Determinants of Capital Structure of Firms in Different Continents: Before, During and After the Global Financial Crisis

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Abstract

This study examines firm capital structure before, during and after the Global Financial Crisis. Firm leverage and the influence of firm characteristics on debt levels are examined using a sample of firms from 27 countries, which represent all continents around the world. Our results indicate that the capital structure of firms is similar for countries in the same continent but different across continents. However, capital structure is influenced by similar firm characteristics, such as, asset tangibility, profitability, firm size, growth opportunities, liquidity and share price performance. During the Global Financial Crisis, firms increase leverage as earnings declined and equity markets were more volatile. The influence firm characteristics have had on leverage has also been affected by the financial crisis. Firm size had significant influence on firm leverage whilst asset tangibility, earnings volatility and non-debt tax shield were insignificant. During the financial crisis, profitability and growth opportunity had weaker influence on firm leverage. The influence of liquidity on firm leverage in Asia (America and Europe) became stronger (insignificant) during the financial crisis. Share price performance also had stronger influence on firm leverage during- and post-crisis.

Keywords: Capital structure, Leverage, Asset tangibility, Earnings volatility

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1   Introduction

Capital structure has gained extensive attention by researchers since Myers (1984), who argued that the combination of debt and equity in firm capital structure conveys important information to investors and therefore affects firm value. A number of studies including Gungoraydinoglu and Öztekin (2011) and Kayo and Kimura (2011) have reported that up to 70% of the variation in firm leverage can be explained by the firm characteristics. Titman and Wessels (1988) and Harris and Raviv (1991) identified a set of firm characteristics that are important for determining the level of leverage which includes: firm size, profitability, earning volatility, asset structure and growth opportunity. Cross-country studies have found firm characteristics to affect the financing behaviour of the firms in the United States (US) as well as in other countries (Bancel & Mittoo, 2004; Booth, Aivazian, Demirguc-Kunt & Maksimovic, 2001; Rajan & Zingales, 1995).

Macroeconomic conditions also cause firms to alter leverage levels. Debt is generally cheaper and more easily available during good economic conditions. A sudden shock to the economic system disrupts the financial markets thus affecting the availability of funds and the cost of borrowing (Acharya & Viswanathan, 2011). In light of the financial crises in recent years, Deesomsak, Paudyal and Pescetto (2004) and Fosberg (2012) examined the changes in firm capital structure during the financial crisis period. Deesomsak et al. (2004) reported that the Asian Financial Crisis 1997 caused the firms in the Asia-Pacific region to increase leverage and also altered the influence of firm characteristics on capital structure.

Similarly, Dewally and Shao (2014), Fosberg, (2012) and Judge and Korzhenitskaya (2012) found that firms in the US increased leverage during the Global Financial Crisis that started in 2008. The severe banking credit crunch in the US and European countries affected economic growth, credit availability and borrowing costs. Firm had to rely on alternative sources of

finance as financial institutions reduced lending to corporations (Judge & Korzhenitskaya, 2012). The crisis soon spread to other countries affecting the financial markets and economic growth around the world.

Whilst most studies are focused on the financing behaviour of firms in the US, relatively few studies have looked at the firm financing in other countries during the Global Financial Crisis (Alves & Francisco, 2013; Bartholdy, 2011; Mostarac & Petrovic, 2013). Most importantly, these studies have not examined the influence of firm characteristics on leverage which differed during financial crises (Deesomsak et al., 2004). This motivates our study to compare the capital structure of firms in different countries before, during and after the Global Financial Crisis. Our study extends the work of Fosberg (2012, 2013), who reported that firms in the US increased leverage during the Global Financial Crisis, and also contributes to the literature as this study is the first to examine capital structure and the influence of firm characteristics on leverage before, during and after the Global Financial Crisis, comparing observations from countries from different continents.

The study includes 27 countries from Africa, Asia, Europe, North America, South America and Oceania. The main objective of this paper is (i) to examine changes in firm capital structure as the economic conditions changes over the years (ii) to examine the influence of firm characteristics on leverage, comparing the findings across countries from different continents, and (iii) to perform a sub-period analysis on capital structure to examine the changes in firm leverage levels and the influence of firm characteristics during the Global Financial Crisis period.

This paper is outlined as follows: Section 2 contains the literature review on the capital structure theories developed, leverage determinants and the impact of financial crisis on firm capital structure. Section 3 outlines the data and method used in the study. The results and analysis are discussed in section 4 and section 5 concludes the paper.

2 Literature Review

2.1 Capital Structure Theory

Modigliani and Miller (1958) proposed the capital structure irrelevance theorem which suggest that firm value is independent of its capital structure as investors are indifferent towards the proportion of debt and equity in the firm capital structure. However, in 1963, Modigliani and Miller reported that the tax savings derived from employing debt increases the after-tax return available to shareholders and this affects firm value (Modigliani & Miller, 1963). As a consequence, researchers over the years have investigated firm capital structure and proposed theories such as the trade-off theory, pecking order theory and the market timing theory that have potential to explain how firms determine their capital structure.

The trade-off theory was proposed by Kraus and Litzenberger (1973) assumes that an optimal capital structure exists which maximises firm value. The optimal capital structure is determined by balancing the costs against the benefits of debt. Further increase in leverage beyond this equilibrium will reduce firm value as the costs of financing obligations and bankruptcy risk outweigh the tax benefits of debt. However, Fischer, Heinkel and Zechner (1989) reported that firms do not always maintain their target leverage. Instead, firms allow leverage to vary within specific range, known as the dynamic trade-off model, where firms dynamically rebalance their capital structure to stay within the optimal range. This is because recapitalisation cost prevents the continuous adjustment of capital structure. Leary and Roberts (2005) reported that shocks to firm leverage are persistent as capital structure is rebalanced in clusters of large and infrequent adjustments.

The pecking order theory proposed by Myers and Majluf (1984) assumes that there is information asymmetry between shareholders and firm managers. The proponents of pecking order theory argue that firm managers prefer to employ internally generated funds to finance investments. Managers are willing to forego valuable investment opportunities when internal funds are insufficient, rather than issuing equity. When external funds are needed, firms prefer to use debt before resorting to the more risky alternative of issuing equity. Shyam-Sunder and Myers (1999) found strong support for pecking order theory in the US. However, Frank and

Goyal (2003) reported that pecking order effects in the US firms are disappearing and there is no indication of pecking order behaviour in the smaller firms.

The agency theory of debt, is similar to the trade-off theory, argues that an optimal capital structure exists at the equilibrium point where the agency cost of debt is offset by the tax benefits of debt (Brendea, 2011). Agency cost exists because of the separation of ownership and management and the interest of managers and shareholders are not aligned. Jensen and Meckling (1976) report that firm manager's waste free cash flow on perquisites and value destroying investments. Leverage reduces this agency cost as firms are subjected to financial obligations, especially when large portion of firm earnings is used to finance debt payments. However, this also leads to agency cost of debt in the form monitoring cost, bankruptcy costs and asset substitution as wealth is transferred from bondholders to shareholders (Iqbal, Muneer, Jahanzeb & Saif-ur-Rehman, 2012).

The market timing theory proposed by Baker and Wurgler (2002) argues that firm capital structure is the cumulative result of its past efforts in timing the equity market, issuing equity when prices are high and repurchase when prices are low. Managers will issue equity when the cost of equity is low but employ debt in other circumstances (Brendea, 2011). However, the support for market timing effect is not conclusive as Hovakimian (2006) report that equity issues and repurchases fail to generate long lasting effect on capital structure. Similarly, de Bie and de Haan (2007) and Sinha and Ghosh (2009) also reported that market timing effects are not persistent. Mahanjan and Tartaroglu (2008) and Lee, Su and Lin (2012) found similar evidence that past timing efforts are short lived or non-existent in the G-7 countries, except for Japan which exhibited strong market timing.

Myers (2001) argue that these capital structure theories are not designed to be general. As the capital structure theories emphasize on different costs and benefits related to the alternative financing strategies, researchers may find results which are consistent with more than one theory. Therefore, Brendea (2011) stresses the importance of considering the assumptions of all capital structure theories as it is possible that firm financing behaviour to be consistent with more than one theory.

2.2   Determinants of leverage

Firm capital structure has been examined in many countries. Rajan and Zingales (1995) reported that the firm leverage is similar in the G-7 countries. However, comparing the Eastern and Western European countries, firm capital structure differ significantly (Jõeveer, 2013).

Firms in the Eastern Europe are smaller with limited excess to external financing therefore, rely more on debt compared to external equity. De Jong, Kabir and Nguyen (2008) examined firm leverage in 42 developed and developing countries around the world and observed a wide-ranging pattern of firm leverage. They found leverage levels to be lower in emerging economies compared to industrialized countries. Even with the emerging economies, firm leverage vary significantly from high long-term debt ratio in India and Korea and very low leverage in Malaysia and Turkey.

Prior studies have found that firm characteristics play an important role in influencing the amount of leverage in the firm's capital structure. Harris and Raviv (1991) and Titman and Wessels (1988) identified a set of firm characteristics which are the main drivers of firm leverage. These include asset structure, growth, firm size, earnings volatility, profitability, non-debt tax shield, advertising, R&D expenses, free cash flow, bankruptcy risk, and product uniqueness.

The firm characteristics which influence firm leverage in the US also affect the firms in other countries. Asset tangibility and firm size are positively related to leverage, whilst profitability and investment opportunities is negatively related to leverage. This is observed in the G-7 countries (Rajan & Zingales, 1995), Europe (Bancel and Mittoo (2004), Asia and the Pacific region (Deesomsak et al., 2004; Janikan, 2006) and other developing countries (Booth et al., 2001). However, the different institutional factors and operating environment between countries causes the firm characteristics and their influence on firm leverage to differ across countries (Deesomsak et al., 2004).

2.3   Financial Crisis and firm leverage

Whilst the studies discussed above focus on the demand-side factors, the supply of capital is not frictionless. Korajczyk & Levy (2003) reported that firm capital structure is affected by macroeconomic factors. Unconstrained firms time security issues to match favourable macroeconomic conditions. Debt is issued when profits are low and when the equity market is volatile. Alternatively, constrained firms exhibit less macroeconomic timing as debt issues are driven by deviation from target leverage.

Rehman and Rehman (2011) argues that credit supply affects firm's financing and investing decisions causing firms to adjust their capital structure when credit supply conditions change and affect the availability of credit. Claessens, Kose and Terrones (2010) identified the factors which led to the Global Financial Crisis in 2008, which includes the rapid increase in asset

prices, credit boom, expansion of marginal loans and the failure to regulate and supervise financial institutions. Kalemi-Ozcan, Sorensen and Yesiltas (2012) reported excessive risk taking by the large, too-big-to-fail banks in the US during the years prior to the subprime crisis as bank leverage levels increased significantly. Short-term debt was cheaply available and firms had high leverage levels (Archarya & Viswanathan, 2011). Therefore, the sudden shock to the financial system during the Global Financial Crisis led to severe de-leveraging by banks, drying up liquidity in the financial markets.

The financial crisis caused severe instability in the US financial system affecting liquidity in the capital markets and the availability of funds to corporations (Fosberg, 2013). Ivashina and Scharfstein (2010) reported a significant drop in credit supply to corporations as banks substantially reduced new loans issue and had difficulty rolling over short-term debt. On the other hand, the financial markets in the emerging economies were less at risk as the banks increased leverage ratios less aggressively prior to the crisis due to the more stringent bank regulations and stronger investor protection (Kalemi-Ozcan et al., 2012).

Financial crises cause firm earnings to decline and affects the availability of credit as firms adjust their capital structure. For example, Deesomsak et al. (2004) reported that the Asian Financial Crisis in 1997 caused firms in the Asia-Pacific region to increase leverage and also altered influence of the firm characteristics on leverage. Similarly, Dewally and Shao (2014) and Fosberg (2012) reported that the Global Financial Crisis caused firms in the US to increase leverage and various short-term financing methods became more important due to the restricted lending by banks to corporations. Bancel and Mittoo (2011) also found evidence that internal funds, high cash holdings and credit lines became more important during the crisis. Trade credit also became an important source of finance, especially for firms with limited access to external funds.

The influence of firm characteristics on capital structure changes during the financial crisis. For example, Deesomsak et al. (2004) reported that during the Asian Financial Crisis, the influence of firm size, growth opportunity, liquidity and non-debt tax shield on firm leverage increased and was statistically significant in the post-crisis period. The influence of asset tangibility, earnings volatility and share price performance was also different between the pre- and post-crisis periods. Mostarac and Petrovic (2013) observed that the influence of asset tangibility and firm size on the leverage of Croatian firms increased during the crisis. Short-term debt levels also increased due to the significant drop in sales and profitability.

3   Data and Methodology

3.1   Data

The sample includes observations from 27 countries, which represent all the continents. The countries and continents include: America (Brazil, Canada, Chile and US), Asian region (China, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, Singapore, Taiwan and Thailand), Euro-zone (Denmark, France, Germany, Greece, Italy, Norway, Spain, Sweden, Switzerland, Turkey and UK), Australia and South Africa. These countries differ in terms of geographical region, capital market development, financial system and local traditions which provides a diversified sample of firms operating in different environmental settings.

Firm level data was collected from the Thomson One database and our sampling period ranges from 2003 to 2012. Firms belonging to the financial, utilities and mining industries are excluded from the analysis due to the different restrictions on their capital structure. Firms with incomplete data are removed from the sample. After these exclusions, the Grubb test was conducted to identify outliers in the dataset. Extreme observations are removed as the data is winsorized at the 1st and 99th percentile, in order to minimise the influence of the outliers.

Therefore, our final sample consists of 4,634 firms with 46,340 firm-year observations. The most represented samples are Japan and US with 1192 and 569 firms respectively. Spain and Brazil have the smallest sample with 40 firms respectively.

A sub-period analysis is conducted to examine the capital structure of firms before, during and after the Global Financial Crisis. The sample is divided into three sub-periods: the pre-crisis period (2003 to 2006), during-crisis period (2007 to 2009) and post-crisis period (2010 to 2012).

3.2   Variables

3.2.1   Firm Leverage

We have used the market value of total debt (LEV_MVTD) as the proxy for firm leverage. Kayo and Kimura (2011) argue that market leverage is a more realistic measure of leverage as it reflects the intrinsic value of the firm. Therefore, this avoids the accounting distortions of asset values captured in book leverage measures and reflects a more accurate perspective for future leverage. Using a similar method to that used by Alves and Francisco (2013) and Deesomsak et al. (2004), the market value of total debt is defined as the ratio of total debt to the sum of total debt, market value of equity and book value of preference shares.

However, Kayo and Kimura (2011) and Lemmon, Roberts and Zender (2008) have used long-term debt as a proxy for leverage as well. To test robustness of our analysis, we have also used the book value of total leverage (LEV_BVTD), and the market and book values of long-term debt (LEV_MVLTD and LEV_BVLTD) as well.

3.2.2 Firm Characteristics

Harris and Raviv (1991) and Titman and Wessels (1988) identified a set of firm characteristics which have the potential to influence firm leverage levels. Similarly, the determinants of leverage included in our analysis are asset tangibility, profitability, size, growth opportunity, non-debt tax shield, liquidity, earnings volatility and share price performance. We have used a similar method to that used by Deesomsak et al. (2004) to determine these variables. The details of the measurement of these variables are reported in Table 1 below.

Table 1: Measurement of Variables

The firm-level data is collected from the Thomson One database for the period from year 2003 to 2012, with observations from 27 countries from different continents.

	Abbreviation	Variable Construction
Dependent Variables		
Market value of total leverage	LEV_MVTD	Total debt/(Total debt + MV equity + BV preference shares)
Book value of total leverage	LEV_BVTD	Total debt/Total assets
Long-term market leverage	LEV_MVLTD	Long-term debt/(Long-term debt + MV equity + BV preference share)
Long-term book leverage	LEV_BVLTD	Long-term debt/Total assets
Explanatory Variables		
Asset tangibility	TANG	Total fixed assets/Total assets
Profitability	PROF	EBITDA/Total assets
Firm size	SIZE	Ln(Total assets)
Growth Opportunity	GROWTH	(Total assets – BV equity + MV equity)/Total assets
Non-debt tax shield	NDTS	Depreciation/Total assets
Liquidity	LIQ	Current asset/Current Liabilities
Volatility of earnings	VOL	|Annual percentage change in EBIT - Average change in EBIT over the sample period|
Share price performance	SPP	$\text{Ln}(Closing\ share\ price_{it}) - \text{Ln}(Closing\ share\ price_{it-1})$

3.3   Empirical Model

The relationship between capital structure and firm characteristics is examined in a fixed effects regression model. The fixed effects model incorporates the cross-sectional differences in firm

leverage present in the panel data which is not captured by the firm characteristics. Lemmon et al. (2008) argue that firm capital structure is stable over long periods of time and majority of the variation in capital structure are time-invariant. For this reason, ignoring this permanent component of the leverage ratios is similar to an omitted variable bias as the explanatory variables in an OLS regression fail to capture this effect.

Therefore, the fixed effects model used in this study to take into account the firm-specific differences in leverage ratios. The analysis is conducted using the R software.

The model is defined as:

$$Leverage_{it} = \beta_0 + \beta_1 TANG_{it} + \beta_2 PROF_{it} + \beta_3 SIZE_{it} + \beta_4 GROWTH_{it} + \beta_5 NDTS_{it}$$
$$+ \beta_6 LIQ_{it} + \beta_7 VOL_{it} + \beta_8 SPP_{it} + \eta_i + v_t + u_{it}$$

where $\qquad$ $Leverage_{it}$ indicates the leverage of firm i in year t

$\qquad\qquad\quad$ η_i indicates the firm fixed effects

$\qquad\qquad\quad$ v_t indicates year fixed effects

$\qquad\qquad\quad$ u_{it} indicates the error term

3.4 Descriptive Statistics

A comparison of the mean firm leverage between countries is presented in Figure 1. Firms in the Asian countries employ higher debt compared to the European and American firms. Firm leverage is highest in South Korea with a mean 0.50, followed by Indonesia (0.45), Malaysia (0.42) and Japan (0.40). The other Asian countries also have high mean leverage ratios of 0.30 or higher. In the American countries, Brazil has highest mean firm leverage of 0.41 whilst the leverage ratios in Canada, Chile and US is similar between 0.26 – 0.27. Firm leverage in the European countries are higher compared to the US, consistent with Kalemli-Ozcan et al. (2012). Firms in Greece, Italy and Spain have the highest mean leverage of 0.57, 0.43 and 0.39 whilst Switzerland indicated the lowest mean leverage of 0.20. Australia and South Africa reported a mean leverage of 0.25 and 0.24 respectively.

The descriptive statistics of our data is reported in Table 2. High asset tangibility ratios are observed in American and Asian countries which indicate that the firms have more tangible assets. Chile has the highest asset tangibility with a mean of 0.47. Asset tangibility is relatively lower in the European countries and France has the lowest asset tangibility with a mean of 0.21. Profitability varies between countries with mean values ranging from 0.17 in South Africa to

0.07 in Greece. Firms in developed countries such as Australia, Chile, Switzerland, UK and US have high profitability ratios. Among the developing countries, profitability is highest in Brazil, India, Indonesia and Thailand. Firm size is similar between the American and European countries, and is largest in the US with a mean of 8.14. Comparatively, smaller firms are found in the South East Asian countries such as Malaysia, Thailand and Indonesia. Lastly, firms in China and US have the highest growth opportunity with a mean of 1.74 and 1.67.

The descriptive statistics for the sub-samples are reported in Table 3. The results indicate that firm leverage increased during the Global Financial Crisis, especially in the US and the European countries. Mean firm leverage in the US firms increased by 0.07 (from 0.23 to 0.30) during the financial crisis period. Larger increases were observed in the European countries, especially Greece and Italy.

During the financial crisis, mean asset tangibility decreased especially in Australia, China, Hong Kong, Malaysia and Singapore. Profitability ratios also decreased during the crisis. Firm liquidity ratio increased in most American and Asian countries during the crisis but decreased in the European countries. Share price performance is negative during the crisis period, consistent with the poor share performance during crisis.

Figure 1: Mean market leverage across countries (full sample)

Mean firm leverage ratios across countries, from 2003 to 2012, is measured by the market value of total leverage (LEV_MVTD). The market value of total leverage is calculated as the ratio of firm total debt divided by the sum of total debt, market value of equity and book value of preference shares.
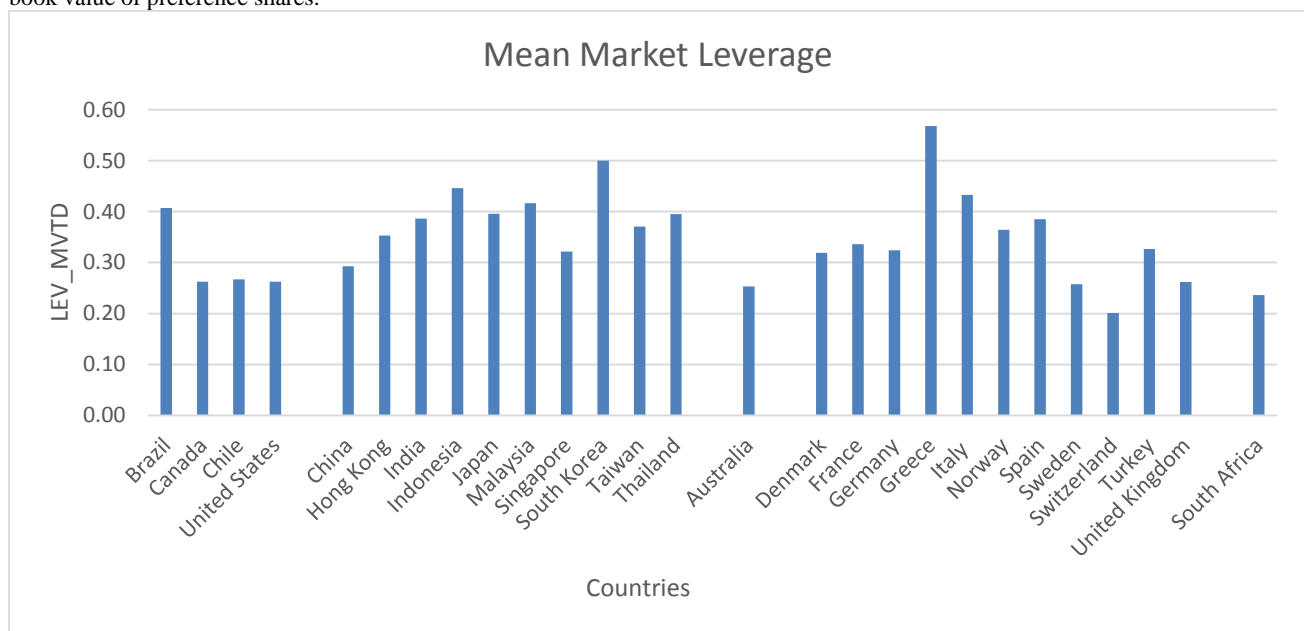
Table 2: Summary Statistics

Data is collected from the Thomson One database for the whole sample period from year 2003 to 2012 and comprises of 4,634 firms with 46,340 firm-year observations from 27 countries. The variables are defined as: Market value of total leverage (LEV_MVTD) is measured as total debt divided by the sum of total debt, market value of equity and book value of preference shares. Book value of total leverage (LEV_BVTD) is defined as the ratio of total debt to total assets. Long-term market leverage (LEV_MVLTD) is calculated as long-term debt divided by the sum of long-term debt, market value of equity and book value of preference shares. Long-term book leverage (LEV_BVLTD) is the ratio of long-term debt to total assets. Asset tangibility ratio (TANG) is calculated as the proportion of total fixed assets to total assets. Firm profitability (PROF) is the ratio of EBITDA to total assets. Firm size (SIZE) is defined as the natural logarithm of total assets. Firm growth opportunity (GROWTH) is defined as the ratio of total assets minus book value of equity plus market value of equity to total assets. Non-debt tax shield (NDTS) is the ratio of depreciation expenses to total assets. Firm liquidity (LIQ) is defined as the ratio of current assets to current liabilities. Earnings volatility (VOL) is calculated as the absolute value of the difference between the annual percentage change in EBIT less the average change in EBIT for the whole period. Share price performance (SPP) is the first difference of logs of annual closing share prices.

	LEV_MVTD	LEV_BVTD	LEV_MVLTD	LEV_BVLTD	TANG	PROF	SIZE	GROWTH	NDTS	LIQ	VOL	SPP
America												
Brazil												
Mean	0.41	0.33	0.27	0.18	0.37	0.13	6.71	1.31	0.04	1.55	152.38	-0.02
Median	0.37	0.32	0.22	0.15	0.37	0.14	6.48	1.15	0.03	1.48	63.65	0.04
Min	0.02	0.01	0.00	0.00	0.03	-0.21	2.48	0.63	0.01	0.19	0.93	-6.58
Max	0.96	0.84	0.93	0.64	0.81	0.35	12.69	3.25	0.17	3.81	2261.65	2.63
Canada												
Mean	0.26	0.25	0.23	0.21	0.45	0.11	6.95	1.47	0.05	1.62	284.36	0.04
Median	0.23	0.24	0.19	0.20	0.43	0.13	7.05	1.33	0.05	1.39	59.36	0.09
Min	0.00	0.01	0.00	0.00	0.01	-0.50	1.70	0.61	0.00	0.21	0.78	-1.69
Max	0.97	0.67	0.78	0.63	0.96	0.37	11.25	3.71	0.20	5.77	7548.99	1.32
Chile												
Mean	0.27	0.27	0.21	0.20	0.47	0.14	6.46	1.53	0.05	1.74	189.87	0.11
Median	0.24	0.26	0.18	0.20	0.46	0.12	6.28	1.33	0.04	1.50	46.40	0.10
Min	0.01	0.05	0.01	0.02	0.01	-0.10	2.65	0.64	0.00	0.54	0.37	-0.88
Max	0.80	0.58	0.67	0.49	0.90	0.61	10.90	4.33	0.18	4.49	2569.98	1.35
United States												
Mean	0.26	0.29	0.24	0.25	0.34	0.13	8.14	1.67	0.04	1.82	151.19	0.06
Median	0.22	0.26	0.20	0.23	0.26	0.13	8.03	1.47	0.04	1.62	45.49	0.11
Min	0.00	0.01	0.00	0.00	0.00	-0.22	2.56	0.78	0.01	0.39	0.52	-1.49
Max	1.00	0.86	1.00	0.83	0.97	0.38	13.59	4.54	0.13	5.77	2308.10	1.19

	LEV_MVTD	LEV_BVTD	LEV_MVLTD	LEV_BVLTD	TANG	PROF	SIZE	GROWTH	NDTS	LIQ	VOL	SPP
Asia												
China												
Mean	0.29	0.34	0.13	0.11	0.41	0.09	6.61	1.74	0.03	1.12	124.49	0.06
Median	0.26	0.33	0.07	0.08	0.39	0.08	6.38	1.46	0.03	1.05	45.25	-0.01
Min	0.00	0.00	0.00	0.00	0.02	-0.11	4.11	0.85	0.00	0.20	0.62	-2.06
Max	0.94	0.94	0.63	0.46	0.94	0.28	11.26	5.12	0.11	3.48	2157.89	2.09
Hong Kong												
Mean	0.35	0.24	0.22	0.12	0.31	0.08	6.36	1.12	0.03	1.94	261.49	0.05
Median	0.33	0.24	0.16	0.09	0.26	0.08	6.12	0.95	0.02	1.44	71.99	0.07
Min	0.00	0.00	0.00	0.00	0.00	-0.43	2.19	0.37	0.00	0.26	0.94	-1.67
Max	0.95	0.66	0.92	0.52	0.97	0.31	12.02	4.14	0.14	10.79	4308.96	1.63
India												
Mean	0.39	0.34	0.30	0.22	0.44	0.14	6.21	1.60	0.04	1.44	113.85	0.19
Median	0.37	0.34	0.25	0.20	0.44	0.14	6.14	1.22	0.03	1.28	41.53	0.16
Min	0.00	0.00	0.00	0.00	0.02	-0.07	2.43	0.65	0.01	0.24	0.77	-1.59
Max	0.98	0.82	0.97	0.68	0.95	0.34	11.14	6.21	0.10	5.19	1474.68	1.65
Indonesia												
Mean	0.45	0.36	0.32	0.20	0.46	0.13	5.38	1.39	0.05	1.59	144.30	0.17
Median	0.45	0.34	0.27	0.17	0.45	0.12	5.41	1.08	0.04	1.37	52.31	0.14
Min	0.00	0.00	0.00	0.00	0.03	-0.22	1.26	0.57	0.01	0.06	0.85	-1.52
Max	0.98	1.16	0.95	0.89	0.95	0.47	9.84	5.22	0.19	5.54	1631.67	2.10
Japan												
Mean	0.40	0.26	0.25	0.13	0.35	0.08	6.68	1.05	0.04	1.48	215.54	0.01
Median	0.39	0.25	0.21	0.10	0.33	0.07	6.47	0.98	0.03	1.30	73.06	0.01
Min	0.00	0.00	0.00	0.00	0.00	-0.10	2.68	0.55	0.00	0.32	1.05	-1.01
Max	0.98	0.94	0.98	0.47	0.95	0.23	12.83	2.38	0.11	4.87	3626.63	1.08
Malaysia												
Mean	0.42	0.27	0.22	0.11	0.39	0.08	4.78	1.02	0.03	1.74	330.17	0.00
Median	0.41	0.26	0.17	0.07	0.38	0.08	4.56	0.87	0.03	1.45	68.02	0.00
Min	0.00	0.00	0.00	0.00	0.00	-0.20	2.03	0.47	0.00	0.21	0.75	-1.20
Max	0.98	0.79	0.96	0.50	0.94	0.48	10.28	4.47	0.13	6.30	7274.58	1.25
Singapore												
Mean	0.32	0.24	0.18	0.11	0.31	0.09	5.59	1.15	0.03	1.82	186.59	0.04
Median	0.28	0.22	0.12	0.08	0.28	0.10	5.26	1.01	0.03	1.55	74.04	0.06
Min	0.00	0.00	0.00	0.00	0.00	-0.23	2.08	0.51	0.00	0.42	1.62	-2.13
Max	0.98	0.95	0.72	0.46	0.95	0.28	11.05	3.28	0.12	5.85	2342.01	2.02
South Korea												
Mean	0.50	0.31	0.30	0.12	0.40	0.09	6.48	0.96	0.04	1.33	223.90	0.10
Median	0.52	0.31	0.25	0.10	0.39	0.09	6.11	0.90	0.03	1.17	71.15	0.08
Min	0.00	0.01	0.00	0.00	0.01	-0.20	1.82	0.47	0.00	0.35	0.75	-1.26
Max	0.98	0.69	0.96	0.44	0.92	0.27	12.02	2.15	0.13	4.43	4203.67	1.35
Taiwan												
Mean	0.37	0.30	0.22	0.14	0.40	0.09	6.16	1.14	0.04	1.61	182.56	0.03
Median	0.36	0.30	0.19	0.12	0.38	0.09	5.91	1.05	0.04	1.45	68.00	0.04
Min	0.00	0.03	0.00	0.00	0.02	-0.16	3.12	0.62	0.00	0.41	1.06	-1.26
Max	0.97	0.66	0.74	0.46	0.96	0.30	11.16	2.59	0.16	5.05	1973.35	1.23
Thailand												
Mean	0.39	0.36	0.24	0.17	0.45	0.13	5.32	1.30	0.05	1.31	263.14	0.12
Median	0.37	0.36	0.20	0.14	0.47	0.12	5.10	1.12	0.05	1.14	59.41	0.06
Min	0.00	0.00	0.00	0.00	0.01	-0.14	2.59	0.54	0.01	0.14	0.74	-2.30
Max	0.94	0.91	0.89	0.62	0.97	0.41	10.88	3.86	0.16	5.07	4269.14	3.02
Australia												
Mean	0.25	0.25	0.20	0.19	0.33	0.12	5.80	1.59	0.04	1.83	296.37	0.02
Median	0.22	0.24	0.17	0.18	0.28	0.13	5.81	1.31	0.03	1.41	58.80	0.05
Min	0.00	0.00	0.00	0.00	0.00	-0.64	1.37	0.61	0.00	0.20	0.67	-1.45
Max	0.92	0.79	0.73	0.79	0.98	0.45	10.76	5.51	0.17	13.25	6582.90	1.25
Europe												
Denmark												
Mean	0.32	0.28	0.23	0.17	0.37	0.11	5.78	1.55	0.05	1.57	181.44	0.00
Median	0.27	0.28	0.17	0.14	0.31	0.11	5.65	1.18	0.05	1.30	78.77	0.06
Min	0.00	0.00	0.00	0.00	0.02	-0.26	1.52	0.64	0.01	0.18	1.06	-1.51
Max	0.98	0.86	0.93	0.70	0.90	0.47	10.20	7.89	0.12	9.53	1638.48	1.10

	LEV_MVTD	LEV_BVTD	LEV_MVLTD	LEV_BVLTD	TANG	PROF	SIZE	GROWTH	NDTS	LIQ	VOL	SPP
Europe												
France												
Mean	0.34	0.25	0.25	0.16	0.21	0.10	6.98	1.29	0.04	1.42	306.48	0.01
Median	0.30	0.23	0.21	0.14	0.17	0.10	6.86	1.16	0.04	1.29	48.32	0.06
Min	0.00	0.01	0.00	0.00	0.01	-0.18	0.60	0.67	0.01	0.33	0.47	-1.47
Max	0.98	0.72	0.97	0.60	0.85	0.31	12.32	3.76	0.20	3.98	9997.60	1.08
Germany												
Mean	0.32	0.25	0.25	0.16	0.27	0.12	6.51	1.36	0.05	1.74	246.65	0.08
Median	0.29	0.23	0.20	0.14	0.25	0.12	5.93	1.17	0.04	1.50	58.93	0.10
Min	0.00	0.00	0.00	0.00	0.00	-0.22	1.65	0.57	0.01	0.41	1.29	-1.14
Max	0.97	0.72	0.93	0.53	0.89	0.46	12.89	5.06	0.23	5.97	5705.08	1.20
Greece												
Mean	0.57	0.39	0.41	0.19	0.44	0.07	5.74	1.06	0.04	1.41	142.82	-0.12
Median	0.59	0.37	0.39	0.18	0.43	0.07	5.56	0.93	0.03	1.30	60.33	-0.07
Min	0.00	0.09	0.00	0.01	0.04	-0.21	3.32	0.56	0.01	0.27	0.81	-2.34
Max	1.00	0.91	0.98	0.60	0.97	0.28	9.73	2.83	0.24	4.13	1558.01	1.48
Italy												
Mean	0.43	0.31	0.31	0.18	0.24	0.09	6.92	1.21	0.05	1.37	554.29	-0.06
Median	0.42	0.31	0.26	0.16	0.20	0.09	6.66	1.09	0.04	1.27	74.01	-0.02
Min	0.00	0.00	0.00	0.00	0.01	-0.22	2.63	0.59	0.00	0.33	0.57	-1.65
Max	0.97	0.83	0.93	0.60	0.82	0.28	12.09	2.87	0.19	3.71	25618.60	1.30
Norway												
Mean	0.36	0.32	0.30	0.24	0.37	0.12	6.69	1.31	0.05	1.53	244.07	0.08
Median	0.32	0.31	0.25	0.22	0.31	0.11	6.84	1.20	0.04	1.31	93.68	0.13
Min	0.00	0.00	0.00	0.00	0.01	-0.20	2.01	0.58	0.00	0.40	3.99	-1.74
Max	0.92	0.85	0.91	0.76	0.89	0.44	11.85	2.99	0.16	4.90	2493.30	1.39
Spain												
Mean	0.39	0.34	0.28	0.21	0.36	0.10	7.19	1.40	0.04	1.27	109.49	-0.01
Median	0.36	0.34	0.22	0.18	0.37	0.09	6.89	1.24	0.04	1.17	50.04	0.06
Min	0.00	0.01	0.00	0.00	0.03	-0.23	3.65	0.70	0.01	0.31	0.47	-1.44
Max	0.95	0.78	0.94	0.61	0.75	0.32	12.02	4.01	0.13	3.07	965.04	1.07
Sweden												
Mean	0.26	0.24	0.20	0.17	0.22	0.12	6.46	1.52	0.04	1.58	158.59	0.05
Median	0.22	0.24	0.15	0.14	0.17	0.12	6.27	1.35	0.04	1.39	55.03	0.13
Min	0.00	0.00	0.00	0.00	0.00	-0.24	1.68	0.63	0.01	0.61	1.75	-1.52
Max	0.93	0.77	0.87	0.56	0.90	0.31	10.83	3.75	0.14	4.38	2003.99	1.22
Switzerland												
Mean	0.20	0.20	0.15	0.13	0.29	0.13	6.99	1.62	0.04	2.05	129.68	0.07
Median	0.17	0.17	0.11	0.10	0.24	0.13	6.96	1.37	0.04	1.79	47.07	0.12
Min	0.00	0.00	0.00	0.00	0.01	-0.13	3.40	0.64	0.01	0.53	1.00	-1.08
Max	0.72	0.73	0.62	0.53	0.93	0.30	11.79	4.36	0.10	5.81	1695.31	0.93
Turkey												
Mean	0.33	0.27	0.21	0.15	0.40	0.11	6.06	1.21	0.04	1.61	336.46	0.16
Median	0.29	0.22	0.14	0.10	0.41	0.11	5.89	1.11	0.04	1.44	105.09	0.16
Min	0.00	0.02	0.00	0.00	0.00	-0.16	2.08	0.51	0.00	0.27	1.62	-1.59
Max	0.91	0.93	0.91	0.83	0.86	0.36	9.26	2.50	0.14	4.84	5312.76	1.41
United Kingdom												
Mean	0.26	0.24	0.22	0.19	0.31	0.12	6.69	1.56	0.04	1.40	196.30	0.04
Median	0.23	0.23	0.18	0.17	0.26	0.12	6.79	1.34	0.04	1.25	48.64	0.10
Min	0.00	0.00	0.00	0.00	0.00	-0.28	0.66	0.60	0.00	0.27	0.66	-1.69
Max	0.98	0.76	0.83	0.69	0.97	0.39	12.61	5.02	0.15	4.87	3207.88	1.21
Africa												
South Africa												
Mean	0.24	0.21	0.15	0.13	0.34	0.17	6.12	1.52	0.04	1.53	99.40	0.14
Median	0.19	0.19	0.10	0.09	0.29	0.17	6.41	1.33	0.03	1.38	39.34	0.17
Min	0.00	0.01	0.00	0.00	0.02	-0.10	0.38	0.64	0.00	0.51	0.89	-1.28
Max	0.77	0.65	0.71	0.58	0.91	0.44	10.05	3.98	0.13	4.40	1011.38	1.21

Table 3: Descriptive statistics (sub-samples)

Market value of total leverage (LEV_MVTD) is measured as total debt divided by the sum of total debt, market value of equity and book value of preference shares. Book value of total leverage (LEV_BVTD) is defined as the ratio of total debt to total assets. Long-term market leverage (LEV_MVLTD) is calculated as long-term debt divided by the sum of long-term debt, market value of equity and book value of preference shares. Long-term book leverage (LEV_BVLTD) is the ratio of long-term debt to total assets. Asset tangibility ratio (TANG) is calculated as the proportion of total fixed assets to total assets. Firm profitability (PROF) is the ratio of EBITDA to total assets. Firm size (SIZE) is defined as the natural logarithm of total assets. Firm growth opportunity (GROWTH) is defined as the ratio of total assets minus book value of equity plus market value of equity to total assets. Non-debt tax shield (NDTS) is the ratio of depreciation expenses to total assets. Firm liquidity (LIQ) is defined as the ratio of current assets to current liabilities. Earnings volatility (VOL) is calculated as the absolute value of the difference between the annual percentage change in EBIT less the average change in EBIT for the whole period. Share price performance (SPP) is the first difference of logs of annual closing share prices.

	Pre (2003 - 2006)												During (2007 - 2009)												Post (2010 - 2012)											
	MVTD	BVTD	MVLTD	BVLTD	TANG	PROF	SIZE	GROW	NDTS	LIQ	VOL	SPP	MVTD	BVTD	MVLTD	BVLTD	TANG	PROF	SIZE	GROW	NDTS	LIQ	VOL	SPP	MVTD	BVTD	MVLTD	BVLTD	TANG	PROF	SIZE	GROW	NDTS	LIQ	VOL	SPP
America																																				
Brazil																																				
Mean	0.40	0.31	0.25	0.15	0.38	0.17	6.18	1.26	0.05	1.56	139.65	0.05	0.39	0.34	0.26	0.19	0.36	0.13	6.85	1.41	0.04	1.54	169.88	-0.05	0.43	0.33	0.31	0.20	0.37	0.09	7.29	1.28	0.03	1.55	151.86	-0.09
Median	0.37	0.33	0.20	0.13	0.38	0.17	6.07	1.11	0.04	1.44	61.08	0.23	0.35	0.31	0.20	0.15	0.39	0.13	6.79	1.26	0.04	1.52	63.76	0.02	0.39	0.31	0.25	0.17	0.36	0.10	6.84	1.09	0.03	1.51	72.73	-0.05
Min	0.02	0.01	0.00	0.00	0.06	-0.21	2.48	0.63	0.01	0.19	3.50	-6.58	0.04	0.06	0.00	0.00	0.06	-0.21	3.30	0.63	0.01	0.19	0.93	-2.52	0.02	0.04	0.00	0.00	0.03	-0.21	3.86	0.63	0.01	0.19	0.93	-1.89
Max	0.96	0.67	0.86	0.49	0.81	0.35	11.47	3.25	0.17	3.81	2261.65	2.63	0.94	0.84	0.93	0.64	0.77	0.35	12.19	3.25	0.17	3.81	2261.65	2.63	0.93	0.80	0.90	0.53	0.77	0.29	12.69	3.25	0.11	3.81	2261.65	2.63
Canada																																				
Mean	0.24	0.26	0.21	0.21	0.46	0.12	6.58	1.63	0.06	1.51	284.53	0.14	0.29	0.25	0.25	0.21	0.46	0.11	7.08	1.36	0.06	1.62	272.32	-0.11	0.26	0.25	0.23	0.21	0.45	0.11	7.32	1.38	0.05	1.77	296.19	0.05
Median	0.20	0.24	0.17	0.19	0.42	0.14	6.69	1.48	0.05	1.34	60.95	0.16	0.24	0.24	0.21	0.19	0.43	0.12	7.20	1.23	0.05	1.39	69.40	-0.06	0.24	0.23	0.21	0.20	0.42	0.12	7.36	1.27	0.05	1.50	54.22	0.08
Min	0.00	0.01	0.00	0.00	0.01	-0.50	1.70	0.71	0.00	0.21	0.78	-1.69	0.00	0.01	0.00	0.00	0.03	-0.50	2.62	0.61	0.00	0.21	0.78	-1.69	0.00	0.01	0.00	0.00	0.01	-0.50	2.57	0.61	0.00	0.21	0.78	-1.69
Max	0.92	0.67	0.78	0.63	0.95	0.37	10.44	3.71	0.20	5.77	7548.99	1.32	0.97	0.67	0.78	0.63	0.95	0.37	11.10	3.71	0.20	5.77	7548.99	1.32	0.84	0.67	0.78	0.63	0.96	0.37	11.25	3.71	0.20	5.77	7548.99	1.32
Chile																																				
Mean	0.27	0.28	0.20	0.20	0.48	0.14	6.12	1.49	0.05	1.72	177.29	0.24	0.27	0.27	0.22	0.20	0.47	0.14	6.51	1.52	0.04	1.75	193.63	0.04	0.26	0.26	0.21	0.19	0.44	0.13	6.87	1.59	0.04	1.75	202.88	0.03
Median	0.24	0.27	0.18	0.19	0.48	0.13	5.90	1.34	0.04	1.47	46.53	0.18	0.26	0.25	0.19	0.20	0.44	0.12	6.30	1.30	0.04	1.54	49.22	0.05	0.23	0.26	0.17	0.20	0.43	0.11	6.54	1.39	0.03	1.49	44.05	0.01
Min	0.02	0.05	0.01	0.02	0.01	-0.10	2.65	0.64	0.01	0.54	0.37	-0.75	0.02	0.05	0.01	0.02	0.01	-0.10	2.66	0.64	0.00	0.54	0.37	-0.88	0.01	0.05	0.01	0.02	0.01	-0.10	3.13	0.64	0.00	0.54	0.37	-0.88
Max	0.73	0.58	0.67	0.49	0.90	0.61	9.24	4.33	0.18	4.49	2569.98	1.35	0.79	0.58	0.67	0.49	0.90	0.61	10.54	4.33	0.16	4.49	2569.98	1.03	0.80	0.58	0.67	0.49	0.87	0.61	10.90	4.33	0.18	4.49	2569.98	1.09
United States																																				
Mean	0.23	0.28	0.21	0.24	0.34	0.14	7.94	1.80	0.04	1.78	146.55	0.17	0.30	0.29	0.28	0.26	0.34	0.12	8.21	1.56	0.04	1.80	153.20	-0.10	0.27	0.29	0.25	0.26	0.33	0.13	8.35	1.61	0.04	1.89	155.35	0.09
Median	0.20	0.25	0.17	0.22	0.26	0.13	7.80	1.60	0.04	1.59	44.78	0.16	0.25	0.27	0.23	0.24	0.27	0.12	8.09	1.36	0.04	1.61	47.77	-0.02	0.23	0.26	0.22	0.24	0.26	0.12	8.29	1.43	0.04	1.69	44.83	0.11
Min	0.00	0.01	0.00	0.00	0.00	-0.22	2.56	0.78	0.01	0.39	0.52	-1.49	0.00	0.01	0.00	0.00	0.00	-0.22	3.15	0.78	0.01	0.39	0.52	-1.49	0.00	0.01	0.00	0.00	0.00	-0.22	4.04	0.78	0.01	0.39	0.52	-1.49
Max	0.97	0.86	0.96	0.83	0.95	0.38	13.53	4.54	0.13	5.77	2308.10	1.19	1.00	0.86	1.00	0.83	0.94	0.38	13.59	4.54	0.13	5.77	2308.10	1.19	0.92	0.86	0.92	0.83	0.97	0.38	13.53	4.54	0.13	5.77	2308.10	1.19
Asia																																				
China																																				
Mean	0.31	0.33	0.12	0.10	0.45	0.10	6.05	1.52	0.03	1.11	110.13	0.04	0.25	0.34	0.11	0.11	0.40	0.09	6.73	2.09	0.03	1.08	147.80	0.27	0.32	0.36	0.16	0.13	0.38	0.09	7.22	1.68	0.03	1.18	120.32	-0.12
Median	0.28	0.32	0.07	0.07	0.43	0.08	5.82	1.35	0.03	1.02	39.36	-0.05	0.21	0.33	0.05	0.08	0.37	0.09	6.50	1.81	0.03	1.03	53.21	0.67	0.30	0.36	0.10	0.10	0.37	0.08	7.08	1.43	0.03	1.08	47.45	-0.11
Min	0.00	0.00	0.00	0.00	0.02	-0.11	4.11	0.85	0.00	0.20	0.62	-1.24	0.00	0.01	0.00	0.00	0.04	-0.11	4.11	0.85	0.00	0.20	0.62	-2.06	0.00	0.00	0.00	0.00	0.02	-0.11	4.38	0.85	0.00	0.20	0.62	-1.12
Max	0.94	0.94	0.63	0.46	0.94	0.28	11.26	5.12	0.11	3.48	2157.89	1.66	0.92	0.92	0.63	0.46	0.88	0.28	11.26	5.12	0.11	3.48	2157.89	2.09	0.81	0.88	0.63	0.46	0.94	0.28	11.26	5.12	0.11	3.48	2157.89	1.52
Hong Kong																																				
Mean	0.33	0.24	0.20	0.12	0.37	0.08	5.95	1.19	0.03	1.84	264.94	0.16	0.36	0.24	0.23	0.13	0.27	0.07	6.49	1.11	0.03	2.08	261.54	-0.06	0.37	0.24	0.22	0.12	0.27	0.07	6.79	1.05	0.03	1.94	256.86	0.00
Median	0.31	0.24	0.14	0.09	0.34	0.09	5.65	1.01	0.02	1.41	69.70	0.15	0.32	0.24	0.17	0.09	0.22	0.07	6.16	0.94	0.02	1.47	75.93	0.03	0.35	0.24	0.16	0.09	0.21	0.08	6.37	0.86	0.02	1.45	72.31	0.00
Min	0.00	0.00	0.00	0.00	0.00	-0.43	2.29	0.37	0.00	0.26	0.94	-1.67	0.00	0.00	0.00	0.00	0.00	-0.43	2.28	0.37	0.00	0.26	0.94	-1.67	0.00	0.00	0.00	0.00	0.00	-0.43	2.19	0.37	0.00	0.26	0.94	-1.67
Max	0.93	0.66	0.83	0.52	0.97	0.31	11.35	4.14	0.14	10.79	4308.96	1.63	0.95	0.66	0.92	0.52	0.92	0.31	11.60	4.14	0.14	10.79	4308.96	1.63	0.88	0.66	0.85	0.52	0.85	0.31	12.02	4.14	0.14	10.79	4308.96	1.63
India																																				
Mean	0.38	0.34	0.31	0.23	0.45	0.15	5.67	1.60	0.04	1.50	105.41	0.46	0.39	0.34	0.30	0.23	0.43	0.14	6.38	1.62	0.03	1.44	100.44	-0.20	0.39	0.33	0.29	0.20	0.42	0.13	6.76	1.60	0.03	1.37	138.52	0.22
Median	0.37	0.34	0.25	0.21	0.46	0.14	5.61	1.24	0.04	1.29	32.43	0.44	0.36	0.34	0.25	0.21	0.43	0.13	6.33	1.24	0.03	1.27	46.24	-0.16	0.38	0.34	0.24	0.18	0.43	0.12	6.74	1.19	0.03	1.26	45.88	0.14
Min	0.00	0.00	0.00	0.00	0.02	-0.07	2.43	0.65	0.01	0.24	0.77	-1.59	0.00	0.00	0.00	0.00	0.05	-0.07	2.70	0.65	0.01	0.24	0.77	-1.59	0.00	0.00	0.00	0.00	0.04	-0.07	2.45	0.65	0.01	0.24	0.77	-1.59
Max	0.98	0.82	0.97	0.68	0.95	0.34	10.20	6.21	0.10	5.19	1474.68	1.65	0.97	0.82	0.96	0.68	0.91	0.34	10.79	6.21	0.10	5.19	1474.68	1.47	0.97	0.82	0.91	0.68	0.95	0.34	11.14	6.21	0.10	5.19	1474.68	1.65
Indonesia																																				
Mean	0.50	0.39	0.38	0.25	0.48	0.12	5.06	1.23	0.05	1.58	147.07	0.18	0.46	0.36	0.31	0.18	0.45	0.13	5.43	1.33	0.05	1.52	158.41	0.09	0.36	0.31	0.23	0.16	0.44	0.15	5.74	1.65	0.05	1.68	126.50	0.23
Median	0.52	0.40	0.38	0.22	0.47	0.11	5.06	1.03	0.04	1.33	63.20	0.11	0.46	0.34	0.26	0.16	0.45	0.12	5.41	1.05	0.04	1.28	50.03	0.14	0.33	0.28	0.16	0.13	0.44	0.14	5.77	1.23	0.04	1.47	40.73	0.19
Min	0.00	0.00	0.00	0.00	0.03	-0.22	2.03	0.57	0.01	0.06	0.85	-1.34	0.00	0.00	0.00	0.00	0.04	-0.22	1.93	0.57	0.01	0.06	0.85	-1.52	0.00	0.00	0.00	0.00	0.05	-0.22	1.26	0.65	0.01	0.06	0.85	-1.30
Max	0.96	1.16	0.93	0.89	0.94	0.47	9.03	4.88	0.19	5.54	1631.67	2.10	0.96	1.16	0.93	0.89	0.95	0.47	9.25	5.22	0.19	5.54	1631.67	2.10	0.98	1.16	0.95	0.89	0.93	0.47	9.84	5.22	0.19	5.54	1631.67	2.10

	Pre (2003 - 2006)												During (2007 - 2009)												Post (2010 - 2012)											
	MVTD	BVTD	MVLTD	BVLTD	TANG	PROF	SIZE	GROW	NDTS	LIQ	VOL	SPP	MVTD	BVTD	MVLTD	BVLTD	TANG	PROF	SIZE	GROW	NDTS	LIQ	VOL	SPP	MVTD	BVTD	MVLTD	BVLTD	TANG	PROF	SIZE	GROW	NDTS	LIQ	VOL	SPP
Asia																																				
Japan																																				
Mean	0.39	0.28	0.24	0.13	0.35	0.07	6.54	1.12	0.03	1.40	223.66	0.20	0.39	0.25	0.25	0.12	0.35	0.08	6.69	1.03	0.04	1.47	189.19	-0.29	0.41	0.26	0.27	0.13	0.35	0.08	6.85	0.96	0.04	1.59	231.07	0.07
Median	0.37	0.26	0.20	0.11	0.34	0.07	6.33	1.05	0.03	1.23	73.83	0.18	0.38	0.23	0.21	0.10	0.33	0.08	6.47	0.97	0.03	1.29	65.89	-0.26	0.42	0.24	0.24	0.11	0.33	0.07	6.65	0.93	0.04	1.41	79.66	0.04
Min	0.00	0.00	0.00	0.00	0.00	-0.10	3.09	0.55	0.00	0.32	1.05	-1.01	0.00	0.00	0.00	0.00	0.00	-0.10	3.12	0.55	0.00	0.32	1.05	-1.01	0.00	0.00	0.00	0.00	0.00	-0.10	2.68	0.55	0.00	0.32	1.05	-1.01
Max	0.98	0.94	0.98	0.47	0.95	0.23	12.40	2.38	0.11	4.87	3626.63	1.08	0.96	0.81	0.89	0.47	0.94	0.23	12.69	2.38	0.11	4.87	3626.63	1.08	0.95	0.92	0.95	0.47	0.94	0.23	12.83	2.38	0.11	4.87	3626.63	1.08
Malaysia																																				
Mean	0.42	0.30	0.23	0.12	0.44	0.08	4.55	1.04	0.03	1.67	322.90	-0.03	0.43	0.27	0.23	0.11	0.35	0.09	4.82	0.99	0.03	1.75	378.56	-0.02	0.39	0.24	0.20	0.09	0.37	0.09	5.03	1.01	0.03	1.82	291.46	0.07
Median	0.42	0.29	0.17	0.08	0.44	0.08	4.28	0.90	0.03	1.41	65.55	-0.03	0.44	0.26	0.18	0.07	0.34	0.08	4.66	0.85	0.03	1.42	76.81	-0.02	0.38	0.23	0.16	0.07	0.35	0.08	4.90	0.84	0.02	1.50	62.30	0.04
Min	0.00	0.00	0.00	0.00	0.01	-0.20	2.03	0.47	0.00	0.21	0.75	-1.20	0.00	0.00	0.00	0.00	0.01	-0.20	2.17	0.47	0.00	0.21	0.75	-1.20	0.00	0.00	0.00	0.00	0.00	-0.20	2.24	0.47	0.00	0.21	0.75	-1.20
Max	0.98	0.79	0.96	0.50	0.94	0.48	10.28	4.47	0.13	6.30	7274.58	1.25	0.97	0.79	0.89	0.50	0.94	0.48	9.50	4.47	0.13	6.30	7274.58	1.25	0.92	0.74	0.82	0.44	0.94	0.48	9.97	4.47	0.13	6.30	7274.58	1.25
Singapore																																				
Mean	0.33	0.26	0.18	0.12	0.36	0.10	5.20	1.20	0.04	1.70	193.82	0.13	0.32	0.24	0.19	0.11	0.29	0.09	5.70	1.15	0.03	1.86	184.20	-0.06	0.32	0.23	0.17	0.11	0.27	0.09	6.00	1.09	0.03	1.93	179.32	0.03
Median	0.29	0.24	0.11	0.08	0.33	0.10	4.78	1.08	0.03	1.46	84.42	0.10	0.28	0.21	0.13	0.09	0.25	0.10	5.39	1.00	0.02	1.57	73.81	0.00	0.29	0.21	0.13	0.07	0.23	0.09	5.69	0.96	0.02	1.65	65.36	0.00
Min	0.00	0.00	0.00	0.00	0.01	-0.23	2.09	0.51	0.00	0.42	1.62	-1.84	0.00	0.00	0.00	0.00	0.00	-0.23	2.18	0.51	0.00	0.42	1.62	-2.13	0.00	0.00	0.00	0.00	0.00	-0.23	2.08	0.51	0.00	0.42	1.62	-1.10
Max	0.98	0.95	0.72	0.46	0.95	0.28	9.97	3.28	0.12	5.85	2342.01	1.95	0.96	0.95	0.72	0.46	0.85	0.28	10.57	3.28	0.12	5.85	2342.01	2.02	0.91	0.95	0.72	0.46	0.82	0.28	11.05	3.28	0.12	5.85	2342.01	1.42
South Korea																																				
Mean	0.50	0.30	0.31	0.13	0.42	0.10	6.23	0.94	0.04	1.34	212.19	0.22	0.49	0.31	0.29	0.12	0.39	0.09	6.52	0.97	0.04	1.34	226.58	0.02	0.50	0.32	0.30	0.12	0.37	0.08	6.76	0.96	0.03	1.31	236.83	0.02
Median	0.52	0.30	0.28	0.11	0.41	0.10	5.88	0.88	0.04	1.20	67.86	0.16	0.51	0.31	0.24	0.10	0.39	0.08	6.10	0.91	0.03	1.17	74.27	0.07	0.52	0.32	0.24	0.10	0.37	0.08	6.33	0.91	0.03	1.15	74.69	-0.01
Min	0.00	0.01	0.00	0.00	0.02	-0.20	1.82	0.47	0.00	0.35	0.75	-1.26	0.00	0.01	0.00	0.00	0.01	-0.20	3.57	0.47	0.00	0.35	0.75	-1.26	0.00	0.01	0.00	0.00	0.01	-0.20	3.51	0.47	0.00	0.35	0.75	-1.26
Max	0.98	0.69	0.93	0.44	0.92	0.27	11.38	2.15	0.13	4.43	4203.67	1.35	0.98	0.69	0.92	0.44	0.90	0.27	11.53	2.15	0.13	4.43	4203.67	1.35	0.97	0.69	0.96	0.44	0.91	0.27	12.02	2.15	0.13	4.43	4203.67	1.35
Taiwan																																				
Mean	0.37	0.31	0.21	0.14	0.40	0.09	5.97	1.15	0.04	1.53	184.04	0.11	0.38	0.29	0.22	0.13	0.40	0.08	6.19	1.11	0.04	1.59	184.83	0.02	0.36	0.29	0.22	0.14	0.39	0.09	6.39	1.16	0.04	1.72	178.33	-0.06
Median	0.36	0.31	0.19	0.13	0.39	0.09	5.76	1.06	0.04	1.41	69.19	0.10	0.38	0.29	0.19	0.11	0.38	0.08	5.89	1.02	0.04	1.43	72.94	0.01	0.34	0.29	0.18	0.12	0.37	0.09	6.10	1.06	0.03	1.50	63.76	-0.02
Min	0.01	0.03	0.00	0.00	0.02	-0.16	3.32	0.62	0.00	0.41	1.06	-1.26	0.00	0.03	0.00	0.00	0.03	-0.16	3.22	0.62	0.00	0.41	1.06	-1.26	0.00	0.03	0.00	0.00	0.02	-0.16	3.12	0.62	0.00	0.41	1.06	-1.26
Max	0.97	0.66	0.74	0.46	0.96	0.30	9.86	2.59	0.16	5.05	1973.35	1.23	0.97	0.66	0.74	0.46	0.94	0.30	10.37	2.59	0.16	5.05	1973.35	1.23	0.95	0.66	0.74	0.46	0.90	0.30	11.16	2.59	0.16	5.05	1973.35	1.23
Thailand																																				
Mean	0.38	0.38	0.24	0.20	0.46	0.13	5.04	1.32	0.05	1.34	257.67	0.11	0.47	0.36	0.28	0.16	0.46	0.12	5.37	1.10	0.05	1.24	239.18	-0.02	0.34	0.33	0.19	0.15	0.41	0.13	5.64	1.46	0.05	1.34	294.38	0.28
Median	0.35	0.39	0.21	0.17	0.48	0.12	4.92	1.15	0.04	1.15	56.29	0.00	0.45	0.35	0.24	0.13	0.49	0.11	5.14	0.94	0.05	1.09	58.38	-0.03	0.32	0.34	0.14	0.11	0.45	0.13	5.46	1.22	0.04	1.16	66.77	0.28
Min	0.00	0.00	0.00	0.00	0.01	-0.14	2.59	0.54	0.01	0.14	0.74	-1.27	0.00	0.00	0.00	0.00	0.01	-0.14	2.71	0.54	0.01	0.14	0.74	-1.27	0.00	0.00	0.00	0.00	0.01	-0.14	2.91	0.54	0.01	0.14	0.74	-1.27
Max	0.94	0.91	0.76	0.62	0.94	0.41	9.94	3.86	0.16	5.07	4269.14	1.93	0.93	0.76	0.89	0.62	0.96	0.41	10.40	3.28	0.16	5.07	4269.14	1.93	0.84	0.87	0.74	0.61	0.97	0.41	10.88	3.86	0.16	4.93	4269.14	1.93
Australia																																				
Mean	0.24	0.26	0.19	0.20	0.36	0.12	5.28	1.67	0.05	1.83	288.82	0.12	0.26	0.26	0.21	0.21	0.31	0.12	5.98	1.70	0.04	1.83	272.84	-0.11	0.27	0.22	0.21	0.17	0.32	0.11	6.31	1.38	0.04	1.82	329.96	0.01
Median	0.22	0.25	0.16	0.20	0.31	0.13	5.13	1.42	0.04	1.39	55.05	0.14	0.23	0.26	0.17	0.20	0.26	0.13	5.97	1.37	0.03	1.41	58.02	-0.09	0.23	0.21	0.18	0.15	0.28	0.11	6.30	1.15	0.03	1.43	61.84	0.03
Min	0.00	0.00	0.00	0.00	0.00	-0.64	1.37	0.61	0.00	0.20	0.67	-1.45	0.00	0.00	0.00	0.00	0.01	-0.64	1.37	0.61	0.00	0.20	0.67	-1.45	0.00	0.00	0.00	0.00	0.00	-0.64	1.46	0.61	0.00	0.20	0.67	-1.45
Max	0.79	0.79	0.73	0.79	0.98	0.45	10.76	5.51	0.17	13.25	6582.90	1.25	0.89	0.79	0.73	0.79	0.94	0.45	10.76	5.51	0.17	13.25	6582.90	1.25	0.92	0.79	0.73	0.79	0.98	0.45	10.76	5.51	0.17	13.25	6582.90	1.25
Europe																																				
Denmark																																				
Mean	0.27	0.27	0.19	0.17	0.38	0.13	5.59	1.75	0.05	1.87	166.54	0.29	0.34	0.30	0.24	0.17	0.36	0.09	5.97	1.52	0.05	1.37	195.49	-0.32	0.36	0.28	0.28	0.18	0.35	0.09	5.85	1.32	0.05	1.38	187.26	-0.05
Median	0.23	0.30	0.14	0.14	0.32	0.13	5.48	1.31	0.05	1.36	63.11	0.28	0.29	0.28	0.17	0.13	0.28	0.09	5.87	1.19	0.05	1.20	91.57	-0.28	0.33	0.26	0.21	0.14	0.30	0.10	5.66	1.02	0.05	1.27	85.06	-0.01
Min	0.00	0.01	0.00	0.00	0.02	-0.26	1.52	0.64	0.01	0.18	1.51	-0.65	0.00	0.00	0.00	0.00	0.02	-0.26	1.89	0.64	0.01	0.21	1.17	-1.51	0.00	0.00	0.00	0.00	0.02	-0.26	2.59	0.64	0.01	0.18	1.06	-1.51
Max	0.81	0.73	0.69	0.70	0.90	0.47	9.68	7.89	0.12	9.53	1638.48	1.10	0.95	0.74	0.93	0.63	0.89	0.39	10.19	7.89	0.11	3.96	1638.48	1.01	0.98	0.86	0.91	0.70	0.90	0.32	10.20	4.47	0.12	4.96	1638.48	1.10
France																																				
Mean	0.30	0.25	0.22	0.16	0.21	0.11	6.73	1.42	0.05	1.44	300.05	0.15	0.36	0.25	0.27	0.17	0.21	0.10	7.14	1.24	0.04	1.41	326.87	-0.18	0.37	0.24	0.28	0.16	0.22	0.09	7.15	1.17	0.04	1.41	294.66	0.01
Median	0.27	0.25	0.18	0.15	0.18	0.11	6.56	1.29	0.04	1.30	47.16	0.15	0.32	0.23	0.22	0.14	0.17	0.09	7.04	1.10	0.03	1.28	47.73	-0.11	0.34	0.22	0.23	0.13	0.17	0.10	7.11	1.06	0.03	1.27	50.05	0.03
Min	0.00	0.01	0.00	0.00	0.01	-0.18	0.60	0.68	0.01	0.33	0.47	-1.47	0.00	0.01	0.00	0.00	0.01	-0.18	1.06	0.67	0.01	0.33	0.47	-1.47	0.00	0.01	0.00	0.00	0.01	-0.18	1.52	0.67	0.01	0.33	0.47	-1.47
Max	0.95	0.72	0.93	0.60	0.85	0.31	11.83	3.76	0.20	3.98	9997.60	1.08	0.97	0.72	0.96	0.60	0.85	0.31	12.11	3.76	0.20	3.98	9997.60	1.08	0.98	0.72	0.97	0.60	0.85	0.31	12.32	3.76	0.20	3.98	9997.60	1.08
Germany																																				
Mean	0.33	0.26	0.24	0.16	0.29	0.12	6.30	1.46	0.06	1.70	245.21	0.22	0.35	0.25	0.27	0.17	0.27	0.11	6.65	1.28	0.05	1.71	246.53	-0.12	0.29	0.22	0.23	0.16	0.26	0.12	6.65	1.32	0.05	1.83	248.68	0.10
Median	0.29	0.24	0.19	0.14	0.26	0.12	5.78	1.22	0.05	1.47	61.99	0.19	0.33	0.25	0.23	0.15	0.24	0.11	6.08	1.12	0.04	1.44	57.88	-0.06	0.26	0.21	0.19	0.14	0.24	0.12	6.04	1.17	0.04	1.58	56.83	0.09
Min	0.00	0.00	0.00	0.00	0.02	-0.22	1.65	0.57	0.01	0.41	1.29	-1.14	0.00	0.00	0.00	0.00	0.00	-0.22	2.49	0.57	0.01	0.41	1.29	-1.14	0.00	0.00	0.00	0.00	0.01	-0.22	2.48	0.57	0.01	0.41	1.29	-1.14
Max	0.95	0.72	0.92	0.53	0.89	0.46	12.57	5.06	0.23	5.97	5705.08	1.20	0.97	0.72	0.93	0.53	0.89	0.46	12.81	5.06	0.23	5.97	5705.08	1.20	0.94	0.72	0.92	0.53	0.84	0.46	12.89	5.06	0.23	5.97	5705.08	1.20

16

	Pre (2003 - 2006)												During (2007 - 2009)												Post (2010 - 2012)											
	MVTD	BVTD	MVLTD	BVLTD	TANG	PROF	SIZE	GROW	NDTS	LIQ	VOL	SPP	MVTD	BVTD	MVLTD	BVLTD	TANG	PROF	SIZE	GROW	NDTS	LIQ	VOL	SPP	MVTD	BVTD	MVLTD	BVLTD	TANG	PROF	SIZE	GROW	NDTS	LIQ	VOL	SPP
Europe																																				
Greece																																				
Mean	0.45	0.35	0.30	0.19	0.43	0.09	5.54	1.13	0.04	1.55	129.94	0.11	0.57	0.39	0.43	0.21	0.44	0.07	5.96	1.09	0.03	1.46	134.18	-0.30	0.73	0.44	0.54	0.18	0.44	0.03	5.79	0.94	0.04	1.19	168.62	-0.25
Median	0.44	0.35	0.29	0.18	0.43	0.09	5.42	1.04	0.03	1.42	53.61	0.10	0.60	0.38	0.40	0.21	0.43	0.06	5.80	0.91	0.03	1.35	70.43	-0.09	0.84	0.42	0.54	0.15	0.44	0.04	5.54	0.85	0.03	1.01	59.74	-0.29
Min	0.00	0.09	0.00	0.01	0.04	-0.08	3.32	0.56	0.01	0.30	0.81	-1.50	0.06	0.09	0.00	0.01	0.04	-0.21	4.11	0.56	0.01	0.27	0.81	-2.34	0.07	0.10	0.01	0.01	0.04	-0.21	3.79	0.56	0.01	0.27	0.81	-2.01
Max	0.86	0.80	0.79	0.60	0.97	0.28	9.70	2.65	0.24	4.13	1558.01	1.48	0.95	0.91	0.94	0.60	0.96	0.28	9.73	2.83	0.24	4.13	1558.01	1.00	1.00	0.91	0.98	0.60	0.97	0.24	9.43	2.83	0.24	4.13	1558.01	1.38
Italy																																				
Mean	0.35	0.29	0.24	0.17	0.25	0.10	6.72	1.37	0.05	1.50	538.40	0.14	0.45	0.32	0.32	0.18	0.25	0.08	7.08	1.16	0.04	1.31	514.40	-0.22	0.53	0.33	0.38	0.19	0.23	0.07	7.01	1.05	0.04	1.26	615.35	-0.15
Median	0.33	0.29	0.19	0.14	0.20	0.10	6.48	1.25	0.04	1.36	72.57	0.12	0.44	0.31	0.29	0.16	0.20	0.08	6.81	1.07	0.03	1.16	69.09	-0.14	0.55	0.32	0.36	0.17	0.19	0.07	6.80	0.97	0.04	1.20	77.96	-0.13
Min	0.00	0.00	0.00	0.00	0.01	-0.22	3.44	0.72	0.00	0.33	0.57	-0.85	0.02	0.03	0.00	0.00	0.01	-0.22	2.86	0.59	0.00	0.33	0.57	-1.50	0.02	0.04	0.00	0.00	0.01	-0.22	2.63	0.59	0.00	0.33	0.57	-1.65
Max	0.86	0.73	0.79	0.60	0.82	0.28	11.67	2.87	0.19	3.71	25620.0	1.30	0.93	0.71	0.91	0.60	0.79	0.28	12.01	2.87	0.19	3.71	25620.0	1.30	0.97	0.83	0.93	0.60	0.82	0.26	12.09	2.87	0.19	3.71	25618.6	0.65
Norway																																				
Mean	0.31	0.32	0.26	0.25	0.38	0.12	6.26	1.48	0.05	1.53	250.30	0.36	0.39	0.32	0.32	0.24	0.36	0.12	6.90	1.24	0.04	1.58	218.41	-0.15	0.40	0.30	0.34	0.23	0.37	0.10	7.04	1.15	0.05	1.46	261.42	-0.07
Median	0.29	0.30	0.20	0.22	0.33	0.12	6.32	1.31	0.05	1.30	96.27	0.34	0.38	0.33	0.29	0.23	0.29	0.11	7.09	1.11	0.04	1.35	98.05	-0.03	0.36	0.30	0.25	0.22	0.28	0.09	7.30	1.01	0.04	1.29	89.67	-0.01
Min	0.00	0.01	0.00	0.00	0.01	-0.20	2.01	0.64	0.00	0.40	3.99	-1.73	0.00	0.00	0.00	0.00	0.01	-0.20	3.44	0.58	0.00	0.40	3.99	-1.74	0.00	0.00	0.00	0.00	0.01	-0.10	3.25	0.58	0.00	0.40	3.99	-1.74
Max	0.87	0.85	0.86	0.76	0.87	0.44	10.83	2.99	0.16	4.90	2493.30	1.39	0.89	0.75	0.88	0.73	0.89	0.44	11.48	2.72	0.12	4.90	1990.15	1.39	0.92	0.72	0.91	0.66	0.89	0.35	11.85	2.29	0.16	3.70	2493.30	0.68
Spain																																				
Mean	0.31	0.30	0.21	0.18	0.37	0.11	6.89	1.53	0.04	1.30	110.06	0.27	0.39	0.34	0.29	0.21	0.38	0.09	7.41	1.36	0.04	1.22	102.28	-0.23	0.49	0.38	0.38	0.24	0.33	0.09	7.36	1.26	0.04	1.28	115.93	-0.16
Median	0.29	0.31	0.16	0.17	0.38	0.10	6.65	1.34	0.04	1.21	71.81	0.24	0.36	0.35	0.23	0.17	0.44	0.09	7.18	1.21	0.04	1.13	48.13	-0.15	0.51	0.40	0.36	0.21	0.33	0.08	7.12	1.07	0.04	1.16	39.16	-0.10
Min	0.00	0.01	0.00	0.00	0.04	-0.19	4.12	0.81	0.01	0.31	1.19	-0.77	0.01	0.03	0.00	0.00	0.03	-0.23	4.30	0.70	0.01	0.31	0.47	-1.44	0.00	0.01	0.00	0.00	0.04	-0.23	3.65	0.70	0.01	0.31	0.47	-1.44
Max	0.78	0.71	0.76	0.61	0.74	0.32	11.79	4.01	0.13	3.07	965.04	1.07	0.91	0.70	0.90	0.61	0.75	0.32	11.90	4.01	0.12	2.96	925.84	0.72	0.95	0.78	0.94	0.61	0.73	0.32	12.02	4.01	0.13	3.07	965.04	0.52
Sweden																																				
Mean	0.22	0.24	0.17	0.17	0.24	0.13	6.19	1.67	0.05	1.61	150.51	0.27	0.30	0.25	0.23	0.17	0.21	0.11	6.59	1.40	0.04	1.55	157.93	-0.17	0.26	0.23	0.20	0.16	0.20	0.11	6.70	1.44	0.04	1.57	170.02	-0.02
Median	0.20	0.24	0.12	0.14	0.21	0.13	5.78	1.47	0.04	1.44	55.94	0.26	0.26	0.24	0.18	0.15	0.15	0.12	6.40	1.22	0.03	1.34	55.10	-0.17	0.21	0.23	0.16	0.14	0.15	0.12	6.59	1.29	0.04	1.38	53.26	0.01
Min	0.00	0.00	0.00	0.00	0.01	-0.24	1.68	0.67	0.01	0.61	1.75	-0.98	0.00	0.00	0.00	0.00	0.01	-0.23	2.75	0.63	0.01	0.61	1.75	-1.52	0.00	0.00	0.00	0.00	0.00	-0.24	2.43	0.63	0.01	0.61	1.75	-1.52
Max	0.82	0.76	0.80	0.56	0.90	0.31	10.51	3.75	0.14	4.38	2003.99	1.22	0.87	0.72	0.87	0.56	0.82	0.31	10.79	3.66	0.14	4.38	2003.99	1.22	0.93	0.77	0.83	0.56	0.82	0.31	10.83	3.75	0.14	4.38	2003.99	1.22
Switzerland																																				
Mean	0.21	0.22	0.15	0.14	0.30	0.13	6.74	1.65	0.04	2.04	140.52	0.23	0.20	0.19	0.14	0.12	0.28	0.13	7.09	1.59	0.04	1.99	102.00	-0.10	0.19	0.19	0.15	0.13	0.27	0.13	7.23	1.62	0.04	2.11	142.91	0.02
Median	0.18	0.19	0.12	0.12	0.27	0.13	6.57	1.37	0.04	1.75	51.96	0.22	0.16	0.16	0.10	0.08	0.23	0.13	7.06	1.35	0.04	1.75	42.94	-0.02	0.16	0.16	0.11	0.11	0.21	0.13	7.20	1.38	0.04	1.84	42.67	0.04
Min	0.00	0.01	0.00	0.00	0.03	-0.13	3.40	0.64	0.01	0.53	1.00	-0.93	0.00	0.00	0.00	0.00	0.03	-0.13	3.51	0.64	0.01	0.53	1.00	-1.08	0.00	0.00	0.00	0.00	0.01	-0.13	3.43	0.64	0.01	0.53	1.00	-0.93
Max	0.72	0.73	0.62	0.53	0.93	0.30	11.07	4.36	0.10	5.81	1695.31	0.93	0.72	0.62	0.62	0.50	0.93	0.30	11.42	4.36	0.10	5.81	1186.64	0.93	0.72	0.73	0.62	0.47	0.90	0.30	11.79	4.36	0.10	5.81	1695.31	0.83
Turkey																																				
Mean	0.30	0.24	0.19	0.14	0.42	0.14	5.77	1.21	0.05	1.71	333.70	0.30	0.37	0.28	0.24	0.16	0.40	0.10	6.20	1.14	0.04	1.58	345.29	0.03	0.32	0.29	0.20	0.14	0.36	0.08	6.31	1.28	0.03	1.51	331.33	0.10
Median	0.24	0.19	0.13	0.08	0.45	0.13	5.67	1.10	0.04	1.53	96.84	0.28	0.33	0.24	0.17	0.12	0.40	0.10	6.05	1.06	0.04	1.41	101.49	0.07	0.29	0.26	0.15	0.12	0.39	0.09	6.42	1.16	0.03	1.35	130.30	0.11
Min	0.00	0.02	0.00	0.00	0.03	-0.07	2.08	0.51	0.00	0.30	1.62	-0.76	0.05	0.03	0.00	0.00	0.00	-0.16	2.75	0.51	0.00	0.27	1.62	-1.59	0.00	0.02	0.00	0.00	0.01	-0.16	2.94	0.51	0.00	0.27	1.62	-1.24
Max	0.91	0.93	0.91	0.83	0.86	0.36	9.06	2.50	0.14	4.84	5312.76	1.41	0.85	0.92	0.77	0.83	0.81	0.36	9.00	2.47	0.10	4.07	5312.76	1.41	0.82	0.93	0.74	0.63	0.78	0.24	9.26	2.50	0.08	4.84	5062.30	1.41
United Kingdom																																				
Mean	0.23	0.24	0.18	0.18	0.33	0.13	6.45	1.72	0.05	1.40	195.52	0.16	0.30	0.26	0.25	0.21	0.30	0.12	6.83	1.47	0.04	1.37	182.77	-0.17	0.27	0.23	0.22	0.18	0.29	0.12	6.87	1.44	0.04	1.42	210.89	0.08
Median	0.20	0.22	0.16	0.16	0.27	0.13	6.55	1.46	0.04	1.27	49.23	0.18	0.27	0.25	0.22	0.18	0.25	0.12	6.93	1.25	0.03	1.22	51.63	-0.10	0.23	0.21	0.18	0.16	0.24	0.11	7.09	1.24	0.04	1.28	44.73	0.11
Min	0.00	0.00	0.00	0.00	0.00	-0.28	0.66	0.60	0.00	0.27	0.66	-1.69	0.00	0.00	0.00	0.00	0.00	-0.28	1.08	0.60	0.00	0.27	0.66	-1.69	0.00	0.00	0.00	0.00	0.00	-0.28	1.77	0.60	0.00	0.27	0.66	-1.69
Max	0.96	0.76	0.83	0.69	0.97	0.39	12.50	5.02	0.15	4.87	3207.88	1.21	0.98	0.76	0.83	0.69	0.96	0.39	12.44	5.02	0.15	4.87	3207.88	1.21	0.98	0.76	0.83	0.69	0.96	0.39	12.61	5.02	0.15	4.87	3207.88	1.21
Africa																																				
South Africa																																				
Mean	0.22	0.19	0.14	0.12	0.33	0.19	5.69	1.53	0.04	1.53	110.91	0.28	0.25	0.22	0.17	0.14	0.33	0.17	6.26	1.59	0.03	1.51	88.78	-0.05	0.25	0.21	0.16	0.13	0.35	0.15	6.55	1.44	0.04	1.56	94.69	0.14
Median	0.18	0.17	0.09	0.09	0.28	0.19	6.00	1.35	0.04	1.39	43.33	0.31	0.18	0.20	0.10	0.10	0.29	0.17	6.56	1.39	0.03	1.38	32.36	-0.04	0.21	0.19	0.10	0.09	0.31	0.14	6.83	1.24	0.03	1.38	39.66	0.16
Min	0.00	0.01	0.00	0.00	0.02	-0.10	0.38	0.64	0.00	0.51	0.89	-1.28	0.00	0.01	0.00	0.00	0.02	-0.10	1.46	0.64	0.00	0.51	0.89	-1.28	0.00	0.01	0.00	0.00	0.02	-0.10	1.78	0.64	0.00	0.51	0.89	-1.25
Max	0.77	0.65	0.71	0.58	0.85	0.44	9.50	3.98	0.13	4.40	1011.38	1.21	0.77	0.65	0.71	0.58	0.85	0.44	9.95	3.98	0.13	4.40	1011.38	1.21	0.66	0.65	0.64	0.58	0.91	0.40	10.05	3.81	0.10	4.40	1011.38	1.21

The correlation matrix of the variables is presented in Table 4. There is high correlation between the four leverage indicators which implies that these ratios contain similar information. Therefore, using the method similar to Alves and Francisco (2013) and Deesomsak et al. (2004), the market value of total leverage is used as the proxy for firm leverage.

In the case of the explanatory variables, the correlation matrix indicates low correlation between the explanatory variables. Furthermore, the Variance Inflation Factor (VIF) reported in Table 5 indicates that the variables have low VIF values. These evidences suggest that there is no multicollinearity issue between the explanatory variables.

Table 4: Correlation Matrix

Data is collected from Thomson One database, for the period from 2003 to 2012, which comprises of 4,634 firms with 46,340 firm-year observations from 27 countries. The variables are defined as: Market value of total leverage (LEV_MVTD) is measured as total debt divided by the sum of total debt, market value of equity and book value of preference shares. Book value of total leverage (LEV_BVTD) is defined as the ratio of total debt to total assets. Long-term market leverage (LEV_MVLTD) is calculated as long-term debt divided by the sum of long-term debt, market value of equity and book value of preference shares. Long-term book leverage (LEV_BVLTD) is the ratio of long-term debt to total assets. Asset tangibility ratio (TANG) is calculated as the proportion of total fixed assets to total assets. Firm profitability (PROF) is the ratio of EBITDA to total assets. Firm size (SIZE) is defined as the natural logarithm of total assets. Firm growth opportunity (GROWTH) is defined as the ratio of total assets minus book value of equity plus market value of equity to total assets. Non-debt tax shield (NDTS) is the ratio of depreciation expenses to total assets. Firm liquidity (LIQ) is defined as the ratio of current assets to current liabilities. Earnings volatility (VOL) is calculated as the absolute value of the difference between the annual percentage change in EBIT less the average change in EBIT for the whole period. Share price performance (SPP) is the first difference of logs of annual closing share prices.

	LEV_MVTD	LEV_BVTD	LEV_MVLTD	LEV_BVLTD	TANG	PROF	SIZE	GROWTH	NDTS	LIQ	VOL	SPP
LEV_MVTD	-											
LEV_BVTD	0.74	-										
LEV_MVLTD	0.85	0.69	-									
LEV_BVLTD	0.41	0.73	0.70	-								
TANG	0.19	0.27	0.24	0.27	-							
PROF	-0.38	-0.17	-0.26	0.01	0.08	-						
SIZE	-0.07	0.03	0.10	0.24	0.01	0.17	-					
GROWTH	-0.49	-0.06	-0.36	0.08	-0.07	0.42	0.13	-				
NDTS	-0.03	0.06	0.04	0.14	0.35	0.27	0.02	0.09	-			
LIQ	-0.36	-0.37	-0.22	-0.12	-0.26	0.07	-0.09	0.05	-0.13	-		
VOL	0.07	0.05	0.05	0.00	0.01	-0.11	-0.07	-0.06	0.02	-0.01	-	
SPP	-0.25	-0.07	-0.22	-0.02	0.01	0.23	0.00	0.27	-0.02	0.02	-0.01	-

Table 5: Variance Inflation Factor

The variance inflation factor (VIF) is calculated for all variables in the regression model. Firm leverage is measured as the market value of total leverage (LEV_MVTD). See Table 1 for the definitions of the variables.

Variance Inflation Factor (VIF)

Country	Brazil	Canada	Chile	US	China	Hong Kong	India	Indonesia	Japan
TANG	1.39	1.29	1.36	1.49	1.77	1.35	1.34	1.38	1.46
PROF	1.40	1.29	1.96	1.56	1.51	1.23	1.48	1.76	1.55
SIZE	1.06	1.37	1.10	1.14	1.27	1.17	1.05	1.19	1.08
GROWTH	1.20	1.19	1.68	1.51	1.62	1.19	1.34	1.50	1.31
NDTS	1.58	1.22	1.73	1.46	1.73	1.38	1.34	1.60	1.45
LIQ	1.26	1.20	1.11	1.21	1.30	1.09	1.20	1.25	1.31
VOL	1.11	1.10	1.12	1.08	1.08	1.03	1.10	1.12	1.03
SPP	1.03	1.26	1.09	1.10	1.37	1.17	1.12	1.14	1.12

Country	Malaysia	Singapore	S. Korea	Taiwan	Thailand	Australia	Denmark	France	Germany
TANG	1.35	1.37	1.43	1.42	1.22	1.18	1.27	1.08	1.21
PROF	1.53	1.28	1.45	1.62	1.95	1.28	1.34	1.38	1.40
SIZE	1.14	1.16	1.14	1.12	1.17	1.19	1.17	1.12	1.13
GROWTH	1.34	1.30	1.21	1.46	1.55	1.15	1.28	1.31	1.42
NDTS	1.47	1.44	1.47	1.54	1.58	1.26	1.23	1.19	1.21
LIQ	1.13	1.10	1.30	1.17	1.21	1.09	1.26	1.11	1.24
VOL	1.03	1.11	1.02	1.09	1.05	1.05	1.19	1.02	1.05
SPP	1.10	1.21	1.19	1.23	1.22	1.23	1.17	1.13	1.07

Country	Greece	Italy	Norway	Spain	Sweden	Switzerland	Turkey	UK	S. Africa
TANG	1.10	1.12	1.44	1.43	1.21	1.43	1.32	1.16	1.24
PROF	1.81	1.49	1.43	1.84	1.54	1.74	1.37	1.50	2.03
SIZE	1.12	1.22	1.22	1.46	1.18	1.18	1.09	1.14	1.13
GROWTH	1.22	1.34	1.39	1.65	1.63	1.94	1.13	1.34	1.79
NDTS	1.35	1.26	1.44	1.59	1.22	1.30	1.36	1.22	1.41
LIQ	1.28	1.28	1.09	1.41	1.19	1.09	1.14	1.10	1.16
VOL	1.13	1.06	1.06	1.11	1.08	1.12	1.03	1.07	1.18
SPP	1.18	1.20	1.19	1.23	1.20	1.09	1.19	1.10	1.17

4   Findings and Discussion

The relationship between leverage and firm characteristics is discussed with reference to the capital structure theories. A sub-period analysis is then conducted to examine for changes in the relationship between leverage and firm characteristics during the financial crisis period.

4.1   Capital structure and firm characteristics

The relationship between leverage and firm characteristics is examined and the results are reported in Table 6.

Our results suggest that asset tangibility negatively influences firm leverage in Brazil, China, Greece, Indonesia, Turkey and US but positively influences firm leverage in Hong Kong, Japan, Malaysia, Singapore, Germany, Norway, Sweden and South Africa. Firm profitability, growth opportunities, liquidity and share price performance have negative influence firm leverage. Alternatively, firm size and non-debt tax shield have positive influence on firm leverage. Lastly, earnings volatility has no influence on firm leverage and is insignificant in many countries. Although the signs on the firm characteristics coefficients are in accordance to the capital structure theories, the size of their influence in each country differs. A summary of these results are presented in Table 7.

The positive relationship between asset tangibility and firm leverage is consistent with the predictions of the trade-off theory and agency theory. Tangible assets are pledged as collateral to reduce asset substitutions and risk shifting from shareholders to creditors, and to retain value in bankruptcies (Rajan & Zingales, 1995). Therefore, firms with more tangible assets are often associated with higher leverage levels as Booth and Booth (2006) argues that tangible assets increase firm's debt capacity and reduces borrowing cost when pledged as collateral. On the other hand, Lee, Lee and Lee (2000) argue that asset tangibility can have negative influence on firm leverage because more fixed assets increases the firm's fixed operating expenses. This leads to higher operational risk and increases the probability of bankruptcy.

Jiménez and Saurina (2004) reports that more thorough screening of potential borrowers, especially in countries where there is no relationship banking, ensures that only the low risk borrowers are given loans. This ensures that the bank's credit risk is minimized. Therefore, low risk borrowers are also less likely required to pledge collaterals. This explains the insignificance of the asset tangibility coefficient in Australia, Canada, Switzerland and UK, where firm banking relationships are at arms-length. In addition, Nguyen and Qian (2012)

argues that that firms in countries with higher income, stronger institutions and better credit information are also less obligated to pledge collateral. Whilst reputable firms are less likely to pledge collateral, the smaller firms have more difficulty obtaining bank financing. These firms obtain funds from informal lenders which do not require them to provide debt collateral. This explains the insignificance of the asset tangibility coefficient in India and Thailand where the firms are small, less creditworthy and have more difficulty in accessing bank financing.

Profitability is negatively related to firm leverage and statistically significant in all countries, except Turkey. This is consistent with the pecking order theory as firms with higher profitability have more internally generated funds to finance operations (Myers, 1984; Titman & Wessels, 1988). Profitability has greater influence on firm leverage in Asia, especially for firms in China, India, Japan, and Thailand as indicated by the larger profitability coefficients. This is because family-owned firms are common in the Asian countries and firms use more internally generated funds to finance operations and investments. Debt is preferred to equity when external funds are required to prevent the dilution of ownership associated with external equity and to preserve control within the family (Deesomsak et al., 2004). Therefore, the firms with higher earnings will have less leverage.

Firm size has positive influence on firm leverage and is statistically significant in most countries. Larger firms have wider access to debt financing, lower risk of bankruptcy and more assets to be used for collateral, and therefore have higher firm leverage (Titman and Wessels, 1988). However, the firm size coefficient is insignificant in Brazil, Italy, Norway, Sweden, UK and US. The Global Financial Crisis led to significant increase in borrowing cost and credit rationing which made it more difficult for the firms to obtaining credit (Clarke, Cull & Kisunko, 2012). Larger firms were unwilling borrow due to the increase in borrowing cost whilst the smaller firms were unable to obtain loans from banks. This weakened the influence of firm size on leverage. Over in the Asian countries, firm size have significant influence on firm leverage. The financial markets were less volatile compared to the US and the European countries. Furthermore, the governments in the Asian countries introduced policy actions to preserve confidence and stability in the financial markets such as by providing liquidity assistance, bank capital injection and trade finance support (Aiyar & Jain-Chandra, 2013). This ensured that the availability of credit to firms was not disrupted.

Growth opportunity has negative influence on firm leverage and is statistically significant in all countries except Denmark. The negative influence of growth opportunity on firm leverage

is consistent with past studies such as Booth et al. (2001) and Deesomsak et al. (2004). Deesomsak et al. (2004) argues that firms with more growth opportunities have lower leverage to avoid the restrictions in the debt covenants. Furthermore, high growth firms have few tangible assets for debt collateral as majority of their value is intangible. The income stream of the high growth firms is also unstable which affects their ability to finance interest payments. Therefore, high growth firms have lower debt in their capital structure and use more internal funds and equity financing. Our results indicate that growth opportunity coefficient is more negative in the bank-based economies, such as Greece, Italy, Japan and Norway, where bank loan is the main form of external financing. On the other hand, the influence of growth opportunity on leverage is weaker in the countries with market-based financial systems such as Australia, Canada, Denmark, Hong Kong, Malaysia, South Africa, Sweden, Switzerland, UK and US which have more active equity markets and the firms are less reliant on banks for external funds.

Non-debt tax shield have positive impact firm leverage. This is consistent with Antoniou, Guney and Paudyal (2008), Bradley, Jarrell and Kim (1984) and Harris and Raviv (1991) who argue that larger non-debt tax shield (from high depreciation expenses) implies that the firm has high tangible assets. This increases the firm's debt capacity which allows the firm to obtain more leverage. However, high non-debt tax shield does not always translate to high firm leverage as the coefficient is insignificant in many countries. This suggest that non-debt tax shield is not a major factor influencing firms' borrowing decisions.

Similar to the influence of profitability, firm liquidity is negatively related to firm leverage. Higher firm liquidity indicates more internal funds available to finance obligations and this reduces the need for leverage. This is consistent with the pecking order theory and similar to the findings of Deesomsak et al. (2004). Our results indicate that the liquidity coefficient is larger in the Asian countries. This is because internal financing became more important after the Asian Financial Crisis in 1997. Firms reduced leverage in their capital structure and increased liquidity and cash holdings after experiencing severe cash flow shortfalls and difficulty in accessing capital markets during the crisis in 1997 (Chen & Chang, 2013).

The volatility of firm earnings has little or almost no impact on firm leverage and is statistically insignificant in most countries. This is inconsistent with Bradley et al. (1984) and Titman and Wessels (1988) who argue that earnings volatility have negative influence on firm leverage. However, our results are similar to Deesomsak et al. (2004) who argue that the risk of

bankruptcy, as indicated by the volatility of firm earnings, is less important when firm debt levels are well below the debt capacity and financial distress risk is low.

Share price performance has negative influence on firm leverage which is statistically significant. This supports the market timing theory that firms issue equity when prices are overvalued. Therefore, higher share price leads to lower debt levels as firms prefer to issue equity when prices are high (Deesomsak et al., 2004). Furthermore, firms avoid the equity market during periods of high volatility as share prices fall. Our findings support Ozenbas and Luis San Vicente Portes (2014) that high share price volatility have negative influence on debt, especially during periods of financial crisis.

Table 6: The influence of firm characteristics on leverage (full sample)

The fixed-effects regression of firm characteristics on leverage for 27 countries from year 2003 to 2012 is presented. Firm leverage is measured as the market value of total leverage (LEV_MVTD). See Table 1 for the definition of the variables. Heteroskedasticity-consistent standard errors are reported in the parentheses. *** Significance at 1% level, ** Significance at 5% level, * Significance at 10% level.

Panel A: Market Value of Total Leverage

	America				Asia										Australia	Europe											Africa
	Brazil	Canada	Chile	US	China	Hong Kong	India	Indonesia	Japan	Malaysia	Singapore	S. Korea	Taiwan	Thailand	Australia	Denmark	France	Germany	Greece	Italy	Norway	Spain	Sweden	Switzerland	Turkey	UK	S. Africa
Variable																											
TANG	-0.203 **	0.019	-0.084	-0.081 ***	-0.050 *	0.130 ***	0.061	-0.171 **	0.125 ***	0.080 **	0.101 **	-0.002	-0.033	-0.048	-0.004	0.042	-0.020	0.244 ***	-0.142 **	-0.063	0.410 ***	0.046	0.170 *	-0.055	-0.163 **	0.029	0.226 ***
	(0.080)	(0.042)	(0.078)	(0.031)	(0.026)	(0.030)	(0.042)	(0.070)	(0.026)	(0.033)	(0.040)	(0.033)	(0.032)	(0.051)	(0.034)	(0.104)	(0.077)	(0.050)	(0.072)	(0.053)	(0.065)	(0.070)	(0.096)	(0.069)	(0.072)	(0.044)	(0.078)
PROF	-0.354	-0.249 ***	-0.264 ***	-0.411 ***	-0.640 ***	-0.167 ***	-0.681 ***	-0.475 ***	-0.820 ***	-0.448 ***	-0.539 ***	-0.536 ***	-0.544 ***	-0.608 ***	-0.284 ***	-0.449 ***	-0.510 ***	-0.426 ***	-0.961 ***	-0.455 ***	-0.258 ***	-0.299 ***	-0.412 ***	-0.425 ***	-0.099	-0.340 ***	-0.244 ***
	(0.144)	(0.047)	(0.073)	(0.025)	(0.065)	(0.050)	(0.084)	(0.100)	(0.031)	(0.066)	(0.073)	(0.048)	(0.048)	(0.081)	(0.046)	(0.112)	(0.067)	(0.050)	(0.140)	(0.091)	(0.095)	(0.115)	(0.081)	(0.074)	(0.132)	(0.058)	(0.068)
SIZE	0.006	0.042 ***	0.082 ***	0.007	0.081 ***	0.069 ***	0.067 ***	0.076 ***	0.094 ***	0.079 ***	0.064 ***	0.128 ***	0.093 ***	0.067 ***	0.024 ***	0.100 ***	0.020 *	0.070 ***	0.053 ***	0.003	0.025	0.060 **	0.019	0.064 ***	0.149 ***	-0.002	0.047 ***
	(0.023)	(0.009)	(0.019)	(0.050)	(0.007)	(0.011)	(0.011)	(0.015)	(0.006)	(0.011)	(0.010)	(0.008)	(0.009)	(0.015)	(0.009)	(0.026)	(0.011)	(0.011)	(0.019)	(0.016)	(0.017)	(0.024)	(0.011)	(0.017)	(0.031)	(0.008)	(0.013)
GROWTH	-0.157 ***	-0.074 ***	-0.106 ***	-0.075 ***	-0.034 ***	-0.085 ***	-0.020 ***	-0.035 ***	-0.148 ***	-0.077 ***	-0.145 ***	-0.263 ***	-0.171 ***	-0.107 ***	-0.047 ***	0.012	-0.079 ***	-0.064 ***	-0.117 ***	-0.176 ***	-0.162 ***	-0.073 ***	-0.039 ***	-0.053 ***	-0.161 ***	-0.058 ***	-0.070 ***
	(0.020)	(0.009)	(0.017)	(0.004)	(0.006)	(0.009)	(0.008)	(0.013)	(0.007)	(0.014)	(0.015)	(0.013)	(0.010)	(0.013)	(0.007)	(0.011)	(0.011)	(0.009)	(0.024)	(0.019)	(0.020)	(0.019)	(0.012)	(0.010)	(0.023)	(0.007)	(0.013)
NDTS	1.216 ***	-0.029	1.349 ***	0.290	0.557 **	-0.105	0.939 ***	1.53 ***	0.679 ***	0.491	0.375	1.206 ***	0.497 **	0.315	0.128	0.366	0.471 **	0.350 *	2.075 ***	-0.134	0.526	0.173	-0.071	0.730 *	0.467	-0.044	1.114 ***
	(0.391)	(0.238)	(0.393)	(0.184)	(0.284)	(0.325)	(0.328)	(0.335)	(0.134)	(0.356)	(0.345)	(0.203)	(0.203)	(0.261)	(0.197)	(0.565)	(0.187)	(0.194)	(0.575)	(0.311)	(0.455)	(0.455)	(0.348)	(0.374)	(0.392)	(0.250)	(0.371)
LIQ	-0.119 ***	-0.033 ***	-0.033 ***	-0.029 ***	-0.079 ***	-0.026 ***	-0.037 ***	-0.052 ***	-0.093 ***	-0.054 ***	-0.056 ***	-0.118 ***	-0.053 ***	-0.045 ***	-0.012 ***	-0.021 ***	-0.056 ***	-0.035 ***	-0.031 **	-0.103 ***	-0.017	-0.112 ***	-0.042 ***	-0.035 ***	-0.026	-0.026 ***	-0.038 ***
	(0.016)	(0.006)	(0.008)	(0.003)	(0.006)	(0.004)	(0.007)	(0.009)	(0.004)	(0.004)	(0.007)	(0.007)	(0.004)	(0.010)	(0.003)	(0.008)	(0.010)	(0.005)	(0.012)	(0.013)	(0.012)	(0.017)	(0.010)	(0.006)	(0.017)	(0.006)	(0.008)
VOL	0.000	0.000	0.000	0.000 ***	0.000	0.000	0.000 ***	0.000	0.000 ***	0.000	0.000	0.000 ***	0.000	0.000 **	0.000	0.000 **	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ***	0.000 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SPP	-0.013 **	-0.042 ***	-0.046 ***	-0.053 ***	-0.066 ***	-0.068 ***	-0.066 ***	-0.074 ***	-0.040 ***	-0.069 ***	-0.037 ***	-0.052 ***	-0.044 ***	-0.031 ***	-0.062 ***	-0.113 ***	-0.074 ***	-0.061 ***	-0.061 ***	-0.091 ***	-0.066 ***	-0.085 ***	-0.070 ***	-0.035 **	-0.036 **	-0.087 ***	-0.060 ***
	(0.005)	(0.010)	(0.016)	(0.005)	(0.007)	(0.007)	(0.007)	(0.011)	(0.003)	(0.009)	(0.010)	(0.006)	(0.006)	(0.010)	(0.010)	(0.016)	(0.010)	(0.009)	(0.012)	(0.013)	(0.016)	(0.018)	(0.014)	(0.015)	(0.017)	(0.008)	(0.013)
Constant	0.984 ***	0.412 ***	0.167	0.331 ***	0.048	0.386 ***	0.462 ***	0.696 ***	0.424 ***	0.377 ***	0.248 **	0.195 ***	0.467 ***	0.291 ***	0.415 ***	0.138	0.287 **	0.125 **	0.570 ***	0.692 ***	0.280 ***	0.107	0.192 **	-0.243	-0.376 *	0.275 ***	0.011
	(0.181)	(0.092)	(0.111)	(0.048)	(0.052)	(0.081)	(0.089)	(0.099)	(0.041)	(0.063)	(0.111)	(0.061)	(0.072)	(0.095)	(0.085)	(0.135)	(0.117)	(0.054)	(0.111)	(0.087)	(0.100)	(0.248)	(0.080)	(0.177)	(0.223)	(0.052)	(0.094)
Firm Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R squared	0.798	0.799	0.788	0.823	0.837	0.783	0.841	0.803	0.893	0.798	0.753	0.843	0.856	0.826	0.710	0.783	0.839	0.842	0.854	0.841	0.833	0.866	0.834	0.804	0.726	0.751	0.789
Adj R squared	0.765	0.774	0.753	0.803	0.817	0.756	0.821	0.775	0.881	0.774	0.721	0.824	0.838	0.803	0.673	0.749	0.820	0.823	0.832	0.820	0.807	0.845	0.811	0.776	0.683	0.721	0.759

Table 7: The influence of firm characteristics on leverage (full sample) – Summary

Table presents the summary of the relationship between firm characteristics and firm leverage for the whole sample period from year 2003 to 2012, based on the findings in table 6. Firm leverage is measured as the market value of total leverage (LEV_MVTD). See Table 1 for the definition of the variables. "+/-" indicates significant positive/negative influence, " " indicates insignificant influence.

Firm Leverage: Market Value of Total Leverage

Variable	America				Asia										Australia	Europe											Africa
	BRA	CAN	CHL	US	CHN	HKG	IND	IDN	JPN	MYS	SGP	KOR	TWN	THA	AUS	DNK	FRA	DEU	GRC	ITA	NOR	ESP	SWE	CHE	TUR	UK	ZAF
TANG	-			-	-	+		-	+	+	+						+	-		+		+			-		+
PROF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SIZE		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+		+	+			+
GROWTH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NDTS	+		+		+		+	+	+			+	+			+	+	+					+				+
LIQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VOL				+			+		+			+		+		+									+		+
SPP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

4.2   Firm leverage during the Global Financial Crisis

4.2.1   Firm leverage levels during the Global Financial Crisis

The variation in the mean firm leverage for each continent from 2003 to 2012 is presented in Figure 2. There is a decreasing trend in mean firm leverage from 2003 to 2007, which coincides with the period of positive economic growth. In 2008, mean firm leverage increased significantly in all the continents due to the Global Financial Crisis and economic recession.

The mean firm leverage from 2003 to 2012 is reported in Table 8. Mean firm leverage in the American countries increased from 0.29 in the pre-crisis period to 0.31 during-crisis. Over in Asia, mean firm leverage ratio remained at 0.39 in the pre- and during-crisis sub-periods. The increase in mean firm leverage is largest in the European countries, from 0.30 (pre-crisis) to 0.36 during the financial crisis. Mean firm leverage also increased in Australia and South Africa during the financial crisis.

Most of the increase in firm leverage occurred in 2008. Among the American countries, Brazil had the largest increase in mean firm leverage from 0.32 (in 2007) to 0.48 (in 2008). In the Asian countries, the largest increase in firm leverage is observed in the Chinese firms which increased leverage by 0.20 (from 0.16 to 0.36) in 2008. Firm leverage in Hong Kong, Indonesia, Singapore, South Korea, Taiwan and Thailand also increased by more than 0.10 in 2008 compared to the previous year. In the case of the European countries, the increase in mean firm leverage was largest in Greece (from 0.43 to 0.65), Italy (from 0.35 to 0.53), Norway (from 0.29 to 0.50) and Turkey (from 0.26 to 0.51).

Mean firm leverage decreased in the post-crisis period for the American and Asian countries. However, in the case of the European countries, mean firm leverage continued to increase to a mean of 0.38. The mean leverage ratio in Greece was higher than 0.70 from 2010 to 2012. Firm leverage ratios in Denmark, France, Italy and Norway decreased slightly but remained above their pre-crisis levels. However, firm leverage remained high in the European countries post-2009 due to the Sovereign Debt Crisis.

Figure 2

Mean firm leverage ratios for each continent, from 2003 to 2012, is the mean leverage of all the firms in the countries within the continent. The proxy for firm leverage is the market value of total leverage (LEV_MVTD) measured as total debt divided by the sum of total debt, market value of equity and book value of preference shares.
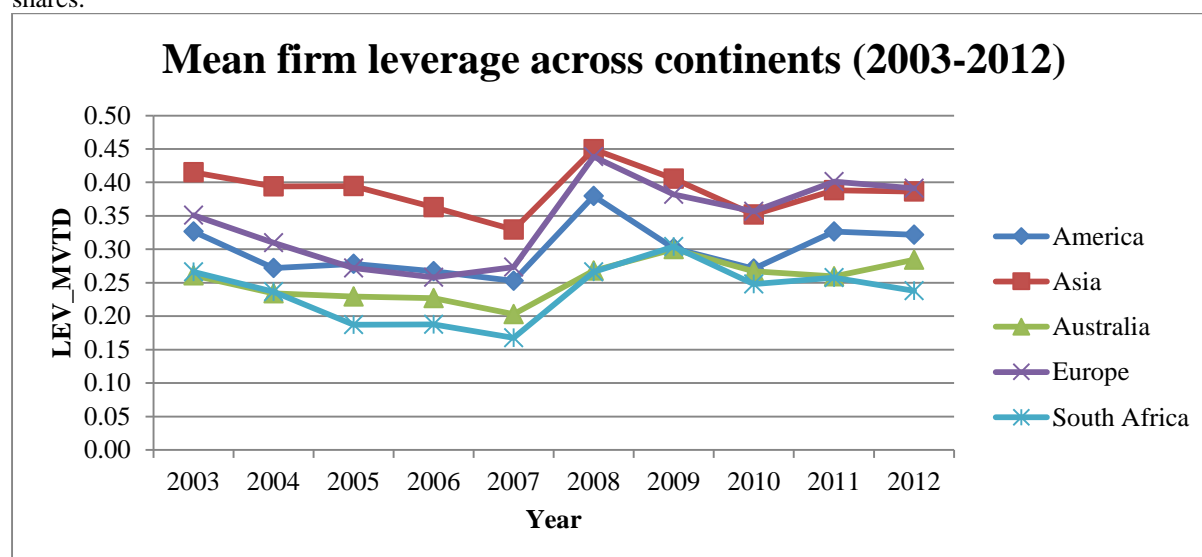

Table 8: Mean firm leverage (sub-period)

Mean firm leverage ratios for the countries in the sample from 2003 to 2012 are presented. The mean of firm leverage for each sub-period is calculated as the average of the annual mean firm leverage ratios within the sub-period. Firm leverage is the market value of total leverage (LEV_MVTD) defined as the ratio of firm total debt divided by the sum of total debt, market value of equity and book value of preference shares.

	Pre (2003-2006)					During (2007-2009)				Post (2010-2012)			
	2003	2004	2005	2006	Mean	2007	2008	2009	Mean	2010	2011	2012	Mean
America													
Brazil	0.45	0.38	0.40	0.38	**0.40**	0.32	0.48	0.37	**0.39**	0.37	0.47	0.45	**0.43**
Canada	0.27	0.24	0.23	0.23	**0.24**	0.24	0.34	0.28	**0.29**	0.25	0.27	0.27	**0.26**
Chile	0.33	0.24	0.25	0.24	**0.27**	0.22	0.33	0.27	**0.27**	0.21	0.28	0.29	**0.26**
United States	0.25	0.22	0.23	0.22	**0.23**	0.24	0.37	0.28	**0.30**	0.25	0.28	0.28	**0.27**
Mean	*0.33*	*0.27*	*0.28*	*0.27*	**0.29**	*0.25*	*0.38*	*0.30*	**0.31**	*0.27*	*0.33*	*0.32*	**0.31**
Asia													
China	0.24	0.30	0.37	0.30	**0.31**	0.16	0.36	0.23	**0.25**	0.25	0.34	0.37	**0.32**
Hong Kong	0.37	0.32	0.32	0.32	**0.33**	0.28	0.41	0.38	**0.36**	0.34	0.39	0.40	**0.37**
India	0.54	0.39	0.33	0.29	**0.38**	0.32	0.34	0.50	**0.39**	0.35	0.37	0.44	**0.39**
Indonesia	0.54	0.52	0.49	0.46	**0.50**	0.39	0.54	0.45	**0.46**	0.37	0.35	0.35	**0.36**
Japan	0.50	0.40	0.35	0.30	**0.39**	0.32	0.39	0.47	**0.39**	0.42	0.41	0.40	**0.41**
Malaysia	0.38	0.39	0.47	0.46	**0.42**	0.40	0.47	0.43	**0.43**	0.39	0.39	0.39	**0.39**
Singapore	0.33	0.32	0.34	0.30	**0.33**	0.25	0.39	0.33	**0.32**	0.28	0.35	0.32	**0.32**
South Korea	0.57	0.56	0.44	0.44	**0.50**	0.40	0.57	0.50	**0.49**	0.48	0.52	0.51	**0.50**
Taiwan	0.35	0.37	0.41	0.35	**0.37**	0.34	0.49	0.32	**0.38**	0.30	0.40	0.38	**0.36**
Thailand	0.32	0.37	0.42	0.42	**0.38**	0.42	0.54	0.44	**0.47**	0.34	0.37	0.31	**0.34**
Mean	*0.41*	*0.39*	*0.39*	*0.36*	**0.39**	*0.33*	*0.45*	*0.41*	**0.39**	*0.35*	*0.39*	*0.39*	**0.38**
Australia	0.26	0.23	0.23	0.23	**0.24**	0.20	0.27	0.30	**0.26**	0.27	0.26	0.28	**0.27**
Europe													
Denmark	0.36	0.30	0.23	0.20	**0.27**	0.22	0.39	0.40	**0.34**	0.36	0.37	0.37	**0.36**
France	0.35	0.30	0.28	0.26	**0.30**	0.27	0.41	0.38	**0.36**	0.35	0.38	0.37	**0.37**
Germany	0.38	0.34	0.30	0.28	**0.33**	0.29	0.40	0.36	**0.35**	0.29	0.30	0.29	**0.29**
Greece	0.43	0.48	0.47	0.40	**0.45**	0.43	0.65	0.63	**0.57**	0.71	0.77	0.71	**0.73**
Italy	0.38	0.36	0.33	0.33	**0.35**	0.35	0.53	0.47	**0.45**	0.47	0.56	0.55	**0.53**
Norway	0.41	0.31	0.26	0.27	**0.31**	0.29	0.50	0.39	**0.39**	0.37	0.43	0.41	**0.40**
Spain	0.38	0.31	0.27	0.26	**0.31**	0.30	0.44	0.43	**0.39**	0.45	0.49	0.53	**0.49**
Sweden	0.27	0.23	0.20	0.18	**0.22**	0.22	0.40	0.28	**0.30**	0.22	0.27	0.29	**0.26**
Switzerland	0.28	0.23	0.19	0.16	**0.21**	0.15	0.23	0.21	**0.20**	0.17	0.20	0.19	**0.19**
Turkey	0.35	0.31	0.24	0.30	**0.30**	0.26	0.51	0.33	**0.37**	0.26	0.37	0.34	**0.32**
United Kingdom	0.27	0.23	0.21	0.20	**0.23**	0.22	0.36	0.33	**0.30**	0.27	0.27	0.25	**0.27**
Mean	*0.35*	*0.31*	*0.27*	*0.26*	**0.30**	*0.27*	*0.44*	*0.38*	**0.36**	*0.36*	*0.40*	*0.39*	**0.38**
Africa													
South Africa	0.27	0.24	0.19	0.19	**0.22**	0.17	0.27	0.30	**0.25**	0.25	0.26	0.24	**0.25**

27

4.2.2   The influence of firm characteristics on leverage during the Global Financial Crisis
The influence of the firm characteristics on leverage in the changing market conditions is examined in a sub-period analysis and reported in Table 9 and 10. The results indicate that the influence of firm characteristics on leverage in the pre-crisis period is similar to the results in the full-sample analysis. However, during the financial crisis, the influence of the firm characteristics became weaker and was insignificant especially in the American and European countries.

Asset tangibility has insignificant influent on firm leverage in most countries. Although the influence of asset tangibility on firm leverage was significant during the pre-crisis period (in Brazil, Hong Kong, Germany, Singapore, South Africa, Sweden, Switzerland and Turkey), the influence of asset tangibility became insignificant during the financial crisis.

The influence of firm profitability on leverage is statistically significant in most countries, across the three sub-periods. Regardless of the economic conditions, firm profitability continued to have significant negative influence on firm leverage. However, the influence of firm profitability weakened during the financial crisis in many countries including the US, China, India and South Korea. Moreover, the profitability coefficient was insignificant in Brazil, Canada, Hong Kong and Australia during the crisis. Alternatively, in Japan, Germany, Italy and Spain, the influence of profitability on firm leverage became stronger during the crisis.

The positive influence of firm size on leverage remained significant in most countries throughout the financial crisis. However, in Australia, Germany, Malaysia, Singapore, Sweden and Switzerland, firm size became insignificant during the crisis. Furthermore, firm size negatively influenced firm leverage in France and UK during the financial crisis.

The negative influence of firm growth opportunities on leverage became insignificant during the financial crisis. Furthermore, growth opportunities had positive influence on firm leverage in China, Denmark and Sweden during the crisis. These results suggest that firms with high growth opportunities (i.e. riskier firms) increased leverage during the crisis.

Firm liquidity remained an important determinant of firm leverage across the three sub-periods, especially in the Asian firms. The size of the liquidity coefficient increased during the financial crisis, which suggests that firms in the Asian countries increased liquidity and reduced leverage

as the economic conditions worsen. However, the liquidity coefficient became insignificant in America and Europe during- and post-crisis.

Non-debt tax shield and earnings volatility was insignificant in most countries. However, earnings volatility became more important during- and post-crisis as the risk of financial distress increases. Lastly, the influence of share price performance on firm leverage was negative and significant across all three sub-periods. Furthermore, the influence of share prices on firm leverage was stronger during the crisis and post-crisis periods.

In summary, these results indicate that the influence of the firm characteristics on leverage changed during the Global Financial Crisis. Furthermore, the changes are different in the American, Asian and European countries as the financial crisis affected each country differently.

The insignificance of the asset tangibility coefficient during- and post- crisis indicates that tangible assets for debt collateral are less important. Norden and Kampen (2013) argue that the stricter lending standards and reduced credit supply by banks to the corporate sector during the crisis reduce the need for collateral. Furthermore, bank-dependent firms were no longer able to benefit to the same extent as in the pre-crisis times from pledging collateral to raise external finance.

Harrison and Widjaja (2013) argue that weaker influence of profitability on firm leverage during the crisis is due to the decrease in profits which forced firms to increase leverage. Earnings were insufficient and firms are not able to rely on internal funds to finance operations. Furthermore, the harsh lending conditions during the crisis made it more difficult for the unprofitable firms to borrow. On the other hand, the stronger influence of profitability on firm leverage in Japan, Germany, Italy and Spain during the financial crisis can be explained by the long-term relationship between firms and their banks, as these countries operate in a bank-based financial system. Schmukler and Vesperoni (2001) argue that banks possess inside information due to the long-term relationship with firms. This allows banks to continue lending to firms even during the crisis and easier for firms to borrow.

Although firm size continues to exert positive influence on firm leverage in most countries, the insignificance of the firm size coefficient (in Australia, Germany, Malaysia, Singapore, Sweden and Switzerland) indicate the influence of firm size on leverage is weaker during the crisis. Harrison and Widjaja (2013) argue that higher information asymmetry and internal

financing capacity constraints during the financial crisis leads the inverse relationship between firm size and leverage. This is because smaller firms have less internal capacity and are more likely to be financially constrained. Therefore, smaller firms are forced to raise external capital and will prefer debt financing as equity prices are heavily discounted during the crisis due to high volatility in the equity market. On the other hand, large firms have larger internal financing capacity and are capable of fulfilling their capital requirements internally.

The insignificance of growth opportunity coefficient (and positive influence of growth opportunity in China, Denmark and Sweden) during the crisis indicate that high growth firms increased leverage during the crisis. This is probable as high growth firms have unstable cash flows. During the crisis, firm earnings decrease due to the poor economic conditions and firms are unable to finance operations internally.

The stronger influence of firm liquidity in Asia during the financial crisis suggests that liquid firms reduced leverage to avoid risk of financial distress. However, in the Western countries, the liquidity coefficient was insignificant during and post-crisis. This is because firms in America and Europe had more severe liquidity problems during the crisis. Firms with insufficient liquidity increased leverage during the crisis whilst those with severe liquidity problems are unable to obtain funds due to higher risk of bankruptcy.

Finally, share price performance had significant negative influence on firm leverage across all three sub-periods, and was stronger during- and post-crisis. This is consistent with market timing theory as firms increase debt during the financial crisis. Firms avoid issuing equity as prices are low and volatility in the equity market is high.

Table 9: Sub-period analysis of the relationship between firm characteristics and leverage

The influence of the firm characteristics on leverage in the pre-crisis (2003-2006), during-crisis (2007-2009) and post-crisis (2010-2012) periods are presented. Firm leverage is measured as the market value of total leverage (LEV_MVTD). See Table 1 for the definition of the variables. Heteroskedasticity-consistent standard errors are reported in the parentheses. *** Significance at 1% level, ** Significance at 5% level, * Significance at 10% level.

	America											
	Brazil			Canada			Chile			US		
	Pre	During	Post	Pre	During	Post	Pre	During	Post	Pre	During	Post
Variable												
TANG	-0.617 ***	0.198	-0.322	-0.053	0.397 *	0.098 *	0.128	-0.268	-0.245	0.026	-0.020	-0.131
	(0.227)	(0.218)	(0.329)	(0.065)	(0.210)	(0.060)	(0.138)	(0.244)	(0.159)	(0.050)	(0.094)	(0.089)
PROF	-0.542 ***	-0.126	-0.414 **	-0.239 ***	-0.054	-0.223 **	-0.098	-0.342 **	-0.304 ***	-0.301 ***	-0.272 ***	-0.314 ***
	(0.176)	(0.150)	(0.173)	(0.060)	(0.093)	(0.109)	(0.152)	(0.150)	(0.069)	(0.047)	(0.041)	(0.053)
SIZE	0.025	0.094 *	0.059	0.021	0.066	0.079 ***	0.100 **	0.163 ***	0.050	0.034 ***	0.045 **	0.084 ***
	(0.046)	(0.056)	(0.071)	(0.015)	(0.044)	(0.028)	(0.043)	(0.036)	(0.038)	(0.010)	(0.020)	(0.016)
GROWTH	-0.211 ***	-0.064	-0.173 ***	-0.066 ***	-0.002	-0.073 ***	-0.182 ***	0.044	0.030	-0.083 ***	-0.039 ***	-0.077 ***
	(0.041)	(0.043)	(0.040)	(0.011)	(0.022)	(0.025)	(0.033)	(0.029)	(0.024)	(0.008)	(0.011)	(0.011)
NDTS	1.678 *	0.716	3.902	0.196	0.300	0.049	1.363 **	0.170	-1.425 *	-0.449	0.036	0.800 **
	(0.867)	(0.806)	(2.530)	(0.273)	(0.493)	(0.479)	(0.573)	(1.034)	(0.752)	(0.280)	(0.441)	(0.404)
LIQ	-0.117 ***	-0.040	-0.038	-0.022 ***	-0.010	-0.007	-0.035 ***	-0.023	-0.032 ***	-0.013 ***	-0.018 **	-0.007
	(0.020)	(0.045)	(0.024)	(0.008)	(0.014)	(0.008)	(0.009)	(0.020)	(0.010)	(0.005)	(0.007)	(0.005)
VOL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SPP	-0.007 *	-0.026 **	-0.034 ***	-0.052 ***	-0.065 ***	-0.068 ***	-0.030 *	-0.103 ***	-0.120 ***	-0.021 ***	-0.053 ***	-0.065 ***
	(0.004)	(0.013)	(0.012)	(0.015)	(0.014)	(0.019)	(0.016)	(0.031)	(0.028)	(0.007)	(0.007)	(0.008)
Constant	1.088 ***	-0.268	0.354	0.746 ***	-0.290	-0.185	0.086	-0.557 *	0.199	0.208 ***	-0.105	-0.089
	(0.345)	(0.525)	(0.672)	(0.090)	(0.251)	(0.151)	(0.222)	(0.280)	(0.286)	(0.065)	(0.123)	(0.128)
Firm Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R squared	0.906	0.905	0.951	0.911	0.914	0.926	0.888	0.910	0.969	0.911	0.926	0.946
Adj R squared	0.863	0.838	0.917	0.878	0.867	0.885	0.837	0.849	0.947	0.880	0.889	0.918

| | Asia | | | | | | | | | | | | | | | | | |
| | China | | | Hong Kong | | | India | | | Indonesia | | | Japan | | | Malaysia | | |
	Pre	During	Post	Pre	During	Post	Pre	During	Post	Pre	During	Post	Pre	During	Post	Pre	During	Post
Variable																		
TANG	0.000	-0.079	0.032	0.214 ***	0.124 *	0.007	0.096	0.103	0.071	-0.114	0.187	-0.299 ***	0.160 ***	0.182 **	0.262 ***	-0.061	-0.106	-0.140
	(0.065)	(0.057)	(0.085)	(0.060)	(0.072)	(0.085)	(0.080)	(0.110)	(0.149)	(0.136)	(0.161)	(0.085)	(0.046)	(0.071)	(0.067)	(0.066)	(0.125)	(0.088)
PROF	-0.615 ***	-0.323 ***	-0.436 ***	-0.174 **	-0.043	-0.312 **	-0.792 ***	-0.412 ***	-0.213 *	-0.444 **	-0.390 ***	-0.332 ***	-0.579 ***	-0.809 ***	-0.506 ***	-0.434 ***	-0.332 **	-0.243 **
	(0.106)	(0.080)	(0.129)	(0.085)	(0.095)	(0.131)	(0.127)	(0.145)	(0.127)	(0.196)	(0.102)	(0.123)	(0.046)	(0.059)	(0.051)	(0.087)	(0.149)	(0.103)
SIZE	0.120 ***	0.119 ***	0.154 ***	0.105 ***	0.100 ***	0.123 **	0.095 ***	0.096 ***	0.144 ***	0.289 ***	0.149 ***	0.104 **	0.191 ***	0.101 ***	0.166 ***	0.075 ***	0.054	0.175 ***
	(0.022)	(0.022)	(0.029)	(0.028)	(0.028)	(0.054)	(0.027)	(0.034)	(0.048)	(0.055)	(0.028)	(0.048)	(0.015)	(0.021)	(0.024)	(0.019)	(0.040)	(0.032)
GROWTH	-0.065 ***	0.019 ***	0.021	-0.067 ***	-0.007	-0.046	-0.013	0.014	-0.037 *	-0.070	-0.022	-0.013	-0.164 ***	-0.019	-0.265 ***	-0.058 ***	-0.062	-0.032
	(0.017)	(0.007)	(0.014)	(0.018)	(0.021)	(0.028)	(0.014)	(0.011)	(0.021)	(0.049)	(0.023)	(0.019)	(0.010)	(0.017)	(0.024)	(0.021)	(0.042)	(0.034)
NDTS	0.713	1.500 **	0.355	0.247	0.260	-1.132	0.691	-0.455	1.896 *	1.047	1.048	1.606 ***	1.116 ***	1.404 ***	0.580 **	0.829	-0.840	2.436 ***
	(0.434)	(0.586)	(0.686)	(0.506)	(0.825)	(0.726)	(0.514)	(0.578)	(0.995)	(0.804)	(0.667)	(0.531)	(0.238)	(0.264)	(0.287)	(0.574)	(0.714)	(0.716)
LIQ	-0.045 ***	-0.068 ***	-0.044 ***	-0.017 ***	-0.030 ***	-0.020 *	-0.010	-0.009	-0.068 ***	-0.050 ***	-0.054 ***	-0.062 ***	-0.055 ***	-0.039 ***	-0.048 ***	-0.040 ***	-0.047 ***	-0.037 ***
	(0.013)	(0.013)	(0.013)	(0.006)	(0.009)	(0.011)	(0.009)	(0.012)	(0.011)	(0.014)	(0.019)	(0.017)	(0.007)	(0.008)	(0.007)	(0.007)	(0.013)	(0.008)
VOL	0.000	0.000	0.000	0.000 *	0.000	0.000 ***	0.000 **	0.000	0.000 *	0.000 *	0.000	0.000 ***	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SPP	-0.037 ***	-0.104 ***	-0.077 ***	-0.062 ***	-0.102 ***	-0.036 **	-0.056 ***	-0.116 ***	-0.091 ***	-0.030	-0.078 ***	-0.051 ***	-0.043 ***	-0.103 ***	-0.034 ***	-0.077 ***	-0.076 ***	-0.061 ***
	(0.011)	(0.009)	(0.013)	(0.011)	(0.011)	(0.015)	(0.010)	(0.012)	(0.014)	(0.026)	(0.013)	(0.017)	(0.004)	(0.006)	(0.006)	(0.010)	(0.013)	(0.015)
Constant	-0.152	-0.454 ***	-0.687 ***	0.155	-0.025	0.006	0.225	-0.181	-0.297	-0.560 *	-0.033	0.562 *	-0.219 **	-0.007	-0.081	0.313 ***	0.728 ***	-0.052
	(0.141)	(0.145)	(0.206)	(0.196)	(0.205)	(0.341)	(0.190)	(0.304)	(0.427)	(0.319)	(0.157)	(0.269)	(0.099)	(0.150)	(0.152)	(0.104)	(0.193)	(0.132)
Firm Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R squared	0.915	0.933	0.954	0.886	0.898	0.917	0.915	0.942	0.952	0.868	0.954	0.949	0.946	0.954	0.972	0.916	0.924	0.945
Adj R squared	0.884	0.897	0.929	0.844	0.840	0.871	0.885	0.911	0.926	0.816	0.927	0.918	0.928	0.930	0.958	0.886	0.884	0.915

	Asia												Australia		
	Singapore			South Korea			Taiwan			Thailand			Australia		
	Pre	During	Post	Pre	During	Post	Pre	During	Post	Pre	During	Post	Pre	During	Post
Variable															
TANG	0.125 *	0.096	0.277 **	0.112	-0.057	0.024	0.092	-0.053	0.038	-0.037	-0.078	-0.143 *	0.086	0.015	0.199
	(0.067)	(0.109)	(0.118)	(0.071)	(0.063)	(0.070)	(0.061)	(0.078)	(0.085)	(0.070)	(0.110)	(0.080)	(0.077)	(0.096)	(0.133)
PROF	-0.429 ***	-0.320 **	-0.366 ***	-0.414 ***	-0.381 ***	-0.394 ***	-0.526 ***	-0.529 ***	-0.514 ***	-0.656 ***	-0.651 ***	-0.190 *	-0.154 ***	-0.074	-0.315 ***
	(0.100)	(0.134)	(0.122)	(0.074)	(0.084)	(0.099)	(0.072)	(0.077)	(0.088)	(0.139)	(0.120)	(0.105)	(0.059)	(0.088)	(0.058)
SIZE	0.065 ***	0.059	0.103 ***	0.115 ***	0.111 ***	0.188 ***	0.113 ***	0.163 ***	0.104 ***	0.054 *	0.205 ***	0.169 ***	0.086 ***	0.038	0.076 **
	(0.023)	(0.043)	(0.038)	(0.018)	(0.025)	(0.023)	(0.018)	(90.035)	(0.029)	(0.030)	(0.042)	(0.030)	(0.014)	(0.036)	(0.038)
GROWTH	-0.139 ***	-0.003	-0.160 ***	-0.257 ***	-0.170 ***	-0.265 ***	-0.165 ***	-0.065 ***	-0.108 ***	-0.104 ***	0.007	-0.077 ***	-0.045 ***	0.015	-0.061 **
	(0.020)	(0.028)	(0.044)	(0.022)	(0.029)	(0.038)	(0.020)	(0.020)	(0.019)	(90.024)	(0.027)	(0.020)	(0.013)	(0.015)	(0.030)
NDTS	0.651	1.133	-1.842 **	0.461 *	0.693 *	1.336 ***	0.435	0.299	-0.577	1.344 **	0.726 *	0.662 ***	0.358	-0.464	-0.819
	(0.609)	(1.109)	(0.906)	(0.258)	(0.354)	(0.438)	(0.353)	(0.528)	(0.667)	(0.575)	(0.374)	(0.238)	(0.259)	(0.687)	(0.600)
LIQ	-0.030 ***	-0.026 ***	-0.023 **	-0.093 ***	-0.060 ***	-0.115 ***	-0.027 ***	-0.033 ***	-0.028 ***	-0.035 **	-0.038 *	-0.023	-0.007 **	-0.009	-0.009 *
	(0.010)	(0.009)	(0.011)	(0.012)	(0.014)	(0.021)	(0.007)	(0.008)	(0.007)	(0.014)	(0.020)	(0.014)	(0.004)	(0.008)	(0.004)
VOL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ***	0.000 *	0.000 *	0.000	0.000	0.000 **	0.000 **
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SPP	-0.043 ***	-0.092 ***	-0.041 ***	-0.054 ***	-0.082 ***	-0.027 **	-0.049 ***	-0.076 ***	-0.039 ***	-0.009	-0.087 ***	-0.060 ***	-0.058 ***	-0.094 ***	-0.056 ***
	(0.012)	(0.012)	(0.016)	(0.008)	(0.009)	(0.011)	(0.008)	(0.008)	(0.009)	(0.012)	(0.015)	(0.016)	(0.013)	(90.019)	(0.019)
Constant	0.562 ***	-0.266	-0.241	0.213 *	0.064	-0.387 *	0.441 ***	0.077	-0.020	0.193	-0.646 **	-0.328 *	0.568 ***	0.118	0.036
	(0.146)	(0.232)	(0.210)	(0.123)	(0.175)	(0.156)	(0.088)	(0.182)	(0.154)	(0.175)	(0.262)	(0.197)	(0.043)	(0.208)	(0.138)
Firm Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R squared	0.906	0.902	0.920	0.924	0.944	0.946	0.908	0.952	0.965	0.910	0.952	0.943	0.859	0.850	0.916
Adj R squared	0.871	0.846	0.875	0.897	0.914	0.918	0.875	0.926	0.946	0.875	0.924	0.910	0.806	0.766	0.869

	Europe																	
	Denmark			France			Germany			Greece			Italy			Norway		
	Pre	During	Post	Pre	During	Post	Pre	During	Post	Pre	During	Post	Pre	During	Post	Pre	During	Post
Variable																		
TANG	-0.153	0.156	0.644 ***	0.192	-0.055	-0.149	0.180 *	-0.011	-0.207	-0.072	0.024	-0.447 **	0.156	-0.078 ***	-0.281	0.223 *	0.117	-0.076
	(0.130)	(0.162)	(0.239)	(0.125)	(0.166)	(0.169)	(0.101)	(0.156)	(0.199)	(0.079)	(0.209)	(0.205)	(0.109)	(0.029)	(0.223)	(0.121)	(0.191)	(0.195)
PROF	-0.423 ***	-0.192	-0.173	-0.213 **	-0.227 *	-0.256 ***	-0.302 ***	-0.435 ***	-0.343 ***	-0.811 ***	-0.458 **	-0.347 *	-0.229 **	-0.431 ***	-0.364 ***	-0.284 ***	-0.031	-0.093
	(0.105)	(0.129)	(0.194)	(0.098)	(0.127)	(0.091)	(0.070)	(0.100)	(0.099)	(0.207)	(0.204)	(0.198)	(0.098)	(0.119)	(0.126)	(0.101)	(0.173)	(0.200)
SIZE	0.103 ***	0.194 ***	0.207 ***	0.118 ***	-0.068 *	0.120 ***	0.106 ***	0.042	0.087 *	0.042	0.204 **	-0.066	0.080 ***	0.096 **	0.103 **	0.040	0.119 **	0.069
	(0.039)	(0.038)	(0.070)	(0.020)	(0.038)	(0.034)	(0.029)	(0.057)	(0.047)	(0.049)	(0.087)	(0.070)	(0.025)	(0.041)	(0.044)	(0.039)	(0.049)	(0.066)
GROWTH	-0.006	0.070 ***	-0.001	-0.085 ***	-0.012	-0.123 ***	-0.059 ***	-0.043 *	-0.073 ***	-0.230 ***	-0.010	-0.096 *	-0.138 ***	-0.111 **	-0.071	-0.125 ***	-0.029	-0.120 *
	(0.016)	(0.021)	(0.028)	(0.017)	(0.020)	(0.028)	(0.014)	(0.024)	(0.025)	(0.038)	(0.039)	(0.051)	(0.029)	(0.048)	(0.047)	(0.027)	(0.033)	(0.064)
NDTS	0.401	1.926	-3.437 **	0.485 **	0.332	0.316	-0.028	0.682 *	0.154	2.275 ***	1.833	-1.857	-0.973 ***	-0.172	1.971 ***	0.087	-1.223	-0.059
	(0.499)	(1.447)	(1.332)	(0.199)	(0.810)	(0.256)	(0.216)	(0.380)	(0.498)	(0.630)	(2.207)	(1.143)	(0.327)	(0.568)	(0.494)	(0.664)	(1.336)	(0.836)
LIQ	-0.022 ***	0.007	-0.011	-0.033 **	-0.052 **	-0.036 ***	-0.022 **	-0.019	-0.013	-0.022 **	-0.007	-0.026	-0.066 ***	-0.086 ***	-0.045 **	-0.017	-0.005	-0.025
	(0.007)	(0.022)	(0.013)	(0.015)	(0.021)	(0.013)	(0.009)	(0.015)	(0.009)	(0.011)	(0.027)	(0.015)	(0.019)	(0.024)	(0.022)	(0.015)	(0.021)	(0.019)
VOL	0.000 *	0.000 *	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SPP	-0.096 ***	-0.166 ***	-0.045 *	-0.058 ***	-0.098 ***	-0.068 ***	-0.042 ***	-0.100 ***	-0.068 ***	-0.045 ***	-0.078 ***	-0.044 ***	-0.096 ***	-0.100 ***	-0.088 ***	-0.048 **	-0.108 ***	-0.046
	(0.0270)	(0.017)	(0.023)	(0.015)	(0.010)	(0.012)	(0.012)	(0.013)	(0.013)	(0.017)	(0.017)	(0.013)	(0.020)	(0.015)	(0.017)	(0.024)	(0.021)	(0.030)
Constant	0.101	-0.757 ***	0.063	-0.710 ***	0.874 **	-0.591 *	0.083	0.063	-0.048	0.619 **	-0.422	1.604 ***	0.348 **	0.001	-0.046	0.300	-0.587 *	-0.185
	(0.135)	(0.255)	(0.312)	(0.211)	(0.388)	(0.355)	(0.090)	(0.248)	(0.219)	(0.253)	(0.490)	(0.394)	(0.139)	(0.268)	(0.256)	(0.217)	(0.321)	(0.438)
Firm Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R squared	0.917	0.940	0.969	0.916	0.940	0.961	0.929	0.938	0.949	0.906	0.939	0.966	0.905	0.953	0.958	0.879	0.944	0.953
Adj R squared	0.880	0.901	0.949	0.886	0.908	0.939	0.903	0.905	0.921	0.867	0.901	0.945	0.868	0.925	0.933	0.825	0.906	0.921

	Europe															Africa		
	Spain			Sweden			Switzerland			Turkey			UK			South Africa		
	Pre	During	Post	Pre	During	Post	Pre	During	Post	Pre	During	Post	Pre	During	Post	Pre	During	Post
Variable																		
TANG	-0.039	0.075	0.435	0.266 *	0.310	0.516 *	0.429 **	-0.305	-0.212	0.149	-0.033	0.242	0.088 *	0.023	-0.128 *	0.390 **	0.265	0.343 **
	(0.107)	(0.172)	(0.278)	(0.146)	(0.259)	(0.308)	(0.194)	(0.193)	(0.283)	(0.147)	(0.107)	(0.207)	(0.052)	(0.126)	(0.067)	(0.166)	(0.164)	(0.162)
PROF	-0.282	-0.681 ***	-0.196	-0.340 **	-0.215 *	-0.087	-0.129	-0.517 ***	-0.352 *	0.033	0.071	-0.167	-0.313 ***	-0.333 ***	-0.348 ***	-0.132	-0.228 *	-0.039
	(0.217)	(0.182)	(0.119)	(0.143)	(0.114)	(0.111)	(0.123)	(0.107)	(0.185)	(0.175)	(0.109)	(0.178)	(0.067)	(0.117)	(0.113)	(0.113)	(0.128)	(0.101)
SIZE	0.130 ***	0.196 ***	0.088 *	0.057 ***	0.022	0.064 *	0.149 ***	0.081	0.127 **	0.162 ***	0.278 ***	0.005	0.042 ***	-0.063 **	0.058 *	0.088 **	0.069	0.016
	(0.041)	(0.059)	(0.051)	(0.021)	(0.060)	(0.036)	(0.046)	(0.052)	(0.060)	(0.055)	(0.098)	(0.074)	(0.014)	(0.026)	(0.033)	(0.042)	(0.060)	(0.032)
GROWTH	-0.117 ***	0.007	-0.060	-0.060 ***	0.045 *	-0.049 *	-0.063 ***	0.025	-0.033	-0.117 ***	-0.050	-0.205 ***	-0.032 ***	-0.012	-0.049 *	-0.043 *	0.017	-0.077 ***
	(0.022)	(0.037)	(0.049)	(0.021)	(0.025)	(0.026)	(0.022)	(0.022)	(0.031)	(0.035)	(0.056)	(0.046)	(0.009)	(0.017)	(0.025)	(0.023)	(0.025)	(0.018)
NDTS	-0.540	1.514 **	0.913	-0.215	0.222	-0.704 *	0.067	0.247	0.315	-0.124	2.856 *	-1.995	0.232	-0.525	1.138 *	0.747	-0.959	1.396 *
	(0.564)	(0.743)	(1.365)	(0.507)	(0.914)	(0.413)	(0.603)	(0.788)	(1.174)	(0.423)	(1.532)	(1.935)	(0.238)	(0.805)	(0.677)	(0.533)	(1.486)	(0.764)
LIQ	-0.100 ***	-0.103 **	-0.056 **	-0.035 ***	-0.006	-0.047 **	-0.019 *	-0.023 *	0.005	-0.011	-0.041	-0.048 **	-0.018 ***	-0.010	0.001	-0.022	-0.037 *	-0.038 *
	(0.030)	(0.043)	(0.028)	(0.013)	(0.019)	(0.021)	(0.011)	(0.013)	(0.018)	(0.024)	(0.025)	(0.020)	(0.006)	(0.012)	(0.009)	(0.016)	(0.019)	(0.020)
VOL	0.000	0.000 ***	0.000	0.000	0.000	0.000	0.000 **	0.000	0.000	0.000 ***	0.000	0.000	0.000	0.000 ***	0.000	0.000	0.000 ***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SPP	-0.047	-0.123 ***	-0.107 ***	-0.029	-0.131 ***	-0.046 **	-0.025	-0.067 ***	-0.049 **	-0.067 **	-0.093 ***	-0.029	-0.049 ***	-0.115 ***	-0.051 ***	-0.058 ***	-0.114 ***	-0.080 ***
	(0.030)	(0.018)	(0.023)	(0.022)	(0.016)	(0.019)	(0.030)	(0.020)	(0.024)	(0.030)	(0.026)	(0.026)	(0.010)	(0.010)	(0.012)	(0.017)	(0.020)	(0.020)
Constant	-0.515	-1.496 **	-0.270	-0.027	-0.202	-0.156	-1.103 **	-0.730	-1.126 *	-0.739 *	-1.782 **	0.435	-0.007	0.338 **	-0.006	-0.381	-0.264	0.140
	(0.393)	(0.611)	(0.579)	(0.111)	(0.384)	(0.249)	(0.474)	(0.548)	(0.658)	(0.415)	(0.733)	(0.552)	(0.064)	(0.130)	(0.184)	(0.284)	(0.457)	(0.237)
Firm Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R squared	0.909	0.962	0.983	0.883	0.940	0.960	0.881	0.915	0.942	0.883	0.926	0.913	0.882	0.889	0.933	0.868	0.922	0.951
Adj R squared	0.867	0.935	0.955	0.837	0.904	0.936	0.834	0.864	0.907	0.831	0.876	0.854	0.841	0.830	0.897	0.814	0.874	0.921

Table 10: Sub-period analysis of the relationship between firm characteristics and leverage (Summary)

Table presents the summary of the relationship between firm characteristics and firm leverage in the full sample and the sub-periods: pre-crisis (2003-2006), during-crisis (2007-2009) and post-crisis (2010-2012) is presented, based on the results in table 9. Firm leverage is measured as the market value of total leverage (LEV_MVTD). See Table 1 for the definition of the variables. "+/-" indicates significant positive/negative influence, " " indicates insignificant influence.

Firm Leverage: Market Value of Total Leverage

Panel 1

Variable	BRA Full	Pre	During	Post	CAN Full	Pre	During	Post	CHL Full	Pre	During	Post	US Full	Pre	During	Post	CHN Full	Pre	During	Post	HKG Full	Pre	During	Post	IND Full	Pre	During	Post	IDN Full	Pre	During	Post	JPN Full	Pre	During	Post
TANG	-	-					+	+					-				-				+	+	+						-				+	+	+	+
PROF	-	-		-	-	-		-	-	-		-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-
SIZE			+		+		+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
GROWTH	-		-	-	-	-		-	-	-				-	-	-	-	-	+		-	-							-	-			-		-	-
NDTS	+	+							+	+	-						+	+	+						+				+	+			+	+	+	+
LIQ	-	-			-				-			-	-	-			-				-				-				-	-	-		-	-	-	-
VOL													+		+				+			-	+	+	+		+	+			+		+			
SPP	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Panel 2

Variable	MYS Full	Pre	During	Post	SGP Full	Pre	During	Post	KOR Full	Pre	During	Post	TWN Full	Pre	During	Post	THA Full	Pre	During	Post	AUS Full	Pre	During	Post	DNK Full	Pre	During	Post	FRA Full	Pre	During	Post	DEU Full	Pre	During	Post
TANG	+				+	+		+													-											+	+	+		
PROF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-				-	-	-	-
SIZE	+	+		+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+		+	+	+	-	+	+	+		+
GROWTH	-				-	-			-				-	-	-		-								-	-	+	-					-	-	-	-
NDTS				+				-	+	+	+	+	+								+	+	+								-	+	+		+	
LIQ	-	-	-	-	-				-				-				-				-	-			-	-			-			-	-	-	-	-
VOL									+										-			+	+	+		-	+	+		+						
SPP	-	-	-	-	-	-	-		-				-				-				-				-				-	-	-	-	-	-	-	-

Panel 3

Variable	GRC Full	Pre	During	Post	ITA Full	Pre	During	Post	NOR Full	Pre	During	Post	ESP Full	Pre	During	Post	SWE Full	Pre	During	Post	CHE Full	Pre	During	Post	TUR Full	Pre	During	Post	UK Full	Pre	During	Post	ZAF Full	Pre	During	Post
TANG	-			-			-		+	+							+	+		+	+						-						+		-	+
PROF	-	-	-	-	-	-	-	-	-	-			-				-	-	-		-		-	-					-	-	-	-	-		-	-
SIZE	+		+		+	+	+				+		+	+	+	+	+		+		+	+		+	+	+	+		+	-	+		+	+		
GROWTH	-			-	-	-			-			-	-				-	-	+	-	-				-				-				-	-		-
NDTS	+	+			-		+								+						-	+					+						+	+		+
LIQ	-	-			-	-	-		-				-	-			-	-			-		-		-				-	-			-		-	-
VOL																			-			+							+				+		+	
SPP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-		-		-	-			-	-			-	-	-		-	-	-	-

4.3   Robustness

Alternative proxies for firm leverage that are commonly used in capital structure studies such as the book value of total debt (LEV_BVTD), market value of long-term debt (LEV_MVLTD) and book value of long-term debt (LEV_BVLTD) is used to test the robustness of our analysis. The results are reported in Panel B, C and D of Table 11. Overall, the influence of firm characteristics on firm leverage proxied by the various leverage measures are similar to that reported in Panel A (Table 6). The influence of firm characteristics on firm leverage is consistent with the arguments of the trade-off, pecking order and market timing theories.

Regression diagnostic tests such as the Breusch-Pagan test for heteroskedasticity and Breusch-Godfrey test for serial correlation in the error term are conducted and reported in Table 12. The results of the Breusch-Pagan test indicate that the null hypothesis of homoscedastic errors is rejected. Therefore, heteroskedasticity-consistent standard errors are applied in our model to ensure that the results are robust. The results from the Breusch-Godfrey test indicate a rejection of the null hypothesis which suggests that the residuals of the regression model are serially correlated. Although autocorrelation in the error term does not alter the results, the significance of the coefficient may be affected as standard errors are underestimated. Therefore, we also computed heteroskedasticity-and-autocorrelation-consistent (HAC) standard errors for all countries. The results (not reported) are similar to that presented in table 6, although the coefficients which were previously marginally significant (at 10% significance level) became insignificant after accounting for autocorrelated errors.

Durbin-Wu-Hausman test is conducted to examine for endogeneity issues in the regression model. The results reported in Table 12 indicate that the null hypothesis is rejected for most countries (except Brazil, Chile, Spain, Sweden, Switzerland and Thailand) which suggests that there are endogeneity issues in the model. Therefore, we follow the method used in Antoniou et al. (2008) to examine the influence of firm characteristics on leverage using the Generalised Method of Moments (GMM) model. The results of the GMM procedure reported in Table 13 are similar to the results of the fixed-effects regression presented in Table 6. With the exception of India and Japan, the J-test, also known as the Sargan test, for over-identifying restrictions indicate failure to reject the null hypothesis that the over-identified restrictions are valid. This suggests that the instruments used in the GMM model are valid.

Table 11: The influence of firm characteristics on leverage (using alternative measures of firm leverage)

Panel B: Book Value of Total Leverage

	America				Asia										Australia	Europe											Africa
	Brazil	Canada	Chile	US	China	Hong Kong	India	Indonesia	Japan	Malaysia	Singapore	S. Korea	Taiwan	Thailand	Australia	Denmark	France	Germany	Greece	Italy	Norway	Spain	Sweden	Switzerland	Turkey	UK	S. Africa
Variable																											
TANG	-0.283 ***	0.030	0.045	-0.129 ***	0.019	0.067 ***	0.149 ***	-0.167 **	0.127 ***	0.080 ***	0.076 **	0.002	0.045 *	0.007	0.084 **	0.006	0.116 *	0.333 ***	-0.097	0.002	0.357 ***	0.067	0.258 ***	0.002	-0.188 ***	0.050	0.291 ***
	(0.063)	(0.041)	(0.080)	(0.030)	(0.027)	(0.024)	(0.034)	(0.067)	(0.024)	(0.029)	(0.039)	(0.026)	(0.025)	(0.057)	(0.033)	(0.087)	(0.062)	(0.041)	(0.067)	(0.048)	(0.061)	(0.071)	(0.084)	(0.069)	(0.069)	(0.036)	(0.060)
PROF	-0.169 *	-0.192 ***	-0.287 ***	-0.284 ***	-0.547 ***	-0.157 ***	-0.574 ***	-0.637 ***	-0.622 ***	-0.326 ***	-0.487 ***	-0.413 ***	-0.434 ***	-0.458 ***	-0.236 ***	-0.273 ***	-0.328 ***	-0.299 ***	-0.923 ***	-0.303 ***	-0.178 **	-0.218 *	-0.375 ***	-0.336 ***	-0.247 *	-0.178 ***	-0.238 ***
	(0.095)	(0.039)	(0.065)	(0.023)	(0.070)	(0.042)	(0.057)	(0.100)	(0.025)	(0.057)	(0.074)	(0.044)	(0.037)	(0.081)	(0.041)	(0.081)	(0.051)	(0.036)	(0.136)	(0.085)	(0.073)	(0.131)	(0.080)	(0.073)	(0.124)	(0.041)	(0.051)
SIZE	0.058 ***	0.038 ***	0.007	-0.006	0.042 ***	0.047 ***	0.069 ***	0.029	0.076 ***	0.076 ***	0.038 ***	0.037 ***	0.053 ***	0.059 ***	0.033 ***	0.099 ***	0.028 ***	0.062 ***	0.032 *	-0.014	-0.003	0.045 *	0.047 ***	0.045 ***	0.114 ***	0.008	0.048 ***
	(0.019)	(0.008)	(0.013)	(0.005)	(0.008)	(0.009)	(0.008)	(0.018)	(0.005)	(0.010)	(0.010)	(0.007)	(0.007)	(0.017)	(0.007)	(0.021)	(0.009)	(0.010)	(0.019)	(0.013)	(0.013)	(0.025)	(0.010)	(0.016)	(0.026)	(0.007)	(0.010)
GROWTH	0.025	-0.005	0.015	-0.016 ***	0.000	0.009	0.002	0.047 ***	0.008	0.038 ***	0.015	0.039 ***	-0.010	0.002	0.005	0.030 ***	0.012	-0.003	0.096 ***	-0.020	0.005	0.038 **	0.042 ***	-0.003	0.011	0.004	-0.018 *
	(0.018)	(0.007)	(0.011)	(0.004)	(0.005)	(0.008)	(0.007)	(0.014)	(0.005)	(0.014)	(0.015)	(0.010)	(0.008)	(0.010)	(0.007)	(0.010)	(0.008)	(0.007)	(0.022)	(0.015)	(0.019)	(0.020)	(0.011)	(0.011)	(0.026)	(0.006)	(0.011)
NDTS	1.369 ***	0.213	0.933 ***	0.423 **	0.414	-0.055	0.706 **	1.461 ***	0.726 ***	0.820 ***	0.622 *	0.992 ***	-0.013	0.191	0.266	0.766	0.390 ***	0.177	1.616 ***	0.149	0.144	0.484	0.046	0.694	0.321	0.078	0.588 **
	(0.348)	(0.216)	(0.327)	(0.174)	(0.347)	(0.295)	(0.276)	(0.422)	(0.113)	(0.289)	(0.370)	(0.166)	(0.150)	(0.270)	(0.196)	(0.555)	(0.142)	(0.149)	(0.475)	(0.265)	(0.317)	(0.512)	(0.289)	(0.424)	(0.384)	(0.189)	(0.294)
LIQ	-0.081 ***	-0.032 ***	-0.018 **	-0.027 ***	-0.079 ***	-0.024 ***	-0.029 ***	-0.046 ***	-0.060 ***	-0.036 ***	-0.031 ***	-0.073 ***	-0.043 ***	-0.034 ***	-0.010 ***	-0.026 ***	-0.032 ***	-0.024 ***	-0.015 *	-0.071 ***	-0.015	-0.078 ***	-0.038 ***	-0.028 ***	-0.023	-0.026 ***	-0.032 ***
	(0.013)	(0.005)	(0.007)	(0.003)	(0.006)	(0.003)	(0.006)	(0.010)	(0.003)	(0.004)	(0.005)	(0.005)	(0.004)	(0.009)	(0.002)	(0.006)	(0.008)	(0.004)	(0.009)	(0.012)	(0.011)	(0.015)	(0.008)	(0.008)	(0.017)	(0.005)	(0.008)
VOL	0.000	0.000	0.000	0.000 **	0.000	0.000	0.000 **	0.000	0.000	0.000	0.000	0.000	0.000 *	0.000 *	0.000 *	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000 **	0.000 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SPP	-0.004	0.004	-0.009	-0.002	-0.002	-0.010 *	0.017 ***	-0.005	0.006 ***	-0.015 **	0.008	-0.019 ***	0.000	0.023 ***	-0.020 **	-0.040 ***	-0.008	0.006	-0.015	-0.022 **	-0.010	-0.019	-0.003	0.002	0.023	-0.019 ***	-0.002
	(0.005)	(0.008)	(0.012)	(0.004)	(0.007)	(0.005)	(0.006)	(0.011)	(0.002)	(0.007)	(0.008)	(0.005)	(0.005)	(0.009)	(0.008)	(0.014)	(0.006)	(0.007)	(0.010)	(0.010)	(0.016)	(0.018)	(0.011)	(0.013)	(0.016)	(0.005)	(0.008)
Constant	0.292 **	0.279 ***	0.324 ***	0.294 ***	0.223 ***	0.210 ***	0.287 ***	0.480 ***	0.016	0.069	0.075	0.145 ***	0.275 ***	0.124	0.224 ***	-0.045	-0.005	-0.014	0.209 *	0.393 ***	0.128	0.091	-0.140 **	-0.202	-0.405 **	0.104 **	-0.104
	(0.144)	(0.078)	(0.085)	(0.045)	(0.055)	(0.078)	(0.058)	(0.123)	(0.036)	(0.053)	(0.091)	(0.047)	(0.055)	(0.106)	(0.065)	(0.115)	(0.095)	(0.049)	(0.112)	(0.073)	(0.080)	(0.248)	(0.065)	(0.171)	(0.185)	(0.043)	(0.070)
Firm Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R squared	0.750	0.744	0.694	0.801	0.782	0.741	0.801	0.729	0.899	0.732	0.733	0.785	0.816	0.792	0.710	0.724	0.802	0.806	0.708	0.760	0.794	0.796	0.797	0.765	0.714	0.770	0.755
Adj R squared	0.710	0.711	0.646	0.778	0.755	0.709	0.777	0.691	0.887	0.699	0.698	0.759	0.794	0.765	0.673	0.681	0.778	0.782	0.665	0.728	0.761	0.763	0.769	0.732	0.669	0.742	0.721

Panel B presents results of the fixed-effects regression of firm characteristics and leverage for the whole sample period from year 2003 to 2012. Firm leverage is measured as the book value of total leverage (LEV_BVTD). See Table 1 for the definition of the variables. Heteroskedasticity-consistent standard errors are reported in the parentheses. *** Significance at 1% level, ** Significance at 5% level, * Significance at 10% level.

Panel C: Long-term Market Leverage

	America				Asia										Australia	Europe											Africa
	Brazil	Canada	Chile	US	China	Hong Kong	India	Indonesia	Japan	Malaysia	Singapore	S. Korea	Taiwan	Thailand	Australia	Denmark	France	Germany	Greece	Italy	Norway	Spain	Sweden	Switzerland	Turkey	UK	S. Africa
Variable																											
TANG	-0.019	0.056	-0.034	-0.027	0.063 *	0.158 ***	0.233 ***	0.074	0.316 ***	0.235 ***	0.300 ***	0.220 ***	0.218 ***	0.049	0.051	0.100	0.135 *	0.286 ***	0.080	0.105 *	0.508 ***	0.124	0.199 **	-0.007	-0.196 **	0.115 **	0.271 ***
	(0.063)	(0.045)	(0.079)	(0.031)	(0.033)	(0.033)	(0.049)	(0.083)	(0.030)	(0.035)	(0.043)	(0.042)	(0.040)	(0.049)	(0.033)	(0.109)	(0.073)	(0.047)	(0.110)	(0.060)	(0.065)	(0.088)	(0.091)	(0.070)	(0.091)	(0.048)	(0.072)
PROF	-0.272 *	-0.193 ***	-0.300 ***	-0.397 ***	-0.406 ***	-0.125 **	-0.647 ***	-0.326 ***	-0.698 ***	-0.159 ***	-0.306 ***	-0.581 ***	-0.343 ***	-0.610 ***	-0.172 ***	-0.345 ***	-0.425 ***	-0.299 ***	-0.801 ***	-0.197 ***	-0.305 ***	-0.183	-0.372 ***	-0.286 ***	-0.083	-0.228 ***	-0.236 ***
	(0.144)	(0.044)	(0.075)	(0.026)	(0.065)	(0.055)	(0.080)	(0.113)	(0.034)	(0.059)	(0.060)	(0.059)	(0.050)	(0.083)	(0.038)	(0.097)	(0.085)	(0.047)	(0.192)	(0.099)	(0.096)	(0.166)	(0.078)	(0.078)	(0.135)	(0.055)	(0.066)
SIZE	0.034	0.042 ***	0.063 ***	0.007	0.053 ***	0.096 ***	0.091 ***	0.074 ***	0.111 ***	0.1089 ***	0.074 ***	0.146 ***	0.081 ***	0.056 ***	0.016 *	0.097 ***	0.030 **	0.067 ***	0.068 **	0.017	0.032 *	0.073 **	0.041 ***	0.033 **	0.139 ***	0.002	0.070 ***
	(0.025)	(0.010)	(0.019)	(0.005)	(0.007)	(0.010)	(0.012)	(0.019)	(0.007)	(0.011)	(0.009)	(0.010)	(0.009)	(0.014)	(0.008)	(0.026)	(0.013)	(0.011)	(0.026)	(0.018)	(0.017)	(0.031)	(0.012)	(0.015)	(0.031)	(0.008)	(0.013)
GROWTH	-0.097 ***	-0.069 ***	-0.070 ***	-0.070 ***	-0.009 *	-0.031 ***	-0.009	0.000	-0.062 ***	-0.047 ***	-0.061 ***	-0.130 ***	-0.105 ***	-0.059 ***	-0.042 ***	0.011	-0.047 ***	-0.039 ***	0.002	-0.119 ***	-0.101 ***	-0.026	-0.018	-0.048 ***	-0.086 ***	-0.046 ***	-0.038 ***
	(0.023)	(0.008)	(0.015)	(0.004)	(0.005)	(0.010)	(0.008)	(0.015)	(0.007)	(0.010)	(0.013)	(0.015)	(0.010)	(0.011)	(0.006)	(0.009)	(0.013)	(0.008)	(0.029)	(0.018)	(0.021)	(0.029)	(0.012)	(0.009)	(0.022)	(0.006)	(0.011)
NDTS	1.095 ***	-0.038	1.136 ***	0.382 **	-0.139	-0.018	0.737 **	1.184 ***	0.891 ***	-0.014	-0.029	1.269 ***	0.281	0.599 **	0.047	-0.657	0.337	0.243	2.414 ***	0.267	0.299	0.510	-0.045	0.486	0.517	-0.202	1.120 ***
	(0.379)	(0.215)	(0.347)	(0.183)	(0.312)	(0.357)	(0.360)	(0.447)	(0.153)	(0.337)	(0.322)	(0.227)	(0.223)	(0.277)	(0.168)	(0.553)	(0.238)	(0.185)	(0.773)	(0.374)	(0.467)	(0.616)	(0.320)	(0.378)	(0.373)	(0.257)	(0.333)
LIQ	-0.032 **	-0.012 **	0.010	-0.010 ***	0.000	-0.006 *	0.015	0.008	0.009 **	0.004	0.008	0.011	0.018 ***	0.043 ***	0.000	0.003	0.053 ***	0.011 **	0.073 ***	0.029 *	0.016	0.015	0.008	0.009	0.020	0.022 ***	0.006
	(0.015)	(0.006)	(0.009)	(0.003)	(0.008)	(0.004)	(0.010)	(0.010)	(0.004)	(0.004)	(0.007)	(0.009)	(0.005)	(0.011)	(0.002)	(0.007)	(0.014)	(0.005)	(0.013)	(0.015)	(0.012)	(0.025)	(0.010)	(0.006)	(0.018)	(0.007)	(0.007)
VOL	0.000	0.000	0.000	0.000 ***	0.000	0.000	0.000 ***	0.000	0.000 *	0.000	0.000	0.000 **	0.000	0.000 *	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000 ***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SPP	-0.017 ***	-0.026 ***	-0.047 ***	-0.050 ***	-0.037 ***	-0.065 ***	-0.062 ***	-0.077 ***	-0.039 ***	-0.051 ***	-0.024 ***	-0.063 ***	-0.045 ***	-0.020 **	-0.039 ***	-0.087 ***	-0.062 ***	-0.057 ***	-0.075 ***	-0.081 ***	-0.063 ***	-0.094 ***	-0.061 ***	-0.026 *	-0.042 **	-0.069 ***	-0.031 **
	(0.006)	(0.010)	(0.016)	(0.005)	(0.007)	(0.008)	(0.008)	(0.013)	(0.004)	(0.009)	(0.009)	(0.008)	(0.007)	(0.010)	(0.009)	(0.018)	(0.012)	(0.010)	(0.018)	(0.017)	(0.018)	(0.028)	(0.014)	(0.014)	(0.019)	(0.008)	(0.013)
Constant	0.447 **	0.230 **	0.085	0.254 ***	-0.247 ***	0.043	0.083	0.434 ***	-0.157 ***	-0.129 *	-0.199 ***	-0.646 ***	0.087	-0.001	0.167 ***	0.010	-0.054	-0.062	-0.062	0.154	0.065	-0.269	-0.090	-0.051	-0.579 ***	0.041	-0.369 ***
	(0.198)	(0.100)	(0.110)	(0.048)	(0.046)	(0.082)	(0.101)	(0.121)	(0.047)	(0.071)	(0.071)	(0.075)	(0.076)	(0.093)	(0.056)	(0.113)	(0.129)	(0.052)	(0.163)	(0.099)	(0.104)	(0.311)	(0.079)	(0.160)	(0.217)	(0.052)	(0.092)
Firm Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R squared	0.700	0.767	0.732	0.805	0.741	0.670	0.787	0.685	0.821	0.655	0.639	0.721	0.739	0.751	0.681	0.682	0.754	0.785	0.692	0.768	0.815	0.746	0.782	0.743	0.659	0.719	0.732
Adj R squared	0.651	0.737	0.690	0.783	0.709	0.628	0.760	0.641	0.801	0.613	0.592	0.688	0.707	0.718	0.641	0.632	0.723	0.758	0.647	0.737	0.786	0.704	0.751	0.706	0.606	0.685	0.694

Panel C presents results of the fixed-effects regression of firm characteristics and leverage for the whole sample period from year 2003 to 2012. Firm leverage is measured as the market value of long-term debt (LEV_MVLTD). See Table 1 for the definition of the variables. Heteroskedasticity-consistent standard errors are reported in the parentheses. *** Significance at 1% level, ** Significance at 5% level, * Significance at 10% level.

Panel D: Long-term Book Leverage

	America				Asia										Australia	Europe											Africa
	Brazil	Canada	Chile	US	China	Hong Kong	India	Indonesia	Japan	Malaysia	Singapore	S. Korea	Taiwan	Thailand	Australia	Denmark	France	Germany	Greece	Italy	Norway	Spain	Sweden	Switzerland	Turkey	UK	S. Africa
Variable																											
TANG	-0.091 **	0.065	0.103	-0.047	0.132 ***	0.079 ***	0.257 ***	0.092	0.214 ***	0.119 ***	0.215 ***	0.134 ***	0.261 ***	0.125 ***	0.179 ***	0.050	0.198 ***	0.313 ***	-0.010	0.128 ***	0.421 ***	0.106	0.196 ***	0.060	-0.144 *	0.115 ***	0.311 ***
	(0.039)	(0.042)	(0.073)	(0.030)	(0.031)	(0.022)	(0.035)	(0.068)	(0.019)	(0.024)	(0.030)	(0.020)	(0.024)	(0.038)	(0.034)	(0.086)	(0.055)	(0.036)	(0.065)	(0.042)	(0.051)	(0.074)	(0.070)	(0.063)	(0.080)	(0.039)	(0.065)
PROF	-0.087	-0.146 ***	-0.273 ***	-0.259 ***	-0.261 ***	-0.114 ***	-0.470 ***	-0.307 ***	-0.296 ***	-0.022	-0.199 ***	-0.254 ***	-0.184 ***	-0.259 ***	-0.145 ***	-0.115	-0.237 ***	-0.170 ***	-0.099	0.020	-0.165 **	-0.067	-0.274 ***	-0.208 ***	-0.142	-0.089 **	-0.138 **
	(0.064)	(0.042)	(0.067)	(0.023)	(0.055)	(0.040)	(0.051)	(0.088)	(0.019)	(0.043)	(0.045)	(0.037)	(0.032)	(0.056)	(0.037)	(0.071)	(0.056)	(0.035)	(0.117)	(0.062)	(0.076)	(0.144)	(0.066)	(0.073)	(0.104)	(0.035)	(0.061)
SIZE	0.070 ***	0.031 ***	0.011	-0.006	0.026 ***	0.056 ***	0.065 ***	0.003	0.049 ***	0.060 ***	0.033 ***	0.039 ***	0.037 ***	0.037 ***	0.019 ***	0.071 ***	0.029 ***	0.050 ***	0.012	0.001	-0.005	0.021	0.061 ***	0.019	0.076 ***	0.015 **	0.051 ***
	(0.014)	(0.009)	(0.012)	(0.005)	(0.006)	(0.007)	(0.008)	(0.016)	(0.004)	(0.008)	(0.007)	(0.005)	(0.006)	(0.012)	(0.007)	(0.018)	(0.010)	(0.009)	(0.019)	(0.012)	(0.012)	(0.025)	(0.010)	(0.015)	(0.022)	(0.006)	(0.012)
GROWTH	0.025 **	-0.016 **	0.029 ***	-0.018 ***	-0.001	0.018 **	0.012 *	0.044 ***	0.010 **	0.004	0.020 *	0.025 ***	-0.014 **	0.004	0.008	0.010	0.009	-0.001	0.066 ***	-0.021 *	0.034 *	0.016	0.032 ***	-0.015	0.016	0.003	-0.017 *
	(0.012)	(0.007)	(0.010)	(0.004)	(0.004)	(0.008)	(0.007)	(0.014)	(0.004)	(0.007)	(0.010)	(0.009)	(0.007)	(0.008)	(0.007)	(0.008)	(0.009)	(0.008)	(0.022)	(0.012)	(0.019)	(0.024)	(0.011)	(0.010)	(0.017)	(0.005)	(0.010)
NDTS	1.062 ***	0.105	0.746 ***	0.514 ***	-0.171	0.214	0.370	0.326	0.523 ***	0.277	0.001	0.528 ***	-0.370 ***	0.175	0.111	-0.521	0.265 *	0.100	0.627	0.135	-0.028	0.540	0.006	0.071	0.281	-0.026	0.027
	(0.232)	(0.194)	(0.277)	(0.170)	(0.312)	(0.245)	(0.257)	(0.400)	(0.087)	(0.227)	(0.253)	(0.115)	(0.128)	(0.223)	(0.186)	(0.417)	(0.155)	(0.163)	(0.497)	(0.226)	(0.298)	(0.559)	(0.238)	(0.400)	(0.296)	(0.187)	(0.380)
LIQ	0.013	0.000	0.030 ***	0.003	0.021 ***	-0.004 *	0.034 ***	0.031 ***	0.027 ***	0.013 ***	0.021 ***	0.037 ***	0.029 ***	0.054 ***	0.004 *	0.007	0.057 ***	0.023 ***	0.072 ***	0.053 ***	0.020 *	0.063 ***	0.024 **	0.022 ***	0.030 *	0.027 ***	0.005
	(0.009)	(0.005)	(0.007)	(0.003)	(0.008)	(0.002)	(0.007)	(0.009)	(0.002)	(0.003)	(0.004)	(0.005)	(0.004)	(0.009)	(0.002)	(0.006)	(0.010)	(0.004)	(0.012)	(0.013)	(0.011)	(0.017)	(0.009)	(0.007)	(0.016)	(0.006)	(0.006)
VOL	0.000 **	0.000	0.000	0.000 **	0.000	0.000	0.000 **	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SPP	-0.005	0.016 **	-0.014	0.002	0.004	-0.009 *	0.017 ***	-0.015	0.005 **	-0.003	0.009	-0.013 ***	0.003	0.026 ***	-0.009	-0.015	0.000	0.007	-0.010	-0.010	-0.012	-0.020	0.005	0.004	0.008	-0.012 **	0.017 *
	(0.003)	(0.007)	(0.011)	(0.004)	(0.006)	(0.005)	(0.006)	(0.012)	(0.002)	(0.005)	(0.006)	(0.005)	(0.004)	(0.007)	(0.008)	(0.015)	(0.007)	(0.006)	(0.011)	(0.009)	(0.014)	(0.020)	(0.010)	(0.012)	(0.013)	(0.005)	(0.009)
Constant	-0.126	0.099	0.128	0.205 ***	-0.162 ***	-0.066	0.046	0.257 **	-0.238 ***	-0.170 ***	-0.198 ***	-0.277 ***	-0.056	-0.094	-0.011	-0.056	-0.188 **	-0.144 ***	-0.068	-0.012	0.012	0.159	-0.354 ***	-0.032	-0.408 ***	-0.125 ***	-0.291
	(0.112)	(0.089)	(0.082)	(0.044)	(0.039)	(0.059)	(0.060)	(0.100)	(0.029)	(0.039)	(0.042)	(0.033)	(0.039)	(0.077)	(0.032)	(0.084)	(0.096)	(0.044)	(0.109)	(0.057)	(0.077)	(0.247)	(0.064)	(0.160)	(0.154)	(0.045)	(0.082)
Firm Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Eff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R squared	0.812	0.724	0.693	0.776	0.697	0.653	0.743	0.629	0.826	0.571	0.641	0.637	0.731	0.777	0.712	0.603	0.716	0.702	0.555	0.757	0.809	0.700	0.750	0.680	0.688	0.772	0.726
Adj R squared	0.781	0.689	0.645	0.750	0.659	0.610	0.711	0.578	0.806	0.519	0.595	0.593	0.698	0.747	0.676	0.542	0.681	0.665	0.490	0.724	0.779	0.651	0.716	0.635	0.639	0.745	0.688

Panel D presents results of the fixed-effects regression of firm characteristics and leverage for the whole sample period from year 2003 to 2012. Firm leverage is measured as the book value of long-term debt (LEV_BVLTD). See Table 1 for the definition of the variables. Heteroskedasticity-consistent standard errors are reported in the parentheses. *** Significance at 1% level, ** Significance at 5% level, * Significance at 10% level.

Table 12: Robustness tests

Durbin-Wu-Hausman test examines for endogeneity in the explanatory variables. The Breusch-Pagan test examines for heteroskedasticity and Breusch-Godfrey test examines for serial correlation in the residuals. Firm leverage is measured as the market value of total leverage (LEV_MVTD).

	Test for Heteroskedastcity (Breusch-Pagan)			Test for Serial Correlation (Breusch-Godfrey)			Test for Endogeneity (Durbin-Wu-Hausman)		
	BP	df	p-value	LM test	df	p-value	Chi-Sq. St	df	p-value
America									
Brazil	134.21	56	0.00	62.96	1	0.00	13.73	8	0.09
Canada	423.75	150	0.00	260.43	1	0.00	29.09	8	0.00
Chile	132.47	60	0.00	56.82	1	0.00	11.90	8	0.16
United States	2167.29	585	0.00	1050.60	1	0.00	45.37	8	0.00
Asia									
China	434.77	172	0.00	241.08	1	0.00	48.94	8	0.00
Hong Kong	408.73	153	0.00	210.87	1	0.00	73.17	8	0.00
India	485.19	175	0.00	393.97	1	0.00	45.70	8	0.00
Indonesia	274.87	91	0.00	172.97	1	0.00	26.52	8	0.00
Japan	4581.94	1208	0.00	3008.98	1	0.00	222.15	8	0.00
Malaysia	828.45	229	0.00	546.54	1	0.00	104.60	8	0.00
Singapore	503.53	131	0.00	233.28	1	0.00	26.65	8	0.00
South Korea	857.81	269	0.00	512.41	1	0.00	109.23	8	0.00
Taiwan	885.74	256	0.00	430.00	1	0.00	58.32	8	0.00
Thailand	271.51	107	0.00	188.15	1	0.00	15.19	8	0.06
Australia	532.30	144	0.00	226.95	1	0.00	60.01	8	0.00
Europe									
Denmark	172.66	63	0.00	138.05	1	0.00	50.47	8	0.00
France	527.76	188	0.00	446.23	1	0.00	29.48	8	0.00
Germany	508.19	175	0.00	311.79	1	0.00	43.53	8	0.00
Greece	185.90	75	0.00	142.28	1	0.00	29.85	8	0.00
Italy	254.53	99	0.00	173.32	1	0.00	15.24	8	0.05
Norway	138.05	60	0.00	76.76	1	0.00	18.53	8	0.02
Spain	131.67	56	0.00	115.89	1	0.00	11.81	8	0.16
Sweden	217.78	91	0.00	112.49	1	0.00	8.23	8	0.41
Switzerland	230.94	85	0.00	106.26	1	0.00	4.16	8	0.84
Turkey	224.37	61	0.00	121.45	1	0.00	19.83	8	0.01
United Kingdom	878.49	241	0.00	456.85	1	0.00	43.84	8	0.00
Africa									
South Africa	301.80	86	0.00	170.52	1	0.00	28.80	8	0.00

Table 13: The influence of firm characteristics on leverage (GMM model)

The influence of firm characteristics on leverage in 27 countries is examined using the GMM model. Firm leverage is measured as the market value of total leverage (LEV_MVTD). See Table 1 for the definition of the variables. AR(1) and AR(2) are the first and second order autocorrelation of the residuals. The J-test is the test of over-identifying restrictions to examine instrument validity. Heteroskedasticity-consistent standard errors are reported in the parentheses. *** Significance at 1% level, ** Significance at 5% level, * Significance at 10% level.

Panel Generalized Method of Moments

Variable	America				Asia										Australia	Europe											Africa
	Brazil	Canada	Chile	US	China	Hong Kong	India	Indonesia	Japan	Malaysia	Singapore	S. Korea	Taiwan	Thailand	Australia	Denmark	France	Germany	Greece	Italy	Norway	Spain	Sweden	Switzerland	Turkey	UK	S. Africa
$LEV\_MVTD_{i,\,t-1}$	0.480 ***	0.382 ***	0.647 ***	0.677 ***	0.250 **	0.495 ***	0.590 ***	0.612 ***	0.839 ***	0.640 ***	0.627 ***	0.462 ***	0.409 ***	0.757 ***	0.439 ***	0.470 ***	0.528 ***	0.506 ***	0.370 ***	0.401 ***	0.620 ***	0.387 ***	0.717 ***	0.452 ***	0.808 ***	0.502 ***	0.436 ***
	(0.081)	(0.080)	(0.044)	(0.077)	(0.101)	(0.071)	(0.085)	(0.047)	(0.062)	(0.092)	(0.083)	(0.101)	(0.135)	(0.076)	(0.094)	(0.071)	(0.103)	(0.092)	(0.062)	(0.083)	(0.091)	(0.083)	(0.108)	(0.077)	(0.065)	(0.103)	(0.075)
TANG	-0.728 ***	0.205	-0.450 ***	-0.382	-0.354	-0.132	-0.154	-0.391 ***	0.321	-0.200	-0.400 *	-0.458	-0.348	-0.319 *	-0.096	0.698 ***	0.506 *	-0.191	-0.326 **	0.162	0.069	0.186	-1.022 *	-1.100 ***	0.004	1.601 **	-0.365
	(0.272)	(0.184)	(0.054)	(0.337)	(0.363)	(0.114)	(0.244)	(0.120)	(0.343)	(0.231)	(0.214)	(0.340)	(0.314)	(0.182)	(0.185)	(0.134)	(0.268)	(0.362)	(0.131)	(0.152)	(0.226)	(0.132)	(0.608)	(0.370)	(0.081)	(0.657)	(0.256)
PROF	-0.568	-0.205	-0.309 ***	-0.379 ***	-1.431 **	-0.116	-0.615 ***	-0.587 ***	-0.991 ***	-0.356	-0.232	-0.297	-1.013 ***	-0.298	-0.492 **	-0.191	-0.205	-0.802 ***	-0.630 ***	-0.080	-0.022	0.088	-0.204	-0.485 ***	-0.394 ***	-0.462 *	-0.609 ***
	(0.403)	(0.136)	(0.041)	(0.131)	(0.561)	(0.172)	(0.220)	(0.166)	(0.199)	(0.257)	(0.234)	(0.390)	(0.319)	(0.259)	(0.192)	(0.124)	(0.225)	(0.192)	(0.194)	(0.178)	(0.130)	(0.117)	(0.169)	(0.158)	(0.126)	(0.272)	(0.202)
SIZE	0.035	0.237 ***	0.110 ***	0.081 **	0.477 ***	0.109 **	0.154 ***	0.120 ***	0.200 ***	0.228 **	0.106 **	0.241 ***	0.183 ***	0.086 *	0.140 ***	0.133 ***	0.030	0.170 ***	0.140 ***	0.031	0.130 ***	0.102 ***	0.101	0.136 ***	0.044	0.008	0.116 **
	(0.083)	(0.053)	(0.037)	(0.037)	(0.117)	(0.055)	(0.035)	(0.034)	(0.041)	(0.099)	(0.054)	(0.071)	(0.064)	(0.050)	(0.054)	(0.047)	(0.052)	(0.048)	(0.034)	(0.044)	(0.042)	(0.032)	(0.063)	(0.049)	(0.043)	(0.043)	(0.059)
GROWTH	-0.105 **	0.058 **	0.112 ***	0.081 ***	0.102 ***	-0.059 *	0.064 ***	0.013	0.260 ***	0.069	-0.087	-0.107	-0.032	0.044	0.077 **	0.038 **	0.001	0.072 *	-0.047	-0.112 **	0.026	0.025	0.234 ***	0.036	-0.053	0.111 ***	0.106 **
	(0.051)	(0.028)	(0.010)	(0.022)	(0.022)	(0.032)	(0.015)	(0.019)	(0.035)	(0.044)	(0.059)	(0.068)	(0.053)	(0.032)	(0.033)	(0.015)	(0.039)	(0.038)	(0.038)	(0.051)	(0.043)	(0.018)	(0.057)	(0.028)	(0.053)	(0.038)	(0.043)
NDTS	-1.925	1.509 *	-1.266 ***	-1.148	1.723	1.002	-1.827	1.147	2.057 *	3.793 *	-3.851 *	4.580 **	2.661 **	0.019	-0.086	-2.401 **	-2.349 *	-0.557	0.828	-0.519	-1.418 *	-0.314	-1.338	1.878 *	-2.251 **	-0.565	3.024 **
	(1.811)	(0.863)	(0.405)	(2.072)	(2.803)	(1.293)	(1.755)	(1.000)	(1.212)	(2.218)	(1.951)	(1.938)	(1.276)	(1.114)	(1.606)	(1.219)	(1.272)	(0.939)	(0.715)	(0.853)	(0.763)	(0.790)	(1.191)	(0.968)	(0.884)	(2.514)	(1.449)
LIQ	-0.194 ***	0.039 **	-0.021 ***	-0.022	0.012	-0.001	-0.067 ***	-0.083 ***	0.132 ***	-0.009	-0.037 **	-0.065	0.042	-0.017	0.010	-0.020	0.006	-0.005	-0.041 **	-0.023	-0.024 **	-0.171 ***	0.067	-0.029	0.033	-0.036	-0.018
	(0.050)	(0.018)	(0.008)	(0.030)	(0.052)	(0.017)	(0.020)	(0.019)	(0.043)	(0.029)	(0.018)	(0.058)	(0.031)	(0.036)	(0.012)	(0.013)	(0.039)	(0.031)	(0.020)	(0.036)	(0.012)	(0.059)	(0.044)	(0.020)	(0.021)	(0.049)	(0.031)
VOL	0.000	0.000	0.000 **	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000 *	0.000	0.000	0.000	0.000 **	0.000 **	0.000	0.000 ***	0.000 ***	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SPP	-0.068 ***	-0.142 ***	-0.234 ***	-0.191 ***	-0.214 ***	-0.124 ***	-0.157 ***	-0.153 ***	-0.288 ***	-0.183 ***	-0.157 ***	-0.147 ***	-0.152 ***	-0.180 ***	-0.128 ***	-0.188 ***	-0.160 ***	-0.166 ***	-0.087 ***	-0.115 ***	-0.181 ***	-0.189 ***	-0.238 ***	-0.074 ***	-0.254 ***	-0.198 ***	-0.093 ***
	(0.014)	(0.025)	(0.013)	(0.022)	(0.046)	(0.020)	(0.019)	(0.015)	(0.020)	(0.029)	(0.028)	(0.031)	(0.028)	(0.026)	(0.033)	(0.019)	(0.028)	(0.029)	(0.015)	(0.023)	(0.025)	(0.034)	(0.034)	(0.020)	(0.040)	(0.023)	(0.029)
Firm fixed (first diff)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(1) (p-value)	0.00	0.00	0.04	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.24	0.96	0.00	0.00	0.00	0.00	0.00
AR(2) (p-value)	0.39	0.17	0.29	0.31	0.61	0.13	0.19	0.53	0.02	0.07	0.43	0.20	0.06	0.64	0.21	NA	0.52	0.17	0.99	0.01	0.98	0.98	0.03	0.21	0.00	0.23	0.70
J-statistic	21.98	33.27	31.46	35.97	18.22	34.62	48.54	24.61	77.22	30.93	33.99	25.52	30.49	26.72	24.40	26.33	34.73	25.48	31.15	36.25	26.88	24.88	32.92	36.95	35.84	20.40	26.98
J-statistic (p-value)	0.52	0.19	0.25	0.12	0.90	0.15	0.01	0.60	0.00	0.27	0.17	0.55	0.29	0.48	0.61	0.50	0.15	0.55	0.27	0.11	0.47	0.36	0.20	0.10	0.12	0.81	0.46
Estimation period	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012	2005-2012

5   Conclusion

This study examines firm capital structure and the influence of firm characteristics on the leverage of firms, in 27 countries from different continents. We also examine the firm leverage during the Global Financial Crisis 2007 and the influence of firm characteristics on capital structure in a sub-period analysis.

The Global Financial Crisis caused severe economic recession and financial instability in the US market, which spread to other countries in Africa, Asia, Europe and the Pacific. The crisis also triggered the Sovereign Debt Crisis in 2009 which affected all countries in the Eurozone. The Asian countries were spared from the financial turmoil but economic growth slowed due to the decline in exports to the Western countries and intra-Asia. The Global Financial Crisis caused negative economic growth in 2008-09 and forced many countries into recession. At the same time, firm leverage increased as the instability in the financial markets and lower firm earnings caused firms to increase debt financing.

Most of build-up of firm leverage occurred in 2008 when economic growth took a turn for the worse. The increase in firm leverage, during the Global Financial Crisis, was larger in the US and the European countries, compared to the Asia. The increase in firm leverage was temporary and was reversed by the end of the crisis. However, in the European countries, the high firm leverage was prolonged due to the Sovereign Debt Crisis.

Past studies have established that firm characteristics influence the amount of leverage in firm capital structure (Gungoraydinoglu & Öztekin, 2011; Kayo & Kimura, 2011; Titman & Wessels, 1988). Our results suggest that firm profitability, growth opportunity, liquidity and share price performance have negative influence on leverage. Firm size and non-debt tax shield have positive influence on firm leverage. However, the influence of asset tangibility is mixed. Our results also indicate that the Global Financial Crisis affected the influence of firm characteristics on leverage. The sub-period analysis indicates that asset tangibility, earnings volatility and non-debt tax shield were insignificant. The influence of firm size on leverage remained significant throughout the three sub-periods. Profitability and growth opportunity had weaker influence on firm leverage during the crisis. The influence of firm liquidity became stronger (insignificant) in Asia (America and Europe) during the financial crisis. Lastly, share price performance had stronger influence on firm leverage during- and post-crisis.

Overall, these results are similar to past studies (Antoniou et al., 2008; Harris & Raviv, 1991) and are in accordance with the trade-off, pecking order and market timing theories. Although the firm characteristics similarly influence firm leverage across countries, the significance of the impact differs between countries because of the different country-specific factors, such as the economic environment, financial systems and institutional factors, which have indirect influence on firm leverage. Furthermore, changes in the macroeconomic environment also affect firm capital structure and the influence of the firm characteristics on leverage.

There are several limitations in this study. Firstly, there is a large deviation in the sample size across countries. Therefore, the small number of firm-observations in countries such as Spain and Brazil may not be a true representation of the overall population. Secondly, we did not account for the effects of country-specific factors, such as bankruptcy cost, agency cost and information asymmetry cost, on firm leverage. Future studies should also control for these country-specific differences and also consider using more sophisticated analysis techniques, such as the Instrumental Variable (IV) regression.

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