

The Role of Government Ownership in the Capital Structure of State-Owned Enterprises

Candra Chahyadi
Eastern Illinois University

Using a sample of 340 privatized firms from 51 countries, I examine their capital structure after privatization and analyze the capital structure determinants of privatized firms. The results indicate that privatized firms have a target leverage ratio and it is independent of the remaining government ownership. The leverage choice of privatized firms is affected by a high level of information asymmetry and government's future privatization agenda. In general, my study confirms the argument that privatized firms are unique and need to be separated from the sample of large firms when conducting international capital structure studies.

Keywords: privatization, capital structure, government ownership, initial leverage, corruption

INTRODUCTION

Although privatization has become a core economic policy in more than 100 countries and privatized firms account for a very significant portion of the privatizing country's GDP, it is very surprising that we still do not know much about the capital structure of privatized firms. Considering the size and the growing significance of privatized firms in countries in which privatization has taken place, the lack of activity in this area is unexpected. To the best of my knowledge, this is the first study examining the capital structure and the capital structure determinants of privatized firms.

Figure 1 shows that privatized firms are the largest in many countries. In 17 of the 27 Organization for Economic Co-operation and Development (OECD) and developing countries listed, privatized firms are the largest.

FIGURE 1
SIZE OF PRIVATIZED FIRMS IN 27 COUNTRIES

| Country | Largest | Second largest | Third largest |
|----------------|---------|----------------|---------------|
| Australia | | X | x |
| Austria | | X | x |
| Brazil | x | X | |
| Britain | x | | |
| China | x | X | x |
| Czech Republic | x | X | x |

| | | | |
|--------------|---|---|---|
| Finland | | X | x |
| France | x | X | x |
| Germany | x | | |
| Greece | x | | x |
| Hungary | x | X | x |
| India | x | | |
| Israel | | X | x |
| Italy | x | X | x |
| Japan | | X | x |
| Malaysia | | X | x |
| Mexico | x | | x |
| Netherlands | | X | |
| Norway | x | X | x |
| Poland | x | X | x |
| Portugal | x | X | x |
| Russia | x | X | x |
| Singapore | x | | |
| South Africa | | X | |
| South Korea | | | x |
| Spain | x | | x |
| Taiwan | | X | |

This figure shows the size of privatized firms in 27 OECD and developing countries (Source: William L. Megginson presentation, constructed from Business Week, Top 200 Emerging-Market companies)

Privatized firms share some similarities with other large non-privatized firms (henceforth large firms), such as size and the economic importance to the privatizing country. However, it would be logically flawed for us to posit that just because privatized firms are like large firms in size and that size is an important capital structure factor, privatized firms will automatically have the same capital structure as those of large firms. There are at least three reasons why privatized firms differ from large firms and we should be very cautious not to treat privatized firms as simply a subset of large firms.

First, privatized firms and large firms take very different paths to become as large as they are. Privatized firms' size is due primarily to government intervention and protection. Most privatized firms are in strategic industries with heavy government involvement, leading to rapid and sustained growth; it usually does not take long for these state-owned enterprises (SOEs) to become very large in size. Conversely, most large firms, which have usually been in the business for a long time and have built a strong reputation, increase in size gradually over years of sustained growth. Kayhan and Titman (2007) show that firms' histories can affect their capital structures. Thus, the difference in firm maturity (i.e., how long a firm has been in the business) between privatized and large firms can lead to differences in capital structure.

Second, although privatized firms become more profitable after privatization, their level of profitability is still significantly lower than that of large firms. Many capital structure studies have confirmed that profitability is inversely related to the leverage ratio. Thus, differences in the profitability levels between privatized and large firms may result in differences in capital structure.

Third, unlike large firms, partially privatized firms (privatized firms in which government still retains a portion of ownership) may not always seek to maximize shareholder wealth. They may operate according to a hidden government political agenda that does not align with the goal of profit maximization. The trade-off theory of capital structure argues that a firm can maximize its value by choosing the optimal leverage ratio. Although the debate about the theory of capital structure is still ongoing, the trade-off theory of capital structure has gained some momentum recently especially after considering costly adjustment costs. If the trade-off theory holds, then partially-privatized firms, which represents a significant portion of the sample, would have a different capital structure from large firms.

One fundamental question about privatized firms' capital structure is how the capital structure of privatized firms empirically evolves after these SOEs are privatized. Does the evolution of privatized firms' capital structure indicate that privatized firms have a persistent capital structure or does the capital structure move randomly after privatization (i.e., because they might not seek an optimal capital structure)? Lemmon, Roberts, and Zender (2008) find that a firm's initial leverage is a very important capital structure determinant. Will the initial leverage of privatized firms also be important in explaining the long-term capital structure? Privatized firms invariably experience a significant drop in their leverage ratios because prior to privatization, they do not have any external equity, causing their leverage ratios to be superficially high and after privatization these ratios will drop as the firms start getting external equity. Will this post-privatization leverage ratio be able to explain the capital structure of privatized firms?

Many other important empirical questions can be raised: Will the capital structure determinants observed in the sample of U.S. firms also be the determinants in the sample of privatized firms? How important is the remaining government ownership in determining a privatized firm's capital structure? How do country-specific factors (e.g., corruption, economic development, legal system) affect the leverage choice of a firm?

Fan, Titman, and Twite (2012) suggest that institutional factors are critical determinants of firms' financial structures. Therefore, I examine whether country-specific factors such as corruption index, economic development, and legal system of a country affect the capital structure of privatized firms.

The remainder of this dissertation is organized as follows. I present the hypothesis development in Section 2. Section 3 contains data and sample selection. Section 4 presents the methodology used in this study and Section 5 presents my results. Finally, I conclude in Section 6.

HYPOTHESIS DEVELOPMENT

Before privatization, SOEs might not always seek to optimize the firm value due to the soft budget constraint. However, newly privatized SOEs are forced by the market to optimize their firm values and the wealth of their shareholders. The newly encountered threat of bankruptcy and market discipline make privatized firms more prudent in managing their debt level and force them to optimize their capital structure (i.e., to maximize firm value) and the wealth of their shareholders. Because of the privatized firms' new objective to maximize their firm values and the wealth of their shareholders (through optimizing their capital structure), I argue that the capital structure of privatized firms does not evolve randomly but, rather, has a persistent capital structure like other large firms do, leading to my first hypothesis.

H1: Like large firms, privatized firms do have a persistent capital structure.

The relation between remaining government ownership and leverage within partially privatized firms has not received much attention. Remaining government ownership may be an important capital structure determinant for privatized firms because the level of government ownership could potentially affect the perceived probability of bankruptcy. That is, privatized firms with a higher level of government ownership may be perceived as less likely to go bankrupt than firms with the lower level of government ownership. Borisova (2011), using a sample of European privatized firms, finds that a higher level of remaining government ownership leads to a lower cost of debt in partially privatized firms. This result is the basis of my second hypothesis:

H2: The government ownership variable is an important capital structure determinant for privatized firms.

Lemmon, Roberts, and Zender (2008) find that initial leverage captures about 90 percent of the variation in leverage and subsumes the significance of the traditional capital structure determinants. They further contend that this result holds for both public and private firms. Because privatized firms are either fully or partially privatized, Lemmon, Roberts, and Zender's result indirectly suggests that initial leverage

is a very important capital structure determinant for privatized firms. Therefore, my third hypothesis is as follows:

H3: *The initial leverage variable is an important capital structure determinant for privatized firms, and adding this variable reduces the significance of the traditional determinants.*

Fan, Titman, and Twite (2012) find that firms in countries with a higher level of corruption are more leveraged. However, whether this result holds true for privatized firms is unclear. On the one hand, privatized firms in more corrupt countries could use more debt (obtained from state-owned banks) because they can deliberately choose not to repay the debt knowing that there are a few or no adverse consequences from defaulting. On the other hand, privatized firms could use less debt because the government wants to send a message to the financial market that privatized firms are prudent in managing debt and will not expropriate the debt holders. This is particularly important especially if government still has firms on its privatization agenda. Therefore, the relation between corruption and leverage in privatized firms remains an empirical issue. Regardless, I assume capital structure is affected by corruption level, leading to my fourth hypothesis:

H4: *Corruption level is an important capital structure determinant for privatized firms.*

Considering the different institutional structures in developed and developing countries, it is important that we determine whether the leverage of privatized firms in developed countries differs from that in developing countries. Demirgüç-Kunt and Maksimovic (1999) compare the capital structure of firms in developed and developing countries and find that firms in developed countries use more long-term debt than firms in developing countries. Although Booth, Aivazian, Demirgüç-Kunt, and Maksimovic (2001), using a sample of the largest companies in each of the ten developing countries, provide evidence that leverage choices of firms in developing countries are affected by the same variables as in developed countries, they argue that differences persist across countries. Thus, I hypothesize:

H5: *Privatized firms in developed countries use more leverage than privatized firms in developing countries.*

La-Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997) find that a country's investor protections are positively correlated with the size of debt and equity markets. Giannetti (2003) finds that institutions that favor creditor rights and have stricter enforcements are associated with higher level of leverage. Similar to the previously unknown relation between the economic development of a country and leverage decisions for privatized firms, the relation between a country's legal system and leverage decisions for privatized firms has never been investigated. I examine this relation and, based on the notion that a stronger legal system encourages more use of debt, I hypothesize:

H6: *Privatized firms in common law countries use more leverage than privatized firms in civil law countries.*

DATA AND SAMPLE SELECTION

I construct the sample of privatized firms using data from William Megginson's privatization appendix, the Privatization Barometer, and the World Bank Privatization databases. Accounting data are obtained from the Compustat Global database, and the 12 industry classification data are from the Kenneth French's Web site. Table 1 provides the variable definitions and predicted signs.

The sample includes only SOEs that are privatized through the share issue privatization (SIP) method because SIP firms provide accounting data after privatization and they are the most significant privatized firms in terms of size and relative importance to the privatizing nations' economies. In addition, SIP

offerings are secondary offerings (except in China and Russia) so the proceeds go directly to the government, not to the SOE. Thus, any improvements in performance reported after divestiture must be related to the changes in incentives, regulation, macroeconomic policy, or ownership structure rather than to cash injections into the firm from a new offering.

I require all firms to have more than one year of consecutive data and that all firm-years have no missing data for the book value of total assets. Data for Canada go back as far as 1987; data for all other countries in the sample start in 1991 or later. Therefore, I use data only from 1991 to 2005 for my analyses. My final sample consists of 340 privatized firms from 51 countries and has 3,013 firm-year observations spanning 1991 to 2005.

Consistent with many international capital structure studies, I consider two measures of leverage: the long-term-debt-to-total-asset (LDA) and the total-debt-to-total-asset (TDA) ratios. However, because the TDA ratio contains trade credit (from the short-term debt) whose determinants could be under the influence of completely different determinants, I mainly focus on the LDA ratio.

The capital structure determinants used in this study are size, defined as the natural log of the book value of total assets; collateral, defined as the ratio of fixed assets to the book value of total assets; profitability, defined as the ratio of operating income before depreciation to the book value of total assets; and median industry leverage, defined as the industry's median long-term debt to the book value of total assets ratio in a specific year. Frank and Goyal (2009) consider these variables to be among the most important. The data for government ownership variable are collected from the World Bank's Privatization database and the Privatization Barometer database along with William Megginson's privatization appendix. Missing data are obtained manually. Table 2 presents the summary statistics of the sample.

To determine whether a country is a developed or a developing country, I rely primarily on the gross domestic product (GDP) per capita criteria and obtain the data from the World Bank database. I define a developed country as a country that has a GDP per capita over USD 12,000. To determine a country's legal system, I use the Central Intelligence Agency (CIA)'s *World Factbook*. In some cases, it is not easy to determine a country's legal system. For example, many countries adopt mixed systems, such as Morocco, which employs both Islamic law and French and Spanish civil law systems. In such cases, I defer to the classification developed by La-Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998). The corruption data used in this study are obtained from the Web site of Transparency International (TI). After collecting both firm-specific and country-specific data, I construct a correlation matrix, as presented in Table 3, which shows the correlation among factors.

METHODOLOGY

Evolution of the Capital Structure of Privatized Firms

To study the evolution of the capital structure of privatized firms, I first form leverage quartiles beginning in 1991, the first year that the sample contains sufficient firms ($n=125$) through 2005. After I sort and rank the firms by their leverage ratio, I divide them into quartiles and denote them as very high (VH), high (H), medium (M), and low (L). Using the same set of leverage quartiles, I continue by averaging every leverage quartile in 1992 and so forth. I do not re-sort the leverage quartiles for each year (i.e., to keep the components of each quartile constant) so that I can examine whether firms that initially have a high level of leverage continue to use a relatively high level of leverage in the long run. I then plot the average of each leverage quartile over time to show the evolution of the capital structure of privatized firms.

Main Specification

To test the first hypothesis, I regress leverage on the lagged variable of leverage and on the lagged traditional determinants of capital structure such as size, profitability, median industry leverage, and collateral.

$$y_{it} = \alpha + \beta y_{it-1} + \gamma x_{it-1} + e_{it} \quad (1)$$

where y_{it} is the leverage ratio and y_{it-1} is the one-year lagged variable of leverage ratio, for firm i at time t and x_{it-1} is the vector of lagged independent variables that includes size, profitability, median industry leverage, and collateral. If privatized firms have a persistent capital structure, after controlling for firm characteristics, β should be significantly positive and to test other hypotheses, I add a variable and test for its significance by looking at the t-statistic.

Although other capital structure studies often exclude financial services and utilities firms from their sample, I include these firms because they represent a significant portion of the sample (approximately thirty percent) and many are very important privatized firms. Including these firms in my sample provides a clearer picture of how the capital structure of privatized firms evolves. However, to address any concerns that my results could be skewed by the inclusion of financial services and utilities firms, I separate these firms from the main sample and rerun all the analyses with the new sample.

RESULTS

The median for LDA and TDA ratios are plotted on Figures 2 and 3, respectively. Two observations are worth noting. First, the figures show that, on average, privatized firms use more long-term debt and less total debt than large firms. Privatized firms may use more long-term debt than large firms because, in the long run, financially troubled privatized firms are considered less likely to go bankrupt (the probability of bankruptcy is not as important in the short run as it is in the long run). Another possible explanation is that privatized firms do not need to use short-term debt as much as large firms. Rajan (1992) argues that shorter maturity debt limits the time period during which a borrower can exploit creditors without being in default. In this case, partially privatized firms in particular do not need to take shorter maturity debt to convince creditors that the firm will not exploit them because the government is perceived as less likely to defraud creditors. This could explain Borisova's (2011) finding that the cost of debt is negatively related to the remaining level of government ownership. Second, I find similar, albeit weaker, evidence to support Demirgüç-Kunt and Maksimovic's (1999) finding that large firms in developed countries use more long-term debt than firms in developing countries. My weaker evidence, however, might be a result of a smaller sample (especially in developed countries, where the number of privatized firms is usually smaller than large firms).

Figure 3 also shows that large firms usually use more total debt (as a percentage of total assets) and less equity than privatized firms. This finding supports the pecking order theory that when firms need external financing, they prefer debt to equity. Conversely, privatized firms use less total debt and more equity (as percentages of total assets) than large firms, which is consistent with Megginson, Nash, Netter, and Poulsen (2004), who find that SIPs are more likely when the capital market in the country is less developed. Therefore, privatized firms' use of more equity than debt is not surprising, and their decision to issue more equity than debt – which may be driven by the government's desire to improve the condition of their less-developed capital markets – is understandable.

Figure 5 shows a much stronger pattern of the leverage convergence when TDA is used as the leverage measure. During the first nine years, from 1991 to 1999, the average of leverage quartiles strongly converges, and the leverage convergence continues although not as strongly. Based on this evidence, privatized firms appear to care about their target leverage ratio and seek to optimize their capital structure.

Table 4 presents results for all regression models. I find size, interestingly, has a negative sign in all models, and in more than half of the models the negative coefficients are statistically significant at the five percent level. This finding contradicts the usual sign for size found in capital structure studies of large firms. However, as previously mentioned in chapter 1, despite similarities between privatized firms and large firms, they have some distinct differences. Unlike large firms, privatized firms have more of the agency problem. Before SOEs are privatized, managers own no ownership, which give them more incentive to consume perquisites at the government's expense. In addition, in many countries, state employees have more job security than their counterparts in large firms, which further exacerbates the problem because they do not risk losing their jobs even when their productivity level is unacceptably low. Therefore, after SOEs are privatized, smaller (larger) privatized firms use more (less) leverage.

The lagged variable of leverage is very significant even at one percent level (t-statistic=78.35). This result suggests that, like large firms, the capital structure of privatized firms is persistent and does not evolve randomly across time.

Table 4 also shows that the government ownership variable has an insignificantly positive sign, suggesting that higher government ownership leads to higher level of leverage use. This finding, although insignificant, confirms the assumption that financially troubled privatized firms with higher remaining government ownership are perceived to be less likely to go bankrupt thereby allowing firms to incur a lower cost of debt.

The initial leverage variable is significantly positive, supporting Lemmon, Roberts, and Zender's (2008) finding that initial leverage is a very significant factor. However, my result does not support their suggestion that initial leverage substantially subsumes the significance levels of traditional capital structure determinants.

I find a significantly positive relation between the corruption index of a country and leverage, which means that as a country becomes less corrupt (indicated by higher TI index), privatized firms in that country use more leverage. This positive relation between corruption index and leverage found in privatized firms is not illogical. When a country has a higher level of corruption, the government might be forced to pressure managers of privatized firms to use less leverage if the government still has a full agenda of privatizations pending (government needs to convince the potential creditors that they will not be expropriated).

After controlling for the corruption level, I reexamine the impact of the level of remaining government ownership on leverage choice. In the presence of corruption, the result shows a more significant coefficient of government ownership than the previous findings. My result shows that government ownership is now positively significant, suggesting that higher government ownership leads to a higher use of leverage because creditors face less risk of default.

The economic development dummy has a significantly positive coefficient. This finding, which is consistent with Demirgüç-Kunt and Maksimovic (1999) and Booth, Aivazian, Demirgüç-Kunt, and Maksimovic (2001), supports the notion that privatized firms in developed countries use more leverage than privatized firms in developing countries. When I regress leverage on per capita GDP (as an alternative measure to the economic development dummy), the result is even stronger. The significantly positive coefficient means that privatized firms in countries with higher (lower) per capita GDP use more (less) leverage.

The legal system dummy has a significantly positive coefficient, suggesting that privatized firms in common law countries use more leverage than in civil law countries. That is, privatized firms are more likely to use leverage in countries with a stronger legal environment. When I combine all firm-specific and country-specific factors in model 10, the result does not change significantly.

To address any potential concerns that my results are driven by the sample that includes financial services and utilities firms, I exclude them from the sample for robustness check and rerun all regression models.

For robustness check, I now exclude financial services and utilities firms. The results are relatively similar to those with financial services and utilities firms. One striking result is that privatized firms no longer have a negative sign but they are not statistically significantly positive. This result is very surprising as size has been known as a very important capital structure determinant.

CONCLUSIONS

I investigate the evolution and determinants of privatized firms' capital structure. My study contributes to the relatively scant literature on international corporate finance on privatized firms at a time when privatized firms are becoming increasingly important in almost every country in the world. This study also is the first to examine the long-term capital structure of state-owned enterprises (SOEs) following privatization.

I find that privatized firms, in general, use more long-term debt but less total debt than large firms. This result might be because, in the long run, privatized firms are considered to be less likely to go bankrupt – a

factor that is more important in the long run than in the short run. Another possible explanation is that privatized firms do not need to use short-term debt to signal investors that they will not defraud the creditors (see Rajan, 1992). I also find that privatized firms use less total debt and more equity (as percentages of total assets) than large firms, which might be due to the government's desire to improve their less-developed capital markets (see Megginson, Nash, Netter, and Poulsen, 2004).

I find that size is not an important capital structure determinant of privatized firms. Furthermore, I find that privatized firms have a persistent capital structure and that the capital structure of privatized firms does not change randomly across time. These results are important as they shed some light on the issue regarding whether privatized firms carefully manage their leverage level. My study also indicates that privatized firms have a target leverage ratio; this finding is independent of the level of remaining government ownership, indicating that as soon as governments start selling off their ownership, the former SOEs will start seeking their optimum capital structures.

Initial leverage is also an important capital structure determinant for privatized firms, but the inclusion of the initial leverage variable does not reduce the significance levels of the traditional capital structure determinants. Therefore, these initial-leverage-related findings do not fully support Lemmon, Roberts, and Zender (2008). Corruption is significantly positively related to leverage, which indicates that privatized firms in a less corrupt country use more leverage. This might be because in more corrupt countries, governments might be forced to pressure managers of privatized firms to use less leverage if governments still have a full agenda of privatizations pending (i.e., governments of more corrupt countries prefer not to use as much leverage because privatized firms can expropriate the creditors, and governments do not have full control to avoid creditor expropriation). The finding that privatized firms in developed countries use more long-term debt than in developing countries is consistent with Demirgüç-Kunt and Maksimovic (1999) and Booth, Aivazian, Demirgüç-Kunt, and Maksimovic (2001), who find that large firms in developed (developing) countries use more (less) long-term debt. When per capita GDP is used as an alternative measure of economic development, I find a significantly positively relation.

In conclusion, this study presents many new findings about the evolution and determinants of privatized firms' capital structure. Considering the less developed literature of privatized firms and international capital structure, there exists a very important need for further exploration into how privatized firms make their financial policies.

REFERENCES

- Booth, L., Aivazian, V., Demirgüç-Kunt, A., & Maksimovic, V. (2001). Capital structures in developing countries. *Journal of Finance*, 61(1), 87-130.
- Borisova, G. (2011). Does government ownership affect the cost of debt? Evidence from privatization. *Review of Financial Studies*, 24(8), 2693-2737.
- Demirgüç-Kunt, A., & Maksimovic, V. (1999). Institutions, financial markets, and firm debt maturity. *Journal of Financial Economics*, 54, 295-336.
- Diamond, D. (1991). Monitoring and reputation: The choice between bank loans and directly placed debt. *Journal of Political Economy*, 99(4), 689-721.
- Fan, J., Titman, S., & Twite, G. (2012). An international comparison of capital structure and debt maturity choices. *Journal of Financial and Quantitative Analysis*, 47(1), 23-56.
- Flannery, M., & Rangan, K. (2006). Partial adjustment toward target capital structures. *Journal of Financial Economics*, 79, 469-506.
- Frank, M., & Goyal, V. (2009). Capital structure decisions: Which factors are reliably important? *Financial Management*, 38(1), 1-37.
- Giannetti, M. (2003). Do better institutions mitigate agency problems? Evidence from corporate finance choices. *Journal of Financial and Quantitative Analysis*, 38, 185-212.
- Graham, J., & Harvey, C. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, 60, 187-243.

- Kayhan, A., & Titman, S. (2007). Firms' histories and their capital structures. *Journal of Financial Economics*, 83(1), 1-32.
- LaPorta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1997). Legal determinants of external finance. *Journal of Finance*, 52(3), 1131-1150.
- LaPorta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1998). Law and finance. *Journal of Political Economy*, 106(6), 1113-1155.
- Leary, M., & Roberts, M. (2005). Do firms rebalance their capital structures? *Journal of Finance*, 60(6), 2575-2619.
- Lemmon, M., Roberts, M., & Zender, J. (2008). Back to the beginning: persistence and the cross-section of corporate capital structure. *Journal of Finance*, 63(4), 1575-1608.
- Meggison, W., Nash, R., Netter, J., & Poulsen, A. (2004). The choice of private versus public capital markets: Evidence from privatizations. *Journal of Finance*, 59(6), 2835-2870.
- Rajan, R. (1992). Insiders and outsiders: the choice between informed and arm's length debt. *Journal of Finance*, 47, 1367-1400.

APPENDIX

FIGURE 2
THE MEDIAN LDA RATIOS OF PRIVATIZED AND LARGE FIRMS

This figure plots the median LDA ratio of privatized and large firms in each of 51 countries. The LDA ratio is defined as the total debt over the book value of total assets of a firm.

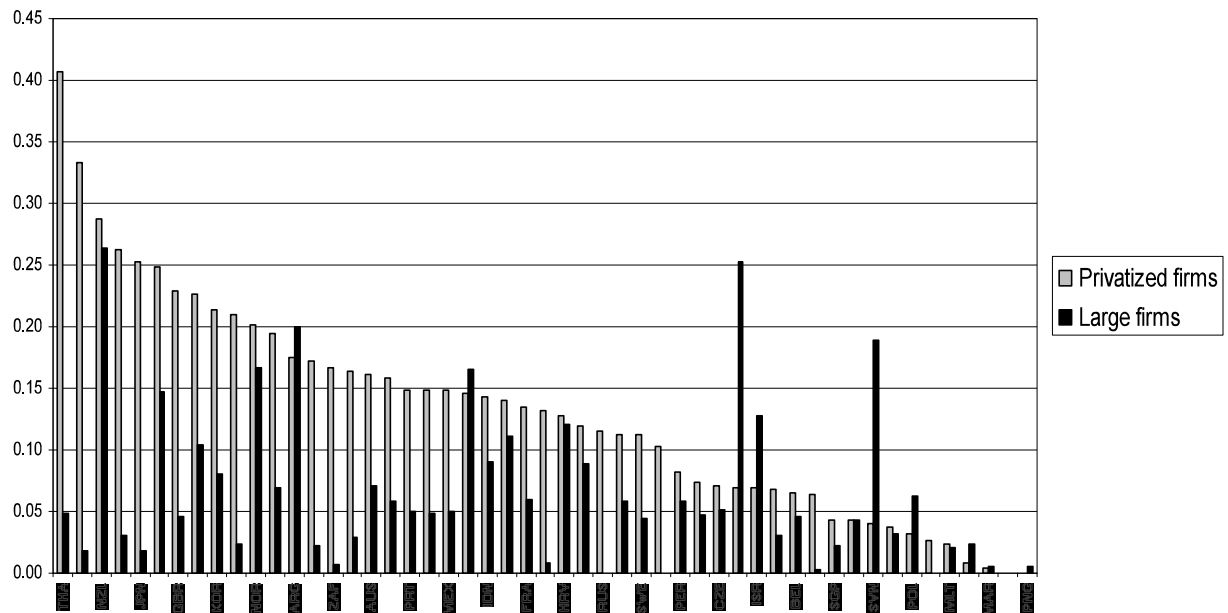


FIGURE 3
THE MEDIAN TDA RATIOS OF PRIVATIZED AND LARGE FIRMS

This figure plots the median TDA ratio of privatized and large firms across 51 countries. The TDA ratio is defined as the total debt over the book value of total assets of a firm.

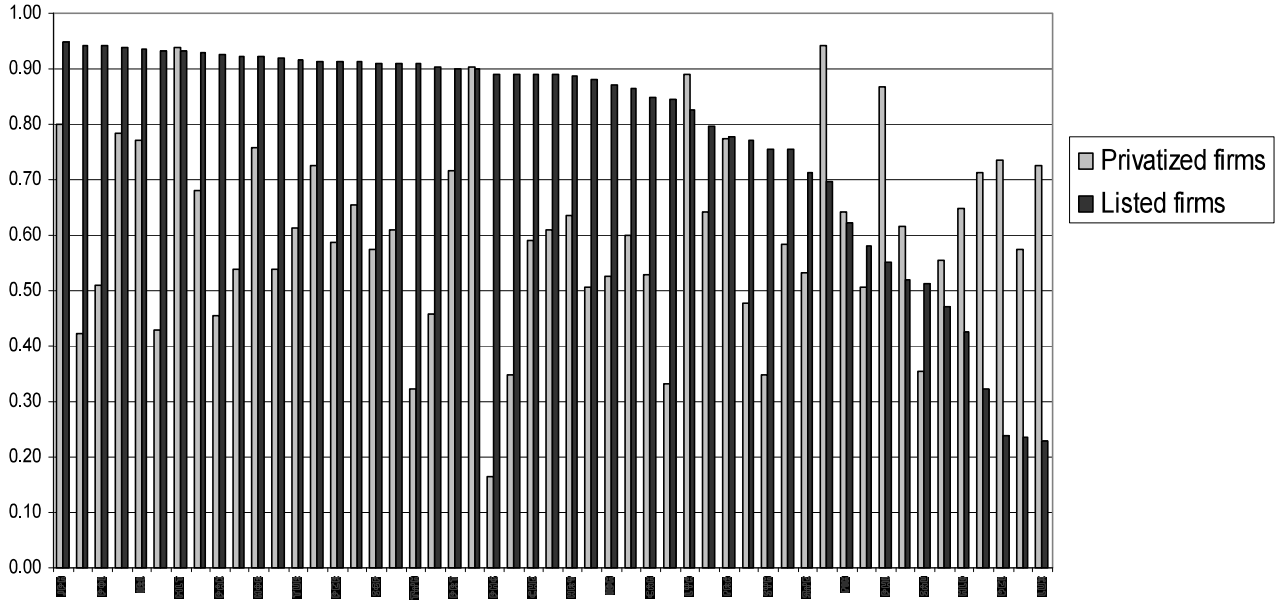


FIGURE 4
THE EVOLUTION OF LDA QUANTILES ACROSS TIME

This figure plots the average LDA ratio of every leverage quartile for privatized firms during 1991-2005. The leverage quartiles are formed in 1991 and each quartile contains a constant number of firms.

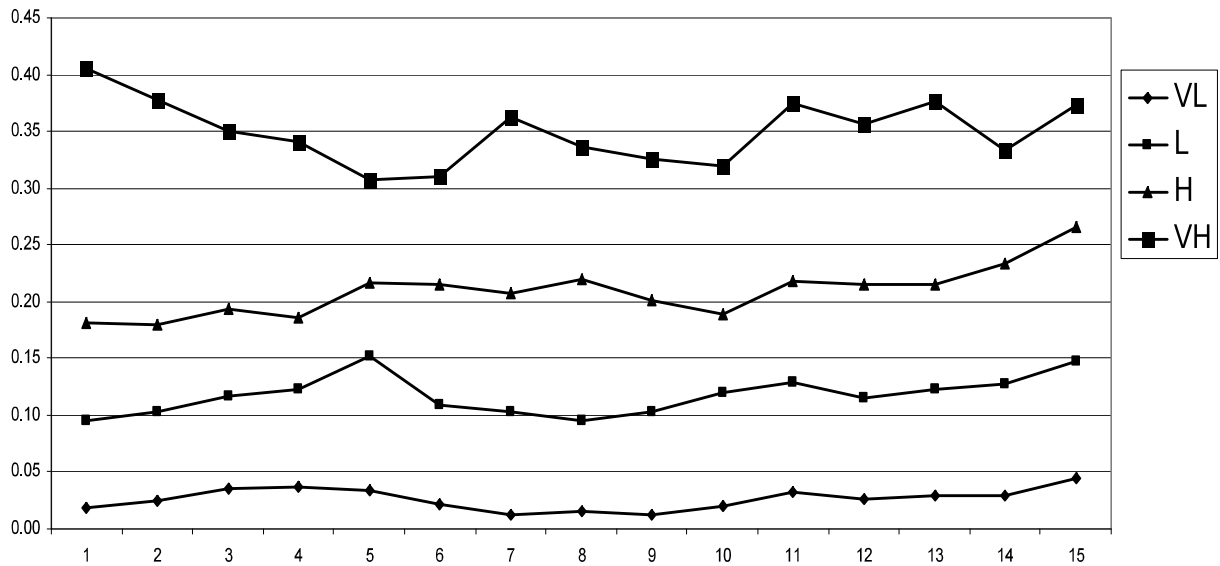


FIGURE 5
THE EVOLUTION OF TDA QUANTILES ACROSS TIME

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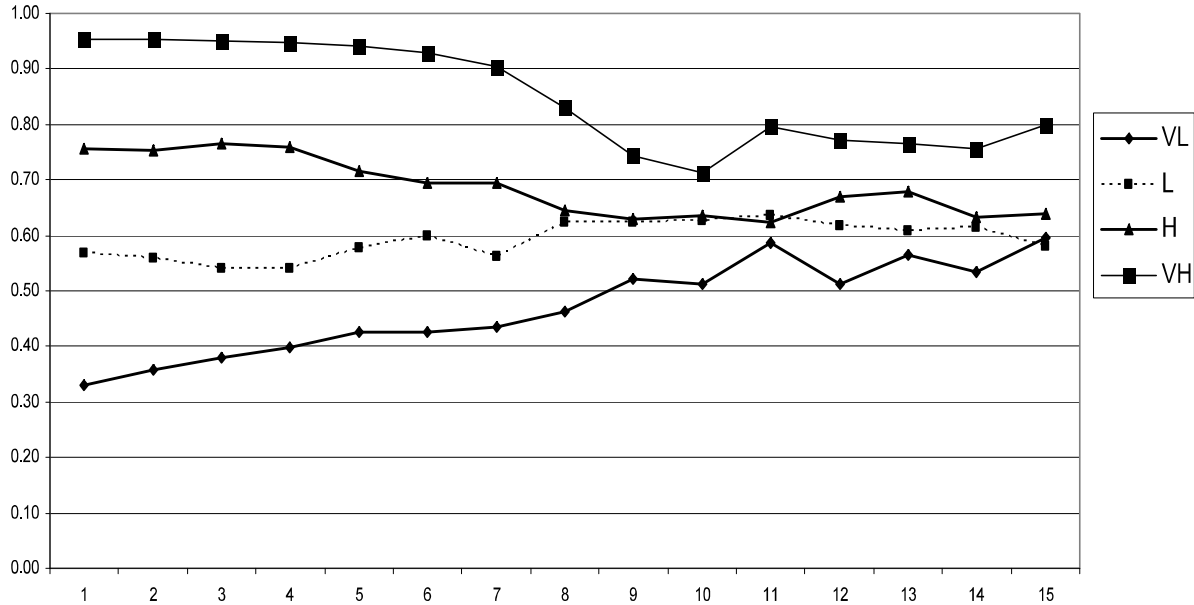


TABLE 1
VARIABLE DEFINITIONS AND PREDICTED SIGNS

| Variable | Description | Predicted Sign |
|----------|---|----------------|
| lda | Long-term debt/book value of total assets | |
| size | Natural log of the book value of total assets where assets are deflated by the GDP deflator | (+) |
| collat | Net fixed assets / book value of total assets | (+) |
| profit | Operating income before depreciation / book value of total assets | (-) |
| med | median of firms' lidas by SIC code and by year | (+) |
| laglda | the lagged variable of lda ratio | (+) |
| govtown | % of remaining government ownership | (+) |
| initlev | initial leverage | (+) |
| corrupt | the corruption index where a higher value represents a more corrupt country | (+) |
| d_dev | a dummy that takes a value of 1 if a country is a developed country and 0 otherwise | (+) |
| gdp | deflated gdp number | (+) |
| d_leg | a dummy that takes a value of 1 if a country is a common law country and 0 otherwise | (+) |

Firm characteristic data are obtained from Compustat Global and Thomson One Banker, privatization data are from William L. Megginson's appendix and other privatization databases, corruption data are from Transparency International, economic development data are from World Bank and IMF databases, and legal system data are from CIA World Factbook and LLSV (1998) paper.

TABLE 2
SUMMARY STATISTICS

| Variables | N | Mean | Standard Deviation | Minimum | Maximum |
|-----------|------|---------|--------------------|---------|---------|
| lda | 3431 | 0.1766 | 0.1509 | 0.0000 | 0.9694 |
| size | 3438 | 9.2959 | 2.1783 | 2.4912 | 16.0691 |
| collat | 3113 | 0.7905 | 0.5348 | 0.0000 | 5.1576 |
| profit | 3436 | 0.0382 | 0.0740 | -1.8103 | 0.5962 |
| med | 3893 | 0.6305 | 0.2102 | 0.0000 | 1.8857 |
| govtown | 2745 | 0.4349 | 0.3164 | 0.0000 | 0.9920 |
| initlev | 2821 | 0.1621 | 0.1538 | 0.0000 | 0.7482 |
| corrupt | 3215 | 0.3813 | 0.2157 | 0.0000 | 0.8300 |
| d_dev | 4154 | 0.7198 | 0.4492 | 0.0000 | 1.0000 |
| gdp | 4026 | 26.6102 | 1.2830 | 21.8960 | 29.2385 |
| d_leg | 4138 | 0.2343 | 0.4230 | 0.0000 | 1.0000 |

This table provides number of observations, mean, standard deviation, minimum, and maximum values of each variable. **LDA** is the ratio of long-term debt to book value of total assets. **Size** is the natural log of book value of total assets. **Collat** is the collateral variable defined as the ratio of net fixed assets to book value of total assets. **Profit** is the profitability variable defined as the ratio of operating income before depreciation to book value of total assets. **Med** is the median industry leverage variable, measured as the median LDA ratios in the firm's industry. **Govtown** is the government ownership variable defined as the percentage of remaining government ownership. **Initlev** is the initial leverage variable defined as the firm's LDA when the firm shows up in the sample. **Corrupt** is the corruption index variable obtained from Transparency International. **D_dev** is the economic development dummy variable that takes a value of 1 if a country is a developed country and 0 otherwise. **Gdp** is the GDP variable defined as the natural log of deflated GDP number. **D_leg** is the legal system dummy that takes a value of 1 if a country is a common law country and 0 otherwise.

TABLE 3
CORRELATION MATRIX

| Variables | lda | laglda | size | collat | profit | med | govtown | initlev | corrupt | d_dev | gdp | d_leg | indust |
|-----------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|---------------|---------------|--------|
| lda | 1.000 | | | | | | | | | | | | |
| laglda | 0.834 | 1.000 | | | | | | | | | | | |
| size | -0.001 | 0.008 | 1.000 | | | | | | | | | | |
| collat | 0.275 | 0.258 | -0.281 | 1.000 | | | | | | | | | |
| profit | -0.160 | -0.086 | -0.090 | 0.053 | 1.000 | | | | | | | | |
| med | 0.211 | 0.163 | 0.380 | -0.439 | -0.339 | 1.000 | | | | | | | |
| govtown | 0.010 | 0.019 | 0.074 | -0.026 | -0.037 | 0.012 | 1.000 | | | | | | |
| initlev | 0.680 | 0.643 | 0.048 | 0.244 | -0.079 | 0.129 | 0.167 | 1.000 | | | | | |
| corrupt | -0.176 | -0.177 | 0.077 | -0.056 | 0.043 | -0.081 | 0.127 | -0.260 | 1.000 | | | | |
| d_dev | 0.153 | 0.150 | -0.004 | -0.036 | -0.103 | 0.303 | -0.074 | 0.207 | -0.716 | 1.000 | | | |
| gdp | 0.143 | 0.137 | -0.057 | 0.057 | -0.092 | 0.158 | -0.163 | 0.133 | -0.060 | 0.373 | 1.000 | | |
| d_leg | 0.132 | 0.124 | -0.145 | 0.097 | 0.066 | -0.152 | -0.286 | 0.105 | -0.265 | 0.026 | -0.076 | 1.000 | |
| indust | 0.104 | 0.086 | 0.131 | -0.184 | -0.078 | 0.234 | -0.032 | 0.110 | -0.053 | 0.109 | 0.027 | -0.038 | 1.000 |

This table provides correlation matrix for the sample. Variables are defined in Table 5. Bolded number indicates statistical significance at the 5 percent level.

TABLE 4
YEAR FIXED-EFFECTS REGRESSION RESULTS (INCLUDING FINANCIAL SERVICES AND UTILITIES FIRMS)

| Variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 | Model 9 | Model 10 |
|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| size | -0.003 (-2.40) | -0.002 (-2.44) | -0.005 (-3.19) | -0.006 (-5.86) | -0.002 (-1.30) | -0.003 (-2.02) | -0.002 (-1.92) | -0.002 (-1.77) | -0.001 (-1.21) | -0.002 (-2.28) |
| collat | 0.115 (22.10) | 0.030 (9.31) | 0.103 (16.75) | 0.046 (9.87) | 0.114 (20.03) | 0.103 (15.79) | 0.114 (21.99) | 0.115 (21.93) | 0.115 (22.45) | 0.013 (3.18) |
| profit | -0.126 (-3.51) | -0.121 (-5.85) | -0.115 (-2.80) | -0.099 (-3.32) | -0.095 (-2.50) | -0.082 (-1.97) | -0.123 (-3.43) | -0.112 (-3.12) | -0.126 (-3.55) | -0.131 (-5.49) |
| med | 0.235 (16.06) | 0.066 (7.55) | 0.239 (13.18) | 0.127 (10.02) | 0.224 (13.84) | 0.234 (12.21) | 0.225 (14.88) | 0.222 (14.98) | 0.245 (16.90) | 0.042 (3.41) |
| laglda | | 0.792 (78.35) | | | | | | | | 0.777 (47.54) |
| govtown | | | 0.010 (1.12) | | | 0.022 (2.20) | | | | -0.010 (-1.61) |
| initlev | | | | 0.580 (40.79) | | | | | | 0.106 (6.78) |
| corrupt | | | | | 0.080 (6.25) | 0.103 (7.05) | | | | 0.024 (1.67) |
| d_dev | | | | | | | 0.017 (2.77) | | | 0.007 (1.08) |
| gdp | | | | | | | | 0.008 (4.11) | | 0.000 (0.35) |
| d_leg | | | | | | | | | 0.051 (8.88) | 0.010 (2.21) |
| Intercept | -0.027 (-1.74) | -0.007 (-0.74) | -0.000 (-0.01) | 0.029 (2.13) | -0.078 (-4.07) | -0.082 (-3.62) | -0.038 (-2.38) | -0.240 (-4.38) | -0.061 (-3.91) | 0.024 (1.67) |
| N | 3110 | 3013 | 2285 | 2552 | 2542 | 1963 | 3110 | 3089 | 3104 | 1569 |

This table presents results of leverage on firm-specific and country-specific factors using annual data (including financial services and utilities firms) from 1991 to 2005. Model 1 is the main model using panel regression with year fixed-effects where leverage is regressed on traditional capital structure determinants. Models 2–9 add a unique variable or variables to Model 1. Model 2 adds the lagged variable of leverage; Model 3, government ownership; Model 4, initial leverage; Model 5, corruption; Model 6, government ownership and corruption; Model 7, an economic development dummy; Model 8, gross domestic product; and Model 9, a legal system dummy. Model 10 includes all independent variables. Variables are defined in Table 5. t-statistics are in parentheses and bolded numbers represent statistical significance at 5% level.