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Corporate Stability and Economic Growth

Kathy S. He[*], Randall Morck[**], and Bernard Yeung[***]

* Graduate Student in Finance, Student, University of Alberta School of Business, Edmonton, Alberta, Canada, T6G 2R6. E-mail she@ualberta.ca.
** Stephen A. Jarislowsky Distinguished Professor of Finance, School of Business, University of Alberta, Edmonton, Alberta, Canada, T6G 2R6.Tel: (780) 492-5683. E-mail randall.morck@ualberta.ca; Research Associate, National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138 USA.
*** Abraham Krasnoff Professor of International Business and Professor of Economics, Stern School of Business, New York University, New York NY 10012. Tel: (212) 998-0425. Fax: (212) 995-4221. E-mail byeung@stern.nyu.edu.

Abstract

Greater instability in a country's list of top corporations is associated with faster economic growth. This faster growth is primarily due to faster growth in total factor productivity, for greater instability in the list of top firms is actually associated with slower capital accumulation. These findings are consistent with the view that the creative destruction that underlies economic growth through increased productivity requires a turnover in the list of top corporations. Productivity improvement appears to be tied to the rapid growth of new large firms, not to the longevity of established firms.

Although corporate sector stability is not associated with (successful) government policies aimed at equalizing income distributions or avoiding economic crises, it is related to other political factors. The list of top firms is more stable in countries with bigger government, fewer rights for creditors in bankruptcy law, and financial system based on banks rather than stock markets. We argue that political rent-seeking by large established firms underlies increased corporate stability.

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"In general, it is not the owner of stagecoaches who builds railways."

Schumpeter (1934, p. 66)

1.   Introduction

National economies have landmark corporations. The shipping company, Maersk, symbolizes the Danish economy and its maritime history, just as Nokia is an economic symbol of Finland's success in the "new economy."   Many, especially the principals of these great corporations, claim a linkage between an economy's fortunes and those of its landmark firms. Most famously, GM chairman Charles Wilson proclaimed, "What is good for the country is good for General Motors and vice versa."

This view is not without economic foundation. First, large corporations may be so because they are well managed, their growth genuinely creating new wealth and therefore macroeconomic growth.   Second, great corporations own the resources to create and commercialize innovations, as Schumpeter (1942) argued. Third, huge corporations provide a degree of economic stability and security for their managers and workers. This stability creates an environment in which investment in high-risk productivity gains is possible without exposing the firm's stakeholders to unacceptable personal risk. In short, the longevity and prosperity of an economy's great corporations may well be good for long term economic growth.

But this view is also not without opponents. Inevitably, over the long run, economies change. Once dominant firms become stale holders of past glory. The Hudson's Bay Company no longer reflects Canada and the venerable old horology firms of Switzerland succumbed to Japanese competition. The view that the steady turnover of a country's great corporations is a sign of economic dynamism also has a reputable economic pedigree. First, Nelson and Winter (1982) argue that currently successful corporate practices frequently become obsolete. In their view, a growing economy must periodically rejuvenate itself as newly dominant firms advance new and better ways of doing business. A heterogeneous field of competitors, each with a different style and strategy, gives rise to a long-run Darwinian contest for market dominance. This contest generates the economic profits that cause growth and, necessarily, the periodic displacement of dominant firms. Second, as first enunciated by Schumpeter (1912), innovations *per se* generate new dominant firms over the long run, as with Microsoft in the U.S. From this viewpoint, the continuous dominance of a cadre of great corporations is symptom of economic stagnation.

Despite the fundamental nature of these issues, remarkably little is known about the influence of the longevity and prosperity of great corporations on their host countries' long-term economic growth. In part, this may be because the above theories pertain to the very long run, measured in generations rather than years. Consequently, empirical falsification is difficult and awaits reliable data over a sufficiently long term for a sufficient number of economies.

This paper attempts a first pass at relating the stability of an economy's list of leading firms to its long-term economic growth. To this end, we construct a set of corporate stability indices for a large cross section of countries over a twenty-year period from 1975 to 1996. We relate these indices to standard measures of economic growth from 1975 to 1996. Our purpose is to see whether the continuous dominance of leading firms or their eclipse by other firms is

associated with faster growth. Also, we are interested in understanding how corporate stability related to other factors linked to economic growth.

We find that countries whose corporate sectors are more unstable during this period grow faster than other countries with the same initial *per capita* GDP, level of education, and capital stock.[1] Moreover, this is due to faster productivity growth that more than compensates for slower capital accumulation in countries with less stable corporate sectors.

We then investigate the determinants of corporate sector stability, and find that measures of the size of government are highly significantly positively related to corporate sector stability. In contrast, measures of government corruption are much less important. It appears that "big government", even when relatively benevolently run, is associated with an unhealthy degree of corporate stability. We also find that both stock market development and openness to the global economy are negatively and significantly correlated with stability, while the development of the banking system is positively and significantly correlated with stability. The relationship between corporate stability and growth appears to operate primarily through factors associated with government size and financial development.

Section 2 reviews the construction of our key variables and section 3 presents our key results. Section 4 considers possible political and economic explanations of the findings in section 3. Section 5 concludes.

2.   Data

In this section, we first describe the raw data used to construct our corporate stability indexes. We then describe the indexes themselves and the other variables central to our empirical tests.

2.1   Corporate Stability Data

Our corporate stability data are collected from the 1978 and 1998/99 editions of *Dun & Bradstreet's Principals of International Business*. We use this source because it includes a wide spectrum of businesses: privately held companies, publicly held companies, cooperatives, and state owned enterprises. A comparison with annual reports indicates that the 1978 edition contains 1975 data for the most part, so we refer to it as our 1975 data. The 1998/99 edition (the most recent available when we began this work) generally contains 1996 data, so we refer to it as our 1996 data.

We select countries according to the following criteria. First, the country must appear in both the 1978 and 1998/99 editions of *Principals of International Business*. Second, the total number of enterprises for which sales or number of employees is provided in the country must be large enough to allow construction of our key corporate stability variables. We thus only consider countries with thirty or more enterprises listed in both editions. Third, we delete countries whose tenth largest company has fewer than 500 employees. This removes very small countries from the sample. Fourth, comparable *per capita* GDP must be available for both 1975 and 1996. This requirement eliminates countries that were part of the former Soviet Union and a handful of other countries that did not exist in 1975. Fifth, we eliminate countries that experienced prolonged and extensive involvement in war between 1975 and 1996. Sixth, we

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[1] Note that the question of large firm stability is separate from that of optimal firm size. Acs *et al.* (1999) find that US industries containing larger firms show evidence of faster productivity growth. Rapid turnover of large firms need not imply a steady state characterized by a preponderance of small firms.

require data on education levels and the total value of capital assets for each country for the regressions that follow.

These criteria allow us to calculate an employee-based corporate stability index for a sample of 55 countries and a sales-based corporate stability index for a sample of 47 countries.

2.2   Corporate Stability Index Construction

We wish to measure the long-run stability of the corporate sector in each country. To do this, we gauge the importance of enterprises first by the number of people they employ and second by their total sales. Our corporate stability measures are explained below.

From the 1978 and 1998/99 editions of *Dun & Bradstreet's Principals of International Business*, we obtain the names and number of employees for the fifty largest employers in each of these 55 remaining countries. If ties occur for the fiftieth firm, all the ties are included. If there are fewer than 50 enterprises included, we use all included enterprises. For small countries, the list of top fifty enterprises can include what would be considered "small firms" in larger countries. This fact necessitates that we control for country size in subsequent analyses.

Our basic *top 50 employer corporate stability index* is defined as

$$\Phi_{L,50} = \frac{\sum\limits_{i=1}^{50} d_i L_i}{\sum\limits_{i=1}^{50} L_i} \tag{1}$$

where L_i is the labor force employed by the ith largest employer in the country, as listed in *Dun and Bradstreet's Principals of International Business, 1998/99 edition*, and the Dirac delta function δ_i is defined as

$$d_i = \begin{cases} 1 & \text{if firm i is also included in the top 50 firms in 1975} \\ 0 & \text{if firm i is not included in the top 50 firms in 1975} \end{cases} \tag{2}$$

where the largest firms of 1975 are from *Dun and Bradstreet's Principal International Business, 1978 edition.*

As a robustness check, we also construct stability indexes based on the top 50 firms ranked and weighted by sales, S_i. Thus, the top *fifty sales-based corporate stability index* is

$$\Phi_{S,50} = \frac{\sum\limits_{i=1}^{50} d_i S_i}{\sum\limits_{i=1}^{50} S_i} \tag{3}$$

In selecting the largest companies for this list, we exclude banks and credit institutions (SIC: 60,61), as the 1978 book provides deposits instead of sales. (Because deposits are liabilities of financial institutions, they are not comparable to the sales of other companies.) Other non-commercial organizations excluded in our list are: Educational Services (SIC: 82), Health Services (SIC: 80), Membership Organizations (SIC: 86), Noncommercial Research

Organizations (SIC: 8733), and Government Agencies (SIC: 91-97). For consistency, we also delete these industries in constructing our employer stability index values.

Because sales data is missing from *Dun & Bradstreet's Principals of International Business* more often than employment data, this version of our corporate stability index is available for only 46 countries. This sample of countries is different from the 55 countries for which the employee-based index is available. This is because *Dun & Bradstreet's Principals of International Business* lists sales, but not employees, for the enterprises of some countries and employees, but not sales, for the enterprises of other countries. For some countries, sales and employees are both listed, though often only one or the other is listed for an individual enterprise.

To construct $\Phi_{L,50}$ and $\Phi_{S,50}$, we must match company names in our 1975 data with those in our 1996 data for each country. One complication is the different presentation of some company names in the two editions. For example, some Malaysian company names contained the abbreviation *BHD* in one edition, and the word *Berhad* (Corporation in Malay) in the other. Likewise, the Finnish firm Nokia is listed as *OY NOKIA AB* in one edition and *NOKIA OYJ* in the other. The choice of language sometimes causes mismatches, too. For example, a Japanese company listed in the 1975 data as *Sumitomo Kinzoku Kogyo KK* is listed under the English translation of its name, *Sumitomo Metal Industries Limited*, in 1996.

Also, some companies change their names. If corporate name changes are more common in some countries than others, this could bias our findings. We are therefore concerned that some firms may change their names, yet preserve a continuity of corporate personhood and, more importantly, a continuity of corporate control. To uncover such continuity requires a detailed historical study of each firm. Doing such studies for the 50 largest firms in each country would be prohibitively expensive. We therefore research the histories of the ten largest employers only in each country. This gives us a set of stability measures in each of the 55 countries for which $\Phi_{L,50}$ is available that we believe to be very reliable. We denote this *top ten employer corporate stability index* as

$$\Phi_{L,10} = \frac{\sum_{i=1}^{10} d_i \hat{L}_i}{\sum_{i=1}^{10} \hat{L}_i} \qquad (4)$$

where $\hat{L}_i$ is the *i*th largest employer is this revised list of the top ten employers in each country.

The advantage of the top 50 indexes is that they are more comprehensive. The advantage of the top 10 index is that it is less noisy. In addition, the top 10 index is less apt to contain very small firms from small countries.

[Table 1 about here]

Panel A of Table 1 lists the values of our three corporate stability indexes for each country.

The interpretation of these indexes is straightforward. For example, the value of the top 50 labor-weighted stability index for the United State is $\Phi_{L,50} = 0.410$. This means that 41% of

the workers employed by the top 50 firms of 1996 worked for firms that had also been in the top 50 firms of 1975. The comparable figures for Japan, Sweden, Hong Kong, and Argentina are 51%, 58%, 12% and 7.7%. The top 10 labor-weighted index, $\Phi_{L,10}$, has a similar interpretation, but using the top 10 firm lists for each year. Analogously, the sales-based stability measure for the US is $\Phi_{S,50} = 0.5436$. This means that 54.36% of the total sales of the top 50 firms of 1996 was by firms that were also in the top fifty list of 1975. A high value of the stability indexes thus indicates that a high proportion of the 1996 large firms are 1975 large firms that survived. A low value indicates that a high proportion of 1996 firms were not prominent firms in 1975.

The three indexes are, unsurprisingly, positively significantly correlated. The top fifty and top ten employer stability indexes have a correlation coefficient of $\rho = 0.865$, significant at a 0.01% confidence level. The sales based corporate stability index is significantly positively correlated with both $\Phi_{L,10}$, ($\rho = 0.381$, probability value = 2%), and $\Phi_{L,50}$, ($\rho = 0.545$, probability value = 0.03%), though the overlapping sample for which both labor and sales-based indexes are available is only 39 countries.

An economy can show a substantial turnover in its list of top firms either because old firms die or because new firms rise to eclipse old firms. The stability indexes discussed above directly measure the importance of new large firms, but capture the disappearance of old firms only indirectly. An alternative approach is to look at the disappearance rate for the top firms of 1975. We therefore construct disappearance indexes analogous to our stability indexes. Thus, our disappearance index for the largest 50 employers of 1975 is

$$\Omega_{L,50} = 1 - \frac{\sum_{i=1}^{50} \tilde{d}_i L_i}{\sum_{i=1}^{50} L_i} \tag{5}$$

where L_i is the labor force employed by the ith largest employer in the country in 1975 and the Dirac delta function $\tilde{d}_i$ is defined as

$$\tilde{d}_i = \begin{cases} 1 & \textit{if firm i is also included in the top 50 firms in } 1996 \\ 0 & \textit{if firm i is not included in the top 50 firms in } 1996 \end{cases}$$

Disappearance indexes for the top ten employers in 1975 and for the top fifty firms, ranked by sales, in 1975, denoted respectively $\Omega_{L,10}$ and $\Omega_{S,50}$, can be constructed analogously. These indices are listed in Panel b of Table 1.

The correlations between the employee-based stability and disappearance indexes are, unsurprisingly, large and negative; -0.680 for the indices based on the largest fifty firms and -0.806 for those based on the largest ten firms. Both correlations are statistically significant at 0.01% level.

We present all of our results using all three corporate stability indices and discuss the comparable results for the corporate disappearance measures. In general, they yield economically similar results. We are more confident in the labor-based indexes because of

problems in adjusting sales figures for intercorporate sales among companies that issue consolidated financial reports.

Our corporate stability indexes gauge the longevity of the dominance of each country's largest corporations. Corporate longevity could be due to sustained economic success, or it could be due to a slow turnover of economic power and dominance due to hitherto unspecified forces in an economy. In the former interpretation, long-lived large corporations are a force for economic growth. In the latter interpretation, long-lived large corporations might reflect, or perhaps cause, economic stagnation. Hence, the empirical relationship between these indices and economic growth is of interest.

The first panel of Table 2 provides summary univariate statistics for these variables.

[Table 2 about here]

2.3   Measuring Economic Growth

We define *long-term economic growth* as growth in *per capita* GDP,

$$\Delta \ln(y) = \ln(per\ capita\ GDP_{1996}) - \ln(per\ capita\ GDP_{1975}) \quad\quad (6)$$

Thus, our economic growth rate variable is *per capita* GDP growth from 1975 to 1996, based on data from *Dun & Bradstreet's Principals of International Business, 1978 edition* for our 1975 data, and *Dun & Bradstreet's Principals of International Business, 1998/99 edition* for 1996 data. *Dun and Bradstre*et obtain this data from corresponding issues of the Central Intelligence Agency's *World Fact Book*. These figures are expressed in US dollars at purchasing power parity exchange rates, as estimated by the Central Intelligence Agency (CIA), and then are inflation-adjusted to 1985 dollars. In this way, differences in inflation rates and living costs across countries are removed.

Summary statistics for this variable are shown in the second panel of Table 2. The mean value of 1.74 for $\Delta \ln(y)$ indicates that the typical country's *per capita* GDP rose by about 174% during the two decades from 1975 to 1996 in terms of real US dollars at purchasing power parity.

It is also of interest to break growth into growth due to capital accumulation and growth due to increased total factor productivity (TFP). Our annualized rate of physical capital *per capita* growth, denoted $\Delta \ln(k)$, is from La Porta *et al*. (2000), and is estimated over the period 1970-1995 following the methodology of Beck et al. (2000). Our primary TFP measure, which we denote ΔTFP, is also from La Porta *et al*. (2000) and is also constructed following Beck *et al*. (2000). That is, productivity growth equals the growth of GDP *per capita* minus 0.3 times the growth of physical capital *per capita*. Both variables are constructed using data from the *International Financial Statistics* database and from Beck *et al*. (2000).

Summary statistics for these variables are also available in the second panel of Table 2.

3.   Main Results

This section presents our main finding, clear negative cross-country correlation between corporate stability and long-term economic growth. In this section, we first present simple correlations between our corporate stability indexes and long-term economic growth. We then turn to regressions analogous to those of Mankiw (1995), but adding corporate stability as an additional independent variable. The section concludes with a discussion of the robustness of these results.

3.1. Corporate Stability and Long-Term Economic Growth

Figure 1 graphs long-term economic growth, $\Delta \ln(y)$, against corporate stability, measured by the stability of the top fifty employers in each country, $\Phi_{L,50}$, in Panel A, by the stability of the top fifty firms ranked by sales in each country, $\Phi_{S,50}$, in Panel B, and by the top ten employers in each country, $\Phi_{L,10}$, in Panel C. A clear negative correlation is evident.

[Figure 1 about here]

This is confirmed by the statistical correlations. Long-term economic growth is negatively correlated with $\Phi_{L,50}$, the top fifty employers stability index, (ρ = -0.525), $\Phi_{L,10}$, the top ten employers stability index, (ρ = -0.429), and $\Phi_{S,50}$, the top fifty sales stability index (ρ = -0.563). All three correlation coefficients are statistically significant at probability levels better than one percent.

3.2 Corporate Stability in Regressions explaining Long-Term Economic Growth

Economic growth rates are known to be lower for countries that have already achieved higher levels of income, for countries with less educated workforces (fewer human capital assets), and for countries with fewer capital assets.[2] If corporate stability is correlated with any of these other determinants of economic growth, these simple correlations may only reflect aspects of economic growth that are already known.

To assess the relationship of corporate stability with economic growth after controlling for these effects, we therefore employ regression analyses. We follow a specification analogous to that of Mankiw (1995), namely

$$\Delta \ln(y) = \boldsymbol{b}_0 + \boldsymbol{b}_1 \ln(y) + \boldsymbol{b}_2 \ln(k) + \boldsymbol{b}_3 \ln(h) + \boldsymbol{e} \qquad (7)$$

where $\Delta \ln(y) \cong \Delta y / y$ is growth in *per capita* GDP, y is initial per capita GDP, k is initial *per capita* capital assets, and h is initial average years of education – a proxy for the initial *per capita* stock of human capital.[3] Thus, in this study, we add corporate stability, Φ, as an additional right-hand side variable in (7).

To control for initial *per capita* GDP, we include the logarithm of that variable in 1975, which we denote $\ln(y)$. This variable is defined as in the definition of economic growth in (6), and is expressed in US dollars converted at the purchasing power parity exchange rate. These data are from the CIA World Fact Book, as reported in *Dun & Bradstreet's Principals of International Business, 1978 edition.*

To control for the initial stock of capital assets in each country, we use the logarithm of the total real value of each country's *per capita* capital assets for 1975, denoted here $\ln(k)$.

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[2] See e.g. Barro (1991), Mankiw (1995).
[3] Note that we treat physical and human capita symmetrically – controlling for the initial stock of each. Other studies sometimes use the stock of human capital, measured by average years of education, and the flow of physical capital accumulation, measured by an investment rate, on the right-hand side of (7). Doing this is economically sensible in other contexts, however a symmetric treatment of the two sorts of capital is more appropriate here as it facilitates a useful decomposition of growth, which we develop below.

Again, this variable is converted to US dollars at purchasing power parity. These data are from King *et al.* (1994).

Our proxy for the initial stock of human capital in each country, is the logarithm of the average number of years of education for each country's adult (age > 25) population, which we denote ln(h). These data are from Barro and Lee (1991).

Since we wish to be sure that differences in the sizes of countries' economies are not affecting our results, we also include the logarithm of total GDP, which we denote ln(Y). Total GDP, *Y*, is the country's 1975 population times its per capita GDP *y*, as defined above.

Thus, we run the regressions

$$\Delta \ln(y) = \boldsymbol{b}_0 + \boldsymbol{b}_1 \ln(y) + \boldsymbol{b}_2 \ln(k) + \boldsymbol{b}_3 \ln(h) + \boldsymbol{b}_4 \Phi_{L,50} + \boldsymbol{e}$$

$$\tag{8}$$

$$\Delta \ln(y) = \boldsymbol{b}_0 + \boldsymbol{b}_1 \ln(y) + \boldsymbol{b}_2 \ln(k) + \boldsymbol{b}_3 \ln(h) + \boldsymbol{b}_4 \Phi + \boldsymbol{b}_5 \ln(Y) + \boldsymbol{e}$$

of growth in *per capita* GDP, $\Delta\ln(y)$, on the logarithm of initial *per capita* GDP, $\ln(y)$, the logarithm of initial stock of capital assets, $\ln(k)$, the logarithm of initial stock of human capital, $\ln(h)$, and corporate stability, Φ, measured by either $\Phi_{L,50}$, the top fifty employer-based stability index, $\Phi_{S,50}$, the top fifty sales-based stability index, or $\Phi_{L,10}$, the top ten employer-based stability index.

These regressions are presented in Table 3. A clear, statistically meaningful negative correlation between corporate stability and long-term economic growth remains evident across all specifications.

[Table 3 about here]

3.3   Growth Through Capital Accumulation or Through Higher Productivity?

Growth in *per capita* income can be generated in two ways: through factor (primarily capital) accumulation and through higher productivity. Growth through capital accumulation occurs when people save large amounts of money and invest it in replicating productive capacity of the sort that already exists. Growth through increased productivity involves using capital in new ways that generate more valuable outputs. That is, capital accumulation growth is the replication of existing sorts of capital goods to expand output, while productivity growth is the generation of new productive processes. The key distinction is that productivity growth requires innovation, while growth through capital accumulation only requires money.

[Table 4 about here]

Table 4 reproduces the regressions of Table 3, but with total factor productivity growth as the dependent variable, in place of *per capita* GDP growth. Increased employment-weighted corporate stability, whether measured using the top ten or top fifty firms, is highly statistically significantly associated with lower productivity growth. The t-tests indicate that these regression coefficients are significantly below zero at confidence levels very close to certainly, and much above their analogues in Table 3. In contrast, sales stability is uncorrelated with TFP growth. We are concerned that sales stability is measured less reliably than employer stability because adjusting sales figures to account for consolidated v. unconsolidated reporting by related

companies is more difficult than adjusting employment figures. This is because inter-firm sales add an additional level of complication. Nonetheless, we report the sales stability regressions for completeness.

[Table 5 about here]

Table 5 presents regressions analogous to those in Tables 3 and 4, but with capital accumulation growth on the left-hand side. These regressions tell a diametrically opposite story. Increased employment-weighted corporate stability, measured either using the top ten or top fifty firms, is highly statistically significantly *positively* related to capital accumulation growth. Increased stability is thus associated with faster capital accumulation, but with slower productivity growth.

[Table 6 about here]

We reproduce the regressions of Table 3, 4, and 5 using our disappearance indices instead of the stability indices. The rate of corporate death is significantly positively related to economy growth and to total factor productivity growth, and marginally significantly negatively related to capital accumulation growth. However, the absolute values of the regression coefficients in Table 6 are smaller than their counterparts in Table 3, 4, and 5. One interpretation of this finding is that the death of large, old firms contributes less to economic growth and total factor productivity growth than does the rise of large, new firms.

3.4 Robustness Tests

This basic result survives a battery of robustness checks. Sensible changes in the specification of (7) or in the definitions of the variables in it generate qualitatively similar results. By this we mean that these changes do not alter the signs, approximate magnitudes, or significance levels of the coefficients on the corporate stability indexes.

Our corporate stability variables might have different interpretations in large and small countries, as they might reflect a greater turnover associated with smaller firm size in smaller countries. To control for this, we augment (6) with measures of country size as additional control variables. This generates qualitatively similar results. The measures of country size we use are the logarithm of 1975 GDP in US dollars (converted at purchasing power parity), the logarithm of 1975 population, and the logarithm of area (in square kilometers).

As a second robustness check, we obtain *per capita* real GDP growth from 1970 to 1995 from La Porta et al. (2000). Substituting this variable for our own per capita GDP growth measure generates qualitatively similar results. Substituting *per capita* GNP growth, converted to US dollars at purchasing power parity, also generates qualitatively similar results. Note however, that using GDP or GNP growth converted to US dollars at market exchange rates, rather than purchasing power parity rates, renders corporate stability insignificant. However, if we add country size as an additional control variable, significance levels comparable to those in Table 3 are restored.

For a third set of robustness tests, we substitute alternative productivity growth measures obtained from La Porta et al. (2000). The first is an annual rate of productivity of *per capita* growth that considers human capital accumulation, as proposed by Mankiw (1995). The second alternative productivity growth rate is an annual rate of productivity of *per capita* growth

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considering human capital accumulation as proposed by Hall and Jones (1998). Both of these alternatives produce patterns of signs, coefficient size, and statistical significance very similar to those shown in Table 4.

Finally, we can measure initial stock of human capital by the logarithm of the average number of years of secondary education in the male population over 25 in 1975, rather than the average for the general adult population. This makes sense on the grounds that males are more likely to be in the work force in many countries. We again obtain qualitatively similar results.

3.5 Discussion

This section has presented the key results of this paper, namely that greater instability in the list of a country's leading corporations is associated with faster economic growth. This faster growth is primarily the result of faster productivity growth, and occurs despite slower capital accumulation in countries with lower degrees of corporate stability.

4. The Political Economy of Corporate Turnover

The above results beg the question of why the dominance of leading large firms is as stable as it is in so many countries. In this section, we consider why governments might act to preserve the status of their countries' leading corporations.

4.1 The Involvement of Politicians

Certainly, there are numerous instances of political involvement to save great corporations. For example, when Philipp Holzmann AG disclosed a DM2.4 billion-mark lacuna in its books, its banks demanded comprehensive restructuring. According to the *Wall Street Journal* (Nov. 25, 1999), when the banks rejected Holzmann's DM4.3-billion restructuring proposal as inadequate, a chorus of German politicians vilified the banks' unwillingness to "shield a 150 year old German company and save the jobs of Holzmann's 17,000 domestic workers." German Chancellor Gerhard Schroeder, after buying the banks' acquiescence with a federal guarantee on a DM100 million loan and DM150 million in new capital, exulted "The banks have recognized their economic and social responsibility."

Such respect for corporate stability is not confined to European politicians. *Business Week* (September 11, 1998) quotes an anonymous prominent businessman explaining how Malaysian Prime Minister Mahathir Mohamad "doesn't believe in bankruptcies. He has a moral objection to them." The *Business Week* article adds that during the Asian crisis when "the intensity of business collapses and bank collapses was like tenpins falling every day," Mr. Mahathir Mohamad "couldn't stand it. He doesn't believe in bankruptcies."

Politicians can protect the stability of established corporate empires in less direct ways than bailouts. Although Thai Petrochemical Industries was insolvent in 1997, the firm was not officially declared bankrupt until 2000. According to the *Wall Street Journal* (February 12, 2001), the CEO, Prachai Leophairatana filed thirteen different lawsuits and a criminal embezzlement charge against the creditors. Although the creditors have formally fired him, he continues to occupy the CEO's office and run the company. The Thai government seems unable or unwilling to evict him.

This esteem for corporate stability can have a darker side. In the mid 1990s, the government of Zimbabwe invested a great deal of effort to save the state telephone utility, PTC, from a cell phone company being organized by Strive Masiyiwa, an entrepreneur. The story, according to the *National Post* (February 26, 2000), is as follows. PTC phone lines served 1.4%

of Zimbabweans, and the hundreds of thousands of people requesting new lines endured waits of up to four years and were expected to pay large bribes to bureaucrats. When Masiyiwa proposed a joint venture with PTC to provide cell phone service, he recounts that "They looked at me and said: 'We don't see a future in it. We certainly aren't going to waste valuable resources on it.' " When Masiyiwa decided to go it alone, PTC forbade it on the grounds that the state had a monopoly on telecommunications. Masiyiwa hired an American lawyer, challenged PTC's position in court, and won. He then formed a company, Econet, and with foreign partners built base stations across the country. A few days before service was to begin, Zimbabwe's president Robert Mugabe, invoked emergency presidential powers and made it illegal for a private business to build a cellular network. Offenders would face two years in jail. Masiyiwa recounts that "Parliament sat through three sittings to turn [the decree] into law in one day." He returned to the courts, and a judge finally ordered that a cell phone license be put up for public tender. A string of politically connected consortia sprung up to bid, and Telecel, a consortium backed by Leo Mugabe, the president's nephew and a member of parliament, won the license. Masiyiwa's salvation was an anonymous civil servant, who leaked documents proving that a corrupt official had docked 20% from Econet's score on the tender bid. Strive Masiyiwa should have won in the first place. After more court battles, a cabinet shuffle, and threats of resignation from the late vice-president, Econet finally got a license to operate. Within a week of its launch, the company had 10,000 subscribers, and rapidly overtook Telecel and the state-run cell phone company, NetOne. Econet subsequently prospered, however Mr Masiyiwa now runs it from South Africa.

4.2 The Political Value of Corporate Stability

From numerous cases such as those above, we can distill some possible motives politicians might have in enhancing the stability of their countries largest corporations.

One set of explanations relates to how corporate stability might be the result from the behavior of honest politicians.

First, politicians might prefer a relatively even income distribution. Corporate stability may be a side-effect of this, if preserving jobs at big companies protects the incomes of a wide segment of the population while allowing them to be eclipsed can lead to high economic gains that benefit only a handful. This was the German government's declared motive in the 1999 bail out of Philipp Holzmann. Finance Minister Hans Eichel stated that "the government has a responsibility to step in if a major German company is about to collapse and cost thousands of people their jobs."[4] The same motive seems to underlie Chancellor Gerhard Schroeder's pressure on German banks in 2002 to save the jobs of the 22,000 employees of the bankrupt engineering firm Babcock Borsig AG with a $700 to $800 million bailout.[5] Thus, government policies aimed at promoting social harmony might tend to protect established large firms.

Second, politicians might view stability *per se* as a valuable public good, independent of its effect on future growth. Competition that causes financial distress to established large corporations, even if only temporary, and even if it would improve their performance in the long run, might be politically unacceptable. Such beliefs seem to have led the Japanese government to propose a ¥200 billion ($1.90 billion) bailout of Sogo Department Stores, which *Asiaweek* described as part of Japan's long tradition of corporate bailouts designed to minimize "confusion".[6] *Asiaweek* continues that, to the bewilderment of senior politicians, the bailout was

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[4] See Edmund Andrews 'Navigating the Economy of a Changing Germany', *New York Times*, December 7, 1999.

[5] See 'Schroeder Seeks bailout Aid for Bankrupt Firm' *International Herald Tribune*, July 6, 2002, p 11.

[6] See Jonathan Sprague and Murakami Mutsuko 'Tokyo's Sogo Shocker - A bailout and a reversal show no policy at

derailed when "[t]he public exploded over the use of their tax money to rescue a poorly managed private company." Again, government policies of this sort might lean towards protecting large established corporations.

Third, politicians might pro-actively defend large established corporations for purely political reasons. Politicians might, for example, distrust markets or entrepreneurs for ideological reasons. Or, if established top corporate leaders sympathize with government objectives, large established corporations might actually be convenient channels through which politicians can intervene in the economy. Indeed, the transaction costs of directly negotiating with, influencing, and monitoring the people in charge of a handful of large corporations is likely quite low in comparison with alternative intervention channels. Politicians might come to see protecting such corporations as a means of advancing their economic, social and political objectives. For example, *Business Week* reports that Malaysian Prime Minister Mahathir is unapologetic about his government's policy of selecting a handful of wealthy businessmen for privileges and assigning them the role of creating jobs, implementing big projects, and keeping the economy growing. The article quotes Mustapha Mohamed of the Finance Ministry as saying, "We view Malaysia as a corporation, and the shareholders in the government are companies." and that "To the extent you help the bigger guys, the smaller guys benefit."[7] A less charitable view of the same situation might be that wealthy, established corporations (or the families behind them) are buying economic survival with support for the policies and priorities of powerful politicians. In other words, political rent-seeking by established firms or their entrenched owners might underlie enhanced corporate stability.

This list is not intended to be exhaustive. Big interventionist governments may well be associated with other, as-yet not understood, reallocations of resources that create an economic bias towards the survival of large firms.

This leads into our second set of explanations, which turn on various sorts of official corruption.[8] Dishonest politicians, intent on accumulating personal wealth or power, might find large well-established corporations needing protection from competitors to be enthusiastic trading partners. The corporations might pay bribes to politicians directly, they might channel money to those to whom politicians owe favors, or they might serve as conduits for channeling public money back to the politicians themselves. Moreover, large, established corporations and the old-moneyed families that own them might be much better long-term partners in political rent-seeking deals than ephemeral upstart corporations (see Morck, 1995).

Again, there are, no doubt, many other mechanisms that could link official corruption with heightened survival odds for large established corporations.

We then turn to the mechanisms through which politicians' activity might promote the longevity of large established corporations.

One possibility is that corporate stability is a by-product of an underdeveloped financial sector.[9] Established firms with earnings have a more exclusive access to financing in an economy with more poorly developed financial institutions and markets. Politicians can thus

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all' *Asiaweek*, 26(29), July 28, 2000.

[7] See Sheri Prasso, Mark Clifford and Joyce Barnathan 'Malaysia: The Feud - How Mahathir and Anwar became embroiled in a clash that threatens to send Malaysia into upheaval' *Business Week*, October 28, 1998.

[8] A growing empirical literature documents the first-order importance of rent-seeking relationships between politicians and the business sector in low-income economies, see e.g. Fisman and Svennson (2000) and Fisman (2002), as well as developed economies, see e.g. Fisman and Di Tella. (2001).

[9] See Khanna and Palepu (2000), La Porta et al. (2000), Levine (2000), Rajan and Zingales (2001), Johnson and Mitton (2001), Morck et al. (2001), Olsen (2001) and others.

protect large, established firms by limiting the economic roles of financial markets, perhaps by deliberately misregulating them. Of course, it is also possible that financial institutions and markets are underdeveloped for exogenous cultural or historical reasons, and that this inadvertently leads to corporate stability (see e.g. La Porta *et al.,* 1997).

Another possibility is that economic barriers against the global economy protect established large firms. Protectionism might be deliberately employed by politicians to protect large established domestic corporations from more efficient foreign competitors. Or alternatively, protectionism might be adopted for purely ideological reasons, and the ensuing corporate stability might be an unintended consequence.

4.3 Empirical Evidence

We now conduct a cursory investigation of each of these sets of explanations and political channels in turn.[10]

Economic Equality

If corporate stability is associated with a more egalitarian income distribution, this should be evident in gini coefficients, standardized measures of income inequality, or in changes in gini coefficients. Table 7 shows no statistically detectable relationship between our measures of corporate stability and either the level of income inequality or the change in income inequality from 1975 to 1996. Regressing the change in the gini on corporate stability controlling for the initial value of gini likewise reveals no relationship. Analogous results are generated substituting the corporate disappearance indexes for the corporate stability indexes. Including *per capita* GDP growth as a control variable also generates qualitatively similar results.

It follows either that corporate stability is not motivated by a political desire for income equality - or that it is a remarkably ineffective means of achieving income inequality.

[Table 7 about here]

Economic Distress

We find no statistical correlation between our stability measures and various measures of the occurrence of an economic crisis. These measures include: a dummy for the occurrence of a banking crisis between 1970 and 1994, the fraction of bank assets affected by a banking crisis, a dummy for the occurrence of a major political crisis during the same period, the overall inflation rate across those years, and the number of *coups d'état* during that period.[11] To conserve space, details of these results are omitted. They are available from the authors.

Government Intervention in the Economy

The size of government might affect corporate stability. For example, a bigger government might raise the costs of doing business by increasing regulatory compliance costs and the like. This might give large established firms a survival advantage. Thus, Panel A in Table 8 relates our stability measures to total government spending over GDP and the growth in

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[10] We are currently working on more substantial econometric investigations of these issues, and hope to include the results in the next draft of this paper.

[11] We are grateful to Raphael La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert Vishny for providing us with these variables, and with many of the other variables used in this section. We are currently compiling several other measures of the occurrence or frequency of extreme economic conditions.

government spending as a fraction of GDP from 1975 to 1996. Bigger government sectors and faster growing government sectors are significantly positively related to our corporate stability indexes. Corporate disappearance (not shown) is also marginally significantly negatively correlated to the size of government.

[Table 8 about here]

As a robustness check (not shown), we also correlate our stability indexes with average investment by state-owned enterprises over gross domestic investment and average state owned enterprise output over GDP, both averaged from 1978 to 1991. Economies with more important state-owned sectors display significantly higher stability. Corporate disappearance (not shown), however, is not significantly related to the importance of state-owned enterprises. Note that privatized state-owned enterprises are considered 'new firms' in the construction of our stability and disappearance indexes.

One interpretation of this finding is that big government fosters corporate stability.

Government Corruption

We measure the honesty of each country's government using four variables: respect for rule of law, absence of official corruption, freedom from threat of expropriation, and freedom from threat of contract repudiation by government.

All our measures of government honesty are positively, not negatively, related to corporate stability. Further analysis shows these correlations to be driven by three observations: the US, Sweden, and Switzerland. If these countries are dropped, government honesty is insignificantly related to stability and disappearance.

Financial Institutions and Markets

Since La Porta *et al*. (1998) link a British Common Law legal system to investor protection, we gauge capital market development using a set of dummies for legal systems based on those of Britain, France and Germany or Scandinavia. Panel A of Table 9 shows that German and Scandinavian legal systems are associated with greater corporate stability, but that there is little distinction between British and French law in this regard.

[Table 9 about here]

We then use an "index of creditors' rights," an "index of shareholders' rights," and an "index of accounting disclosure rules," all from la Porta *et al*. (1998). Panel B of Table 9 shows that the "index of creditors' rights" is negatively correlated with corporate stability. Analogous results ensue using the disappearance indices.

[Table 10 about here]

Finally we gauge the development of the financial system by the size and growth of a country's stock markets and banking system. For the former, we use the total market capitalization of the stock market in 1976, its growth from 1976 to 1995. For the latter, we use the size of the private banking system (measured by total domestic credit provided to the private sector, or by the private banking sector, as a fraction of GDP) in 1970 and its growth from 1970

to 1995. Table 10 shows that a rapidly growing stock market is associated with reduced corporate stability, and that a large banking system (relative to GDP) is associated with enhanced corporate stability. It would appear that stock market development is associated with corporate turnover, while a developed banking system is associated with the stability of large, established firms.[12]

[Table 11 about here].

Openness to the Global Economy

Finally, Table 11 relates stability to openness, measured by net foreign direct investment inflow over GDP in 1975 and by the growth in this ratio from 1975 to 1996. We   find   that stability is negatively related to openness. The disappearance indices (not shown) are not significantly related to the net FDI inflow ratio.

A very tentative interpretation of these results is that openness to the global economy reduces corporate stability. We hope to explore this issue in more detail elsewhere.

The Channels Connecting Stability with Growth

The results above are generally consistent with the view that that corporate stability is associated with large and interventionist (though not necessarily corrupt) government rather than with government concern over inequality or over avoiding economic crises. But, they are also consistent with the view that a financial system that emphasizes banks rather than stock markets is associated with enhanced longevity of a country's dominant corporations. And they are also consistent with the view that protectionism preserves the dominance of large established corporations.

In this section, we explore whether the component of stability associated with each of these effects is crucial to the relationship between stability and growth. To do this, we revisit the regressions of Tables 3 through 5, in which we related economic growth to corporate stability and found a negative linkage between the two. We now add the variables that, in section 4, were found to affect corporate stability. Our objective is to determine which of these determinants of corporate stability are most critical to its negative relationship with economic growth.

[Table 12 about here]

Panels A, B and C of Table 12 report regressions of *per capita* GDP growth on $\Phi_{L,50}$, $\Phi_{S,50}$, and $\Phi_{L,10}$, respectively. These regressions show that our government size measures are significant, and that their inclusion renders the corporate stability measures insignificant. Stock market capitalization behaves similarly. Panels A, B and C of Table 13 report analogous regressions of total factor productivity growth on $\Phi_{L,50}$, $\Phi_{S,50}$, and $\Phi_{L,10}$, respectively. Once again, including the government size and financial development variables renders corporate stability insignificant in explaining productivity growth. However, the government size and financial development measures themselves are now insignificant – perhaps because of

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[12] See Morck and Nakamura (1999) and Morck, Nakamura and Shivdasani (2000) for evidence that Japanese bank oversight is associated with bailouts of firms financially weak firms and with long-term corporate governance problems.

collinearity problems. The pattern of significance in regressions explaining capital accumulation in Table 14 tracks those in other tables.

We can gauge the usefulness of the regressions in Tables 12 through 14 by comparing their F-statistics to those of their analogs in Tables 3 through 5. The regressions in the earlier Tables almost uniformly dominate their counterpart in Tables 12 through 14. However, when we run the regressions of Tables 12 through 14 without the stability indices, there is no significant decline in F-statistics. Our preferred interpretation of this, upon which we expand in the next section, is that the effects of big government and financial debility are, in a large part, due to those factors working to safeguard the dominance of a country's established great corporations.

5. Discussion and Conclusions

This paper has shown that countries whose rolls of leading corporations change substantially over the years tend to grow faster than countries whose lists of leading firms change little. This faster growth is primarily due to faster growth in total factor productivity, for greater instability in the list of top firms is actually associated with slower capital accumulation.

Corporate stability does not appear to be associated with (successful) government policies aimed at equalizing income distributions or avoiding economic crises. Stability is, however, positively associated with the importance of government in the economy. Also, less creditor-friendly financial systems and financial systems based on banks, rather than stock markets, are associated with greater stability in the list of top firms. We also find evidence that opening up to the global economy is associated with increased turnover in the list of top firms.

We perceive two ways to view our results. First, big government and underdeveloped capitals market could be impediments to growth in ways that have little to do with corporate stability, which is then a mere by-product. Second, one can view our results as revealing the damage big government and underdeveloped capital markets do to economic growth because they preserves the dominance of established corporations. There is a lack of economic rejuvenation.

We favor the second interpretation. First, big government plausibly facilitates the continued dominance of large established firms. Large firms have an advantage in overcoming the largely fixed costs of regulatory compliance that large and intervention-prone governments often impose. Second, as King and Levine (1993) and others argue, underdeveloped financial markets hinder growth precisely because they make it difficult for new firms with new ways of doing business to become large quickly. Third, as Olsen (1963, 1982, 2000) points out, rapid economic growth is destabilizing in that it undermines the positions of economically dominant interest groups, which then lobby for growth inhibiting policies, as in Rajan and Zingales (2001). Larger governments are presumably more powerful, and thus better able to accomplish this goal.

If this interpretation is correct, big government inhibits growth *because* it inhibits the turnover of large corporations. Schumpeter (1912) argues that economic growth is caused by the emergence of new firms that grow rapidly because they are innovative. Old established firms, he adduces, have strong incentives to uphold the *status quo* to maintain the value of existing capital assets. This explains his observation in the introductory quote: "In general, it is not the owner of stagecoaches who builds railways." Similarly, Nelson and Winter (1982) argue that a less contestable economy leads to less heterogeneity in firms' practices, and that this slows the pace of Darwinian evolution towards higher productivity practices and, therefore, slows growth.

Certainly, our findings do not support the view of Schumpeter (1942), that large established firms are the most important engines of long run economic growth because they

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provide the stability and resources needed to support innovation. While this view may be valid in some industries or time periods, our results suggest that other considerations are more general.

Moreover, if large firms protect their positions by lobbying government, this reduces their incentives to innovate and, if Murphy *et al.* (1993) are correct that political rent seeking has increasing returns to scale, increases their returns from further rent-seeking. This encourages further rent-seeking and discourages innovation by large firms. In this way, large firms perhaps lose the innovation advantage Schumpeter (1942) gives them. In short, hefty government and languorous capital markets slow growth by enhancing corporate and thereby entrenching large established corporations.

These findings are consistent with the view that the creative destruction, which underlies economic growth through increased productivity, requires a turnover in the list of top corporations. Productivity improvement appears tied to the rise of new large firms, not the longevity of established firms. In contrast, capital accumulation is faster in countries with stable lists of top firms, but this more rapid capital accumulation is not sufficient to compensate for the slower productivity growth associated with corporate stability, leading to the negative overall relationship of stability with *per capita* real GDP growth.

Our findings raise the concern that the corporate sectors of some countries might be excessively stable, and that this stability might be inimical to economic growth. It is plausible that such excessive stability results from rent-seeking by an established economic elite, whereby wealthy insiders use the power of the state to preserve the value and viability of their corporate holdings. Thus, our findings lend credence to a concern, initially raised by Olsen (1963, 1982, 2000) and recently given empirical validation by Morck *et al.* (2000), Johnson and Mitton (2001), and Rajan and Zingales (2001), that the economic entrenchment of wealthy insiders is likely a serious impediment to growth in many countries.

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Table 1
Panel A Corporate Stability Indexes
Corporate stability indexes are based on the largest fifty employers in each country, $\Phi_{L,50}$, the largest ten employers in each country, $\Phi_{L,i0}$, or the largest fifty firms in each country ranked by sales, $\Phi_{S,50}$.

Country	$\Phi_{L,50}$	$\Phi_{L,i0}$	$\Phi_{S,50}$	Country	$\Phi_{L,50}$	$\Phi_{L,i0}$	$\Phi_{S,50}$
Argentina	0.07677	0.00000	0.16190	Kuwait	0.20418	0.22723	.
Australia	0.27986	0.27962	0.13188	Malaysia	0.02559	0.00000	0.05744
Austria	0.24059	0.35729	0.10840	Malta	.	.	0.02360
Belgium	0.18798	0.05781	0.27460	Mexico	0.16262	0.25024	0.00700
Bolivia	0.20458	0.22292	.	Netherlands	0.42862	0.43451	0.24119
Brazil	0.24156	0.22538	0.19900	New Zealand	0.07778	0.03263	0.03149
Canada	0.27743	0.05448	0.33560	Niger	.	.	0.11090
Chile	0.21132	0.26627	0.04220	Norway	0.16009	0.14554	0.35890
Colombia	0.26513	0.17835	.	Pakistan	0.14736	0.07185	0.03220
Congo	.	.	0.01570	Papua New Guinea	.	.	0.05500
Cyprus	.	.	0.09820	Peru	0.17244	0.25784	0.33550
Denmark	0.34065	0.39583	0.13968	Philippines	0.27408	0.10849	0.28856
Ecuador	0.13508	0.04652	.	Portugal	0.11801	0.14535	0.07090
Egypt	0.06142	0.10040	0.00580	South Africa	0.22679	0.25925	0.11730
Finland	0.25273	0.15045	0.36660	Senegal	0.10859	0.07402	0.36330
France	0.22035	0.13234	0.33920	Singapore	0.10635	0.11388	.
Germany	0.34198	0.39033	0.42540	Spain	0.31828	0.39359	0.19180
Ghana	0.08796	0.12877	0.00500	Sri Lanka	0.06691	0.04449	.
Greece	0.35732	0.52271	0.34050	Sweden	0.57517	0.61271	0.37540
Guatemala	0.05912	0.00000	.	Switzerland	0.50069	0.21226	0.21160
Hong Kong	0.11940	0.18406	0.01500	Taiwan	0.15102	0.06099	.
Iceland	.	.	0.16620	Tanzania	.	.	0.06990
India	0.13709	0.00000	0.03370	Thailand	0.14433	0.19684	.
Indonesia	0.07934	0.09194	0.00230	Tunisia	0.02810	0.00000	.
Iran	0.15480	0.15166	.	Turkey	0.07920	0.10095	.
Ireland	0.20682	0.37567	0.16430	United Kingdom	0.09314	0.00000	0.23070
Israel	0.45903	0.67922	0.26670	Uruguay	0.17694	0.25205	.
Italy	0.25128	0.31575	0.18920	United States	0.40985	0.50488	0.54358
Jamaica	0.14545	0.13975	.	Venezuela	0.21929	0.20576	.
Japan	0.51285	0.42478	0.30224	Zaire	0.79300	0.80833	.
Kenya	0.20509	0.21216	0.09750	Zambia	.	.	0.98470
Korea	0.02044	0.00000	0.20750				

Panel B Corporate Disappearance Indices

Corporate disappearance indexes are based on the largest fifty employers in each country, $\Omega_{L, 50}$, or the largest ten employers in each country, $\Omega_{L, 10}$.

Country	$\Omega_{L, 50}$	$\Omega_{L,10}$	Country	$\Omega_{L, 50}$	$\Omega_{L, 10}$
Argentina	0.80035	1.00000	Korea	0.93679	1.00000
Australia	0.64232	0.55298	Kuwait	0.43472	0.78049
Austria	0.68471	0.60609	Malaysia	0.96682	1.00000
Belgium	0.69374	0.82783	Mexico	0.68341	0.52125
Bolivia	0.33854	0.27666	Netherlands	0.41486	0.57845
Brazil	0.70920	0.72801	New Zealand	0.77763	0.91225
Canada	0.57162	0.93217	Norway	0.78762	0.90611
Chile	0.64513	0.59037	Pakistan	0.51363	0.64422
Colombia	0.50326	0.74386	Peru	0.71438	0.60563
Denmark	0.67865	0.51065	Philippines	0.61375	0.92234
Ecuador	0.56231	0.69821	Portugal	0.73264	0.59146
Egypt	0.71290	0.74947	South Africa	0.55805	0.63154
Finland	0.78712	0.87290	Senegal	0.78653	0.94251
France	0.65381	0.80041	Singapore	0.77239	0.85115
Germany	0.49312	0.54448	Spain	0.68318	0.63928
Ghana	0.75134	0.63296	Sri Lanka	0.64892	0.92907
Greece	0.34691	0.61803	Sweden	0.45643	0.39199
Guatemala	0.89725	1.00000	Switzerland	0.58157	0.74011
Hong Kong	0.66014	0.49377	Taiwan	0.55779	0.90182
India	0.74544	1.00000	Thailand	0.80927	0.73628
Indonesia	0.67395	0.75651	Tunisia	0.85584	1.00000
Iran	0.75218	0.86848	Turkey	0.74808	0.75983
Ireland	0.76080	0.70740	United Kingdom	0.80818	1.00000
Israel	0.50720	0.44004	Uruguay	0.67079	0.59285
Italy	0.70797	0.67935	United States	0.45485	0.46878
Jamaica	0.65122	0.81967	Venezuela	0.71024	0.71067
Japan	0.32565	0.44093	Zaire	0.47726	0.28632
Kenya	0.67268	0.65656			

Table 2
Univariate Statistics for Main Variables

Variable		Sample	Mean	Standard Deviation	Minimum	Maximum
Corporate Stability Measures						
Corporate stability index based on top 50 employers, 1975 to 1996	$\Phi_{L,50}$	55	0.216	0.151	0.0204	0.793
Corporate stability index based on top 50 firms, ranked by sales, 1975 to 1996	$\Phi_{S,50}$	47	0.194	0.180	0.00230	0.985
Corporate stability index based on top 10 employers, 1975 to 1996	$\Phi_{L,10}$	55	0.211	0.182	0.000	0.808
Corporate Disappearance Measures						
Corporate disappearance index based on top 50 employers, 1975 to 1996	$\Omega_{L,50}$	55	0.656	0.146	0.326	0.967
Corporate disappearance index based on top 10 employers, 1975 to 1996	$\Omega_{L,10}$	55	0.720	0.191	0.277	1.00
Growth Measures						
Growth in per capita GDP in US dollars at PPP, 1975 to 1996	$\Delta\ln(y)$	63	1.74	0.615	0.542	3.31
Total Factor Productivity growth*	$\Delta\mathrm{TFP}$	59	-0.00448	0.910	-3.39	5.14
Capital accumulation rate*	$\Delta\ln(k)$	59	0.182	0.787	-1.79	5.04
Control Variables						
1975 per capita GDP in thousands of 1985 US dollars at PPP	y	63	2.55	2.64	0.104	9.10
1975 per capita capital assets in millions of 1985 US dollars at PPP	h	63	11.3	10.1	0.386	40.4
Average years of secondary education for adults (age > 25, as of 1975	k	63	1.23	0.965	0.0550	4.21
1975 total GDP in trillions of 1985 US dollars at PPP	Y	63	0.0741	0.210	0.000318	1.54

Sample is the countries listed in Table 1 unless otherwise indicated.

* This variable is from La Porta et al. (2000), and is calculated using data from 1960 to 1995. It is available for 59 of the countries listed in Table 1. It is unavailable for Congo, Israel, Kuwait, and Zambia.

Table 3
Regressions of Per Capita Gross Domestic Product Growth on Corporate Stability
Dependent variable is growth in per capita GDP from 1975 to 1996. Independent variables are corporate stability indexes based on the largest 50 employers, largest 50 firms ranked by sales, or largest 10 employers in the country. Control variables are: the log of 1975 per capita GDP, the log of 1975 capital assets per capita, and the log of the average years of education for the adult population (age over 25) in 1975. All variables expressed in US dollars at purchasing power parity.

		3.1	3.2	3.3	3.4	3.5	3.6
constant		3.65 (0.00)	3.92 (0.00)	3.79 (0.00)	2.74 (0.00)	3.23 (0.00)	3.13 (0.00)
corporate stability index based on top 50 employers	$\Phi_{L,50}$	-1.12 (0.01)	-	-	-1.25 (0.00)	-	-
corporate stability index based on top 50 firms by sales	$\Phi_{S,50}$	-	-1.18 (0.00)	-	-	-1.26 (0.00)	-
corporate stability index based on top 10 employers	$\Phi_{L,10}$	-	-	-0.625 (0.06)	-	-	-0.650 (0.05)
log of 1975 per capital GDP	$\ln(y)$	-0.764 (0.00)	-0.598 (0.00)	-0.790 (0.00)	-0.797 (0.00)	-0.661 (0.00)	-0.820 (0.00)
log of 1975 average years of education	$\ln(h)$	0.210 (0.04)	0.293 (0.00)	0.236 (0.02)	0.210 (0.03)	0.273 (0.00)	0.240 (0.02)
log of 1975 per capita capital assets	$\ln(k)$	0.441 (0.01)	0.270 (0.04)	0.435 (0.01)	0.418 (0.01)	0.310 (0.02)	0.417 (0.01)
log of 1975 total GDP	$\ln(Y)$	-	-	-	0.0818 (0.05)	0.048 (0.16)	0.0611 (0.17)
F statistic	F	23.8 (0.00)	19.8 (0.00)	20.8 (0.00)	20.9 (0.00)	16.7 (0.00)	17.4 (0.00)
R-squared	R^2	0.628	0.620	0.595	0.649	0.630	0.603
sample	n	55	47	55	55	47	55

Samples are countries listed in Table 1.

Table 4
Regressions of Total Factor Productivity Growth on Corporate Stability
Dependent variable is growth in total factor productivity from 1970 to 1995. Independent variables are corporate stability indexes based on the largest 50 employers, largest 50 firms ranked by sales, or largest 10 employers in the country. Control variables are: the log of 1975 per capita GDP, the log of 1975 capital assets per capita, and the log of the average years of education for the adult population (age over 25) in 1975. All variables expressed in US dollars at purchasing power parity.

		4.1	4.3	4.5	4.2	4.4	4.6
constant		-1.50 (0.01)	-0.90 (0.57)	-1.35 (0.03)	-2.09 (0.00)	0.977 (0.65)	-1.60 (0.04)
corporate stability index based on top 50 employers	$\Phi_{L,50}$	-2.01 (0.00)	-	-	-2.11 (0.00)	-	-
corporate stability index based on top 50 firms by sales	$\Phi_{S,50}$	-	-1.52 (0.22)	-	-	-0.997 (0.44)	-
corporate stability index based on top 10 employers	$\Phi_{L,10}$	-	-	-1.46 (0.00)	-	-	-1.48 (0.00)
log of 1975 per capital GDP	$\ln(y)$	-0.162 (0.16)	-0.073 (0.84)	-0.188 (0.14)	-0.193 (0.10)	0.017 (0.96)	-0.203 (0.12)
log of 1975 average years of education	$\ln(h)$	0.0611 (0.46)	0.126 (0.59)	0.0843 (0.35)	0.0551 (0.50)	0.185 (0.43)	0.0828 (0.36)
log of 1975 per capita capital assets	$\ln(k)$	0.344 (0.01)	0.198 (0.58)	0.334 (0.02)	0.342 (0.01)	0.140 (0.70)	0.334 (0.02)
log of 1975 total GDP	$\ln(Y)$	-	-	-	0.0505 (0.17)	-0.125 (0.20)	0.0218 (0.59)
F statistic	F	17.6 (0.00)	0.840 (0.51)	12.3 (0.00)	14.7 (0.00)	1.03 (0.41)	9.78 (0.00)
R-squared	R^2	0.561	-0.015	0.466	0.569	0.004	0.458
sample	n	53	44	53	53	44	53

Samples are countries listed in Table 1, less Congo, Israel, Kuwait, and Zambia, for which total factor productivity growth is not available.

Table 5
Regressions of Per Capita Capital Accumulation on Corporate Stability
Dependent variable is per capita capital accumulation rate from 1970 to 1995. Independent variables are corporate stability indexes based on the largest 50 employers, largest 50 firms ranked by sales, or largest 10 employers in the country. Control variables are: the log of 1975 per capita GDP, the log of 1975 capital assets per capita, and the log of the average years of education for the adult population (age over 25) in 1975. All variables expressed in US dollars at purchasing power parity.

		5.1	5.2	5.5	5.4	5.5	5.6
constant		-0.611	-2.74	-0.710	-0.323	-0.069	-0.630
		(0.30)	(0.06)	(0.24)	(0.66)	(0.97)	(0.41)
corporate stability index based on top 50 employers	$\Phi_{L,50}$	1.19 (0.00)	-	-	1.23 (0.00)	-	-
corporate stability index based on top 50 firms by sales	$\Phi_{S,50}$	-	-0.907 (0.42)	-	-	-0.159 (0.89)	-
corporate stability index based on top 10 employers	$\Phi_{L,10}$	-	-	0.809 (0.01)	-	-	0.815 (0.01)
log of 1975 per capital GDP	$\ln(y)$	-0.131 (0.27)	-0.334 (0.32)	-0.110 (0.37)	-0.116 (0.34)	-0.205 (0.53)	-0.105 (0.41)
log of 1975 average years of education	$\ln(h)$	-0.166 (0.06)	-0.379 (0.08)	-0.183 (0.04)	-0.163 (0.06)	-0.295 (0.15)	-0.182 (0.05)
log of 1975 per capita capital assets	$\ln(k)$	0.152 (0.26)	0.614 (0.06)	0.156 (0.27)	0.153 (0.26)	0.532 (0.09)	0.157 (0.27)
log of 1975 total GDP	$\ln(Y)$	-	-	-	-0.0245 (0.52)	-0.178 (0.04)	-0.00694 (0.86)
F statistic	F	5.23 (0.00)	1.91 (0.13)	3.73 (0.01)	4.22 (0.00)	2.59 (0.04)	2.93 (0.02)
R-squared	R^2	0.246	0.078	0.174	0.236	0.156	0.157
sample	n	53	44	53	53	44	53

Samples are countries listed in Table 1, less Congo, Israel, Kuwait, and Zambia, for which capital accumulation rates are not available.

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Table 6
Regressions on Corporate Disappearance Indices
Dependent variable are growth in per capita GDP from 1975 to 1996, growth in total factor productivity from 1970 to 1995, and per capita capital accumulation rate from 1970 to 1995. Independent variables are corporate death indexes based on the largest 50 employers, or largest 10 employers in the country. Control variables are: the log of 1975 per capita GDP, the log of 1975 capital assets per capita, and the log of the average years of education for the adult population (age over 25) in 1975. All variables expressed in US dollars at purchasing power parity.

Dependent Variable		GDP Growth		Productivity Growth		Cap. Accumulation	
		6.1	6.2	6.3	6.4	6.5	6.6
Constant		2.42	2.86	-1.91	-1.90	-0.346	-0.659
		(0.01)	(0.00)	(0.06)	(0.04)	(0.69)	(0.44)
Corporate disappearance index based on top 50 employers	$\Omega_{L, 50}$	1.16	-	0.904	-	-0.615	-
		(0.00)	-	(0.03)	-	(0.09)	-
Corporate disappearance index based on top 10 employers	$\Omega_{L,10}$	-	0.483	-	0.856	-	-0.278
		-	(0.10)	-	(0.00)	-	(0.31)
log of 1975 per capital GDP	$\ln(y)$	-0.861	-0.863	-0.342	-0.301	-0.0267	-0.0470
		(0.00)	(0.00)	(0.03)	(0.04)	(0.84)	(0.73)
log of 1975 average years of education	$\ln(h)$	0.317	0.262	0.185	0.142	-0.241	-0.219
		(0.00)	(0.01)	(0.08)	(0.17)	(0.01)	(0.02)
log of 1975 per capita capital assets	$\ln(k)$	0.410	0.435	0.384	0.377	0.128	0.134
		(0.01)	(0.01)	(0.03)	(0.02)	(0.39)	(0.38)
log of 1975 total GDP	$\ln(Y)$	0.0715	0.0576	0.0202	0.00525	-0.00865	0.00320
		(0.09)	(0.20)	(0.67)	(0.91)	(0.84)	(0.94)
F statistic	F	20.5	16.7	4.56	5.59	1.89	1.46
		(0.00)	(0.00)	(0.00)	(0.00)	(0.11)	(0.22)
R-squared	R^2	0.643	0.592	0.255	0.306	0.0786	0.0425
Sample	n	55	55	53	53	53	53

Samples are countries listed in Table 1, less Israel and Kuwait, for which total factor productivity growth and capital accumulation rates are not available.

Table 7
Regressions of Increase in Economic Inequality on Corporate Stability
Dependent variable is increase in GINI coefficient from 1975 to 1996. Independent variables are corporate stability indexes based on the largest 10 or largest 50 employers and firms with the largest 50 sales in the country. Control variables are: the GINI coefficient in 1975, the log of 1975 per capita GDP, the log of 1975 capital assets per capita, and the log of the average years of education for the adult population (age over 25) in 1975. All variables expressed in US dollars at purchasing power parity.

		7.1	7.2	7.3	7.6	7.5	7.6
constant		16.6 (0.01)	16.9 (0.02)	15.4 (0.01)	28.5 (0.21)	30.6 (0.28)	29.0 (0.20)
GINI coefficient in 1975	-0.428 (0.00)	-0.387 (0.02)	-0.414 (0.00)	-0.520 (0.00)	-0.438 (0.04)	-0.519 (0.00)	-0.523 (0.00)
log of 1975 total GDP	-	-	-	-0.287 (0.78)	-0.495 (0.70)	-0.266 (0.79)	-0.275 (0.78)
log of 1975 per capital GDP	-	-	-	-1.17 (0.74)	-1.92 (0.68)	-1.21 (0.73)	-1.20 (0.73)
log of 1975 average years of education	-	-	-	-1.36 (0.59)	0.659 (0.84)	-1.31 (0.60)	-1.31 (0.60)
log of 1975 per capita capital assets	-	-	-	0.432 (0.92)	1.10 (0.82)	0.360 (0.93)	0.343 (0.93)
corporate stability index based on top 50 employers	-5.39 (0.58)	-	-	1.57 (0.89)	-	-	-
corporate stability index based on top 50 employers	-	-14.4 (0.18)	-	-	-9.22 (0.49)	-	-
corporate stability index based on top 50 employers	-	-	-1.88 (0.79)	-	-	2.40 (0.77)	2.80 (0.73)
F statistic	6.08 (0.00)	3.42 (0.04)	5.93 (0.01)	2.20 (0.06)	1.12 (0.38)	2.22 (0.06)	2.23 (0.06)
R-squared	0.172	0.119	0.167	0.128	0.019	0.130	0.130
sample	50	37	50	50	37	50	50

Samples are the countries listed in Table 1 less Cyprus, Ghana, Guatemala, Iceland, Kuwait, Malta, Niger, Papua New Guinea, Switzerland, Tanzania, Zaire, and Zambia.

Table 8 Panel A
Corporate Stability and the Size of Government

The dependent variables are corporate stability indexes based on the largest 50 employers, $\Phi_{L,50}$, the largest 50 firms ranked by sales, $\Phi_{S,50}$, or largest 10 employers, $\Phi_{L,10}$. The independent variables are government spending as a fraction of GDP, and growth in government spending as a fraction of GDP from 1975 to 1996. These variables measure the economic importance of government in each country's economy.

	Corporate Stability Index		
	$\Phi_{L,50}$	$\Phi_{S,50}$	$\Phi_{L,10}$
The Size of Government			
Constant	0.0389 (0.46)	-0.0096 (0.87)	-0.0349 (0.59)
government spending as a fraction of GDP, 1975[a,b]	1.16 (0.00)	1.24 (0.00)	1.62 (0.00)
growth in government spending as a fraction of GDP, 75 to 96[a,b]	0.990 (0.01)	1.66 (0.00)	0.931 (0.05)
F statistic	6.57 (0.00)	18.8 (0.00)	7.85 (0.00)
R squared	0.182	0.454	0.215
Sample	51	44	51

a. *Samples are the countries listed in Table 1 less Argentina, Niger, Taiwan, Turkey, and Zaire.*
b. *We are grateful to Raphael La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert Vishny for providing us with these variables. Samples vary because of data availability in the data source.*

Table 8 Panel B
Corporate Stability and Official Corruption
Correlations of corporate stability indexes, based on the largest 50 employers, $\Phi_{L,50}$, the largest 50 firms ranked by sales, $\Phi_{S,50}$, or largest 10 employers, $\Phi_{L,10}$, with variables measuring the level of government corruption in each country.

	Corporate Stability Index		
	$\Phi_{L,50}$	$\Phi_{S,50}$	$\Phi_{L,10}$
Government Corruption			
respect for rule of law[a,b]	0.383	0.366	0.246
	(0.01)	(0.03)	(0.10)
	45	36	45
absence of official corruption[a,b]	0.219	0.199	0.159
	(0.11)	(0.18)	(0.25)
	55	46	55
freedom from threat of expropriation[a,b]	0.403	0.368	0.290
	(0.01)	(0.03)	(0.05)
	45	36	45
freedom from threat of contract repudiation by government[a,b]	0.210	0.026	0.158
	(0.12)	(0.86)	(0.25)
	55	46	55

a. *Samples are the countries listed in Table 1 less Bolivia, Chile, Congo, Cyprus, Ghana, Guatemala, Iceland, Iran, Jamaica, Kuwait, Malta, Niger, Papua New Guinea, Senegal, Tanzania, Tunisia, Zaire, and Zambia. Data is from La Porta et al. (1998).*
b. *Indexes range from one to ten, with ten signifying the most honest government.*

Table 9
Legal Institutions and Corporate Stability

Corporate stability is measured by the stability of the top 50 employers, $\Phi_{L,50}$, the top 50 firms ranked by sales, $\Phi_{S,50}$, and the top ten employers, $\Phi_{L,10}$.

Panel A. Legal Origin and Mean Corporate Stability

		$\Phi_{L,50}$	$\Phi_{S,50}$	$\Phi_{L,10}$
British Common Law	*Mean*	0.179	0.182	0.182
	sample	18	18	18
French Napoleonic Code	*mean*	0.209	0.169	0.208
	sample	26	19	26
German or Nordic Civil Codes	*mean*	0.310	0.266	0.275
	sample	10	10	10
T-Tests for Statistical Differences	*British v. French*	(0.48)	(0.84)	(0.64)
	British v. German/Nordic	(0.03)	(0.22)	(0.22)
	French v. German/Nordic	(0.10)	(0.05)	(0.34)

Samples are the countries listed in Table 1 less Iran, which adopted an Islamic legal system in 1979.

Table 9 (continued)
Panel B.   Regressions of Corporate Stability on Indexes of Creditors' Rights, Shareholders' Rights, and Disclosure Rules

Dependent variable		9b.1 $\Phi_{L,50}$	9b.2 $\Phi_{S,50}$	9b.3 $\Phi_{L,10}$
Constant		0.103 (0.33)	0.0759 (0.50)	0.195 (0.19)
Index of creditors' rights	C	-0.0304 (0.08)	-0.0423 (0.02)	-0.00757 (0.75)
Index of shareholders' rights	S	-0.0191 (0.30)	-0.0081 (0.64)	-0.0307 (0.22)
Index of accounting disclosure rules	A	0.00405 (0.03)	0.0040 (0.04)	0.00224 (0.36)
F statistic	F	2.75 (0.06)	3.81 (0.02)	0.663 (0.58)
R squared	R^2	0.124	0.214	-0.028
sample	n	38	32	38

Samples are the countries listed in Table 1 less Bolivia, Chile, Congo, Cyprus, Ecuador, Ghana, Guatemala, Iceland, Indonesia, Iran, Ireland, Jamaica, Kenya, Kuwait, Malta, Niger, Pakistan, Papua New Guinea, Senegal, Sri Lanka, Tanzania, Tunisia, Venezuela, Zaire and Zambia.

Table 10 Corporate Stability and Financial System Development

Dependent variables are corporate stability indexes based on the largest 50 employers, $\Phi_{L,50}$, the largest 50 firms ranked by sales, $\Phi_{S,50}$, or largest 10 employers, $\Phi_{L,10}$. Independent variables measure the initial condition and growth of the financial sector.

Dependent Variables	Private Sector Debt Financing[a]						Private Sector Equity Financing[b]		
	Corporate Stability Index			Corporate Stability Index			Corporate Stability Index		
	$\Phi_{L,50}$	$\Phi_{S,50}$	$\Phi_{L,10}$	$\Phi_{L,50}$	$\Phi_{S,50}$	$\Phi_{L,10}$	$\Phi_{L,50}$	$\Phi_{S,50}$	$\Phi_{L,10}$
constant	0.0871	0.143	0.102	0.0665	0.121	0.0660	0.287	0.300	0.273
	(0.00)	(0.01)	(0.02)	(0.03)	(0.04)	(0.12)	(0.00)	(0.00)	(0.00)
credit to the private sector as a fraction of GDP, 1975	0.00307	0.0019	0.00282	-	-	-	-	-	-
	(0.00)	(0.07)	(0.00)						
credit to the private sector as a fraction of GDP, 1975 to 1996	0.00008	-0.0011	-0.0004	-	-	-	-	-	-
	(0.86)	(0.21)	(0.56)						
Domestic credit from banking sector (% of GDP), 1975	-	-	-	0.00261	0.0015	0.00287	-	-	-
				(0.00)	(0.11)	(0.00)			
Domestic credit from banking sector (% of GDP), 1975 to 1996	-	-	-	0.0002	-0.0004	-0.0005	-	-	-
				(0.57)	(0.61)	(0.41)			
stock market capitalization as a fraction of GDP, 1976	-	-	-	-	-	-	-0.0651	-0.157	-0.0612
							(0.30)	(0.31)	(0.42)
Growth in stock market capitalization as a fraction of GDP, 1976 to 1995	-	-	-	-	-	-	-0.545	-0.753	-0.553
							(0.04)	(0.02)	(0.08)
F statistic	14.9	2.28	5.92	16.2	1.34	9.05	2.37	3.08	1.64
	(0.00)	(0.12)	(0.01)	(0.00)	(0.27)	(0.00)	(0.11)	(0.06)	(0.21)
R squared	0.362	0.057	0.167	0.382	0.016	0.247	0.064	0.112	0.031
Sample	50	43	50	50	43	50	41	34	41

a. *Samples are the countries listed in Table 1 less Germany, Hong Kong, Korea, Taiwan, Tanzania, and Zaire. Data are from the World Bank's "World Development Indicators, 2001".*

b. *Samples are the countries listed in Table 1 less Bolivia, Congo, Cyprus, Ecuador, Ghana, Guatemala, Iceland, Ireland, Iran, Israel, Jamaica, Kenya, Kuwait, Malta, Niger, Papua New Guinea, Sri Lanka, Senegal, Tanzania, Tunisia, Zaire, and Zambia. Data is from La Porta et al. (2000).*

Table 11
Openness to the Global Economy and Corporate Stability

Regressions of corporate stability indexes, based on the largest 50 employers, $\Phi_{L,50}$, the largest 50 firms ranked by sales, $\Phi_{S,50}$, or largest 10 employers, $\Phi_{L,10}$, on variables reflecting openness to the world economy

Dependent variable	11.1 $\Phi_{L,50}$	11.2 $\Phi_{S,50}$	11.3 $\Phi_{L,10}$
Constant	0.236 (0.00)	0.206 (0.00)	0.235 (0.00)
Foreign direct investment, net inflows (% of GDP), 1975	-.0363 (0.07)	-.0167 (0.64)	-.0457 (0.07)
Foreign direct investment, net inflows (% of GDP), 1975 to 1996	.00379 (0.79)	.00221 (0.91)	.0107 (0.54)
Gross foreign direct investment, % of GDP, 1975	-	-	-
Gross foreign direct investment, % of GDP, 1975 to 1996	-	-	-
F statistic	1.77 (0.18)	0.114 (0.89)	1.78 (0.18)
Adjusted R-squared	0.032	-0.050	0.032
Sample size	48	38	48

Data are from the World Bank's "World Development Indicators, 2001".

Table 12 Panel A
Economic Growth and the Determinants of Corporate Stability

	12a.1	12a.2	12a.3	12a.4	12a.5	12a.6
Constant	3.56 (0.00)	4.48 (0.00)	4.48 (0.00)	3.83 (0.00)	3.14 (0.00)	2.88 (0.02)
Log of per capita GDP	-0.711 (0.00)	-0.817 (0.00)	-0.617 (0.00)	-0.674 (0.00)	-0.728 (0.00)	-0.539 (0.02)
Log of per capita capital assets	0.432 (0.01)	0.312 (0.04)	0.214 (0.23)	0.301 (0.02)	0.458 (0.00)	0.334 (0.18)
Log of average years of education	0.180 (0.08)	0.197 (0.04)	0.207 (0.08)	0.092 (0.31)	0.108 (0.30)	-0.056 (0.70)
Stability coefficient based on top 50 employers	-0.716 (0.17)	-1.03 (0.01)	-0.867 (0.09)	-0.899 (0.05)	-1.09 (0.01)	-0.761 (0.25)
Government spending over GDP, 1975	-2.09 (0.12)	-	-	-	-	0.007 (1.00)
Change in government spending over GDP, 1975 to 1996	-2.32 (0.11)	-	-	-	-	-1.43 (0.55)
Absence of official corruption	-	0.104 (0.01)	-	-	-	-0.059 (0.40)
stock market capitalization, 1976	-	-	0.285 (0.09)	-	-	0.122 (0.63)
growth in stock market capitalization, 1976 to 1995	-	-	1.12 (0.16)	-	-	0.789 (0.35)
Private credit availability, 1975	-	-	-	0.006 (0.02)	-	0.006 (0.16)
change in private credit availability, 75 to 96	-	-	-	0.004 (0.00)	-	0.004 (0.04)
foreign direct investment, net inflows (% of GDP), 1975	-	-	-	-	0.013 (0.81)	-0.034 (0.69)
change in foreign direct investment, net inflows (% of GDP), 1975 to 1996	-	-	-	-	0.008 (0.84)	0.013 (0.79)
F statistic	15.3 (0.00)	23.0 (0.00)	18.3 (0.00)	22.4 (0.00)	14.0 (0.00)	9.33 (0.00)
R-squared	0.632	0.670	0.722	0.724	0.624	0.777
Sample size	51	55	41	50	48	32

Table 12 Panel B
Economic Growth and the Determinants of Corporate Stability

	12b.1	12b.2	12b.3	12b.4	12b.5	12b.6
Constant	3.67 (0.00)	3.72 (0.00)	4.46 (0.00)	3.91 (0.00)	3.56 (0.00)	2.51 (0.04)
Log of per capita GDP	-0.678 (0.00)	-0.552 (0.00)	-0.577 (0.00)	-0.492 (0.00)	-0.444 (0.00)	-0.549 (0.02)
Log of per capita capital assets	0.385 (0.01)	0.289 (0.03)	0.173 (0.35)	0.157 (0.14)	0.180 (0.15)	0.405 (0.12)
Log of average years of education	0.242 (0.02)	0.282 (0.00)	0.233 (0.08)	0.157 (0.06)	0.139 (0.13)	0.016 (0.92)
Stability coefficient based on top 50 sales	-0.659 (0.12)	-1.27 (0.00)	-0.679 (0.20)	-1.16 (0.00)	-1.25 (0.00)	-0.823 (0.13)
Government spending over GDP, 1975	-1.72 (0.11)	-	-	-	-	-0.871 (0.73)
Change in government spending over GDP, 1975 to 1996	-2.06 (0.07)	-	-	-	-	-3.65 (0.17)
Absence of official corruption	-	-0.041 (0.40)	-	-	-	-0.053 (0.42)
stock market capitalization, 1976	-	-	0.377 (0.35)	-	-	-0.280 (0.60)
growth in stock market capitalization, 1976 to 1995	-	-	0.933 (0.30)	-	-	0.685 (0.42)
Private credit availability, 1975	-	-	-	0.004 (0.06)	-	0.005 (0.15)
change in private credit availability, 75 to 96	-	-	-	0.002 (0.18)	-	0.003 (0.31)
foreign direct investment, net inflows (% of GDP), 1975	-	-	-	-	0.001 (0.98)	0.015 (0.87)
change in foreign direct investment, net inflows (% of GDP), 1975 to 1996	-	-	-	-	0.039 (0.23)	-0.032 (0.51)
F statistic	13.9 (0.00)	15.9 (0.00)	14.7 (0.00)	18.4 (0.00)	13.2 (0.00)	8.94 (0.00)
R-squared	0.642	0.624	0.713	0.713	0.664	0.799
Sample size	44	46	34	43	38	27

Table 12 Panel C
Economic Growth and the Determinants of Corporate Stability

	12c.1	12c.2	12c.3	12c.4	12c.5	12c.6
Constant	3.85	4.63	4.71	3.87	3.12	2.63
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.04)
Log of per capita GDP	-0.712	-0.845	-0.626	-0.669	-0.753	-0.566
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)
Log of per capita capital assets	0.390	0.306	0.180	0.280	0.467	0.377
	(0.03)	(0.06)	(0.33)	(0.04)	(0.00)	(0.15)
Log of average years of education	0.190	0.224	0.205	0.061	0.119	-0.097
	(0.07)	(0.02)	(0.10)	(0.52)	(0.29)	(0.51)
Stability coefficient based on top 10 employers	-0.052	-0.517	-0.262	-0.042	-0.553	-0.311
	(0.90)	(0.10)	(0.51)	(0.89)	(0.10)	(0.55)
Government spending over GDP, 1975	-2.38	-	-	-	-	-0.168
	(0.09)					(0.95)
Change in government spending over GDP, 1975 to 1996	-2.49	-	-	-	-	-2.03
	(0.09)					(0.40)
Absence of official corruption	-	0.104	-	-	-	-0.057
		(0.01)				(0.44)
stock market capitalization, 1976	-	-	0.327	-	-	0.154
			(0.06)			(0.55)
growth in stock market capitalization, 1976 to 1995	-	-	1.16	-	-	0.878
			(0.16)			(0.32)
Private credit availability, 1975	-	-	-	0.004	-	0.005
				(0.11)		(0.22)
change in private credit availability, 75 to 96	-	-	-	0.004	-	0.005
				(0.00)		(0.04)
foreign direct investment, net inflows (% of GDP), 1975	-	-	-	-	0.026	-0.036
					(0.63)	(0.70)
change in foreign direct investment, net inflows (% of GDP), 1975 to 1996	-	-	-	-	0.009	0.010
					(0.82)	(0.86)
F statistic	14.3	19.9	16.6	19.9	11.9	8.80
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
R-squared	0.616	0.636	0.701	0.698	0.583	0.765
Sample size	51	55	41	50	48	32

Table 13 Panel A
Total Factor Productivity Growth and the Determinants of Corporate Stability

	13a.1	13a.2	13a.3	13a.4	13a.5	13a.6
Constant	-0.47	-1.34	0.023	-0.37	-0.98	0.02
	(0.00)	(0.03)	(0.37)	(0.02)	(0.12)	(0.63)
Log of per capita GDP	-0.087	-0.186	-0.002	-0.052	-0.155	0.001
	(0.01)	(0.13)	(0.64)	(0.06)	(0.20)	(0.94)
Log of per capita capital assets	0.124	0.328	0.001	0.084	0.295	-0.003
	(0.00)	(0.02)	(0.91)	(0.01)	(0.03)	(0.73)
Log of average years of education	-0.031	0.054	0.005	-0.034	0.110	-0.0003
	(0.10)	(0.52)	(0.23)	(0.12)	(0.25)	(0.95)
	-0.017	-1.98	-0.013	-0.043	-2.48	-0.021
Stability coefficient based on top 50 employers	(0.86)	(0.00)	(0.44)	(0.71)	(0.00)	(0.37)
Government spending over GDP, 1975	0.101	-	-	-	-	0.041
	(0.73)					(0.65)
Change in government spending over GDP, 1975 to 1996	-0.445	-	-	-	-	0.046
	(0.13)					(0.58)
Absence of official corruption	-	0.024	-	-	-	0.0005
		(0.53)				(0.85)
stock market capitalization, 1976	-	-	0.010	-	-	0.005
			(0.06)			(0.53)
growth in stock market capitalization, 1976 to 1995	-	-	0.038	-	-	0.030
			(0.14)			(0.32)
Private credit availability, 1975	-	-	-	0.00019	-	0.0001
				(0.75)		(0.35)
change in private credit availability, 75 to 96	-	-	-	0.00013	-	0.00004
				(0.68)		(0.61)
foreign direct investment, net inflows (% of GDP), 1975	-	-	-	-	-0.054	0.0000
					(0.24)	(1.00)
change in foreign direct investment, net inflows (% of GDP), 1975 to 1996	-	-	-	-	-0.0040	0.001
					(0.91)	(0.64)
F statistic	2.35	14.0	1.42	1.62	13.0	0.812
	(0.05)	(0.00)	(0.23)	(0.17)	(0.00)	(0.64)
R-squared	0.145	0.555	0.060	0.073	0.615	-0.086
Sample size	49	53	41	48	46	32

Table 13 Panel B
Total Factor Productivity Growth and the Determinants of Corporate Stability

	13*b*.1	13*b*.2	13*b*.3	13*b*.4	13*b*.5	13*b*.6
Constant	-0.079	-2.56	0.025	-0.917	-1.60	0.002
	(0.96)	(0.14)	(0.30)	(0.63)	(0.37)	(0.94)
Log of per capita GDP	-0.099	0.324	-0.001	-0.035	0.120	-0.003
	(0.77)	(0.42)	(0.80)	(0.93)	(0.78)	(0.65)
Log of per capita capital assets	0.035	0.270	-0.0002	0.151	0.035	0.003
	(0.92)	(0.44)	(0.97)	(0.71)	(0.93)	(0.63)
Log of average years of education	-0.006	0.014	0.004	0.072	-0.064	0.0003
	(0.98)	(0.95)	(0.30)	(0.81)	(0.82)	(0.96)
Stability coefficient based on top 50 sales	-1.31	-1.67	-0.009	-1.43	-0.785	-0.010
	(0.23)	(0.17)	(0.58)	(0.34)	(0.57)	(0.48)
Government spending over GDP, 1975	5.59	-	-	-	-	-0.031
	(0.13)					(0.66)
Change in government spending over GDP, 1975 to 1996	6.03	-	-	-	-	-0.081
	(0.15)					(0.28)
Absence of official corruption	-	-0.264	-	-	-	0.001
		(0.04)				(0.58)
stock market capitalization, 1976	-	-	-0.0001	-	-	-0.030
			(0.99)			(0.06)
growth in stock market capitalization, 1976 to 1995	-	-	0.013	-	-	0.009
			(0.62)			(0.70)
Private credit availability, 1975	-	-	-	0.0003	-	0.0001
				(0.97)		(0.30)
change in private credit availability, 75 to 96	-	-	-	0.005	-	0.0001
				(0.40)		(0.56)
foreign direct investment, net inflows (% of GDP), 1975	-	-	-	-	0.199	-0.001
					(0.26)	(0.84)
change in foreign direct investment, net inflows (% of GDP), 1975 to 1996	-	-	-	-	0.309	-0.002
					(0.01)	(0.29)
F statistic	0.823	1.64	0.341	0.663	2.68	0.959
	(0.56)	(0.17)	(0.91)	(0.68)	(0.04)	(0.53)
R-squared	-0.027	0.069	-0.136	-0.055	0.229	-0.021
Sample size	42	44	34	40	35	27

Table 13 Panel C
Total Factor Productivity Growth and the Determinants of Corporate Stability

	13*c*.1	13*c*.2	13*c*.3	13*c*.4	13*c*.5	13*c*.6
Constant	-0.47	-1.22	0.03	-0.37	-1.12	0.01
	(0.00)	(0.08)	(0.29)	(0.02)	(0.13)	(0.81)
Log of per capita GDP	-0.087	-0.209	-0.002	-0.052	-0.182	-0.0002
	(0.01)	(0.13)	(0.62)	(0.06)	(0.19)	(0.98)
Log of per capita capital assets	0.124	0.321	0.0001	0.084	0.312	-0.001
	(0.00)	(0.03)	(0.99)	(0.01)	(0.05)	(0.87)
Log of average years of education	-0.031	0.078	0.005	-0.034	0.103	-0.001
	(0.09)	(0.40)	(0.23)	(0.12)	(0.35)	(0.77)
	-0.024	-1.44	-0.003	-0.029	-1.75	-0.012
Stability coefficient based on top 10 employers	(0.75)	(0.00)	(0.84)	(0.73)	(0.00)	(0.50)
Government spending over GDP, 1975	0.109	-	-	-	-	0.040
	(0.71)					(0.66)
Change in government spending over GDP, 1975 to 1996	-0.442	-	-	-	-	0.029
	(0.13)					(0.72)
Absence of official corruption	-	0.020	-	-	-	0.0004
		(0.64)				(0.89)
stock market capitalization, 1976	-	-	0.011	-	-	0.007
			(0.05)			(0.46)
growth in stock market capitalization, 1976 to 1995	-	-	0.039	-	-	0.032
			(0.14)			(0.28)
Private credit availability, 1975	-	-	-	0.0001	-	0.0001
				(0.79)		(0.37)
change in private credit availability, 75 to 96	-	-	-	0.0001	-	0.00004
				(0.71)		(0.57)
foreign direct investment, net inflows (% of GDP), 1975	-	-	-	-	-0.042	-0.0004
					(0.43)	(0.91)
change in foreign direct investment, net inflows (% of GDP), 1975 to 1996	-	-	-	-	0.015	0.001
					(0.70)	(0.63)
F statistic	2.37	9.75	1.31	1.61	8.16	0.769
	(0.05)	(0.00)	(0.28)	(0.17)	(0.00)	(0.68)
R-squared	0.146	0.457	0.044	0.073	0.489	-0.108
Sample size	49	53	41	48	46	32

Table 14 Panel A
Capital Accumulation Growth and the Determinants of Corporate Stability

	14a.1	14a.2	14a.3	14a.4	14a.5	14a.6
Constant	-1.93 (0.00)	-0.89 (0.17)	0.04 (0.41)	-1.50 (0.01)	-1.22 (0.06)	0.02 (0.68)
Log of per capita GDP	-0.346 (0.00)	-0.088 (0.48)	-0.001 (0.91)	-0.195 (0.06)	-0.074 (0.54)	0.015 (0.11)
Log of per capita capital assets	0.495 (0.00)	0.180 (0.19)	0.000 (0.97)	0.326 (0.01)	0.165 (0.23)	-0.011 (0.29)
Log of average years of education	-0.126 (0.07)	-0.153 (0.08)	0.001 (0.90)	-0.138 (0.10)	-0.291 (0.00)	-0.0068 (0.27)
Stability coefficient based on top 50 employers	0.018 (0.96)	1.14 (0.00)	-0.018 (0.57)	-0.121 (0.78)	1.35 (0.00)	-0.028 (0.30)
Government spending over GDP, 1975	0.255 (0.81)	-	-	-	-	0.032 (0.76)
Change in government spending over GDP, 1975 to 1996	-2.00 (0.07)	-	-	-	-	0.110 (0.27)
Absence of official corruption	-	-0.042 (0.28)	-	-	-	-0.0036 (0.21)
stock market capitalization, 1976	-	-	0.028 (0.01)	-	-	0.014 (0.19)
growth in stock market capitalization, 1976 to 1995	-	-	0.099 (0.05)	-	-	0.086 (0.02)
Private credit availability, 1975	-	-	-	0.0006 (0.78)	-	0.0002 (0.15)
change in private credit availability, 75 to 96	-	-	-	0.0005 (0.65)	-	0.0002 (0.08)
foreign direct investment, net inflows (% of GDP), 1975	-	-	-	-	-0.051 (0.27)	0.0072 (0.05)
change in foreign direct investment, net inflows (% of GDP), 1975 to 1996	-	-	-	-	0.074 (0.04)	-0.002 (0.39)
F statistic	2.83 (0.02)	4.44 (0.00)	2.04 (0.09)	1.77 (0.13)	5.58 (0.00)	5.47 (0.00)
R-squared	0.186	0.248	0.135	0.089	0.379	0.652
Sample size	49	53	41	48	46	32

Table 14 Panel B
Capital Accumulation Growth and the Determinants of Corporate Stability

|	14*b*.1	14*b*.2	14*b*.3	14*b*.4	14*b*.5	14*b*.6
Constant	-2.17 (0.18)	-3.24 (0.05)	0.041 (0.41)	-3.32 (0.05)	-3.95 (0.01)	0.015 (0.68)
Log of per capita GDP	-0.459 (0.20)	-0.214 (0.57)	-0.005 (0.65)	-0.197 (0.59)	-0.046 (0.90)	0.016 (0.04)
Log of per capita capital assets	0.542 (0.13)	0.636 (0.06)	0.003 (0.82)	0.543 (0.14)	0.422 (0.20)	-0.008 (0.32)
Log of average years of education	-0.163 (0.51)	-0.412 (0.06)	0.001 (0.95)	-0.602 (0.03)	-0.698 (0.01)	-0.007 (0.18)
Stability coefficient based on top 50 sales	-0.990 (0.38)	-0.952 (0.40)	0.006 (0.87)	-0.292 (0.82)	0.145 (0.90)	-0.028 (0.11)
Government spending over GDP, 1975	6.41 (0.09)	-	-	-	-	-0.087 (0.28)
Change in government spending over GDP, 1975 to 1996	3.80 (0.37)	-	-	-	-	-0.015 (0.86)
Absence of official corruption	-	-0.080 (0.50)	-	-	-	-0.003 (0.14)
stock market capitalization, 1976	-	-	0.007 (0.78)	-	-	-0.039 (0.04)
growth in stock market capitalization, 1976 to 1995	-	-	0.072 (0.20)	-	-	0.049 (0.09)
Private credit availability, 1975	-	-	-	-0.002 (0.72)	-	0.0003 (0.02)
change in private credit availability, 75 to 96	-	-	-	0.008 (0.12)	-	0.0003 (0.01)
foreign direct investment, net inflows (% of GDP), 1975	-	-	-	-	0.261 (0.08)	0.006 (0.05)
change in foreign direct investment, net inflows (% of GDP), 1975 to 1996	-	-	-	-	0.305 (0.00)	-0.004 (0.02)
F statistic	1.61 (0.17)	1.60 (0.18)	0.616 (0.72)	1.65 (0.16)	4.83 (0.00)	6.68 (0.00)
R-squared	0.082	0.065	-0.075	0.091	0.403	0.740
Sample size	42	44	34	40	35	27

Table 14 Panel C
 Capital Accumulation Growth and the Determinants of Corporate Stability

	14c.1	14c.2	14c.3	14c.4	14c.5	14c.6
Constant	-1.96	-0.98	0.05	-1.49	-1.15	0.012
	(0.00)	(0.14)	(0.36)	(0.01)	(0.10)	(0.80)
Log of per capita GDP	-0.342	-0.067	-0.001	-0.194	-0.044	0.014
	(0.00)	(0.61)	(0.90)	(0.06)	(0.73)	(0.14)
Log of per capita capital assets	0.496	0.183	-0.001	0.326	0.149	-0.010
	(0.00)	(0.20)	(0.92)	(0.01)	(0.32)	(0.37)
Log of average years of education	-0.127	-0.170	0.009	-0.138	-0.295	-0.008
	(0.07)	(0.06)	(0.91)	(0.10)	(0.01)	(0.18)
	-0.067	0.751	-0.007	-0.111	0.789	-0.006
Stability coefficient based on top 10 employers	(0.80)	(0.01)	(0.77)	(0.72)	(0.02)	(0.76)
Government spending over GDP, 1975	0.286	-	-	-	-	0.021
	(0.79)					(0.85)
Change in government spending over GDP, 1975 to 1996	-1.96	-	-	-	-	0.089
	(0.07)					(0.37)
Absence of official corruption	-	-0.041	-	-	-	-0.003
		(0.31)				(0.27)
stock market capitalization, 1976	-	-	0.029	-	-	0.015
			(0.01)			(0.18)
growth in stock market capitalization, 1976 to 1995	-	-	0.099	-	-	0.090
			(0.06)			(0.02)
Private credit availability, 1975	-	-	-	0.0006	-	0.0002
				(0.78)		(0.25)
change in private credit availability, 75 to 96	-	-	-	0.0005	-	0.0002
				(0.69)		(0.08)
foreign direct investment, net inflows (% of GDP), 1975	-	-	-	-	-0.065	0.0075
					(0.20)	(0.06)
change in foreign direct investment, net inflows (% of GDP), 1975 to 1996	-	-	-	-	0.071	-0.002
					(0.07)	(0.34)
F statistic	2.85	3.20	1.99	1.78	3.74	5.10
	(0.02)	(0.01)	(0.10)	(0.13)	(0.00)	(0.00)
R-squared	0.188	0.174	0.129	0.091	0.268	0.632
Sample size	49	53	41	48	46	32

Figure 1
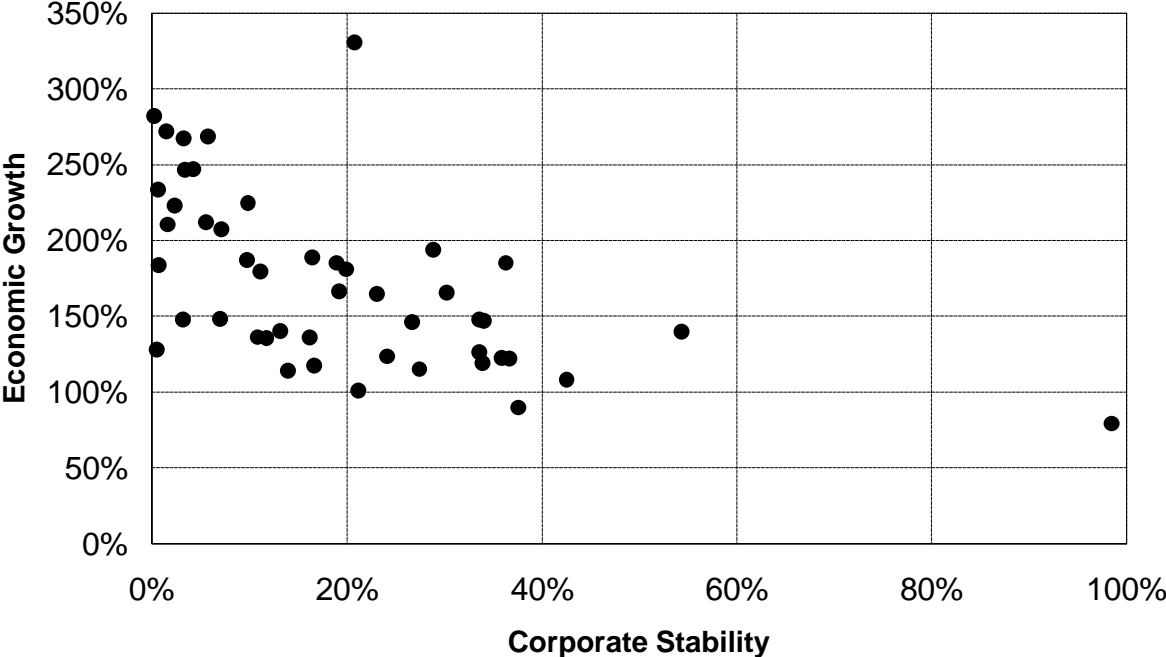**Economic Growth versus Corporate Stability**

Panel A
Economic growth is growth in real *per capita* gross domestic product from 1975 to 1996.
Corporate stability is the employment-weighted fraction of the fifty largest enterprises
(ranked by labor force) in 1996 that were also in the top fifty list for 1975.
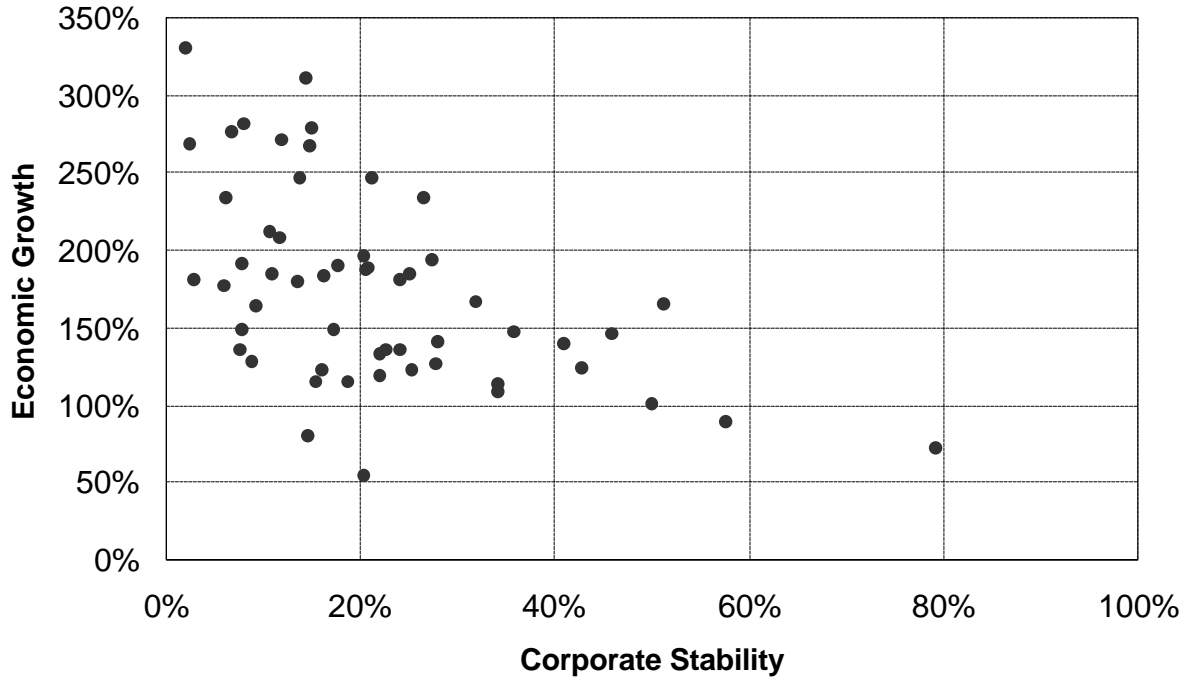
Figure 1 (Continued)
**Economic Growth versus Corporate Stability**

Panel B

Economic growth is growth in real *per capita* gross domestic product from 1975 to 1996. Corporate stability is the sales-weighted fraction of the fifty largest enterprises (ranked by sales) in 1996 that were also in the top fifty list for 1975.

Figure 1 (Continued)
Economic Growth versus Corporate Stability

Panel C
Economic growth is growth in real per capita gross domestic product from 1975 to 1996.
Corporate stability is the employment-weighted fraction of the ten largest enterprises
(ranked by labor force) in 1996 that were also in the top ten list for 1975.
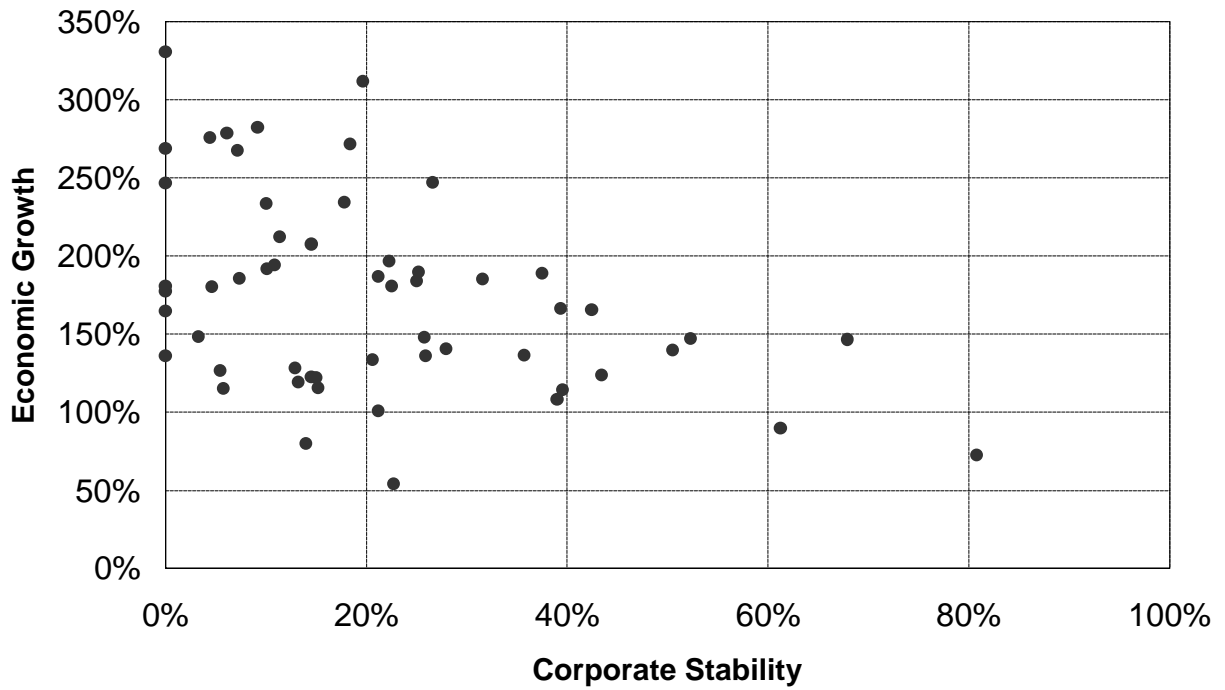
Appendix on the Procedure for the Determination of Continuity

Our procedure for determining whether or not a top fifty or top ten 1975 firm survived to 1996 as a top fifty or top ten firm is as follows.

To construct our top fifty employee-weighted stability index, $\Phi_{L,50}$, we begin with complete lists of all firms in each country for the two years from *Dun and Bradstreet's Principals of International Business*, sorted by number of employees.

We begin by matching the two lists by company name. We then manually check for minor changes in company names, such as *Limited* in one year and *Corporation* in the other, *Aktiengesellschaft* in one and *AG* in the other, and the like. Next we check for the use of well-known abbreviations, like *IBM*, in one list and the company's full name, *International Business Machines*, in the other. Abbreviations are only matched in this way if the identity of the company is clear. For example, we do not match relatively obscure companies in smaller countries with cognate abbreviations because we cannot be sure the references are to the same company.

We then take into account the corporate group structure of many countries' large businesses. *Principals of International Business* provides information on parent-subsidiary linkages, which we use to delete subsidiaries from our lists, and to consolidate reported employee figures of subsidiaries into those of parent firms.[1] Local companies controlled directly by foreign firms are taken as separate entities in the host country.

This procedure generates lists the top fifty firms, ranked by number of employees, for each of the two years.

We use an analogous procedure, starting instead by ranking firms by sales, to generate lists of the top fifty firms, ranked by sales, in each country. We are less confident of our sales variable because sales figures of subsidiaries are harder to consolidate since we cannot net out sales to other group firms. Our sales weightings may thus give too much importance to corporate groups and not enough to independent firms in some countries. Consequently, we focus on the stability measures based on the employment rankings, and use the sales-based stability measure primarily as a robustness check.

The above procedures do not deal with company name changes. If name changes are more common in some countries than others, this should reduce our stability measures evenly across all countries, and so is statistically innocuous. However, if name changes are more common in some countries than others, our results might be distorted.

An exhaustive search for name changes of fifty companies in each country is prohibitively expensive, as this information must be gathered separately, and by hand, for each firm. We therefore restrict this more expensive portion of our data collection exercise to the top ten firms, ranked by number of employees, in each country.

For each top ten 1975 firm that apparently disappeared by 1996, we check for name changes, significant ownership changes (such as privatizations, or mergers and acquisitions), restructurings, downsizing, and failure. We also construct detailed corporate histories of all apparently new 1996 top ten firms to see if they are actually continuations of 1975 top ten firms. This procedure lets us check whether or not any 1996 top ten firm is actually a continuation of some 1975 top ten firm.

Corporate continuity can be disguised in corporate groups. For example, a group restructuring that moves firms up or down in a family pyramid can cause the leading firm of the group to change, say from a construction firm to a bank, even though the actual physical assets of the corporate group as a whole have not changed. If the leading firm of a corporate group

changes, but the group continues to be controlled by the same individual or family, we treat the group as having survived.

For freestanding firms, the criterion is simpler. If a freestanding firm has changed its name, and this change accompanies a transfer of corporate control, we treat the firm as a new entity. If the new entity is a subsidiary of a 1996 corporate group, we consolidate it with other group firms in our 1996 ranking. If the new entity is independent, we treat it as a genuine new enterprise.

To operationalize this procedure, we require detailed corporate control histories, first for each apparently new firm in our 1996 lists, and then for each remaining apparently defunct firm in our 1975 list. To construct these histories, we use the following sequence of steps.

First, we located the company website using the *Google* search engine. (We experimented with other search engines, such as *Yahoo* and *AltaVista*, and found that Google led us more directly to corporate websites for foreign companies.) Company websites often contain detailed corporate histories regarding governance continuity, merger and acquisition activities, and corporate restructuring in links to "about", "history", or "management profile", and in many cases this information was sufficient to ascertain whether or not a 1996 firm is a continuation of a 1975 top ten firm. These sites also contain information the let us double check *Dun and Bradstreet*'s employees and sales figures to confirm the identity of the firm.

Where these histories are unavailable, incomplete or ambiguous, we sent e-mails to the addresses given in the "contact us" links. We received replies to 35% of these inquiries.

If only a single piece of critical information was needed, we phoned the company in question. Although English is used by leading corporations around the world, we nonetheless encountered language barriers in several countries. To solve this problem, we asked students fluent in the local language to phone the company for us. Our inquiries were often met with a cold and suspicious silence. Nonetheless, information obtained from phone calls did help us classify several firms.

For some firms, corporate websites could not be found. We therefore consulted other directories of leading businesses. In a few cases, these sources clarified the continuity of firms that were listed under different names in the two years we study by Dun and Bradstreet. Unfortunately, this technique only helped in a few cases.

In some cases, Google brought us to legal documents, news releases or government reports that mention the names of our companies. These often contained useful information about the history and evolution of the company, and allowed us to track name changes and merger and acquisition activities. We also found bankruptcy or business termination notices in many cases. The Google search engine is particularly useful in this context because it retains cached pages as back up files. Most news websites only provide anonymous users access to current information, however Google's back-up files contain a wealth of stale news items on our companies. These allowed us to accept of reject a continuity of existence for many of our firms.

In running these searches, we always entered the exact company name as listed in *Dun and Bradstreet's Principals of International Business* in quotes. If the search engine failed to find the corporate website or other useful material, we removed the quotes and ran the search again. If the search returned a few words from the full company name, we checked the context around the key words to see if the web pages pertained to our companies.

If none of these methods of investigation of apparently new 1996 companies reveal a connection to an apparently defunct 1975 company, we presume that the 1975 company has disappeared.

Finally, *Dun and Bradstreet* often repeats itself when listing companies in the 1998/99 edition on CD. After investigating several of these duplicate entries in detail, we adopted the following convention. If the same company name appears twice with different addresses, we treat these entries as separate plants run by the same company and sum the employee figures. If the same company is listed twice with the same address, we take the larger of the two employee figures. In a few cases, slightly different spellings of a company's name appear with same address and phone number, and the same (or very close) employee figures. We treat these as duplicate entries and use the larger of the employee figures.

This procedure leaves us with lists of the top fifty firms in each country, ranked by number of employees, in each of 1975 and 1996. We are very sure of the accuracy of the top ten firms in each list, and less confident of the remaining forty entries. We use the first ten entries in each list to construct our top ten employers stability index, $\Phi_{L,10}$. We use all fifty firms in each list to construct our top fifty employers stability index, $\Phi_{L,50}$. The top ten index is a more reliably accurate measure of corporate sector stability, but is less representative of the whole economy than $\Phi_{L,50}$.

We analogously use our lists of firms ranked by sales to generate our sales-based corporate stability index, $\Phi_{S,50}$. Like $\Phi_{L,50}$, this index is a broad, but less reliably accurate measure. We do not construct a more accurate top ten sales-based corporate stability index because problems consolidating inter-corporate sales among group firms make a very high degree of accuracy for a sales-based index unattainable.

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[1] Our phone conversation with Dun and Bradstreet confirmed that when D&B lists companies, "branches and divisions are consolidated [with the headquarter], but any other entities (subsidiaries or affiliated companies) are listed separately." For example, the Australian company WOOLWORTHS LTD has four subsidiaries listed in the D&B 98/99 CD edition: WOOLWORTHS (Q'LAND) PTY LTD, WOOLWORTHS (SOUTH AUSTRALIA) PTY LTD, WOOLWORTHS (VICTORIA) PTY LTD, and WOOLWORTHS (W A) PTY LTD. We add the employee figures of each subsidiary to the parent, WOOLWORTHS LTD, and only include the parent in our top-employer list.