



Comparing capital structures and rates of return in developed and emerging markets[☆]

Jack Glen^{a,*}, Ajit Singh^b

^aInternational Finance Corporation, 2121 Pennsylvania Avenue, NW, Washington, DC 20433, USA

^bQueens' College, University of Cambridge, CB3 9ET, USA

Received 1 October 2003; received in revised form 1 December 2003; accepted 1 January 2004

Abstract

Balance sheets and income statements from nearly 8000 manufacturing companies in 44 countries are compared for 1994–2000 along several dimensions. Differences across sectors and countries are reported and interpreted. The findings are: first, we find that the size distribution of firms for much of the size range is broadly similar in the two groups of countries, except for the largest and the smallest sizes of firms for which there are observed differences in the expected direction. Second, emerging market firms currently have lower levels of leverage than do their developed market counterparts and leverage has declined in recent years. Third, emerging market firms employ a higher level of fixed assets than do their developed market counterparts. Fourth, returns on assets and equity generally are lower in emerging market countries, but they have increased in recent years. And fifth, 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. © 2004 Elsevier B.V. All rights reserved.

Keywords: Capital structures; Rates of return; Developed and emerging markets

1. Introduction

This paper seeks to establish stylized facts about the nature of the differences between emerging market (EM) corporations and developed market (DM) corporations with respect to accounting ratios derived from financial statements. In addition to examining relationships regarding capital structure, asset structure, and return on assets, we also analyse the

[☆] This paper is based on Glen and Singh (2003).

* Corresponding author. Tel.: +1-202-473-8641; fax: +1-202-974-4367.

E-mail addresses: jglen@ifc.org (J. Glen), ajit.singh@econ.cam.ac.uk (A. Singh).

size distribution of corporations. The results that we present are an attempt to systematically examine financial statements for a large number of developed and emerging market companies in order to learn about corporate performance and the impact of country and sector factors on corporate behavior. This type of analysis and comparison across countries and industries should be of considerable interest to financial analysts, who themselves exploit financial statement information in determining the value of corporate assets. The comparative analysis should also be of general interest to economists and finance specialists.

The current international public concern in relation to corporate finance and corporate behavior in emerging markets 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 analysis suggested that poor corporate governance, inadequate competition, high leverage, and “crony capitalism” led to disregard for profits, over-investment, and exploitation of minority shareholders. Whether or not this thesis is correct, corporate reform in emerging markets is now on the national and international agenda (Glen and Singh, 2003). Implementing appropriate reforms, however, requires a body of empirical knowledge that is only now beginning to emerge.

This paper attempts to further that knowledge by reporting the results of analysis of the corporate financial statements of nearly 8000 companies in 44 countries over the period 1994–2000. At one level, the empirical questions addressed in this paper are simple. For example, are size distributions of firms similar in emerging markets to those observed in developed markets? Are asset and capital structures in emerging markets fundamentally different from those observed in developed markets? Are accounting returns higher and more volatile in the emerging market countries? However, interpretation of the empirical answers to these questions is far from straightforward, owing to the complexity of the data and the wide variety of theoretical approaches which can be used to examine these issues. The latter include the theory of the firm, the theory of finance, and organisation theory, to name but a few. These provide the intellectual framework for the empirical analysis reported in this paper (see further Section 2 below).

The findings are both expected and unexpected. We find that the size distribution of firms for much of the size range is broadly similar in the two groups of countries, except for the largest and the smallest sizes of firms for which there are observed differences in the expected direction. We also find that emerging market firms use lower levels of debt, but the debt level has declined in recent years from much higher levels previously. We also find that emerging market firms hold higher levels of fixed assets (relative to total assets) than do developed market firms. The evidence also shows that emerging market returns on assets and equity have been both more volatile and generally lower than for developed market firms.

The remainder of the paper is organized as follows: the next section, as well as parts of Section 4, outline the intellectual background—in terms of economic theory, organisation and other theories of the firm, as indicated above—to the main questions considered in this paper. This is followed by a description of the data in Section 3 and the empirical results in Section 4. A summary and conclusions make up the final section.

¹ See, for example, Pomerleano and Xin (1999), Greenspan (1998) and Summers (1998). For critical views of this hypothesis, see Singh (1999), Stiglitz (1999) and Glen and Singh (2003).

2. Theoretical and methodological issues

At one level economic theory suggests that differences in accounting variables and ratios across countries should be immaterial if all companies are subject to vigorous competition and full play of market forces. Thus, in line with [Friedman's \(1953\)](#) surmise of nearly half a century ago in his classic essay on methodology, it may be argued that if there were sufficient competition no companies with an inefficient size or inappropriate corporate governance will survive ([Winter, 1987](#); [Singh, 2003](#)). Indeed this suggestion can be taken further with the hypothesis that if there were perfect factor movements between countries and free trade, only the most efficient legal, economic or social systems would survive. However, there are well known difficulties with this austere perspective and most economists accept that legal, economic or social and other institutions may differ between nation states and hence there will be inter-country differences between accounting variables and ratios. Such differences may, however, also arise from other factors; for example, the sectoral composition of firms might differ across countries and, owing to risks or technological differences inherent in a sector, this might result in different corporate choices and outcomes. Additional variables that can lead to inter-country differences in corporate outcomes include the macroeconomic environment, the tax system, and the preferences of and options available to investors.

In the case of comparing emerging and developed markets (rather than just any two countries) it is useful to consider environmental differences, which may be particularly relevant in such comparisons. First there is the question of market structure. There has been a presumption, based largely on a priori reasoning or anecdotal evidence, that developing countries are likely to have much more imperfect and incomplete product, capital, and labour markets than do advanced countries. However, the available hard empirical evidence on these issues, admittedly quite small so far, is more mixed. [Laffont \(1999\)](#) suggests that competition in emerging markets is highly imperfect because of their relatively small size and market segmentation. In contrast, in recent contributions, [Glen et al. \(2001, 2003\)](#) have suggested that at least for the leading emerging markets, the intensity of competition is as high, if not more so than that observed for developed countries. [Tybout \(2000\)](#) arrives at a similar conclusion that there is a high degree of competition in the product markets of developing countries. On labour markets, [Easterly et al. \(2000\)](#) suggest that, contrary to anecdotal views, labour markets in many developed countries are more flexible than those in advanced countries. There is, however, more consensus that capital markets in emerging countries are likely to be less perfect than in advanced countries (see [Singh, 1997](#); [Bekaert and Harvey, 2003](#)). On the questions of relative completeness of the markets in the two groups of countries, [Leff \(1978\)](#), [Singh \(1995\)](#) and [Khanna \(2000\)](#) back the hypothesis of greater completeness for the developed country group. Further, [Shleifer and Wolfenzon \(2002\)](#), comment on the implications of regulatory and legal inadequacies in emerging markets. [Claessens et al. \(2000\)](#) discuss ownership patterns in emerging countries.

In view of these distinguishing characteristics of EM and DM corporations, it would be difficult to maintain a priori the hypothesis of no difference in accounting variables and their inter-relationships in the two groups of countries. The observed inter-group differences with respect to any particular variable or its distribution, such as profitability or the size distribution of firms, would depend, among other factors, notably on the relative significance

of the differences in the structure and completeness of the various markets. This point will be commented on further in Section 4, which contains additional theoretical discussion of the various specific variables and their inter-relationships, which are considered in this paper.

Turning to methodological and measurement issues, differences between the two groups of countries in accounting standards and reporting requirements need attention. In the light of the recent scandals in the United States and other developed markets, the superiority of developed market accounting is now less obvious. Moreover, our data for emerging market countries pertain to listed companies where, increasingly, international standards are being applied. Despite that, to the extent that emerging market countries 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. Inflation accounting in some EMs is well developed. [Whittington et al. \(1997\)](#) suggest that the Brazilian method of inflation adjustment deals effectively with this difficulty.

Finally, although many of the questions we address are economic in nature and accounting data are not designed to deal directly with those economic issues, we note that accounting data are the only data available not only to the researchers but also to the investing public. Moreover, [Joh \(2003\)](#) suggests that the accounting data have the virtue of being able to predict firm bankruptcies fairly accurately. Finally, dealing specifically with issues associated with accounting differences between countries is beyond the scope of this paper.

3. Data description

The data consist of various accounts taken from the financial statements of listed companies, as reported by Osiris/BVD in their May 2002 CD. Osiris attempts to provide data on as many companies as possible for each country. Over time, their sample has grown, and that growth has influenced the data used in this study. The sample period used in much of the work that follows is 1994–2000. Data for earlier years are 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 also are available for 2001 for some companies but owing to a lag in reporting, the number of companies drops nearly 40% from the number for 2000. For that reason, the sample period ends at 2000.

[Table 1](#) presents the number of companies for each year for each country, with the table divided between the two country groups.² In total, 44 countries are represented in the sample: 22 developed markets and 22 emerging markets. For 2000, 7968 companies are in the sample, which is down 8% from the number in 1999, most likely reflecting lags in reporting, as the number of companies increased each year except in 2000. Over 1994–2000, the number of reported companies increased 82%; the rate of increase in both groups

² The division into developed and emerging markets is based on the system employed by [Standard and Poor's \(2001\)](#), which follows the system originally developed by the International Finance Corporation in its Emerging Markets Database.

of countries was large but the increase in the developed market group (84%) exceeded that of the emerging market group (75%).

The number of companies reported in [Table 1](#) is well below the total number of listed companies in these markets. For 2000, [Standard and Poor's \(2001\)](#) 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 increased between 1994 and 2000: the emerging markets universe increased 76%, and the developed market total increased 39%. Clearly, the Osiris database has far to go before it provides complete coverage of these markets.

About 77% of the sample companies in 2000 were in developed markets, with the United States alone representing 32% of the total. Other significant developed countries in the sample include Japan and the United Kingdom; Germany, France, and Canada have relatively fewer companies. These six countries together represent 61% of the total sample for 2000. Among the emerging markets, Korea has 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.

The disparity in the number of companies in developed and emerging markets in this sample is also matched by differences in their market capitalization. In 1994, total world stock market capitalization was US\$15.1 trillion, of which emerging market countries represented just US\$1.9 trillion, or 13%.³ By 2000, the disparity between the two groups of countries had grown even wider, with total market capitalization growing to US\$32.3 trillion, of which emerging markets represented just US\$2.7 trillion, or 8%. Taking market capitalization as a reference, emerging markets are more than adequately represented in this sample.

Companies are sorted into eight industrial sectors using the North American Industry Classification System (NAICS) codes as reported by Osiris. 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. A summary of the number of companies in each sector in 2000 is presented in [Table 2](#). Globally, 55% of the sample companies are classified in 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% of the total. The pulp and paper sector has the smallest number of companies, 223, representing 3% of the global total. The distribution of companies across sectors is roughly comparable in both the developed and emerging markets, although there are fewer industrial and consumer products companies in emerging markets (43%) than in developed markets (58%), with the difference spread across a number of sectors.

4. Empirical analysis and the theoretical background to the specific issues investigated

This section reports the results of the empirical analysis. The section is separated into subsections that report on the size distribution of the companies in the sample and

³ [Standard and Poor's \(2001\)](#).

Table 1
 Number of companies in developed and emerging markets, by country, 1994–2000

Market and country	1994	1995	1996	1997	1998	1999	2000
<i>Developed markets</i>							
Australia	72	78	81	80	94	92	84
Austria	33	36	41	47	52	49	45
Belgium	38	39	43	55	65	72	68
Bermuda	23	24	28	31	32	42	38
Canada	118	151	176	182	274	286	242
Cayman Islands	6	6	6	7	10	8	10
Denmark	61	63	68	73	77	78	70
Finland	26	26	32	40	58	67	66
France	177	196	224	253	308	359	335
Germany	212	218	242	270	348	382	345
Greece	26	37	51	51	55	53	43
Ireland	17	16	20	22	23	24	22
Italy	30	47	60	62	65	81	79
Japan	344	413	1177	1323	1536	1540	1163
Netherlands	57	66	78	87	95	95	86
Norway	24	27	32	40	46	44	35
Singapore	62	60	91	124	153	149	121
Spain	18	20	30	30	46	48	47
Sweden	60	76	95	106	127	119	105
Switzerland	70	88	102	109	124	125	119
United Kingdom	425	476	494	545	557	490	460
United States	1443	1604	1783	1902	2108	2510	2572
Group Total	3342	3767	4954	5439	6253	6713	6155
<i>Emerging markets</i>							
Argentina	9	10	11	7	9	20	21
Brazil	n.a.	31	39	57	89	97	117
Chile	53	56	64	70	69	68	40
Colombia	8	9	11	41	19	10	50
Czech Republic	14	24	39	68	86	63	73
Hong Kong	102	125	153	164	172	157	132
Hungary	2	3	5	5	10	17	13
India	48	48	71	158	176	114	75
Indonesia	24	26	25	25	27	15	6
Israel	9	11	13	25	39	56	57
Korea, Rep. Of	533	619	650	705	735	751	779
Malaysia	136	189	205	184	204	207	142
Mexico	31	38	28	31	42	45	40
Pakistan	2	4	5	7	12	11	8
Peru	1	2	3	62	65	68	64
Philippines	5	5	6	4	7	5	8
Poland	1	1	5	10	26	29	20
South Africa	13	17	39	60	73	69	36
Taiwan	16	20	30	65	92	95	112
Thailand	21	24	28	27	29	19	9
Turkey	5	7	7	6	6	2	2
Venezuela	3	4	3	3	17	8	9
Group Total	1036	1273	1440	1784	2004	1926	1813
Grand Total	4378	5040	6394	7223	8257	8639	7968

n.a., not available.

Table 2
Sector composition in developed and emerging markets, 2000

Sector	Number of companies			Percent of total number			Mean total assets (millions of U.S. dollars)			Median total assets (millions of U.S. dollars)		
	Developed	Emerging	Global	Developed	Emerging	Global	Developed	Emerging	Global	Developed	Emerging	Global
Chemicals	740	289	1029	12	16	13	2743	1020	2259	187	120	163 ^a
Food and Beverages	533	194	727	9	11	9	1892	572	1539	214	187	209
Industrial Products	3568	776	4344	58	43	55	1541	436	1344	102	63	107 ^a
Nonmetallic Minerals	210	110	320	3	6	4	1423	636	1153	119	173	172
Plastics and Rubber	207	56	263	3	3	3	764	510	710	172	87	117
Primary Metals	271	127	398	4	7	5	1870	966	1581	315	154	252 ^a
Pulp and Paper	160	63	223	3	3	3	2092	505	1644	414	133	277 ^a
Textiles	466	198	664	8	11	8	395	220	343	92	70	88
Total	6155	1813	7968	100	100	100	1628	574	1388	139	93	126

^a Indicates rejection of the hypothesis of equal medians at the 5% level.

regressions of size on country and sector factors; these also report on the relationship between size and growth of firms. Separate subsections report and discuss summary statistics on capital structure, asset structure and returns on assets and equity, as well as financing of corporate growth. However, in each case where applicable we start by considering the a priori and theoretical framework for the specific issue being considered.

In the empirical exercises reported below, we pay special attention to the influence of two qualitative variables: country and sector. As indicated earlier, these two variables can greatly influence the quantitative variables examined in this study as well as the inter-relationships between the latter. We also pay particular attention to one quantitative variable, that is size, which, as will be discussed below, is also capable of influencing a wide range of variables.

4.1. Size distribution of firms

The question of size distribution of firms has been a troublesome one for traditional economic analysis. In neoclassical theory, if one assumes non-diminishing returns to scale, the size of the firm becomes indeterminate, and hence, so does the size distribution of firms (Cabral, 2000). There are a few classic contributions which explain the growth of firms such as those of Marris (1964, 2002) and Penrose (1959). Neither Penrose nor Marris, however, are able to give a satisfactory account of the optimal size of the firm. Williamson (1970, 1981) provides an elegant account of vertical integration in terms of the transactions cost approach but his theory is not very satisfactory in explaining diversification or a horizontal expansion of the firm (see Marris, 2002; Simon, 1991).

However as Kumar et al. (2003) point out, the issue of firm size is not of minor importance. Much of economic growth takes place through growth in the size of existing organisations, and very little of it is through the creation of new ones. It is therefore important to study the potential determinants of the size of economic organisations, and ask if there are any restraints on size, and hence any potential constraints to growth. The three authors note that organisational size is important for various economic phenomena, and there is empirical evidence to indicate that small firms account for a disproportionate share of the manufacturing decline that follows the tightening of monetary policy. Size is also an important influence on stock returns, on corporate leverage, and on trade credit. It is also known to be a significant influence on managerial compensation. In the market for corporate control, there is also evidence for a non-linear relationship between size and the probability of take-over (Singh, 2000).

In contrast to the difficulties for economic theory of determining the size distribution of firms, there are stochastic models of firm growth which yield precise predictions with important economic implications. The most familiar of these stochastic models, and one which is widely used by industrial organisation economists, is the so-called law of proportionate effect, or Gibrat's law. The law asserts that all firms have the same chance of growing by a given percentage during any period of time. If the growth process of firms is governed by this law, it would lead eventually to a log normal distribution of firm size whatever their initial distribution. It would also lead to a relentless increase in industrial concentration over time. Caves (1998) provides a recent review article on the subject and examines these, and other, implications.

Although the law of proportionate effect is an entirely stochastic model of firm growth, it can be given an economic rationale in the following terms: it may not be unreasonable to suggest 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 effects but the combined effect is to generate the stochastic relationship between size and growth of firms, as indicated in the law of proportionate effect.

In empirical terms, the size of the company in the following analysis is measured by the value of its total assets on the balance sheet. Some argue that such a size measure is not useful. 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 they employ. If human capital is more important in developed than developing countries, this might be reflected in the size of companies as measured by total assets.

Table 2 provides a first glimpse of the size of the companies in the sample. Globally, the average company had total assets of US\$1.4 billion in 2000 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% of 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 slightly different picture, as shown in the last three columns of the table. Under that measure, the emerging market companies are much closer in size to their developed market counterparts, with equality of medians not being rejected in four sectors. Owing to the differences between mean and median values in this sample, much of what follows concentrates on median values.

Table 3 presents the median value of total assets for each country by year. The global median company in 2000 had assets of US\$126 million, down from US\$132 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, smaller companies were added, pulling down the median value. One can see a similar pattern for the developed market sample. For the emerging markets, the pattern over time is more complicated; median company size rose through 1996 and then fell in 1997. A large part of the drop in value in 1997 must reflect the Asian crisis and coincident depreciation of the Asian currencies; note in particular the drop in Korea. As these values are reported in US dollars 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.

Ignoring the time-series dimension, there are distinct differences between the two groups of countries. In fact, the developed market median exceeds the emerging market median in all years, and that difference is statistically significant in all years. Looking more deeply at individual countries, however, one can see that the median size in several emerging market countries is well in excess of that of the larger developed market countries. For example, Mexico, which had forty companies in the sample in 2000, had

Table 3

Median assets in developed and emerging markets, by country, 1994–2000, US\$ millions

	1994	1995	1996	1997	1998	1999	2000
<i>Developed markets</i>							
Australia	223	190	205	216	133	158	194
Austria	207	221	188	155	169	181	191
Belgium	244	279	236	183	157	139	143
Bermuda	133	135	129	114	109	108	115
Canada	136	117	101	119	102	92	83
Cayman Islands	102	103	175	160	252	363	361
Denmark	127	151	135	134	157	166	179
Finland	1389	1526	1091	706	307	138	147
France	244	241	198	142	120	88	102
Germany	333	422	304	225	184	137	148
Greece	63	47	51	54	56	99	106
Ireland	378	398	436	356	365	386	417
Italy	1265	491	375	360	391	344	340
Japan	1569	1215	237	198	265	316	185
Netherlands	243	292	236	200	227	173	236
Norway	117	96	87	106	140	103	122
Singapore	81	107	87	77	72	80	89
Spain	303	339	387	375	317	294	318
Sweden	316	240	177	149	118	105	100
Switzerland	412	339	326	288	297	251	312
United Kingdom	83	77	84	79	84	83	83
United States	70	75	80	89	94	90	116
Group Median	159	165	147	139	148	145	139
<i>Emerging markets</i>							
Argentina	984	968	754	904	1237	516	267
Brazil	n.a.	1177	895	979	549	387	303
Chile	85	102	112	125	125	129	190
Colombia	249	337	361	169	157	202	113
Czech Republic	31	47	43	40	43	28	26
Hong Kong	120	110	119	119	111	116	128
Hungary	56	60	88	138	104	88	117
India	285	193	183	119	115	141	168
Indonesia	224	295	281	231	212	261	322
Israel	431	302	217	218	201	86	109
Korea, Rep. of	46	59	61	42	45	51	57
Malaysia	89	67	72	57	50	55	74
Mexico	743	659	1250	1157	702	650	840
Pakistan	124	114	59	56	60	27	30
Peru	148	84	30	30	24	22	26
Philippines	43	70	65	1497	239	83	116
Poland	55	75	189	51	51	52	69
South Africa	1557	957	180	104	65	58	113
Taiwan	368	569	965	443	422	502	446
Thailand	126	162	183	93	95	172	299
Turkey	134	54	61	67	82	38	156
Venezuela	511	990	923	1054	102	326	277
Group Median	81	92	99	77	80	83	93
<i>P Value</i> ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Global Median	132	139	134	121	128	127	126

a median size of US\$840 million, nearly four times the US median value and well above that of any developed market country. In contrast, Peru, which had a sample of 64 companies in 2000, had a median value of only US\$26 million, far below that of any developed market 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 Fig. 1, which presents a histogram of total assets for the year 2000 for both the emerging market and developed market pooled samples. The figure confirms that the emerging market sample is much like the developed market sample, but it does contain more small companies and fewer large companies. More than 35% of the emerging market companies had total assets of US\$50 million or less in 2000, compared to a bit more than 25% for the developed market sample. At the other extreme, only slightly more than 10% of the emerging market companies had total assets over US\$1 billion, compared with about 18% for the developed market sample. Except for these extremes, the two distributions look remarkably similar.

4.1.1. 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 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 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 for 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 employs a total of 3360 companies and has an overall R^2 of 21.6%.⁴

Starting with the industry coefficients, five of the seven industries have coefficients that are significantly higher 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 US\$214 million. In the textiles industry, that value is reduced to US\$149 million, about one-third less. The largest industry is non-metallic minerals, with a mean value of US\$505 million.

Notes to Table 3:

n.a., not available.

³ P value presents the results of a test for equality of medians across the two country groups. P values less than 0.05 reject equality at the 5% level.

⁴ 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 is to produce data for other regressions reported later, which require data for both 1995 and 2000; this eliminates 3863 companies that do not have data for both years. Second, to avoid the impact of a few outliers on the results, the sample excludes 749 companies.

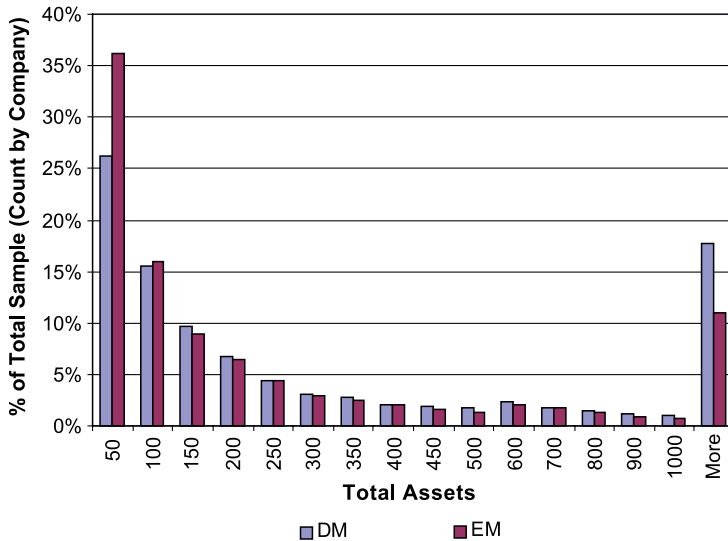


Fig. 1. Total assets (US\$ millions, 2000): emerging markets and developed markets.

Within the developed markets, nine of the twenty-two countries have mean values (after adjusting for industry effects) that differ statistically from the base case. Only two of those, the United Kingdom and Bermuda, have a value below the base case, with values of US\$102 million for Bermuda and US\$123 million for the United Kingdom. The other seven countries have mean values above the base case. Japan has the largest companies, with a mean value of US\$3.2 billion after adjusting for industry effects. However, country size does not correlate well with firm size. Switzerland, which has a small gross domestic product (GDP), has significantly larger companies, on average, than the US base case; the same is true in Ireland. Perhaps this difference reflects the much larger sample from the United States, which allows many smaller companies to be included in the sample.

The emerging markets present a somewhat different picture, with 11 of 19 emerging markets having coefficients that are statistically different from the base case. 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 US\$895 million, followed by Brazil, Mexico, Argentina, and Israel. In addition, six countries have smaller companies on average, with the Czech Republic having the smallest, with a mean value of US\$49 million.

Unfortunately, interpreting the regression results in Table 4 in terms of any of the logical arguments 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

Table 4
Regression: $\ln(\text{Total Assets 2000})$ on sector and country dummies^a

Dummy	β	t-statistic
<i>Sector</i>		
Chemicals	0.707	6.93
Food and beverages	0.592	5.38
Nonmetallic minerals	0.860	5.26
Plastics and rubber	0.279	1.52
Primary metals	0.686	5.51
Pulp and paper	0.667	3.83
Textiles	-0.358	-3.53
<i>Developed markets</i>		
Australia	-0.365	-1.56
Austria	0.162	0.66
Belgium	0.120	0.45
Bermuda	-0.737	-2.13
Canada	-0.057	-0.29
Cayman Islands	0.044	0.07
Denmark	-0.204	-0.87
Finland	1.436	3.46
France	0.319	1.85
Germany	0.535	3.29
Greece	-0.405	-1.37
Ireland	0.863	3.25
Italy	1.335	3.76
Japan	2.697	19.42
Netherlands	0.830	2.74
Norway	0.393	0.89
Singapore	-0.231	-0.90
Spain	0.595	1.64
Sweden	0.446	1.75
Switzerland	0.673	3.54
United Kingdom	-0.550	-4.56
<i>Emerging markets</i>		
Argentina	0.766	2.73
Brazil	1.076	4.01
Chile	-0.632	-1.74
Colombia	-0.807	-2.08
Czech Republic	-1.473	-2.74
Hong Kong	-0.415	-2.51
Hungary	-1.436	-3.73
India	0.207	0.56
Indonesia	0.387	0.82
Israel	0.676	1.46
Korea, Rep. of	-1.255	-14.13
Malaysia	-0.975	-5.90
Mexico	1.036	4.27
Philippines	-0.691	-0.75
South Africa	0.779	2.20
Taiwan	1.432	4.45

(continued on next page)

Table 4 (continued)

Dummy	β	t-statistic
<i>Emerging markets</i>		
Thailand	– 0.139	– 0.35
Turkey	– 2.413	– 1.22
Venezuela	1.621	1.14
Constant	12.273	199.39
Number of observations	3360	
R^2	0.216	

^a The United States and Industrial and Consumer Products industry are taken as the base levels against which all other industries are measured.

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 the large number of Korean companies may reduce their average size. Clearly, interpretation of the results is difficult.⁵

This regression framework does, however, provide good evidence on the relative importance of country and sector effects on company size. To assess these effects, the regression was estimated again with only country and with only industry variables. The results (not reported) show that of the total explained variation in the regression reported in Table 4, nearly 85% 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, specific firm effects could be an important component of size determination. In fact, the unexplained variation in the regression, which represents 88% of total variation, is due to factors other than country and sector. 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.

4.1.2. Evolution of firm size over time

We report here the empirical evidence on the law of proportionate effect, which, as seen earlier, has important implications for the evolution of the size distribution of firms over time, as well as for industrial concentration. 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.

⁵ Aw et al. (2002) argue that competition is different in Taiwan and Korea: Taiwan is more competitive.

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,

Table 5
Size and growth: regressions of firm level total assets (2000, log) on total assets (1995, log)

	α	B	R^2	Observations
<i>Emerging markets</i>				
Argentina	3.20	0.76	0.66	8
Brazil	-1.78	1.11	0.90	23
Chile	3.26	0.73 ^a	0.71	26
Colombia	-1.22	1.07	0.98	6
Czech Republic	7.58	0.31 ^a	-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 ^a	0.92	14
Indonesia	-0.53	1.01	0.90	6
Israel	-3.14	1.27	0.91	5
Korea	3.39	0.72 ^a	0.74	517
Malaysia	1.87	0.84 ^a	0.65	103
Mexico	1.86	0.91 ^a	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
<i>Developed markets</i>				
Australia	1.96	0.85 ^a	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 ^a	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 ^a	0.76	13
Italy	-0.63	1.07	0.89	32
Japan	1.39	0.91 ^a	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 ^a	0.86	57
Switzerland	2.31	0.84 ^a	0.84	74
United Kingdom	2.32	0.84 ^a	0.73	299
United States	2.16	0.88 ^a	0.80	1150

^a Indicates significantly different from 1 at the 5% level.

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 would increase over time.⁶

4.2. Capital structure

Capital structure has important implications for the vulnerability of firms to exogenous shocks. As noted, high leverage is thought to have contributed to the East Asian crisis.

Consequently, it is important to know what is the optimal leverage ratio for EM companies to avoid the crisis. There is an enormous amount of literature on this subject reviewed more than 10 years ago by [Harris and Raviv \(1991\)](#) in their classic article. However, most of this literature concerned advanced countries and particularly the United States. The more recent literature has been reviewed in [Myers \(2001\)](#). There are very few studies of capital structure in emerging countries. Important recent contributions are [Booth et al. \(2001\)](#), [Bekaert and Harvey \(2003\)](#), and [Denis and McConnell \(2003\)](#), although the latter study is concerned more with questions of corporate governance, rather than of financial structure but the two sets of questions are, of course, related. Booth et al. correctly pose the following questions:

- (1) Do corporate financial leverage decisions differ significantly between developing and developed countries?
- (2) Are the factors that affect cross-sectional variability in individual countries' capital structures similar between developed and developing countries?
- (3) Are the predictions of conventional capital structure models improved by knowing the nationality of the company?

The present study provides evidence bearing on various aspects of corporate capital structure in emerging and mature markets, including information on the questions posed above in relation to leverage, particularly the last one.

4.2.1. Leverage: total liabilities to total assets

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

⁶ 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.

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 United States, where the median company had ratio values of 41% in 1996–1997. Those ratios grew over the next few years, however, ending the sample period at 45%, still well below the level of nearly all other developed markets. For some countries debt levels dropped over the sample period. For example, in Japan the ratio declined from 62% in 1994 to 55% 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%, well above the group median. In other cases, leverage increased, with the median Irish company increasing its leverage ratio from 60% in 1994 to 68% in 2000, earning it the distinction of having the highest median leverage ratio in the entire developed market sample for that terminal year.

There is also great variation across countries and over time in emerging markets. Indonesia ended the sample period with by far the highest leverage ratio (89%), up sharply from its levels in the first 3 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% in 1994 to a much more conservative 52% in 2000. Thailand represents a third way, with lower levels of debt in the early years of the sample, but higher leverage ratios after the crisis, but not nearly to the extent of Indonesia. Finally, leverage ratios declined in Hong Kong following the crisis, but 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: the level of debt held by the median company climbed steadily from a below-average value of 42% in 1995 (the first year for which data are available) to an above-average value of 62% 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. Turkey had 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.

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 factor⁷ 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 size factor is significant, with larger firms having higher levels of debt. The

⁷ The size factor is $\ln(\text{company total assets/global mean total assets})$.

Table 6
Median total liabilities to total assets, by country and year, 1994–2000, percent

Market	1994	1995	1996	1997	1998	1999	2000
<i>Developed markets</i>							
Australia	51	51	51	51	52	53	55
Austria	66	69	71	66	63	64	63
Belgium	58	56	59	62	60	56	57
Bermuda	54	57	51	49	47	52	43
Canada	52	50	47	48	49	48	48
Cayman Islands	47	51	37	47	48	48	43
Denmark	54	53	51	52	52	54	59
Finland	67	63	61	60	58	59	58
France	62	62	61	62	61	62	62
Germany	71	70	71	70	68	65	64
Greece	56	55	56	58	57	55	57
Ireland	60	62	64	60	65	65	68
Italy	66	65	62	64	62	64	64
Japan	62	62	58	56	57	55	55
Netherlands	58	62	59	59	60	64	61
Norway	59	56	56	55	56	54	58
Singapore	45	44	49	49	52	47	46
Spain	60	58	47	50	52	56	56
Sweden	60	55	53	55	54	54	53
Switzerland	60	60	58	56	57	54	54
United Kingdom	52	54	53	52	53	51	49
United States	44	43	41	41	43	47	45
Group Median	53	53	52	52	53	53	52
<i>Emerging markets</i>							
Argentina	46	44	47	46	53	44	41
Brazil	n.a.	42	50	52	51	57	62
Chile	39	40	41	41	42	40	43
Colombia	33	37	38	30	43	34	34
Czech Republic	35	41	40	45	47	49	45
Hong Kong	52	52	51	46	44	42	40
Hungary	42	29	23	23	30	37	35
India	60	57	57	56	55	50	47
Indonesia	54	51	57	71	76	70	89
Israel	54	54	48	56	47	47	40
Korea, Rep. of	72	72	71	72	66	56	52
Malaysia	47	51	48	49	50	48	48
Mexico	51	52	50	52	46	49	56
Pakistan	61	68	56	56	59	72	63
Peru	19	28	34	47	48	48	49
Philippines	22	19	17	39	26	22	41
Poland	14	15	16	26	43	48	44
South Africa	57	53	47	46	45	47	51
Taiwan	36	34	41	44	43	44	47
Thailand	52	56	62	72	54	61	62
Turkey	48	61	63	54	59	68	62
Venezuela	53	31	30	27	33	38	34
Group Median	62	61	60	58	55	50	49
<i>P</i> value ^a	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Global Median	55	55	54	54	54	53	51

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. Among the developed market countries, sixteen countries have mean ratios that exceed the level of the US base case. For some of those—for example, Ireland, Austria, and Spain—the differences are economically very large. No developed market (except the Cayman Islands) has a ratio that is statistically below the level of the United States. Among the emerging markets, six countries have ratios significantly above the level of the United States; Indonesia has the largest difference, but the sample is small. Only Hungary and Venezuela have a ratio that is significantly below the level of the United States.

The regression was also estimated for 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 2000, reported in Table 7, the regression explains less than 2% of the total variation in the data. In contrast, for 1995 a similar regression explains 15% 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 2000 is four times the level for 1995 globally. Nearly all of the higher level of volatility is in emerging markets; the standard deviation in emerging markets increases by a factor of eight, compared to an increase of 55% 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 did not change much between the 2 years, whereas the emerging market results differed sharply. Breaking the emerging market sample down further, one learns that most of the difference in the 2 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 Fig. 2. Apparently, Korean companies entered the mid-1990s with high levels of liabilities; for nearly 30% of the sample, liabilities financed 71–80% of total assets. Following the 1998 crisis, however, Korean companies deleveraged their balance sheets, with that shift occurring across nearly the entire distribution of Korean companies. That deleveraging, 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.

4.2.2. *Current and non-current liabilities*

Globally, current liabilities represent about 30% of total assets, well above the 15% of total assets (in 2000, Table 8) represented by noncurrent (or long-term) liabilities. Current liabilities represent a combination of both trade and other nonmarket sources of credit, as well as the current portion of bank lending and bonds. Noncurrent liabilities represent long-term credit from either banks or markets. Together, these two ratios constitute the ratio of total liabilities to total assets reported in Table 6.

Notes to Table 6:

n.a., not available.

^a P value reports results for a test of median equality between the two country groups. P values less than 0.05 reject equality at the 5% level.

Table 7

Regression: ratio of total liabilities to total assets on relative size, sector, and country dummies, 2000^a

Variable	β	t-statistic
<i>Sector</i>		
Chemicals	− 9.22	− 2.71
Food and beverages	− 2.85	− 0.65
Nonmetallic minerals	− 4.34	− 0.68
Plastics and rubber	3.21	0.68
Primary metals	− 1.52	− 0.32
Pulp and paper	− 0.54	− 0.14
Textiles	− 4.32	− 1.27
<i>Developed markets</i>		
Australia	8.27	2.73
Austria	19.76	5.03
Belgium	12.40	2.67
Bermuda	0.14	0.02
Canada	13.71	1.7
Cayman Islands	− 10.26	− 1.13
Denmark	10.53	4.28
Finland	11.09	3.14
France	15.23	8.7
Germany	18.64	10.93
Greece	8.00	1.99
Ireland	25.04	6.26
Italy	18.24	6.76
Japan	11.05	5.74
Netherlands	14.93	4.46
Norway	11.66	2.08
Singapore	2.78	0.93
Spain	16.18	3.14
Sweden	6.19	2.39
Switzerland	5.89	2.85
United Kingdom	6.17	3.54
<i>Emerging markets</i>		
Argentina	12.07	2.12
Brazil	13.98	2.8
Chile	− 5.86	− 1.42
Colombia	0.33	0.04
Czech Republic	1.51	0.38
Hong Kong	13.28	1
Hungary	− 13.68	− 2.12
India	11.53	1.36
Indonesia	38.41	3.32
Israel	12.14	1.55
Korea, Rep. of	13.17	2.34
Malaysia	41.67	1.17
Mexico	9.80	2.53
Philippines	− 13.63	− 1.21
South Africa	11.43	1.97
Taiwan	3.29	0.85

Table 7 (continued)

Variable	β	t-statistic
<i>Emerging markets</i>		
Thailand	20.32	1.73
Turkey	17.44	9.25
Venezuela	−19.58	−3.82
Constant	49.29	36.39
Size	2.55	5.59
Number of observations	3360	
R^2	0.014	

^a The base case is the U.S. Industrial and Consumer Products sector.

The level of current liabilities does not differ greatly between the two major subgroups of countries, with emerging market countries, on average, financing about 30% of total assets with current liabilities, as compared to 28% in developed market countries (in 2000). There is no apparent trend in the time-series behavior of this ratio in the developed market countries; however, there appears to be a tendency toward lower levels of current liabilities in the emerging market countries over the sample period: current levels fell steadily from 39% in 1994 to the current level.

The ratio of noncurrent liabilities to total assets, reported in Table 8, reveals a similar time pattern. The ratio remained steady in the developed market countries: in the range of 15–18%, with no obvious time pattern. In the emerging market countries, however, the ratio started out at a high of 19% and then declined following the 1997 crisis to 13%. With the exception of 1994 and 1998, the ratios in the two groups are statistically different at the 5% level. In a regression framework with size, sector, and country factors (not reported), however, the emerging market group average is not statistically different from the developed market group average.

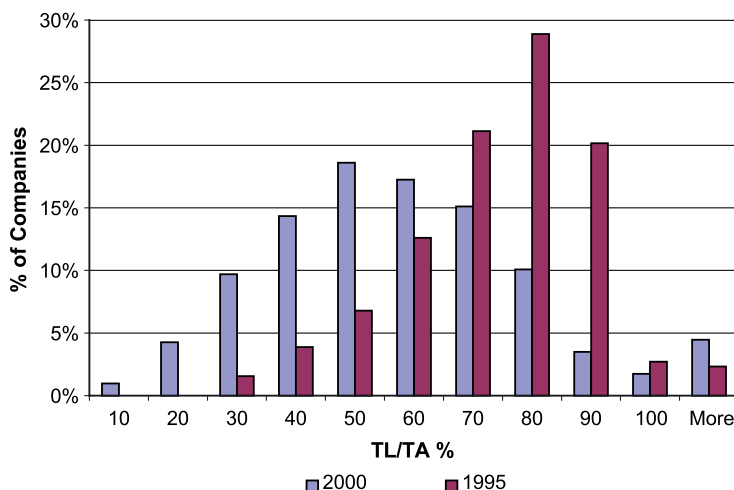


Fig. 2. Korea: total liabilities/total assets 516 companies in eight manufacturing sectors.

Table 8

Ratio of median noncurrent liabilities to total assets, by country and year, 1994–2000, percent

Market	1994	1995	1996	1997	1998	1999	2000
<i>Developed markets</i>							
Australia	20	18	20	22	22	23	21
Austria	45	40	39	38	33	29	25
Belgium	22	22	20	20	18	16	16
Bermuda	8	7	5	5	6	3	3
Canada	22	21	19	18	17	17	19
Cayman Islands	9	9	13	12	13	17	16
Denmark	19	19	20	18	17	20	18
Finland	32	28	23	26	26	24	23
France	23	21	21	20	19	19	20
Germany	39	38	38	37	33	32	31
Greece	9	8	6	7	9	10	10
Ireland	26	26	22	19	31	27	28
Italy	22	19	18	19	18	18	18
Japan	20	18	14	13	15	15	14
Netherlands	24	21	23	21	19	18	17
Norway	28	26	24	25	25	26	25
Singapore	9	11	9	10	9	9	9
Spain	18	18	15	20	16	18	19
Sweden	22	20	21	22	27	27	26
Switzerland	30	28	28	27	25	23	21
United Kingdom	10	10	10	10	11	10	9
United States	15	14	12	12	14	16	13
Group Median	18	17	15	15	17	17	16
<i>Emerging markets</i>							
Argentina	15	11	16	21	9	9	10
Brazil	n.a.	17	22	24	23	24	25
Chile	9	13	15	15	15	15	19
Colombia	18	15	18	10	12	9	15
Czech Republic	1	3	3	7	6	5	2
Hong Kong	9	10	8	7	6	6	6
Hungary	16	8	5	3	5	6	4
India	35	31	28	19	22	16	11
Indonesia	15	16	14	19	11	11	46
Israel	17	13	21	18	14	13	12
Korea, Rep. of	23	22	23	24	20	17	14
Malaysia	8	8	7	7	8	7	9
Mexico	31	27	28	29	26	27	32
Pakistan	10	16	12	15	17	13	16
Peru	2	6	17	12	10	9	9
Philippines	0	0	0	18	2	1	12
Poland	0	0	3	4	5	7	13
South Africa	18	17	12	10	11	8	10
Taiwan	8	15	19	14	15	16	17
Thailand	8	17	16	16	10	17	20
Turkey	8	11	13	17	13	10	10
Venezuela	29	18	15	14	11	14	18
Group Median	19	18	19	17	16	14	13
<i>P</i> value ^a	0.23	0.04	0.00	0.00	0.23	0.00	0.00
Global Median	18	17	16	16	16	16	15

Within the two country groups, one observes considerable cross-sectional variation, with several countries in both groups producing single-digit levels of noncurrent liabilities, including the most recent year for the United Kingdom, a country with a relatively well-developed domestic bond market and with a large number of reporting companies. Even the United States, which has perhaps the most developed corporate bond market in the world in addition to a well-capitalized and competitive banking sector, had noncurrent liabilities of only 13% in 2000, well below, for example, Brazil.

In several other countries in the developed market sample, one sees much higher levels of noncurrent liabilities, particularly in Germany (31%), with its bank-based financial system, in the Nordic countries, and in Austria and Ireland. In the emerging market group, one finds relatively high levels of noncurrent liabilities in Mexico, where the ratio remained stable across the sample period, and in Brazil, where the ratio increased rapidly following the currency stabilization program introduced in 1994. In Korea, noncurrent liabilities 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.

4.3. Asset structure

Asset structure—the relative amount 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, 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 of countries.

4.3.1. Current and fixed assets to total assets

Current assets, which consist primarily of cash, liquid securities, inventory, and trade receivables, constitute 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% of their assets in this form, as opposed to a much lower level of 45% (in 2000) for the emerging market countries.

As the complement to current assets, fixed assets represent a bit under half of the total (Table 9). Here one sees a marked difference in the level 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, and these differences are statistically significant. This difference is highlighted by the remarkably low levels of fixed assets in two leading developed market countries—the United States and Germany—both of which have ratios

Notes to Table 8:

n.a., not available.

^a *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% level.

Table 9

Ratio of median fixed assets to total assets, by country and year, 1994–2000, percent

	1994	1995	1996	1997	1998	1999	2000
<i>Developed markets</i>							
Australia	51	54	52	52	52	58	54
Austria	48	48	47	48	47	45	47
Belgium	45	42	41	39	40	43	44
Bermuda	41	47	40	42	45	34	33
Canada	50	49	50	49	52	54	53
Cayman Islands	59	60	45	42	59	61	67
Denmark	40	40	36	40	42	42	43
Finland	51	53	50	46	48	44	43
France	34	34	34	32	32	31	32
Germany	40	39	39	37	37	39	40
Greece	31	33	33	34	38	42	39
Ireland	46	45	44	41	45	53	55
Italy	36	32	33	37	37	37	35
Japan	42	43	42	42	44	44	46
Netherlands	44	43	44	42	42	40	41
Norway	45	44	43	43	42	41	44
Singapore	47	49	48	50	50	49	49
Spain	54	55	53	52	52	54	48
Sweden	38	41	42	41	46	43	41
Switzerland	45	44	45	46	46	46	44
United Kingdom	37	35	35	35	38	43	42
United States	38	37	36	37	39	40	40
Group Median	40	40	40	40	42	43	43
<i>Emerging markets</i>							
Argentina	60	59	60	58	65	64	63
Brazil	n.a.	74	71	65	65	61	61
Chile	57	58	57	57	57	62	63
Colombia	78	82	84	78	75	80	74
Czech Republic	58	54	58	54	54	55	55
Hong Kong	43	45	45	45	45	45	46
Hungary	47	46	46	40	53	54	52
India	48	48	50	57	57	63	67
Indonesia	53	57	57	62	57	64	67
Israel	49	48	45	40	38	34	28
Korea, Rep. of	48	47	49	48	52	51	50
Malaysia	50	49	48	50	53	54	52
Mexico	73	71	73	72	72	69	69
Pakistan	47	49	36	68	54	53	58
Peru	58	51	56	52	56	56	60
Philippines	57	61	64	68	48	54	62
Poland	40	44	47	49	53	51	52
South Africa	40	44	44	42	39	41	42
Taiwan	65	60	64	61	61	62	63
Thailand	56	59	58	58	57	67	58
Turkey	28	29	29	37	40	39	29
Venezuela	65	73	79	82	68	76	76
Group Median	49	50	50	51	54	54	55
<i>P Value</i> ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Global Median	42	42	42	43	45	45	45

below both the global and developed market average. The difference extends much deeper, however, as only four of the developed market countries have fixed asset ratios in excess of 50% (Australia, Canada, Cayman Islands, and Ireland), while only four of the emerging market countries have ratios below 50% (Hong Kong, Israel, South Africa, and Turkey).

Differences between the countries might reflect sector or size effects, but regressions (not reported) that control for these effects do not support that view. For 2000, a regression of the ratio of fixed assets to total assets on country and industry variables and a size factor shows that, although both size and sector effects are statistically significant, country effects are also significant. Specifically, among the emerging market countries, 11 countries have ratios that are statistically larger than that of the United States, and only a single emerging market country—Turkey—has a ratio below that of the United States. Among the developed market sample, two countries have ratios above that of the United States, and five have ratios below that of the United States. Apparently, even controlling for sector and size effects, the emerging market group holds higher levels of fixed assets than the developed market group, and that difference is statistically significant.

This result is at odds with one view of the world that posits higher levels of current assets in emerging market countries 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 market group 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 market countries acts as an additional form of capital, but one not counted on the balance sheet. In contrast, the low-wage unskilled worker in the emerging market countries must be combined with higher levels of fixed assets.

4.4. *Return on assets and equity*

Returns on assets are of central importance in a market economy. Allocation of capital on the basis of risk and return is the foundation for financial economics and has obvious policy implications. In this section, we examine the differences among the accounting returns of the various countries and sectors in our sample (Table 10).

What would be our a priori expectations concerning rates of return in emerging and mature markets? In terms of the simplest neoclassical model, risk-adjusted rates of return should be higher in emerging markets than in developed market countries because the former have lower capital endowments and therefore may be expected to have a higher marginal product of capital. Higher rates of return in emerging markets should enable

Notes to Table 9:

n.a., not available.

^a *P* value reports the results of test for equality of medians between the two countries. *P* values less than 0.05 reject equality at the 5% level.

Table 10
Median return on assets and equity by country and year (inflation adjusted), 1994–2000, percent

	Assets							Equity						
	1994	1995	1996	1997	1998	1999	2000	1994	1995	1996	1997	1998	1999	2000
<i>Developed markets</i>														
Australia	5.4	3.3	4.9	6.5	4.4	4.5	2.8	10.5	7.8	8.8	11.8	8.5	9.7	7.3
Austria	1.3	3.5	3.6	4.5	4.3	4.6	5.1	5.0	11.4	8.0	12.4	12.8	10.0	9.6
Belgium	3.4	5.9	4.7	5.7	4.6	4.3	4.6	8.7	11.4	12.7	13.8	10.5	10.2	11.3
Bermuda	4.0	1.6	3.9	5.1	1.4	4.9	4.8	6.8	3.7	8.8	8.6	2.3	9.7	7.7
Canada	7.4	6.1	5.7	4.0	2.7	2.4	3.1	13.4	11.9	11.0	9.4	7.6	5.5	6.6
Cayman Islands	10.9	3.4	7.3	2.2	2.5	0.1	2.4	20.6	5.4	15.0	3.7	3.4	2.7	7.2
Denmark	6.0	6.9	5.8	5.2	5.1	4.8	3.8	12.2	12.5	12.5	11.3	12.2	11.7	8.9
Finland	4.9	5.9	6.6	7.3	5.2	6.1	5.7	9.8	12.1	14.3	16.6	12.1	13.4	13.9
France	3.6	4.2	4.2	4.6	4.4	5.0	4.9	8.9	9.6	10.2	11.9	11.0	11.4	10.7
Germany	2.0	4.1	4.0	3.5	4.0	4.3	4.3	6.6	10.3	10.1	10.5	11.5	10.0	10.2
Greece	−2.2	1.4	1.0	3.5	3.1	6.5	6.6	9.6	13.2	13.2	15.7	13.4	15.5	14.4
Ireland	7.0	7.4	9.1	8.5	5.7	7.5	2.9	16.9	19.6	19.1	19.5	17.1	20.6	14.0
Italy	−0.3	−0.1	1.9	3.6	2.3	4.0	3.7	3.6	5.4	7.7	9.5	8.5	10.2	9.4
Japan	2.8	4.3	4.5	2.0	1.7	3.7	5.5	4.6	6.6	7.1	4.1	2.9	5.4	7.4
Netherlands	5.0	6.9	6.8	6.7	5.8	5.0	6.0	14.1	16.8	15.0	16.2	15.6	14.2	15.8
Norway	7.2	6.4	6.9	3.8	3.2	1.9	0.9	17.1	16.2	13.2	11.3	9.6	5.6	1.9
Singapore	5.1	5.2	5.6	3.9	5.1	6.8	5.8	8.7	9.0	9.3	7.9	8.4	10.7	9.3
Spain	2.4	3.2	4.6	5.2	5.3	5.0	4.6	7.2	10.8	9.5	11.6	11.7	11.8	11.6
Sweden	7.4	9.2	8.3	6.4	5.8	5.5	7.1	18.4	19.6	15.3	13.1	13.3	11.4	13.6
Switzerland	5.5	5.2	6.4	7.1	6.5	6.6	7.4	11.2	10.8	12.6	14.7	13.4	13.6	14.1
United Kingdom	5.6	5.1	6.5	5.3	2.8	4.6	3.8	11.9	11.9	13.5	11.5	8.2	9.4	7.4
United States	4.9	5.4	4.9	4.7	3.0	1.8	1.1	10.6	10.6	9.8	9.8	6.8	5.0	3.3
Group Median	4.3	4.8	4.9	3.7	2.7	3.7	4.2	9.4	10.1	9.0	8.0	5.9	6.8	7.4

Emerging markets

Argentina	3.9	3.6	9.5	5.2	5.0	4.1	7.4	9.0	6.3	15.6	9.9	8.7	4.7	9.0
Brazil	n.a.	−60.9	−10.9	−2.4	0.0	−0.1	−1.5	n.a.	−58.7	−9.0	0.5	2.5	3.5	4.5
Chile	−1.3	1.5	0.3	1.3	1.3	3.2	2.4	3.1	5.9	4.7	5.1	4.5	6.1	4.9
Colombia	−16.1	−16.2	−15.3	−14.7	−16.3	−7.9	−3.4	−13.8	−15.3	−14.8	−14.2	−15.2	−6.8	−1.4
Czech Republic	−6.6	−6.1	−5.5	−5.1	−8.5	0.2	0.5	−6.2	−6.0	−4.6	−3.7	−8.1	0.7	2.1
Hong Kong	0.3	−1.5	2.1	0.4	0.6	9.5	10.0	7.9	3.2	9.0	6.6	5.0	14.0	14.0
Hungary	−6.9	−15.5	−3.7	−4.0	−6.4	−2.6	0.9	1.8	−6.9	0.4	0.5	−2.3	2.1	4.3
India	−1.2	−0.1	−0.1	−0.6	−7.8	2.8	5.0	7.2	10.3	7.0	5.0	−2.8	9.2	11.1
Indonesia	−0.3	−2.1	0.2	−5.1	−55.7	−13.3	−11.1	7.1	6.7	8.5	−5.2	−54.2	11.9	−39.0
Israel	−5.9	−3.1	−4.1	−3.3	−1.3	−1.2	4.6	−1.3	2.3	0.1	1.4	4.4	1.6	8.4
Korea, Rep. of	−1.4	0.5	−0.1	−0.9	−4.5	5.3	4.0	4.4	6.4	4.5	2.2	−0.5	10.8	8.0
Malaysia	4.7	5.5	5.3	4.4	−2.3	2.4	5.2	11.6	12.5	11.7	9.5	−0.2	7.1	8.9
Mexico	−5.7	−27.5	−21.3	−9.5	−7.6	−6.2	0.7	−8.0	−23.1	−11.3	1.3	−2.8	1.9	9.6
Pakistan	−1.0	−1.7	6.0	−3.2	−0.7	−1.1	5.1	17.9	8.4	20.7	6.1	12.5	25.0	14.3
Peru	−2.6	3.7	−7.5	−4.7	−5.2	−1.5	0.9	1.8	7.0	−6.9	−2.7	−4.6	−1.0	2.2
Philippines	−0.2	1.5	1.2	−0.9	−5.8	−3.1	2.5	1.1	11.1	3.6	1.3	−1.7	−2.9	5.9
Poland	−20.2	−17.0	−8.6	−6.6	−6.4	−2.4	−3.7	−18.5	−15.6	−7.7	−4.0	−3.6	0.3	−1.3
South Africa	−2.3	1.3	2.7	0.8	1.7	3.6	5.0	4.8	11.2	11.9	6.2	7.5	9.3	10.8
Taiwan	5.1	4.0	5.8	6.1	3.3	6.4	5.1	7.5	7.2	10.1	10.8	5.5	10.2	7.5
Thailand	3.3	2.3	1.5	−11.4	0.5	5.6	5.5	9.7	10.1	6.5	−19.2	15.9	10.4	12.9
Turkey	−87.8	−74.0	−69.9	−71.9	−81.5	65.5	−43.0	−75.8	−65.1	−58.0	−59.2	−78.3	408.3	−30.1
Venezuela	−58.3	−52.6	−87.1	−37.6	−33.4	−23.1	−12.0	−58.4	−49.4	−82.8	−33.9	−32.6	−23.9	−11.4
Group Median	−0.6	0.6	0.4	−0.7	−3.9	3.7	3.5	6.2	6.3	5.7	3.1	−0.6	8.4	7.3
<i>P</i> Value ^a	0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57
Global Median	3.4	4.0	4.2	2.7	1.8	3.7	4.0	8.7	9.4	8.5	6.9	4.7	7.2	7.4

n.a., not available.

^a *P* value reports the results of test for equality of medians between the two countries. *P* values less than 0.05 reject equality at the 5% level.

capital to flow from rich to poor countries leading to mutually beneficial economic relations. Lucas (1990) proposed a number of reasons why despite huge differences in wages between India and United States, capital does not flow to India. The essential point is that developing countries have low wages but also low productivity so that wage cost per unit of output may not necessarily be lower in developing countries. The latter suffer from many deficits including those related to human capital, the quantity and quality of infrastructure, financial system, corporate governance, to name but a few of these handicaps. It should therefore not be surprising that the rates of return in emerging markets may turn out to be lower than in advanced countries.

Turning to the empirical evidence, ignoring potential impacts from various accounting standards on the calculation of income, a major difference across countries in calculating returns is the impact of local inflation. For that reason, the statistics on returns reported in Table 9 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 also could 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 we reason, we rely on a simple inflation differential adjustment.

The global median return on assets (inflation adjusted) ranges from 1.8% to 4.2% over the sample period, with the high in 1996 and the low in 1998. The difference between the developed market and emerging market median values is significantly different in all years except 1999, when they are equal. In all years except 1999 the emerging market returns are below the developed market returns. Notably, returns in emerging market countries are near zero over 1994–1997, with a sharp drop in 1998 as the Asian crisis both reduced nominal returns and increased inflation in several emerging market countries. Both the inflation and nominal return effects were transitory, however, and emerging market returns increased in 1999–2000.

The variation across individual countries is 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, volatility is relatively low—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 1998–2000 after 4 years of higher returns. In Malaysia returns were high through 1997 and lower in subsequent years, but a similar pattern is not obvious in either Thailand or Korea, both countries that fell prey to the Asian crisis of 1997.

Differences at the country-group level also are evident at the sector level, as reported in Fig. 3, which shows the (inflation-adjusted) returns on assets for 2000 for each of the eight sectors for the two country groups. Returns in the developed market sectors are consistently in the 4–5% range, with the notable exception of textiles, which returned just over 1%. There is considerably more variation in emerging market returns, although within the same range as the developed market group. In part because of the lower number of firms in the individual sectors, the differences between the two country

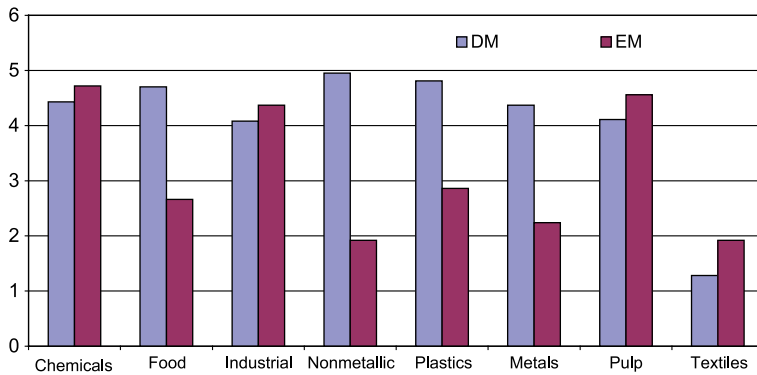


Fig. 3. Median ROA (2000, percent, inflation, adjusted).

groups are statistically significant only for food, nonmetallic minerals, and metals, and in each of those cases the emerging market median is below that of the developed market group. Emerging market group median returns exceed the corresponding developed market group returns in four sectors, but those differences are not statistically significant.

The median returns on equity (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 1999–2000. Differences between the two country groups are significant, both statistically (in all years) and economically. Returns in developed market countries were high over 1994–1997, approaching 10% in each year, compared to only about 6% in emerging market countries for the first three years, falling to 3% in 1997. The Asian crisis hit returns hard in the emerging market group in 1998, pushing them below zero, but recovery was both rapid and strong, with emerging market returns well above their developed market 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 United States and Hong Kong are examples. Returns are quite high in a few countries, such as Ireland, the Netherlands, and Argentina. Low returns 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 have country fixed effects that are significantly greater than the returns on the base country (the United States). Several sectors have significant fixed effects, relative to the base sector (industrial and consumer products), but those effects are all negative. There is also a significant and positive size effect on returns. None of these factors accounts for much of the variation in returns across firms, however, as the R^2 of the regressions (for returns on assets) is a mere 1.1%, of which country factors account for the largest part by far.

5. Conclusions

The main results of the paper may be summarized as follows.

- First, regarding size as measured by total assets: (a) there is a significant difference in the distribution of emerging market and developed market firms in our sample; (b) emerging market firms are smaller in most sectors; and (c) country effects explain more of the variation among firms in the distribution of size than do sector effects.
- Second, regarding firm leverage: (a) emerging market firms currently have lower levels of leverage than do developed market firms, and leverage has declined in emerging market countries in recent years; (b) the use of current liabilities is much the same in the two groups of countries; (c) current liabilities finance a larger portion of total assets than do long-term liabilities in both groups of countries; and (d) neither country nor sector factors explain much of the variation in leverage among firms.
- Third, regarding asset structure, emerging market firms employ a higher level of fixed assets than do their developed market counterparts.
- Fourth, regarding returns on assets and equity, returns (adjusted for inflation) generally are lower in emerging market countries, but they have increased in recent years.
- Fifth, 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.

To sum up, what our research indicates in broad terms is that there are far fewer differences between the EM and DM firms than one would expect a priori. Consequently, the view that EM firms are less subject to competition and market forces may not be valid. 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.

References

- Aw, B.Y., Chung, S., Roberts, M.J., 2002. “Productivity, Output, and Failure: A Comparison of Taiwanese and Korean Manufacturers.” NBER Working Paper 8766. Cambridge, MA: National Bureau of Economic Research, February.
- Bekaert, G., Harvey, C.R., 2003. Emerging markets finance. *Journal of Empirical Finance* 10, 3–55.
- Booth, L., Aivazian, V., Demirguc-Kunt, A., Maksimovic, V., 2001. Capital structures in developing countries. *Journal of Finance* LVI (1), 87–130.
- Cabral, L.M.B., 2000. *Introduction to Industrial Organization*. MIT Press, Massachusetts.
- Caves, R.E., 1998. Industrial organization and new findings on the turnover and mobility of firms. *Journal of Economic Literature* XXXVI, 1947–1982.
- Claessens, S., Djankov, S., Lang, L., 2000. The separation of ownership and control in east Asian corporations. *Journal of Financial Economics* 58 (1–2), 81–112.
- Denis, D.K., and McConnell, J.J., 2003. “International Corporate Governance”, ECGI Working Paper Series in Finance No. 5/2003, available at http://ssrn.com/abstract_id=320121.
- Easterly, W., Islam, R., and J.E Stiglitz (2000). “Shaken and Stirred: Explaining Growth Volatility.” In: Pleskovic B., & Stern, N. (Eds.), *Annual World Bank Conference on Development Economics 2000*. The International Bank for Reconstruction and Development/The World Bank, pp. 191–211.

- Friedman, M., 1953. The methodology of positive economics. *Essays in Positive Economics*. University of Chicago Press, Chicago, pp. 3–43.
- Glen, J., Singh, A., 2003. Capital structure, rates of return, and financing corporate growth: comparing developed and emerging markets, 1994–2000. In: Litan, R.E., Pomerleano, M., Sundararajan, V. (Eds.), *The Future of Domestic Capital Markets in Developing Countries*. The Brookings Institution, Washington, DC. Chap. 14.
- Glen, J., Singh, A., 2003. Corporate Governance, Competition and Finance: Rethinking Lessons from the Asian Crisis, *Eastern Economic Journal*, forthcoming.
- Glen, J., Lee, K., Singh, A., 2001. Persistence of profitability and competition in emerging markets. *Economics Letters* 72, 247–253.
- Glen, J., Lee, K., Singh, A., 2003. Corporate profitability and the dynamics of competition in emerging markets: a time series analysis. *Economic Journal* 113 (491), F465–F484.
- Greenspan, A., 1998. Testimony Before the Committee on Banking and Financial Services. U.S. House of Representatives, Washington. January 30.
- Harris, M., Raviv, A., 1991. The theory of capital structure. *Journal of Finance* (March), 297–355.
- Joh, S.W., 2003. Corporate governance and firm profitability: evidence from Korea before the economic crisis. *Journal of Financial Economics* 68, 287–322.
- Khanna, T., 2000. Business groups and social welfare in emerging markets: existing evidence and unanswered questions. *European Economic Review* 44, 748–761.
- Kumar, K.B., Rajan, R.G., Zingales, L., 2003. “What Determines Firm Size?” NBER Working Paper No. 496, available at: <http://gsbwww.uchicago.edu/fac/finance/papers/>.
- Laffont, J., 1999. Competition, information, and development. *Annual World Bank Conference on Development Economics*, 1998. World Bank, Washington, pp. 237–257.
- Leff, N., 1978. Industrial organization and entrepreneurship in developing countries: the economic groups. *Economic Development and Cultural Change* 4 (26), 661–675.
- Lucas Jr., R.E., 1990. Why doesn't capital flow from rich to poor countries? *American Economic Review* 80 (2), 92–96.
- Marris, R., 1964. *The Economic Theory of Managerial Capitalism*. Macmillan, London.
- Marris, R., 2002. Edith Penrose and economics. In: *Contributions to Political Economy*, vol. 18. Oxford University Press, Oxford, pp. 47–66.
- Myers, S.C., 2001. Capital structure. *Journal of Economic Perspectives* 15 (2), 81–102.
- Penrose, E.T., 1959. *The Theory of the Growth of the Firm*. Blackwell, Oxford.
- Pomerleano, M., Xin, Z., 1999. Corporate fundamentals and the behavior of capital markets in Asia. In: Harwood, A., Litan, R., Pomerleano, M. (Eds.), *Financial Markets and Development*. Brookings.
- Shleifer, A., Wolfenzon, D., 2002. Investor protection and equity markets. *Journal of Financial Economics* 66, 3–27.
- Simon, H.A., 1991. Organizations and markets. *Journal of Economic Perspectives* 5, 25–44.
- 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* 107 (442), 771–782 (May).
- Singh, A., 1999. Asian capitalism and the financial crisis. In: Michie, J., Smith, J.G. (Eds.), *Global Instability: The Political Economy of World Economic Governance*. Routledge, London, pp. 9–36.
- Singh, A., 2000. The Anglo-Saxon Market for Corporate Control: The Financial System and International Competitiveness. In: Howes, Singh (Eds.), *Competitiveness Matters*. University of Michigan Press, pp. 89–105.
- Singh, A., 2003. Competition, corporate governance and selection in emerging markets. *Economic Journal* 113 (491), F443–F464.
- Standard and Poor's, 2001. *Standard & Poor's Emerging Markets Fact Book, 2001*, Standard & Poor's, New York, New York.
- Stiglitz, J., 1999. Reforming the global financial architecture: lessons from recent crises. *Journal of Finance* 54 (4), 1508–1521.
- 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* 38 (1), 11–44 (March).
- Whittington, G., Saporta, V., Singh, A., 1997. The Effects of Hyper-Inflation on Accounting Ratios: Financing Corporate Growth in Industrial Economies. IFC Technical Paper 3. Washington: International Finance.
- Williamson, O., 1970. *Markets and Hierarchies*. Free Press, New York.
- Williamson, O., 1981. *The Economics Institutions of Capitalism*. Free Press, New York.
- Winter, S.G., 1987. Competition and selection. In: Eatwell, J., Millgate, M., Newman, P. (Eds.), *The New Palgrave Dictionary of Economics*. Norton, New York, pp. 545–548.