percent without stretching already thin managerial capacity, and distribution and marketing channels.

Table 5: KEY INDUSTRIAL FINANCIAL RATIOS

Three-year (1994 to 1996) medians	AAA	AA	A	BBB	BB	B
EBITDA interest coverage (x)	20.3	14.94	8.51	6.03	3.63	2.27
Funds from operations/total debt (%)	116.4	72.3	47.5	34.7	18.4	10.9
Pretax return on capital (%)	31.5	23.6	19.5	15.1	11.9	9.1
Operating income/sales (%)	24	19.2	16.1	15.4	15.1	12.6
Long-term debt/capital (%)	13.4	21.9	32.7	43.4	53.9	65.9
Total debt/capitalization (%)	23.6	29.7	38.7	46.8	55.8	68.9

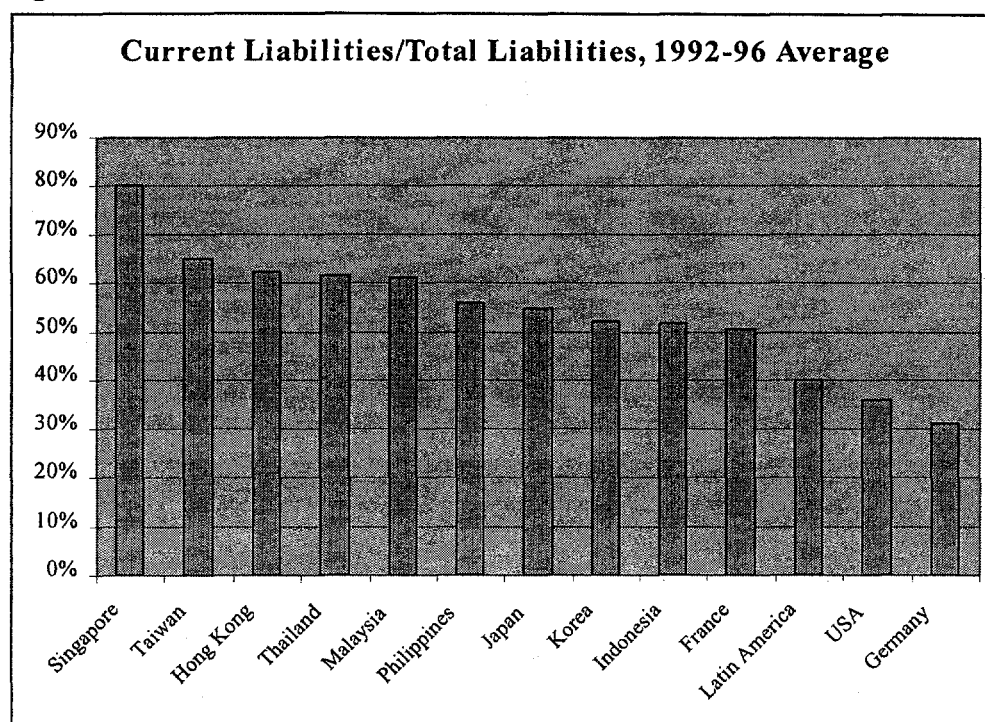
Total Current Liabilities/Total Liabilities. The Total Current Liabilities/Total Liabilities ratio is simply a company's current liabilities divided by its Total Liabilities. From this ratio, I determine the maturity structure of the companies debts, and pending refinancing needs in Table 6 and Figure 5. A more comprehensive liquidity analysis can be supplemented by other ratios, such as Current Ratio²¹.

Table 6- Total Current Liabilities/Total Liabilities

	12/31/92	12/31/93	12/31/94	12/31/95	12/31/96	Average
Hong Kong	58%	62%	63%	64%	61%	63%
Indonesia	52%	56%	56%	50%	45%	52%
Korea	54%	52%	53%	52%	n/a	52%
Malaysia	66%	64%	61%	61%	59%	61%
Philippines	51%	52%	60%	58%	54%	56%
Singapore	77%	82%	80%	80%	78%	80%
Taiwan	64%	66%	65%	68%	61%	65%
Thailand	64%	64%	62%	60%	60%	62%
Latin America	38%	33%	40%	39%	48%	40%
France	51%	50%	50%	51%	52%	51%
Germany	31%	31%	31%	31%	31%	31%
Japan	57%	56%	53%	54%	56%	55%
USA	40%	35%	38%	35%	36%	36%

²¹ The current ratio is a company's current assets divided by its current liabilities. From this ratio, we determine whether a company could pay off its debts with its current assets if it needed to- i.e., a ratio greater than 1 .

Figure 5



The maturity structure of debt presented for 1992-1996 indicates in Table 5 that in Asia (Hong Kong, Indonesia, Japan, Korea, Malaysia, Philippines, Taiwan, and Thailand) approximately 60 percent of the liabilities were current during 1992-1996; while Latin America, and industrialized countries (France, Germany, and USA) only 30-40 percent of the liabilities are current. A notable trend is visible in Indonesia to lengthen the maturity. The findings suggest that a liquidity problem is imminent in the Asian crisis. Although companies can not raise new funds, they faces the task of repaying or servicing a large burden of short-term debts (approximately 60 percent). It is discouraging to note in this context, that prospects for refinancing in the Asian equity and bond markets are not promising.

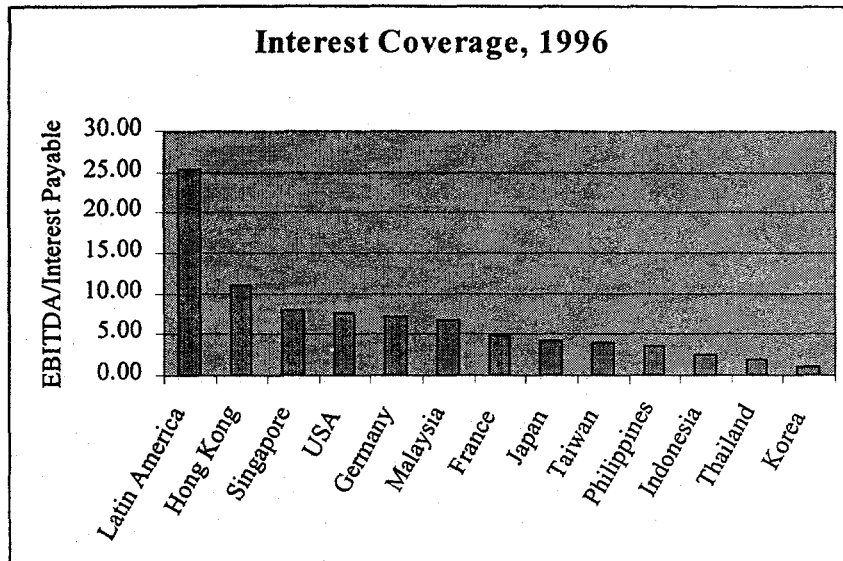
EBITDA/Interest. Debt service analysis uses the ratio of operating cash flow, before interest, taxes and depreciation (EBITDA) to annual interest on the loans or debt service. The EBITDA coverage ratio is indicative of the ability of the cash flow to adequately pay back the annual interest (EBITDA/Interest) and principal (EBITDA/Interest + Principal) on outstanding debt. The findings presented in Table 7 and Figure 6 are indicative of vast

differences across countries. The deterioration in Asian countries is manifested: coverage in Thailand declined to 1.92x in 1996 from 4.6 x in 1992, as an increase in debt/equity lead to a rise in interest expense. EBITDA patterns in other vulnerable Asian countries: Indonesia (2.44X in 1996), Korea (1.07x in 1995) are similar. Malaysia, Taiwan, and Hong Kong are more robust. Latin America(25.36X in 1996), and some industrialized countries: Germany(7.09X in 1996), France (4.75X in 1996), Japan (4.31X in 1996), and USA (7.62X in 1996) are quite robust . In this context, the S&P credit rating policies are instructive again. US A rated companies are expected to have at least eight times EBITDA/ Interest coverage.

Table 7- Cash Flow Coverage-EBITDA/Interest Payable

	12/31/92	12/31/93	12/31/94	12/31/95	12/31/96	Average
Hong Kong	19.29	25.85	21.77	13.59	11.07	18.31
Indonesia	0.03	0.52	2.18	3.07	2.44	1.65
Korea	1.42	1.41	1.89	1.77	1.07	1.51
Malaysia	9.09	9.76	11.73	9.62	6.74	9.39
Philippines	1.89	2.59	2.93	4.31	3.68	3.08
Singapore	12.40	14.37	11.70	8.80	8.05	11.06
Taiwan	5.73	4.71	6.30	5.12	4.08	5.19
Thailand	4.60	4.12	3.83	2.47	1.92	3.39
Latin America	15.57	9.52	14.45	14.28	25.36	15.84
France	3.06	2.88	3.87	3.85	4.75	3.68
Germany	5.30	4.79	5.96	6.29	7.09	5.89
Japan	21.57	3.49	3.68	3.46	4.31	7.30
USA	4.61	5.57	6.83	7.33	7.62	6.39

Figure 6



Altman's Z Score. Developed by Edward Altman²², Altman's Z-score statistical technique calculates five ratios found in a company's financial statements: return on total assets, sales to total assets, equity to debt, working capital to total assets, and retained earnings to total assets. These ratios are then multiplied by predetermined weight factors, and added together. The Z-score--yields a number between --4 and +8. Financially sound companies show Z-scores above 2.99, while those scoring below 1.81 are financially distressed, and face possible bankruptcy in an environment conducive to corporate reorganizations. Scores between 1.81 and 2.99 indicate vulnerability.

The findings in Table 8 demonstrate again the considerable fragility of the corporate sector in certain sections of Asia, as well as France. The Z performance results, corroborate the previous findings. By 1996, the ratings in Asia evidence severe financial distress in Indonesia at 2.66, Korea at 1.55, and Thailand at 1.5; in contrast, Malaysia at

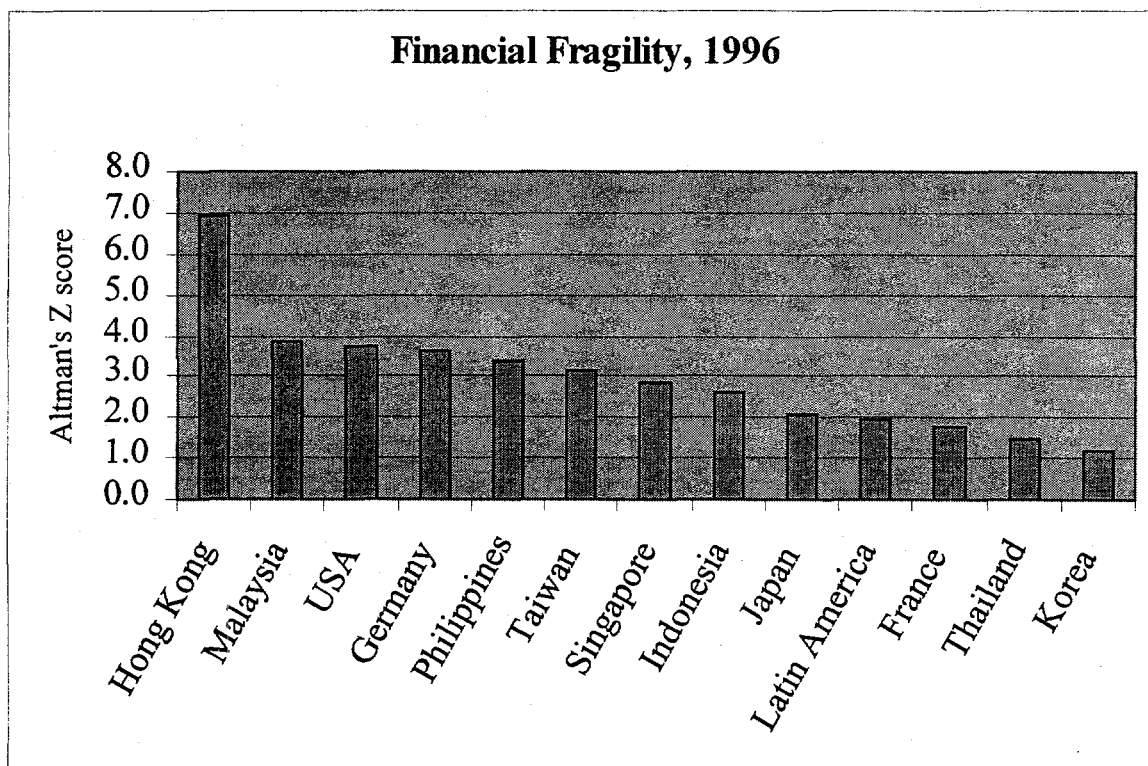
²² Edward I. Altman, *The Z-Score Bankruptcy Model: Past, Present, and Future* (New York: John Wiley & Sons, 1977), and *Corporate Financial Distress and Bankruptcy*, 2nd edition (New York: John Wiley & Sons, 1993). the Z Score use of multiple discriminant analysis (MDA) is designed to predict corporate failure. See Appendix 1 for the formula. In Altman's original ex post study of 33 bankrupt companies, Z-scores for 95 percent of these companies pointed to trouble or imminent bankruptcy.

3.9, Philippines at 3.4, Hong Kong at 6.9 , and Taiwan at 3.2 are robust. Among industrialized countries: France at 1.8, and Japan at 2.1 manifest vulnerability.

Table 8 - Altman's Z²³ Score - The Calculation

	1992	1993	1994	1995	1996	Average
Hong Kong	10.585	13.710	9.307	7.179	6.9	9.54
Indonesia	2.261	2.755	3.613	2.831	2.6	2.81
Korea	1.341	1.469	1.573	1.547	n/a	1.48
Malaysia	5.969	8.432	6.346	4.844	3.9	5.89
Philippines	2.357	3.506	4.867	4.259	3.4	3.68
Singapore	3.883	6.033	5.177	3.858	2.9	4.36
Taiwan	2.521	3.215	3.665	2.901	3.2	3.09
Thailand	3.115	4.481	2.934	2.269	1.5	2.86
Latin America	0.977	0.999	1.330	1.489	1.9	1.34
France	1.457	1.521	1.576	1.628	1.8	1.60
Germany	3.009	3.098	3.299	3.250	3.6	3.26
Japan	2.014	2.017	2.014	1.874	2.1	2.00
USA	2.715	2.819	2.924	3.559	3.8	3.16

Figure 7

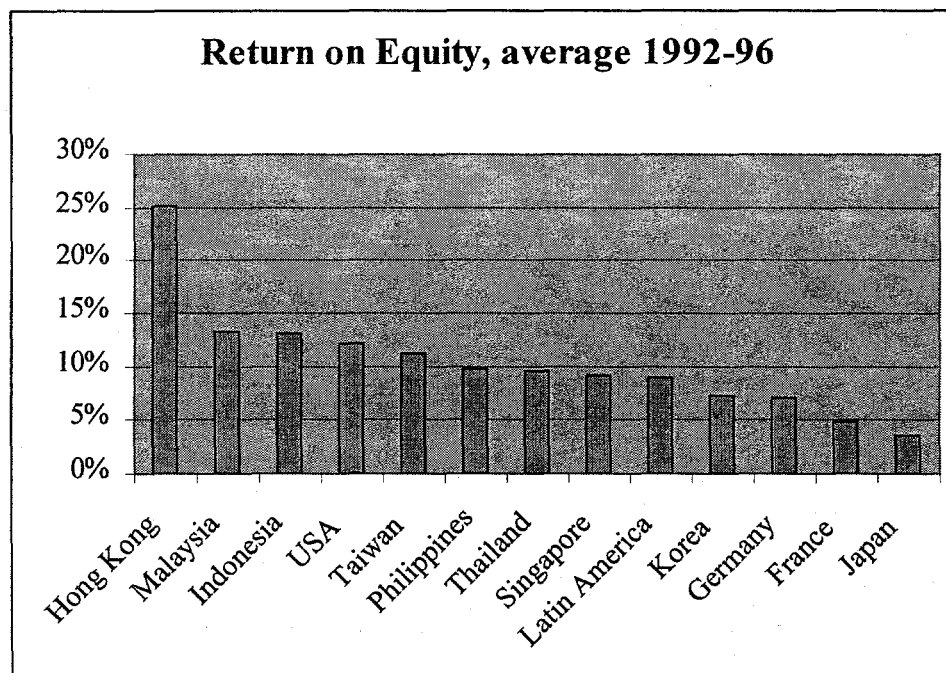


²³ Korea for 12/31/1995

PROFITABILITY

Return on Equity. A company's return on equity percentage (ROE) indicates how well the common stockholders' equity investment is performing. The percentage is the result of dividing corporate net earnings after-tax by common stockholders' equity. We compare the ROE for the respective countries to determine how well the companies are doing in a global context. It should be noted, however, that the return on equity can not be viewed in isolation of the prevailing opportunity costs of alternative instruments in the domestic and international markets.

Figure 8



The findings in Table 9 and Figure 8 are very surprising. While the average ROE performance during 92-96 in Hong Kong at 25 percent, Indonesia at 13 percent, Malaysia at 13 percent, Philippines at 10 percent, Taiwan at 11 percent, and USA at 12.20 percent are outstanding, other countries reflect tepid returns. Thailand average ROE of 9.38

masks a rapid decline from 13 percent in 1992 to 5 percent by 1996; and Korea average of 7 percent. Latin America's ROE of 9 percent masks high inflation rates. Some industrialized countries: France's 5 percent, Germany's 7 percent, and Japan's percent are surprisingly paltry rates of return.

Table 9 - Return on equity after tax

	1992	1993	1994	1995	1996	Average
Hong Kong	29%	24%	27%	24%	21%	25%
Indonesia	14%	12%	12%	15%	13%	13%
Korea	5%	4%	8%	11%	n/a	7%
Malaysia	12%	14%	14%	14%	13%	13%
Philippines	4%	7%	16%	12%	9%	10%
Singapore	10%	10%	9%	8%	8%	9%
Taiwan	12%	10%	14%	12%	8%	11%
Thailand	13%	10%	11%	9%	5%	10%
Latin America	3%	6%	10%	12%	14%	9%
France	7%	3%	6%	3%	6%	5%
Germany	7%	3%	8%	6%	11%	7%
Japan	5%	3%	2%	2%	4%	4%
USA	4%	8%	16%	16%	18%	12%

Return on Capital Employed (ROCE) Pre-Tax. Return On Capital Employed or Assets (ROCE) is a more accurate indicator of profitability. ROCE is defined as Operating Profit²⁴ divided by Capital Employed²⁵. ROCE gives a comprehensive information about the economic performance of the business, since both operating and non- operating results (e.g. proceeds from sale of property) are accounted for. An added advantage is that it permits a comparison between businesses, without regard to accounting conventions (e.g., depreciation), and different capital mobilization and financing strategies, since the operating profit is viewed in relation to the total funds employed. ROCE shows the rate of return on capital employed for the period, and captures the *efficiency* in the total use of capital resources.

²⁴ Revenues-Cost of sales-Selling expenses-General administrative expenses-Research and development expenses-Restructuring expenses +/-Other income / expenses.

²⁵ Represents the necessary operating capital derived from the balance sheet assets, i.e. balance sheet total minus financial items and fiscal items which are not considered as necessary operating capital.

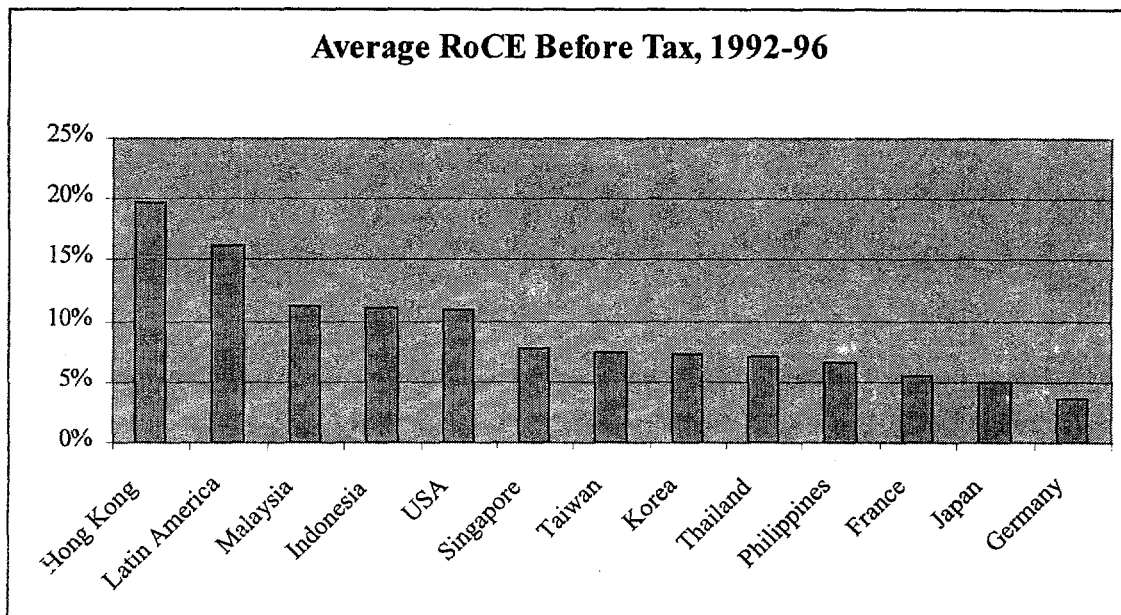
Table 10 and Figure 9 presents the findings with respect to ROCE. Average ROCE in Hong Kong of 20 percent is solid, Indonesia at 11 percent are good in absolute terms (however, as subsequently documented, overshadowed by domestic rates of 15-18 percent). The rest of the results for Korea, Malaysia, Philippines, Taiwan,; Latin America, and industrialized countries: France, Germany, Japan and USA corroborate previous findings.

The analysis of the ROCE data for Thailand, supplemented by the previous ROE and Leverage documents that it was *not an accident* that the Asian crisis started in Thailand. Financial risk portrayed by quantitative means illustrates that Thailand was an outlier in every regard ! Virtually all the evidence presented suggests that the performance of Thai companies has deteriorated progressively during the period: credit ratios have declined, margins have been squeezed, and a significant decline in ROE is evident from 13 percent in 1992 to 5 percent in 1996.

Table 10- Return on Capital Employed Pre-Tax (ROCE)

	1992	1993	1994	1995	1996	Average
Hong Kong	22%	21%	21%	19%	16%	20%
Indonesia	12%	11%	11%	11%	10%	11%
Korea	7%	6%	8%	9%	n/a	8%
Malaysia	12%	12%	11%	11%	10%	11%
Philippines	6%	7%	7%	8%	5%	7%
Singapore	9%	8%	8%	7%	7%	8%
Taiwan	8%	7%	10%	7%	5%	8%
Thailand	9%	7%	7%	7%	5%	7%
Latin America	15%	15%	14%	14%	23%	16%
France	7%	5%	6%	5%	5%	5%
Germany	4%	2%	4%	3%	5%	4%
Japan	6%	5%	4%	5%	6%	5%
USA	9%	9%	11%	12%	13%	11%

Figure 9



Economic value added. To address opportunity costs, to which we alluded in the ROCE analysis, we introduce a concept that has entered the financial lexicon, which is *Shareholder Economic Value Added (EVA)*. Stern Stewart & Co. developed the concept called EVA to measure the value added²⁶. This analysis determines in a traditional economic sense -- using opportunity costs -- whether the company *creates shareholder value*. EVA is trying to answer how does the reported profitability of a corporation--the measured ROCE compare to the opportunity cost of capital²⁷. A Weighted Average Cost of Capital (WACC) is used to assess opportunity costs, and determine the economic loss/gain. An advantage of EVA is that it links internal financial performance (corporate profitability) and external financial costs in the capital markets by introducing an external benchmark hurdle opportunity rate that reflects the prevailing cost of capital: if the difference between the cost and ROCE is positive, wealth has been created, if it is not, wealth has been destroyed. The Methodology for Return on Economic Capital Analysis uses comprehensive EVA calculations that develop net present value method of the modified cash flow, and develop calculations of WACC²⁸.

²⁶ Stewart III, G.B. *The quest for value*. New York: Harper- Collins Publishers, Inc., 1991

²⁷ EVA considers the cost of capital tied up in operations, in terms of the opportunity cost of that capital, and the operating profits, net of taxes, generated by the capital used. EVA is the net operating profits after taxes minus the cost of capital, including borrowed capital and equity capital, used to generate those profits.

²⁸ A future paper being prepared in collaboration with Xin Zhang will present comprehensive EVA, and WACC calculations.

Although an oversimplification of rigorous EVA analysis (which uses discounted present values), in this paper²⁹ I limit the analysis to obtaining a rough indication of EVA by comparing the ROCE to the following lending rates (Table 11) in the banking systems (that proxy the cost for mobilizing debt) for 1992-1996.

Table 11: Lending interest rate

	1992	1993	1994	1995	1996	Average
Hong Kong	7%	7%	9%	9%	9%	8%
Indonesia	24%	21%	18%	19%	19%	20%
Korea	10%	9%	9%	9%	9%	9%
Malaysia	9%	9%	8%	8%	9%	9%
Philippines	19%	15%	15%	15%	15%	16%
Singapore	6%	5%	6%	6%	6%	6%
Thailand	18%	16%	14%	16%
France	10%	9%	8%	8%	7%	8%
Germany	14%	13%	11%	11%	10%	12%
Japan	6%	4%	4%	3%	3%	4%
United States	6%	6%	7%	9%	8%	7%

Source: World Bank, World Development Indicators, 1998

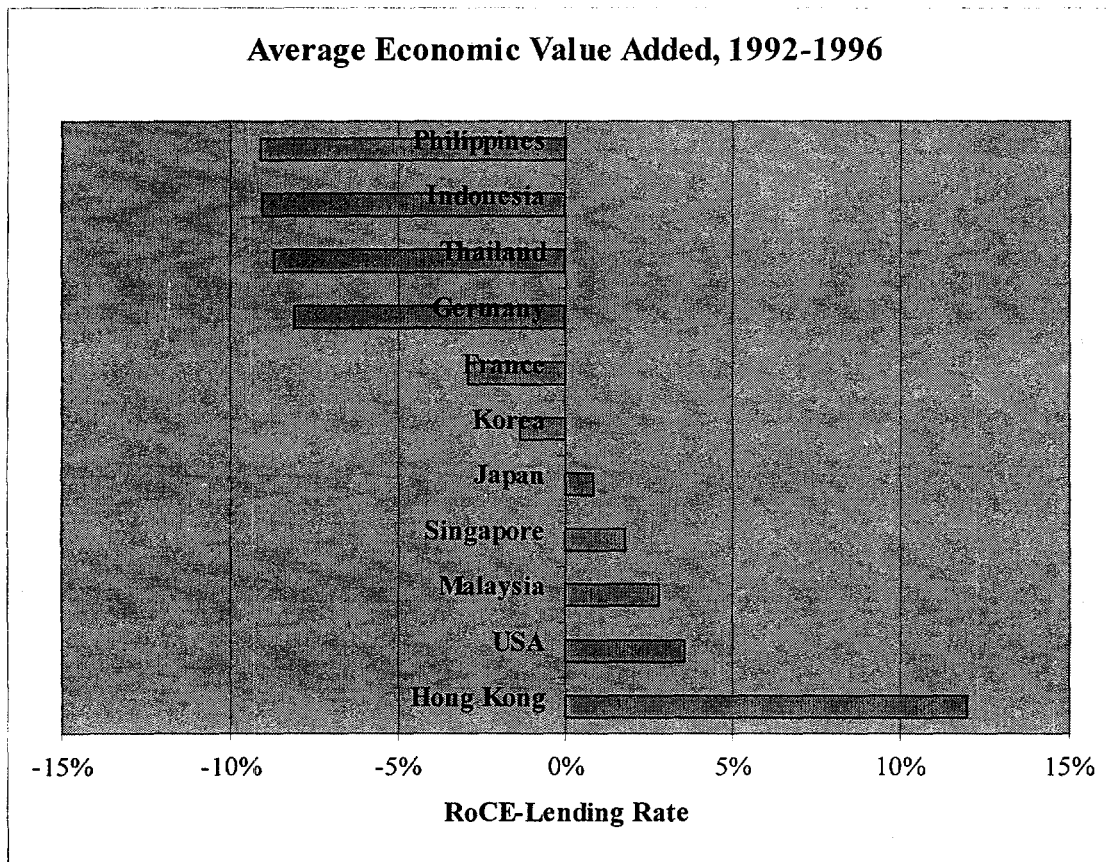
The difference between ROCE and Lending Rates in Exhibit is indicative of the EVA (Table 12). Only for Hong Kong, Japan, Malaysia, Singapore, and the United States ROCE exceeds the cost of that capital base consistently over the 1992-1996 period (and with the exception of Hong Kong, not by a significant margin). However, there are vast inter-temporal differences as well: trends in Economic Value Added document the decline in EVA and deterioration in Thailand. Similarly, Japan positive EVA is largely attributable to the low interest rate prevailing, rather than high ROCE. In contrast, the analysis suggests that the negative EVA in Indonesia is attributable to the high prevailing domestic interest rates. Following in Figure 10 are the finding on average economic value added during the period.

²⁹ For Thailand, in the absence of 95 and 96 data, I use the lending rate up to 94.

Table 12 ROCE-Lending Rate

	1992	1993	1994	1995	1996	Average
Hong Kong	15%	14%	12%	10%	7%	12%
Indonesia	-12%	-10%	-7%	-8%	-9%	-9%
Korea	-3%	-3%	-1%	0%	n/a	-2%
Malaysia	3%	3%	3%	3%	1%	3%
Philippines	-13%	-8%	-8%	-7%	-10%	-9%
Singapore	3%	3%	2%	1%	1%	2%
Thailand	-9%	-9%	-7%	n/a	n/a	-8%
Latin America	n/a	n/a	n/a	n/a	n/a	n/a
France	-3%	-4%	-2%	-3%	-2%	-3%
Germany	-10%	-11%	-7%	-8%	-5%	-8%
Japan	0%	1%	0%	2%	3%	1%
USA	3%	3%	4%	3%	5%	4%

Figure 10



Tobin's Q . Tobin's q was introduced in 1969 by James Tobin to be used as a predictor of a company's future investments. The q ratio is a market-to-book ratio: the ratio of a

company's equity plus debt to the value of the firm's assets, adjusted for inflation and depreciation. The q ratio indicates whether the company has been able to create value for shareholders with the assets under their control³⁰, and measures how much investors are willing to pay for the business. A Tobin q ratio over 1 means management has added value for shareholders; and a Tobin q ratio lower than 1 indicates value has been lost. Therefore, the ratio measures the signals created by the equity markets in the respective markets to invest in fixed assets, or take over existing assets. In this analysis it is used as indicative countries' growth and profitability prospects, shedding light on whether there was an environment conducive to capital expenditures created by market valuations.

Table 13 and Figure 11 present the calculations for Tobin's q , and examine the potential relationship between market valuations, incentives for investments in the respective countries³¹. Notable is the high level of Tobin's q in Asia: Hong Kong at 235 percent for 1992-1996, Indonesia reaching a peak of 149 percent in 1994, Korea, Malaysia at 217 percent in 1993, Philippines at 162 percent for 1993, Taiwan at 164 percent for 1994, and Thailand at 249 percent in 1993. Latin America, and industrialized countries by comparison have more modest average Tobin q ratios during 1992-1996: Latin America at 34 percent, France at 54 percent, Germany at 50 percent, Japan at 97 percent and USA at 108 percent. The findings finally offer a plausible explanation for the rapid capital expenditures in Asian economies. They suggest that there were dominant market signals stimulating rapid capital formation in the Asian economies, and a possible exit strategy through the equity market. In this context, it is notable as well is that the peak of Tobin q in Asia is around 1993-94, a period associated with large portfolio equity inflows.

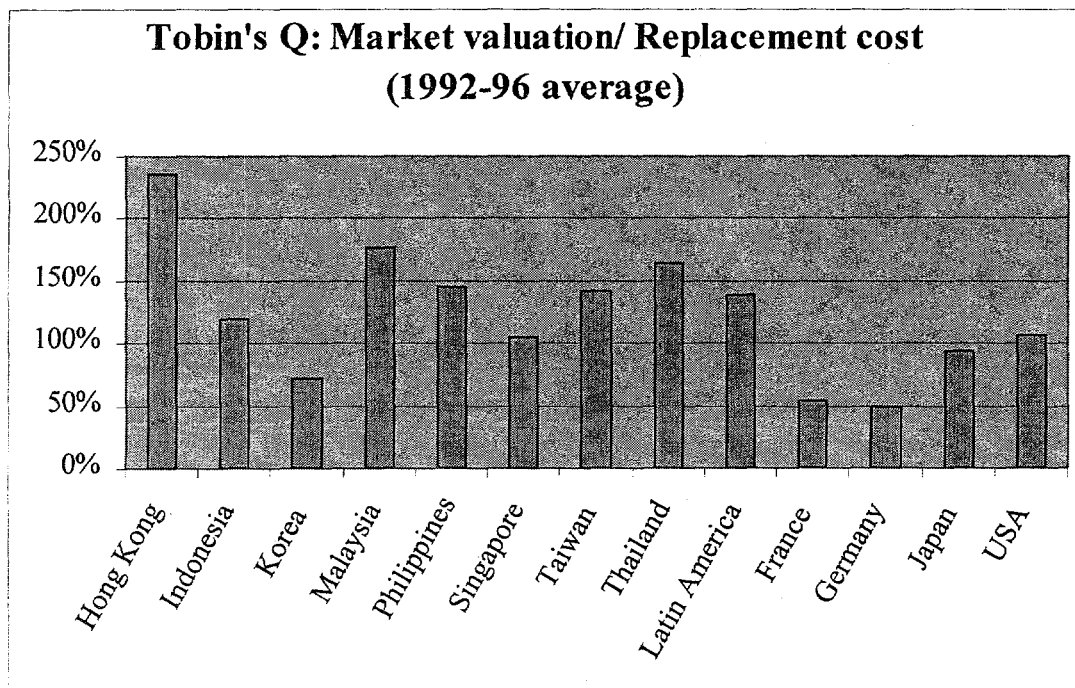
³⁰ The balance sheet reflects a company's depreciated tangible assets only, while the market value of a company's securities is the best indicator of future profit potential, since it provides an estimate of future cash flows attributable to all the company's assets.

³¹ A limitation of this analysis is *the use depreciated balance sheet data*, and lack of replacement costs. However, I employ Tobin q mainly in a comparative and relative sense, rather than absolute sense.

Table 13-Approximation of Tobin's Q - Market value to book value of assets

	1992	1993	1994	1995	1996	Average
Hong Kong	230%	277%	254%	205%	210%	235%
Indonesia	77%	96%	149%	137%	136%	119%
Korea	65%	77%	77%	72%	72%	72%
Malaysia	149%	217%	202%	162%	157%	178%
Philippines	109%	162%	162%	141%	150%	145%
Singapore	88%	135%	108%	102%	91%	105%
Taiwan	117%	158%	164%	124%	145%	142%
Thailand	141%	249%	174%	147%	107%	164%
Latin America	21%	25%	n/a	38%	38%	N/a
France	52%	57%	52%	53%	58%	54%
Germany	42%	51%	50%	49%	57%	50%
Japan	90%	94%	98%	89%	96%	93%
USA	98%	95%	96%	121%	124%	107%

Figure 11



SECTION C: EPILOGUE TO CORPORATE FINANCE PRACTICES- THE CRISIS

The data used for the previous analysis ends in December 1996. What has happened since then? A partial picture emerges from recent investment bank research reports. We know that damage ensuing from high leverage in a raising interest rates, and worsening economic environment, coupled unhedged foreign currency denominated loans exposure³², inflicted on vulnerable corporates in Asian countries. For instance, an analysis done by Phatra Securities in Thailand on the impact of interest rates suggests a decline of EBITDA coverage to 1.49X by 1997, that is projected lower for 1998. Similarly, Goldman Sachs (using the same method as that employed for Thailand by their research cooperation partner for Thailand --Phatra Thanakit) estimated the EBITDA data for 1996, 1997 and 1998 for Asia³³. Using listed non-financial companies as the basis for their analysis, collecting financial information on these companies for 1996 and first-half 1997 and projected their operating results and financial position for 1997 and 1998. Using assumptions regarding depreciation expenses, and average interest rates, etc. Goldman Sachs estimates of EBITDA/Interest Expenses for companies in their sample presented in Figure 12. The findings suggest a rapid decline in debt service capacity.

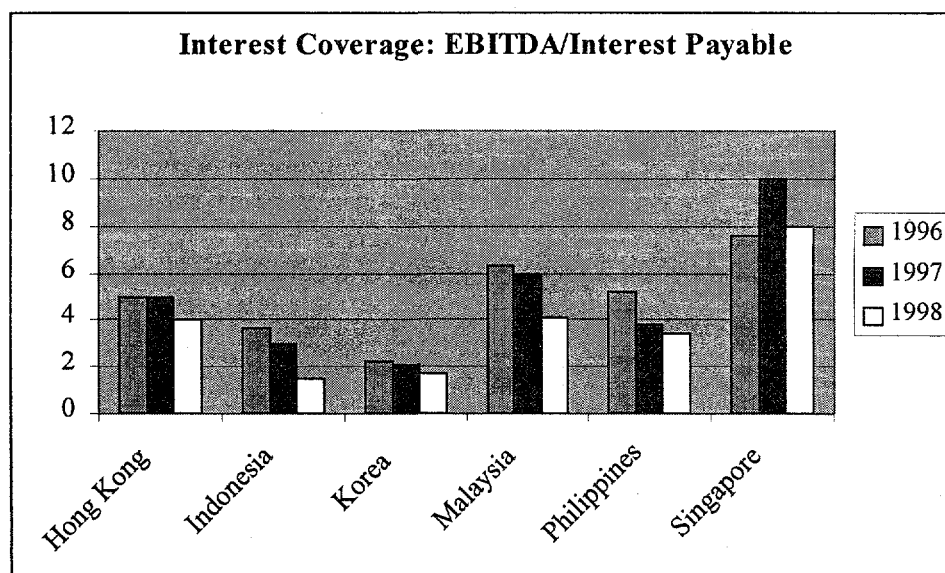


Figure 12

³² The debt burden was exacerbated by the fall of the Asian currencies against the U.S. dollar.

³³ The results for Asia are presented separately.

Goldman Sachs estimates as well the number of companies with EBITDA/Interest Expenses under 1. Assuming a close correspondence between the percentage of non performing loans and distressed corporates, Exhibit presents an analysis done by Goldman Sachs' ³⁴ to estimate the companies will not be able to service debt. The findings in Table 14 document a rapid increase in the percentage of loans (and companies) in distress in 1998. In Indonesia 45.6 percent of corporates are distressed, in Korea 31.5 percent of corporates, and in Malaysia 18.5 percent of corporates.

Table 14

Country/Year		No. of Cos.	Sales as % of GDP	Interest Coverage	Implied ³⁵ Insolvent Corporations	
A					B	C
Philippines	1996	170	26%	5.2	8.7%	
	1997	170	25%	3.7	10.8%	
	1998	170	27%	3.3	18.4%	
Indonesia	1996	225	20%	3.7	8.0%	
	1997	207	16%	2.9	15.6%	
	1998	207	12%	1.3	45.6%	
Korea	1996	667	96%	2.7	16.2%	
	1997	667	97%	2.2	20.7%	
	1998	667	97%	1.7	31.5%	
Malaysia	1996	479	126%	6.5	8.3%	
	1997	479	123%	6.3	11.2%	
	1998	479	120%	4.3	18.5%	

Source: Goldman Sachs

An analysis done by Jardine Fleming to assess the impact of exposure to unhedged foreign exchange loans suggests that Indonesian corporates are virtually insolvent. Following in Table 15 is the aggregate balance sheet of the top 50 non-financial companies in terms of market capitalization as of 30 September 1997 when the exchange rate was at Rph 3,275/US\$. The equity is Rph 68.78 trillion. The exhibit³⁶ reflects the

³⁴ Goldman Sachs, *Asset Quality for Korean Banks, Part II, Bottom-Up Approach for Estimating NPLs*, February 19, 1998 and other Asia research.

³⁵ Assuming a close correspondence between corporates and non performing loans.

³⁶ Jardine Fleming, *Indonesia Strategy update, Completely irrational*, January 21, 1998

impact of the depreciation of the rupiah against the US\$ on company's balance sheets. Assuming that these companies write-off the foreign exchange losses (and do not capitalize their forex translation losses³⁷) the aggregate balance sheet at the current exchange rate of Rph 11,500/US\$ will show a *negative* equity of Rph 79.6 trillion. (\$6.98 billion @ Rph 11,500/US\$). Similar impact is being felt throughout the Asian region.

Table 15

(Rp trillion)

30 September 1997 -- exchange 3,275/US\$ Exchange rate of Rph rate at Rph 11,500/US\$

Cash	30.05	Rph debts	24.12	Cash	30.05	Rph debts	24.12
A/R	16.55	F/X debts	207.39	A/R	16.55	F/X debts	207.39
Inventory	18.38	Others	33.88	Inventory	18.38	Others	33.88
Others	269.19	Equity	68.78	Others	120.86	Equity	-79.55
	334.17		334.17		185.84		185.84

Source: Jardine Fleming

The erosion of equity capital, and maturity structure of debt in Asia indicates that corporates have massive equity and debt recapitalization needs. Within the limitations of credit extension by a distressed banking system, the prospects for credit extensions, and new financing are limited. Similarly, recapitalization plans that rely heavily on equity markets' capacity, and rights offerings might not be realistic in the current depressed stock markets, and domestic bond markets are not sufficiently developed to absorb potential demand. Therefore, the prospects of corporate to fulfill their recapitalization needs are questionable at this time.

³⁷ The accounting convention used does not matter. The economic impact of the loss is the same.

SECTION C: CONCLUSIONS AND POLICY IMPLICATIONS

Several conclusions are warranted from this financial analysis presented in the paper:

Financial benchmarks. The findings in the paper suggest a manifested lack of financial (and some lack of operational) discipline in some Asian countries. Thailand, Indonesia, Korea stand as a beacon of risky practices that lead to financial distress. The investment-spending spree contributed to erosion of profit margins, and to poor financial performance reflected in declining, and low return on equity and return on capital employed. Other countries in the region: Hong Kong, Malaysia and Taiwan, manifest prudent financial conduct³⁸.

A further surprising finding is the wide *disparity* in financing practices, and even more so, *operating and financial performance* across the spectrum developing and developed countries covered in the analysis. The vast differences in economic value results between countries lead to the conclusion, that in an era of increasing capital mobility, corporates are not adhering to global standards in creating shareholder value. The problem that some Asian corporates face, along with French and Latin American listed corporates, is *underemployment of capital*. In an era of rapid globalization, and increasingly free capital flows, where capital can rapidly arbitrage differences in rates of return, such disparities in underlying ROE and ROCE are probably not sustainable in the long run. The realization that financial gravity laws for corporates can not be defied, and unsustainable debt/equity ratios, *and poor underlying operating* results are not tenable will eventually gain acceptance and will inevitably lead to distress similar to East Asia corporates. the disparity in operating and financial performance in crisis and other countries suggests a need for systemic corporate restructuring. Corporates need to demonstrate to investors sustained EVA performance, in order to ensure sustained availability of equity capital, and ensure improved equity markets performance.

³⁸ It is notable that Asian countries that escaped relatively unscathed from the crisis- Hong Kong, Philippines, Singapore and Malaysia- are noted for progressive regulatory and supervisory practices either/and open to foreign participation in the banking system.

Therefore, Prospective corporate capital spending must be targeted with the overriding criterion being the rate of return, and shareholder value. a restructuring process needs as well to reflect a readiness to address insolvent corporates through court-supervised reorganization or bankruptcy; promotion of voluntary restructuring of distressed and illiquid -- but *operationally viable*-- corporates through debt/equity swaps, and provision of necessary liquidity during the workout process through provision for debtor-in-possession financing³⁹; as well as recognition that some corporates might not be salvageable.

The Macro Financial Context -Capital Market Development: There is considerable evidence supporting the argument⁴⁰ that Asia's high-debt *and high-risk* model of economic development is a direct result of the savings intermediation process in the Asian economies. The high savings rates in Asian economies, where the household sector saves around a third of gross domestic product, were largely intermediated by banks to businesses. The pursuit of rapid economic growth in the region limited the capacity of internal earnings generation to buffer accumulation of debt, and resulted in high corporate leverage. The channeling of household savings by banks to corporates lead to a highly leveraged financial structure, with high ratios of bank liabilities to GDP, and resulted in leveraged corporates. The resulting high levels of leverage, compared with countries where slower-growth and more balanced financial systems, that have developed equity and bond markets. The ensuing financial structure was inherently risky, and vulnerable to internal and external shocks. It is interesting that most of the countries with poor ROCE have underdeveloped capital markets, and relied heavily on bank financing. Ironically, the key foundations that ensure the success of capital markets--transparency, corporate accountability and governance, and proper risk pricing via the transmission of market signals- were lacking, and were therefore underlying deficiencies of the

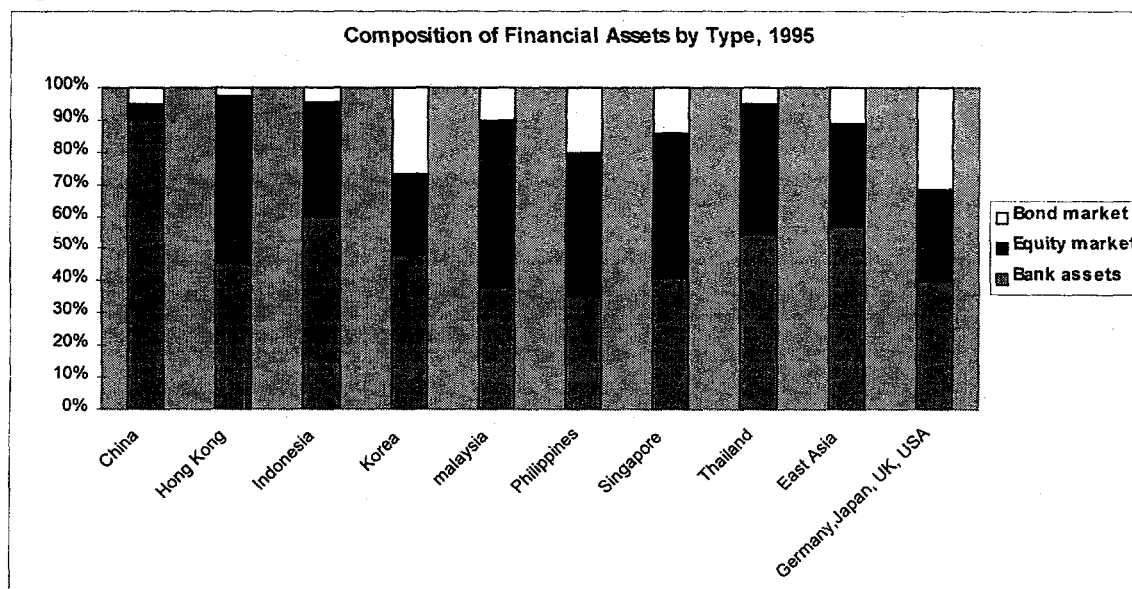
³⁹ Provided that the legal system has provisions for such lending, lenders can grant new credit that has priority for repayment.

⁴⁰ See Veneroso and Wade, *op cit*.

performance of corporates in Asia. These limitations possibly amplified the magnitude of the corporate excesses, leading to the crisis.

Citing one absolute statistic- the bond market in Asia is under 20% of GDP, low by comparison to developed bond markets – e.g., the US bond market is over 100% of GDP. In a relative context, the comparative statistics presented in Figure 13 is instructive. They suggest that in general, the region has exhibited over-dependence on the banking sector and under-reliance on capital markets in absolute and relative terms. the Exhibit documents the lack of relative balance in development of financial markets.

Figure 13: The Bond market in relative terms



Source: *Emerging Asian Bond Market*, Financial Times 1997

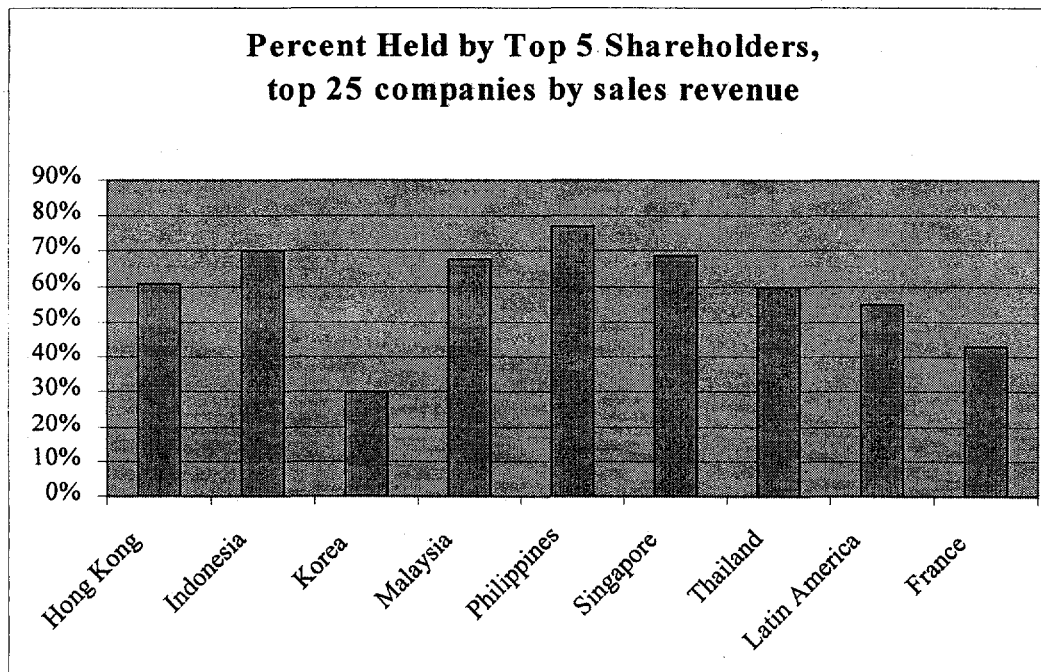
The implication of the analysis is that a more open, balanced and competitive financial system, in which capital is more allocated in a more transparent fashion, and with appropriate consideration for risk is needed in Asia⁴¹. A first macro remedial step is offered by the overwhelming evidence of high leverage witnessed in Asia, and analysis of

⁴¹ World Bank research (see Demirguc-Kunt, Asli and Ross Levine) has documented that vibrant equity markets complement bank financing.

the underlying macro financial linkages of intermediation through the banking system. An inescapable conclusion, is that in addition to rehabilitation of the banking system, the policy agenda in Asia should strive for development of domestic capital markets. Increased reliance on capital markets, and attendant benefits in terms of transparency, risks assessment and pricing, and dispersion of risk across participants would have salutary benefits on future corporate discipline and performance in the Asia region. It suggests a dire need for development of a balanced financial sector, with vibrant equity and bond markets.

Capital Flows. In the context of the high Tobin q 's during a period of rapid capital inflows, a question that needs to be explored, is whether portfolio capital inflows had an influence on valuations? The rapid increase in foreign participation the early 90's was in context of large closely held positions of shares and a limited float (See Figure 14). Foreign investors now account for a significance presence in terms of ownership and transactions in Asian capital markets⁴².

Figure 14



⁴² Pomerleano, Michael, *Performance of Emerging Market Equity Investments*, Emerging Markets Quarterly, Spring, 1998

Therefore a possible implications is that the “exuberant” valuations in East Asia were associated with large portfolio equity inflows in an illiquid market. In such a situation marginal flows might have had a disproportionate impact on valuations. For instance, the following calculations for Thailand in Table 16 suggest that Equity Flow as a percentage of Free Float Market Capitalization reached a high of 6 percent in 1993. Although the percentage portfolio flows were significant as a percentage of free float market capitalization additional research is required to explore this issue. Preliminary evidence suggests that it is unlikely that portfolio equity flows had a marked impact on valuations⁴³.

Table 16- Thailand

	1990	1991	1992	1993	1994
Portfolio equity flows (US\$ mill)	449	41	4	3,117	(538)
Market Capitalization (US\$ mill)	23896	35815	58259	130510	131479
Free Float Market Capitalization (40% of total)	9,558	14,326	23,304	52,204	52,592
Equity Flows/Free Float Market Capitalization	4.7%	0.3%	0.0%	6.0%	-1.0%

Regulatory and Supervisory Framework. Finally, the findings deepen our understanding of the crisis, and offer lessons for the future. There were clearly micro excesses, within a disciplined and benign macro financial context. In the past, there were several safety mechanisms built into the Asian financial system to manage the micro risks. Among them, mild interest rates oppression subsidized corporations to the detriment of savers. Second, well established long-term relations between companies and banks, which turned debt into quasi-equity (the proverbial Asian evergreens”). This relationship suggests lax credit allocation processes, (possibly supporting projects of politically connected individuals and organizations), without reference to projects viability. The preponderance of the evidence collaborates Krugman’s hypothesis that crony capitalism, and the supportive and necessary poor policies designed to “aid and abate” poor credit decisions-implicit government guarantees, and lax banking supervision lead to poor investments,

⁴³ See Choe, Hyuk ,Bong-Chan Kho, Rene Stultz "Do Foreign Investors Destabilize Stock Markets? The Korean Experience in 1997" SSRN Electronic Library and Post, Mitchell A and Kimberlee Millar *U. S. Emerging Market Equity Funds and the 1997 Crisis in Asian Financial Markets* by INVESTMENT COMPANY INSTITUTE PERSPECTIVE Vol. 4 / No. 2 June 1998

and misallocation of resources. The lack of appropriate financial incentives and institutional factors⁴⁴ in East Asia lead to a plausible explanation of the mixture of currency, corporate and banking crises confronting the region. These recent liberalization of the financial sector and imposition of market discipline, including lifting of interest rate controls, was undertaken without adequate prudential framework. The implications for enhanced regulation and supervision of the financial system are unmistakable. The recent introduction of improved loan classification systems and capital adequacy norms⁴⁵ are welcomed and encouraging first steps toward improved regulation and supervision, but are nevertheless only preliminary first steps that need to be supplemented by an enhanced regulatory framework and improved enforcement.

-END-

⁴⁴ For instance, Tobin's q and the incentives for capital formation are reflective of monetary policy, and portfolio equity inflows.

⁴⁵ . The increased scrutiny to credit quality probably contributed to the recent adverse developments. For instance: enhanced regulatory and supervisory efforts addressed at Thai finance companies lead to revelations about their poor condition, and possibly precipitated the onset of the crisis.

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APPENDIX 1: Altman's Z Score - The Methodology

RATIO	FORMULA	WEIGHT FACTOR
Return on Total Assets	Earnings Before Interest and Taxes to Total Assets	x 3.3
Sales to Total Assets	Net Sales to Total Assets	x 0.999
Equity to Debt	Market Value of Equity to Total Liabilities	x 0.6
Working Capital to Total Assets	Working Capital to Total Assets	x 1.2
Retained Earnings to Total Assets	Retained Earnings to Total Assets	x 1.4

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