

The East Asia Crisis and Corporate Finances: The Untold Microeconomic Story

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The cause of Asia's economic and currency crisis and the ensuing contagion is the subject of much debate. Most of the explanations have focused on macroeconomic factors, including underlying vulnerabilities (financial sector vulnerabilities and inconsistent macroeconomic policies), the role of financial panic as an essential element in the crisis, and the distortionary impact of guarantees on the financial system.¹

The McKinsey Global Institute recently studied the way Germany, Japan, and the U.S. put their capital to use, examining capital productivity within the entire economy as well as in five individual industries (see Agrawal et al. [1996]). The study addresses the productive use of capital including the use of physical capital such as machinery and buildings and by reference the implication for derived financial assets — stocks. The findings are that the U.S. outperforms Japan and Germany by roughly one-third. The U.S. average returns of 9% over a twenty-year period compare with just over 7% in Germany and Japan. This higher capital productivity translates into higher financial returns for equity investors.

Similarly, Jensen [1993] documents that many U.S. corporations do not earn the cost of capital. A similar argument is advanced by Wade and Veneroso [1998], who argue that Asia's high-debt model of economic development is a consequence of

the intermediation process for savings in the Asian economies and a quest for rapid economic growth.

This article provides a perspective on the corporate roots of the financial crisis in Asia. I explore the financial profile and performance of capital in developing countries. Key ratios for companies in various countries are presented. Global benchmarking imposes a consistent cross-border framework for analysis of financial risk and performance to shed light on the Asian crisis.

The results indicate that there have been serious problems in Asia at the micro level — excess leverage and poor profitability. The findings support the view advanced by Krugman that “crony capitalism” enabled by weak policies related to implicit guarantees and poor banking supervision led to poor credit decisions in the banking system and consequent misallocation of resources. The policy implications virtually write themselves.

KEY SUMMARY OF FINANCIALS

First, I compare the performance of corporations in Hong Kong, Indonesia, Korea, Malaysia, the Philippines, Taiwan, and Thailand to corporations in Latin America and the industrialized countries: France, Germany, Japan, and the U.S. The financial information on companies for 1992-1996 comes from the Financial Times Informa-

EXHIBIT 1

The Sample

Country	Companies in the Sample ^a	Sales Revenue as a Percent of GDP ^b
Hong Kong	47	7
Indonesia	122	2
Korea	44	14
Malaysia	211	21
Philippines	29	2
Singapore	92	17
Taiwan	16	NA
Thailand	173	5
Latin America ^c	21	NA
France	143	28
Germany	232	26
Japan	254	24
U.S.	289	28

^aGeneral manufacturing, extractive industries, utilities, and consumer goods.

^bAverage 1992-1996.

^cLatin America is treated as one group because of the small number of companies in any one country and lack of a representative sample.

tion's Extel Card data base, which provides data on over 13,000 companies worldwide.

Exhibit 1 describes the sample. We used as a basis for our analysis financial data including balance sheets, income statements, and cash flow analysis of listed non-financial companies. The companies selected for analysis include general manufacturing, extractive industries, and utilities for which there are five consecutive years of financial statements ending in 1996. The results are presented as *weighted averages (by sales) of the constant sample*.

Reviews of corporate financial practices and performance focus on relative ratio analysis. The financing patterns are recorded in terms of ratios: leverage (debt-to-equity), debt sustainability (EBITDA/interest), liquidity (current liabilities-to-total liabilities), and tangible fixed assets growth and their financing. Corporate performance profitability is captured in ratios of return on equity supplemented by return on capital employed and economic value-added. The ratio analysis is supplemented by an indicator of corporate financial fragility — Altman's Z-score. Another indicator of corporate vitality presented is Tobin's q.

One caveat: Because of different accounting standards and conventions, possible reporting errors, and the

potential bias of a limited sample, any one individual statistic may not be fully representative, and results should be interpreted with caution. I believe the combined evidence, however, is reflective of underlying patterns.²

Financing Patterns

Leverage. The debt-equity ratio equals a company's debt divided by shareholders' equity, and indicates how much borrowed money a company is using relative to its equity. Exhibits 2, 3, and 4 present the findings. Two aspects are notable.

An interesting finding is that debt-equity ratios vary widely in our sample. First, there are wide differences in the debt-equity ratios in Asia. The high leverage contrasts with moderate debt-equity ratios in Hong Kong (39% as of the end of 1996), the Philippines, and Taiwan. Latin American, German, and U.S. companies have modest debt-equity ratios (90% in the U.S.), while Thai and Korean companies generally have high debt-equity ratios (around 150%).³

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 internationally. Therefore the analysis understates the extent of leverage. Further possible explanations for the differ-

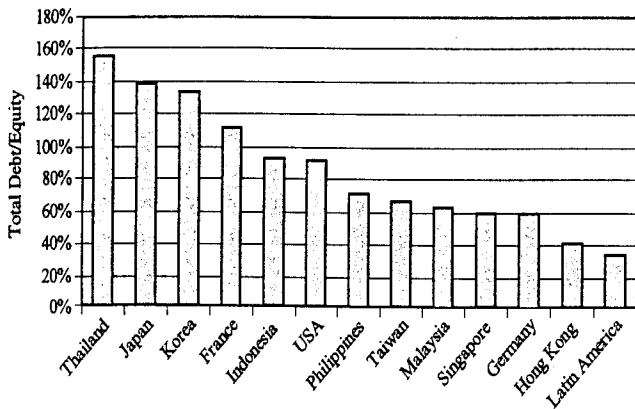
EXHIBIT 2

Leverage (%)

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	NA
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
U.S.	106	102	97	94	90

*Korean debt/equity available only through 1995.

EXHIBIT 3 Leverage 1996



ences are attributable to using only reported debt, as well as a weighted average, rather than medians.⁴

Second, there are rapidly increasing debt equity ratios in Asia. For instance, in Thailand leverage increased from 71% as of the end of 1992 to 155% at the end of 1996. Similar growth is evident in Korea, Malaysia, and Indonesia. As subsequently documented, the buildup of leverage is attributable to the financing of rapid acquisition of fixed assets.

Tangible Fixed Assets Growth and Financing.

Capital assets are tangible "fixed assets." The analysis in Exhibits 5 and 6 suggests a rapid buildup of fixed assets in Asia. The average percent change in tangible fixed assets during the 1992-1997 period is 33% in Indonesia;

EXHIBIT 4 Increase in Leverage — 1992 versus 1996

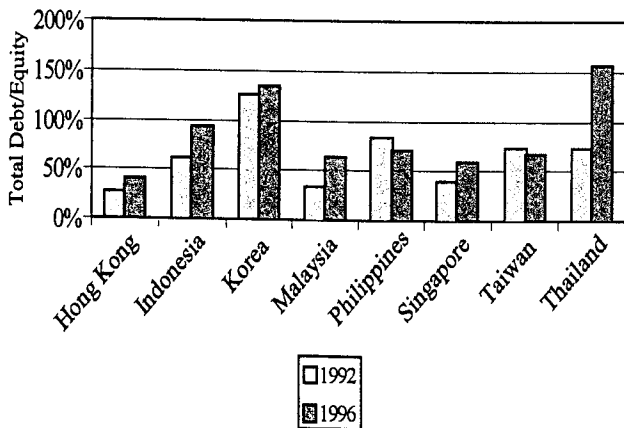


EXHIBIT 5 Percent Change in Tangible Fixed Assets (%)

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

20% in Malaysia; and 29% in Thailand. This growth is in stark contrast to the more moderate pattern in Hong Kong (17%), and the developed countries (1%-5%).

I estimate the financing patterns of new investment using an analysis of sources and uses of funds.⁵ In Exhibit 7 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 year.⁶

The results support the conclusion of increasing reliance on debt in Asian countries. The wide disparity in funding patterns is striking. Exhibit 8 shows that while Latin American, German, Japanese, and U.S. companies

EXHIBIT 6 Average Percent Change in Tangible Fixed Assets 1992-1996

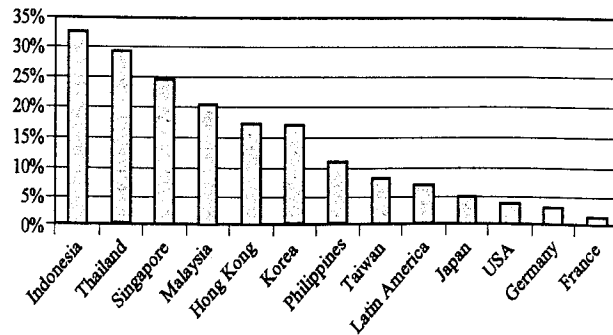


EXHIBIT 7

Debt Raised and Repaid as a Percentage of Investments (%)

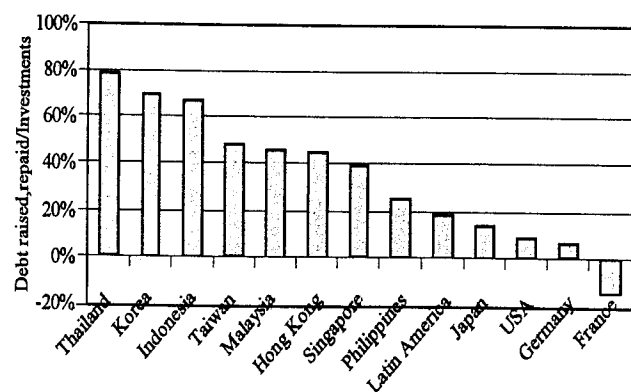
	1993	1994	1995	1996	Avg.
Hong Kong	23	62	36	58	45
Indonesia	37	56	103	70	67
Korea	86	52	75	62	69
Malaysia	19	44	57	61	45
Philippines	46	-46	28	73	25
Singapore	14	19	66	58	39
Taiwan	55	62	50	23	47
Thailand	71	72	102	69	78
Latin America	34	17	13	10	19
France	-13	-18	-26	-1	-14
Germany	16	-8	8	8	6
Japan	11	17	15	9	13
U.S.	-9	11	21	10	8

relied on roughly 8%-19% debt financing, the ratios in the vulnerable countries in Asia range around 45%-78%. Indonesia averages 69% between 1993 and 1996, Korea 69%, Malaysia 45%, and Thailand 78% versus moderate ratios in Hong Kong (45%), and the Philippines (25%).

The key ratio medians for U.S. industrial companies calculated by Standard & Poor's and factored into the rating process are illustrative (Exhibit 9).⁷ Although what is a sustainable ratio differs by country (and industry), it is the norm to expect companies with solid

EXHIBIT 8

Average Percent Debt Financing of New Investment 1993-1996



potential, stable earnings, and prudent financial policies to show total debt-to-capitalization ratios of 40% (a debt-equity ratio of 66%).

The evidence on corporate investment and funding seems to indicate unsustainable rapid investment in fixed assets financed by excessive borrowing in some Asian countries. These findings manifest the unsustainable nature of business practices in Asian countries. It is a reasonable premise that no well-managed company can accommodate ongoing growth of 30%-40% without stretching its managerial capacity and distribution and marketing channels.⁸

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 corporate debt and pending refinancing needs in Exhibits 10 and 11. A more comprehensive liquidity analysis can be supplemented by other ratios, such as the current ratio.⁹

The maturity structure of debt presented for 1992-1996 in Exhibit 10 indicates that in the Asian countries approximately 60% of the liabilities were current liabilities. In Latin America and the industrialized countries only 30%-40% of the liabilities are current. A notable trend to lengthen the maturity is visible in Indonesia.

These findings suggest that a liquidity problem is imminent in the Asian crisis. Although companies cannot raise new funds, they face the task of repaying or servicing a large burden of short-term debt (approximately 60%). 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 pay back the annual interest (EBITDA/Interest) and principal (EBITDA/Interest + Principal) on outstanding debt.

The findings presented in Exhibits 12 and 13 are indicative of vast differences across countries. The deterioration in Asian countries is manifest. Coverage in Thailand declined to 1.92x in 1996 from 4.6x in 1992, as an increase in debt/equity led to a rise in interest expense. EBITDA patterns in other vulnerable Asian countries are similar: Indonesia (2.44x in 1996) and Korea (1.07x in 1995). Malaysia, Taiwan, and Hong Kong are more robust. Latin America (25.36x in 1996),

EXHIBIT 9

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

EXHIBIT 10

Total Current Liabilities/Total Liabilities (%)

	12/31/92	12/31/93	12/31/94	12/31/95	12/31/96	Avg.
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
U.S.	40	35	38	35	36	36

EXHIBIT 12

Cash Flow Coverage-EBITDA/Interest Payable

	12/31/92	12/31/93	12/31/94	12/31/95	12/31/96	Avg.
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
U.S.	4.61	5.57	6.83	7.33	7.62	6.39

EXHIBIT 11

Current Liabilities/Total Liabilities 1992-1996 Average

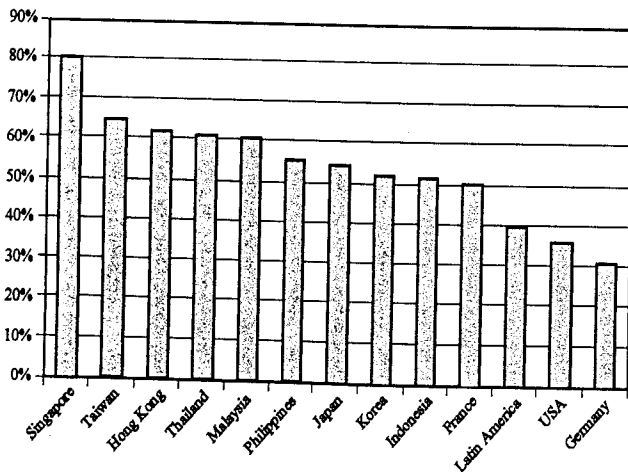
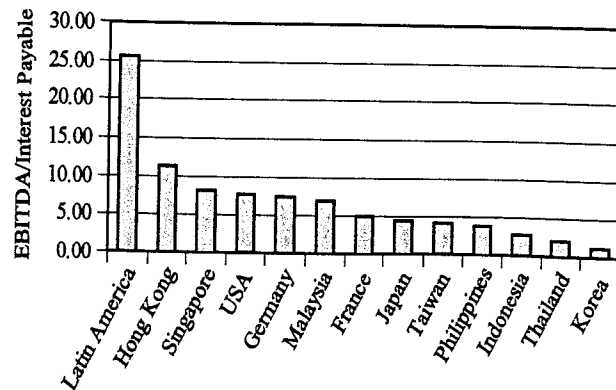


EXHIBIT 13

Interest Coverage 1996



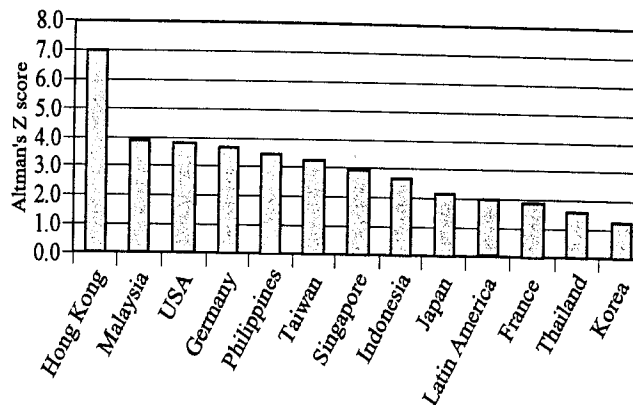
and some industrialized countries are quite robust: Germany (7.09× in 1996), France (4.75× in 1996), Japan (4.31× in 1996), and the U.S. (7.62× in 1996). In this context, the S&P credit rating policies are instructive again. U.S. A-rated companies are expected to have at least eight times EBITDA/interest coverage.

Altman's Z-Score. Altman's [1977, 1993] 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.¹⁰

The findings in Exhibits 14 and 15 demonstrate again the considerable fragility of the corporate sector in certain sections of Asia (as well as France). The Z-score 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. By contrast, Malaysia at 3.9, Philippines at 3.4, Hong Kong at 6.9, and Taiwan at 3.2 are robust. Among the industrialized countries, France at 1.8 and Japan at 2.1 manifest vulnerability.

Return on Equity. A company's return on equity percentage (ROE) indicates how well the common

EXHIBIT 15 Financial Fragility 1996



stockholders' equity investment is performing. The percentage is the result of dividing corporate net earnings after-tax by common stockholders' equity. We compare country ROEs to determine how well companies are doing in a global context. It should be noted, however, that the return on equity cannot be viewed apart from the prevailing opportunity costs of alternative instruments in the domestic and international markets.

The findings in Exhibits 16 and 17 are very surprising. There is outstanding average ROE performance during 1992-1996 in Hong Kong at 25%, Indonesia and Malaysia at 13%, the Philippines at 10%, Taiwan at 11%, and the U.S. at 12%; other countries reflect tepid

EXHIBIT 14 Altman's Z-Score Calculations

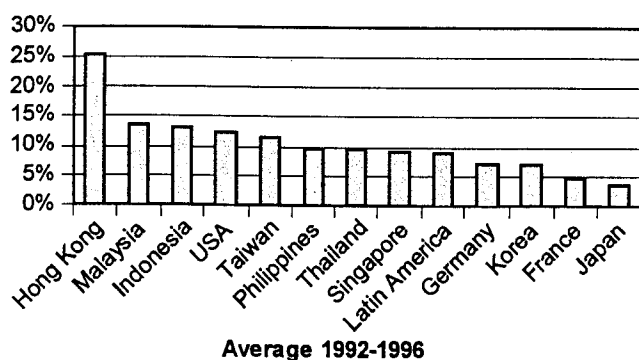
	1992	1993	1994	1995	1996	Avg.
Hong Kong	10.585	13.710	9.307	7.179	6.9	9.54
Indonesia	2.261	2.755	3.613	2.831	2.6	2.81
Korea	1.341	1.469	1.573	1.547	NA	1.48
Malaysia	5.969	8.432	6.346	4.844	3.9	5.89
Philippines	2.357	3.506	4.867	4.259	3.4	3.68
Singapore	3.883	6.033	5.177	3.858	2.9	4.36
Taiwan	2.521	3.215	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
U.S.	2.715	2.819	2.924	3.559	3.8	3.16

EXHIBIT 16 Return on Equity After-Tax (%)

	1992	1993	1994	1995	1996	Avg.
Hong Kong	29	24	27	24	21	25
Indonesia	14	12	12	15	13	13
Korea	5	4	8	11	NA	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
U.S.	4	8	16	16	18	12

EXHIBIT 17

Return on Equity



returns. Thailand's average ROE of 10% masks a rapid decline from 13% in 1992 to 5% by 1996, and Korea's average is only 7%. Latin America's ROE of 9% masks high inflation rates. Some industrialized countries show surprisingly paltry rates of return: France 5%, Germany 7%, and Japan 4%.

Return on Capital Employed (ROCE) Pretax.

Return on capital employed or assets (ROCE) is a more accurate indicator of profitability. ROCE is defined as operating profit divided by capital employed.¹¹ ROCE gives comprehensive information about the economic performance of the business, since it accounts for both operating and non-operating results (e.g., proceeds from sale of property). An added advantage is that it permits comparisons among 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 degree of *efficiency* with which capital resources are used.

Exhibits 18 and 19 present the findings with respect to ROCE. Average ROCE in Hong Kong of 20% is solid. Indonesia at 11% is good in absolute terms (overshadowed, however, as subsequently documented, by domestic rates of 15%-18%). The results for the other countries corroborate the previous findings.

Analysis of the ROCE data for Thailand, supplemented by the ROE and leverage findings, document that it is no 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 pro-

EXHIBIT 18

Return on Capital Employed Pretax (ROCE) (%)

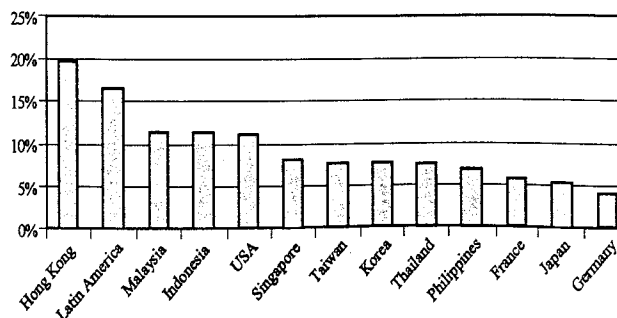
	1992	1993	1994	1995	1996	Avg.
Hong Kong	22	21	21	19	16	20
Indonesia	12	11	11	11	10	11
Korea	7	6	8	9	NA	8
Malaysia	12	12	11	11	10	11
Philippines	6	7	7	8	5	7
Singapore	9	8	8	7	7	8
Taiwan	8	7	10	7	5	8
Thailand	9	7	7	7	5	7
Latin America	15	15	14	14	23	16
France	7	5	6	5	5	5
Germany	4	2	4	3	5	4
Japan	6	5	4	5	6	5
U.S.	9	9	11	12	13	11

gressively during the period; credit ratios have declined, margins have been squeezed, and a significant decline in ROE is evident from 13% in 1992 to 5% in 1996.

Economic Value-Added. To address opportunity costs, we introduce a concept that has entered the financial lexicon called Shareholder Economic Value Added (EVA). Stern Stewart & Co. developed this concept (see Stewart [1991]). This analysis determines in a traditional economic sense — using opportunity costs — whether a company *creates shareholder value*. EVA tries to answer how the reported profitability of a corporation — the measured ROCE — compares to the opportunity cost of capital. A weighted average cost of capital (WACC) is used to assess opportunity costs, and determine the economic loss/gain.¹²

EXHIBIT 19

Average ROCE Before Tax 1992-1996



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 of capital 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 based on the net present value method of the modified cash flow to develop calculations of WACC.

Although it is an oversimplification of rigorous EVA analysis (which uses discounted present values), I obtain a rough indication of EVA by comparing the ROCE to the lending rates in the banking systems (which proxy the cost of raising debt) for 1992-1996 (Exhibit 20).

The difference between ROCE and the lending rates in Exhibit 20 is indicative of the EVA (Exhibit 21). Only for Hong Kong, Japan, Malaysia, Singapore, and the United States does ROCE exceed the cost of that capital base consistently over the 1992-1996 period (and, with the exception of Hong Kong, not by a significant margin). There are vast intertemporal differences as well; trends in economic value-added document the decline and deterioration in Thailand. Similarly, Japan's positive EVA is largely attributable to the low interest rate prevailing, rather than high ROCE. In Indonesia, the analysis suggests that the negative EVA in Indonesia is attributable to the high prevailing

EXHIBIT 20

Lending Interest Rate (%)

	1992	1993	1994	1995	1996	Avg.
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	NA	NA	16
France	10	9	8	8	7	8
Germany	14	13	11	11	10	12
Japan	6	4	4	3	3	4
U.S.	6	6	7	9	8	7

Source: World Bank, World Development Indicators, 1998.

EXHIBIT 21

ROCE Lending Rate (%)

	1992	1993	1994	1995	1996	Avg.
Hong Kong	15	14	12	10	7	12
Indonesia	-12	-10	-7	-8	-9	-9
Korea	-3	-3	-1	0	NA	-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	NA	NA	-8
Lat. America	NA	NA	NA	NA	NA	NA
France	-3	-4	-2	-3	-2	-3
Germany	-10	-11	-7	-8	-5	-8
Japan	0	1	0	2	3	1
U.S.	3	3	4	3	5	4

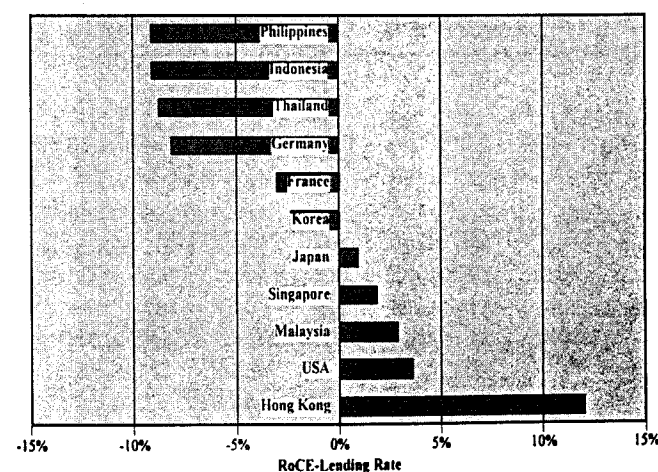
domestic interest rates.

Exhibit 22 displays the findings on average economic value-added during the period.

Tobin's Q. Tobin's q was introduced in 1969 by James Tobin 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 a company has been able to create value for shareholders with the assets under its control, and measures how much investors are willing to pay for the business.¹³

EXHIBIT 22

Average Economic Value-Added 1992-1996



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 of countries' growth and profitability prospects, shedding light on whether there is an environment conducive to capital expenditures created by market valuations.

Exhibits 23 and 24 present the calculations for Tobin's q, and examine the potential relationship between market valuations and incentives for investments in a particular country. Notable is the high level of Tobin's q in Asia: Hong Kong at 235% for 1992-1996, Indonesia's peak of 149% in 1994, Malaysia at 217% in 1993, the Philippines at 162% in 1993, Taiwan at 164% in 1994, and Thailand at 249% in 1993. Latin America and the industrialized countries by comparison have more modest average Tobin q ratios during 1992-1996: Latin America at 31%, France at 54%, Germany at 50%, Japan at 93%, and the U.S. at 107%.

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 that the peak of Tobin's q in Asia is around 1993-1994, a period associated with large portfolio equity inflows.¹⁴

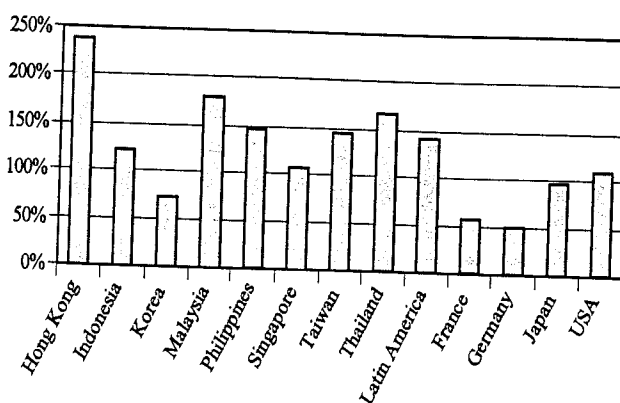
EXHIBIT 23

Approximation of Tobin's Q — Market Value-to-Book Value of Assets (%)

	1992	1993	1994	1995	1996	Avg.
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	NA	38	38	31
France	52	57	52	53	58	54
Germany	42	51	50	49	57	50
Japan	90	94	98	89	96	93
U.S.	98	95	96	121	124	107

EXHIBIT 24

Tobin's Q: Market Valuation/Replacement Cost (1992-1996 Average)



THE CRISIS

The data used for my analysis ends in December 1996. What has happened since then? A partial picture emerges from recent investment bank research reports. We know that high leverage in a rising interest rate and worsening economic environment, coupled with unhedged foreign currency-denominated loan exposure, inflicted damage on vulnerable corporations in Asian countries.¹⁵

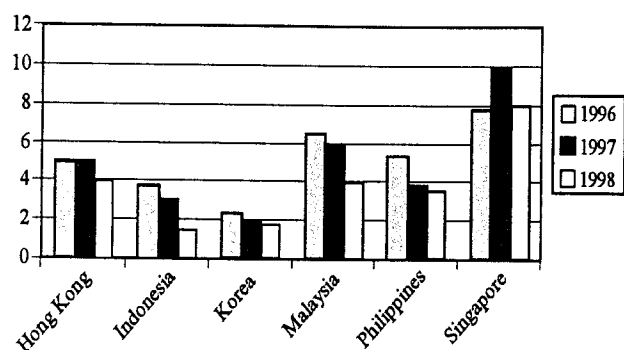
For instance, an analysis by Phatra Securities in Thailand of the impact of interest rates suggests a decline of EBITDA coverage to 1.49x by 1997, and an even lower projection for 1998. Similarly, Goldman Sachs [1998] collected financial information on non-financial companies for 1996 and the first half of 1997 and projected the operating results and financial position for 1997 and 1998. These estimates of EBITDA/Interest Expense for companies in the sample are presented in Exhibit 25. The findings suggest a rapid decline in debt service capacity.

Exhibit 26 documents a rapid increase in the percentage of loans (and companies) in distress in 1998. In Indonesia 45.6% of corporations are distressed, in Korea 31.5%, and in Malaysia 18.5%.

An analysis by Jardine Fleming [1998] of the impact of exposure to unhedged foreign exchange loans suggests that Indonesian corporations are virtually insolvent. In Exhibit 27 is the aggregate balance sheet of the top fifty non-financial companies in terms of market capitalization as of September 30, 1997, when the exchange rate was at Rp 3,275/U.S.\$. The equity is

EXHIBIT 25

Interest Coverage: EBITDA/Interest Payable



Source: Goldman Sachs.

Rph 68.78 trillion. The exhibit reflects the impact of the depreciation of the rupiah against the U.S. dollar on companies' balance sheets.

Assuming that these companies write off their foreign exchange losses (and do not capitalize their foreign exchange translation losses), the aggregate balance sheet at the current exchange rate of Rph 11,500/U.S.\$ will show a *negative* equity of Rph 79.6 trillion (\$6.98 billion at Rph 11,500/U.S.\$).¹⁶ Similar impact is being felt throughout the Asian region.

The erosion of equity capital and the maturity structure of debt in Asia indicates that corporations have massive equity and debt recapitalization needs. Given the limitations of 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 may

EXHIBIT 27

Indonesian Top Fifty Companies (Rph trillion)

30 September 1997		Rph 3,275/U.S.\$		Exchange Rate of Rph		Rate at Rph 11,500/U.S.\$	
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	66.78	Others	120.86	Equity	-79.55
	334.17		334.17		185.84		185.84

Source: Jardine Fleming.

EXHIBIT 26

Country/Year

		No. of Companies	Sales as % of GDP	Interest Coverage	Implied Percentage Insolvent*
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

*Assumes a close correspondence between corporates and non-performing loans.

Source: Goldman Sachs.

not be realistic in the current depressed stock markets, and the domestic bond markets are not sufficiently developed to absorb potential demand. The prospects that companies can meet their recapitalization needs are questionable at this time.

CONCLUSIONS AND POLICY IMPLICATIONS

Several conclusions are supported by the financial analysis presented here.

Financial Benchmarks

The findings suggest a manifest lack of financial discipline (and some degree of operational discipline) in some Asian countries. Thailand, Indonesia, and Korea present examples of risky practices that lead to financial distress. Investment and spending sprees there have contributed to erosion of profit margins and to poor financial performance, reflected in declining and low returns on equity and returns on capital employed. Other countries in the region such as Hong Kong, Malaysia, and Taiwan show more prudent financial conduct.¹⁷

A surprising finding is the wide disparity in financing practices, and even more so, operating and financial performance, across the spectrum in developing and developed countries covered in the analysis. The vast differences in economic value among countries lead to the conclusion that in an era of increasing capital mobility corporations are not adhering to global standards in creating shareholder value.

The problem that some Asian corporations face, along with French and Latin American listed companies, 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 the financial laws of gravity for corporations cannot be defied, and that unsustainable debt/equity ratios and poor underlying operating results are not tenable, will eventually gain acceptance and will inevitably lead to distress like that seen in East Asia corporations.

The disparity in operating and financial performance between the troubled and the unthreatened countries suggests a need for systemic corporate restructuring. Corporations need to demonstrate to investors sustained EVA performance, in order to ensure sustained availability of equity capital and support improved equity markets performance. Therefore, prospective corporate capital spending must be viewed in terms of the overriding criterion of the rate of return and shareholder value.

A restructuring process needs as well to reflect a readiness to address insolvent corporations through court-supervised reorganization or bankruptcy and promotion of voluntary restructuring of distressed and illiquid — but operationally viable — corporations through debt/equity swaps and provision of necessary liquidity during the

workout process through provision for debtor-in-possession financing.¹⁸ There should be as well a recognition that some corporations may not be salvageable.

The Overall Financial Context — Capital Market Development

There is considerable evidence supporting the argument 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 (see, e.g., Wade and Veneroso [1998]). 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 the benefit of 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 corporations led to a highly leveraged financial structure, with high ratios of bank liabilities to GDP and highly leveraged companies, compared to countries with slower growth, more balanced financial systems, and developed equity and bond markets. Such a financial structure is inherently risky and particularly vulnerable to internal and external shocks.

It is interesting that most of the countries with poor ROCE have underdeveloped capital markets and rely heavily on bank financing. 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 — have been lacking. These limitations underlying the deficiencies of the performance of corporations in Asia possibly amplified the magnitude of the corporate excesses, leading to the crisis.

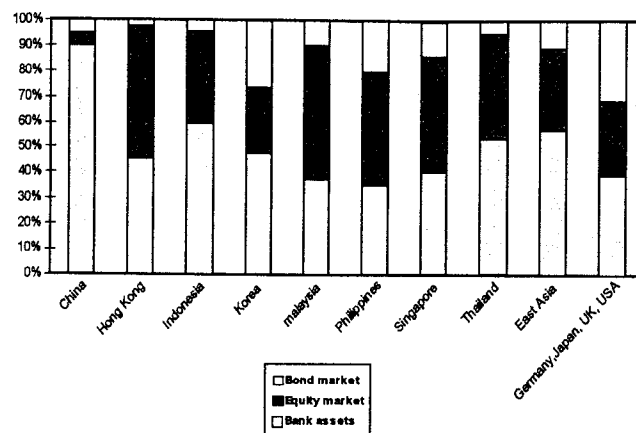
To cite one absolute statistic, the bond market in Asia is under 20% of GDP, low by comparison to developed bond markets. The U.S. bond market, for example, is over 100% of GDP. The comparative statistics presented in Exhibit 28 are instructive. They suggest that in general, the region has exhibited overdependence on the banking sector and underreliance on capital markets in absolute and relative terms. Exhibit 28 documents the lack of relative balance in development of financial markets.

The implication of the analysis is that Asia needs a more open, balanced, and competitive financial system, in which capital is more allocated in a more transparent

EXHIBIT 28

The Bond Market in Relative Terms

Composition of Financial Assets by Type 1995



Source: *Emerging Asian Bond Market* [1996].

fashion, and with appropriate consideration for risk.¹⁹ A first remedial step is offered by the overwhelming evidence of high leverage witnessed in Asia, and analysis of the underlying 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, risk assessment and pricing, and dispersion of risk across participants, would have salutary benefits on future corporate discipline and performance in the Asia region. There is a dire need for development of a balanced financial sector, with vibrant equity and bond markets.

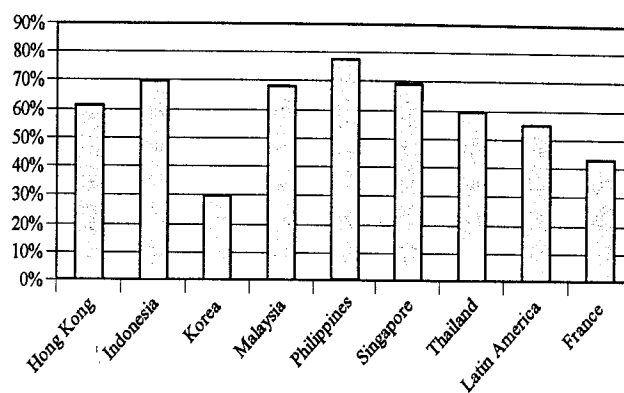
Capital Flows

Given 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 in the early 1990s came in the form of large closely held positions of shares and a limited float (see Exhibit 29). Foreign investors now are a significant presence in terms of ownership and transactions in Asian capital markets (see Pomerleano [1998]).

A possible implication is that the "exuberant"

EXHIBIT 29

Percent Held by Top Five Shareholders — Top Twenty-Five Companies by Sales Revenue



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 calculations for Thailand in Exhibit 30 suggest that equity flow as a percentage of free float market capitalization reached a significant high of 6% in 1993. Additional research is required to explore this issue, but preliminary evidence suggests it is unlikely that portfolio equity flows had a marked impact on valuations (see Choe, Kho, and Stulz [1998] and Post and Millar [1998]).

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 macroeconomic financial context.

EXHIBIT 30

Thailand — Equity Flows versus Market Capitalization (U.S.\$ mil)

	1990	1991	1992	1993	1994
Portfolio Equity Flows	449	41	4	3,117	(538)
Market Capitalization	23,896	35,815	58,259	130,510	131,479
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

There were once several safety mechanisms built into the Asian financial system to manage the micro risks. First, mild interest rates oppression subsidized corporations to the detriment of savers. Second, well-established long-term relations between companies and banks 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 a project's viability. The preponderance of the evidence collaborates Krugman's [1998] hypothesis that crony capitalism and the supporting policies designed to aid and abet poor credit decisions — implicit government guarantees and lax banking supervision — led to poor investments and misallocation of resources.

The absence of appropriate financial incentives and the presence of institutional factors in East Asia are a plausible explanation of the mixture of currency, corporate, and banking crises confronting the region. The recent liberalization of the financial sector and imposition of market discipline, including the lifting of interest rate controls, were undertaken without an adequate or prudent framework. The implications for enhanced regulation and supervision of the financial system are unmistakable.

Improved loan classification systems and capital adequacy norms are welcome and encouraging first steps toward improved regulation and supervision. They are nevertheless only preliminary first steps that need to be supplemented by an enhanced regulatory framework and improved enforcement.

APPENDIX

Altman's Z-Score — The Methodology

Ratio	Formula	Weight Factor
Return on Total Assets	Earnings Before Interest and Taxes to Total Assets	× 3.3
Sales to Total Assets	Net Sales to Total Assets	× 0.999
Equity to Debt	Market Value of Equity to Total Liabilities	× 0.6
Working Capital to Total Assets	Working Capital to Total Assets	× 1.2
Retained Earnings to Total Assets	Retained Earnings to Total Assets	× 1.4

ENDNOTES

Jack Glen provided most helpful comments. The author is grateful for research assistance from Margaret Enis.

¹See Radelet and Sachs [1998]. Krugman [1998] argues that a system of implicit guarantees leads to incentives to choose the highest return investments regardless of risk.

²International comparison of accounting results has relevance if measured consistently, but meanings 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 common in Korea and Indonesia, and the possibility of companies with cross-shareholdings and double leverage is not factored into the analysis.

³Corporate data on foreign exchange indebtedness are not reported in the Financial Times Information's Extel data base, but evidence on *aggregate* corporate indebtedness is available from the Bank for International Settlement. The data suggest excessive reliance on foreign debt by corporations in Indonesia and Thailand, most of it not hedged.

⁴Balance 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.

⁵Cash flow is computed as the difference between incoming and outgoing payments. Cash flow is derived from the operating profit by adjusting for items that do not affect payments (e.g., depreciation and amortization), and items that affect payments but are not recorded in the operating profit (e.g., changes in working capital).

The 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, for creditors, for tax payments, and for investment.

⁶Although money is fungible, and our limited analysis in isolation has deficiencies (e.g., no review of dividend policies), the relative values are indicative of the funding profile.

⁷The benign interest rate environment and the availability of term financing in the U.S. suggest that the U.S. numbers represent an upper bound on acceptable financial practices.

⁸With the possible exception of software companies.

⁹The 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 asset if it needed to — i.e., a ratio greater than 1.

¹⁰The Z-score uses multiple discriminant analysis (MDA) in an attempt to predict corporate failure. See the appendix for the formula. In Altman's original ex post study of thirty-three bankrupt companies, Z-scores for 95% of the companies pointed to trouble or imminent bankruptcy.

¹¹That is, Revenues – Cost of Sales – Selling Expenses – General Administrative Expenses – Research and Development Expenses – Restructuring Expenses + Other Income Divided by Expenses.

Capital employed represents the necessary operating capital derived from the balance sheet assets; i.e., balance sheet total minus financial items and fiscal items that are not considered necessary operating capital.

¹²EVA 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.

¹³The balance sheet reflects a company's depreciated tangible asset 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.

¹⁴A limitation of this analysis is the use of depreciated balance sheet data, and the absence of replacement costs. However, I employ Tobin's q mainly in a comparative and relative rather than absolute sense.

¹⁵The debt burden was exacerbated by the fall of the Asian currencies against the U.S. dollar.

¹⁶The accounting convention used does not matter. The economic impact of the loss is the same.

¹⁷It is notable that the Asian countries that escaped relatively unscathed from the crisis (Hong Kong, the Philippines, Singapore, and Malaysia) are either noted for progressive regulatory and supervisory practices and/or open to foreign participation in the banking system.

¹⁸Provided that the legal system has provisions for such lending, lenders can grant new credit that specifies priorities for repayment.

¹⁹World Bank research has documented that vibrant equity markets complement bank financing.

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