# Taxes, Governance, and Debt Maturity Structure

Eilnaz Kashefi Pour*
*Birmingham Business School, University House, Birmingham, B15 2TT, UK*

Meziane Lasfer
*Cass Business School, City University London, 106 Bunhill Row, London, EC1Y 8TZ, UK*

**Very preliminary. Any comments are welcome.**

**Abstract**

We test the impact of debt overhang, investor protection, and tax hypotheses on debt maturity structures across countries. We find strong evidence that firms in countries with high investor protection and classical tax system have longer debt maturities and higher leverage, and that, unlike previous studies, debt maturity is unlikely to proxy for the level of private debt. Using various measures of financial distress to test for debt overhand, we find that the relationship between debt maturity and firm's growth options is also observed only in financially healthy firms. Our results imply that when investors are protected, debt-overhang costs are low and firms tend to opt for more appropriate maturities to maximise the gains from tax shields and minimise the tax cost of equity. In contrast, in low protection countries, investors prefer their firms to opt for low debt that is mainly short-term to mitigate the risk-shifting and debt overhang problems even if this entails forgoing the debt tax shields.

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* Corresponding author. Email: e.kashefipour@bham.ac.uk (Kashefi-Pour); m.a.lasfer@city.a.c.uk (Lasfer). We would like to thank seminar disscussants and participants at AIDEA 2013 conference. The usual disclaimer applies.

## 1. Introduction

Companies are likely to be faced with the limited availability of long-term financing sources, and their reliance on predominantly short-term debt exposes them to rollover risk and reduces their growth potentials. In the presence of agency conflicts between equity- and debt-holders, debt financing results in two major additional costs: risk-shifting (Jensen and Meckling 1976; Warga and Welch 1993) and debt overhang (Myers, 1977; Diamond and He, 2014). The risk-shifting hypothesis maintains that shareholders have an incentive to increase the riskiness of the firm's existing assets, even when this would reduce the value of their firm. In the presence of debt overhang problems, when a firm is highly leveraged and debt is risky, shareholders have a disincentive to raise new capital to invest in projects that would make debt safer, even if these projects have a positive net present value. These two problems are expected to result in underinvestment and asset substitution problems. To mitigate these two problems, firms are expected to rely more on short-term debt which is less sensitive to risk shifting in the firm's underlying assets (Barnea et al., 1980), and matures sooner than the realisation of investment returns (Myers, 1977). In contrast, long-term debt maturity structures significantly intensify the agency conflicts between creditors and shareholders when the refinancing risk is high due to rollover losses (Almeida et al, 2011; Li, 2013).

However, Diamond and He (2014) argue that short-term debt can increase or decrease debt overhang depending on the timing of the investment. More specifically, debt overhang is reduced by short-term debt for asset in place, while it is increased for future investment opportunities, because this impact depends on the extent to which the value of short-term debt is sensitive to the value of the firm. In particular, when less risk is shared with existing short debt, the equity value becomes more volatile and debt overhang increases. These arguments suggest that the ability of short-term debt to mitigate these problems depends on the severity of the agency conflicts and also the firm's financial health (Eisdorfer, 2008).

We use governance indices across countries and firm's financial distress measures to proxy for the severity of these problems. We expect healthy firms in strong investor protection countries to have a relatively lower risk-shifting incentives and debt overhang problems. However, since short-term debt has also several disadvantages, namely the opportunity costs of tax shields, we also assess whether maturity depends on taxes. In particular, we expect firms in strong governance systems to rely more on longer debt maturities, when they operate in classical tax system countries to minimise their shareholder tax cost, and maximise the interest tax shields. In contrast, in weak governance countries, we expect firms to have shorter debt maturities to reflect investors' reluctance to trust the management even if this entails higher tax costs, and also the possibility that firms evade taxes because their credit information-sharing systems and branch penetration are low (Beck et al., 2014). We also use a number of control variable to account for the two remaining drivers of debt maturity, namely the signalling theory which suggests that firms rely on short-term debt to signal their quality in the presence of transaction costs (Flannery, 1986), and the matching theory which argues that debt maturity should be matched with the life maturity of the assets, as when debt is long-term, the assets need to generate enough future cash flow to cover debt obligations.

To test our hypothesis, we use a sample of 14,207 firms from 24 OECD countries from 1990 to 2011, resulting in 134,794 firm-year observations. We split our countries into strong and weak investor and creditor protection countries, following Djankov et al. (2008), and into classical, partial and full imputation tax systems, following Alzahrani and Lasfer (2012). We use Z-score to measure financial distress. We also use a number of robustness checks to assess the sensitivity of our results with regards to these classifications and definition of our proxy variables.

We find strong evidence that firms located in strong investor countries exhibit significantly higher debt maturities. However, within these countries, the maturities are significantly higher in classical tax systems and when the tax advantage of debt relative to equity is high. We find similar results when we analyse leverage. These results suggest that in strong investor countries, firms prefer long-term debt when the debt tax benefits are likely to be higher, and when shareholders are faced with a higher tax cost on equity financing. In contrast, in weak investor protection countries, the impact of taxation on the choice of debt maturity is not consistent with our expectations as maturities appear to be higher in full imputation compared to classical tax system, and the relationship is relatively weak when we account for all control variables. We find similar results using the traditional proxy measure for tax effect as the term structure of interest rate has a positive and significant effect in strong investor protection countries, suggesting that companies use longer maturity of debt when the term structure of interest rate is upward sloping, consistent with the tax hypothesis, but we find no evidence of such effects within weak protection countries. Our results hold even when we account for all firm and country characteristics and when we exclude the most represented US firms which exhibit the highest maturity structures. The impact of the severity of distress on debt maturity is also observed when we account for all the control variables, and healthy firms appear to have significantly lower leverage throughout our analysis. Interestingly, in both governance systems, the relationship between taxation and maturity is more pronounced in healthy rather than distressed firms, whose main concern is survival.

We also find that the positive relationship between short-term debt maturity and growth opportunities as measured by market-to-book ratio is observed only in healthy firms, while the negative effect of firm size, leverage and asset maturity is homogeneous across our specifications. Similarly, the impact of leverage on growth opportunities becomes weaker as firms are financially distressed. These results suggest that short-term debt mitigates the debt

overhang problem, as suggested by Myers (1977), only in good times, in line with Diamond and He (2014). Moreover, since market-to-book is also a proxy for risk shifting (Barnea et al, 1980; Barclay and Smith, 1995; Guedes and Opler, 1996), our results suggest that short-term debt mitigates this problem only in healthy companies. However, in bad times, i.e., when firms are distressed, the financing of growth options is independent of debt maturities. Since risk shifting and debt overhang problems are more likely to occur when firms are distressed, our results do not provide support for the hypothesis that short-term debt mitigates these potential agency costs.

In a dynamic setting, we find that the probability of firms increasing their short-term debt maturity is negatively related to the strong investor protection and creditors' rights, and when the tax cost is high, but this impact is more pronounced in strong investor protection countries and when firms are healthy. This effect is higher when firms have high growth opportunities and low leverage. The impact of profitability and risk, as measured by distress and earning volatility, are relatively weak, suggesting that firms do not change their short-term debt because of debt overhang problems. Instead, they do so when they gain from tax shields and when their investors are less protected. The impact of the remaining fundamental and macro variables on the level and changes in short-term debt maturities is relatively weak, suggesting that the governance and tax factors capture the whole effects. In particular, we find that the banking sector does not have an impact on the level or changes in debt maturity, suggesting that maturity is not affected by the supply of debt, and that banks are not more likely to be able to supply predominantly debt that is long-term or short-term, in contrast to Diamond's (1984) argument that intermediaries take benefit from economies of scale, and Fan et al. (2012) who find that banks tend to hold more short-term liabilities, and hence offer mainly short-term loans.

We also show that firms are less likely to decrease their debt maturities in strong investor protection countries. However, this likelihood is even stronger in classical tax system and when the tax discrimination between dividends and capital gains is low, i.e., when there is strong tax preference for debt financing. We find that the interaction between investor protection and our tax variables affects strongly the decision to decrease the debt maturity, rather than the tax system *per se*. We also find that firms are less likely to decrease their maturities when they are large, have high leverage, high profitability, and low growth opportunities, suggesting that firms tend to use short-term debt when the potential cost of risk shifting is high, in line with Barclay and Smith (1995) and Guedes and Opler (1996).

Our results are strongly related to previous theoretical and empirical studies. Myers (1977) argues that the underinvestment problem can be mitigated by using short-term debt because it matures before the growth opportunities are exercised. Burkart et al. (2003) argue that minority expropriation diminishes as investor protection improves, and the dominant shareholders become less prevalent. This reduction abolishes the incentive of risk-taking behaviour, and thus shareholders forgo negative net present value investments. These arguments suggest that when investors are not protected, short-term debt serves as a monitoring devise of the agency conflict. Moreover, La Porta et al. (2000) argue that, in strong protection countries the corporate governance of the broad financial markets is more effective, the supply of capital is more efficient, and the credit markets is larger than in weak investor protection countries. Our overall results are consistent with these arguments as firms located in strong investor protection countries are more likely to use longer debt maturities.

However, we contribute further to this strand of literature by assessing the combined effect of taxes and governance on debt maturities. Unlike previous studies, we focus on the differences in tax systems following Graham's (2008) plea that it would be helpful if there were more studies that exploit the rich variation in tax codes around the world. Scholes and

Wolfson (1992) argue that under the tax clientele hypothesis, the greater marginal tax rates facilitate firms to use the on-going interest tax shields, and thus firms are more likely to commit to long-term debt. However, Alzahrani and Lasfer (2012) show that the tax effect is more relevant in strong protection countries, where managers are expected to maximise firms' value by maximising the after-tax return of their shareholders. Consistent with these arguments, we show that firms located in strong protection countries and in classical tax system, where dividend income is taxed at both firm and shareholders, use longer maturity of debt to maximise their debt tax shields and minimise the after-tax returns to their equity holders. Our results suggest that when investors are protected, they weigh the tax benefit of debt against the potential agency conflicts of extended maturities, but, when they are not, they prefer to incur higher tax costs than to trust the management with longer debt maturities.

We also assess the joint effect of governance and taxation on debt maturity by including an interaction variable between governance and classical tax system. We find that this variable is negative and significant, and, interestingly, the investor protection and the tax discrimination variables become insignificant. These results support the arguments that firms do not set longer maturities because of governance and tax systems separately, but their decision to opt for more long-term debt is driven by the combination of tax optimisation and investor protection. The tax discrimination effect is apparent although Graham (2008) argues that it is difficult to estimate the shareholders' personal income and capital gains taxes.

Overall, our results suggest that, in strong investor protection countries, managers are more inclined to pursue shareholders' interest by opting for longer maturities to minimise shareholders' corporate and personal tax liabilities. In contrast, in weak investor protection countries, managers can get away with setting up debt maturity policies that are independent of tax costs because investors' rights are not well protected and also investors are more concerned about the mitigation of the debt overhang and risk shifting problems than tax

gains. Our results provide an additional perspective to the agency explanation of debt maturity decision and show that the interrelation between agency costs and taxation explains leverage and debt maturity structures across firms and countries. Our findings hold even when we exclude the US firms, when we control for time-variation in the relation between leverage, debt maturity and firm-specific factors, as the impact of taxes on such decisions can be gauged directly by observing the extent to which firms alter their financing decisions in response to tax law changes, and when we use alternative definitions of governance including the recent Spamann (2010) corrected measure of anti-directors' rights.

The rest of the paper is organised as follows. Section 2 provides the review of the literature and the hypotheses tested. Section 3 discusses the data and the methodology used. Section 4 presents the empirical results and the conclusions are in Section 5.

## 2. Literature Review and Research hypothesis

In this paper, we focus on two main theories that might explain differences in debt maturities across firms: agency conflicts and taxes. Barnea, Haugen, and Senbet (1980) link risk-shifting to debt maturity. They argue that since the value of short-term debt is less sensitive than the value of long-term debt to changes in asset volatility, issuing short-term debt can reduce risk-shifting incentives. They predict that debt with shorter maturity will be used when the potential costs of risk shifting are high. Barclay and Smith (1995) and Guedes and Opler (1996) provide evidence consistent with this hypothesis; firms with more growth options (and therefore higher potential agency costs) have more short-term debt in their capital structure.

Datta et al. (2005) argue that managers are expected to avoid locking in debt financing with longer maturity. Therefore, in the existence of managers' right incentive, they are more likely to choose shorter maturity of debt, which is subject to lower agency costs. In addition, short-term debt is a "powerful tool to monitor managers" (Stulz, 2000) and

facilitates creditors to monitor managers with minimum efforts (Rajan and Winton, 1995), suggesting that short-term debt can effectively monitor managers if they have lower interest alignment with shareholders. A stronger manager-shareholder interest alignment can reduce the agency costs, resulting in less preference for managers' security. Based on these arguments, we contend that in strong protection countries, where managers are more likely to have greater interest alignment with shareholders, the role of short-term debt in monitoring managers will be less significant.

We also relate our hypothesis to the role of debt maturity to alleviate the underinvestment and asset substitution problems. Myers (1977) argues that the conflict between debt-holders and shareholders intensifies the underinvestment problem when debt-holders desire to invest in safe projects that may not create any benefits for shareholders. Conversely, shareholders get the benefits of investing in a negative NPV project at the expense of debt-holders. In this situation, debt-holders will lose if the project is unsuccessful while equity-holders would not be affected. He suggests that the underinvestment problem can be mitigated by using short-term debt because it matures before the growth opportunities will be exercised. Barnea et al. (1980) argue that managers have lower incentives to involve in risky projects if debt has shorter maturity, which mitigates the agency conflict in the form of asset substitution problem (Leland and Toft, 1996). The agency theory also explains the link between investor protection and corporate risk-taking in the recent literature. For example, Burkart et al. (2003) argue that as investor protection improves, minority expropriation and the incentive of risk-taking behaviour are mitigated, and thus the dominant shareholders become less prevalent, suggesting that short-term debt can be used as a mechanism to mitigate any potential agency conflicts in weak investor protection countries.

The empirical evidence provided to date focuses mainly on single country analysis where tax and governance system do not change frequently.[1] Some studies attempt to investigate how institutional differences affect debt maturity to overcome some of these drawbacks. However, the reported evidence is mixed. For example, Fan et al. (2012) find that countries with larger banking sectors have shorter debt maturity in contrast to Demirgüç-Kunt and Maksimovic (1999) who show that the banking sector is uncorrelated with debt maturity. In terms of governance, Demirgüç-Kunt and Maksimovic (1999) find that high values of the index creditor rights are not correlated with the use of long-term debt. Fan et al. (2012) and Zheng (2012) find that firms located in common law countries use longer maturity of debt. Their results suggest that firms in higher investor protection countries prefer longer maturity of debt, in line with La Porta et al. (1998), who argue that common law countries provide stronger investor protection than civil law countries. These arguments motivate the following hypothesis:

*H1*: In strong protection countries firms are more likely to use longer maturity of debt.

From a tax perspective, firms are more likely to commit to long-term debt to use the on-going interest tax shields the greater marginal tax rates (Scholes and Wolfson, 1992). However, this tax effect is likely to be more relevant in strong protection countries, where managers are expected to maximise their firm value. They may also consider the personal income taxes of their investors and opt for a financing method that will maximise their investors' after-tax returns. In contrast, in weak investor protection countries, managers' objectives may be other than value creation and the tax system may not be fully functional (Beck et al 2014).

[1] For example, using small and medium sized companies, López-Gracia and Mestre-Barberá (2010) show that firms use shorter maturity of debt when they have higher tax rates. Antoniou et al. (2006) find positive and significant effects of term structure of interest rates on debt maturity in the UK, in line with the tax predictions, but inconsistent with Barclay and Smith (1995), Stohs and Mauer (1996), Guedes and Opler (1996), Scherr and Hulburt (2001), and Ozkan (2002).

Cross-country studies on debt maturity either ignore tax effects (Demirgüç-Kunt and Maksimovic, 1999) or find mixed evidence (Mateus and Terra, 2013; Zheng, 2012). Using a sample of Eastern European countries, Mateus and Terra (2013) find a positive impact of the effective tax rates on debt maturity. In contrast, Zheng (2012) reports insignificant impact of the effective tax rates on debt maturity are. In addition, Fan et al. (2012) argue that debt will be used less in countries with dividend imputation than in countries with classical tax systems. In particular, they estimate the tax shield using the tax gain from leverage introduced in Miller (1977) and find that leverage is higher in countries where the tax gain from leverage is positive. However, they do not investigate the impact of tax treatment of interest and dividend payments on debt maturity. Firms in classical tax systems are less likely to pay dividend, while in countries with dividend tax relief systems, firms pay higher dividends (Alzahrani and Lasfer, 2012). We expect taxation to affect debt maturity. We combine the maturity structure with the firm's choice of debt relative to equity financing. Firms may have higher long-term debt not only because they have less short-term debt, but also because they prefer long-term debt to equity financing of its long-term assets. Conversely, their maturity structure may be short-term if their preference is more towards equity than debt. We, therefore, expect that firms located in countries with more favourable dividend tax environments (partial and full imputation tax systems) prefer more equity financing and hence use less long-term debt. These arguments motivate the following second hypothesis:

*H2*: In strong protection countries and in classical tax system, managers are more likely to use more long-term debt to maximise firm value.

## 3. Data and Methodology

### *3.1 Data*

We first collect all firms registered in OECD countries from *DataStream*. We exclude Korea, Czech Republic, Chile, Estonia, Greece, Hungary, Iceland, Slovak Republic, and Slovenia for lack or unreliable data. We also exclude Finland, Japan, Luxemburg, Poland, and Turkey between 1990 and 1999, as we could not classify their tax system due to incomplete data, Germany in 1990-2000, Norway in 1990-1991 and 2006-2011, Mexico 1990-1991, Sweden 1991-1999, and Poland in 2002 because they apply other tax treatments. We also exclude financial firms and firms with negative book equity. Our final sample includes 14,207 firms from 24 OECD countries over the sample period 1990 to 2011, resulting in 134,794 firm-year observations. Data for firm-specific variables is collected form *DataStream* while country-level data is collected from several sources which are specified in Appendix 1. We use the tax classification provided in the annual OECD tax database (www.oecd.org/ctp/taxdatabase).

### *3.2 Methodology*

To test our hypotheses, we use the following simultaneous equations:

$$STDR_{i,t} = \beta_0 + \beta_1\, Inv.p_{i,t} + \beta_2 CR_{i,t} + \beta_3 Classical_{i,t} + \beta_4 TD_{i,t} + \beta_5 LTBLev + \sum_{k=1}^{16} \beta_k\, CONTROL_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$LTBLev_{i,t} = \beta_0 + \beta_1\, Inv.p_{i,t} + \beta_2 CR_{i,t} + \beta_3 Classical_{i,t} + \beta_4 TD_{i,t} + \beta_5 STDR_{i,t} + \sum_{k=1}^{14} \beta_k\, CONTROL_{i,t} + \varepsilon_{i,t} \quad (2)$$

where *STDR* is short-term debt divided by total debt, *Inv.p* is anti-self-dealing index (Djankov et al., 2008), *CR* is creditor right index (Djankov et al., 2007), *Classical* is a dummy variable equal to 1 if the firm is located in a country adopts classical system and zero otherwise, *Tax* is the tax Miller's (1977), and *LTBLev* is long-term debt over long-term debt plus equity. The details of all the variables are in Appendix 1. Estimation of each equation separately will

results in biased and inconsistent estimated because of simultaneous equation bias. We adopt a two-stage estimation procedure and replace the endogenous variable with their predicted values to control for endogeneity. We follow Dang (2011) and select Non-debt tax shields and tangibility as instruments in Equation (1), as other variables including profitability are associated with short-term debt maturity, and asset maturity and term structure of interest rates in Equation (2) as other variables are potentially correlated with leverage.

In both equations, we also include a set of control variables, *CONTROL*, based on firms' and countries' characteristics. The firm-level variables are based on four main theories: signalling, tax, agency costs, and matching principles. In the presence of information asymmetries, Flannery (1986) show that high quality firms use short-term debt to signal to the market that they confident they will honour their debt obligations. While both long-term debt and short-term debt are mispriced, only long-term debt is more sensitive to asymmetric information. In this case, high quality firms will issue short-term debt to signal to the market that they can afford to repay the short-term obligations and also to cover the transaction costs of debt renegotiation, while low quality firms cannot afford to roll over short-term debt, and hence prefer to issue long-term debt. We use abnormal earnings to proxy for firms' quality, in line with Stohs and Mauer (1996) and Barclay and Smith (1995) findings of a negative relationship between firms' quality and the maturity structure of debt.

The asset maturity hypothesis predicts that firms choose the debt maturity along with their assets life to mitigate the risk which arises when their cash flows are not sufficient to cover their commitments (Morris, 1976). Debt with maturity longer than the maturity of assets is risky because the assets may not be enough to repay the debt covenants. Consequently, maturity matching could mitigate the expected costs of financial risk, and, to mitigate this risk, firms with more long-term assets are expected to use longer maturity debt. We use property, plant and machinery over depreciation to proxy for this effect.

Brick and Ravid (1985) provide a model for debt maturity structure based on tax effects. They show that when the term structure of interest rate is upward sloping, the value of firm is increasing function of long-term debt. The reason is that tax shields of interest payments would be accelerated by using long-term debt. Their model is characterised conditions under which firms consider first their capital structure and then their structure of debt maturity. By contrast, when leverage and debt maturity are considered simultaneously, Lewis (1990) shows that the tax does not have any effect on the structure of debt maturity. He assumes that there is no difference in tax expenses between short-term and long-term debt.

Empirically, Garcia-Teruel and Martinez-Solano (2007) find a positive relationship between the term structure of interest rate and the maturity structure of debt for a sample of small and medium sized companies, in line Brick and Ravid (1985) predictions. However, Scherr and Hulburt (2001) provide limited evidence for the impact of tax. Barclay and Smith (1995) and Guedes and Oplimer (1996) studying US large companies, and Ozkan (2000) studying UK large companies, do not support the tax effect. Following Brick and Ravid (1985), we use term structure of interest rate to test the tax hypothesis and its subsequent effects on debt maturity structure. We expect that companies use long-term debt when the term structure of interest rate is upward sloping.

At country level, Fan et al. (2012) consider the preferences of capital suppliers on the structure of debt maturity.[2] They argue that firms in countries with developed banking system tend to use more short-term debt as banks hold more short-term liabilities. Conversely, firms in countries with a larger insurance sector are more likely to use long-term debt. Their results support the negative impact of the banking sector on debt maturity, in contrast to Demirgüç-Kunt and Maksimovic (1999) who find weak effect of the banking sector on debt maturity.

[2] Demirg¨uc¸-Kunt and Maksimovic (1999) argue that some country-level data may raise endogeneity problems and hence we follow Fan et al. (2012) and use the selected variables that are less likely to cause endogeneity issue. However, in contrast to Fan et al. (2012), we do not control for bankruptcy code and deposit insurance, as they do not vary across tax system in strong protection countries in our sample.

To proxy for the preferences of the suppliers of the capital, we use banks' deposits over gross domestic product (GDP) to measure the available funds for the banking sector. We expect that firms in countries with a bigger banking sector to use more short-term debt. However, banks' risk will also affect their lending and maturity choices. We, therefore, use a number of bank risk measures. The first is banks' credit over their deposits. High-credit banks have a greater ability to pay their debt when it is due, thereby reducing the risk of banks run, implying that firms in countries with low-risk banks to use long-term debt. The second is the insurance sector, as proxied by insurance premium (life and non-life) over GDP. We expect firms in countries with a bigger insurance sector to use higher long-term debt. Finally, we assess the impact of liquidity. We use the ratio of gross domestic saving over GDP to measure the amount of funds available for all financial intermediaries. We expect firms in countries with a greater supplier of capital to use more long-term debt.

Grossman (1976) argues that prices of listed companies transfer information that can be useful for creditors, and hence lending to quoted firms is less risky due to their transparency in the stock market. We expect firms in countries with developed stock markets to have higher access to long-term credit, thus, more likely to use more long-term debt. Demirgüç-Kunt and Maksimovic (1996, 1999) show that leverage and debt maturity increase with the size of stock markets. In addition, higher bond market development provides a better protection for borrowers. Hence we expect firms in countries with better and diversified bond markets, measured by bond market capitalisations over GDP, international debt issued over GDP, and loan from non-resident banks over GDP, to use more long-term debt.

Finally, we control for the economic condition using the inflation and industry effect using yearly industry median of debt maturity. Inflation makes it costly for firms and investors to contract (Demirgüç-Kunt and Maksimovic 1999). We expect firms to use more short-term debt when the inflation rate, measured by change in consumer price index, is high.

## 4. Empirical Results

### *4.1. Descriptive Statistics*

Table 1 reports summary statistics of the variables used in our analysis. The mean (median) debt maturity is 0.43 (0.37). Some companies in our sample have either totally short-term debt or long-term debt. The minimum Leverage, *Lev*, of 0.00 is just below 0.005. The results are relatively consistent with previous evidence (e.g., Fan et al., 2012).

[Insert Table 1 here]

Table 2 reports the impact of financial health, governance and taxation on debt maturity. We classify our sample into tax systems (classical, partial, and full), tax differential ratios, TDR, (where high (low) TDR indicates above (below) average TDR) and shareholder protection (where strong (weak) indicates above (below) average anti-self-dealing index). We follow Alzahrani and Lasfer (2012) and Djankov et al. (2008) and use anti-self-dealing index to rank the governance index. Strong protection countries include those firms in countries with above average anti-self-dealing index while weak protection countries include the remaining firms. In line with Alzahrani and Lasfer (2012), we classify the countries into three tax systems, classical where shareholders pay personal taxes on distributed earnings in addition to the corporate tax paid on those earnings, and partial (full) imputation systems where shareholders receive tax credit for the corporate taxes paid on earnings partially (fully). The results indicate that about 50% of the sample firms are located in high investor protection countries and the same proportion is in countries which apply the classical tax system.

We, then use Z-score to measure financial distress and consider firms with Z values below 1.80 to be financially distressed, and market to book ratio to account for growth opportunities, in line with Diamond and He (2014). We test for differences in means using the t-test. We report the average short-term debt maturity, *STDR*, in Panel A, and long-term

book value of leverage, *LTBLev*, in Panel B. The results based on total debt over total assets, and long-term debt over long-term debt *plus* market value of equity are relatively similar.

The results show that the overall distribution of maturity structures and leverage across governance, financial health, and tax systems is not homogenous. Debt has longer maturity in strong protection countries across different tax systems, and independently of the firm's financial strength. Healthy firms have also less short-term debt, except in the strong-investor protection and partial imputation tax system where distressed firms have less short-term debt. The distribution by tax discrimination variable also indicates that firms that operate in low tax system, where the after tax return on equity income is high, appear to opt for more short-term, rather than long-term debt. They tend to have also lower leverage (Panel B), suggesting that these firms prefer equity rather than debt financing. Moreover, high growth firms, as measured by market-to-book ratio, have higher short-term debt, although the economic difference is not too high. Finally, when we sort our companies by leverage, we find that firms with low debt have significantly higher short-term debt. The results are relatively similar when we use creditor protection.

Panel B reports the distribution of book value of leverage by governance, tax and firms' financial health. The results, not reported, indicate that firms in high governance countries have relatively similar level of debt than firms in low governance systems. In both systems, the distribution of long-term debt is relatively monotonically distributed across the tax systems and firms' financial health: Firms appear to be financed with more long-term debt when they operate in a classical tax system, particularly when they healthy where the difference across the tax groups is statistically and economically significant. For distressed firms, although the distribution of leverage across tax system is not homogeneous, the difference is relatively small. However, the distribution across the discrimination variable is relatively homogeneous, although statistically significant, suggesting that managers consider

more the corporation tax rather than the personal tax rates of their investors when setting their leverage ratios. Our results are not fully in line with Fan et al. (2012), who argue that debt will be used less in countries with dividend imputation than in countries with classical tax systems, as we show that it is not the tax differential variable, which we define in similar way following Miller (1977) ratio, that affects debt maturity. They find that leverage is higher in countries where the tax gain from leverage is positive. In contrast, we find that it is more the classification of our countries into classical, partial and full imputation system that affects firms' leverage. Similar results are observed for the high and low growth firms. In line with the results in Panel A, the last rows of Panel B indicate that firms with relatively low proportion of short-term debt have significantly higher log-term debt. These results are independent of the proxy measure used for governance system and firms' financial health.

[Insert Table 2 here]

### *4.2. Regression Results*

In this section we report the results of our regression tests. We use time fixed effects to account for unobserved heterogeneity across time that may be correlated with the explanatory variables. We also cluster the standard errors at the firm level to account for heteroscedasticity and serial correlation of errors, following Petereson (2009).

#### *4.2.1. Determinants of Debt Maturity Structure*

Table 3, Panel A-1, reports the regression results of the determinants of debt maturity. The first column indicates that firms in our sample are more likely to have longer debt maturities when they operate in strong investor protection countries, classical tax system and when they have high leverage. The tax discrimination variable is negative indicating that, overall, companies finance with short-term debt when their investors' after-tax equity income is taxed at relatively lower rate.

In terms of control variables, the results indicate that high growth firms are more likely to be financed more with short-term debt. Similarly, firms that are small, with low profitability, short asset maturity and relatively distressed, are more likely to rely more on short-term debt. At macro level, firms in countries with high bank deposits, low bank credit, and low stock liquidity are more likely to rely on short-term debt financing. These results indicate that debt maturity is a complex decision which is affected by multiple factors.

In the remaining columns, we assess whether our results are not driven by US firms which are relatively highly represented in our sample. We also split firms in the rest of the world (ROW) into strong and weak investor protection countries and we provide results for both distressed and healthy firms to account for the severity of the debt overhang problem. For the healthy firms the results are qualitatively similar, with the exception of the significance of abnormal earnings and the weak impact of profitability and the macro-economic variables, particularly the stock market liquidity, bank deposit and bank credit. In contrast, for distressed firms, growth opportunities and abnormal earnings do not affect debt maturity structures. The variable bank deposits are negatively related to maturity.

The results in the remaining column are for strong and weak investor protection countries. While long-term debt ratio, asset maturity and firm size remain statistically and economically significant, the impact of the remaining variables is relatively weak. In particular, the impact of creditors' rights (*CR*), taxation, profitability and firm's growth opportunities are relatively weak. Similar results are observed for the macro-economic variables. Interestingly, the abnormal earning, used as a proxy for firm's quality, is not significant for the sample as a whole, but it is positive and significant for healthy firms. These mixed results indicate that debt maturity is not a good signal of firms' quality as high quality firm do not use long-term debt to signal to the market their future prospects, in line with Ozkan (2000), but in contrast to Stohs and Mauer (1996).

The impact of the term structure of interest rate (TS) on debt maturity is weak, not consistent with the tax argument Brick and Ravid (1985), in line with Barclay and Smith, (1995) and Stohs and Mauer (1996), and do not suggest that more long-term debt is used when the term structure of interest rate is upward sloping. The effect of banking system on debt maturity is also mixed. We find that firms located in countries with a bigger banking system, as measured by bank deposits, use more short-term debt, in line with Fan et al. (2012) who argue that banks tend to have more short-term debt as they hold more short-term liabilities. However, this does not apply when we split our sample into different categories.

Inconsistent with the preference of capital suppliers, we find that, firms in countries with a bigger insurance sector do not necessarily use short-term debt. The results are consistent with Fan et al. (2012), who find an insignificant relationship between insurance penetration and debt maturity in developed and developing countries. We also measure the amount of funds available for all financial intermediaries by gross domestic saving over GDP and do not find that firms with greater level of domestic savings have more long-term debt. The coefficient of domestic savings is not significant.

The results also indicate that active stock markets, measured by stock traded over GDP, do not necessarily promote the use of long-term debt, unlike Demirgüç-Kunt and Maksimovic (1999) findings that stock market activity is significant for large firms. Finally, inconsistent with Fan et al. (2012) and Demirgüç-Kunt and Maksimovic (1999), the inflation rate is weakly associated with long-term debt.

Burkart et al. (2003) argue that in strong investor protection managers have a greater discretion to reduce risk-taking, and hence borrowers in less risky businesses have lower incentive to lower agency costs by shortening maturity (Guedes and Opler, 1996). These arguments suggest a positive relationship between long-term debt and investor protection. The results are also in line with La Porta et al. (2000) who argue that, in strong protection

countries, the corporate governance that accompanies broad financial markets is more effective, the supply of capital is more efficient, and the credit markets is larger than in weak investor protection countries, suggesting that firms have a better access to long-term debt in strong protection countries. Consequently, their debt is likely to be more long-term. Our results are consistent with these arguments as the coefficients of investor protection (*Inv.p*) and creditors' rights (*CR*) are mainly negative and significant. However, these results do not seem to apply to distressed firms located in weak investor protection countries.

The tax coefficients are also not significant in weak investor protection countries and when firms are distressed. These results suggest that the tax effects are more relevant in strong protection countries, where managers are expected to maximise their shareholders' value by paying more corporate tax to increase the after-tax returns of their shareholders. For financially distressed companies, the tax is irrelevant because they are making losses, thus the interest tax shield is not relevant. In Panel A-2, we report results with interaction effects. The control variables remained relatively the same, thus we do not report them. The results indicate that the classical dummy is still negative and significant suggesting that in countries that adopt the classical tax system, firms prefer to have more long-term debt to benefit from the tax shields. However, the interaction variable with investor protection is more negative and significant. Similarly, the interaction of TD and investor protection is negative and significant while TD on its own is not significant. These results suggest that the tax impact is more observed in strong investor protection countries. This is, however, not the case when we use creditors' rights, suggesting that investor protection is more likely to capture the level of agency conflicts. The interaction between TD and CR, is positive, in contrast to our expectations. Overall, our results imply that in weak investor protection countries, managers may not consider the tax benefits as their objective is not to maximise shareholder value, or their tax system is inefficient as reported by Beck et al (2014).

In Table 3, Panel B-1, the dependent variable is book value of leverage. The first column indicates that firms in strong investor protection countries, creditors' rights, classical tax system and where TD is high have relatively higher leverage. These firms are more likely to have longer debt maturities, low growth, low profitability, but high tangibility of assets. They are also large and less likely to be financially distressed. The negative relationship between leverage and the structure of debt maturity across countries is not consistent with Morris (1992), who argues that firms with higher leverage use long-term debt to postpone their probability of bankruptcy. But the results are consistent with Dennis et al. (2000), who show that leverage is inversely related to debt maturity suggesting that the underinvestment problem could result in the use of short-term debt. Moreover, consistent with the agency hypothesis, firms with higher growth opportunities, as measured by the market-to-book ratio use shorter maturity of debt, in line with Myers' (1977) arguments that firms with high growth opportunities use short maturity of debt to mitigate the underinvestment problem. Our findings are consistent with Barclay and Smith (1995) and Guedes and Opler (1996) but different from Stohs and Mauer (1996). Firms with high leverage are likely to be in countries where bank deposit is low, bank credit, bond capital, stock liquidity, and domestic savings are high, but inflation and bank deposits are low. The remaining results are relatively similar to the findings in Panel A-1 and indicate that these fundamentals effects on leverage are mainly observed in strong investor countries and when firms are not distressed.

Panel B-2 reports the interaction effects. The impact of the control variables is qualitatively similar, thus not reported. The results indicate that *Classical* and *TD* are still significant. However, while the interactions of investor protection, creditors' rights and TD are not significant, the interactions with classical dummy are positive and significant, suggesting that in countries where shareholders and creditors are protected, and where the tax benefits are high, firms have higher level of debt.

[Insert Table 3 here]

*4.2.2 Changes in Debt Maturity*

Table 4 reports the results of the impact of taxation and governance on the decision to change debt maturity. We estimate the following multinomial logit regression:

$$\Pr(y_i = j)\frac{exp(x_i\beta_j)}{\sum_{j=0}^{2} exp(x_i\beta_j)} \quad (3)$$

where $\Pr(y_i=j)$ is the probability of belonging to group *j* which is 0 if the firm increased debt maturity, 1 if the firm decreased debt maturity, and 2 if the firm's debt maturity remained unchanged. $X_i$ is a vector of firm and country explanatory variables; their coefficients are estimated using maximum likelihood estimation. The results of full sample show that firms located in strong investor and creditors' protection are more likely to use more long-term debt through time. The marginal effect (*ME*) indicates that, on average, firms increase their long-term debt by about 0.04 for a unit increase in governance index. The impact of the creditor protection variable is relatively smaller. The impact of the tax variables is more pronounced. The results indicate that firms in classical tax system and when TD is high tend to reduce their short-term debt, and thus, increase their long-term debt. However, when we split our sample into different groups, the remaining columns indicate that the tax impact is not always significant. In weak investor protection countries and when the firm is distress, tax variables have a relatively minor effect.

Firms that have high leverage are also more likely to decrease their maturity and to opt for long-term debt, in line with Morris (1991). The marginal effect ranges between 0.192 and 0.362. The impact of growth is also significant, except when firms are financially distressed in strong investor protection countries. The impact of the remaining variables is relatively weak. In particular, the results show that larger companies with greater asset maturity and lower growth opportunities are not necessarily more likely to increase their long-term debt, in contrast to our predictions. These results are not in line with Barclay and

Smith (1995) and Stohs and Mauer (1996) who show that long-term debt increases with size and asset maturity, and decreases with growth opportunities, but relatively consistent with Guedes and Opler (1996) who find that size has a U-shaped impact on debt maturity, suggesting that firms issue in the middle of the maturity spectrum, while larger firms issue at both extremes of debt maturity.

Panel B reports the impact of the interaction variables. The results indicate that firms in strong investor protection countries with classical tax systems are more likely to increase the maturity structure of their debt. Similar results are observed for the interaction variable between TD and investor protection and when the dependent variable is defined as maintain debt maturity. The impact of the individual variables is relatively weak, suggesting that a combination of the governance and tax systems that is more likely to affect debt maturity.

[Insert Table 4 here]

*4.2.3 Robustness Check*

In this section, we conduct several additional robustness check tests of our empirical findings. The results are reported in Table 5. In Panel A-1, we test for alternative measures of the investor protection variable by replacing the anti-self-dealing index with the revised anti-directors' rights of Spamann (2010). The results are qualitatively similar. Consistent with Burkart et al.'s (2003) argument that in strong investor protection managers have a greater discretion to reduce risk-taking, and hence borrowers in less risky businesses have lower incentive to lower agency costs by shortening maturity (Guedes and Opler, 1996), we find that the more recent corrected measure of anti-directors' rights of Spamann (2010) is positively related to long-term debt maturity. Moreover, the impact of creditors' rights (*CR*), taxation, profitability and firm's growth opportunities are relatively weak when we split our sample into strong and weak investor protection. Similar results are observed for the macro-economic variables. Interestingly, the results show that the variable abnormal earnings, used

as a proxy for firm's quality, is not significant for the sample as a whole but it is positive and significant for healthy firms in strong protection countries.

In Table 5, Panel A-2, the dependent variable is book value of leverage. The first column indicates that firms in strong investor protection countries, creditors' rights, classical tax system and where TD is high have relatively higher leverage. These firms are more likely to have longer debt maturities, low growth, low profitability, but high tangibility of assets. They are also large and less likely to be financially distressed. The results in the remaining column suggest that the tax coefficients are not significant for distressed firms, suggesting that financially distressed companies are making losses, thus the interest tax shield is not relevant. The remaining results for macroeconomic factor are relatively similar to the findings in Panel A-1 and indicate that these fundamentals effects on leverage are mainly observed in strong investor countries and when firms are not distressed.

In Panel B, we use an alternative measure of leverage. Following Johnson (2003), we replace leverage, *LTBLev*, with market value of leverage, computed as total debt over total assets plus market value of equity less the book value of equity. The results for this alternative measure are qualitatively similar, except the impact of taxes which are weak in weak investor protection countries and mainly for distressed firms. These results suggest that the tax effects are more relevant in strong protection countries, where managers are expected to maximise their shareholders' value by paying more corporate tax to increase the after-tax returns of their shareholders.

In Panel C, we use an alternative measure for distress. Following Mehran and Prestiani (2010) and Bharath and Dittmar (2010), we predict the length of time it takes to bankrupt, after controlling for related factors, as follows; $h(t, X(t)) = h(t,0) \exp(B X(t))$, where $h(t, X(t))$ is the hazard rate at time t for a firm with covariates X(t). This model controls for the effects of differences between firms as well as changes over time. We also

assume that there is a probability of bankruptcy every year to satisfy the assumption of proportional hazard in which all explanatory variables are time-invariant. Companies are classified as healthy (distressed) if the hazard rate is below (above) the sample mean. The results did not change, even; the results for investor protections is more sizable for the sample as a whole and the results for creditor rights are more robust in strong and weak protection countries. In Panel D, we include country level institutional ownership over total market capitalisation, *Ins. Ownership*. The overall results suggest that firms use more short-term debt maturity and lower leverage when the country-level institutional ownership is higher. This result is more robust in strong investor protection countries when firms are healthy.

We also test for robustness of our estimation techniques in Panels E and F. In Panel E, following Dang (2011), we use a dynamic panel estimation, the system Generalized Method of Movements (GMM). Instruments are used for Equations (1) and (2) o control for endogeneity. In Panel E-1, the first lagged short term debt maturity is included, *L.STDR*. We use the second lagged debt short-term debt maturity as an instrument for short-term debt maturity. In Panel E-2, the first lagged long-term book leverage is included, *L.LTBLev*. The second lagged long-term book leverage is used as an instrument for the first lagged long-term leverage. In both Panels, following Dam (2011), we used lagged control variables to as instruments to yield better fit. We report p-values for AR (1) and AR (2) to test the first-order and second-order serial correlation under the null hypothesis of no first-order and second-order serial correlation, respectively. P-values of Sargan test is also reported to test over-identifying restrictions under the null hypothesis of valid instruments. Finally, in Panel F, standard errors are clustered at the firm level to account for heteroskedasticity and serial correlation of errors (Peterson, 2009). In both statistical approached, the results did not change significantly and qualitatively are similar.

[Insert Table 5 here]

## 5. Conclusions

We examine the determinants of maturity structure of debt across 24 OECD countries. The sample includes 134,794 firm-year observations from 1990 to 2011. We investigate the impact of institutional differences across countries on debt maturity in addition to the theories discussed in the literature of debt maturity structure, including the agency, signalling, matching, and tax hypotheses. As far as we are aware, this analysis is distinctive by testing a set of variables related to debt markets across countries with strong and weak investor protections. We find that firm-specific variables that explain the variation in the use of long-term debt are relatively similar across countries, whereas institutional differences across countries and within strong and weak protection countries explain a large proportion of the variation in the maturity structure of debt.

Inconsistent with Demirgüç-Kunt and Maksimovic (1999) who find weak evidence to support the impact of banking sectors on debt maturity, our results show that although the size of banking sector is significantly correlated with debt maturity, its impact depends on a country's governance index. In strong investor protection countries, firms have more long-term debt than in weak protection countries, when banking sector is bigger. We also find that the variation in the size on insurance sector is uncorrelated with debt maturity, in line with Fan et al., 2012).

We also control for macroeconomic factors (such as GDP growth, inflation, and domestic savings). Although we find that some of these variables are strongly related to debt maturity, we acknowledge that their signs and significance levels depend on countries' governance index.

The results for firms' specific variables show that debt maturity for bigger firms with higher leverage and profitability. The results also significantly support the agency hypothesis discussed by Myers (1977). We show that debt maturity is inversely related to the market-to-book ratio as a proxy for growth opportunities. In line with the empirical studies of Barclay

and Smith (1995) and Ozkan (2000), we find that firms with greater growth opportunities use shorter maturity of debt to control for the conflicts between shareholders and debt-holders. Some empirical studies report mixed evidence for the effect of growth opportunities on the structure of debt maturity (e.g., Stohs and Mauer, 1996 and Antoniou et al., 2006)

We find some support for the matching hypothesis, which predicts that firms will match their maturity of debt with their assets' structure. The coefficient of asset maturity is significant and positive across countries. Accordingly, the evidence of this study is consistent with the argument of Morris (1976) that debt with maturity longer than the maturity of assets is risky because the assets may not be sufficient to repay the debt covenants. Therefore, firms with more long-term assets use longer maturity of debt.

In keeping with the tax hypothesis, the results show that firms use long-term debt when the term structure of interest rate is upward sloping in strong protection counties. However, in weak protection countries, we do no find evidence that firms use longer debt maturity when the term structure of interest rate is upward sloping.

As a robustness check, we use the partial adjustment model which also ascertains the adjustment speed, i.e. how fast companies eliminate their deviation from the optimal ratio across countries. The results strongly support the dynamic framework of debt maturity structure, suggesting that firms have long-term debt ratios and adjust towards their target ratio. However, companies have different speeds of adjustment across countries. In strong protection countries, we find that companies adjust to their target ratio faster than those in weak protection countries. The results suggest that companies in strong protection countries rely more on public long-term debt, and hence the costs of deviation from the target are significant for those companies, so that they adjust faster.

Overall, we provide evidence that country-specific variables determine the choice of debt maturity across countries. The analysis of firm-specific variables provides strong

evidence that debt maturity is longer when firms have higher leverage. Consistent with the agency theory, the market-to-book ratio has a considerable negative effect on debt maturity structure across countries with different governance index. Myers (1977) argues that firms with greater growth opportunities use shorter maturity of debt in order to mitigate the underinvestment problem. We also show that larger firms with higher profitability tend to use longer debt maturity. Our findings do not provide strong support for the signalling hypothesis.

While we expand previous studies by providing a relatively deeper analysis of the combined impact of investor protection and taxation on leverage and debt maturity structures, we recognise that our results may suffer from limitations inherent in cross-country studies as the accounting numbers may not be comparable, firms may be subject to tax and governance structures in other than their country of registration, they may face different effective corporate and personal tax rates, and they can have other internal and external corporate governance mechanisms to mitigate their agency conflicts, including specific ownership structure, insider ownership, and board structure, in addition to the magnitude of the country level investor protection. Although the unavailability of more disaggregated data limited our ability to test all these effects, we run a series of robustness tests to mitigate these limitations. We assess whether our results are driven by particular countries by analysing separately US which is heavily represented in our sample, and countries in the rest of the world (ROW). We control for time-variation in the relation between leverage, debt maturity and firm-specific factors, as the impact of taxes on such decisions can be gauged directly by observing the extent to which firms alter their financing decisions in response to tax law changes, and we use alternative definitions of governance including the recent Spamann (2010) corrected measure of anti-directors' rights. We find relatively similar qualitative results.

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**Table 1: Summary statistics of firm- and country-level variables**

| Variables | N | Mean | SD | Median | Min | Max |
|---|---|---|---|---|---|---|
| STDR | 134,794 | 0.43 | 0.34 | 0.37 | 0.00 | 1.00 |
| Inv.p | 134,794 | 0.58 | 0.19 | 0.64 | 0.17 | 0.95 |
| CR | 134,794 | 2.03 | 1.07 | 2.00 | 0.00 | 4.00 |
| Classical Tax | 134,794 | 0.50 | 0.50 | 1.00 | 0.00 | 1.00 |
| TD | 134,794 | 0.08 | 0.17 | 0.03 | -0.13 | 0.46 |
| Lev | 134,792 | 0.23 | 0.17 | 0.21 | 0.00 | 0.55 |
| MB | 120,777 | 2.28 | 2.11 | 1.56 | 0.41 | 9.04 |
| Size | 125,839 | 12.00 | 2.07 | 11.86 | 8.36 | 15.77 |
| AB | 117,762 | 0.00 | 0.04 | 0.00 | -0.07 | 0.08 |
| ROA | 131,403 | 0.02 | 0.16 | 0.06 | -0.54 | 0.22 |
| AM | 134,422 | 0.31 | 0.23 | 0.27 | 0.01 | 0.80 |
| Z-score | 133.593 | 2.96 | 2.45 | 2.47 | -0.99 | 9.58 |
| TS | 132,868 | 0.56 | 1.10 | 0.76 | -1.63 | 2.37 |
| Bank Dep. | 134,794 | 0.95 | 0.65 | 0.73 | 0.00 | 3.95 |
| Bank Credit | 134,794 | 0.90 | 0.59 | 0.83 | 0.00 | 15.74 |
| Ins. Prem. | 134,794 | 0.07 | 0.03 | 0.07 | 0.00 | 0.18 |
| Bond Cap. | 129,939 | 1.12 | 0.61 | 0.88 | 0.02 | 2.56 |
| Inter. Debt | 134,794 | 0.28 | 0.27 | 0.20 | 0.00 | 2.66 |
| Stock Traded | 134,794 | 1.00 | 0.70 | 0.83 | 0.15 | 2.84 |
| Inflation | 134,794 | 0.02 | 0.02 | 0.02 | -0.01 | 0.04 |
| Domestic Savings | 134,794 | 0.23 | 0.08 | 0.23 | 0.00 | 0.39 |
| Ind. Med | 134,794 | 0.63 | 0.21 | 0.64 | 0.00 | 1.00 |

The sample includes 134,794 firm/year observations from 24 OECD countries. The variables are defined in Appendix 1. N is for number of observations (N), SD is standard deviation. The data is winsorized at the top and bottom 1%.

**Table 2: Tests for Mean Differences**

| | Strong Investor Protection | | | Weak Investor Protection | | | Strong Creditor Protection | | | Weak Creditor Protection | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Healthy (H) | Distressed (D) | (H-D) | Healthy (H) | Distressed (D) | (H-D) | Healthy (H) | Distressed (D) | (H-D) | Healthy (H) | Distressed (D) | (H-D) |
| *Panel A: STDR (short-term debt/ total debt)* | | | | | | | | | | | | |
| Classical | 0.29 | 0.34 | -0.05*** | 0.44 | 0.42 | 0.02 | 0.28 | 0.32 | -0.04*** | 0.42 | 0.39 | 0.03*** |
| Partial | 0.43 | 0.38 | 0.05*** | 0.50 | 0.46 | 0.04*** | 0.46 | 0.43 | 0.03** | 0.46 | 0.42 | 0.04*** |
| Full | 0.37 | 0.40 | -0.03** | 0.54 | 0.51 | 0.03** | 0.43 | 0.39 | 0.04*** | 0.49 | 0.47 | 0.02 |
| ***p*-$\lambda^2$** | **0.000** | **0.000** | | **0.000** | **0.000** | | **0.000** | **0.000** | | **0.000** | **0.000** | |
| High TD | 0.27 | 0.36 | -0.09*** | 0.52 | 0.48 | 0.04*** | 0.31 | 0.35 | -0.04*** | 0.52 | 0.47 | 0.05*** |
| Low TD | 0.39 | 0.38 | 0.01 | 0.53 | 0.50 | 0.03*** | 0.46 | 0.42 | 0.04*** | 0.43 | 0.44 | -0.01 |
| **High-Low** | **-0.12***** | **-0.02***** | | **-0.01**** | **-0.02***** | | **-0.15***** | **-0.07***** | | **0.09***** | **0.03***** | |
| High MB | 0.34 | 0.38 | -0.04*** | 0.55 | 0.47 | 0.08*** | 0.34 | 0.39 | -0.05*** | 0.46 | 0.45 | 0.01 |
| Low MB | 0.35 | 0.34 | 0.01 | 0.50 | 0.43 | 0.07*** | 0.37 | 0.35 | 0.02* | 0.49 | 0.46 | 0.03** |
| **High-Low** | **-0.01** | **0.04***** | | **0.05***** | **0.04***** | | **-0.03***** | **0.04***** | | **-0.03***** | **-0.01** | |
| High LTBLev | 0.15 | 0.16 | -0.01 | 0.35 | 0.40 | -0.05*** | 0.17 | 0.18 | -0.01 | 0.29 | 0.35 | -0.06*** |
| Low LTBLev | 0.50 | 0.68 | -0.18*** | 0.63 | 0.70 | -0.07*** | 0.49 | 0.68 | -0.19*** | 0.60 | 0.70 | -0.10*** |
| **High-Low** | **-0.35***** | **-0.52***** | | **-0.28***** | **-0.30***** | | **-0.32***** | **-0.50***** | | **-0.31***** | **-0.35***** | |
| *Panel B: LTBLev (long-term debt/ long-term debt +book value of equity)* | | | | | | | | | | | | |
| classical | 0.24 | 0.36 | -0.12*** | 0.21 | 0.37 | -0.16*** | 0.24 | 0.34 | -0.10*** | 0.20 | 0.36 | -0.16*** |
| partial | 0.18 | 0.34 | -0.16*** | 0.17 | 0.33 | -0.16*** | 0.17 | 0.30 | -0.13*** | 0.18 | 0.34 | -0.16*** |
| full | 0.16 | 0.33 | -0.17*** | 0.16 | 0.36 | -0.20*** | 0.21 | 0.36 | -0.15*** | 0.16 | 0.34 | -0.18*** |
| ***p*-$\lambda^2$** | **0.000** | **0.000** | | **0.000** | **0.000** | | **0.000** | **0.000** | | **0.000** | **0.000** | |
| High TD | 0.22 | 0.33 | -0.11*** | 0.17 | 0.35 | -0.18*** | 0.25 | 0.36 | -0.11*** | 0.16 | 0.35 | -0.19*** |
| Low TD | 0.18 | 0.30 | -0.12*** | 0.17 | 0.37 | -0.20*** | 0.18 | 0.30 | -0.12*** | 0.18 | 0.37 | -0.19*** |
| **High-Low** | **0.04***** | **0.03***** | | **0.00** | **-0.02**** | | **0.07***** | **0.06***** | | **-0.02***** | **-0.02**** | |
| High MB | 0.19 | 0.32 | -0.13*** | 0.14 | 0.32 | -0.18*** | 0.24 | 0.35 | -0.11*** | 0.15 | 0.31 | -0.16*** |
| Low MB | 0.22 | 0.33 | -0.11*** | 0.19 | 0.40 | -0.21*** | 0.20 | 0.32 | -0.12*** | 0.18 | 0.37 | -0.19*** |
| **High-Low** | **-0.03***** | **-0.01*** | | **-0.05***** | **-0.08***** | | **0.04***** | **0.03**** | | **-0.03*** | **-0.06***** | |
| High STDR | 0.11 | 0.17 | -0.06*** | 0.10 | 0.24 | -0.14*** | 0.13 | 0.20 | -0.07*** | 0.09 | 0.21 | -0.12*** |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Low STDR | 0.30 | 0.47 | -0.17*** | 0.24 | 0.45 | -0.21*** | 0.31 | 0.47 | -0.16*** | 0.25 | 0.46 | -0.21*** |
| **High-Low** | **-0.19**** | **-0.30**** | | **-0.14**** | **-0.21**** | | **-0.18**** | **-0.27**** | | **-0.16**** | **-0.25**** | |

This table report the tests for mean differences of short-term debt maturity, *STDR*, measured as short-term debt over total debt (Panel A), and different measures of long-term book value of leverage, *LTBLev*. A country is classified as strong (weak) investor protection if its anti-self-dealing index score, as reported by Djankov et al. (2008) is above (below) the mean of the respective score of the sample. A country is classified as strong (weak) creditor protection if its creditor rights index score, as reported by Djankov et al. (2007) is above (below) the mean of the respective score of the sample. A country is classified as high (low) *Tax* if its *Tax Miller* ratio is larger (smaller) than the mean *Tax* of the sample. We also split our sample into high (low) market-to-book ratios, *MB*, long-term book value of leverage, *LTBLev*, and short-term debt maturity, *STRD*, using the median per country as the benchmark. *, **, and *** indicate significance at 10%, 5%, and 1% levels, respectively. $p$-$\lambda^2$ is the p-value of the Chi-squared which tests for the differences across the classical, partial and full imputation tax systems. $p$-$\lambda^2 < 0.00$ indicates that the difference is statistically significant, and, therefore, the distribution across the three systems is not homogeneous.

**Table 3: Determinants of Debt Maturity Structure and Leverage**

| | All | US | | Strong investor protection (ROW) | | Weak investor protection (ROW) | |
|---|---|---|---|---|---|---|---|
| | | Healthy | Distressed | Healthy | Distressed | Healthy | Distressed |
| *Panel A-1-Dependant variable is STDMaturity: short-term debt/ total debt* | | | | | | | |
| **Inv.p** | -0.052*** | | | | | | |
| | (-3.94) | | | | | | |
| **CR** | -0.010** | | | -0.008*** | 0.011 | -0.000 | 0.002 |
| | (-2.03) | | | (-2.93) | (1.04) | (-0.84) | (0.18) |
| **Classical** | -0.024** | | | -0.019* | -0.024 | -0.010* | 0.005 |
| | (-2.36) | | | (-1.78) | (-1.11) | (-1.76) | (0.70) |
| **TD** | -0.001* | -0.294** | -0.200* | -0.011* | -0.004* | -0.029** | -0.012 |
| | (-1.77) | (-1.99) | (-1.81) | (-1.93) | (-1.79) | (-2.11) | (-1.09) |
| LTBLev | -0.661*** | -0.987*** | -0.103** | -0.012*** | -0.687*** | -0.857*** | -0.598*** |
| | (-10.34) | (-8.93) | (-2.03) | (-9.38) | (-3.98) | (-6.34) | (-5.82) |
| MB | 0.004*** | 0.013*** | -0.002 | 0.024*** | 0.000 | 0.005* | -0.000 |
| | (4.49) | (9.06) | (-1.34) | (10.45) | (0.37) | (1.77) | (-1.05) |
| Size | -0.40*** | -0.034*** | -0.065*** | -0.040*** | -0.049*** | -0.010*** | -0.029*** |
| | (-14.35) | (-9.65) | (-18.74) | (-10.46) | (-8.95) | (-8.53) | (-6.99) |
| AB | -0.020 | 0.394*** | 0.148 | 0.111** | -0.010 | 0.103*** | -0.004 |
| | (-1.06) | (4.98) | (0.28) | (2.03) | (-1.34) | (4.95) | (-0.39) |
| ROA | -0.141*** | -0.010 | -0.103** | -0.202*** | 0.029 | 0.092** | 0.103*** |
| | (-8.47) | (-0.38) | (-2.42) | (-5.84) | (1.64) | (1.99) | (6.46) |
| AM | -0.140*** | -0.223*** | -0.203*** | -0.159*** | -0.183*** | -0.178*** | -0.293*** |
| | (-3.96) | (-10.23) | (-6.93) | (-10.93) | (-4.80) | (-20.37) | (-19.34) |
| TS | -0.001 | -0.006 | -0.009 | -0.003 | -0.002 | -0.001* | -0.000 |
| | (-1.25) | (-1.55) | (-1.29) | (-1.29) | (-1.14) | (-1.92) | (-0.53) |
| Z-score | -0.013*** | | | | | | |
| | (-9.98) | | | | | | |
| Bank Dep. | 0.000*** | 0.001 | -0.004* | 0.003 | 0.002*** | 0.003*** | 0.000 |
| | (5.64) | (1.37) | (-1.88) | (0.10) | (4.75) | (2.58) | (1.01) |
| Bank Credit | -0.000*** | -0.001 | -0.005 | -0.001*** | -0.002 | -0.000 | -0.001 |
| | (-4.90) | (-1.04) | (-1.00) | (-2.99) | (-1.39) | (-1.12) | (-1.44) |
| Ins. Prem. | 0.001 | 0.003 | 0.003 | 0.000 | 0.001 | 0.001 | 0.000 |
| | (0.99) | (1.28) | (1.25) | (1.20) | (1.20) | (0.30) | (1.24) |
| Bond Cap. | -0.000 | -0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.002* |
| | (-1.28) | (-1.01) | (0.24) | (-0.23) | (1.28) | (0.34) | (1.90) |
| Inter. Debt | -0.001 | -0.001 | -0.000 | -0.001 | -0.000 | -0.002 | -0.000 |
| | (-0.57) | (-1.34) | (-1.38) | (-0.10) | (-1.03) | (-1.34) | (-1.10) |
| Stock Traded | -0.000** | 0.000 | 0.000 | 0.000* | 0.000 | -0.000 | -0.000 |
| | (-2.36) | (0.15) | (1.40) | (1.86) | (0.15) | (-0.89) | (-0.26) |
| Inflation | -0.002 | -0.002 | -0.000 | -0.002 | -0.000 | 0.012* | -0.001 |
| | (-0.57) | (-1.04) | (-0.35) | (-1.35) | (-0.81) | (1.93) | (-1.34) |
| Domestic Savings | -0.030* | -0.019 | -0.020 | 0.004 | -0.006 | -0.010 | -0.035 |
| | (-1.86) | (-1.02) | (-1.21) | (0.20) | (-0.49) | (-0.94) | (-1.10) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ind. Med | -0.583*** | -0.53*** | -0.401*** | -0.482*** | -0.390*** | -0.624*** | -0.613*** |
| | (-4.65) | (-2.67) | (-9.33) | (-5.35) | (-6.59) | (-7.46) | (-4.28) |
| Constant | 1.244*** | 1.434*** | 2.455*** | 1.234*** | 1.456*** | 1.132*** | 1.423*** |
| | (3.46) | (5.21) | (5.32) | (3.45) | (3.55) | (6.34) | (4.46) |
| Hausman test: p-value | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| $R^2$-adjusted | 0.28 | 0.32 | 0.25 | 0.29 | 0.34 | 0.33 | 0.36 |
| N | 98,033 | 9,315 | 4,514 | 23,899 | 9,692 | 34,823 | 16,283 |
| *Panel A-2- Interaction of governance and taxation on STDMaturity: short-term debt/ total debt* | | | | | | | |
| **Inv.p*Classical** | -0.118*** | | | | | | |
| | (-7.61) | | | | | | |
| **Inv.p*TD** | -0.141*** | | | | | | |
| | (-2.94) | | | | | | |
| **CR* Classical** | -0.005 | | | | | | |
| | (-1.54) | | | | | | |
| **CR*TD** | 0.047*** | | | | | | |
| | (4.52) | | | | | | |
| Inv.p | -0.012 | | | | | | |
| | (-1.17) | | | | | | |
| CR | -0.003* | | | | | | |
| | (-1.72) | | | | | | |
| Classical | -0.023** | | | | | | |
| | (-2.35) | | | | | | |
| TD | 0.003 | | | | | | |
| | (0.11) | | | | | | |
| Controls | Yes | | | | | | |
| Hausman test: p-value | 0.000 | | | | | | |
| $R^2$-adjusted | 0.30 | | | | | | |
| N | 98,033 | | | | | | |
| *Panel B-1-Dependant variable is LTBLev: Long-term Debt/(Long-term Debt + Book Value of Equity)* | | | | | | | |
| **Inv.p** | 0.019*** | | | | | | |
| | (4.90) | | | | | | |
| **CR** | 0.007*** | | | 0.020*** | 0.015* | 0.008*** | -0.001 |
| | (6.02) | | | (4.55) | (1.93) | (3.99) | (-1.38) |
| **Classical** | 0.006* | | | 0.045*** | 0.029 | 0.010*** | 0.001 |
| | (1.88) | | | (2.96) | (0.53) | (2.78) | (1.60) |
| **TD** | 0.016*** | 0.031* | 0.042* | 0.050*** | 0.056 | 0.049*** | -0.019 |
| | (3.61) | (1.69) | (1.90) | (2.65) | (1.34) | (8.69) | (-1.09) |
| **STDR** | -0.485*** | -0.656*** | -0.627*** | -0.230*** | -0.367*** | -0.406*** | -0.656*** |
| | (-5.86) | (-4.96) | (-5.35) | (-8.85) | (-7.62) | (-10.87) | (-13.93) |
| MB | -0.021*** | -0.008** | -0.010* | -0.082*** | -0.019* | -0.024** | 0.007 |
| | (-5.30) | (-1.98) | (-1.82) | (-8.02) | (-2.03) | (-2.39) | (0.78) |
| Size | 0.010*** | -0.004 | 0.017*** | 0.009*** | 0.042*** | 0.013*** | 0.019*** |
| | (10.95) | (-0.46) | (11.00) | (16.33) | (18.35) | (7.95) | (14.82) |
| ROA | -0.201*** | -0.121*** | 0.210 | -0.087*** | -0.198 | -0.192*** | 0.297 |
| | (-8.10) | (-9.90) | (-1.06) | (-10.36) | (-1.10) | (-4.93) | (1.02) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Tg | 0.165*** | 0.202*** | 0.172* | 0.109*** | 0.230* | 0.134*** | -0.103 |
| | (9.04) | (13.19) | (1.94) | (10.04) | (1.84) | (5.49) | (-0.90) |
| Z-score | 0.032*** | | | | | | |
| | (9.55) | | | | | | |
| Bank Dep. | -0.002* | -0.001 | 0.006 | -0.001** | -0.001 | -0.002*** | 0.001 |
| | (-1.88) | (-1.03) | (0.99) | (-2.03) | (-1.02) | (-5.00) | (1.59) |
| Bank Credit | 0.000*** | 0.001* | 0.001 | 0.001*** | 0.002 | 0.001** | 0.000 |
| | (5.19) | (1.70) | (1.09) | (4.35) | (1.10) | (1.96) | (0.32) |
| Ins. Prem. | 0.001 | 0.001 | -0.000 | 0.000 | 0.002 | 0.000 | 0.001* |
| | (-1.02) | (1.08) | (-0.99) | (-1.17) | (0.90) | (0.02) | (1.90) |
| Bond Cap. | 0.005** | 0.001 | -0.001 | 0.008** | 0.000 | 0.001* | 0.002 |
| | (2.34) | (1.52) | (-0.96) | (2.82) | (1.11) | (1.70) | (0.91) |
| Inter. Debt | 0.000 | -0.001 | 0.005 | 0.000 | 0.000** | -0.000 | -0.001 |
| | (1.23) | (-1.00) | (1.00) | (1.12) | (2.13) | (-0.98) | (-1.45) |
| Stock Traded | 0.000*** | -0.001 | -0.001 | -0.001 | 0.000 | 0.000*** | 0.000 |
| | (2.66) | (-0.90) | (-1.04) | (-0.19) | (1.38) | (6.96) | (1.12) |
| Inflation | -0.000** | 0.001 | -0.001 | 0.005 | 0.007*** | -0.003*** | -0.010*** |
| | (-2.23) | (1.02) | (-0.74) | (1.39) | (2.99) | (-4.83) | (-5.02) |
| Domestic Savings | 0.034*** | 0.012 | -0.062 | 0.018 | 0.029* | 0.072** | 0.066 |
| | (3.93) | (1.00) | (-1.25) | (1.05) | (1.78) | (2.34) | (1.34) |
| Ind. Med | 0.672*** | 0.459*** | 0.452*** | 0.346*** | 0.542*** | 0.438*** | 0.521*** |
| | (15.35) | (12.01) | (10.34) | (11.95) | (12.58) | (10.33) | (15.24) |
| Constant | 0.138*** | 0.241** | 0.255 | 0.243*** | 0.035 | 0.242** | 0.313*** |
| | (2.94) | (2.03) | (1.24) | (3.93) | (1.22) | (2.43) | (4.45) |
| Hausman test: p-value | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| $R^2$-adjusted | 0.29 | 0.20 | 0.18 | 0.36 | 0.26 | 0.30 | 0.22 |
| N | 103,149 | 9,757 | 4,738 | 25,264 | 10,787 | 35,924 | 16,923 |
| *Panel B-2- Interaction of governance and taxation on LTBLev: Long-term Debt/(Long-term Debt + Book Value of Equity)* | | | | | | | |
| **Inv.p*Classical** | 0.079*** | | | | | | |
| | (8.99) | | | | | | |
| **Inv.p*TD** | 0.031 | | | | | | |
| | (1.14) | | | | | | |
| **CR* Classical** | 0.061*** | | | | | | |
| | (10.13) | | | | | | |
| **CR*TD** | 0.001 | | | | | | |
| | (0.08) | | | | | | |
| Inv.p | 0.006 | | | | | | |
| | (1.04) | | | | | | |
| CR | 0.002* | | | | | | |
| | (1.78) | | | | | | |
| Classical | 0.032*** | | | | | | |
| | (5.50) | | | | | | |
| TD | 0.084*** | | | | | | |
| | (5.23) | | | | | | |
| Controls | Yes | | | | | | |

| | |
|---|---|
| Hausman test: p-value | 0.000 |
| $R^2$-adjusted | 0.38 |
| N | 103,149 |

The table presents the regression results from fixed effects for simultaneous equations on short-term debt maturity defined as short-term debt over total debt, *STDMaturity*, (Panel A) and book value of leverage definied as Long-term Debt/(Long-term Debt + Book Value of Equity), *LTBLev*, (Panel B) on both firm and country variables which are defined in Appendix 1. The results are estimated using a two-stage procedure; the results in the first stage used to generate the estimated book value of leverage (*LTBLev*) in Panel A and short-term debt maturity (*STDMaturity*) in Panel B are not reported for space considerations. Following Dang (2011), in Panel A, the instruments for book value of leverage include non-debt tax shields, tangibility, and profitability. In Panel B, the instruments for short-term debt maturity include asset maturity and term structure of interest rates. All regressions control for time effects. The overall sample included 134,794 firm-year observations from 24 OECD countries from 1990 to 2011. *All* is for the sample as a whole. *ROW* is for Rest of the World (excluding the US). We follow Alzahrani and Lasfer (2012) and classify ROW countries into strong (weak) investor protections if its anti-self-dealing index score, as reported by Djankov et al. (2008), is above (below) the mean anti-self-dealing index score of the sample. The remaining variables are defined in Appendix 1. R2-adjusted is reported. We also report the p-value of Hausman test to test the null hypothesis that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator. The *t*-statistics are in parentheses. $^{*}$, $^{**}$, and $^{***}$ indicate significance at 10%, 5%, and 1% levels, respectively.

**Table 4: Probit Regressions**

| | All | | US | | | | Strong investor protection (ROW) | | | | Weak investor protection (ROW) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | All | ME | Healthy | ME | Distressed | ME | Healthy | ME | Distressed | ME | Healthy | ME | Distressed | ME |
| Inv.p | -0.102*** | -0.040*** | | | | | | | | | | | | |
| | (-2.63) | (-2.63) | | | | | | | | | | | | |
| CR | -0.014** | -0.005** | | | | | -0.141*** | -0.056*** | -0.101 | -0.040 | -0.002 | -0.000 | -0.026* | -0.010* |
| | (-2.31) | (-2.31) | | | | | (-3.23) | (-3.23) | (-1.15) | (-1.15) | (-0.20) | (-0.20) | (-1.76) | (-1.76) |
| Classical | -0.030** | -0.11** | | | | | -0.320** | -0.124** | -0.371** | -0.145** | -0.022* | -0.008* | 0.031 | 0.012 |
| | (-1.97) | (-1.97) | | | | | (-2.08) | (-2.08) | (-1.95) | (-1.95) | (-1.93) | (-1.93) | (0.90) | (0.90) |
| TD | -0.064** | -0.025** | -0.609** | -0.242** | -0.257 | -0.102 | -0.327** | -0.130** | -0.247 | -0.098 | -0.032* | -0.012* | -0.002 | -0.001 |
| | (-2.16) | (-2.16) | (-2.33) | (-2.33) | (-0.37) | (-0.37) | (-2.24) | (-2.24) | (-1.11) | (-1.11) | (-1.72) | (-1.72) | (-0.03) | (-0.03) |
| LTBLev | -0.604*** | -0.241*** | -0.781*** | -0.311*** | -0.640*** | -0.255*** | -0.909*** | -0.362*** | -0.482*** | -0.192*** | -0.827*** | -0.329*** | -0.662*** | -0.263*** |
| | (-3.95) | (-3.95) | (-8.97) | (-8.97) | (-6.94) | (-6.94) | (-4.79) | (-4.79) | (-6.42) | (-6.42) | (-15.88) | (-15.88) | (-11.76) | -(11.76) |
| MB | 0.013*** | 0.005*** | 0.002** | 0.006** | 0.000** | 0.000** | 0.017*** | 0.006*** | 0.008 | 0.004 | 0.045*** | 0.018*** | 0.020*** | 0.007*** |
| | (5.28) | (5.28) | (2.22) | (2.22) | (2.01) | (2.01) | (3.21) | (3.21) | (1.13) | (1.13) | (8.24) | (8.24) | (2.59) | (2.59) |
| Size | -0.002 | -0.000 | -0.005 | -0.002 | -0.029** | -0.011** | -0.005 | -0.001 | -0.025*** | -0.009*** | -0.006 | -0.002 | -0.010* | -0.004* |
| | (-0.66) | (-0.66) | (-0.64) | (-0.64) | (-2.52) | (-2.52) | (-0.91) | (-0.91) | (-3.24) | (-3.24) | (-1.44) | (-1.44) | (-1.76) | (-1.76) |
| AB | 0.356** | 0.141*** | 0.143 | 0.056 | 0.966 | 0.385 | 0.316 | 0.125 | -0.153 | -0.061 | 0.432** | 0.172** | -0.553** | -0.220** |
| | (3.02) | (3.02) | (0.35) | (0.35) | (1.29) | (1.29) | (1.18) | (1.18) | (-0.38) | (-0.38) | (2.27) | (2.27) | (-2.12) | (-2.12) |
| ROA | -0.122*** | -0.048*** | -0.070 | -0.027 | -0.253** | -0.100** | -0.129 | -0.051 | -0.004 | -0.002 | -0.444*** | -0.175*** | -0.454*** | -0.180*** |
| | (-3.24) | (-3.24) | (-0.75) | (-0.75) | (-2.15) | (-2.15) | (-1.53) | (-1.53) | (-0.04) | (-0.04) | (-4.00) | (-4.00) | (-3.41) | (-3.41) |
| AM | -0.179*** | -0.071*** | -0.268*** | 0.106*** | -0.042 | -0.016 | -0.042 | -0.016 | -0.105* | -0.042* | -0.389*** | -0.155*** | -0.297*** | -0.118*** |
| | (-8.67) | (-8.67) | (-3.82) | (3.82) | (-0.52) | (-0.52) | (-1.06) | (-1.06) | (-2.02) | (-2.02) | (-8.69) | (-8.69) | (-5.51) | (-5.51) |
| TS | -0.004 | -0.001 | -0.028 | -0.011 | -0.017 | -0.007 | -0.001 | -0.001 | -0.014 | -0.005 | 0.010 | 0.003 | -0.013 | -0.005 |
| | (-0.74) | (-0.74) | (-1.50) | (-1.50) | (-0.51) | (-0.51) | (-0.12) | -(0.12) | (-0.75) | (-0.75) | (0.91) | (0.91) | (-0.85) | -(0.85) |
| Z-score | -0.025*** | -0.009*** | -0.000 | -0.002 | -0.012 | -0.004 | -0.031** | -0.011** | -0.003 | -0.001 | -0.051*** | -0.021*** | -0.085*** | -0.034*** |
| | (-9.79) | (-9.79) | (-0.02) | (-0.02) | (-0.49) | (-0.49) | (-2.10) | (-2.10) | (-0.16) | (-0.16) | (-3.35) | (-3.35) | (-3.86) | -(3.86) |
| Bank Dep. | -0.000* | -0.000* | 0.003 | 0.001 | -0.024* | -0.009* | 0.001** | 0.001** | 0.000 | 0.000 | 0.001** | 0.002** | -0.001 | 0.000 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (-1.76) | (-1.76) | (0.35) | (0.35) | (-1.73) | (-1.73) | (2.06) | (2.06) | (0.32) | (0.32) | (2.40) | (2.40) | (-0.39) | (-0.39) |
| Bank Credit | -0.001*** | -0.002*** | -0.007 | -0.002 | -0.001 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000** | -0.000** | -0.000 | -0.001 |
| | (-6.39) | (-6.39) | (-0.63) | (-0.63) | (-0.05) | (-0.05) | (-0.87) | (-0.87) | (-0.22) | (-0.22) | (-2.60) | (-2.60) | (-1.57) | (-1.57) |
| Ins. Prem. | 0.005** | 0.001** | 0.008 | 0.004 | 0.023 | 0.009 | 0.003 | 0.001 | 0.012 | 0.013 | 0.014*** | 0.004*** | 0.001 | 0.001 |
| | (2.21) | (2.21) | (0.78) | (0.78) | (1.12) | (1.12) | (0.62) | (0.62) | (1.73) | (1.73) | (3.69) | (3.69) | (0.11) | (0.11) |
| Bond Cap. | 0.000 | 0.000 | 0.000 | 0.000 | 0.008 | 0.003 | 0.000 | 0.000 | 0.003* | 0.001* | 0.000 | 0.000 | 0.000 | 0.002 |
| | (0.23) | (0.23) | (0.07) | (0.07) | (1.36) | (1.36) | (0.34) | (0.34) | (1.71) | (1.71) | (0.08) | (0.08) | (0.09) | (0.09) |
| Inter. Debt | -0.000 | -0.001 | -0.012** | -0.004** | -0.006 | -0.001 | -0.000 | -0.000 | -0.001 | -0.000 | -0.001** | -0.001** | -0.001* | -0.001* |
| | (-0.87) | (-0.87) | (-2.01) | (-2.01) | (-0.61) | (-0.61) | (-0.24) | (-0.24) | (-1.43) | (-1.43) | (-2.16) | (-2.11) | (-1.76) | (-1.76) |
| Stock Traded | 0.000 | 0.000 | 0.001 | 0.001 | 0.001 | 0.002 | 0.000 | 0.001 | -0.001** | -0.000** | 0.001*** | 0.000*** | 0.000 | 0.000 |
| | (1.14) | (1.14) | (1.39) | (1.39) | (1.33) | (1.33) | (0.29) | (0.29) | (-2.32) | (-2.32) | (2.96) | (2.96) | (0.19) | (0.19) |
| Inflation | 0.003 | 0.001 | -0.009 | -0.003 | 0.027 | 0.017 | 0.010 | 0.038 | 0.013 | 0.005 | -0.022* | -0.008* | 0.007 | 0.002 |
| | (0.77) | (0.77) | (-0.53) | (-0.53) | (1.27) | (1.27) | (1.08) | (1.08) | (0.85) | (0.85) | (-2.42) | (-2.42) | (0.52) | (0.52) |
| Domestic Savings | -0.068 | -0.027 | -0.307 | -0.122 | 0.313 | 0.125 | -0.118 | -0.118 | -0.198 | -0.087 | -0.368*** | -0.148*** | 0.179 | 0.074 |
| | (-1.03) | (-1.03) | (-1.28) | (-1.28) | (0.81) | (0.81) | (-0.90) | -(0.90) | (-0.95) | (-0.95) | (-2.94) | (-2.94) | (0.97) | (0.97) |
| Ind. Med | -0.220*** | -0.087*** | -0.221* | -0.088* | -0.239 | -0.095 | -0.218*** | -0.087*** | -0.249** | -0.099** | -0.298*** | -0.118*** | -0.303*** | -0.120*** |
| | (-8.32) | (-8.32) | (-2.09) | -(2.09) | (-1.56) | -(1.56) | (-3.65) | (-3.65) | (-2.62) | (-2.62) | (-6.02) | (-6.02) | (-4.36) | (-4.36) |
| Constant | 0.210*** | | 1.031 | | -0.434 | | 1.609*** | | 0.979 | | 0.431*** | | 0.401*** | |
| | (4.66) | | (0.88) | | (-0.27) | | (4.93) | | (1.56) | | (4.61) | | (3.04) | |
| Pseudo $R^2$ | 0.06 | | 0.07 | | 0.04 | | 0.08 | | 0.07 | | 0.07 | | 0.06 | |
| LR chisq: *p-value* | 0.000 | | 0.000 | | 0.000 | | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| N | 91,898 | | 9,579 | 9,579 | 4,186 | 4,186 | 22,221 | 22,221 | 8,812 | 8,812 | 31,916 | 31,916 | 15,184 | 15,184 |

| *Panel B: Impact of interaction of governance and taxation* | | | | |
|---|---|---|---|---|
| *1=decreased debt maturity* | | | | |
| Inv.p*Classical | -0.375*** | -0.087*** | -0.153** | -0.052** |
| | (-2.86) | (-2.73) | (-2.42) | (-2.14) |
| Inv.p*TD | -0.602* | -0.147* | -1.026** | -0.190* |
| | (-1.78) | (-1.80) | (-2.50) | (-1.90) |
| Inv.p | -0.702*** | -0.168*** | -1.083*** | -0.212*** |
| | (2.61) | (2.59) | (3.28) | (2.63) |
| Classical | 0.148 | 0.034 | 0.078 | 0.025 |
| | (1.22) | (1.13) | (1.01) | (1.31) |
| TD | 0.217 | 0.062 | 0.395** | 0.082* |
| | (1.26) | (1.49) | (1.99) | (1.69) |
| *1=Maintained debt maturity* | | | | |
| Inv.p*Classical | -0.450** | -0.005* | -1.537** | -0.270*** |
| | (-2.25) | (-1.69) | (-2.49) | (-2.60) |
| Inv.p*TD | -0.087 | -0.006 | -6.890*** | -0.107*** |
| | (-0.10) | (-0.27) | (-6.20) | (-5.71) |
| Inv.p | 0.510 | 0.003 | 0.09 | 0.093 |
| | (0.71) | (0.17) | (1.00) | (1.32) |
| Classical | 0.160 | 0.002 | 0.582** | 0.011** |
| | (0.84) | (0.42) | (2.37) | (2.44) |
| TD | 0.688 | 0.018 | 1.718 | 0.025 |
| | (1.35) | (1.62) | (1.01) | (1.65) |
| Controls | Yes | | Yes | |
| N | 93,153 | | 79,122 | |
| Pseudo $R^2$ | 0.08 | | 0.06 | |

The table presents the results from Probit regressions for the likelihood of increasing short-term debt. The table also reports the marginal effects of coefficients. The overall sample included 134,794 firm-year observations from 24 OECD countries from 1990 to 2011. *All* is for the sample as a whole. *ROW* is for Rest of the World (excluding the US). We follow Alzahrani and Lasfer (2012) and classify ROW countries into strong (weak) investor protections if its anti-self-dealing index score, as reported by Djankov et al. (2008), is above (below) the mean anti-self-dealing index score of the sample. The remaining variables are defined in Appendix 1. All regressions control time effects. The *t*-statistics are in parentheses. *, **, and *** indicate significance at 10%, 5%, and 1% levels, respectively.

**Table 5: Robustness check**

| | All | Strong investor protection | | Weak investor protection | |
|---|---|---|---|---|---|
| | | Healthy | Distressed | Healthy | Distressed |
| *Panel A: Alternative measure for investor protection* | | | | | |
| *Panel A-1-Dependant variable is STDR: short-term debt/ total debt* | | | | | |
| Inv.p | -0.001*** | | | | |
| | (2.60) | | | | |
| CR | -0.002* | -0.014*** | -0.003 | -0.003 | 0.001 |
| | (-1.99) | (-4.13) | (-0.74) | (-0.90) | (0.15) |
| Classical | -0.014*** | -0.011 | -0.001 | -0.004 | 0.005 |
| | (-4.63) | (-0.97) | (-0.08) | (-0.68) | (0.64) |
| TD | -0.014* | -0.010 | -0.054* | -0.041* | -0.017 |
| | (-1.74) | (-0.54) | (-2.01) | (-2.43) | (-0.73) |
| LTBLev | -0.754*** | -0.947*** | -0.918*** | -0.738*** | -0.604*** |
| | (-2.65) | (-3.13) | (-7.70) | (-4.86) | (-3.41) |
| MB | 0.002*** | 0.008*** | 0.001** | 0.003* | 0.004* |
| | (4.66) | (9.41) | (2.23) | (2.01) | (2.36) |
| Size | -0.036*** | -0.034*** | -0.045*** | -0.016*** | -0.027*** |
| | (-7.35) | (-4.43) | (-4.47) | (-5.72) | (-8.10) |
| AB | -0.023 | 0.121** | 0.004 | 0.095 | -0.113 |
| | (-0.88) | (3.10) | (0.08) | (1.47) | (-1.44) |
| ROA | -0.135*** | -0.200*** | -0.021 | 0.169*** | 0.063* |
| | (-7.05) | (-2.83) | (-1.10) | (5.55) | (2.10) |
| AM | -0.146*** | -0.156*** | -0.181*** | -0.174*** | -0.211*** |
| | (-3.92) | (-3.49) | (-4.21) | (-3.14) | (-5.66) |
| TS | -0.002 | -0.002 | -0.005 | -0.000 | 0.001 |
| | (-1.61) | (-0.90) | (-1.19) | (-0.10) | (0.21) |
| Z-score | -0.014*** | | | | |
| | (-8.40) | | | | |
| Bank Dep. | 0.000*** | 0.000 | 0.001*** | 0.000 | -0.000 |
| | (5.49) | (0.16) | (5.94) | (1.60) | (-1.19) |
| Bank Credit | -0.000*** | -0.000** | -0.000* | -0.000 | -0.000 |
| | (-5.25) | (-2.40) | (-1.68) | (-1.19) | (-1.56) |
| Ins. Prem. | 0.002 | 0.000 | 0.002 | -0.000 | 0.000 |
| | (0.89) | (0.21) | (1.22) | (-0.28) | (0.07) |
| Bond Cap. | -0.000 | -0.000 | -0.000* | 0.000 | 0.000 |
| | (-1.36) | (-0.19) | (-2.41) | (0.86) | (0.76) |
| Inter. Debt | -0.000 | -0.000 | -0.000** | -0.000 | -0.000 |
| | (-0.48) | (-1.30) | (-2.03) | (-1.39) | (-0.19) |
| Stock Traded | -0.000*** | 0.000*** | 0.000** | -0.000* | -0.000** |
| | (-4.23) | (3.53) | (2.35) | (-1.72) | (-1.98) |
| Inflation | -0.005 | 0.001 | 0.001 | 0.003 | -0.004 |
| | (-0.76) | (1.41) | (0.39) | (0.81) | (-0.85) |
| Domestic Savings | -0.034* | -0.017 | -0.085* | 0.010 | -0.056 |
| | (-1.81) | (-0.56) | (-1.91) | (0.21) | (-0.78) |
| Ind. Med | -0.569*** | -0.537*** | -0.400*** | -0.689*** | -0.655*** |

| | | | | | |
|---|---|---|---|---|---|
| | (-4.52) | (-5.22) | (-9.11) | (-7.85) | (-4.84) |
| Constant | 1.415*** | 1.278*** | 1.377*** | 1.272*** | 1.419*** |
| | (4.59) | (3.17) | (3.74) | (3.47) | (8.52) |
| $R^2$-adjusted | 0.30 | 0.31 | 0.38 | 0.26 | 0.35 |
| N | 98,526 | 43,803 | 18,471 | 24,234 | 12,018 |
| *Panel A-2-Dependant variable is LTBLev: Long-term Debt/(Long-term Debt + Book Value of Equity)* | | | | | |
| Inv.p | 0.008*** | | | | |
| | (4.38) | | | | |
| CR | 0.005*** | 0.003** | 0.009*** | 0.001 | -0.005 |
| | (3.08) | (2.13) | (3.30) | (1.01) | (-1.60) |
| Classical | 0.004** | 0.079*** | 0.006 | 0.001** | 0.001 |
| | (2.29) | (5.88) | (0.62) | (2.25) | (0.14) |
| TD | 0.018*** | 0.090*** | 0.023 | 0.029*** | 0.011 |
| | (3.98) | (10.81) | (1.32) | (3.45) | (0.68) |
| STDR | -0.497*** | -0.238*** | -0.474*** | -0.389*** | -0.703*** |
| | (-6.30) | (-9.73) | (-4.16) | (-6.21) | (-9.04) |
| MB | -0.021*** | -0.031*** | -0.025*** | -0.022*** | -0.026*** |
| | (-7.84) | (-7.11) | (-3.42) | (-3.46) | (-4.44) |
| Size | 0.016*** | 0.010*** | 0.030*** | 0.006*** | 0.022*** |
| | (5.75) | (5.69) | (4.37) | (9.62) | (3.32) |
| ROA | -0.219*** | -0.074*** | -0.357*** | -0.083*** | 0.325 |
| | (-5.00) | (-11.41) | (-3.82) | (-6.29) | (1.21) |
| Tg | 0.153*** | 0.113*** | 0.159*** | 0.158*** | 0.132*** |
| | (8.42) | (9.67) | (5.20) | (7.82) | (8.97) |
| Z-score | 0.040*** | | | | |
| | (4.98) | | | | |
| Bank Dep. | 0.000 | -0.000*** | -0.000 | --0.000 | 0.000 |
| | (1.35) | (-3.50) | (-1.33) | (-0.47) | (0.27) |
| Bank Credit | 0.000*** | 0.000*** | 0.000 | 0.000 | 0.000 |
| | (9.00) | (14.43) | (-0.16) | (0.01) | (0.44) |
| Ins. Prem. | -0.001 | -0.000 | -0.000 | 0.000 | 0.002 |
| | (-0.37) | (-0.45) | (-0.29) | (0.48) | (1.05) |
| Bond Cap. | 0.000*** | 0.000*** | 0.000*** | 0.000** | 0.000 |
| | (6.51) | (6.57) | (5.38) | (2.56) | (0.61) |
| Inter. Debt | 0.000 | 0.000*** | 0.000* | 0.000 | 0.000 |
| | (1.30) | (2.80) | (1.65) | (1.55) | (0.33) |
| Stock Traded | 0.000*** | -0.000*** | 0.000 | 0.000*** | -0.000 |
| | (5.53) | (-5.95) | (0.24) | (6.03) | (-0.14) |
| Inflation | -0.002** | -0.004*** | -0.004 | -0.010*** | -0.016*** |
| | (-3.24) | (-3.44) | (-1.49) | (-6.50) | (-5.20) |
| Domestic Savings | 0.042*** | 0.046*** | 0.053* | -0.011 | 0.017 |
| | (4.00) | (3.18) | (1.72) | (-0.45) | (0.32) |
| Ind. Med | 0.541*** | 0.433*** | 0.502*** | 0.540*** | 0.527*** |
| | (8.04) | (7.41) | (3.80) | (4.22) | (6.49) |
| Constant | 0.329*** | 0.295*** | 0.106*** | 0.426*** | 0.376*** |
| | (3.89) | (9.98) | (3.88) | (4.10) | (5.45) |

| | | | | | |
|---|---|---|---|---|---|
| $R^2$-adjusted | 0.38 | 0.42 | 0.35 | 0.37 | 0.31 |
| N | 104,032 | 45,978 | 19,763 | 25,606 | 12,685 |
| *Panel B: Alternative measure for leverage* | | | | | |
| *Panel B-1-Dependant variable is STDR: short-term debt/ total debt* | | | | | |
| Inv.p | -0.066*** | | | | |
| | (-8.04) | | | | |
| CR | -0.009*** | -0.050*** | -0.003 | 0.001 | 0.001 |
| | (-7.05) | (-6.33) | (-0.22) | (0.32) | (0.19) |
| Classical | -0.023*** | -0.112*** | -0.091*** | 0.006 | -0.003 |
| | (-7.38) | (-6.83) | (-3.44) | (1.34) | -(0.49) |
| TD | -0.001 | -0.115*** | -0.133** | -0.037** | -0.004 |
| | (-0.19) | (-4.70) | (-3.18) | (-2.78) | (-0.23) |
| LTMLev | -0.192*** | 0.298*** | 0.288*** | 0.154*** | 0.128*** |
| | (-5.88) | (6.89) | (3.60) | (6.18) | (7.82) |
| MB | 0.001** | 0.001** | 0.006*** | 0.008*** | 0.002 |
| | (2.32) | (2.99) | (5.57) | (8.11) | (1.95) |
| Size | -0.039*** | -0.047*** | -0.053*** | -0.022*** | -0.031*** |
| | (-8.91) | (-5.46) | (-4.02) | (-5.64) | (-5.92) |
| AB | 0.044* | -0.073 | -0.113 | -0.106** | -0.038 |
| | (1.78) | (-1.51) | (-1.51) | (-2.72) | (-0.84) |
| ROA | -0.158*** | -0.103*** | -0.073*** | -0.005 | 0.069** |
| | (-21.92) | (-8.38) | (-4.60) | (-0.26) | (3.15) |
| AM | -0.125*** | -0.139*** | -0.104*** | -0.170*** | -0.203*** |
| | (-30.57) | (-19.58) | (-11.82) | (-19.07) | (-22.55) |
| TS | -0.000 | -0.002 | -0.001 | 0.004 | 0.000 |
| | (-0.33) | (-1.27) | (-0.44) | (1.43) | (0.02) |
| Z-score | -0.007*** | | | | |
| | (-13.42) | | | | |
| Bank Dep. | 0.000*** | 0.000 | 0.000** | 0.000*** | 0.000** |
| | (9.70) | (0.15) | (1.96) | (5.64) | (2.26) |
| Bank Credit | -0.000*** | -0.000 | -0.000 | -0.000 | -0.000 |
| | (-6.68) | (-1.12) | (-0.70) | (-0.41) | (-0.93) |
| Ins. Prem. | 0.002*** | 0.003*** | 0.002 | 0.000 | 0.004*** |
| | (5.56) | (2.85) | (1.42) | (0.50) | (3.21) |
| Bond Cap. | -0.000** | -0.001*** | -0.001* | 0.000 | 0.000*** |
| | (2.07) | (-2.95) | (-1.86) | (1.02) | (2.71) |
| Inter. Debt | -0.000* | -0.000 | 0.000 | -0.000** | 0.000* |
| | (-2.28) | (-0.17) | (-0.93) | (-1.99) | (-1.68) |
| Stock Traded | -0.000*** | 0.000* | 0.000 | -0.000 | -0.000 |
| | (-4.34) | (1.84) | (0.51) | (-0.85) | (-0.89) |
| Inflation | -0.003** | 0.000 | -0.002 | -0.013*** | -0.003 |
| | (-3.04) | (0.05) | (-0.36) | (-5.71) | (-1.24) |
| Domestic Savings | -0.046*** | -0.018 | -0.007 | -0.028 | -0.052 |
| | (-2.60) | (-0.61) | (-0.16) | (-0.72) | (-1.04) |
| Ind. Med | -0.570*** | -0.390*** | -0.321*** | -0.665*** | -0.621*** |

| | | | | | |
|---|---|---|---|---|---|
| | (-10.72) | (-6.05) | (-19.68) | (-9.45) | (-5.13) |
| Constant | 0.154*** | 0.645*** | 0.969*** | 0.959*** | 1.180*** |
| | (4.93) | (6.31) | (8.97) | (4.81) | (4.31) |
| $R^2$-adjusted | 0.42 | 040 | 0.35 | 0.42 | 0.39 |
| N | 106,599 | 37,841 | 16,327 | 35,595 | 16,836 |
| *Panel B-2- Dependant variable is LTMLev: Long-term Debt/(Long-term Debt + Market Value of Equity)* | | | | | |
| Inv.p | 0.243*** | | | | |
| | (7.26) | | | | |
| CR | 0.021*** | 0.017** | 0.007*** | 0.004** | 0.002*** |
| | (6.66) | (1.95) | (5.80) | (2.31) | (3.57) |
| Classical | 0.040*** | 0.039** | 0.002 | 0.002 | 0.004** |
| | (5.94) | (2.35) | (0.87) | (0.46) | (2.01) |
| TD | 0.049*** | 0.015*** | 0.005 | 0.006 | 0.027*** |
| | (4.59) | (2.58) | (0.74) | (0.64) | (6.37) |
| STDR | -0.126*** | -0.286*** | -0.129*** | -0.111*** | -0.204*** |
| | -(11.61) | (-14.23) | (-7.86) | (-5.57) | (-4.45) |
| MB | -0.005*** | -0.011*** | -0.003*** | -0.015*** | -0.011*** |
| | (-15.53) | (-18.56) | (-4.70) | (-20.67) | (-4.32) |
| Size | 0.008*** | 0.003*** | 0.017*** | 0.008*** | 0.009*** |
| | (21.57) | (3.75) | (36.58) | (12.23) | (35.28) |
| ROA | -0.057*** | -0.313*** | -0.005 | -0.479*** | -0.188*** |
| | (-11.42) | (-34.93) | (-0.48) | (-36.60) | (-47.67) |
| Tg | 0.053*** | 0.064*** | 0.018** | 0.055*** | 0.014*** |
| | (11.72) | (7.52) | (2.23) | (5.55) | (3.66) |
| Z-score | 0.036*** | | | | |
| | (11.81) | | | | |
| Bank Dep. | 0.000 | -0.000 | -0.000 | -0.000*** | -0.000*** |
| | (0.66) | (-1.38) | (-0.49) | (-6.85) | (-9.35) |
| Bank Credit | 0.000** | 0.000 | -0.000** | 0.000 | -0.000 |
| | (2.36) | (1.48) | (-2.36) | (0.21) | (-0.98) |
| Ins. Prem. | 0.000 | 0.000 | -0.001 | -0.002** | -0.001*** |
| | (1.05) | (0.27) | (-1.16) | (-2.15) | (-5.69) |
| Bond Cap. | 0.000*** | 0.000 | 0.000*** | 0.000*** | 0.000*** |
| | (3.25) | (1.51) | (5.12) | (5.94) | (18.22) |
| Inter. Debt | 0.000 | 0.000** | 0.000*** | 0.000*** | 0.000 |
| | (1.63) | (2.21) | (3.67) | (3.02) | (1.28) |
| Stock Traded | 0.000 | 0.000* | -0.000*** | 0.000*** | 0.000*** |
| | (-0.01) | (-1.72) | (-4.97) | (3.02) | (8.21) |
| Inflation | -0.002 | -0.008** | -0.002** | 0.007*** | 0.000 |
| | (-1.64) | (-3.16) | (-1.97) | (3.85) | (0.53) |
| Domestic Savings | 0.002 | 0.044 | 0.008 | 0.083*** | 0.010 |
| | (0.16) | (1.59) | (0.39) | (2.64) | (0.98) |
| Ind. Med | 0.347*** | 0.557*** | 0.454*** | 0.395*** | 0.529*** |
| | (9.90) | (4.57) | (6.02) | (3.10) | (9.31) |
| Constant | 0.470*** | 0.743*** | 0.598*** | 0.618*** | 0.713*** |

| | | | | | |
|---|---|---|---|---|---|
| | (8.71) | (11.63) | (4.51) | (3.58) | (10.89) |
| $R^2$-adjusted | 0.45 | 0.42 | 0.34 | 0.39 | 0.32 |
| N | 103,151 | 34,777 | 15,527 | 35,924 | 16,923 |
| *Panel C: Alternative measure for distress* | | | | | |
| *Panel C-1-Dependant variable is STDR: short-term debt/ total debt* | | | | | |
| Inv.p | -0.058*** | | | | |
| | (-6.55) | | | | |
| CR | -0.008*** | -0.034*** | 0.032 | 0.004* | -0.016*** |
| | (-6.04) | (-4.44) | (1.55) | (2.20) | (-3.73) |
| Classical | -0.020*** | -0.069*** | -0.065 | 0.001 | -0.004 |
| | (-5.87) | (-4.35) | (-1.60) | (0.24) | (-0.42) |
| TD | -0.018** | -0.109*** | -0.026 | -0.011** | 0.044 |
| | (-2.12) | (-4.36) | (-1.39) | (-1.95) | (1.66) |
| LTBLev | -1.381*** | -1.979*** | -0.940*** | -1.020*** | -0.752*** |
| | (-5.49) | (-8.26) | (-6.50) | (-12.96) | (-4.80) |
| MB | 0.001* | 0.006*** | 0.002** | -0.002 | 0.004** |
| | (2.56) | (6.61) | (2.05) | (-1.67) | (2.56) |
| Size | -0.032*** | -0.040*** | -0.061*** | -0.022*** | -0.019*** |
| | (-6.31) | (-5.17) | (-5.69) | (-3.84) | (-9.78) |
| AB | -0.093*** | -0.128*** | 0.025 | -0.079** | -0.222** |
| | (-3.52) | (-2.68) | (0.25) | (-2.45) | (-2.47) |
| ROA | -0.098*** | -0.334*** | -0.135*** | -0.110*** | 0.021 |
| | (-9.10) | (-3.66) | (-9.22) | (-4.89) | (0.98) |
| AM | -0.139*** | -0.107*** | -0.189*** | -0.177*** | -0.197*** |
| | (-31.37) | (-15.34) | (-16.03) | (-25.18) | (-11.93) |
| TS | 0.000 | -0.003 | -0.004 | 0.001 | 0.007 |
| | (0.09) | (-1.64) | (-1.18) | (0.33) | (1.23) |
| Hazard | 0.099*** | | | | |
| | (26.97) | | | | |
| Bank Dep. | 0.000*** | 0.000 | 0.000 | 0.000*** | -0.000 |
| | (5.76) | (0.90) | (1.00) | (5.49) | (-0.80) |
| Bank Credit | -0.000*** | -0.000*** | -0.000 | -0.000 | -0.000 |
| | (-7.44) | (-3.92) | (-1.30) | (-1.19) | (-0.88) |
| Ins. Prem. | 0.002*** | 0.001 | 0.005** | 0.000 | 0.003 |
| | (4.37) | (1.39) | (2.40) | (0.05) | (1.55) |
| Bond Cap. | -0.000 | -0.000 | -0.001* | 0.000 | 0.000** |
| | (-0.91) | (-0.14) | (-1.68) | (1.50) | (2.28) |
| Inter. Debt | -0.000*** | 0.000 | 0.000 | -0.000*** | -0.000 |
| | (-2.72) | (0.04) | (-1.14) | (-2.64) | (-0.83) |
| Stock Traded | -0.001** | 0.000 | -0.000 | 0-.000 | -0.000 |
| | (-2.72) | (0.59) | (-1.37) | (-0.26) | (-0.44) |
| Inflation | -0.005*** | -0.004 | -0.003 | 0.009*** | -0.001 |
| | (-3.66) | (-1.52) | (-0.45) | (4.17) | (-0.17) |
| Domestic Savings | -0.043** | -0.010 | 0.006 | -0.012 | -0.054 |
| | (-2.27) | (-0.33) | (0.11) | (-0.33) | (-0.64) |
| Ind. Med | -0.570*** | -0.478*** | -0.352*** | -0.646*** | -0.695*** |

| | | | | | |
|---|---|---|---|---|---|
| | (-9.80) | (-3.69) | (-8.73) | (-7.48) | (-8.97) |
| Constant | 1.450*** | 1.558*** | 1.730*** | 1.325*** | 1.405*** |
| | (8.97) | (3.99) | (11.29) | (5.72) | (5.29) |
| $R^2$-adjusted | 0.45 | 0.42 | 0.32 | 0.40 | 0.39 |
| N | 95,127 | 32,959 | 14,461 | 43,513 | 7,593 |
| *Panel C-2-Dependant variable is LTBLev: Long-term Debt/(Long-term Debt + Book Value of Equity)* | | | | | |
| Inv.p | 0.184*** | | | | |
| | (20.87) | | | | |
| CR | 0.025*** | 0.064*** | 0.046** | 0.012*** | 0.019*** |
| | (18.37) | (8.65) | (2.37) | (5.96) | (4.14) |
| Classical | 0.010** | 0.136*** | 0.018 | 0.011** | -0.020** |
| | (2.84) | (8.81) | (0.45) | (2.49) | (-2.15) |
| TD | 0.049*** | 0.089*** | 0.040 | 0.098*** | -0.170*** |
| | (5.94) | (3.68) | (0.62) | (8.23) | (-6.04) |
| STDR | -0.958*** | -0.700*** | -0.624*** | -0.123*** | -0.265*** |
| | (-9.90) | (-6.52) | (5.49) | (-4.57) | (-10.04) |
| MB | -0.000** | -0.001*** | -0.001 | -0.005*** | -0.002 |
| | (-2.01) | (-3.90) | (-1.12) | (-4.88) | (-1.16) |
| Size | 0.037*** | 0.040*** | 0.070*** | 0.025*** | 0.021*** |
| | (9.86) | (7.04) | (4.12) | (3.99) | (9.91) |
| ROA | -0.062*** | -0.112*** | -0.160*** | -0.125*** | -0.068** |
| | (-5.82) | (-4.22) | (-11.43) | (4-.63) | (-2.90) |
| Tg | 0.374*** | 0.305*** | 0.123*** | 0.383*** | 0.305*** |
| | (52.48) | (28.02) | (7.15) | (28.94) | (11.66) |
| Hazard | -0.082*** | | | | |
| | (-22.43) | | | | |
| Bank Dep. | -0.000*** | -0.000*** | -0.001** | -0.001*** | -0.000*** |
| | (-5.39) | (-4.16) | (-2.55) | (-9.93) | (-2.91) |
| Bank Credit | 0.000** | 0.000*** | 0.001** | 0.000** | 0.000* |
| | (2.02) | (5.28) | (2.57) | (2.56) | (1.82) |
| Ins. Prem. | -0.005*** | -0.001 | -0.003 | 0.003** | 0.011*** |
| | (-10.32) | (-1.27) | (-1.30) | (3.28) | (5.56) |
| Bond Cap. | 0.000*** | 0.001*** | 0.001** | 0.000 | 0.000** |
| | (8.59) | (4.10) | (2.44) | (0.13) | (2.78) |
| Inter. Debt | 0.000*** | 0.000 | 0.000 | 0.001*** | 0.000** |
| | (4.79) | (0.09) | (0.74) | (8.12) | (2.24) |
| Stock Traded | 0.000*** | -0.000** | 0.000 | 0.000*** | 0.000*** |
| | (16.71) | (-2.22) | (1.38) | (7.88) | (3.97) |
| Inflation | -0.010*** | 0.000 | 0.009 | -0.025*** | -0.017*** |
| | (-7.72) | (0.15) | (1.64) | (-12.16) | (-3.57) |
| Domestic Savings | 0.110*** | 0.050 | 0.056 | 0.025 | 0.116 |
| | (5.74) | (1.66) | (1.01) | (0.69) | (1.32) |
| Ind. Med | 0.293*** | 0.205*** | 0.328*** | 0.227*** | 0.119** |
| | (26.02) | (10.35) | (9.24) | (14.67) | (3.28) |
| Constant | -0.168*** | 0.661*** | -0.412** | 0.099*** | -0.241*** |
| | (-11.65) | (11.41) | (-2.82) | (4.28) | (-4.484) |

| | | | | | |
|---|---|---|---|---|---|
| $R^2$-adjusted | 0.33 | 0.30 | 0.36 | 0.29 | 0.21 |
| N | 103,151 | 34,322 | 15,982 | 44,905 | 7,942 |
| *Panel D: Additional control variable (Ins. Ownership)* | | | | | |
| *Panel D-1: Dependant variable is STDR: short-term debt/ total debt* | | | | | |
| Inv.p | -0.005*** | | | | |
| | (-4.50) | | | | |
| CR | -0.001*** | -0.025*** | -0.005 | -0.004 | 0.002 |
| | (-2.85) | (-5.23) | (-1.02) | (-1.25) | (0.80) |
| Classical | -0.016*** | -0.006* | -0.058*** | 0.004 | 0.012** |
| | (-3.45) | (-1.82) | (-8.42) | (1.09) | (2.55) |
| TD | -0.035*** | -0.028*** | -0.048*** | -0.021** | -0.010* |
| | (-6.76) | (-3.92) | (-5.49) | (-2.37) | (-1.80) |
| Ins. Ownership | 0.084*** | 0.052*** | -0.000 | 0.310*** | -0.005 |
| | (10.42) | (3.60) | (-0.16) | (8.52) | (-0.28) |
| LTBLev | -0.620*** | -0.702*** | -0.611*** | -0.425*** | -0.305*** |
| | (-6.63) | (-5.93) | (-6.73) | (-9.60) | (-5.23) |
| MB | 0.008*** | 0.007*** | 0.002*** | 0.005*** | 0.003*** |
| | (5.50) | (3.02) | (5.49) | (6.14) | (5.87) |
| Size | -0.036*** | -0.033*** | -0.046*** | -0.024*** | -0.044*** |
| | (-7.24) | (-6.52) | (-8.81) | (-7.45) | (-5.14) |
| AB | -0.015 | 0.051** | 0.003 | 0.052 | -0.021** |
| | (-0.62) | (2.02) | (0.09) | (1.02) | (2.12) |
| ROA | -0.117*** | -0.110*** | -0.110*** | 0.033*** | 0.111*** |
| | (-8.06) | (-4.31) | (-3.64) | (2.69) | (5.48) |
| AM | -0.106*** | -0.105*** | -0.097*** | -0.146*** | -0.082*** |
| | (-5.88) | (-4.02) | (-7.83) | (-5.86) | (-3.30) |
| TS | -0.000 | -0.004 | -0.002 | -0.000 | -0.001 |
| | (-0.46) | (-0.94) | (-0.84) | (-1.30) | (-0.49) |
| Z-score | -0.012*** | | | | |
| | (-6.58) | | | | |
| Bank Dep. | 0.002*** | 0.001*** | 0.002 | 0.002* | -0.000 |
| | (5.93) | (5.85) | (1.20) | (1.89) | (-0.54) |
| Bank Credit | -0.000*** | -0.000*** | -0.000** | -0.000 | -0.000* |
| | (-5.90) | (-5.38) | (-2.21) | (-0.69) | (-2.11) |
| Ins. Prem. | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 |
| | (0.68) | (0.35) | (0.41) | (0.83) | (0.28) |
| Bond Cap. | -0.000** | -0.000** | -0.000*** | 0.000 | 0.000*** |
| | (-3.28) | (-2.25) | (-2.64) | (0.98) | (2.63) |
| Inter. Debt | -0.000** | -0.000** | -0.000*** | -0.000*** | -0.000*** |
| | (-2.25) | (-2.75) | (-2.66) | (-3.09) | (-3.56) |
| Stock Traded | -0.000 | 0.000 | 0.000* | -0.000** | -0.000 |
| | (-0.15) | -0.64) | (1.77) | (-1.93) | (-1.26) |
| Inflation | -0.002 | 0.000 | 0.002 | 0.001 | -0.000 |
| | (-1.02) | (1.04) | (1.08) | (0.90) | (-0.31) |
| Domestic Savings | -0.051*** | -0.046** | -0.026 | 0.034* | 0.021 |
| | (-2.91) | (-2.26) | (-1.34) | (1.81) | (0.92) |

| | | | | | |
|---|---|---|---|---|---|
| Ind. Med | -0.542*** | -0.574*** | -0.376*** | -0.645*** | -0.399*** |
| | (-5.55) | (-4.50) | (-4.24) | (-8.32) | (-9.85) |
| Constant | -0.325*** | -0.276*** | -0.273*** | -0.255*** | -0.256*** |
| | (-3.43) | (-3.17) | (-6.02) | (-5.75) | (-4.77) |
| $R^2$-adjusted | 0.32 | 0.34 | 0.30 | 0.27 | 0.28 |
| N | 98,526 | 33,214 | 14,206 | 34,823 | 16,283 |
| *Panel D-2-Dependant variable is LTBLev: Long-term Debt/(Long-term Debt + Book Value of Equity)* | | | | | |
| Inv.p | 0.010*** | | | | |
| | (5.23) | | | | |
| CR | 0.006*** | 0.004** | 0.008*** | -0.001 | -0.002 |
| | (4.02) | (3.02) | (2.89) | (-0.11) | (-1.25) |
| Classical | 0.010** | 0.068*** | 0.008 | 0.003** | -0.000 |
| | (3.19) | (4.54) | (1.12) | (2.01) | (-1.00) |
| TD | 0.020*** | 0.048*** | 0.033 | 0.021*** | 0.010 |
| | (4.25) | (6.58) | (1.00) | (3.27) | (1.02) |
| STDR | -0.405*** | -0.222*** | -0.398*** | 0.085*** | 0.004 |
| | (-5.25) | (-7.19) | (-3.25) | (4.03) | (0.10) |
| Ins. Ownership | -0.224*** | -0.114*** | -0.050 | 0.310*** | -0.005 |
| | (-3.61) | (3.60) | (-0.91) | (8.52) | (-0.28) |
| MB | -0.019*** | -0.025*** | -0.020*** | -0.015*** | -0.019*** |
| | (-6.35) | (-5.28) | (-3.54) | (-3.56) | (-5.02) |
| Size | 0.010*** | 0.012*** | 0.028*** | 0.012*** | 0.020*** |
| | (6.04) | (5.14) | (3.23) | (8.56) | (4.42) |
| ROA | -0.198*** | -0.077*** | -0.238*** | -0.098*** | 0.102 |
| | (-3.88) | (-4.58) | (-4.02) | (-7.45) | (0.25) |
| Tg | 0.107*** | 0.122*** | 0.163*** | 0.157*** | 0.130*** |
| | (8.12) | (9.05) | (6.10) | (5.82) | (9.02) |
| Z-score | 0.041*** | | | | |
| | (5.02) | | | | |
| Bank Dep. | 0.000 | -0.000*** | -0.001 | 0.000 | 0.001 |
| | (1.23) | (-3.04) | (-0.98) | (-0.34) | (0.23) |
| Bank Credit | 0.001*** | 0.000*** | 0.000 | 0.001 | 0.000 |
| | (8.56) | (14.20) | (-0.20) | (0.05) | (0.40) |
| Ins. Prem. | -0.000 | -0.001 | 0.000 | 0.000 | 0.002 |
| | (-0.36) | (-0.40) | (-0.30) | (0.53) | (1.00) |
| Bond Cap. | 0.000*** | 0.000*** | 0.000*** | 0.000** | 0.000 |
| | (5.91) | (6.12) | (5.30) | (2.98) | (0.91) |
| Inter. Debt | 0.001 | 0.001*** | 0.000* | 0.000 | 0.000 |
| | (1.45) | (2.78) | (1.71) | (1.08) | (0.30) |
| Stock Traded | 0.001*** | -0.000*** | 0.000 | 0.000*** | -0.000 |
| | (5.24) | (-6.36) | (0.18) | (6.12) | (-1.10) |
| Inflation | -0.001** | -0.003*** | -0.004 | -0.008*** | -0.012*** |
| | (-2.94) | (-3.12) | (-1.41) | (-5.92) | (-6.11) |
| Domestic Savings | 0.040*** | 0.039*** | 0.051* | -0.009 | 0.018 |
| | (3.50) | (3.02) | (1.81) | (-0.40) | (0.28) |
| Ind. Med | 0.501*** | 0.430*** | 0.512*** | 0.514*** | 0.501*** |

| | | | | | |
|---|---|---|---|---|---|
| | (8.21) | (7.51) | (3.88) | (3.42) | (5.98) |
| Constant | 0.123*** | 0.265*** | 0.102*** | 0.354*** | 0.308*** |
| | (2.98) | (8.85) | (4.65) | (4.00) | (4.89) |
| $R^2$-adjusted | 0.36 | 0.40 | 0.34 | 0.37 | 0.30 |
| N | 103,391 | 35,019 | 15,525 | 35,924 | 16,923 |
| *Panel E: Alternative estimation (GMM-System)* | | | | | |
| *Panel E-1: Dependant variable is STDR: short-term debt/ total debt* | | | | | |
| L.STDR | 0.330*** | 0.305*** | 0.279*** | 0.353*** | 0.372*** |
| | (43.49) | (23.92) | (11.70) | (28.08) | (16.98) |
| Inv.p | -0.050*** | | | | |
| | (-5.00) | | | | |
| CR | -0.037** | -0.002** | 0.027 | -0.048*** | -0.040* |
| | (-2.11) | (-2.05) | (0.34) | (-3.60) | (-1.91) |
| Classical | -0.140*** | 0.032 | -0.018 | -0.032 | 0.112 |
| | (-4.67) | (0.39) | (-0.14) | (-1.40) | (1.17) |
| TD | -0.045** | -0.049* | -0.069** | 0.022 | -0.010 |
| | (-2.45) | (-1.70) | (-2.64) | (1.03) | (-0.35) |
| LTBLev | -1.671*** | -0.208 | -2.469** | 0.502 | -1.935*** |
| | (-5.50) | (-0.19) | (-2.07) | (1.31) | (-4.11) |
| MB | 0.006** | 0.003** | 0.001 | 0.000*** | 0.006 |
| | (2.44) | (2.52) | (0.15) | (3.03) | (0.57) |
| Size | -0.019*** | -0.020** | -0.050*** | -0.034*** | 0.012 |
| | (-3.94) | (-1.97) | (-3.25) | (-4.60) | (1.11) |
| AB | -0.611*** | -0.021 | 0.622 | -0.395*** | 0.240 |
| | (-4.95) | (-0.08) | (1.34) | (-2.81) | (1.40) |
| ROA | -0.150** | -0.180* | 0.121 | -0.018 | -0.107 |
| | (-2.56) | (-1.68) | (1.33) | (-0.23) | (-1.04) |
| AM | -0.490*** | -0.078 | -0.342* | 0.243** | -0.060 |
| | (-5.53) | (-0.37) | (-1.70) | (2.01) | (-0.45) |
| TS | -0.004* | 0.000 | -0.002 | -0.006** | -0.002 |
| | (-1.78) | (0.03) | (-0.46) | (-2.56) | (-0.58) |
| Z-score | -0.010*** | | | | |
| | (-4.28) | | | | |
| Bank Dep. | 0.001*** | 0.000 | 0.000 | 0.000** | 0.000 |
| | (5.80) | (1.27) | (0.71) | (2.04) | (0.65) |
| Bank Credit | -0.000 | -0.000 | 0.000 | 0.000 | 0.000 |
| | (-0.41) | (-0.44) | (0.54) | (0.61) | (1.35) |
| Ins. Prem. | 0.002** | 0.001 | 0.005** | 0.001 | 0.004** |
| | (2.65) | (0.70) | (2.41) | (0.87) | (2.57) |
| Bond Cap. | 0.000*** | 0.000 | 0.001 | 0.000 | 0.000 |
| | (3.10) | (0.94) | (1.61) | (1.30) | (0.62) |
| Inter. Debt | -0.000*** | -0.000 | -0.000** | 0.000* | 0.000 |
| | (-4.53) | (-0.72) | (-1.95) | (2.34) | (0.65) |
| Stock Traded | 0.000 | 0.000 | 0.000 | -0.000 | -0.000* |
| | (0.24) | (0.32) | (0.40) | (-1.59) | (-1.82) |
| Inflation | 0.001 | 0.000 | 0.001 | 0.002 | 0.006** |

| | | | | | |
|---|---|---|---|---|---|
| | (0.92) | (0.14) | (0.34) | (0.66) | (2.24) |
| Domestic Savings | 0.009 | -0.024 | -0.069* | -0.052* | -0.009 |
| | (0.50) | (-1.04) | (-1.72) | (-1.71) | -(0.24) |
| Ind. Med | -0.543*** | -0.503*** | -0.556*** | -0.612*** | -0.557*** |
| | (-4.63) | (-12.01) | (-6.61) | (-7.96) | (-11.47) |
| N | 90,505 | 30,595 | 12,440 | 32,347 | 15,123 |
| AR(1) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| AR(2) | 0.128 | 0.179 | 0.454 | 0.621 | 0.211 |
| Sargan test | 0.120 | 0.180 | 0.105 | 0.127 | 0.130 |
| *Panel E-2: Dependant variable is LTBLev: Long-term Debt/(Long-term Debt + Book Value of Equity)* | | | | | |
| L.LTBLev | 0.562*** | 0.414*** | 0.320*** | 0.553*** | 0.539*** |
| | (44.68) | (20.48) | (11.57) | (27.54) | (18.99) |
| Inv.p | 0.004** | | | | |
| | (1.96) | | | | |
| CR | 0.011*** | 0.010*** | 0.030*** | 0.007*** | 0.006*** |
| | (5.44) | (5.28) | (10.77) | (7.42) | (3.19) |
| Classical | 0.014*** | 0.003 | 0.006 | 0.008*** | -0.005 |
| | (7.17) | (1.03) | (1.25) | (4.80) | (-1.70) |
| TD | 0.015*** | 0.020*** | 0.026*** | 0.019*** | 0.025*** |
| | (8.70) | (6.25) | (4.89) | (13.28) | (9.26) |
| STDR | -0.034*** | -0.000 | -0.003 | -0.076*** | -0.059*** |
| | (-5.47) | (-0.07) | (-0.30) | (-7.87) | (-4.79) |
| MB | -0.002*** | -0.003*** | -0.002*** | -0.001 | 0.000 |
| | (-4.47) | (-7.81) | (-4.09) | -(1.18) | (-0.32) |
| Size | 0.005*** | 0.002** | 0.002*** | 0.008*** | 0.007*** |
| | (9.41) | (2.83) | (2.83) | (9.49) | (7.76) |
| ROA | -0.108*** | -0.041*** | 0.055*** | -0.072*** | -0.022 |
| | (-14.67) | (-3.58) | (6.43) | (-5.44) | (-1.32) |
| Tg | 0.004*** | 0.004** | 0.070*** | 0.005 | 0.008 |
| | (2.70) | (2.54) | (5.62) | (0.57) | (0.50) |
| Z-score | 0.005*** | | | | |
| | (9.20) | | | | |
| Bank Dep. | -0.000*** | 0.000 | 0.000* | -0.000*** | -0.000*** |
| | (-3.83) | (0.29) | (1.83) | (-15.38) | (-6.49) |
| Bank Credit | 0.000 | 0.000*** | 0.000*** | 0.000*** | 0.000*** |
| | (0.52) | (6.39) | (8.88) | (10.00) | (5.55) |
| Ins. Prem. | 0.000*** | 0.000*** | 0.000 | 0.001*** | 0.001*** |
| | (5.05) | (3.27) | (0.18) | (15.07) | (8.37) |
| Bond Cap. | 0.000*** | 0.000** | 0.000* | 0.000*** | 0.000*** |
| | (10.38) | (2.37) | (1.79) | (17.51) | (7.68) |
| Inter. Debt | 0.000*** | 0.000 | 0.000 | 0.000*** | 0.000 |
| | (4.04) | (1.53) | (0.23) | (3.97) | (0.43) |
| Stock Traded | 0.000** | 0.000** | 0.000 | 0.000 | 0.000*** |
| | (2.28) | (2.00) | (0.11) | (1.25) | (2.95) |
| Inflation | -0.000** | 0.000 | -0.000 | -0.001*** | 0.000 |
| | (-2.69) | (0.70) | (-1.56) | (-3.98) | (-1.07) |

| | | | | | |
|---|---|---|---|---|---|
| Domestic Savings | 0.009*** | 0.005*** | -0.001 | 0.030*** | 0.028*** |
| | (6.17) | (3.52) | (-0.22) | (15.53) | (7.81) |
| Ind. Med | 0.093*** | 0.130*** | 0.007 | 0.043*** | 0.049*** |
| | (14.71) | (11.96) | (0.77) | (3.80) | (4.43) |
| N | 86,391 | 29,022 | 12,189 | 30,627 | 14,553 |
| AR(1) | 0.050 | 0.048 | 0.078 | 0.092 | 0.099 |
| AR(2) | 0.205 | 0.184 | 0.301 | 0.241 | 0.111 |
| Sargan test | 0.236 | 0.192 | 0.141 | 0.147 | 0.188 |
| *Panel F: Alternative estimation (clustered standard errors)* | | | | | |
| *Panel F-1-Dependant variable is STDR: short-term debt/ total debt* | | | | | |
| Inv.p | -0.058*** | | | | |
| | (-3.68) | | | | |
| CR | -0.008** | -0.036 | -0.026* | -0.019*** | 0.007** |
| | (-3.19) | (-1.61) | (-2.41) | (-2.83) | (2.04) |
| Classical | -0.020*** | -0.063 | -0.063** | -0.006 | -0.002 |
| | -(3.53) | (-1.27) | (-3.14) | (-0.44) | (-0.23) |
| TD | -0.021** | -0.051 | -0.077*** | 0.008 | 0.010 |
| | (-2.13) | (-0.91) | (-2.80) | (0.28) | (0.80) |
| LTBLev | -0.399*** | -0.942*** | -0.974*** | -0.766** | -0.055*** |
| | (-3.70) | (-4.55) | (-10.00) | (-7.22) | (-7.17) |
| MB | 0.001** | 0.002** | 0.006*** | 0.004** | -0.001 |
| | (2.49) | (2.51) | (3.57) | (1.96) | (-0.84) |
| Size | -0.032*** | -0.061*** | -0.039*** | -0.019*** | -0.022*** |
| | (-30.90) | (-25.44) | (-21.90) | (-6.36) | (-15.16) |
| AB | -0.095*** | 0.026 | -0.122*** | -0.235*** | -0.064** |
| | (-4.35) | (0.30) | (-2.73) | (-3.10) | (-2.36) |
| ROA | -0.100*** | -0.135*** | 0.337*** | 0.014 | 0.111** |
| | (-5.62) | (-7.02) | (8.29) | (0.47) | (2.96) |
| AM | -0.139*** | -0.189*** | -0.107*** | -0.195*** | -0.173*** |
| | (-16.06) | (-10.60) | (-8.00) | (-7.55) | (-12.75) |
| TS | -0.001 | -0.004 | -0.001 | 0.004 | 0.003 |
| | (-0.62) | (-1.11) | (-0.87) | (0.98) | (1.57) |
| Z-score | -0.018*** | | | | |
| | (-14.60) | | | | |
| Bank Dep. | 0.000*** | 0.000 | 0.000 | 0.000 | 0.000** |
| | (4.67) | (1.25) | (0.39) | (0.08) | (2.30) |
| Bank Credit | -0.000*** | -0.000* | -0.000*** | -0.000 | -0.000** |
| | (-5.78) | (-1.67) | (-3.07) | (-1.23) | (-2.10) |
| Ins. Prem. | 0.002*** | 0.003** | 0.000 | -0.002 | 0.000 |
| | (2.88) | (1.84) | (0.24) | (-0.87) | (0.62) |
| Bond Cap. | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| | (0.58) | (1.63) | (0.49) | (1.66) | (0.52) |
| Inter. Debt | -0.000*** | 0.000 | -0.000 | -0.000 | -0.000*** |
| | (-2.59) | (0.19) | (-1.55) | (-0.21) | (-2.72) |
| Stock Traded | -0.000** | -0.000 | -0.000* | -0.000 | 0.000 |
| | (-2.10) | (-1.45) | (-1.74) | (-0.07) | (1.01) |

| | | | | | |
|---|---|---|---|---|---|
| Inflation | -0.003** | -0.004 | -0.003** | -0.001 | -0.003* |
| | (-2.47) | (-1.23) | (-2.05) | (-0.29) | (-1.79) |
| Domestic Savings | -0.060*** | -0.044 | -0.038** | -0.005 | -0.024 |
| | (-4.87) | (-1.06) | (-2.01) | (-0.10) | (-1.40) |
| Ind. Med | -0.572*** | -0.353*** | -0.480*** | -0.704*** | -0.653*** |
| | (-54.85) | (-13.21) | (-22.58) | (-28.98) | (-43.56) |
| Constant | 1.457*** | 1.777*** | 1.606*** | 1.406*** | 1.343*** |
| | (5.01) | (10.04) | (6.16) | (7.92) | (3.10) |
| $R^2$-adjusted | 0.30 | 0.27 | 0.22 | 0.27 | 0.26 |
| N | 106,599 | 37,841 | 16,327 | 35,595 | 16,836 |
| *Panel F-2-Dependant variable is LTBLev: Long-term Debt/(Long-term Debt + Book Value of Equity)* | | | | | |
| Inv.p | 0.005 | | | | |
| | (0.58) | | | | |
| CR | 0.003** | 0.006*** | 0.037*** | 0.002 | -0.007*** |
| | (2.40) | (3.49) | (7.14) | (0.52) | (-3.09) |
| Classical | 0.003*** | 0.050** | 0.072*** | -0.003 | -0.003 |
| | (2.94) | (2.40) | (6.51) | (-0.38) | (-0.67) |
| TD | 0.042*** | 0.044* | 0.061*** | 0.037** | 0.016** |
| | (7.34) | (1.73) | (4.28) | (2.00) | (2.00) |
| STDR | -0.435*** | -0.318*** | -0.147*** | -0.839*** | -0.591*** |
| | (-22.75) | (-11.42) | (-5.03) | (-12.39) | (-17.23) |
| MB | -0.008*** | -0.006*** | -0.001 | -0.011*** | -0.002 |
| | (-19.78) | (-9.78) | (-0.81) | (-9.35) | (-1.58) |
| Size | 0.001** | 0.013*** | 0.002* | 0.005** | -0.005*** |
| | (2.44) | (10.17) | (1.85) | (2.34) | (-5.11) |
| ROA | -0.142*** | -0.141*** | -0.062*** | -0.138*** | -0.057*** |
| | (-23.80) | (-17.98) | (-3.34) | (-8.49) | (-2.63) |
| Tg | 0.103*** | 0.063*** | 0.043*** | 0.097*** | 0.130*** |
| | (14.24) | (5.64) | (3.94) | (4.70) | (9.12) |
| Z-score | 0.032*** | | | | |
| | (67.43) | | | | |
| Bank Dep. | 0.000* | 0.000 | 0.000 | 0.000** | 0.000 |
| | (1.69) | (1.13) | (0.01) | (2.39) | (1.42) |
| Bank Credit | 0.000*** | 0.000 | 0.000* | 0.000 | 0.000*** |
| | (6.19) | (0.43) | (1.73) | (1.23) | (3.16) |
| Ins. Prem. | -0.001*** | -0.001 | -0.000 | -0.005*** | -0.000 |
| | (-2.96) | (-1.41) | (0.18) | (-3.87) | (-0.89) |
| Bond Cap. | 0.000*** | 0.000** | 0.000*** | 0.000** | 0.000*** |
| | (7.30) | (1.90) | (4.29) | (2.07) | (5.43) |
| Inter. Debt | 0.000** | 0.000** | 0.000** | -0.000 | 0.000*** |
| | (2.55) | (1.96) | (3.15) | (-0.38) | (4.88) |
| Stock Traded | -0.000*** | -0.000** | 0.000 | -0.000 | -0.000*** |
| | (-6.74) | (-2.17) | (1.61) | (-0.38) | (-4.12) |
| Inflation | -0.003*** | -0.005*** | 0.003*** | -0.005** | -0.004*** |
| | (-4.41) | (-4.21) | (5.16) | (-1.99) | (-3.81) |
| Domestic Savings | 0.071*** | 0.056*** | 0.057*** | 0.034 | 0.035*** |

| | | | | | |
|---|---|---|---|---|---|
| | (12.68) | (3.70) | (7.20) | (1.25) | (4.14) |
| Ind. Med | 0.501*** | 0.464*** | 0.430*** | 0.454*** | 0.422*** |
| | (9.72) | (17.59) | (22.07) | (13.75) | (11.95) |
| Constant | 0.407*** | 0.207* | 0.629*** | 0.619*** | 0.708*** |
| | (2.80) | (2.27) | (3.93) | (5.59) | (3.99) |
| $R^2$-adjusted | 0.35 | 0.34 | 0.48 | 0.34 | 0.41 |
| N | 103,151 | 34,777 | 15,527 | 35,924 | 16,923 |

This table reports robustness checks: *All* is for the sample as a whole. The results are estimated using a two-stage procedure; the results is the first stage used to generate the estimated values of long-term book value of leverage (*LTBLev*) when the dependent variable is short-term debt maturity (*STDR*) and the estimated values of short-term debt maturity when the dependent variable is leverage. In this table, we report the results of the second stage using different strategies. In Panel A, we use an alternative measure for investor protection, namely the revised measure of anti-directors rights from Spamann (2010) and classify countries into strong (weak) investor protections if its anti-directors rights are above (below) the mean anti-directors rights of the sample. In Panel B, we use an alternative measure of leverage. Following Johnson (2003), we replace leverage, *LTBLev,* with market value of leverage, computed as total debt over total assets plus market value of equity less the book value of equity. In Panel C, we use an alternative measure for distress. Following Mehran and Prestiani (2010) and Bharath and Dittmar (2010), we predict the length of time it takes to bankrupt, after controlling for related factors, as follows; h (t, X (t)) = h (t,0) exp (B X(t)), where h (t, X(t)) is the hazard rate at time t for a firm with covariates X(t). This model controls for the effects of differences between firms as well as changes over time. We also assume that there is a probability of bankruptcy every year to satisfy the assumption of proportional hazard in which all explanatory variables are time-invariant. Companies are classified as healthy (distressed) if the hazard rate is below (above) the sample mean. In Panel D, we include country level institutional ownership over total market capitalisation, *Ins. Ownership*. In Panel E, we use an alternative statistical approach (GMM-system). In Panel E-1, the first lagged short term debt maturity is included, *L.STDR*. We use the second lagged debt short-term debt maturity as an instrument for short-term debt maturity. In Panel E-2, the first lagged long-term book leverage is included, *L.LTBLev*. The second lagged long-term book leverage is used as an instrument for the first lagged long-term leverage. In both Panels, following Dam (2011), we used lagged control variables to as instruments to yield better fit. We report p-values for AR (1) and AR (2) to test the first-order and second-order serial correlation under the null hypothesis of no first-order and second-order serial correlation, respectively. P values of Sargan test is also reported to test over-identifying restrictions under the null hypothesis of valid instruments. In Panel F, The standard errors are clustered at the firm level to control for heteroskedasticity and serial correlation of errors (Peterson, 2009). Except Panel E, regressions control for time effects. The remaining variables are defined in Appendix 1. We also report number of observations, *N*, and adjusted R-squared, *Adjusted* $R^2$. The t-statistics are in parentheses.*, **, and *** indicate significance at 10%, 5%, and 1% levels, respectively.

**Appendix 1: Definitions of Variables**

| Variables | Description | Source |
|---|---|---|
| Inv.p | The score of anti-self-dealing index | Djankov et al. (2008) |
| CR | Creditor rights index | Djankov et al. (2007) |
| Classical Tax | A dummy variable equal to one if the firm located in a country that adopts classical tax system | Alzahrani and Lasfer (2012), OECD tax database |
| TD | Tax discrimination based on Miller (1977), computed as =1-[(1-stautory corporate tax)*(1-highest effective personal tax rate on equity)/(1-highest statutory personal tax rate on interest)] | OECD tax database, World's Highest Marginal Tax Rate on Global Finance website |
| Lev | TD/TA | DataStream |
| MB | Market to book ratio | DataStream |
| Size | Log of market capitalisation | DataStream |
| AB | $(EPS_{t+1} - EPS_t)/ SP_t$ | DataStream |
| ROA | EBIT/Total Assets | DataStream |
| AM | PPE/ Depreciation | DataStream |
| Z-score | 1.2(working capital/total assets)+1.4(retained earnings/total assets)+3.3(earnings before interest and taxes/total assets)+0.6(market value of equity/ book value of total liabilities)+0.999(sales/total assets) | Eisdorfer (2008) |
| Ind. Med | Yearly industry median of debt maturity | DataStream |
| TS | $BY_{10y} - BY_{3m}$ | DataStream |
| Bank Dep. | Bank deposits to GDP | World Bank, FSD |
| Bank Credit | Bank credit to bank deposits | World Bank, FSD |
| Ins. Prem. | Life and non-life insurance premium volume to GDP | World Bank, FSD |
| Bond Cap. | Public and private bond market capitalisation to GDP | World Bank, FSD |
| Inter. Debt | International debt issues to GDP | World Bank, FSD |
| Loans | Loans from non-resident banks to GDP | World Bank, FSD |
| Stock Traded | Total value of stock traded to GDP | Economic and Social Data Service, International Financial Statistics |
| Inflation | Annual rate of change on consumer price index | Economic and Social Data Service, International Financial Statistics |
| Domestic Savings | Gross domestic saving to GDP | Economic and Social Data Service, International Financial Statistics |

This table shows the definitions and data sources of both firm- and country-level data. FSD is for Financial Structure Database. Inv.p is the score of anti-self-dealing index to measure investor protection as the higher the index score, the higher the level of investor protection. Classical Tax is a dummy variable equal to one if the firm located in a country that adopts classical tax system. Lev is leverage measured as total debt over total assets. MB is market to book ratio calculated as a firm's market value of assets to book value of assets. Size is natural logarithm of market value of firms. AB is abnormal earnings calculated as $EPS_{t+1}$-$EPS_t$/ $SP_t$ which is earnings per share in year *t+1* minus earnings per share in year *t*, divided by share price in year *t*. ROA is return on assets computed as earnings before interest and tax over total assets. AM is asset maturity which is the ratio of net property, plant and equipment to depreciation. Z-score is Altman's Z-score model for predicting bankruptcies is computes as 1.2(working capital/total assets)+1.4(retained earnings/total assets)+3.3(earnings before interest and taxes/total assets)+0.6(market value of equity/ book value of total liabilities)+0.999(sales/total assets). Industry median is yearly industry median of debt maturity. TS is term structure calculated as the differences between the month-end yields on 10-year government bond and three-month treasury bills ($BY_{10y}$-$BY_{3m}$) or interbank rate if the data is not available). Bank Dep. is the ration between bank deposits and GDP. Band Credit is bank credit over bank deposits. Ins. Prem. is total life and non-life insurance premium over GDP. Bond Cap. is the country's public and private bond market capitalisation over GDP. Inter. Debt is the country's international debt issues over GDP. Loans are the country's loans from non-resident banks to GDP. Stock traded is the country's total value of stock traded over GDP. Inflation is the annual rate of change on consumer price index. GDP growth if the country's annual rate of change on GDP. Domestic saving is the country's gross domestic saving over GDP. All variables are measured in US dollars.

## Appendix 2: Descriptive Statistics Ranked by Governance Index and Tax System

| Country | N | STDR | Inv.p | CR | Tax | Lev | MB | Size | AB | ROA | AM | TS | Bank Dep. | Bank Credit | Ins. Prem. | Bond Cap. | Inter. Debt | Stock Traded | Inflation | Domestic Savings | Ind. Med |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Panel A: strong investor protection countries* | | | | | | | | | | | | | | | | | | | | | |
| a) Classical | | | | | | | | | | | | | | | | | | | | | |
| Ireland | 356 | 0.29 | 0.79 | 1 | 0.14 | 0.25 | 2.71 | 12.81 | 0.00 | 0.04 | 0.29 | 1.25 | 90.04 | 177.21 | 7.07 | 98.60 | 114.77 | 24.31 | 2.83 | 0.22 | 0.72 |
| USA | 22,037 | 0.28 | 0.65 | 1 | 0.29 | 0.21 | 3.03 | 11.58 | 0.00 | -0.04 | 0.26 | -0.23 | 68.74 | 77.59 | 6.55 | 153.97 | 25.60 | 201.35 | 2.55 | 0.24 | 0.73 |
| b) Partial Imputation | | | | | | | | | | | | | | | | | | | | | |
| Canada | 4,570 | 0.33 | 0.64 | 1 | 0.23 | 0.24 | 2.34 | 12.28 | 0.00 | 0.02 | 0.44 | 0.89 | 117.01 | 95.93 | 5.39 | 86.93 | 27.27 | 73.14 | 2.17 | 0.25 | 0.75 |
| Ireland | 185 | 0.36 | 0.79 | 1 | 0.18 | 0.23 | 2.19 | 12.13 | 0.01 | 0.08 | 0.34 | 0.45 | 54.04 | 111.95 | 7.80 | 41.77 | 16.91 | 30.35 | 2.26 | 0.26 | 0.66 |
| UK | 9,956 | 0.45 | 0.95 | 4 | 0.14 | 0.19 | 2.61 | 11.86 | 0.00 | 0.03 | 0.29 | -0.42 | 0.00 | 0.00 | 12.32 | 50.36 | 51.94 | 134.63 | 2.41 | 0.23 | 0.72 |
| c) Full Imputation | | | | | | | | | | | | | | | | | | | | | |
| Australia | 29,100 | 0.31 | 0.76 | 3 | 0.00 | 0.14 | 2.64 | 12.55 | 0.00 | 0.02 | 0.36 | 0.28 | 72.88 | 130.56 | 6.40 | 65.15 | 35.75 | 77.74 | 2.83 | 0.24 | 0.80 |
| Canada | 1,606 | 0.42 | 0.64 | 1 | 0.23 | 0.21 | 1.88 | 12.55 | 0.00 | 0.01 | 0.46 | 1.78 | 0.00 | 0.00 | 4.30 | 91.88 | 39.41 | 88.87 | 1.70 | 0.13 | 0.80 |
| New Zealand | 856 | 0.35 | 0.95 | 4 | 0.01 | 0.23 | 2.19 | 11.63 | 0.00 | 0.08 | 0.44 | 0.39 | 73.33 | 142.32 | 2.91 | 33.13 | 9.27 | 16.76 | 2.61 | 0.22 | 0.70 |
| *Panel B: weak investor protection countries* | | | | | | | | | | | | | | | | | | | | | |
| a) Classical | | | | | | | | | | | | | | | | | | | | | |
| Austria | 1,298 | 0.47 | 0.21 | 3 | -0.05 | 0.26 | 1.95 | 11.83 | 0.00 | 0.06 | 0.34 | 1.11 | 78.50 | 116.96 | 4.57 | 71.39 | 30.13 | 17.31 | 2.10 | 0.24 | 0.54 |
| Belgium | 1,272 | 0.43 | 0.54 | 2 | -0.18 | 0.25 | 2.21 | 12.15 | 0.01 | 0.05 | 0.30 | 1.47 | 80.04 | 84.04 | 5.51 | 123.34 | 52.79 | 25.24 | 2.15 | 0.23 | 0.58 |
| Denmark | 1,506 | 0.42 | 0.46 | 3 | -003 | 0.25 | 2.12 | 11.62 | 0.00 | 0.05 | 0.34 | 0.76 | 55.49 | 162.74 | 7.43 | 181.84 | 25.08 | 42.25 | 2.13 | 0.22 | 0.59 |
| Germany | 1,808 | 0.42 | 0.38 | 3 | 0.02 | 0.22 | 2.02 | 11.86 | 0.00 | 0.03 | 0.24 | 1.02 | 112.98 | 90.40 | 5.44 | 77.20 | 25.98 | 54.20 | 1.53 | 0.22 | 0.64 |
| Japan | 31,066 | 0.58 | 0.50 | 2 | 0.04 | 0.24 | 1.33 | 11.80 | 0.00 | 0.04 | 0.32 | 1.00 | 200.51 | 54.12 | 6.96 | 196.83 | 7.10 | 86.66 | -0.21 | 0.21 | 0.42 |
| Netherlands | 1,024 | 0.35 | 0.20 | 3 | 0.08 | 0.22 | 3.10 | 13.58 | 0.00 | 0.08 | 0.27 | 1.03 | 90.26 | 213.95 | 6.30 | 102.46 | 80.41 | 108.11 | 2.18 | 0.23 | 0.66 |
| Poland | 2,269 | 0.56 | 0.29 | 1 | -0.08 | 0.18 | 2.11 | 10.95 | 0.00 | 0.06 | 0.33 | 0.37 | 41.59 | 51.39 | 3.24 | 36.18 | 10.51 | 16.44 | 3.05 | 0.22 | 0.42 |
| Portugal | 465 | 0.44 | 0.44 | 1 | 0.13 | 0.36 | 2.01 | 12.20 | 0.00 | 0.05 | 0.35 | 1.09 | 95.56 | 130.27 | 5.72 | 70.30 | 42.98 | 27.36 | 2.78 | 0.23 | 0.56 |
| Spain | 714 | 0.45 | 0.37 | 2 | 0.04 | 0.30 | 2.46 | 12.99 | 0.00 | 0.06 | 0.35 | 1.26 | 122.10 | 132.04 | 4.23 | 83.21 | 69.17 | 97.75 | 2.95 | 0.21 | 0.55 |
| Sweden | 2,317 | 0.37 | 0.33 | 1 | -0.14 | 0.21 | 2.77 | 11.39 | 0.00 | -0.01 | 0.20 | 1.15 | 44.04 | 140.93 | 6.90 | 82.93 | 42.92 | 122.80 | 1.66 | 0.24 | 0.69 |
| Switzerland | 2,526 | 0.37 | 0.27 | 1 | 0.25 | 0.23 | 2.33 | 12.64 | 0.00 | 0.06 | 0.33 | 0.92 | 124.04 | 126.93 | 7.51 | 61.01 | 27.28 | 182.55 | 1.19 | 0.23 | 0.66 |
| b) Partial Imputation | | | | | | | | | | | | | | | | | | | | | |
| Denmark | 40 | 0.41 | 0.46 | 3 | 0.00 | 0.29 | 2.06 | 11.05 | 0.00 | 0.05 | 0.37 | 0.68 | 48.25 | 227.59 | 6.15 | 155.20 | 9.87 | 33.65 | 2.46 | 0.33 | 0.65 |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Finland | 715 | 0.39 | 0.46 | 1 | -0.24 | 0.25 | 2.43 | 12.43 | 0.00 | 0.06 | 0.25 | 0.84 | 55.38 | 152.22 | 3.59 | 35.17 | 48.76 | 117.58 | 1.97 | 0.18 | 0.63 |
| France | 3,608 | 0.44 | 0.38 | 0 | 0.06 | 0.20 | 2.26 | 11.86 | 0.00 | 0.04 | 0.17 | 1.47 | 73.60 | 141.22 | 8.91 | 115.70 | 62.74 | 84.92 | 1.64 | 0.21 | 0.61 |
| Germany | 2,914 | 0.46 | 0.28 | 3 | 0.10 | 0.22 | 2.24 | 11.63 | 0.01 | 0.03 | 0.25 | 0.90 | 95.85 | 114.24 | 5.38 | 80.97 | 39.70 | 70.10 | 1.65 | 0.21 | 0.58 |
| Italy | 1,469 | 0.49 | 0.42 | 2 | -0.11 | 0.28 | 2.04 | 12.56 | 0.00 | 0.04 | 0.25 | 1.62 | 67.08 | 151.01 | 6.77 | 127.67 | 53.78 | 50.68 | 2.06 | 0.21 | 0.54 |
| Luxembourg | 183 | 0.35 | 0.28 | 1 | 0.07 | 0.24 | 2.07 | 13.09 | 0.01 | 0.10 | 0.35 | 2.37 | 336.10 | 44.06 | 5.84 | 74.06 | 84.90 | 15.05 | 2.41 | 0.20 | 0.69 |
| Norway | 63 | 0.20 | 0.42 | 2 | -0.22 | 0.34 | 2.16 | 11.69 | 0.00 | 0.00 | 0.42 | -1.18 | 46.70 | 144.53 | 4.62 | 34.02 | 22.18 | 30.62 | 3.02 | 0.17 | 0.82 |
| Portugal | 139 | 0.43 | 0.44 | 1 | 0.07 | 0.37 | 1.98 | 12.10 | 0.01 | 0.03 | 0.35 | 1.63 | 83.37 | 160.99 | 6.73 | 59.93 | 56.69 | 18.31 | 2.83 | 0.24 | 0.58 |
| Spain | 862 | 0.49 | 0.37 | 2 | 0.10 | 0.24 | 2.36 | 12.82 | 0.01 | 0.08 | 0.36 | 1.22 | 77.57 | 131.03 | 4.69 | 60.12 | 38.44 | 117.98 | 3.11 | 0.25 | 0.52 |
| Turkey | 2,100 | 0.67 | 0.43 | 2 | 0.05 | 0.22 | 1.97 | 11.53 | 0.01 | 0.08 | 0.36 | 0.21 | 38.57 | 65.45 | 1.03 | 29.73 | 7.50 | 43.73 | 4.48 | 0.23 | 0.28 |
| c) Full Imputation | | | | | | | | | | | | | | | | | | | | | |
| Finland | 437 | 0.34 | 0.46 | 1 | -0.53 | 0.23 | 2.17 | 11.77 | 0.01 | 0.06 | 0.31 | 1.44 | 46.50 | 126.82 | 4.03 | 45.67 | 35.86 | 131.22 | 1.67 | 0.27 | 0.68 |
| France | 4,286 | 0.46 | 0.38 | 0 | 0.12 | 0.22 | 2.53 | 11.86 | 0.00 | 0.06 | 0.20 | 1.25 | 51.66 | 126.47 | 7.62 | 83.00 | 22.06 | 49.55 | 1.74 | 0.26 | 0.56 |
| Italy | 1,177 | 0.53 | 0.42 | 2 | 0.17 | 0.26 | 1.98 | 12.45 | 0.00 | 0.05 | 0.26 | 1.03 | 49.83 | 133.72 | 4.67 | 127.04 | 17.43 | 35.93 | 2.95 | 0.23 | 0.47 |
| Mexico | 1,152 | 0.36 | 0.17 | 0 | -0.1 | 0.24 | 1.49 | 12.91 | 0.01 | 0.08 | 0.46 | 1.67 | 22.94 | 69.87 | 1.57 | 29.71 | 10.75 | 15.05 | 4.21 | 0.20 | 0.67 |
| Norway | 718 | 0.24 | 0.42 | 2 | -0.14 | 0.31 | 1.96 | 11.92 | 0.01 | 0.04 | 0.40 | 0.62 | 49.42 | 136.45 | 4.91 | 39.59 | 9.23 | 35.15 | 1.88 | 0.24 | 0.80 |
| Panel C: overall sample | | | | | | | | | | | | | | | | | | | | | |
| All strong | 66,128 | 0.35*** | 0.74*** | 2.34*** | 0.13*** | 0.22 | 2.72** | 12.12 | 0.00 | 0.01* | 0.33 | 0.10*** | 62.26*** | 89.61 | 7.16* | 93.44*** | 34.39*** | 124.54*** | 2.60*** | 0.24 | 0.75*** |
| All weak | 68,666 | 0.51 | 0.42 | 1.72 | 0.03 | 0.23 | 1.79 | 11.91 | 0.00 | 0.04 | 0.30 | 1.04 | 131.95 | 89.29 | 6.33 | 134.97 | 21.70 | 77.16 | 1.07 | 0.22 | 0.50 |
| All classical | 39,332 | 0.44[a,b] | 0.51[a,b] | 1.64[a,b,c] | 0.77[a,c] | 0.23 | 0.11[b,c] | 11.78[a,c] | 0.00 | 0.02 | 0.29[c] | 0.60[a,c] | 131.09[a,b,c] | 76.75[a,c] | 6.58[b] | 156.67[a,b] | 19.80[a,b] | 121.27[a,b,c] | 1.19[a,b,c] | 0.22 | 0.56[a,b,c] |
| All partial | 68,658 | 0.50 | 0.64 | 2.38 | 0.88 | 0.21 | 0.10 | 11.97 | 0.00 | 0.04 | 0.30 | 0.49 | 54.23 | 71.85 | 8.12 | 70.76 | 43.82 | 95.32 | 2.34 | 0.23 | 0.60 |
| All full | 26,804 | 0.49 | 0.68 | 2.45 | 1.03 | 0.24 | 0.01 | 12.45 | 0.00 | 0.03 | 0.35 | 0.52 | 64.74 | 123.62 | 6.12 | 67.30 | 32.08 | 70.53 | 2.68 | 0.24 | 0.76 |
| All sample | 134,794 | 0.43 | 0.59 | 2.02 | 0.92 | 0.23 | 0.08 | 12.01 | 0.00 | 0.02 | 0.31 | 0.55 | 96.45 | 89.45 | 6.75 | 113.26 | 28.16 | 101.30 | 1.85 | 0.23 | 0.63 |

This table reports differences across subsamples based on the investor protection level and tax system. The overall sample included 134,794 firm-year observations from 24 OECD countries from 1990 to 2011. We follow Alzahrani and Lasfer (2012) and classify a country as strong (weak) investor protections if its anti-self-dealing index score, as reported by Djankov et al. (2008), is above (below) than the mean anti-self-dealing index score of the sample. The remaining variables are defined in Appendix 1.
*, **, and *** indicate significance at 10%, 5%, and 1% levels, respectively between strong and weak protection. [a] Denote significantly different from zero less than 1% level between *Classical* and *Partial* tax system, using two-tailed t-tests. [b] Denote significantly different from zero less than 1% level between *Classical* and *Full* tax system, using two-tailed t-tests. [c] Denote significantly different from zero less than 1% level between *Full* and *Partial* tax system, using two-tailed t-tests.

**Appendix 3. Correlation Matrix**

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | STDR | 1 | | | | | | | | | | | | | | | | | | | | | |
| 2 | Inv.p | -0.14 | 1 | | | | | | | | | | | | | | | | | | | | |
| 3 | CR | -0.03 | 0.55 | 1 | | | | | | | | | | | | | | | | | | | |
| 4 | Classical Tax | 0.15 | -0.67 | -0.36 | 1 | | | | | | | | | | | | | | | | | | |
| 5 | TD | -0.03 | 0.13 | -0.23 | 0.61 | 1 | | | | | | | | | | | | | | | | | |
| 6 | Lev | -0.25 | -0.05 | **0.16** | **0.00** | 0.01 | 1 | | | | | | | | | | | | | | | | |
| 7 | MB | -0.04 | 0.23 | **0.00** | -0.09 | 0.07 | 0.01 | 1 | | | | | | | | | | | | | | | |
| 8 | Size | -0.32 | 0.05 | 0.06 | -0.12 | -0.06 | 0.05 | 0.15 | 1 | | | | | | | | | | | | | | |
| 9 | AB | -0.02 | **0.00** | **0.00** | -0.01 | 0.00 | **-0.01** | -0.01 | 0.03 | 1 | | | | | | | | | | | | | |
| 10 | ROA | -0.14 | -0.06 | 0.04 | -0.05 | -0.05 | 0.00 | -0.15 | 0.38 | 0.13 | 1 | | | | | | | | | | | | |
| 11 | AM | -0.20 | -0.01 | 0.09 | -0.08 | -0.02 | 0.28 | -0.14 | 0.10 | -0.01 | 0.07 | 1 | | | | | | | | | | | |
| 12 | Z-score | 0.03 | 0.08 | 0.00 | **-0.00** | 0.05 | -0.45 | 0.22 | 0.20 | 0.05 | 0.34 | -0.17 | 1 | | | | | | | | | | |
| 13 | TS | 0.06 | -0.32 | -0.17 | 0.04 | -0.15 | 0.05 | -0.14 | 0.03 | 0.03 | 0.09 | 0.03 | -0.05 | 1 | | | | | | | | | |
| 14 | Bank Dep. | 0.19 | -0.74 | -0.12 | 0.54 | -0.12 | 0.05 | -0.23 | -0.03 | 0.00 | 0.02 | 0.02 | -0.07 | 0.25 | 1 | | | | | | | | |
| 15 | Bank Credit | -0.13 | 0.14 | -0.07 | -0.22 | -0.13 | 0.05 | 0.08 | 0.09 | **0.00** | 0.01 | 0.00 | -0.00 | 0.07 | -0.10 | 1 | | | | | | | |
| 16 | Ins. Prem. | 0.02 | 0.26 | 0.23 | -0.06 | 0.02 | -0.03 | 0.06 | -0.01 | **0.00** | -0.04 | -0.08 | -0.00 | -0.08 | -0.10 | -0.21 | 1 | | | | | | |
| 17 | Bond Cap. | 0.17 | -0.57 | -0.31 | 0.71 | -0.03 | -0.01 | -0.15 | -0.09 | **-0.01** | -0.06 | -0.08 | -0.03 | 0.06 | 0.70 | -0.24 | **0.01** | 1 | | | | | |
| 18 | Inter. Debt | -0.11 | 0.39 | 0.14 | -0.32 | -0.12 | -0.02 | 0.10 | 0.04 | -0.01 | -0.08 | -0.08 | -0.03 | -0.14 | -0.33 | 0.21 | 0.14 | -0.25 | 1 | | | | |
| 19 | Stock Traded | -0.03 | 0.14 | -0.17 | 0.29 | 0.20 | -0.07 | 0.17 | -0.05 | -0.02 | -0.18 | -0.13 | 0.04 | -0.43 | -0.09 | -0.15 | 0.34 | 0.27 | 0.18 | 1 | | | |
| 20 | Inflation | -0.17 | 0.56 | 0.08 | -0.44 | 0.05 | -0.02 | 0.21 | 0.03 | -0.03 | -0.04 | 0.02 | 0.05 | -0.35 | -0.67 | 0.23 | -0.22 | -0.56 | 0.26 | 0.08 | 1 | | |
| 21 | Domestic Savings | -0.04 | 0.14 | 0.1 | -0.08 | 0.05 | 0.01 | 0.04 | -0.02 | -0.02 | -0.02 | 0.00 | 0.00 | 0.05 | -0.12 | 0.07 | 0.10 | -0.16 | -0.03 | 0.02 | 0.08 | 1 | |
| 22 | Ind. Med | -0.45 | 0.51 | 0.07 | -0.32 | 0.07 | 0.12 | 0.14 | 0.20 | 0.01 | 0.01 | 0.17 | 0.01 | -0.19 | -0.41 | 0.24 | -0.01 | -0.32 | 0.26 | 0.15 | 0.37 | 0.08 | 1 |

The table presents the Pearson correlation coefficients across our variables. The sample includes 134,794 firm/year observations from 24 OECD countries. The variables are defined in Appendix 1. All correlation coefficients are significant at 1% level except those in bold. The data is winsorized at the top and bottom 1%.