Capital Structure, Rates of Return and Financing Corporate Growth: Comparing Developed and Emerging Markets, 1994-00

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Abstract
Firm level data from financial statements for nearly 8,000 listed companies in 22 emerging and 22 developed countries over the period 1994-00 are examined. Capital structure, asset structure, rates of return and financing patterns are compared across countries and over time. Generally, there are as many similarities as differences between the two groups. The differences include lower levels of debt to finance assets and lower levels of current assets in emerging markets compared with developed countries. Returns on assets, expressed in local currency, are comparable in the two groups but appear more volatile in emerging markets.

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I. Introduction

The main purpose of this paper is to investigate, to help to establish stylised facts and, where possible, to explain differences between emerging market (EM) corporations and developed market (DM) corporations with respect to accounting ratios, derived from balance sheets and income statements for individual corporations. In addition to the accounting variables such as the structure of corporate liabilities (short-term and long-term), we examine the size distribution of corporations, their capital structures as well as the financing of corporate growth in the two groups of countries. A study of these variables for developing countries is interesting in its own right, but in order to put this into perspective, a comparison with advanced countries is particularly valuable.

The current public interest in corporate finance and corporate behavior in emerging markets is a recent phenomenon that arose out of the East Asian crisis and the view that the 'deeper causes' of the crisis lay in the Asian way of doing business[1]. That view suggested that poor corporate governance, inadequate competition, high leverage and crony capitalism led to disregard for profits, over-investment and exploitation of minority shareholders. Hence, in order to forestall future crises, G-7 countries under the New International Financial Architecture, have proposed, interalia, reform of the corporate system in emerging markets.[2] Whether or not this thesis is correct, corporate reform in emerging markets is now on the national and international agenda. Implementing appropriate reforms, however, requires a body of empirical knowledge that is only now beginning to emerge. This paper attempts to further that knowledge.

Our contribution in this paper relies in reporting on the results of analysis of corporate financial statements of nearly 8,000 companies in 44 countries over the period 1995-00. Although we have a large body of data, it is important to recognize that the sample is not a random selection from each of the countries involved and that, therefore, interpretation of any results must incorporate the nature of the sample and any influence that its selection might have on the results. For that reason, we also draw on what is known about the countries and the sectoral composition of the sample when describing our findings.

At one level, the questions addressed in this paper are simple. For example, how does a typical company in an emerging market finance growth, from internal or external sources? Are firms in emerging markets larger or smaller than their developed market counterparts? Are asset and capital structures in emerging markets fundamentally different from those observed in developed markets? However, interpretation of the empirical answers to these questions is far from

being straightforward owing, in part, to the sample issues raised above, as well as the ambiguities that exist in the relevant theoretical models.

The findings are both expected and unexpected. We find that EM firms are generally smaller than their DM counterparts. We also find that EM firms use lower levels of debt currently, but the debt level has declined in recent years from much higher levels previously. We also find that EM firms hold higher levels of fixed assets (relative to total assets) than do DM firms. The evidence also shows that returns on assets and equity have been more volatile for EM than for DM firms and that returns have been generally lower. Finally, the analysis shows that EM firms have used much higher levels of external equity to finance growth than DM firms.

The remainder of the paper is organised as follows: the next section outlines a series of analytical issues that one needs to consider when comparing corporate financial choices and outcomes in an international context. That is followed by a data description and the empirical results. The final section comprises a summary, conclusions and policy implications.

II. Conceptual Issues

Should statistics generated from financial statements about, for example, capital structure and profitability, systematically differ across countries? What does economic theory predict? At one level theory suggests that differences should be immaterial if all countries are subject to the full rigors of competition and market forces. Theory, however, recognises that, despite vigorous market forces, there may be specific factors that result in differences. For example, the sectoral composition of firms might differ across countries and, owing to risks inherent in a sector, this might result in different corporate choices and outcomes. Other factors that influence corporate outcomes are the macro-economic environment, the regulatory system, institutions (e.g. the legal system and governance) and the preferences of and options available to investors. For these reasons one should not be surprised to find inter-country differences in corporate finance and corporate behavior. In line with this, interpretation of observed behavior therefore requires knowledge of careful attention to these factors.

In the particular case of comparing emerging and developed markets, which is the focus of this paper, there are important environmental differences that are pertinent to the analysis. First, compared with DMs most markets in EMs would be expected to be more imperfect and incomplete, including the product market, the labor market, and particularly the capital market. Second, DM corporations

tend to be family owned and there is little separation of ownership and control of the kind found in Anglo-Saxon corporations. Third, domestically-owned business groups and conglomerates dominate corporate structures in many EMs. These conglomerates are quite different in their origin and character than those found in advanced countries and, therefore, their behavior might be different. Fourth, there are differences between EMs and DMs in regulation, in the enforcement of corporate law, in corporate governance and in governance generally. [3]

In view of these particular features of DMs, it would be difficult to maintain *a priori* the hypothesis of no difference between the characteristics of the corporations in the two groups of countries. Differences with respect to any particular aspect, such as profitability or the size distribution of firms, would depend on the relative significance of the above factors. We illustrate this by considering the case of financing of corporate growth.

Myers and Majluf (1984) demonstrate that even if the managers, acting as agents for owners, are rational shareholder wealth maximizers, because of asymmetric information between them and the investing public, a pecking order of finance (in which internal equity is first choice, followed by debt and then, as a last resort, external equity) would be optimal. This theoretical analysis should be equally applicable in both groups of countries. However, because EM corporations, even large listed ones, are often family controlled and these families are averse to losing control, this may impose an additional reason to avoid external equity finance. One would therefore expect to find in EM corporations even more emphasis on internal equity finance. In addition, subsidised debt from government-controlled lenders might lead to greater use of debt than equity, relegating external equity to a distant third place.

Another conceptual issue regarding differences between the two groups of countries that require attention is that of accounting standards and reporting requirements. In light of recent scandals in the US and other DMs, the superiority of DM accounting is now much less obvious. Moreover, it is important to note that our data for EMs pertains to listed companies where, increasingly, international standards are being applied. Despite that, to the extent that EMs are more inflationary, their accounting data, unless adjusted, could be distorted. For most countries in our sample, however, inflation is not an issue and, where inflation is a problem, adjustments are the norm.[4] Finally, although many of the hypotheses we address are economic in nature and accounting data are not designed to deal directly with those economic issues, we must accept that accounting data are all that are available and adjust our interpretation of the results accordingly. Dealing specifically with issues

associated with inter-country accounting differences must be considered beyond the scope of this paper.

III. Data Description

The data consist of various accounts taken from the financial statements of listed companies, as reported by BVD in their May 2002 CD-ROM. BVD attempts to provide data on as many companies as possible for each country, although statistics on coverage (as measured by percentage of each market) are not available. Over time, their sample has grown and this growth has an influence on the data used in this study. The sample period used in much of the work that follows is 1994-2000. Data for earlier years is available for some companies, but the number of companies with data prior to 1994 declines, especially for some of the emerging markets. With that decline, one is usually left with results only for the larger companies in each market, which could bias the results. Data is also available for 2001 for some companies but, owing to a lag in reporting, the number of companies drops by nearly 40 percent from what was reported for 2000. For that reason the sample period is ended at 2000.

Table 1 presents the number of companies for each year for each country, with the table divided between developed and emerging markets.[5] In total there are 44 countries represented in the sample: 22 developed markets and 22 emerging markets. For the year 2000, there is a total of 7,968 companies in the sample, which is down 8 percent from what was reported in 1999, most likely reflecting lags in reporting as the number of companies has increased in each year except 2000. Over the duration of the sample period the number of reported companies has increased by 82 percent; the rate of increase in both groups of countries was large, but the increase in the developed markets (84 percent) exceeded the rate of increase in the emerging markets (75 percent).

The number of companies reported in Table 1 is well below the total number of listed companies in these markets, as reported in Standard and Poor's (2001). For 2000, S&P reports a total of 25,253 listed companies in all emerging markets, compared to a total of only 23,996 for developed markets. Both of these numbers have increased since 1994; the emerging markets universe increased by 76 percent and the developed market total increased by 39 percent. Clearly, the BVD data has far to go before it provides complete coverage of these markets.

Table 1. ***Number of Companies by Country and Year***

Developed Markets	2000	1999	1998	1997	1996	1995	1994
AUSTRALIA	84	92	94	80	81	78	72
AUSTRIA	45	49	52	47	41	36	33
BELGIUM	68	72	65	55	43	39	38
BERMUDA	38	42	32	31	28	24	23
CANADA	242	286	274	182	176	151	118
CAYMAN ISLANDS	10	8	10	7	6	6	6
DENMARK	70	78	77	73	68	63	61
FINLAND	66	67	58	40	32	26	26
FRANCE	335	359	308	253	224	196	177
GERMANY	345	382	348	270	242	218	212
GREECE	43	53	55	51	51	37	26
IRELAND	22	24	23	22	20	16	17
ITALY	79	81	65	62	60	47	30
JAPAN	1,163	1,540	1,536	1,323	1,177	413	344
NETHERLANDS	86	95	95	87	78	66	57
NORWAY	35	44	46	40	32	27	24
SINGAPORE	121	149	153	124	91	60	62
SPAIN	47	48	46	30	30	20	18
SWEDEN	105	119	127	106	95	76	60
SWITZERLAND	119	125	124	109	102	88	70
UNITED KINGDOM	460	490	557	545	494	476	425
UNITED STATES	2,572	2,510	2,108	1,902	1,783	1,604	1,443
Group Total	6,155	6,713	6,253	5,439	4,954	3,767	3,342
Emerging Markets							
ARGENTINA	21	20	9	7	11	10	9
BRAZIL	117	97	89	57	39	31	
CHILE	40	68	69	70	64	56	53
COLOMBIA	50	10	19	41	11	9	8
CZECH	73	63	86	68	39	24	14
HONG KONG	132	157	172	164	153	125	102
HUNGARY	13	17	10	5	5	3	2
INDIA	75	114	176	158	71	48	48
INDONESIA	6	15	27	25	25	26	24
ISRAEL	57	56	39	25	13	11	9
KOREA	779	751	735	705	650	619	533
MALAYSIA	142	207	204	184	205	189	136
MEXICO	40	45	42	31	28	38	31
PAKISTAN	8	11	12	7	5	4	2
PERU	64	68	65	62	3	2	1
PHILIPPINES	8	5	7	4	6	5	5
POLAND	20	29	26	10	5	1	1
SOUTH AFRICA	36	69	73	60	39	17	13
TAIWAN	112	95	92	65	30	20	16
THAILAND	9	19	29	27	28	24	21
TURKEY	2	2	6	6	7	7	5
VENEZUELA	9	8	17	3	3	4	3
Group Total	1,813	1,926	2,004	1,784	1,440	1,273	1,036
Grand Total	7,968	8,639	8,257	7,223	6,394	5,040	4,378

About 77 percent of the companies were in developed markets in the year 2000, with the US alone representing 32 percent of the total. Other significant developed countries in the sample include Japan and the UK; Germany, France and Canada have relatively fewer companies. These six countries together represent 61 percent of the total sample for 2000. Among the emerging markets, Korea had by far the largest number of companies in the sample: 779. No other emerging market comes close to this number, with Malaysia and its 142 companies a distant second place.

Note that the disparity in the number of companies between developed and emerging markets in this sample is also matched by the differences in their market capitalizations. In 1994 total world stock market capitalization was $15.1 trillion, of which EM countries represented just $1.9 trillion, or 13 percent (Standard and Poor's (2002)). By 2000 the disparity between the two groups of countries had grown even wider, with total market capitalization growing to $32.3 trillion, of which emerging markets represented just $2.7 trillion, or 8 percent. Taking market capitalization as a reference, emerging markets are more than adequately represented in this sample.

Companies were sorted into 8 industrial sectors using NAICS codes as reported by BVD. Those sectors are: chemicals, food and beverages, industrial and consumer products, non-metallic minerals, plastics and rubber, primary metals, pulp and paper, and textiles, apparel and leather. Companies in the financial sector, as well as services and utilities, were excluded from the sample in order to avoid issues related to peculiarities in their reporting and operations relative to manufacturing companies. A summary of the number of companies in each sector in year 2000 is presented in Table 2. Globally, 55 percent of the sample companies is classified as Industrial and Consumer Products, a sector classification that includes a range of products, including machinery, electronics goods, automobiles and general consumer goods. A distant second in number of companies is chemicals, which accounts for 13 percent of the total. Pulp and paper has the smallest number of companies, 229, representing 3 percent of the global total. The distribution of companies across sectors is roughly comparable in both the developed and emerging markets, although there are less industrial and consumer products companies in emerging markets (43 percent) than in developed markets (58 percent), with the difference spread across a number of sectors.

Table 2. ***Sector Composition by Country Type: 2000***

	# of Companies			% of Total (by #)			Mean Total Assets ($ millions)			Median Total Assets ($ millions)		
Sector	Developed	Emerging	Global	Developed	Emerging	Global	Developed	Emerging	Global	Developed	Emerging	Global
Chemicals	740	289	1,029	12%	16%	13%	2,743	1,020	2,259	187	120	163*
Food & Beverages	533	194	727	9%	11%	9%	1,892	572	1,539	214	187	209
Industrial Products	3,568	776	4,344	58%	43%	55%	1,541	436	1,344	102	63	107*
Non-metallic Minerals	210	110	320	3%	6%	4%	1,423	636	1,153	119	173	172
Plastics & Rubber	207	56	263	3%	3%	3%	764	510	710	172	87	117
Primary Metals	271	127	398	4%	7%	5%	1,870	966	1,581	315	154	252*
Pulp & Paper	160	63	223	3%	3%	3%	2,092	505	1,644	414	133	277*
Textiles	466	198	664	8%	11%	8%	395	220	343	92	70	88
Total	6,155	1,813	7,968	100%	100%	100%	1,628	574	1,388	139	93	126

* indicates rejection of the hypothesis of equal medians at the 5 percent level.

IV. Empirical Analysis

A. Size Distribution of Firms

The size of a company, as measured by the total assets on the balance sheet, has potentially important implications. For example, in some sectors size is a determinant of cost structure, as certain technologies require that output be above a minimum threshold in order to be competitive. Even without technological constraints, larger firms may have lower net costs as administrative costs are amortized over larger amounts of output. In either case, one might expect emerging market companies to be at a disadvantage, especially with respect to the larger developed markets where overall demand for products may be higher. Consequently, one might expect to see smaller companies in emerging markets and this might have an impact on their competitiveness.

An alternative view is that size, especially as measured by total assets, is not important. The argument here is that firms exploit two sets of assets in their operations: those that are purchased and reside on their balance sheet; and those that are represented by the human capital that they employ. If human capital is more important in developed than developing countries, then one might expect to see that reflected in the size of companies as measured by total assets.

There is an additional complicating factor, which is the extent to which the firms in any given country are subject to competition. In a large market, such as the US, domestic competition alone might force companies to adopt an optimal technology and that might determine size. But in smaller and less open markets, where competition is limited, size could reflect factors other than competition. In small, but open economies, firms would adjust to the comparative advantages of the local resources, and those factors, together with technological considerations, would determine size.

The empirical evidence on size in the academic literature is limited. Roberts and Tybout (1991) examine a sample of Chilean and Colombian companies and the impact that trade liberalization had on their size, as measured by number of employees at the plant level. Their review of the theory suggests that the impact of trade openness should be for production rationalization, which suggests increases in size. In fact, they find that plant size is reduced when import competition increases and that the impact increases over time. Note that this effect is measured at the plant and not the company level.

Table 2 provides a first glimpse at the size of the companies in the sample. Globally, the average company had total assets in the year 2000 of $1.4 billion, but average size in the sample varies greatly across sectors, with chemicals having by far the largest average total assets and textiles the smallest. As measured by average total assets, the emerging market companies are only about 35 percent the size of their developed market counterparts. In this sample, however, mean size is not a good indicator of the overall sample owing to an asymmetric distribution of size across companies. Under these circumstances, the median paints a different picture, as shown in the last three columns of the table. Under that measure the emerging market companies are not much different from their developed market counterparts, and in a few sectors – note in particular non-metallic minerals – the emerging market companies are larger. Owing to the significant differences between mean and median values in this sample, much of what follows will concentrate on median values.

Table 3 presents the median value of total assets for each country by year. Starting with the global mean (which is the average of the medians across countries by year), we see that the global median company in 2000 was $189 million, down from $328 million in 1994. This decline likely reflects the expansion in the number of companies in the sample over time. Initially, the largest and most liquid companies were included in the database. Over time, the companies that were added were smaller, pulling down the median value. One can see a similar pattern for the DM sample. For the emerging markets, the pattern over time is more complicated; median company size rises through 1997 and then falls sharply in 1998, with further declines through 2000. A large part of the drop in value in 1998 must reflect the Asia crisis and coincident depreciation of the Asian currencies. As these values are reported in US$ and given the large contingent of Asian companies in the sample, one should expect to see a currency impact at that time. Not all of the impact is from Asia, however; note the decline in the median value for Venezuela in 1998, which has a significant impact on the cross-country mean. Also, note that the median value in Korea changed very little, despite a sharp drop in the value of the Won in 1998.

Ignoring the time series dimension, there are remarkable similarities between the two samples of countries. In the year 2000, for example, the difference in the mean value (of the medians) of the emerging markets sample and the developed markets sample is a mere $24 million, with the DM value larger than the EM value. In fact, the DM median exceeds the

EM median in all years, although the difference has declined over time. Looking deeper at individual countries, one can see that the median size in several EM countries is well in excess of that of the larger DM countries. For example, Mexico, which had 40 companies in the sample in 2000, has a median size of $840 million, nearly four times the US median value and well above that of any DM country. Also note, however, that Peru, which has a sample of 64 companies in 2000, had a median value of only $26 million, far below that of any DM country. Perhaps sector composition accounts for these country differences.

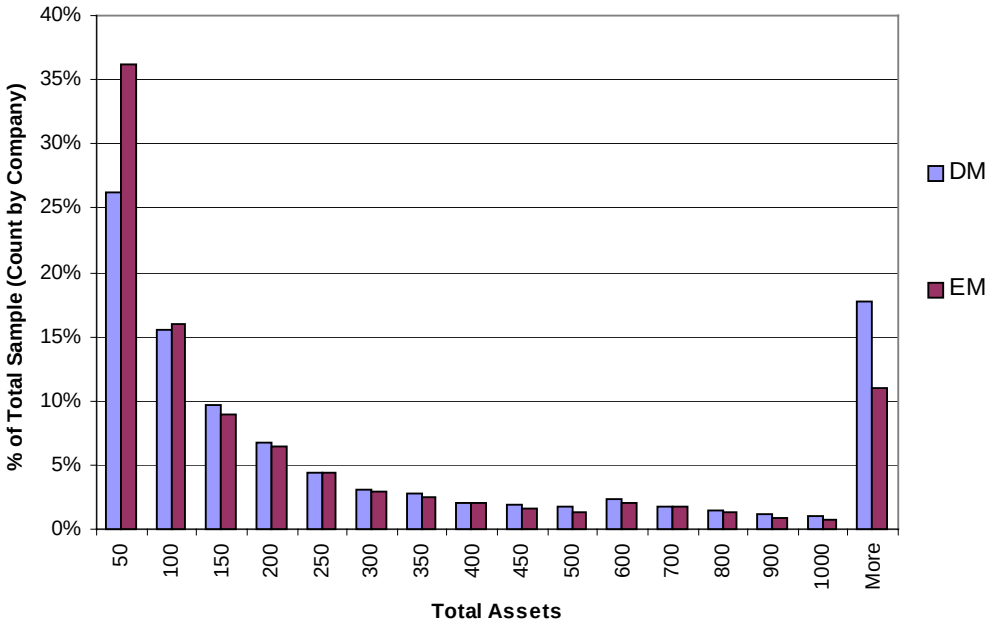
While the median values are useful for summarizing the sample, they also hide much of the variation that occurs across the sample. Some of that variation is revealed in Figure 1, which presents a histogram of total assets for the year 2000 for both the EM and DM pooled samples. The figure confirms that the EM sample is much like the DM sample, but it does contain more small companies and fewer large companies. More than 35 percent of the EM sample companies have total assets of $50 million or less, compared to a bit more than 25 percent for the DM sample. At the other extreme, only slightly more than 10 percent of the EM sample companies have total assets over $1 billion, compared to about 18 percent for the DM sample. Except for these extremes, the two distributions look remarkably similar.

Size Regressions

Table 3 provides a simple measure of size – median total assets – but that measure suffers from trying to explain the total distribution of firms in a single statistic. It also combines firms across industries within a single country. Given the potential importance for technology-related industry effects, accounting for industry composition within a country is important.

This section reports results from a regression of total assets (expressed in natural log form for the year 2000) on a set of industry and country dummies. The results provide industry and country mean values (adjusted for industry effects), as well as a statistical test of differences across industries and countries. Those results are presented in Table 4. In the table the United States and the Industrial and Consumer Products industries are taken as the base levels against which all other industries and countries are measured. Note that the regression employed a total of 3,360 companies and had an overall R^2 of 21.6 percent.[6]

Figure 1. Total Assets ($ millions, 2000): Emerging Markets & Developed Markets



Starting with the industry coefficients, one sees that 5 of the 7 industries have coefficients that are significantly larger than the base industry; only one industry – textiles – has a lower value. To give an order of magnitude to these coefficients, the mean value of total assets in the base industry/country is $214 million. In the textiles industry that value is reduced to $149 million, about one third less. Non-metallic minerals is the largest industry, with mean value of $505 million.

Within the developed markets 9 of the 22 countries have mean values (after adjusting for industry effects) that differ statistically from the base case. Only two of those, the UK and Bermuda, have a value that is below the base case, with values of $102 million for Bermuda and $123 million for the UK. The other 7 countries have mean values that are above the base case. Japan has the largest companies, with mean value of $3.17 billion after adjusting for industry effects. Note, however, that country size does not correlate well with firm size. Switzerland, which is tiny in GDP terms, has significantly larger companies, on average, to the US base case; the same is true in Ireland. Perhaps this difference reflects the much larger sample from the US, which allows many smaller companies to be included in the sample.

Table 3. ***Median Assets (USD millions) by Country and Year***

Developed Markets	2000	1999	1998	1997	1996	1995	1994
AUSTRALIA	194	158	133	216	205	190	223
AUSTRIA	191	181	169	155	188	221	207
BELGIUM	143	139	157	183	236	279	244
BERMUDA	115	108	109	114	129	135	133
CANADA	83	92	102	119	101	117	136
CAYMAN ISLANDS	361	363	252	160	175	103	102
DENMARK	179	166	157	134	135	151	127
FINLAND	147	138	307	706	1,091	1,526	1,389
FRANCE	102	88	120	142	198	241	244
GERMANY	148	137	184	225	304	422	333
GREECE	106	99	56	54	51	47	63
IRELAND	417	386	365	356	436	398	378
ITALY	340	344	391	360	375	491	1,265
JAPAN	185	316	265	198	237	1,215	1,569
NETHERLANDS	236	173	227	200	236	292	243
NORWAY	122	103	140	106	87	96	117
SINGAPORE	89	80	72	77	87	107	81
SPAIN	318	294	317	375	387	339	303
SWEDEN	100	105	118	149	177	240	316
SWITZERLAND	312	251	297	288	326	339	412
UNITED KINGDOM	83	83	84	79	84	77	83
UNITED STATES	116	90	94	89	80	75	70
Group Median	139	145	148	139	147	165	159
Emerging Markets							
ARGENTINA	267	516	1,237	904	754	968	984
BRAZIL	303	387	549	979	895	1,177	-
CHILE	190	129	125	125	112	102	85
COLOMBIA	113	202	157	169	361	337	249
CZECH	26	28	43	40	43	47	31
HONG KONG	128	116	111	119	119	110	120
HUNGARY	117	88	104	138	88	60	56
INDIA	168	141	115	119	183	193	285
INDONESIA	322	261	212	231	281	295	224
ISRAEL	109	86	201	218	217	302	431
KOREA	57	51	45	42	61	59	46
MALAYSIA	74	55	50	57	72	67	89
MEXICO	840	650	702	1,157	1,250	659	743
PAKISTAN	30	27	60	56	59	114	124
PERU	26	22	24	30	30	84	148
PHILIPPINES	116	83	239	1,497	65	70	43
POLAND	69	52	51	51	189	75	55
SOUTH AFRICA	113	58	65	104	180	957	1,557
TAIWAN	446	502	422	443	965	569	368
THAILAND	299	172	95	93	183	162	126
TURKEY	156	38	82	67	61	54	134
VENEZUELA	277	326	102	1,054	923	990	511
Group Median	93	83	80	77	99	92	81
P-value (1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Global Median	126	127	128	121	134	139	132

(1) P-value presents the results of a test for equality of medians across the two country groups. P-values less then 0.05 reject equality at the 5 percent level.

The emerging markets present a somewhat differ picture, with 11 of 19 emerging markets having coefficients that are statistically different from the base case. Interestingly, five of those countries have mean values that are above the base case. Taiwan has the largest companies (ignoring Venezuela which has a small sample and a single large chemical company), with an average value of $895 million, followed by Brazil, Mexico, Argentina and Israel. In addition, 6 countries had smaller companies on average, with the Czech Republic the smallest with mean value of $49 million.

Unfortunately, interpreting the regression results in Table 4 in terms of any of the logical arguments presented above on size determination is difficult as there are many dimensions to be taken into consideration. In Korea, for example, where firms are subjected to fierce domestic competition and export success is important, firms are generally smaller than average. In contrast, in Taiwan, under similarly competitive circumstances, firms are larger than average. In addition to possible competition effects, sample characteristics also need to be taken into consideration. The larger size of Taiwanese firms may reflect the fact that there are far fewer of them in the sample, whereas a large number of Korean companies may reduce their average size. Clearly, interpretation of the results is difficult.[7]

This regression framework also provides evidence on the relative importance of country and sector effects on company size. To assess these effects, the regression was re-estimated with only country and only industry variables. The results, not reported, show that of the total explained variation in the regression reported in Table 4, nearly 85 percent of that amount is accounted for by country effects alone. The framework also permits one to examine the extent to which the industry effects are peculiar to either the developed or emerging market companies. Those results, also not reported, show that the industry effects reported in Table 4 do not change when emerging market industry dummy variables are introduced into the regression, nor do the additional variables have significant coefficients, suggesting that industry effects are equal in both size and significance in both sets of countries.

Finally, note that specific firm effects could be an important component of size determination. For example, superior management would result in business success and larger size. Firm-specific effects, however, are absent from our specification owing to the decision to examine the size distribution at a single point in time.

Table 4. ***Regression: Ln (Total Assets 2000) on Country & Sector Dummies***

	# Obs	R^2			
	3360	0.216			
	Beta	T-Statistic			
Constant	12.273	199.39			
Chemicals	0.707	6.93			
Food & Beverages	0.592	5.38			
Nonmetallic Minerals	0.860	5.26			
Plastics & Rubber	0.279	1.52			
Primary Metals	0.686	5.51			
Pulp & Paper	0.667	3.83			
Textiles	-0.358	-3.53			
Developed Markets			**Emerging Markets**		
AUSTRALIA	-0.365	-1.56	ARGENTINA	0.766	2.73
AUSTRIA	0.162	0.66	BRAZIL	1.076	4.01
BELGIUM	0.120	0.45	CHILE	-0.632	-1.74
BERMUDA	-0.737	-2.13	COLOMBIA	-0.807	-2.08
CANADA	-0.057	-0.29	CZECH	-1.473	-2.74
CAYMAN ISLANDS	0.044	0.07	HONG KONG	-0.415	-2.51
DENMARK	-0.204	-0.87	HUNGARY	-1.436	-3.73
FINLAND	1.436	3.46	INDIA	0.207	0.56
FRANCE	0.319	1.85	INDONESIA	0.387	0.82
GERMANY	0.535	3.29	ISRAEL	0.676	1.46
GREECE	-0.405	-1.37	KOREA	-1.255	-14.13
IRELAND	0.863	3.25	MALAYSIA	-0.975	-5.90
ITALY	1.335	3.76	MEXICO	1.036	4.27
JAPAN	2.697	19.42	PHILIPPINES	-0.691	-0.75
NETHERLANDS	0.830	2.74	SOUTH AFRICA	0.779	2.20
NORWAY	0.393	0.89	TAIWAN	1.432	4.45
SINGAPORE	-0.231	-0.90	THAILAND	-0.139	-0.35
SPAIN	0.595	1.64	TURKEY	-2.413	-1.22
SWEDEN	0.446	1.75	VENEZUELA	1.621	1.14
SWITZERLAND	0.673	3.54			
UNITED KINGDOM	-0.550	-4.56			

Evolution of Firm Size over Time

A very important question for economic analysis and public policy is that of the evolution of the size distribution of firms over time and its implications for competition and economic growth. The question of growth becomes relevant since the study of firm size distribution over time essentially involves an analysis of the relationship between size and growth of firms. Is this relationship the same for the two groups of countries?

Economic theory suggests that the simplest hypothesis to start from is the one that regards firm growth to be a random phenomenon across firms.

The specific form of this hypothesis, the so called law of proportionate effects, asserts that all firms have the same chance of growing by a given percentage during any period of time. If this law holds, it has powerful economic implications, including that there will be a relentless increase in industrial concentration over time.[8]

An economic rationale for testing this law using an entirely stochastic model of firm growth can be presented in the following terms. It may be argued that firm growth depends on a multitude of factors, some of which make for positive growth, others for negative growth and they are independently randomly distributed. It is difficult to estimate their individual effect, but the combined effect is to generate the stochastic relationship between size and growth of firms as manifest in the law of proportionate effects.

From the perspective of economic analysis, a better theory would be one that postulates that firm growth is subject to both systematic and stochastic forces. The former might be managerial quality or macro-economic conditions. In empirical terms, the law in this formulation can be tested by a regression of firm closing size on opening size. A regression coefficient of one would indicate the equal growth rates across firms; a coefficient below one suggests convergence in size.

The results of these regressions are presented in Table 5. The main point that emerges relates to the slope coefficient. In about half the countries in each group the slope coefficient is below one, suggesting that the two groups are not greatly different. However, in about half the countries in each group large firm growth rates exceed or equal those of small firms, suggesting that, other things being equal, industrial concentration in these countries increased over this period.[9]

B. Capital Structure

Capital structure has important implications for the vulnerability of firms to exogenous shocks. And, as noted earlier, high leverage is thought to have contributed to the East Asian crisis. Despite this importance, there is neither theoretical nor empirical consensus on the factors that drive corporate decisions on this matter.[10] In this section we examine the capital structures of our sample of firms and investigate similarities and differences between the two groups of countries.

Table 5: ***Size and Growth: Regressions of firm level total assets (2000, log) on total assets (1995, log).***

Emerging Markets	***α***	**B**	**R^2**	**Observations**
Argentina	3.20	0.76	0.66	8
Brazil	-1.78	1.11	0.90	23
Chile	3.26	0.73 *	0.71	26
Colombia	-1.22	1.07	0.98	6
Czech Republic	7.58	0.31 *	-0.01	11
Hong Kong	2.69	0.78	0.40	68
Hungary	-3.78	1.37	0.58	3
India	-3.87	1.28 *	0.92	14
Indonesia	-0.53	1.01	0.90	6
Israel	-3.14	1.27	0.91	5
Korea	3.39	0.72 *	0.74	517
Malaysia	1.87	0.84 *	0.65	103
Mexico	1.86	0.91 *	0.97	31
Philippine	0.95	0.94	0.84	4
South Africa	-0.93	1.04	0.76	9
Taiwan	-0.50	1.08	0.88	19
Thailand	-5.12	1.41	0.79	4
Venezuela	-1.42	1.11	0.98	3
Developed Markets				
Australia	1.96	0.85 *	0.77	57
Austria	0.31	0.97	0.85	25
Belgium	1.48	0.89	0.87	31
Bermuda	-2.85	1.24	0.50	14
Canada	3.45	0.76 *	0.60	105
Cayman Islands	-2.91	1.24	0.63	3
Denmark	0.43	0.98	0.92	44
Finland	-0.68	1.06	0.95	17
France	-0.19	1.02	0.92	148
Germany	-0.54	1.04	0.80	164
Greece	1.19	0.97	0.62	21
Ireland	4.64	0.70 *	0.76	13
Italy	-0.63	1.07	0.89	32
Japan	1.39	0.91 *	0.94	128
Netherlands	0.87	0.95	0.87	43
Norway	0.67	0.97	0.89	17
Singapore	0.69	0.95	0.83	38
Spain	-1.15	1.11	0.87	18
Sweden	3.04	0.79 *	0.86	57
Switzerland	2.31	0.84 *	0.84	74
United Kingdom	2.32	0.84 *	0.73	299
United States	2.16	0.88 *	0.80	1150

* indicates significantly different from 1 at the 5 percent level.

Leverage: Total Liabilities/Total Assets

Globally, the average company in the sample financed just over half of its balance sheet with liabilities, with very little variation in the level of liabilities over time for the global average (Table 6). That global average, however, masks large variation across individual countries and, within those countries, across time. Across the two major groupings of countries, debt levels were much higher in developed markets, which had a median ratio of total liabilities to total assets ranging from 49 percent (in 2000) to 62 percent (in 1994), with a steady decline following the 1997 Asian crisis. In contrast, the emerging markets group ratio fluctuated between 52 and 53 percent from year to year, with no obvious trend across time. Those differences between countries are statistically significant at the 5 percent level in all years.

Even within these two major groupings one observes considerable variation. Some of the lowest levels of debt in the developed markets are observed in the US, where the median company had ratio values of 41 percent in 1996-97. Those ratios increased over the next few years, however, ending the sample period at 45 percent, still well below the level of nearly all other developed markets. Some countries saw debt levels drop over the sample. For example, in Japan the ratio declined from 62 percent in 1994 to 55 percent in 2000, placing it below the developed country median. The ratio for German companies also declined, but ended the period with a median value of 64 percent, well above the group median. In other cases leverage increased, with the median Irish company increasing its leverage ratio from 60 percent in 1994 to 68 percent in 2000, earning it the distinction of having the highest median leverage ratio in the entire developed market sample for that terminal year.

There was also great variation across countries and over time in emerging markets. Indonesia ended the sample period with by far the highest leverage ratio (89 percent), which was up sharply from its levels in the first three years of the sample. Following the 1997 crisis leverage ratios soared in Indonesia as profits turned to losses, thereby eating up equity, with this effect compounded by foreign currency denominated debt being inflated by an especially weak currency and, possibly, by the large decline in the number of Indonesian companies in the sample. Clearly, however, the impact of the crisis was much different in Korea, which also experienced severe currency weakening, but where the leverage ratio was trimmed from a relatively high value of 72 percent in 1994 to a much more conservative 52 percent in 2000. Thailand represents a third way,

with lower levels of debt in the early years of the sample, but where the crisis resulted in higher leverage ratios, but not nearly to the extent of Indonesia. Finally, note that leverage ratios declined in Hong Kong following the crisis, but that they increased marginally in Taiwan, one of the few emerging markets in the region that did not experience extreme disruption to its economy at that time.

Some other emerging market countries also produce interesting results. For example, in Venezuela, which had a weak financial sector throughout this sample period, leverage ratios were consistently low, although there was a sharp drop in 1995, likely reflecting the currency devaluation at that time. Also notable is the trend in Brazil, which adopted its real program in 1994 and stabilized inflation, where the level of debt held by the median company climbed steadily from a below average value of 42 percent in 1995 (the first year for which data are available) to an above average value of 62 percent in 2000. Also note the increase in leverage in Pakistan following its 1998 economic hardships (and currency devaluation), as well as the increase in Poland and the Czech Republic over time as the financial systems in those countries developed and came closer to developed country standards. In Turkey one observes relatively high levels of debt despite high inflation and correspondingly high levels of real interest rates. These ratios for Turkey do raise the issue of inflation accounting and the impact that restatement of balance sheets has on ratios such as this.

The use of median values in Table 6 paints a very different picture from what is obtained by using mean values, which suffer from the influence of large outliers. Although mean values of the ratio of total liabilities to total assets are not presented to conserve space, a few comments will highlight their difference with the medians reported in the table. Globally, mean values of the ratio do not differ significantly, with a global mean of 56 percent, compared to the 52 percent average median value reported in the table. For some countries, however, there are large differences. In Malaysia, for example, the mean value of the ratio for year 2000 is 86 percent, compared to a median value of 48 percent. In many other countries the mean and median do not differ substantially, but in 8 countries the differences are large and always in the direction of lower median ratios than mean ratios.

Table 6. ***Median Total Liabilities/Total Assets (%) by Country and Year***

Developed Markets	2000	1999	1998	1997	1996	1995	1994
AUSTRALIA	55	53	52	51	51	51	51
AUSTRIA	63	64	63	66	71	69	66
BELGIUM	57	56	60	62	59	56	58
BERMUDA	43	52	47	49	51	57	54
CANADA	48	48	49	48	47	50	52
CAYMAN ISLANDS	43	48	48	47	37	51	47
DENMARK	59	54	52	52	51	53	54
FINLAND	58	59	58	60	61	63	67
FRANCE	62	62	61	62	61	62	62
GERMANY	64	65	68	70	71	70	71
GREECE	57	55	57	58	56	55	56
IRELAND	68	65	65	60	64	62	60
ITALY	64	64	62	64	62	65	66
JAPAN	55	55	57	56	58	62	62
NETHERLANDS	61	64	60	59	59	62	58
NORWAY	58	54	56	55	56	56	59
SINGAPORE	46	47	52	49	49	44	45
SPAIN	56	56	52	50	47	58	60
SWEDEN	53	54	54	55	53	55	60
SWITZERLAND	54	54	57	56	58	60	60
UNITED KINGDOM	49	51	53	52	53	54	52
UNITES STATES	45	47	43	41	41	43	44
Group Median	52	53	53	52	52	53	53
Emerging Markets							
ARGENTINA	41	44	53	46	47	44	46
BRAZIL	62	57	51	52	50	42	
CHILE	43	40	42	41	41	40	39
COLOMBIA	34	34	43	30	38	37	33
CZECH REPUBLIC	45	49	47	45	40	41	35
HONG KONG	40	42	44	46	51	52	52
HUNGARY	35	37	30	23	23	29	42
INDIA	47	50	55	56	57	57	60
INDONESIA	89	70	76	71	57	51	54
ISRAEL	40	47	47	56	48	54	54
KOREA	52	56	66	72	71	72	72
MALAYSIA	48	48	50	49	48	51	47
MEXICO	56	49	46	52	50	52	51
PAKISTAN	63	72	59	56	56	68	61
PERU	49	48	48	47	34	28	19
PHILIPPINES	41	22	26	39	17	19	22
POLAND	44	48	43	26	16	15	14
SOUTH AFRICA	51	47	45	46	47	53	57
TAIWAN	47	44	43	44	41	34	36
THAILAND	62	61	54	72	62	56	52
TURKEY	62	68	59	54	63	61	48
VENEZUELA	34	38	33	27	30	31	53
Group Median	49	50	55	58	60	61	62
P-Value (1)	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Global Median	51	53	54	54	54	55	55

(1) P-value reports results for a test of median equality between the two country groups. A value of less than 0,05 rejects equality at the 5 percent level.

Differences in medians across the different countries could, in part, represent different industry compositions. To address this issue, Table 7 reports a regression of the year 2000 ratio of total liabilities to total assets on a size factor[11] and a set of sector and country dummy variables, where the base case is taken to be the US Industrial and Consumer Products sector. The table provides limited evidence in favor of sector effects on the ratio; the Chemicals sector has a ratio that is significantly below the level of the other sectors, but no other sector is statistically different from the base sector. Country differences, however, are both large and significant (after controlling for industry effects). Among the developed markets, 17 countries have mean ratios that exceed the level of the US base case. For some of those, for example Ireland (27), Austria (26) and Spain (23), the differences are economically very large. Note that no developed market has a ratio that is statistically below the level of the US. Among the emerging markets, 8 countries have ratios significantly above the level of the US; Indonesia has the largest difference (34), but the sample is small. No emerging market has a ratio that is significantly below the level of the US.

The regression was also estimated for the year 1995 (not reported). The estimated coefficients for that year do not differ notably from those reported in the table. One important difference, however, is in the amount of explained variation (R^2). For the year 2000, reported in Table 7, the regression explains less than 2 percent of the total variation in the data. In contrast, for the year 1995 a similar regression explains 15 percent of the variation. This enormous difference in the two samples is also reflected in the sample statistics for the two periods. The standard deviation of the ratio for the period 2000 was four times the level for the period 1995 globally. Nearly all of the higher level of volatility is in emerging markets; the standard deviation in emerging markets increased by a factor of 8, compared to an increase of 55 percent in the developed markets.

Closer scrutiny explains much of the difference between the 1995 and 2000 samples. Regressions of the two groups of countries reveal that the developed market results do not change much between the two years, whereas the emerging market results differ notably. Breaking the EM sample down further one learns that most of the difference in the two years can be accounted for by a large shift in the distribution of the Korean population over this time period. That shift is documented in Figure 2. Apparently, Korean companies entered the mid-1990s with high levels of liabilities; for nearly 30 percent of the sample liabilities financed 71-80 percent of total assets. Following the 1998 crisis, however, Korean

companies de-levered their balance sheets, with that shift occurring across nearly the entire distribution of Korean companies. That de-leveraging, however, was accompanied by a high level of dispersion in the distribution of leverage ratios, accounting for much of the lower level of explanatory power in the year 2000 regression.

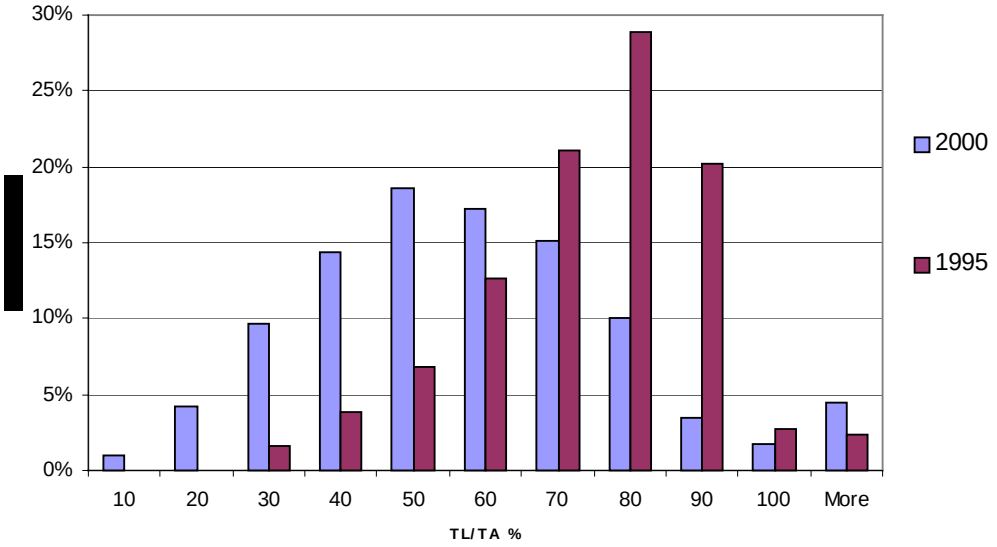
Table 7. ***Regression: Total Liabilities/Total Assets on Relative Size, Sector and Country Dummies 2000***

	# Obs	R^2			
	3360	0.014			
	Beta	T-Statistic			
Constant	49.29	36.39			
Size	2.55	5.59			
Chemicals	-9.22	-2.71			
Food & Beverages	-2.85	-0.65			
Non-metallic Minerals	-4.34	-0.68			
Plastics & Rubber	3.21	0.68			
Primary Metals	-1.52	-0.32			
Pulp & Paper	-0.54	-0.14			
Textiles	-4.32	-1.27			
Developed Markets			**Emerging Markets**		
AUSTRALIA	8.27	2.73	ARGENTINA	12.07	2.12
AUSTRIA	19.76	5.03	BRAZIL	13.98	2.80
BELGIUM	12.40	2.67	CHILE	-5.86	-1.42
BERMUDA	0.14	0.02	COLOMBIA	0.33	0.04
CANADA	13.71	1.70	CZECH	1.51	0.38
CAYMAN ISLANDS	-10.26	-1.13	HONG KONG	13.28	1.00
DENMARK	10.53	4.28	HUNGARY	-13.68	-2.12
FINLAND	11.09	3.14	INDIA	11.53	1.36
FRANCE	15.23	8.70	INDONESIA	38.41	3.32
GERMANY	18.64	10.93	ISRAEL	12.14	1.55
GREECE	8.00	1.99	KOREA	13.17	2.34
IRELAND	25.04	6.26	MALAYSIA	41.67	1.17
ITALY	18.24	6.76	MEXICO	9.80	2.53
JAPAN	11.05	5.74	PHILIPPINES	-13.63	-1.21
NETHERLANDS	14.93	4.46	SOUTH AFRICA	11.43	1.97
NORWAY	11.66	2.08	TAIWAN	3.29	0.85
SINGAPORE	2.78	0.93	THAILAND	20.32	1.73
SPAIN	16.18	3.14	TURKEY	17.44	9.25
SWEDEN	6.19	2.39	VENEZUELA	-19.58	-3.82
SWITZERLAND	5.89	2.85			
UNITED KINGDOM	6.17	3.54			

Current and Non-current Liabilities

Globally, current liabilities represent about 30 percent of total assets, well above the 15 percent of total assets (in 2000) represented by non-current (or long-term) liabilities. Current liabilities represent a combination of both trade and other non-market sources of credit, as well as the current portion of bank lending and bonds. Non-current liabilities represent long-term credit from either banks or markets. Together, these two ratios comprise the total liabilities/ total assets ratio reported in Table 6.

Figure 2. Korea: Total Liabilities/Total Assets
516 Companies in 8 Manufacturing Sectors



The level of current liabilities is nearly equal in the two major subgroups of countries, with emerging market countries, on average, financing about 30 percent of total assets with current liabilities, as compared to 28 percent in developed markets (in 2000). There is no apparent trend in the time series behavior of this ratio in the developed markets, however, there appears to be a tendency toward lower levels of current liabilities in the emerging markets over the sample period, falling steadily from 39 percent in 1994 to the current level.

The non-current liabilities ratio, reported in Table 8, reveal a similar time pattern. The ratio remained steady in the DM countries in the range 15-18 percent, with no obvious time pattern. In the EM countries, however, the ratio started out at a high of 19 percent and then declined following the 1997 crisis to 13 percent. With the exception of the years 1998 and 1994, the ratios in the two groups are statistically different at the 5 percent level. In a regression framework with size, sector and country

factors (not reported), however, the EM group average is not statistically different from the DM group average.

Within the two country groups one observes considerable cross-sectional variation, with several countries in both groups producing single digit levels of non-current liabilities, including the most recent year for the UK, a country with a relatively well-developed domestic bond market and with a large number of reporting companies. Even the US, which has arguably the most developed corporate bond market in the world, not to mention a well capitalized and competitive banking sector, has non-current liabilities of only 13 percent in the year 2000, well below, for example, Brazil.

Table 8. ***Median Non-current Liabilities/Total Assets (%) by Country and Year***

Developed Markets	2000	1999	1998	1997	1996	1995	1994
AUSTRALIA	21	23	22	22	20	18	20
AUSTRIA	25	29	33	38	39	40	45
BELGIUM	16	16	18	20	20	22	22
BERMUDA	3	3	6	5	5	7	8
CANADA	19	17	17	18	19	21	22
CAYMAN ISLANDS	16	17	13	12	13	9	9
DENMARK	18	20	17	18	20	19	19
FINLAND	23	24	26	26	23	28	32
FRANCE	20	19	19	20	21	21	23
GERMANY	31	32	33	37	38	38	39
GREECE	10	10	9	7	6	8	9
IRELAND	28	27	31	19	22	26	26
ITALY	18	18	18	19	18	19	22
JAPAN	14	15	15	13	14	18	20
NETHERLANDS	17	18	19	21	23	21	24
NORWAY	25	26	25	25	24	26	28
SINGAPORE	9	9	9	10	9	11	9
SPAIN	19	18	16	20	15	18	18
SWEDEN	26	27	27	22	21	20	22
SWITZERLAND	21	23	25	27	28	28	30
UNITED KINGDOM	9	10	11	10	10	10	10
UNITED STATES	13	16	14	12	12	14	15
Group Median	16	17	17	15	15	17	18
Emerging Markets							
ARGENTINA	10	9	9	21	16	11	15
BRAZIL	25	24	23	24	22	17	
CHILE	19	15	15	15	15	13	9
COLOMBIA	15	9	12	10	18	15	18
CZECH	2	5	6	7	3	3	1
HONG KONG	6	6	6	7	8	10	9
HUNGARY	4	6	5	3	5	8	16
INDIA	11	16	22	19	28	31	35
INDONESIA	46	11	11	19	14	16	15
ISRAEL	12	13	14	18	21	13	17
KOREA	14	17	20	24	23	22	23
MALAYSIA	9	7	8	7	7	8	8
MEXICO	32	27	26	29	28	27	31
PAKISTAN	16	13	17	15	12	16	10
PERU	9	9	10	12	17	6	2
PHILIPPINES	12	1	2	18	0	0	0
POLAND	13	7	5	4	3	0	0
SOUTH AFRICA	10	8	11	10	12	17	18
TAIWAN	17	16	15	14	19	15	8
THAILAND	20	17	10	16	16	17	8
TURKEY	10	10	13	17	13	11	8
VENEZUELA	18	14	11	14	15	18	29
Group Median	13	14	16	17	19	18	19
P-value (1)	0.00	0.00	0.23	0.00	0.00	0.04	0.23
Global Median	15	16	16	16	16	17	18

(1) P-value reports the results of test for equality of medians for the two country groups. P-values less than 0.05 reject equality at the 5 percent level.

In several other countries in the developed markets sample one sees much higher levels of non-current liabilities, particularly in Germany (31 percent), with its bank-based financial system, in the Nordic countries, and in Austria and Ireland. In emerging markets one finds relatively high levels of non-current liabilities in Mexico (32 percent), where the ratio has remained stable across the sample period, and in Brazil (25 percent), where the ratio increased rapidly following the currency stabilization program introduced in 1994. In Korea, non-current liabilities have actually declined in importance following the 1997 crisis as companies deleveraged themselves; a somewhat similar pattern emerges in Indonesia, albeit with a twist in 2000 as the number of reporting companies dropped sharply.

C. Asset Structure

Asset structure, the relative amounts of fixed and current assets, can provide information on operational efficiency and the choice of technology. However, disentangling these two dimensions is difficult. For example, high levels of current assets may suggest over-investment in inventory. Alternatively, as explained more fully below, the combination of lower levels of fixed assets combined with high levels of human capital, which do not appear on the balance sheet, can produce the same result. In this section we document the relative amounts of current and fixed assets used in our sample groups of countries.

Current and Fixed Assets/Total Assets

Current assets, which consist primarily of cash, liquid securities, inventory and trade receivables, comprise roughly half of all assets on a global basis, and this level of current assets has been maintained consistently across the sample period. There is, however, considerable variation across the countries, with the developed market countries holding, on average, about 57 percent of their assets in this form, as opposed to a much lower level of 41 percent (in 2000) for the emerging markets.

As the complement to current assets, fixed assets (Table 9) also represent about half of the total. Here again, one sees the marked difference in the levels of the ratio in the two groups of countries, with emerging market countries holding much higher levels of fixed assets than their developed market counterparts. This difference is highlighted by the remarkably low levels of fixed assets in two leading developed markets – the US and Germany – both of which had ratios below both the global and developed

market average. The difference extends much deeper, however, as only four of the developed markets had fixed asset ratios in excess of 50 percent (Australia, Canada, Cayman Islands and Ireland), with only three of the emerging markets having ratios below 50 percent.

Differences between the countries might reflect sector effects, but regressions (not reported) that control for sector effects do not support that view. For the year 2000, a regression of the ratio of fixed assets to total assets on country and industry variables shows that although sector effects are statistically significant, country effects are also significant. Specifically, among the emerging market countries, 8 countries had ratios that were statistically larger than the US, and only a single emerging market country – Turkey – had a ratio that was below the US. Among developed markets, 2 countries had ratios above the US and 5 had ratios below the US. Apparently, even controlling for sector effects the EM group held higher levels of fixed assets than the DM group and that difference was statistically significant.

This result is at odds with one view of the world that posits higher levels of current assets in emerging markets as a result of poorer inventory management skills, combined with a need for precautionary balances of both cash and inventory. The result could be consistent with a view that the reporting companies in the developed markets are more mature and that, therefore, their fixed assets are more fully depreciated, leaving them primarily with current assets on the balance sheet. But that view fails to account for the fact that most companies are constantly investing and that depreciation actually does represent the consumption of capital over time, thereby requiring the acquisition of new and undepreciated equipment. What may be observed instead is a world in which highly skilled and highly paid labor in developed markets is acting as an additional form of capital, but one not counted on the balance sheet. In contrast, the low wage unskilled worker in the emerging markets must be combined with higher levels of fixed assets.

Table 9. ***Median Fixed Assets/Total Assets (%) by Country and Year***

Developed Markets	2000	1999	1998	1997	1996	1995	1994
AUSTRALIA	54	58	52	52	52	54	51
AUSTRIA	47	45	47	48	47	48	48
BELGIUM	44	43	40	39	41	42	45
BERMUDA	33	34	45	42	40	47	41
CANADA	53	54	52	49	50	49	50
CAYMAN ISLANDS	67	61	59	42	45	60	59
DENMARK	43	42	42	40	36	40	40
FINLAND	43	44	48	46	50	53	51
FRANCE	32	31	32	32	34	34	34
GERMANY	40	39	37	37	39	39	40
GREECE	39	42	38	34	33	33	31
IRELAND	55	53	45	41	44	45	46
ITALY	35	37	37	37	33	32	36
JAPAN	46	44	44	42	42	43	42
NETHERLANDS	41	40	42	42	44	43	44
NORWAY	44	41	42	43	43	44	45
SINGAPORE	49	49	50	50	48	49	47
SPAIN	48	54	52	52	53	55	54
SWEDEN	41	43	46	41	42	41	38
SWITZERLAND	44	46	46	46	45	44	45
UNITED KINGDOM	42	43	38	35	35	35	37
UNITED STATES	40	40	39	37	36	37	38
Group Median	43	43	42	40	40	40	40
Emerging Markets							
ARGENTINA	63	64	65	58	60	59	60
BRAZIL	61	61	65	65	71	74	
CHILE	63	62	57	57	57	58	57
COLOMBIA	74	80	75	78	84	82	78
CZECH	55	55	54	54	58	54	58
HONG KONG	46	45	45	45	45	45	43
HUNGARY	52	54	53	40	46	46	47
INDIA	67	63	57	57	50	48	48
INDONESIA	67	64	57	62	57	57	53
ISRAEL	28	34	38	40	45	48	49
KOREA	50	51	52	48	49	47	48
MALAYSIA	52	54	53	50	48	49	50
MEXICO	69	69	72	72	73	71	73
PAKISTAN	58	53	54	68	36	49	47
PERU	60	56	56	52	56	51	58
PHILIPPINES	62	54	48	68	64	61	57
POLAND	52	51	53	49	47	44	40
SOUTH AFRICA	42	41	39	42	44	44	40
TAIWAN	63	62	61	61	64	60	65
THAILAND	58	67	57	58	58	59	56
TURKEY	29	39	40	37	29	29	28
VENEZUELA	76	76	68	82	79	73	65
Group Median	55	54	54	51	50	50	49
P-value (1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Global Median	45	45	45	43	42	42	42

(1) P-vale reports the results of test for equality of medians between the two countries. P-values less than 0.05 reject equality at the 5 percent level.

Table 10. ***Median Return on Assets (%) by Country and Year (Inflation adjusted)***

Developed Markets	2000	1999	1998	1997	1996	1995	1994
AUSTRALIA	2.8	4.5	4.4	6.5	4.9	3.3	5.4
AUSTRIA	5.1	4.6	4.3	4.5	3.6	3.5	1.3
BELGIUM	4.6	4.3	4.6	5.7	4.7	5.9	3.4
BERMUDA	4.8	4.9	1.4	5.1	3.9	1.6	4.0
CANADA	3.1	2.4	2.7	4.0	5.7	6.1	7.4
CAYMAN ISLANDS	2.4	0.1	2.5	2.2	7.3	3.4	10.9
DENMARK	3.8	4.8	5.1	5.2	5.8	6.9	6.0
FINLAND	5.7	6.1	5.2	7.3	6.6	5.9	4.9
FRANCE	4.9	5.0	4.4	4.6	4.2	4.2	3.6
GERMANY	4.3	4.3	4.0	3.5	4.0	4.1	2.0
GREECE	6.6	6.5	3.1	3.5	1.0	1.4	-2.2
IRELAND	2.9	7.5	5.7	8.5	9.1	7.4	7.0
ITALY	3.7	4.0	2.3	3.6	1.9	-0.1	-0.3
JAPAN	5.5	3.7	1.7	2.0	4.5	4.3	2.8
NETHERLANDS	6.0	5.0	5.8	6.7	6.8	6.9	5.0
NORWAY	0.9	1.9	3.2	3.8	6.9	6.4	7.2
SINGAPORE	5.8	6.8	5.1	3.9	5.6	5.2	5.1
SPAIN	4.6	5.0	5.3	5.2	4.6	3.2	2.4
SWEDEN	7.1	5.5	5.8	6.4	8.3	9.2	7.4
SWITZERLAND	7.4	6.6	6.5	7.1	6.4	5.2	5.5
UNITED KINGDOM	3.8	4.6	2.8	5.3	6.5	5.1	5.6
UNITED STATES	1.1	1.8	3.0	4.7	4.9	5.4	4.9
Group Median	4.2	3.7	2.7	3.7	4.9	4.8	4.3
Emerging Markets							
ARGENTINA	7.4	4.1	5.0	5.2	9.5	3.6	3.9
BRAZIL	-1.5	-0.1	0.0	-2.4	-10.9	-60.9	
CHILE	2.4	3.2	1.3	1.3	0.3	1.5	-1.3
COLOMBIA	-3.4	-7.9	-16.3	-14.7	-15.3	-16.2	-16.1
CZECH	0.5	0.2	-8.5	-5.1	-5.5	-6.1	-6.6
HONG KONG	10.0	9.5	0.6	0.4	2.1	-1.5	0.3
HUNGARY	0.9	-2.6	-6.4	-4.0	-3.7	-15.5	-6.9
INDIA	5.0	2.8	-7.8	-0.6	-0.1	-0.1	-1.2
INDONESIA	-11.1	-13.3	-55.7	-5.1	0.2	-2.1	-0.3
ISRAEL	4.6	-1.2	-1.3	-3.3	-4.1	-3.1	-5.9
KOREA	4.0	5.3	-4.5	-0.9	-0.1	0.5	-1.4
MALAYSIA	5.2	2.4	-2.3	4.4	5.3	5.5	4.7
MEXICO	0.7	-6.2	-7.6	-9.5	-21.3	-27.5	-5.7
PAKISTAN	5.1	-1.1	-0.7	-3.2	6.0	-1.7	-1.0
PERU	0.9	-1.5	-5.2	-4.7	-7.5	3.7	-2.6
PHILIPPINES	2.5	-3.1	-5.8	-0.9	1.2	1.5	-0.2
POLAND	-3.7	-2.4	-6.4	-6.6	-8.6	-17.0	-20.2
SOUTH AFRICA	5.0	3.6	1.7	0.8	2.7	1.3	-2.3
TAIWAN	5.1	6.4	3.3	6.1	5.8	4.0	5.1
THAILAND	5.5	5.6	0.5	-11.4	1.5	2.3	3.3
TURKEY	-43.0	65.5	-81.5	-71.9	-69.9	-74.0	-87.8
VENEZUELA	-12.0	-23.1	-33.4	-37.6	-87.1	-52.6	-58.3
Group Median	3.5	3.7	-3.9	-0.7	0.4	0.6	-0.6
P-Value (1)	0.00	0.96	0.00	0.00	0.00	0.00	0.00
Global Median	4.0	3.7	1.8	2.7	4.2	4.0	3.4

(1) P-vale reports the results of test for equality of medians between the two countries. P-values less than 0.05 reject equality at the 5 percent level.

D. Return on Assets and Equity

Return on assets is of central importance in a market economy. Allocation of capital on the basis of risk and return is the basis for financial economics and has obvious policy implications. In this section we examine the differences between the returns of the various countries and sectors in our sample.

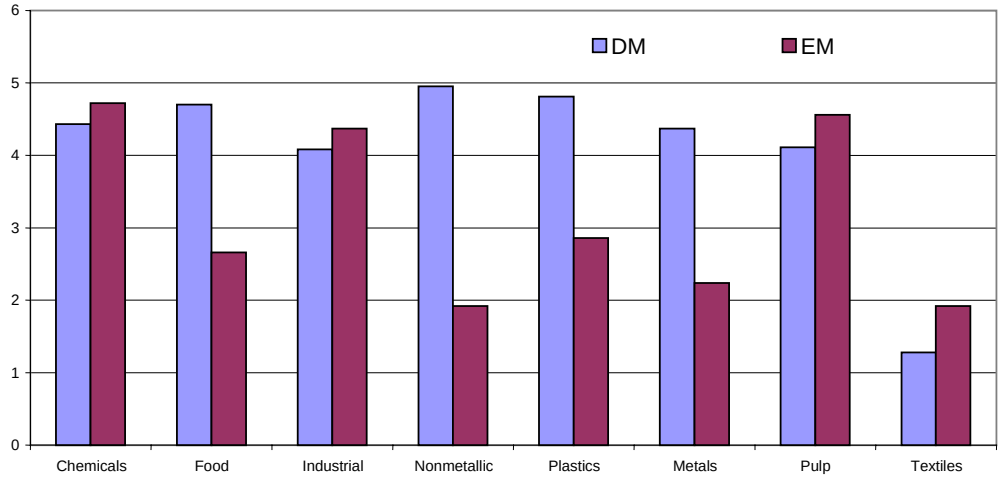
Ignoring potential impacts from various accounting standards on income calculation, note that a major difference across countries in calculating returns is the impact of local inflation. For that reason, the return statistics reported in both Tables 10 and 11 have been adjusted for the difference between the local rate of inflation and the US rate of inflation for the corresponding year, so that all returns are reported in US nominal terms. This adjustment does not account for currency movements, which could also be significant, because the reported returns are accounting returns, not market returns. Adjusting for the impact of currency movements on accounting returns is delicate and no obvious methodology is available. For that reason we rely on a simple inflation differential adjustment.

The global median return on assets (inflation adjusted) has ranged from 1.8 percent to 4.2 percent over the sample period (Table 10), with the high in 1996 and the low in 1998. The difference between the developed and emerging market median values is significantly different in all years except 1999, when they are equal. In all years except 1999 the EM returns are below the DM returns. Notably, returns in EM countries are near zero over 1994-97, with a sharp drop in 1998 as the Asia crisis both reduced nominal returns and increased inflation in several EM countries. Both the inflation and nominal return effects were transitory however, and EM returns increased in 1999-00.

The variation across individual countries is more substantial. Note, in particular, the higher incidence of negative values in the emerging market sample, but also bear in mind that many of these countries have relatively small numbers of companies which should result in higher volatility in the median over time. In a few countries one observes relatively low volatility – Australia, Denmark, France, Japan and Taiwan are examples – whereas in other countries higher volatility prevails – Italy and Mexico are examples. Cyclical patterns are discernible; a slowdown in the returns provided by US companies is evident in 1998-00 after three years of higher returns. In Malaysia one sees high returns through 1997, with lower returns in subsequent years, but a similar pattern is not obvious in

either Thailand or Korea, both countries that fell prey to the Asia crisis of 1997.

Figure 3. Median ROA (2000,Percent, Inflation Adjusted)



Differences at the country group level are also evident at the sector level, as reported in Figure 3, which shows the (inflation-adjusted) returns on assets for year 2000 for each of the 8 sectors for the two country groups. Returns in the DM sectors are consistently in the 4-5 percent range, with the notable exception of textiles, which returned just over 1 percent. There is considerably more variation in EM returns, although within the same range as the DM group. In part because of the lower number of firms in the individual sectors, the differences between the two country groups are statistically significant only for Food, Nonmetallic Minerals and Metals, and in each of those cases the EM median is below that of the DM group. EM group median returns exceed the DM group's returns in four sectors, but those differences are not statistically significant.

The median returns on equity (Table 11, inflation adjusted) reflect both changes in income over time as well as time variation in capital structure. Globally, returns peaked in 1995, dipped in 1998 and then recovered over 1999-00. Differences between the two country groups are significant, both statistically (in all years) and economically. Returns in DM countries were high over 1994-97 approaching 10 percent in each year, compared to only about 6 percent in EM countries for the first three years falling to 3 percent in 1997. The Asian crisis hit returns hard in the EM group in 1998, pushing them below zero, but recovery was both rapid and strong, with EM returns well above their DM counterparts in 1999. A few countries have returns that exhibit low volatility over time – Australia and Singapore are examples – but many countries show

considerable volatility in returns – the US and Hong Kong are examples. Returns are quite high in a few countries, such as Ireland, the Netherlands and Argentina. Low return values correspond closely with high levels of inflation, Turkey and Venezuela are good examples.

Returns on both assets and equity have significant size, country and sector effects, but there is no difference, on average, between the (inflation-adjusted) returns (in 2000) in the two country groups after controlling for these factors. In regressions, not reported, a large number of countries had country fixed effects that were significantly greater than the returns on the base country (the US). Several sectors had significant fixed effects, relative to the base sector (industrial and consumer products), but those effects were all negative. There was also a significant and positive size effect on returns. None of these factors account for much of the variation in returns across firms, however, as the R2 of the regressions (for returns on assets) was a mere 1.1 percent, of which country factors account for the largest part by far.

E. Financing Growth

As companies grow their balance sheets through the acquisition of assets, they have choices to make in how that growth is financed. Previous period earnings can be retained as a source of internal equity finance or paid to shareholders in the form of dividends. External sources of finance include both the issuance of new shares – external equity – and the issuance of various debt instruments – liabilities. The final choice between these various financing options will reflect the many factors discussed in Section II above. Using the growth in the balance sheet over the period 1995-00 as the sample period, the financing of the growth in total assets is divided into these three components and expressed as a percentage of the change in total assets for the period. The means of these three ratios, which sum to 100 percent for each country, the two country groups and the overall sample, are presented in Table 12.[12]

Table 11. ***Median Return on Equity (%) by Country and Year (Inflation Adjusted)***

Developed Markets	2000	1999	1998	1997	1996	1995	1994
AUSTRALIA	7.3	9.7	8.5	11.8	8.8	7.8	10.5
AUSTRIA	9.6	10.0	12.8	12.4	8.0	11.4	5.0
BELGIUM	11.3	10.2	10.5	13.8	12.7	11.4	8.7
BERMUDA	7.7	9.7	2.3	8.6	8.8	3.7	6.8
CANADA	6.6	5.5	7.6	9.4	11.0	11.9	13.4
CAYMAN ISLANDS	7.2	2.7	3.4	3.7	15.0	5.4	20.6
DENMARK	8.9	11.7	12.2	11.3	12.5	12.5	12.2
FINLAND	13.9	13.4	12.1	16.6	14.3	12.1	9.8
FRANCE	10.7	11.4	11.0	11.9	10.2	9.6	8.9
GERMANY	10.2	10.0	11.5	10.5	10.1	10.3	6.6
GREECE	14.4	15.5	13.4	15.7	13.2	13.2	9.6
IRELAND	14.0	20.6	17.1	19.5	19.1	19.6	16.9
ITALY	9.4	10.2	8.5	9.5	7.7	5.4	3.6
JAPAN	7.4	5.4	2.9	4.1	7.1	6.6	4.6
NETHERLANDS	15.8	14.2	15.6	16.2	15.0	16.8	14.1
NORWAY	1.9	5.6	9.6	11.3	13.2	16.2	17.1
SINGAPORE	9.3	10.7	8.4	7.9	9.3	9.0	8.7
SPAIN	11.6	11.8	11.7	11.6	9.5	10.8	7.2
SWEDEN	13.6	11.4	13.3	13.1	15.3	19.6	18.4
SWITZERLAND	14.1	13.6	13.4	14.7	12.6	10.8	11.2
UNITED KINGDOM	7.4	9.4	8.2	11.5	13.5	11.9	11.9
UNITED STATES	3.3	5.0	6.8	9.8	9.8	10.6	10.6
Group Median	7.4	6.8	5.9	8.0	9.0	10.1	9.4
Emerging Markets							
ARGENTINA	9.0	4.7	8.7	9.9	15.6	6.3	9.0
BRAZIL	4.5	3.5	2.5	0.5	-9.0	-58.7	
CHILE	4.9	6.1	4.5	5.1	4.7	5.9	3.1
COLOMBIA	-1.4	-6.8	-15.2	-14.2	-14.8	-15.3	-13.8
CZECH	2.1	0.7	-8.1	-3.7	-4.6	-6.0	-6.2
HONG KONG	14.0	14.0	5.0	6.6	9.0	3.2	7.9
HUNGARY	4.3	2.1	-2.3	0.5	0.4	-6.9	1.8
INDIA	11.1	9.2	-2.8	5.0	7.0	10.3	7.2
INDONESIA	-39.0	11.9	-54.2	-5.2	8.5	6.7	7.1
ISRAEL	8.4	1.6	4.4	1.4	0.1	2.3	-1.3
KOREA	8.0	10.8	-0.5	2.2	4.5	6.4	4.4
MALAYSIA	8.9	7.1	-0.2	9.5	11.7	12.5	11.6
MEXICO	9.6	1.9	-2.8	1.3	-11.3	-23.1	-8.0
PAKISTAN	14.3	25.0	12.5	6.1	20.7	8.4	17.9
PERU	2.2	-1.0	-4.6	-2.7	-6.9	7.0	1.8
PHILIPPINES	5.9	-2.9	-1.7	1.3	3.6	11.1	1.1
POLAND	-1.3	0.3	-3.6	-4.0	-7.7	-15.6	-18.5
SOUTH AFRICA	10.8	9.3	7.5	6.2	11.9	11.2	4.8
TAIWAN	7.5	10.2	5.5	10.8	10.1	7.2	7.5
THAILAND	12.9	10.4	15.9	-19.2	6.5	10.1	9.7
TURKEY	-30.1	408.3	-78.3	-59.2	-58.0	-65.1	-75.8
VENEZUELA	-11.4	-23.9	-32.6	-33.9	-82.8	-49.4	-58.4
Group Median	7.3	8.4	-0.6	3.1	5.7	6.3	6.2
P-Value (1)	0.57	0.00	0.00	0.00	0.00	0.00	0.00
Global Median	7.4	7.2	4.7	6.9	8.5	9.4	8.7

(1) P-vale reports the results of test for equality of medians between the two countries. P-values less than 0.05 reject equality at the 5 percent level.

Globally, liabilities accounted for 49 percent of total financing over the 5-year period, which corresponds closely with the overall median value of total liabilities/total assets reported in Table 5 for each of the individual years. Table 11 also tells us that, of the remaining 51 percent, internal equity sources represented 29 percent, with external equity equal to 22 percent of the total.

What is striking about Table 12 is the substantial difference in the patterns across the two groups of countries and across individual countries. First, the use of liabilities to finance growth is much lower in the emerging markets, with that lower level offset by higher levels of both internal and external equity. Note in particular that the use of external equity in emerging markets is well above the levels of the developed markets, which agrees with the findings of Domowitz, Glen and Madhavan (2001) on the level of development of primary equity markets. Second, in some of the emerging markets the use of liabilities is extremely low. In Korea, for example, few liabilities were used and growth was financed largely from external equity. Korea is also a country where the leverage ratios declined notably over the period 1994-00. Third, in other countries the impact of the crisis makes the statistics more difficult to interpret. In Indonesia there are only 6 companies in the sample and the average growth in total assets was limited owing to the poor economic environment. In addition, neither internal nor external equity were significant sources of finance. Moreover, foreign currency denominated liabilities increased significantly in value over the period as the exchange rate depreciated. Hence, liabilities were the dominant source of finance for Indonesian companies over the period.

Within the developed markets there was much lower variation across countries in the use of external liabilities, with the US having the lowest propensity (after Bermuda) for liabilities (47 percent), which corresponds with its low level of liabilities on its balance sheet. Other countries employed much higher levels of liability financing. Ireland had the highest level among the group (76 percent, ignoring the Cayman Islands), followed by Denmark (72 percent), Italy and Spain (68 percent each).

There was also great variation across countries in both groups in the use of external equity. One country in the sample actually decreased the amount of external equity employed, but that country, Spain, had a small number of companies in the sample and one of those was an outlier with a small decrease in the value of total assets, which then translates a positive change in external equity into a negative ratio. Deleting that outlier

produces an external finance ratio of 3 percent. The largest user of external equity was an emerging market country – Korea – where nearly half of all growth was financed from that source over the period. In contrast, external equity financed 21 percent of growth in the US, the world's largest and most developed equity market, a level comparable to that of the Emerging Market average and below that of 5 Emerging Market countries for this period.

Table 12. ***Financing Sources: 1995-00 (% of Change in Total Assets)***

Developed Markets	Liabilities	Ext EQ	Int EQ	Emerging Markets	Liabilities	Ext EQ	Int EQ
AUSTRALIA	58%	32%	11%	ARGENTINA	46%	16%	38%
AUSTRIA	52%	3%	45%	BRAZIL	74%	11%	15%
BELGIUM	56%	6%	38%	CHILE	44%	33%	23%
BERMUDA	41%	23%	36%	COLOMBIA	73%	16%	11%
CANADA	56%	32%	12%	CZECH	33%	21%	46%
CAYMAN ISLANDS	90%	8%	2%	HONG KONG	44%	20%	35%
DENMARK	72%	6%	23%	HUNGARY	28%	1%	71%
FINLAND	53%	26%	22%	INDIA	53%	5%	43%
FRANCE	61%	7%	31%	INDONESIA	110%	12%	-23%
GERMANY	62%	5%	33%	ISRAEL	54%	6%	40%
GREECE	52%	34%	14%	KOREA	27%	48%	25%
IRELAND	76%	5%	18%	MALAYSIA	40%	18%	42%
ITALY	68%	5%	27%	MEXICO	61%	30%	10%
JAPAN	62%	6%	32%	PHILIPPINES	34%	17%	49%
NETHERLANDS	65%	9%	26%	SOUTH AFRICA	49%	10%	41%
NORWAY	50%	23%	27%	TAIWAN	59%	40%	1%
SINGAPORE	66%	15%	19%	THAILAND	74%	11%	15%
SPAIN	68%	-9%	40%	1 TURKEY	61%	18%	21%
SWEDEN	57%	4%	39%	VENEZUELA	27%	54%	19%
SWITZERLAND	54%	7%	39%				
UNITED KINGDOM	52%	21%	27%				
UNITED STATES	47%	21%	32%				
Group Average	53%	17%	30%		35%	39%	27%
Global Average	49%	22%	29%				

Filter: Companies are excluded if any of their ratios are outside [-200,+200]
Sample Size: 3,360

1. Spain has 18 companies, one of which experienced a small decline in total assets over 1995-00. That company also saw external equity increase, which resulted in a large negative value for the external equity ratio. Excluding that one company, the sample mean of the ratio is 3%; the internal equity ratio would decline accordingly.

One point to bear in mind when interpreting these financing ratios is the relative amounts of capital being raised from the various sources. Over the sample period the rate of growth, measured in Dollar terms, was actually lower in the EM group than the DM group. The average of the country growth rates was 18 percent in the EM group, compared to 28

percent for the DM group. Hence, the EM group had less growth to finance, which might help to account for their ability to finance more of that growth in the equity markets.

V. Conclusions

The main empirical results of the paper may be summarised as follows:

1. regarding size as measured by total assets, there is no significant difference in the distribution of EM and DM firms in our sample; country effects explain more of the inter-firm variation in the distribution of size than do sector effects; and over the sample period the relationship between size and firm growth was broadly the same in the two groups of countries.
2. regarding firm leverage, EM firms have lower levels of leverage than do DM firms; the use of current liabilities is much the same in the two groups of countries; current liabilities finance a larger portion of total assets than do long-term liabilities in both groups of countries; and neither country nor sector factors explain much of the inter-firm variation in leverage.
3. regarding asset structure, the EM firms employ a higher level of fixed assets than do their DM counterparts.
4. regarding returns on assets and equity, returns are similar across the two groups of countries, although there appears to be more volatility of returns for EM firms.
5. regarding the financing of growth, EM firms' use of external equity finance is higher than that of DM firms; the latter use higher levels of liabilities; and the use of internal finance is similar between the two groups of countries.
6. country effects account for more of the variation in all variables than do either sector or size effects, but individual firm effects account for most of the variation.

Although these results may be regarded as sample specific, they nevertheless raise certain broad issues that merit policy discussion. First, one finding that stands out above all others is the importance of the stock market in financing the growth of EM firms. This suggests that stock market development in these countries has been important. However, whether further development of the stock market should take place and the form that it takes may depend on the particular circumstances of each country and should be the subject of serious policy discussion. Second, the finding that EM firms use lower levels of liabilities to finance their balance sheets suggests that policy makers may need to spend more time

on the development of credit markets. However, it could also mean that policies that reduce the riskiness of the environment within which EM firms operate could accomplish the same goal. Third, we find that, contrary to a priori expectations, there are far fewer differences between the EM and DM firms than one would expect. Consequently, the view that EM firms are less subject to competition and market forces may not be valid. Indeed, our own research, Glen Lee and Singh (2001 and 2002), indicates that the intensity of competition in some EM countries is at levels similar to those found in DM countries. In order to maintain a competitive environment, policy makers will need to concentrate not only on capital structure and corporate finance issues, but also on competition in product markets.

Notes

[1] See, for example, Pomerleano (1999), Greenspan (1998) and Summers (1998). For critical views of this hypothesis see Singh (2000) and Stiglitz (2000).

[2] For fuller discussion of these issues see Singh, Singh and Weiss (2002).

[3] Laffont (1999) suggests product market competition in emerging markets to be highly imperfect. For a different perspective, see Glen, Lee and Singh (2001, 2002). For a review of these issues see Tybout (2000). On capital market imperfections in general in emerging markets, see Singh (1997). On groups and conglomerates see Leff (1977), Singh (1995) and Khanna (2000). On implications of regulatory and legal inadequacies in emerging markets see Shleifer and Wolfenzon (2002). On ownership patterns see Claessens, Djankov and Lang (2000).

[4] Inflation accounting in some EMs is well developed. For example, Whittington et al (1997) show that the Brazilian method of inflation adjustment deals effectively with the problem.

[5] The division into developed and emerging markets is based on the system employed by Standard and Poor's (2000), which follows the system originally developed by IFC in its Emerging Markets Database.

[6] The sample used in this and the following regressions differs slightly from the sample used in the other tables. There are two dimensions to this difference. First, the main objective was to produce data for the financing regressions reported later, which require data for both years, 1995 and 2000; this eliminates 3,863 companies that did not have data for both years. Second, to avoid the impact of a few outliers on the results, the sample excludes 749 companies (18 percent of the sample) where the ratio of financing from any source to total assets exceeds 200 percent.

[7] Roberts et al (2002) argue that competition in Taiwan and Korea is different and that Taiwan is more competitive.

[8] See Caves (1998) for a recent review article on the law of proportionate effects and modern theory about size distribution.

[9] The other things equal clause is important here since entry and exit patterns could, in principle, reverse the growth of industrial concentration. These phenomena have not been examined here.

[10] Myers (2001) reviews the literature on capital structure.

[11] The size factor is 1n (company total assets/global mean total assets).

[12] As mentioned in an earlier note, the sample used in this analysis is smaller than the sample used in most of the other tables. In particular, note that the largest outliers (as measured by the size of their financing ratios) have been eliminated, which permits one to use mean values, rather than medians, making a comparison across ratios and countries easier.

References

Aw, B.Y., S. Chung and M.J. Roberts (2002) 'Productivity, Output and Failure: A Comparison of Taiwanese and Korean Manufacturers' *NBER Working Paper No. w8799,* Feb. 2002.

Caves, R.E. (1998). "Industrial Organization and New Findings on the Turnover and Mobility of Firms", *Journal of Economic Literature*, vol. XXXVI, pp. 1947-1982.

Claessens S, Djankov S and Lang L (2000) "The separation of ownership and control in East Asian Corporations", *Journal of Financial Economics*. vol.58 81-112.

Domowitz, Ian, J. Glen and A. Madhavan, 'Liquidity, Volatility and Equity Trading Costs across Countries and over Time', *International Finance,* 4, 2002.

Glen, J., Lee, K. and A. Singh (2001). 'Persistence of profitability and competition in emerging markets', *Economics Letters*, vol.72, pp.247-253.

Glen, J., Lee, K. and A. Singh (2002). 'Corporate Profitability and the Dynamics of Competition in Emerging Markets: A Time Series Analysis', *ESRC Centre for Business Research, University of Cambridge*, working paper No. 248

Greenspan, A., (1998). Testimony before the Committee on Banking and Financial Services, US House of Representatives, January 30, 1998.

Khanna T (2000) "Business groups and social welfare in emerging markets: Existing evidence and unanswered questions." European Economic Review 44 (2000), 748-761.

Laffont J (1999) "Competition, Information, and Development", *Annual World Bank Conference on Development Economics,* 1998 - pp237-257

Leff N (1978) "Industrial Organization and Entrepreneurship in Developing Countries: The Economic Groups", *Economic Development and Cultural Change*, vol.4 (26), 661-675.

Myers S (2001) "Capital Structure", *Journal of Economic Perspectives,* 15, (2)81-102.

Myers S and Majluf N (1984) "Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have", *Journal of Financial Economics,* 13, (2)187-221.

Pomerleano, Michael and Xin Zhang, 'Corporate Fundamentals and the Behavior of Capital markets in Asia' in Harwood, Litan and Pomerleano, editors, *Financial Markets and Development*, Brookings, 1999.

Roberts, Mark and Jybout, 'Size Rationalization and Trade Exposure in Developing Countries', *World Bank, WPS* 594, 1991.

Shleifer, A. and Daniel Wolfenzon, (2002) 'Investor protection and equity markets' *Journal of Financial Economics,* 66 (2002) 3-27.

Singh A (1995) *Corporate Financial Patterns in Industrializing Economies: A Comparative International Study*. IFC Technical Paper. Washington, DC: IFC.

Singh A (1997) "Financial liberalisation, stock markets and economic development", *Economic Journal*, May Vol 107 (442), 771-782.

Singh, A. (1999) "'Asian Capitalism' and the Financial Crisis." In: J. Michie and J. Grieve Smith (eds.), *Global Instability: The Political Economy of World Economic Governance*, London: Routledge, pp.9-36.

Singh, A., Singh A., and Weisse, B. (2002). "Corporate Governance, Competition, the New International Financial Architecture and Large Corporations in Emerging Markets". Paper presented at the UNCTAD Workshop on Management of Capital Flows. Cairo, 2001.

Standard and Poor's, *Emerging Markets Fact Book*, 2001.

Stiglitz, Joseph. (1999). "Reforming the Global Financial Architecture: Lessons from Recent Crises.", *Journal of Finance.* vol. 54(4), pp. 1508-21.

Summers, L. H., (1998). "Opportunities Out of Crises: Lessons From Asia", Remarks to the Overseas Development Council, From the Office of Public Affairs, March 19.

Tybout J (2000) "Manufacturing firms in developing countries: How well do they do and why?". *Journal of Economic Literature*, Vol. 38, No. 1 (March) pp11-44.

Whittington, G., Saporta, V. and Singh, A. (1997). *The Effects of Hyper-Inflation on Accounting Ratios: Financing Corporate Growth in Industrial Economies*, IFC Technical Paper no. 3, International Finance Corporation, Washington, D.C.