

Pecking Order Behavior in Emerging Markets

Bruce Seifert

Department of Business Administration
College of Business and Public Administration
Old Dominion University
Norfolk, Va. 23529-0221
Telephone: (757) 683-3552
Fax: (757) 683-5639
E-mail: bseifert@odu.edu

Halit Gonenc*

Department of Finance
Centre for International Banking, Insurance and Finance
Faculty of Business and Economics
University of Groningen
P.O. Box 800
9700 AV Groningen, NL
Telephone: +31 (0)50 363 4237
Fax: +31 (0)50 363 7356
E-mail: h.gonenc@rug.nl

January 2008

* Corresponding author and presenter

Pecking Order Behavior in Emerging Markets

Abstract

Pecking order behavior is a very important financial hypothesis that attempts to explain how capital structure choices are made. Prior empirical evidence has been lukewarm in its support of this behavior. Most of the research has been conducted using samples of American firms. This paper examines the validity of the pecking order hypothesis in emerging market countries. One of the driving forces behind the pecking order hypothesis is that managers have more information about the value of the company than do outside investors. Examining pecking order behavior in emerging markets would seem like an ideal place to find support for the hypothesis because the problems for outside investors are huge. Compared to investors in the US, investors in emerging markets receive less information, the information they do receive is likely to be distorted (managed), and the legal rights they possess are worse than their counterparts in the US. Using a sample of 23 countries, we find no support for this hypothesis. Firms in these countries finance their deficit mainly with equity and issue equity much more often than would be expected under this hypothesis. Contrary to the pecking order hypothesis, firms with major asymmetric information issues and dividend paying firms often issue equity. We also find, *ceteris paribus*, that companies in low investor protection countries issue debt more often than those firms residing in high investor protection countries. The influence on debt levels, however, from strong debt protection laws is not clear cut.

EFM Classification Codes: 150; 620

Keywords: Capital Structure; Pecking Order Hypothesis; International Financial Markets; Emerging Markets

1. Introduction

The pecking order hypothesis is an important theory explaining capital structure decisions¹ of firms. This hypothesis (e.g., Myers, 1984; Myers and Majluf, 1984) argues that firms finance their needs first with internal sources of funds, then with debt, and finally with external equity. Myers (1984) relaxes this strict financing order in the case where firms have an abundance of future investment opportunities. In this situation raising external equity before exhausting all debt opportunities may make it easier to fund future investment projects².

The critical assumption behind the pecking order hypothesis is the fact that managers possess more information about the firm than do outside investors³. Investors will be worried about buying new issues of equity because they fear that managers will only issue stock when the price of the stock is overvalued. Managers, in turn, will not want to issue stock if it means that they will have to offer it at a discount. In addition, an underinvestment problem may occur as some profitable investment projects are not undertaken.

Tests of the pecking order hypothesis have mainly been done using U.S. firms. Overall, the findings in the US are at best lukewarm to the theory. Tests in other developed countries have yielded mixed results.

Examining pecking order behavior in emerging markets would seem like an ideal place to find support for the hypothesis. The problems for outside investors are huge. Compared to investors in the US, investors in emerging markets receive less information, the information they do receive is likely to be distorted (managed), and the legal rights they possess are worse than

¹ There are, of course, many other theories of capital structure. One of the most popular is the tradeoff theory that equates the benefits of debt (tax and the reduction of free cash flow) with the costs of debt (agency and financial distress).

² A number of recent capital structure models argue that tradeoff models may account for long-term financing decisions of firms and pecking order behavior may explain many aspects of short-term behavior. See, for example, Hovvakimian et al. (2002).

³ It is useful to note that there are other ways such as agency costs to generate a pecking order hierarchy (e.g., Frank and Goyal, 2007). Myers' hypothesis was based on information asymmetry.

their counterparts in the US. Outside investors in emerging market countries face the real possibility that managers may simply never deliver to them their expected share of the profits. Attempts to seek justice in the judicial system may result in lengthy, costly, and ultimately unsuccessful efforts. In this environment, it would be expected that firms would follow a pecking order.

Our paper looks at whether the pecking order hypothesis applies to emerging markets. We do this by examining its validity in 23 different countries. As a secondary purpose we investigate whether the pecking order hypothesis works best (worse) in emerging market countries that have strong protection for creditors (stockholders). Given the fact that the pecking order argues that debt financing is preferred to external equity financing, it would be expected that firms in countries with good creditor rights (good stockholder rights) would naturally follow the pecking order more (less) than those companies in countries that do not have these rights.

We find no support for this theory in emerging market countries. Companies in these countries finance their deficits more with equity than with debt. When we examine the individual financial choices companies make, we observe that firms issue equity much more often than would be predicted by the pecking order hypothesis. In addition, firms that should be rarely issuing equity like small firms, high growth firms, and dividend paying firms issue equity often. We find that firms that reside in low investor protection countries use debt more often than those in high investor protection countries. The impact of debtholder protection laws, however, on firm's debt/equity ratios is not clear.

The rest of the paper is as follows. Prior studies are reviewed in section 2 and hypotheses are developed in section 3. The data and methodology are discussed in section 4. The results are presented in section 5 and conclusions are offered in section 6.

2. Prior Studies

Most of the empirical tests of the pecking order hypothesis have used samples of American firms. Baskin (1989) was one of the first to test the pecking order hypothesis and he finds support for the theory. A number of researchers have used the Shyam-Sunder and Myers (1999) approach to testing the pecking order hypothesis. This test involves a regression of the firm's net debt issue on the firm's financing deficit⁴. If the pecking order is correct the resulting slope coefficient should be one. Using a sample of 157 firms that traded continuously over the period 1971-1989, Shyam-Sunder and Myers (1999) find support for the pecking order hypothesis. Their requirement that firms trade continuously appears to have a major influence on their results. Using a similar methodology, Frank and Goyal (2003) conclude just the opposite, that the pecking order does not explain the financing pattern of most firms. Their sample of firms is much larger and the time period studied includes data after 1990 where a number of small and unprofitable firms are included in the dataset. Lemmon and Zender (2002) argue that the pecking order hypothesis provides a reasonably good fit to the data once debt capacity is included in the model. On the other hand, Fama and French (2005) point out that the actual financing decisions of firms are often in conflict with the basic predictions of the pecking order hypothesis. Recent studies by Leary and Roberts (2005) and Bharath et al. (2006) show that while the pecking order theory has some empirical validity, it appears to explain some but not all of the financing decisions of firms⁵.

A few studies have looked at pecking order behavior using samples of firms in other developed countries. Gaud et al. (2006) investigate capital structure decisions in European

⁴ Chirinko and Singha (2000) argue that this test is not completely valid. It is capable of giving both "false" positives and "false" negatives.

⁵ Leary and Roberts also point out that the pecking order hypothesis might be viewed as two distinct choices (1) the decision to use internal funds vs. external funds and (2) the choice between which type of external funds (debt or equity).

countries and argue that neither the pecking order hypothesis nor the simple trade-off theory can fully explain their results^{6,7}. Survey research by Brounen et al. (2006) and Beattie et al. (2006) for various European countries find support for the pecking order hypothesis. However, the support is not motivated by asymmetric information issues (Brounen et al., 2006)⁸.

There has been some research devoted to seeing how well the pecking order hypothesis holds in emerging countries. A number of authors have examined the determinants of capital structure in a particular country or region and then asked which theory is most consistent with the data. Booth et al. (2001) conclude that the important variables that explain capital structure in developed countries are similar to those in developing countries. Many researchers start with the variables (profitability, size, asset tangibility, and growth) suggested by Rajan and Zingales (1995) and then add specific variables that may be relevant for a particular country or region.

De Medeiros and Daher (2004) test the static trade-off model vs. the pecking order hypothesis in Brazil and conclude that the pecking order theory holds best. Chen (2004) studies Chinese firms and concludes that neither the pecking order hypothesis nor the trade-off model seems to be applicable. In fact, the author argues that the data supports a “new pecking order” hypothesis – retained earnings, equity, and long-term debt. Zou and Xiao (2006) in their study of Chinese firms reach a similar conclusion, namely that Chinese firms have a preference for raising equity over debt. In a similar vein, Delcours (2006) examine Central and Eastern European countries and suggest that a “modified pecking order” (retained earnings, equity, bank and possibly market debt) describes the financing choices of firms in this region the best⁹.

⁶ See also Drobetz and Fix (2003) for Switzerland, Ozkan (2001) and Adedeji (2001) for the UK, Bontempi (2002) for Italy, and De Miguel and Pindado (2001) for Spain.

⁷ See Antoniou et al. (2007) for a recent study comparing the determinants of leverage in bank-oriented economies and market-oriented economies.

⁸ These findings are similar to those observed by Graham and Harvey (2001) for the US.

⁹ See also Nivorozhkin (2005) for capital structure decisions for EU accession countries and Deesomsak et al. (2004) for financial structure choices for Asian Pacific countries.

3. Information Asymmetry, Financial Characteristics, and Hypothesis Development for Emerging Market Countries

Information asymmetries between managers and outside investors are the central assumption behind the pecking order hierarchy. This hypothesis was originally developed for US firms. We argue in this section that the pecking order hypothesis should apply, in theory, even more to firms in emerging market countries because the information gap between insiders and outsiders is worse there than it is in the US. We discuss a number of factors that should contribute to the information gap between insiders and outsiders and at the same time report the results of some relevant studies that document the differences in these factors between firms in emerging market countries and those in the US.

One important factor which should help explain the information asymmetries between management and outside investors is the amount of information disclosed by companies. If firms don't report relevant information then outside investors will have a lot of difficulty in making informed decisions. In many cases the regulatory bodies in emerging market countries may not require as much information to be disseminated (e.g., Harvey et al., 2004). Bushman (2004) reports a study by CIFAR (Center for Financial Research and Analysis) that compares disclosure practices (both accounting and non accounting items were included in the study) of large firms in various countries. As shown in Table 1, the US score (76) was higher than the average emerging market country (69.56). La Porta et al. (2006) compares disclosure requirements for an initial public offering in different countries. The US (see Table 1) had a higher score than all of the emerging market countries with the exception of Singapore.

Another way investors can get information is by reports from analysts. Presumably analysts can simplify complex information for investors and they may also obtain information that some investors would have trouble gathering on their own (Chang et al., 2006). According to

a study by Chang et al. (2000), there were more analysts (30.23) following large US companies than there were analysts following similar firms in any of the emerging market countries studied.

Closely related to the amount of information disclosed is how quickly information is released. Bushman (2004) created a timeliness index which shows often how and how comprehensive are firms' interim reports. The US score (97.83) was higher than any of the emerging market countries.

Investors need information that is accurate. Leuz et al. (2003) developed an index of earnings management that details the extent to which management alters information. Earnings, for example, can be manipulated to give the impression that firms are doing better than they really are. The US had a lower score (2) than any of the emerging market countries studied which indicates earnings management practices are much less common in the US than in emerging market countries.

Another factor that should influence whether firms follow the pecking order hypothesis is the rights that investors and creditors have. Potential shareholders and creditors do not want to supply funds unless they can expect to earn a fair return on their investment. Not only do these parties expect certain rights but if those rights are not fulfilled they want to be able to go court and receive appropriate compensation quickly and without much cost.

Outside investors in many emerging countries have to be concerned that they may not get the profits or returns that they should. La Porta et al. (2000) point out that insiders can sometimes steal profits, sell "assets" at below market prices to related firms, overpay themselves, consume perks, or install family members into jobs that they may not be qualified. The presence in emerging markets of pyramid structures and controlling shareholders who possess superior voting rights are also a problem. Dyck and Zingales (2004) (see Table 1) show that there are

private benefits to control and that these benefits are, in fact, on average much larger in less developed countries than in the US. Also investors have to worry about the possibility that their firm may not be in favor of the current government as Johnson and Mitton (2003) show for the case of Malaysia. In general, corporate governance is weak in emerging markets (e.g., Johnson et al., 2000; Denis and McConnell, 2002; Klapper and Love, 2002).

In Table 1 we present two indices from La Porta et al. (2006). The first reports on the liability standards for investors to recover losses from issuers, distributors, and accountants. As shown in Table 1 none of the emerging market countries had standards that were more favorable to investors than the standards in the US. La Porta et al. also develop an index of public enforcement and procedures. Their findings indicate the US had better enforcement and procedures than did all of the emerging market countries. Table 1 also presents an index from Djankov's et al. (2005) anti-self-dealing index. This index is constructed from the viewpoint of minority shareholders and their protection against deals that would benefit controlling shareholders at their expense. The findings from this study indicate that the US has a higher score than most emerging market countries, though it does not have the highest score. Hong Kong, Malaysia, and Singapore have the highest protection scores for stockholders while Venezuela and Mexico have the lowest.

Djankov et al. (2007) derive an index of debtholder protection based on collateral and bankruptcy laws. Their findings show that most of the emerging market countries had worse scores than the US. However, Hong Kong, Israel, Malaysia, and Singapore had higher scores.

It should be noted that there is a significant positive correlation (.44) between a country's protection of its shareholders and its protection for its debtholders. By our classification, ten countries (Argentina, Brazil, Mexico, Pakistan, Peru, Philippines, Poland, Sri Lanka, Turkey, and

Venezuela) fall in the low category for both shareholder (less than or equal to .46) and debt protection (less than or equal to .4) while six countries (Hong Kong, India, Israel, Malaysia, Singapore, and South Africa) score high for both categories. The other seven countries score high in one category and low in the other category.

Table 1 also provides some relative financial data on the stock and credit markets for all 23 emerging market countries as well as for the US. The financial data are averages for the period 1985-2004. In many cases data was not available in the early years so the averages are constructed only for the years in which the data is available. We examine the ratio of total market capitalization to GDP (labeled Stock) as an indicator of the relative size of the equity markets. Four countries stand out as having much higher ratios than the other countries – Hong Kong, South Africa, Malaysia, and Singapore. For debt markets, we use the ratio of domestic credit to the private sector as a percent of GDP (labeled credit) for an indication of the relative size of the debt market. Four countries have ratios over a 100% – Hong Kong, Israel, Malaysia, and South Africa. China has a ratio close to a 100%.

Our review of prior studies suggest that investors in emerging market countries should prefer internal financing over external financing because the information gaps between outside investors and insiders are relatively large. Since debt has less information asymmetries than external equity, the pecking order hypothesis should be applicable in emerging markets. We test this proposition in 23 emerging market countries and then compare our results to firms in the US.

A secondary purpose of our study is to provide some evidence on the effect of stockholder and debtholder rights on pecking order behavior. Higher debtholder (stockholder) protection should, *ceteris paribus*, allow firms to follow the pecking order more (less) closely. For example, if potential stockholders have strong rights they will be more willing to supply

equity funds and hence equity will less likely be always the last financing alternative. Cheng and Shiu (2007) provide some support for this hypothesis as they show that firms in countries with better creditor protection scores have more debt in their capital structure and firms in countries with better stockholder investor protection rules use more equity.

4. Data and Methodology

We gathered financial data for the following countries from *Worldscope*: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Hong Kong, Hungary, India, Israel, South Africa, South Korea, Sri Lanka, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Russia, Singapore, Turkey, and Venezuela. The data represents the period from 1985 to 2004. Some firms and some countries have data covering a smaller time frame. Other countries are not included due to a lack of observations. We have excluded from the analysis financial firms and regulated utilities.

We make two adjustments to the data. On occasion *Worldscope* makes recording errors. As a result, a number of researchers have truncated the most extreme observations in their studies. We eliminate the top and bottom 1% of the data for certain variables. Second, we have deflated the data by the appropriate GDP deflators. Data in 1990 will be then more comparable to data for 2004. The year 2000 is the base year.

We also examine the pecking order behavior based on minority shareholders' rights and debtholders' right. Our proxy for shareholders' rights is based on Djankov's et al. (2005) anti-self-dealing index¹⁰ while our proxy for debtholders' rights comes from Djankov's et al. (2007) legal rights index. All of our emerging market countries have data for both stockholder and debtholder protection.

¹⁰ Our results concerning stockholder protection are the same if we use the origin of a country's legal system instead of the self dealing index of Djankov et al.

Our first inquiry concerns how much of a firm's deficit is financed on average by debt and equity. We define a firm's deficit in two ways. The first¹¹ approach uses an identity from the firm's cash flow statement as follows:

$$\text{Def1}_{it} = \text{Div}_{it} + I_{it} + d\text{WC}_{it} - \text{CF}_{it} = dD_{it} + dE_{it} \quad (1)$$

Where; Def1_{it} is the first definition for the deficit for year t for firm i , Div_{it} is the net dividend for year t for firm i , I_{it} is the net investment for year t for firm i , $d\text{WC}_{it}$ is the change in working capital for year t for firm i , CF_{it} is the cash flow after interest and taxes for year t for firm i , dD_{it} is the net debt issued for year t for firm i , dE_{it} is the net equity issued for year t for firm i .

The second approach borrows from Fama and French (2005) who argues that the previous approach underestimates the amount of equity issued as it does not include, for example, equity issued to employees or equity issued in mergers. Their accounting based measure of the deficit is as follows:

$$\text{Def2}_{it} = dA_{it} - d\text{RE}_{it} = dL_{it} + d\text{SB}_{it} \quad (2)$$

Where; Def2_{it} is the second definition for the deficit for year t for firm i , dA_{it} is the change in assets from year $t-1$ to year t for firm i , $d\text{RE}_{it}$ is the change in retained earnings from year $t-1$ to year t for firm i , dL_{it} is the change in liabilities from year $t-1$ to year t for firm i , $d\text{SB}_{it}$ is the change in stockholders' equity in excess of the change in retained earnings from year $t-1$ to year t for firm i . In the empirical tests below both definitions of the deficit, as well as the corresponding definitions for net debt issued and net equity issued are used. All of these variables are scaled by the total assets of the firm.

The second inquiry we perform is to look at the individual financing decisions firms make and see how often they finance the deficit with equity or debt¹². We first examine the total

¹¹ See Frank and Goyal (2003) page 221 and also Shyam-Sunder and Myers (1999).

sample to see how often debt (equity) is increased each year. According to the pecking order hypothesis equity financing should be relatively rare. We also examine how often firms issue debt and equity every year based on the following firm characteristics: (1) size, (2) growth, (3) operating earnings, (4) dividend paying, (5) future deficits, (6) current leverage, (7) risk, and (8) market-to-book ratios. Table 2 lists the various firm characteristics, the principle conjecture and its rationale, and the procedure we use to judge this conjecture. These are stated as conjectures and not hypotheses since the pecking order hypothesis is not precise as to exactly how often a firm should issue equity. All the sub samples are sorted by firm characteristics within a particular country. In other words, for example, small firms are small relative to a particular country and not to the entire sample.

[Table 2 here]

Our next test involves the following regression used by both Shyam-Sunder and Myers (1999) and Frank and Goyal (2003) and critiqued by Chirinko and Singha (2000):

$$dDebt_{it} = a + b \text{ Deficit}_{it} + e_{it} \quad (3)$$

Where; $dDebt_{it}$ is the net debt issued for firm i for year t , Deficit_{it} is the financing deficit for firm i for year t .

In this regression the coefficient for the constant (a) should be 0 and the coefficient for the deficit variable (b) should be 1. If the pecking order hypothesis is strictly correct deficits will be financed by new issues of debt first and only in the last resort by external equity. The coefficient b should be 1 whether the deficit is positive or negative. In the case where the deficit is negative (a surplus) managers should pare down the debt first rather than repurchase stock at

¹² A few authors have examined the pecking order hypothesis by examining how well the theory fits various categories of firms. See, for example, Frank and Goyal (2003).

inflated prices (any attempt to repurchase stock will cause stock prices to rise as investors think the stock is undervalued).

Our final regression test is as follows:

$$\text{LEV}_{it} = a + b T_{it} + c \text{MTB}_{it} + d \text{LS}_{it} + f P_{it} + g \text{CumDeficit}_{it} + h \text{Sprotection}_j + k \text{Dprotection}_j + m \text{LnGDPpercapita}_{jt} + u_{it} \quad (4)$$

Where LEV_{it} is a leverage ratio for firm i in year t (total liabilities/total assets), T_{it} is the tangibility of assets for firm i in year t (fixed assets/total assets), MTB_{it} is the market-to-book ratio for firm i in year t (the ratio of market value of equity and the book value of debt to the book value of assets), LS_{it} is the size of firm i in year t (log of assets), P_{it} is profitability for firm i in year t (operating income/total assets), CumDeficit_{it} is the Cumulative financing deficit for firm i for year t (both definitions of the deficit are used). It is the sum of all prior financing deficits for the firm starting for the time Worldscope started publishing data on these companies. SProtection_i is an indicator of country's j shareholder protection laws, DProtection_i is an indicator of country's j debt protection laws, $\text{LnGDPpercapita}_{jt}$ is the natural log of country's j GDP/capita in year t .

The purpose of this test is to examine the impact of stockholder and debtholder protection laws on leverage. We hypothesize that firms operating in greater shareholder protection countries will use less leverage while companies located in countries with better debtholder protection laws will use more leverage.

As controls we use tangibility, market-to-book, log size, and profitability that have been shown by a number of studies to be determinants of leverage (both in the US and in other countries). If the pecking order hypothesis is true we would also expect that adding the financing deficit variable would increase the R^2 of the equation considerably (relative to running the regression without this variable) because the financing deficit should be the most important

variable in the equation. Also the coefficient on the cumulative deficit variable according to the pecking order hypothesis should be significantly positive.

5. Results

5.1. Debt Compositions

Table 3 reports various leverage statistics for the 23 countries plus the US. We present four statistics: (1) total liabilities/total assets, (2) total debt/ (market value of equity plus book value of debt), (3) total debt/total assets, and (4) long-term debt/total assets. Also included are ratios of (1) short-term debt/total assets and (2) accounts payable/total assets. It should be pointed out that for some of the countries the sample sizes are quite small and for these countries less faith should be placed on their estimates.

The average ratio of total liabilities to total assets (0.466) for all firm observations is almost identical to that for US firms (0.465)¹³. This ratio ranges for the emerging countries from 0.338 for Venezuela to 0.613 for Pakistan. Three other countries (India, South Korea, and Turkey) in addition to Pakistan had ratios over 0.50.

The ratio of total debt to the quasi market value of the firm (market value of equity plus book value of debt) shows that the average emerging firm had a much larger ratio than the typical American firm. This may be due in part to higher market values of equity (relative to book values) of US firms as the ratio of total debt to total book assets is much closer between the average emerging country firm and the average US firm. The ratio of total debt to the quasi market value of the firm ranged from 0.160 for Polish firms to 0.546 for Brazilian firms.

While the average firm from an emerging country has a little higher ratio of total debt to total book assets than does the average US firm, the components of the debt are quite different.

¹³ This result should not be too surprising as Mitton (2006) observes higher debt ratios for firms in developed countries compared to emerging market countries while Booth et al. (2001) and Glen and Singh (2004) find just the opposite.

The average US firm has more long-term debt and less short-term debt. The average emerging market firm has a higher percent of accounts payable to total assets than the typical US firm.

We find that firms in countries with low shareholder protection have significantly higher debt ratios than firms residing in countries with high shareholder protection. In terms of debtholder protection, however, the relationship between leverage and debtholder protection is not clear cut.

[Table 3 here]

5.2. Financing Alternatives and Components of Deficit

Table 4 provides our first indicator of the effectiveness of the pecking order hypothesis in explaining financing choices of firms in emerging countries. The table provides means of the components of the deficit (dividends, investments, the change in working capital, and cash flow) as well as the means for how the deficit was financed (debt or equity) for the first definition of the deficit. We also provide information on the size of deficit using the second definition of the deficit and also how that deficit was financed. Lastly we give the increase in assets. We present these averages for the emerging markets countries using both an equally weighted average by country as well as a grand average. Corresponding averages are presented for US firms.

The table points out an important point concerning the data. We general we have much more information about how the deficit was financed than we have about the components of the deficit. That is why the mean of deficit1 calculated from the components of the deficit is not the same as the mean calculated from the financing sources.

The average deficit for the firms in the emerging markets is a lot smaller than the average deficit for US firms. Measured by def1 (def2), the average deficit for firms in the

emerging countries is only 52%¹⁴ (26%) the size of the corresponding US firm. Part, but not all, of the discrepancy between the average deficit for US firms and emerging market firms can be explained by the fact that asset growth increased faster in the US (3.8% to 3.0%). Of the 23 emerging market countries only Hong Kong (both def1 and def2) and Russian firms (just def2) have larger average deficits than US firms. Some of the countries have negative deficits indicating that on average firms were retiring either equity or debt or both.

The findings from Table 4 show that the main use of the financing deficit is investment in long term assets for firms in emerging markets (0.075) as well as firms in the U.S. (0.033). Firms in the emerging markets have higher dividends, investments, and changes in net working capital (relative to assets) than companies in the US. Firms in the US have negative cash flows which contribute to the size of the financing deficit in the US.

Probably the most important fact from Table 4 is that deficits for firms in the emerging markets are financed mostly through equity, the opposite of what you would expect if the pecking order hypothesis held. For def1 (def2) the average emerging market firm used equity to finance 63% (62%) of the deficit. Firms in the US have a similar pattern. Equity finances over 80% of the deficit in the US regardless of whether def1 or def2 is used.

In unreported findings, firms in emerging market countries with low protection for shareholders still, on average, finance most of their deficit with equity. Also, firms in emerging market countries with high protection of debtholders finance most of the deficit with equity as well.

[Table 4 here]

¹⁴ In this case we are comparing the grand mean from the sources of the deficit for the emerging market countries (.032) to the corresponding mean for US firms (.061).

5.3. Frequency of External Financing

Table 5 gives the percentage of firm observations that issue new equity (dE/A and dSB/A) and new debt (dD/A and dL/A) per year. The values in this table are grand means. The first row reports the frequency of any increase and the second row gives the percentage only if the amount of the increase was at least 1% of the total assets of the firm. The bottom half of the panel gives similar data for US firms.

Looking at the total sample in Table 5, emerging market firms, on average, issue some equity (dE/A) yearly about 30% of the time or once every three years. The increase in the book measure of equity (dSB/A) yearly is much higher (72%). These numbers are a little less than the corresponding numbers for US firms. Clearly, increases in equity for emerging market firms are not rare events as the pecking order hypothesis would predict. While the numbers for increases of 1% or more are smaller, they still indicate that equity increases are not rare events.

Small firms and high growth firms are expected to face more asymmetric issues and thus issue equity infrequently. According to the first definition of the deficit, equity increases occur close to 30% for small firms and 35% for high growth firms. Using the second definition for the deficit, the numbers are much higher¹⁵. Our findings indicate that equity increases for small firms and high growth firms are not unusual.

In examining firms according to their earnings, high earnings performers issue lots of equity even though they presumably do not have to worry about their ability to pay off debt. Likewise, about 36% of dividend paying firms issue equity in the same year. According to the pecking order hypothesis paying dividends and issuing stock at the same time should harm

¹⁵ In discussing Table 5 we concentrate on the first definition of equity increases. Using the second definition would make our case stronger since the frequency of equity increase is larger under the second definition.

shareholders since the price of the stock should drop because investors would interpret issuing stock as bad news¹⁶.

According to Myers (1984) firms with few future investment opportunities do not need to issue much equity. Yet 26% of these firms (firms with low future deficits) in our sample issued equity in a given year. Likewise according to the pecking order hypothesis, firms with low amounts of leverage have, on average, plenty of debt capacity and hence should not be issuing equity. However, in our sample 30% of the firms with low industry adjusted leverage issue equity in a given year. Firms were sorted into high and low risk. Firms with low risk ought to be issuing equity only rarely¹⁷. Yet, in our sample almost a third of these firms issue equity every year. Finally, firms were sorted according to their market-to-book ratios. If the market-to-book ratio proxies for growth, then we would expect high market-to-book firms not to issue equity often. Yet 34% of these firms issue equity in a given year.

The results from Table 5 do not support the pecking order hypothesis that equity issues should be rare. Overall, and for many sub samples where it would be expected that firms would not issue equity often, companies in emerging markets are still issuing equity on a regular basis.

[Table 5 here]

5.4. Regression Analysis

Table 6 gives cross country average regression results for equation 3. The hypothesis being tested is how well the firm's deficit tracks the issuance of new debt. Both definitions of the deficit are examined along with their corresponding definitions for debt. We present both the

¹⁶ A contrary argument about dividend paying firms is that investors may face less information asymmetries about these firms and hence these firms might not be expected to follow the pecking order as much as other firms that face more information asymmetries.

¹⁷ Halov and Heider (2005) have a different view about the effects of risk on pecking order behavior. They argue that the pecking order hierarchy depends on whether there is information asymmetry about firm value or about risk. According to them, the usual pecking order applies when the asymmetry is about firm value but equity will be favored over debt when the asymmetry is about risk.

results from OLS regressions and fixed effects regressions. To save space we report just the estimate for the coefficient for the deficit variable along with its robust standard error. It should be remembered that we are testing whether the coefficient is different from 1, its hypothesized value under the pecking order hypothesis. For the OLS regressions we employ dummy variables to control for industry effects. For the fixed effects regressions we control for country and time effects.

Table 6 reports the estimates for the total sample of emerging market firms along with similar statistics for US firms. An inspection of the findings for the total emerging market sample shows that the largest coefficient for any of the coefficients for any of the sub samples is 0.711 which is significantly below the hypothesized value of 1. The results for the total sample (column 2) show that the estimates (OLS and fixed effects as well as the two different definitions for deficits) are no higher than 0.550. In terms of the various sub samples, large firms, high leverage firms, low growth firms, and low risk firms have relatively larger coefficients than the other sub groups.

A comparison with the US sample indicates that there are a lot of similarities of the emerging market firms with US firms. The estimated coefficients for the deficit variables are small in general (total sample) and are clearly significantly different from the hypothesized value of 1. Also, the pattern of large firms, high leverage firms, and low risk firms having relatively larger coefficients is evident in the US sample as well.

Regression results broken down by shareholder protection and debtholder protection reveal a few interesting findings (unreported). As expected, the coefficients for firms located in low stockholder protection countries have higher coefficients than firms in higher protection countries. This suggests that firms in low investor protection countries rely more on debt to

finance their deficits than firms in high investor countries. The findings from the regression results broken down by high and low debt protection are ambiguous. The coefficient for deficit1 is higher for low debt protection countries while the coefficient for deficit2 is higher for high debt protection countries.

[Table 6 here]

Table 7 reports various regressions with the dependent variable being the ratio of total liabilities to total assets. In addition to examining the Rajan-Zingales variables that have been found to influence leverage, we test for the impact of (1) the amount of stockholder protection and (2) the amount of debtholder protection. We also control for incomes of the emerging market countries.

In terms of the variables that are generally thought to influence leverage, market-to-book (-), profitability (-), and size (+) have the expected signs. Tangibility (-) has the opposite sign. The variable for the cumulative deficit has a positive sign which suggests that the greater the deficit the more leverage a firm uses. This result is consistent with the pecking order hypothesis. However, inclusion of the cumulative deficit did not cause the R^2 of the equation to change much (columns 1 and 2). The R^2 would be expected to increase since according to the pecking order hypothesis the cumulative deficit is the most important variable in the equation. The impact of income on leverage suggests that countries with more income used less leverage.

The coefficient for the variable for shareholder protection always has a significantly negative sign indicating that more protection for shareholders the less debt is used by these companies. This is consistent with our conjecture that more stockholder protection will lead to less reliance on debt.

The findings for debtholder protection are less clear. In regressions that do not involve shareholder protection, the coefficient is negative for debtholder protection indicating the more debtholder protection the less debt is used. This is the opposite of what would be expected. However, it should be recalled that there is a positive correlation between debtholder protection and shareholder protection in our sample, and hence debtholder protection may proxy for stockholder protection. In regressions that pare both debtholder protection and shareholder protection together, the coefficients are positive, but not always significant.

[Table 7 here]

6. Conclusions

This paper examines whether the pecking order hypothesis is applicable for firms in emerging market countries. Prior research has shown that outside investors have to be cautious about investing in firms in many emerging markets because these investors may find that their funds are fully or partially expropriated and also investors in emerging market countries face information gaps relative to investors in the US. As a result, the pecking order hierarchy should hold.

We test the pecking order hypothesis in 23 emerging market countries. Our results are not supportive of the pecking order. We find that equity and not debt is the major source of new funds for companies, a direct contradiction to the pecking order hypothesis. We further find that equity is issued frequently in emerging market countries. It is also issued by many firms that, a priori, would not be expected to issue equity very often such as small firms, high growth firms or dividend paying firms. We also use regression analysis to test this hypothesis. All of these tests can reject the strict pecking order hypothesis that a firm's deficit should be equal to the amount of new debt.

Our study also examined the impact of both investor and debtholder protection laws. Our results support the notion that firms operating in countries with less investor protection have higher debt levels and issue relatively more debt than firms in high investor protection countries. On the other hand, the evidence is not as clear that firms operating in countries with favorable debt protection laws have more debt in their capital structure.

References

- Adedeji, A., 2001. A cross-sectional test of the pecking order hypothesis against static trade-off theory on UK data. Working Paper, University of Birmingham.
- Antoniou, A., Guney, Y., Paudyal, K., 2007. The Determinants of capital structure: Capital market oriented versus bank oriented institutions. *Journal of Financial and Quantitative Analysis*, forthcoming.
- Baskin, J., 1989. An empirical investigation of the pecking order hypothesis. *Financial Management* 18, 26-35.
- Beattie, V., Goodacre, A., Thomson, S., 2006. Corporate financing decisions: UK survey evidence. *Journal of Business Finance and Accounting* 33, 1402-1434.
- Bharath, S., Pasquariello, P., Wu, G., 2006. Does asymmetric information drive capital structure decisions? Working paper, University of Michigan.
- Bontempi, M., 2002. The dynamic specification of the modified pecking order theory: Its relevance to Italy. *Empirical Economics* 27, 1-22.
- Booth, L., Aivazian, V., Demirguc-Kunt, A., Maksimovic, V., 2001. Capital structure in developing countries. *Journal of Finance* 56, 87-130.
- Brounen, D., De Jong, A., Koedijk, K., 2006. Capital structure policies in Europe: Survey evidence. *Journal of Banking and Finance* 30, 1409-1442.
- Bushman, R., Piotroski, J., Smith, A., 2004. What determines corporate transparency? *Journal of Accounting Research* 42, 207-252.
- Chang, X., Khanna, T., Palepu, K., 2000. Analyst activity around the World. Harvard Business School Strategy Working Paper Series.

Chang, X., Dasgupta, S., Hilary, G., 2006. Analyst coverage and financing decisions. *Journal of Finance* 51, 3009-3048.

Chen, J., 2004. Determinants of capital structure of Chinese-listed companies. *Journal of Business Research* 57, 1341-1351.

Cheng, S., Shiu, C., 2007. Investor protection and capital structure: International evidence. *Journal of Multinational Financial Management* 17, 30-44.

Chirinko, R., Singha, A., 2000. Testing static tradeoff against pecking order models of capital structure: A critical comment, *Journal of Financial Economics* 58, 417-425.

De Medeiros, O., Daher, C., 2004. Testing static tradeoff against pecking order models of capital structure in Brazilian firms. Working paper, Universidade de Brasilia.

De Miguel, A., Pindado, J., 2001. Determinants of capital structure: New evidence from Spanish panel data. *Journal of Corporate Finance* 7, 77-99.

Deesomsak, R., Paudyal, K., Pescetto, G., 2004. The determinants of capital structure: Evidence from the Asia Pacific region. *Journal of Multinational Financial Management* 14, 387-405.

Delcours, N., 2006. The determinants of capital structure in transitional economies. *International Review of Economics and Finance*, (forthcoming).

Denis, D., McConnell, J. 2003. International corporate governance. *Journal of Financial and Quantitative Analysis* 38, 1-36.

Djankow, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2005. The law and economics of self-dealing. NBER Working Paper Series.

Djankow, S., McLiesch, C., Shleifer, A., 2007. Private Credit in 129 Countries. *Journal of Financial Economics* 84, 299-329.

Drobtz, W., Fix, R., 2003. What are the determinants of the capital structure? Some evidence for Switzerland. Working paper, University of Basel.

Dyck, A., Zingales, L., 2004. Private benefits of control: An International comparison. *Journal of Finance* 59, 537-600.

Fama, E., French, K., 2005. Financing decisions; who issues stock? *Journal of Financial Economics* 73, 549-582.

Frank, M., Goyal, V., 2003. Testing the pecking order theory of capital structure. *Journal of Financial Economics* 67, 217-248.

Frank, M., Goyal, V., 2007. Trade-off and pecking order theories of debt. Working Paper, Tuck School of Business at Dartmouth.

Gaud, P., Hoesli, M., Bender, A., 2007. Debt-equity choice in Europe. *International Review of Financial Analysis* 16, 201-222.

Glen, J., Singh, A., 2004. Comparing capital structures and rates of return in developed and emerging markets. *Emerging Markets Review* 5, 161-192.

Graham, J., Harvey, C., 2001. The theory and practice of corporate finance: evidence from the field. *Journal of Financial Economics* 60, 187-243.

Harvey, C., Lins, K., Roper, A., 2004. The Effects of capital structure when expected agency costs are extreme, *Journal of Financial Economics* 74, 3-30.

Johnson, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2000. Tunneling. *American Economic Review* 90, 22-27.

Johnson, S., Mitton, T., 2003. Cronyism and capital controls: evidence from Malaysia. *Journal of Financial Economics* 67, 351-382.

Klapper, L., Love, I., 2002. Corporate governance, investor protection, and performance in emerging markets. Working Paper, World Bank.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1997. Legal determinants of external finance. *Journal of Finance* 54, 471-517.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1998. Law and finance. *Journal of Political Economy* 106, 1113-1155.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 2000. Investor protection and corporate governance. *Journal of Financial Economics* 58, 3-27.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2006. What works in securities laws? *Journal of Finance* 61, 1-32.

Leary, M., Roberts, M., 2005. Financial slack and tests of the pecking order's financing hierarchy. Working Paper, Duke University.

Leuz, C., Nanda, D., Wysocki, P., 2003. Earnings management and investor protection: an international comparison. *Journal of Financial Economics* 69, 505-527.

Lemmon, M., Zender, J., 2002. Debt capacity and tests of capital structure theories. Working Paper, University of Utah and the University of Colorado at Boulder.

Mitton, T., 2007. Why have debt ratios increased for firms in emerging markets? *European Financial Management*, forthcoming.

Myers, S., 1984. The capital structure puzzle. *Journal of Finance* 39, 575-592.

Myers, S., Majluf, N., 1984. Corporate financing and information decisions when firms have information that investors do not have. *Journal of Financial Economics* 13, 187-221.

Nivorozhkin, E., 2005. Financing choices of firms in EU accession countries. *Emerging Markets Review* 6, 138-169.

Ozkan, A., 2001. Determinants of capital structure and adjustment to long run target: Evidence from UK company panel data. *Journal of Business Finance and Accounting* 28, 175-198.

Rajan, R., Zingales, L., 1995. What do we know about capital structure? Some evidence from international data, *Journal of Finance* 50, 1421-1460.

Shyam-Sunder, L., Myers, S., 1999. Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics* 51, 219-244.

Zou, H., Xiao, J., 2006. The financing behavior of listed Chinese firms. *The British Accounting Review* 38, 239-258.

Table 1: Information asymmetry, Investor Protection, and Economic Indicators

This table provides data for various information asymmetry proxies and for the financial and legal environments for the sample countries and compares the mean of the variables with those for a sample of US firms. Information asymmetry proxies are taken from the cited studies. Economic indicators are collected from World Bank Development Indicators (WBDI) database and are percentages of GDP: Domestic credit to private sector (Credit) and Stock Market Capitalization (Stock).

	Information Flows: Accounting statements from CIFAR	Disclosure requirements for IPOs	# of Analyst	Timeliness: Information on frequency of reports etc.	Earnings Management	Block premium as % of firm equity	Liability Standard	Public Enforcement	Anti self Dealing Index	Debt-holder Rights	Credit	Stock	Legal Origin
	Bushman et al. (2004)	La Porta et al. (2006)	Chang et al. (2000)	Bushman et al. (2004)	Leuz et al. (2003)	Dyck and Zingales (2004)	La Porta et al. (2006)	La Porta et al. (2006)	Djankov et al. (2005)	Djankov et al. (2007)	WBDI	WBDI	
Argentina	68	0.5	12.73	91.3	NA	0.27	0.22	0.58	0.44	3	38.36	26.36	French
Brazil	56	0.25	16.1	86.95	NA	0.65	0.33	0.58	0.29	2	72.05	26.35	French
Chile	78	0.58	5.53	94.2	NA	0.18	0.33	0.6	0.63	4	75.62	83.74	French
China	NA	NA	10.33	NA	NA	NA	NA	NA	0.78	2	95.99	22.17	German
Colombia	58	0.42	3.31	62.32	NA	0.27	0.11	0.58	0.58	3	35.57	13.51	French
Czech Rep.	NA	NA	5.1	NA	NA	0.58	NA	NA	0.34	6	60.27	21.8	German
Hong Kong	73	0.92	25	69.57	19.5	0	0.66	0.87	0.96	10	143.2	263.64	English
Hungary	NA	NA	5.6	NA	NA	NA	NA	NA	0.2	6	83.29	16.92	German
India	61	0.92	11.9	45.65	19.1	NA	0.66	0.67	0.55	5	50.59	29.37	English
Israel	74	0.67	3.19	66.67	NA	0.27	0.66	0.63	0.71	8	113.86	43.8	English
Malaysia	79	0.92	19.9	65.22	14.8	0.07	0.66	0.77	0.95	8	120.27	167.1	English
Mexico	71	0.58	18.53	84.78	NA	0.34	0.11	0.35	0.18	3	43.04	25.82	French
Pakistan	73	0.58	3.4	51.45	17.8	NA	0.39	0.58	0.41	2	49.02	14.61	English
Peru	NA	0.33	8.1	71.74	NA	0.14	0.66	0.78	0.41	4	21.22	18.21	French
Philippines	64	0.83	10.87	75.36	NA	0.13	1	0.83	0.24	4	51.66	43.91	French
Poland	NA	NA	7.53	NA	NA	0.13	NA	NA	0.3	3	26.44	10.6	German
Russian F.	NA	NA	NA	NA	NA	NA	NA	NA	0.48	4	29.38	18.94	French
S. Africa	79	0.83	7.4	86.96	5.6	0.02	0.66	0.25	0.81	4	118.47	147.32	English
S. Korea	68	0.75	9.9	17.39	26.8	0.16	0.66	0.25	0.46	5	69.91	42.86	German
Singapore	79	1	20.9	63.77	21.6	0.03	0.66	0.87	1	3	83.62	146.01	English
Sri Lanka	74	0.75	2.4	73.91	NA	NA	0.39	0.43	0.41	6	40.89	13.6	English
Turkey	58	0.5	7.97	17.39	NA	0.37	0.22	0.63	0.43	9	37.3	21.21	French
Venezuela	NA	0.17	1.67	17.39	NA	0.27	0.22	0.55	0.09	3	34.5	9.35	French
Mean	69.56	0.64	9.88	63.45	17.89	0.23	0.48	0.60	0.51	4.65	64.98	53.36	
USA	76	1	30.23	97.83	2	0.01	1	0.90	0.65	7	199.2	106.24	English

Table 2 Firm Characteristics and Pecking Order Behavior

Firm Characteristic	Conjecture	Rationale	Procedure
Size	Small firms should follow the Pecking Order Hypothesis	Small firms face more asymmetric information problems than do large firms	Firm observations are classified as small (large) if they are in the bottom (top) half of all observations sorted by size.
Growth	High growth firms should follow the Pecking Order	High growth firms face more asymmetric information problems than do low growth firms	Firm observations are classified as high (low) growth if they are in the top (bottom) half of all observations sorted by growth.
Operating Earnings	High positive earnings firms most likely can follow the Pecking Order	Firms with negative earnings or low positive earnings worry about their ability to service any additional debt.	Firms are sorted into distress (negative current earnings), low positive earnings (bottom half of positive earnings observations) and high positive earnings.
Dividend Paying	Dividend paying firms should follow the Pecking Order	Firms paying a dividend should not issue stock (current stockholders would lose due to a decline in the stock price)	Firm observations are sorted into dividend paying and non-paying
Future Deficits	Firms facing “small” future deficits should follow the Pecking Order	See Myers (1984). Firms facing large future deficits may want to use some equity now in order to be able to invest more in the future.	Firm observations are classified as high (low) future deficits if they are in the top (bottom) half of all observations sorted by next year’s deficit.
Leverage	Low leverage firms should follow the Pecking Order	Low leverage firms have the capability to take on more leverage.	Firm observations are classified as high (low) leverage if they are in the top (bottom) half of all observations relative to the firm’s industry.
Risk	Low risk firms should follow the Pecking Order	Low risk firms can acquire more debt.	Firm observations are classified as high (low) risk if they are in the top (bottom) 50% of all observations sorted by the standard deviation of operating earnings during the past five years.
Market-to Book Ratio	If market-to book proxies for growth, then high growth firms should follow the Pecking Order	High growth firms face more asymmetric information problems than do low growth firms	Firm observations are classified as high (low) market-to-book if they are in the top (bottom) half of all observations sorted by market-to book ratios.

Table 3: Descriptive Statistics

First and second rows report means and standard deviations, respectively. The values for the classifications based on investor protection are cross country averages weighted by the number of observations. The statistical significance of the difference in means is computed by a t-test based on the assumption that the variances of the two groups are equal. a, b, and c denote 1%, 5%, and 10% significance levels, respectively. Columns 3-8 are divided by the book value of assets.

Country	N	Total Liabilities	Total Debt (Market value)	Total Debt (Book value)	Long Term Debt	Short Term Debt	Accounts Payable
Argentina	204	0.460	0.351	0.251	0.132	0.119	0.102
		0.205	0.265	0.185	0.152	0.111	0.082
Brazil	717	0.498	0.546	0.263	0.131	0.132	0.072
		0.192	0.325	0.163	0.111	0.099	0.067
Chile	523	0.378	0.278	0.226	0.131	0.095	0.060
		0.163	0.204	0.140	0.113	0.087	0.050
China	904	0.441	0.227	0.245	0.060	0.186	0.085
		0.182	0.190	0.164	0.084	0.143	0.081
Colombia	153	0.347	0.338	0.128	0.077	0.052	0.062
		0.194	0.320	0.122	0.097	0.057	0.086
Czech Rep.	59	0.423	0.309	0.178	0.082	0.096	0.106
		0.189	0.273	0.153	0.100	0.112	0.137
Hong Kong	779	0.367	0.201	0.145	0.046	0.099	0.115
		0.189	0.229	0.141	0.079	0.112	0.107
Hungary	105	0.380	0.273	0.187	0.070	0.117	0.110
		0.150	0.237	0.144	0.099	0.117	0.061
India	150	0.600	0.464	0.370	0.246	0.123	0.128
		0.218	0.348	0.231	0.201	0.132	0.084
Israel	188	0.453	0.229	0.213	0.116	0.096	0.091
		0.207	0.221	0.189	0.127	0.104	0.059
Malaysia	470	0.412	0.232	0.197	0.066	0.132	0.090
		0.208	0.248	0.197	0.107	0.148	0.085
Mexico	668	0.449	0.407	0.252	0.163	0.085	0.091
		0.171	0.295	0.170	0.139	0.093	0.094
Pakistan	396	0.613	0.461	0.311	0.123	0.188	0.093
		0.186	0.314	0.223	0.159	0.153	0.111
Peru	169	0.409	0.340	0.237	0.109	0.128	0.067
		0.176	0.234	0.160	0.120	0.114	0.058
Philippines	432	0.438	0.386	0.254	0.143	0.111	0.092
		0.211	0.300	0.193	0.162	0.103	0.091
Poland	217	0.410	0.160	0.106	0.057	0.049	0.133
		0.207	0.209	0.127	0.085	0.094	0.082
Russian F.	37	0.392	0.301	0.166	0.093	0.073	0.046
		0.118	0.254	0.104	0.092	0.049	0.033

Country	N	Total Liabilities	Total Debt (Market value)	Total Debt (Book value)	Long Term Debt	Short Term Debt	Accounts Payable
S. Africa	1421	0.449	0.202	0.124	0.063	0.061	0.208
		0.182	0.212	0.120	0.089	0.078	0.142
S. Korea	1935	0.564	0.535	0.326	0.137	0.189	0.101
		0.210	0.305	0.202	0.125	0.135	0.076
Singapore	490	0.433	0.223	0.172	0.061	0.111	0.141
		0.163	0.208	0.149	0.089	0.122	0.109
Sri Lanka	60	0.442	0.376	0.231	0.061	0.169	0.045
		0.135	0.222	0.124	0.059	0.105	0.036
Turkey	222	0.504	0.308	0.194	0.063	0.131	0.133
		0.192	0.306	0.173	0.100	0.135	0.122
Venezuela	78	0.338	0.499	0.182	0.103	0.079	0.067
		0.144	0.328	0.122	0.100	0.061	0.030
United States	49768	0.465	0.218	0.205	0.156	0.049	0.093
		0.227	0.242	0.194	0.176	0.089	0.085
Averages across countries weighted by the number of observations							
Total Sample	10377	0.466	0.345	0.228	0.102	0.126	0.111
US vs Emer.Mar. T statistics		-0.001	-0.127	-0.023	0.054	-0.077	-0.018
		(-0.1)	(-46.8) ^a	(-10.9) ^a	(29.8) ^a	(-73.6) ^a	(-18.0) ^a
Low SProt. (1)	5262	0.506	0.454	0.273	0.128	0.144	0.095
High SProt. (2)	5115	0.424	0.232	0.181	0.075	0.107	0.128
(1) – (2)		0.082	0.222	0.092	0.053	0.037	-0.033
T statistics		(21.0) ^a	(41.0) ^a	(26.2) ^a	(22.8) ^a	(15.6) ^a	(-16.0) ^a
Low DProt. (3)	5597	0.454	0.360	0.239	0.112	0.126	0.084
High DProt. (4)	4780	0.475	0.332	0.219	0.093	0.125	0.133
(3) – (4)		-0.021	0.028	0.020	0.019	0.001	-0.049
T statistics		(-5.4) ^a	(4.8) ^a	(5.6) ^a	(7.8) ^a	(0.5)	(-24.3) ^a

Table 4: Financing Deficits and Components

The table provides means of the components of the deficit (dividends, investments, the change in working capital, and cash flow) as well as the means for how the deficit was financed. Financing deficit is measured by using two methods. The first method is based on cash flow statement items (net debt or net equity issued) adopted by Shyam-Sunder and Myers (1999), and Frank and Goyal (2003). The second definition of the deficit is measured by changes in balance sheet accounts according to Fama and French (2005). Financial data is gathered from Worldscope for the period 1980-2004. All the data is deflated by the appropriate GDP deflators (2000 is the base year).

	Equally Weighted by country		Grand mean		United States	
Dividend / Assets	23	0.021	17553	0.020	71584	0.010
Investments / Assets	23	0.076	14175	0.075	56743	0.033
Changes in Working Capital /Assets	23	0.024	10427	0.031	16189	0.014
Operating Cash Flows / Assets	23	0.100	16529	0.093	62049	-0.043
Financing Deficit1	23	0.022	9423	0.035	13324	0.052
Net Debt Issued / Assets	23	0.009	18127	0.012	71644	0.009
Net Equity Issued / Assets	23	0.017	18127	0.020	71644	0.051
Financing Deficit1	23	0.027	18127	0.032	71644	0.061
Change in Assets / Assets	23	0.018	19908	0.031	56654	0.038
Change in Liabilities / Assets	23	0.009	19908	0.012	56654	0.020
Change in Stockholders' Equity in Excess of the Change in Retained Earnings / Assets	23	0.011	19908	0.018	56654	0.090
Financing Deficit2	23	0.019	19908	0.030	56654	0.111

Table 5: Debt (dD/A and dL/A) and Equity (dE/A and dSB/A) Increases

The table presents for the entire sample as well as for various subgroups the percent of equity and debt increases. The first row indicates all changes and the second row shows only 1% or more changes.

	Total	Size		Asset Growth		Distress	Earnings			Dividend		Future Deficit		Leverage		Risk		M to B Ratio	
	Sample	Small	Large	Low	High	Sample	Low	High	Payers	Non-P	Low	High	Low	High	Low	High	Low	High	
dD/A	0.41	0.35	0.47	0.34	0.48	0.36	0.46	0.38	0.47	0.37	0.32	0.52	0.33	0.52	0.45	0.37	0.41	0.42	
	0.34	0.29	0.39	0.27	0.41	0.30	0.39	0.31	0.38	0.31	0.25	0.44	0.25	0.45	0.37	0.30	0.32	0.35	
dE/A	0.31	0.29	0.33	0.25	0.35	0.29	0.32	0.31	0.36	0.32	0.26	0.37	0.30	0.35	0.30	0.29	0.28	0.34	
	0.19	0.20	0.17	0.12	0.19	0.18	0.19	0.19	0.19	0.23	0.15	0.23	0.19	0.18	0.15	0.16	0.15	0.21	
dSB/A	0.72	0.71	0.74	0.66	0.76	0.60	0.72	0.78	0.76	0.68	0.69	0.78	0.76	0.70	0.74	0.70	0.70	0.75	
	0.55	0.54	0.56	0.46	0.60	0.42	0.52	0.63	0.57	0.51	0.50	0.62	0.60	0.51	0.53	0.53	0.51	0.57	
dL/A	0.67	0.65	0.69	0.60	0.73	0.59	0.68	0.69	0.70	0.62	0.62	0.72	0.60	0.74	0.69	0.63	0.63	0.70	
	0.62	0.60	0.65	0.55	0.69	0.55	0.64	0.65	0.65	0.58	0.57	0.69	0.54	0.71	0.64	0.59	0.58	0.65	

United States Example

	Total	Size		Asset Growth		Distress	Earnings			Dividend		Future Deficit		Leverage		Risk		M to B Ratio	
	Sample	Small	Large	Low	High	Sample	Low	High	Payers	Non-P	Low	High	Low	High	Low	High	Low	High	
dD/A	0.34	0.25	0.45	0.25	0.39	0.29	0.40	0.33	0.31	0.41	0.34	0.42	0.22	0.46	0.42	0.22	0.33	0.25	
	0.29	0.23	0.38	0.21	0.35	0.26	0.35	0.28	0.27	0.34	0.29	0.38	0.18	0.41	0.35	0.19	0.28	0.20	
dE/A	0.58	0.61	0.51	0.53	0.70	0.67	0.53	0.55	0.46	0.64	0.45	0.72	0.64	0.55	0.49	0.70	0.44	0.75	
	0.33	0.47	0.21	0.31	0.42	0.51	0.23	0.27	0.14	0.42	0.18	0.51	0.40	0.26	0.18	0.47	0.15	0.55	
dSB/A	0.72	0.79	0.64	0.71	0.80	0.81	0.68	0.67	0.77	0.57	0.61	0.84	0.75	0.68	0.64	0.83	0.62	0.85	
	0.52	0.64	0.42	0.52	0.64	0.68	0.40	0.45	0.59	0.30	0.37	0.71	0.57	0.44	0.36	0.67	0.31	0.74	
dL/A	0.61	0.56	0.67	0.48	0.69	0.59	0.61	0.64	0.60	0.64	0.53	0.76	0.59	0.64	0.68	0.56	0.51	0.69	
	0.57	0.53	0.61	0.44	0.65	0.55	0.56	0.59	0.56	0.58	0.49	0.64	0.52	0.60	0.62	0.51	0.46	0.64	

Table 6: Financing Deficit Regressions

The dependent variable is Net Debt Issued for regressions of Deficit 1 (Def 1) and Change in Liabilities for regressions of Deficit 2 (Def 2). Industry effects are controlled at OLS regressions. Fixed effect coefficients are estimated with country and time fixed effects. Standard errors reported in parenthesis in the second row are white heteroskedasticity consistent at OLS regressions and controlled for heteroskedasticity and clustering at fixed effect regressions.

Panel A: Cross country averages of total sample countries

	Total	Size		Asset Growth		Distress	Earnings			Dividend		Future Deficit		Leverage		Risk		M to B Ratio	
	Sample	Small	Large	Low	High	Sample	Low	High	Payers	Non-P	Low	High	Low	High	Low	High	Low	High	
<i>OLS Regressions</i>																			
Def 1	0.550	0.464	0.677	0.677	0.617	0.552	0.610	0.520	0.602	0.480	0.539	0.533	0.395	0.711	0.672	0.563	0.647	0.520	
	0.031	0.041	0.042	0.057	0.055	0.074	0.047	0.049	0.043	0.047	0.057	0.045	0.040	0.039	0.049	0.046	0.049	0.044	
R sq.	0.535	0.450	0.669	0.658	0.598	0.536	0.601	0.513	0.595	0.461	0.519	0.508	0.380	0.709	0.655	0.550	0.629	0.500	
Def 2	0.526	0.501	0.572	0.560	0.551	0.611	0.549	0.499	0.532	0.544	0.544	0.527	0.361	0.680	0.609	0.523	0.560	0.532	
	0.027	0.040	0.051	0.046	0.042	0.052	0.039	0.040	0.034	0.047	0.045	0.042	0.040	0.034	0.040	0.041	0.044	0.041	
R sq.	0.545	0.502	0.612	0.564	0.579	0.616	0.586	0.522	0.567	0.550	0.567	0.539	0.362	0.725	0.654	0.543	0.598	0.531	
<i>Fixed Effect Regressions</i>																			
Def1	0.548	0.447	0.705	0.608	0.526	0.564	0.589	0.450	0.619	0.429	0.506	0.477	0.383	0.673	0.666	0.520	0.630	0.455	
	0.035	0.050	0.050	0.099	0.073	0.085	0.070	0.067	0.056	0.070	0.072	0.063	0.068	0.053	0.072	0.066	0.085	0.060	
Def2	0.527	0.484	0.583	0.558	0.490	0.556	0.567	0.489	0.512	0.553	0.545	0.469	0.316	0.689	0.629	0.507	0.541	0.517	
	0.033	0.048	0.045	0.077	0.063	0.063	0.060	0.056	0.044	0.060	0.054	0.053	0.050	0.047	0.056	0.054	0.061	0.054	

United States Example

	Total	Size		Asset Growth		Distress	Earnings			Dividend		Future Deficit		Leverage		Risk		M to B Ratio	
	Sample	Small	Large	Low	High	Sample	Low	High	Payers	Non-P	Low	High	Low	High	Low	High	Low	High	
<i>OLS Regressions</i>																			
Def 1	0.177	0.091	0.638	0.135	0.157	0.076	0.434	0.307	0.664	0.143	0.448	0.123	0.026	0.463	0.386	0.060	0.470	0.086	
	0.003	0.003	0.012	0.004	0.005	0.003	0.013	0.012	0.011	0.003	0.015	0.004	0.002	0.012	0.015	0.002	0.016	0.003	
R sq.	0.165	0.094	0.443	0.130	0.140	0.081	0.423	0.256	0.645	0.134	0.432	0.109	0.024	0.464	0.382	0.055	0.448	0.085	
Def 2	0.295	0.209	0.601	0.300	0.237	0.208	0.562	0.522	0.704	0.276	0.471	0.181	0.105	0.552	0.520	0.144	0.631	0.233	
	0.004	0.005	0.010	0.007	0.007	0.004	0.011	0.014	0.004	0.004	0.011	0.006	0.004	0.011	0.012	0.005	0.012	0.005	
R sq.	0.300	0.207	0.681	0.323	0.222	0.225	0.617	0.495	0.726	0.282	0.491	0.167	0.110	0.562	0.556	0.122	0.669	0.247	
<i>Fixed Effect Regressions</i>																			
Def1	0.173	0.089	0.639	0.131	0.155	0.073	0.400	0.321	0.718	0.121	0.407	0.042	0.021	0.478	0.465	0.055	0.554	0.074	
	0.004	0.003	0.013	0.006	0.007	0.003	0.017	0.019	0.011	0.003	0.034	0.004	0.002	0.017	0.025	0.003	0.018	0.003	
Def2	0.290	0.206	0.618	0.295	0.234	0.207	0.559	0.525	0.735	0.258	0.461	0.082	0.092	0.573	0.636	0.128	0.676	0.223	
	0.005	0.006	0.011	0.008	0.009	0.005	0.014	0.020	0.013	0.005	0.028	0.007	0.004	0.015	0.017	0.006	0.012	0.006	

Table 7: Leverage regressions on firms' characteristics, deficit, economic indicator and investor protection

The dependent variable is the ratio of total liabilities to total assets. In Panel A the first definition of the deficit is used while in Panel B the second definition of the deficit is employed. Cumulative deficit is the sum of all prior financing deficits for the firm i for time t starting for the time Worldscope started publishing data on firm i . Tangibility is the ratio of fixed assets to total assets. Market-to-Book is calculated as (market value of equity + book value of debt) / total assets. Profitability is the ratio of operating income to total assets. Natural logarithm of total assets is used to control firm's size. Income is measured as the natural logarithm of GDP per capita in US dollar. Shareholder protection is the variable to control investor protection, which is the sample countries' Anti-self Dealing Index (Djankow et al., 2005). Debtholder protection is the variable for Legal Rights Index that measures the degree to which collateral and bankruptcy laws facilitates lending (Djankow et al., 2007). Fixed Effect coefficients are estimated with country and time fixed effects. Standard errors reported in parenthesis are controlled for heteroskedasticity and clustering based on firms and country by subject to years. a, b and c denote significance at 1%, 5% and 10% respectively.

Panel A: Deficit 1

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	0.247 ^a (0.022)	0.250 ^a (0.022)	1.776 ^a (0.258)	1.770 ^a (0.259)	0.386 ^a (0.021)	0.351 ^a (0.017)	0.385 ^a (0.021)	0.588 ^a (0.033)
Tangibility	-0.101 ^a (0.018)	-0.099 ^a (0.018)	-0.098 ^a (0.018)	-0.096 ^a (0.018)	-0.105 ^a (0.018)	-0.101 ^a (0.019)	-0.100 ^a (0.018)	-0.103 ^a (0.018)
Market-to-Book	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.002 (0.002)	-0.002 (0.002)	-0.002 (0.002)	-0.003 (0.002)
Profitability	-0.366 ^a (0.032)	-0.356 ^a (0.032)	-0.362 ^a (0.032)	-0.353 ^a (0.032)	-0.268 ^a (0.030)	-0.269 ^a (0.031)	-0.257 ^a (0.030)	-0.280 ^a (0.031)
Size – Log of Assets	0.034 ^a (0.002)	0.033 ^a (0.002)	0.034 ^a (0.002)	0.033 ^a (0.002)	0.018 ^a (0.001)	0.019 ^a (0.001)	0.017 ^a (0.002)	0.018 ^a (0.001)
Cumulative Deficit		0.039 ^a (0.015)		0.039 ^a (0.015)			0.027 (0.017)	0.038 ^b (0.017)
LN GDP Per Capita			-0.187 ^a (0.032)	-0.187 ^a (0.032)				-0.030 ^a (0.003)
Shareholder Protection					-0.043 ^a (0.017)		-0.069 ^a (0.022)	-0.104 ^a (0.023)
Debtholder Protection						-0.001 (0.002)	0.004 ^c (0.002)	0.015 ^a (0.002)
Country Dummy	YES	YES	YES	YES	NO	NO	NO	NO
Year Dummy	YES	YES	YES	YES	YES	YES	YES	YES
R Square	0.224	0.226	0.228	0.230	0.114	0.112	0.116	0.135
# of Firm	2816	2816	2816	2816	2816	2816	2816	2816
# of Observations	14475	14475	14475	14475	14475	14475	14475	14475

Panel B: Deficit 2

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	0.324 ^a (0.018)	0.343 ^a (0.018)	2.481 ^a (0.300)	2.496 ^a (0.294)	0.479 ^a (0.019)	0.427 ^a (0.014)	0.487 ^a (0.019)	0.698 ^a (0.044)
Tangibility	-0.069 ^a (0.017)	-0.063 ^a (0.017)	-0.065 ^a (0.017)	-0.060 ^a (0.017)	-0.082 ^a (0.018)	-0.078 ^a (0.018)	-0.080 ^a (0.018)	-0.084 ^a (0.018)
Market-to-Book	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)	0.000 (0.001)	-0.000 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.000 (0.001)
Profitability	-0.304 ^a (0.028)	-0.305 ^a (0.027)	-0.297 ^a (0.027)	-0.298 ^a (0.027)	-0.206 ^a (0.026)	-0.211 ^a (0.026)	-0.208 ^a (0.025)	-0.214 ^a (0.025)
Size – Log of Assets	0.025 ^a (0.002)	0.023 ^a (0.002)	0.026 ^a (0.002)	0.023 ^a (0.002)	0.010 ^a (0.001)	0.012 ^a (0.001)	0.009 ^a (0.001)	0.010 ^a (0.001)
Cumulative Deficit		0.041 ^a (0.007)		0.041 ^a (0.007)			0.028 ^a (0.007)	0.028 ^b (0.007)
LN GDP Per Capita			-0.267 ^a (0.037)	-0.266 ^a (0.036)				-0.030 ^a (0.005)
Shareholder Protection					-0.097 ^a (0.016)		-0.105 ^a (0.018)	-0.146 ^a (0.021)
Creditor Protection						-0.006 ^a (0.001)	0.000 (0.002)	0.011 ^a (0.003)
Country Dummy	YES	YES	YES	YES	NO	NO	NO	NO
Year Dummy	YES	YES	YES	YES	YES	YES	YES	YES
R Square	0.177	0.184	0.184	0.191	0.059	0.052	0.063	0.072
# of Firm	3790	3790	3790	3790	3790	3790	3790	3790
# of Observations	14870	14870	14870	14870	14870	14870	14870	14870