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What determines the corporate capital structures? Evidence from emerging markets in the light of the Asian financial crisis

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ABSTRACT

The purpose of this paper is to identify and study the most relevant factors that explain the debt-equity choices of firms in emerging markets. Using data from 4,735 non-financial listed firms from 18 emerging markets over the "special" period 1990-2007, results indicate that asset tangibility, firm size, private credit to GDP, and the creditor protection index are associated with higher leverage ratios, while profitability, growth opportunities, the shareholder protection index, stock market size, the legality index, GDP growth rate, and inflation rate are associated with lower leverage ratios. Using the panel data approach, results also indicate that the tangibility of assets and the shareholder rights index are the most prominent determinants of capital structure. Furthermore, the research suggests that the debt-equity choice decisions of firms differ according to geographical origin, legal origin, and financial system development. Differences also exist at the sectoral level. Results finally show that the Asian financial crisis had effects on capital structure determinants. We detect significant upward trends in four different leverage ratios before and during the eruption of the financial and banking crisis. After the crisis, asset tangibility, profitability, and the creditor rights index influence the firm's capital structure determinants differently.

Contribution/ Originality: This study contributes to the existing literature by considering that several firm- and country-specific factors play a more important role in explaining the leverage ratios of firms in emerging markets. Thus, it is of primary importance to control the factors that have the greatest influence on the corporate capital structure of listed companies, especially during periods of crisis.

1. INTRODUCTION

Various theories have been put forward to explain the financial choices of companies. The two oldest and most developed ones are the trade-off theory "TOT" and the pecking order theory "POT" (Adair & Adaskou, 2015; Agyei, Sun, & Abrokwah, 2020; Ahmadimousaabad, Bajuri, Jahanzeb, Karami, & Rehman, 2013; Lisboa, Costa, & Ferreira, 2023; Serrasqueiro & Caetano, 2015). Both theories suggest a series of firm-specific factors (the so-called "micro-economic" determinants). A little later, it was proved that capital structure decisions can be explained by other factors: the country-specific factors (the so-called "macro-economic" or "institutional" determinants). If the internal factors of

companies can be controlled by managers (Abdi, Souffargi, & Boubaker, 2023), this is not the case for other external factors that depend on the characteristics and specificities of each country (Souffargi & Boubaker, 2023, 2024).

The major role that firm- and country-specific factors can play in determining firms' financial choices is one of the most debated subjects (Bancel & Mittoo, 2004; Jõeveer, 2013; Kumar, Colombage, & Rao, 2017; Lemma & Negash, 2013; Lisboa et al., 2023; Öztekin & Flannery, 2012). Over the years, the issues raised by theoretical and empirical research have become more numerous and often more complex. The majority of empirical studies focused on developed countries (Antoniou, Guney, & Paudyal, 2008; Dell'Acqua, Etro, Teti, & Barbalace, 2013; Rajan & Zingales, 1995). The most well-known studies are those comparing the capital structure determinants around the world, taking into consideration different firm- and country-specific factors (Alves & Ferreira, 2011; Cheng & Shiu, 2007; De Jong, Kabir, & Nguyen, 2008; Kayo & Kimura, 2011; Öztekin, 2015). Studies that have focused on emerging markets are much rarer (Bokpin, 2009; Foster & Young, 2010; Gurcharan, 2010; Mateus & Terra, 2013; Mitton, 2008). A good majority is at the level of a single country (Estuti & Pangestuti, 2023).

Against this background, it seems appropriate to ask the following questions: What are the most important determinants of the capital structure of firms in emerging markets? Are they microeconomic determinants and macroeconomic and institutional determinants? In this paper, we propose to address the issue of financial structure in a particular context that of emerging markets for the period 1990–2007, a very «special» period. Indeed, at the end of the 1990s, a wave of crises affected the whole world and, more particularly, the emerging markets. The turmoil in these markets impacted the financial choices of companies.

The interest of this work lies not only in the choice of the sample on which we want to test the theories of capital structure but also in the consideration of all the micro, macro-economic and institutional factors. Moreover, this work highlights the determinants of capital structure by geographical region (Foster & Young, 2013; Riaz, Jinghong, & Siddiqi, 2023), legal origin (Alves & Ferreira, 2011; Bancel & Mittoo, 2004), financial system development (Antoniou et al., 2008), sector of activity (Abor, 2007; Choi, 2023), and finally by sub-periods: before and after the Asian crisis (Deesomsak, Paudyal, & Pescetto, 2004). It is important to note that although numerous studies have been conducted in developed/developing countries, there is still a need to understand more about emerging markets, particularly at the time of difficulties and crises (the Asian crisis, the 2007–2008 financial crisis, the COVID-19 crisis…).

In the first part of this paper, we will present the literature review. In the second part, and referring to the existing literature, we will describe the research methodology and present the assumptions used to estimate the capital structure determinants. In the third part, we will present and discuss the empirical results obtained using a sample of 4735 non-financial listed firms from 18 emerging markets. The final section of the paper offers a summary conclusion.

2. LITERATURE REVIEW

A growing body of literature is mainly focused on the different capital structure theories: Brusov and Filatova (2023), Yapa Abeywardhana (2017), Javed and Jahanzeb (2012), Luigi and Sorin (2009), Niu (2008), and Mostafa and Boregowda (2014) present a brief review of capital structure theories; they distinguish five theories: the Modigliani-Miller (MM) proposition, which is considered the first theory; the Pecking-Order Theory «POT» (Myers, 1984; Myers & Majluf, 1984); the Trade Off Theory «TOT» (Fischer, Heinkel, & Zechner, 1989; Jensen & Meckling, 1976; Myers, 1977); the market timing theory (Baker & Wurgler, 2002); and the agency theories (Grossman & Hart, 1982; Jensen, 1986).

According to the traditional trade-off theory, firms have one optimal debt ratio (target leverage). According to the pecking order theory, firms have a preference for internal finance over external finance and debt over equity. The market timing theory, also known by the name "windows of opportunities", is another theory developed and tested by Baker and Wurgler (2002). This theory holds that firms prefer debt when the cost of equity is not low and prefer

external equity otherwise (Ahmadimousaabad et al., 2013; Alti, 2006; Huang & Ritter, 2005; Mahajan & Tartaroglu, 2008; Miglo, 2010; Zavertiaeva & Nechaeva, 2017).

The two most common theories used in capital structure are the Pecking-Order Theory «POT» and the Trade Off Theory «TOT» (Martinez, Scherger, & Guercio, 2019; Mostafa & Boregowda, 2014; Nguyen & Nguyen, 2020). Theoretical and empirical studies show that there is no agreement on which theory is best. Most studies compare the two competing theories: the Pecking-Order and the Trade-Off theories (Akbar, Khan, Haq, & Khan, 2023; Degryse, De Goeij, & Kappert, 2012; Fama & French, 2002; Frank & Goyal, 2008a; Harasheh & De Vincenzo, 2023; Kumar et al., 2017; López-Gracia & Sogorb-Mira, 2008). In fact, one important issue raised is the superiority of one theory over the other. Atiyet (2012) confirms the superiority of Pecking Order Theory in the French context. Similarly, but in the United Arab Emirates, with a tax-free environment, the results are more inclined toward the pecking-order level (Abdulla, 2017). Sakr and Bedeir (2019) show the superiority of the Trade-Off and Pecking Order theories; the agency cost theory fails to explain well the capital structure of Egyptian companies. According to the agency cost theory, an optimal capital structure is reached when the costs resulting from the conflicts between the managers and the owners are minimized (Ahmed, Nugraha, & Hágen, 2023; Jensen & Meckling, 1976; Mintzberg, 1984; Panda & Leepsa, 2017).

3. HYPOTHESIS AND RESEARCH METHODOLOGY

A variety of internal and external factors influence the decision between equity and debt financing.

3.1. Hypothesis

Based on the theoretical and empirical studies, from the most recent to the oldest, we suppose that capital structure depends on several factors, including the size, the asset tangibility, the profitability, the growth opportunities (firm-specific determinants), the average annual gross domestic product (GDP) growth rate, the inflation rate, the stock market capitalization/GDP, the private credit/GDP, the "anti-director rights" index, the "creditor rights" index, and the composite "Legality" index developed by Berkowitz, Pistor, and Richard (2003) (country-specific determinants). Once again, in light of the growing literature on capital structure determinants, we can advance four hypotheses:

H_1: Firm size and asset tangibility have positive effects on leverage. The effects of firm profitability and growth opportunities are rather negative.

According to the trade-off theory and contrary to the predictions of the pecking order theory, larger firms are less exposed to a higher risk of bankruptcy. They are generally more diversified and have greater access to credit (Ang, Chua, & McConnell, 1982; Titman & Wessels, 1988; Warner, 1977). Similarly, firms with more tangible fixed assets use more debt; banks insist on tangible collaterals.

At the opposite end, according to the pecking order theory, more profitable firms use less debt and have lower leverage ratios; then the relationship between the two variables is negative. Leverage is also negatively related to growth opportunities, which is consistent with trade-off theories (Frank & Goyal, 2008b). Firms with growth opportunities should avoid debt for two reasons: under investment and asset substitution (Abor & Bokpin, 2010; Barclay & Smith, 2005; Danila, Noreen, Azizan, Farid, & Ahmed, 2020; Jensen, 1986; Jensen & Meckling, 1976; Myers, 1977).

H_2: In Market-oriented countries and in Common law countries, the firm size, the asset tangibility, and the profitability have stronger effects on leverage than in Bank-oriented countries and in Civil law countries.

In their original study on capital structure determinants, Antoniou et al. (2008) compare capital-market-oriented countries (USA and United Kingdom) to bank-oriented countries (France, Germany, and Japan). In the same line, further studies highlight the importance of financial system development (Belkhir, Maghyereh, & Awartani, 2016; De Jong et al., 2008).

Moreover, Belkhir et al. (2016) suppose that the positive association between size and leverage, for example, attenuates in countries characterized relatively better-quality institutions. Studies show that firms' legal origins affect directly and also indirectly the corporate capital structure: De Jong et al. (2008); Cheng and Shiu (2007); Alves and Ferreira (2011); Öztekin and Flannery (2012); Céspedes, González, and Molina (2010); and Raja Zekri Ben Hamouda, Hamzaoui, and Jilani (2023).

Several other hypotheses can be considered. They relate to the country-specific determinants. Clearly, things like how well the economy and finances are doing (Antoniou et al., 2008; Zeitun, Temimi, & Mimouni, 2017) and the type of legal system in place (Bancel & Mittoo, 2004; Cho, El Ghoul, Guedhami, & Suh, 2014; De Jong et al., 2008; Fan, Titman, & Twite, 2012) can greatly affect choices about capital structure..

H_5: Economic growth, inflation, market capitalization to GDP, the anti-director rights index, and the "Legality" index have negative effects on leverage ratios. The creditor rights index and credit to the private sector as a percentage of GDP have positive effects.

It is to be noted that each of these factors (country- or firm-specific factor) can also have the opposite effect. We note, moreover, that to the best of our knowledge, no study has examined the effect of the "Legality" index on leverage ratios in the context of emerging markets.

3.2. Research Methodology

3.2.1. Data

Table 1 lists a comprehensive set of data sources, abbreviations, and definitions of all variables used in this paper and required for our empirical study.

Table 1. Variables.

Variables	Definition	Database
Leverage ratios		
Book leverage (LevBv)	Total book debt to total assets.	DataStream
Marketleverage (LevMv)	Total book debt divided by the result of total assets minus common equity plus market equity.	DataStream
LT book-leverage (LTLevBv)	Long-term debt to total assets	DataStream
LTMarket-leverage (LTLevMv)	Long-term debt divided by the result of total assets minus common equity plus market equity.	DataStream
Firm-level determinants		
Size (Size)	Natural log of total assets.	DataStream
Tangibility (Tang)	Property, plant, and equipment to total assets.	DataStream
Profitability (Prof)	Earnings before interest, taxes, depreciation, and amortization to total assets.	DataStream
Growth opportunity (MTB)	The result of total assets minus book equity plus market capitalization divided by total assets.	DataStream
Country-level determinants		
Macro-economic determinants		
GDP growth rate (GDPg)	Growth rate of real GDP	World development indicators
Inflation (Inf)	Rate of increase in CPI	World development indicators
Financial determinants		
The stock market development (Mket)	The average market capitalization of listed companies as % of GDP	World development indicators
The banking system development (Credit)	The average domestic credit to private sector by banking sector as % of GDP	World development indicators
Legal determinants		
Shareholder rights " SR "	It is comprised of 6 different items and ranges from 0 to 6.	Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998).
Creditor rights "CR"	It is comprised of 4 different items and ranges from 0 to 4.	Porta et al. (1998) and Claessens, Djankov, and Klapper (2003).
Legality index "Leg"	A composite legality index	Berkowitz et al. (2003).

3.2.2. Sample

The initial sample included 13,076 companies from 26 emerging markets as proposed by the Morgan Stanley Capital International MSCI Emerging Market Index[1]. The data processing is done in several steps. In the first step, we eliminate duplicate[2] firms and those not listed on their respective local markets. Firms without SIC codes are also eliminated, and financial and service firms are excluded. We exclude from our sample firms that do not have the necessary data and those with debt ratios equal to or less than 0 and/or equal to or greater than 1. Firms with negative equity values are also eliminated. Firms with negative total assets and/or negative market capitalization are excluded (Clark, 2010)[2] . We propose, finally, the use of Winsorization, following the procedure of Alves and Ferreira (2011), Clark, Francis, and Hasan (2008), and Frank and Goyal (2009). The number of firms is thus reduced to 6774.

Table 2 summarizes the different criteria taken into account in the selection of the sample:

Table 2. The final sample.

Country	Initial sample	Number of firms remaining after elimination of						Final sample
		Duplication	Non listed on the local market	Financial and utility firms	Leverage ratio ≤0 or Leverage ratio ≥ 1	- Common equity<0 - Market capitalization <0 - Total assets<0	Missing data	
Argentina	95	82	76	63	52	52	48	48
South Africa	958	579	353	333	282	280	265	265
Brazil	877	435	423	350	289	281	266	266
Chili	208	174	170	131	106	106	106	106
China	1890	1546	1475	1385	731	728	707	707
Colombia	35	34	33	31	27	27	27	27
Egypt	41	40	39	35	30	30	26	26
Hungary	99	34	9	8	7	7	7	7
Czech Republic	129	73	42	29	29	29	18	18
South Korea	1065	1037	1025	1005	909	906	905	905
India	2041	1552	1546	1497	1351	1323	1313	1313
Indonesia	538	276	248	242	217	211	210	210
Israel	291	135	63	60	55	55	55	55
Jordan	15	15	14	13	7	7	7	7
Malaysia	1109	977	761	707	642	640	636	636
Morocco	17	13	11	11	9	9	8	8
Mexico	309	166	138	133	112	112	110	110
Taiwan	1309	1290	1280	1263	1088	1088	1082	1082
Thailand	879	468	445	431	379	378	377	377
Pakistan	118	115	115	107	104	104	104	104
Peru	120	84	83	78	57	56	55	55
Philippines	198	157	151	133	98	96	94	94
Poland	243	233	229	217	192	190	188	188
Russia	138	119	109	74	74	74	22	22
Turkey	318	210	162	153	122	122	122	122
Venezuela	36	26	25	19	16	16	16	16
Total	**13 076**							**6774**

[1]Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Israel, Jordan, Malaysia, Mexico, Morocco, Pakistan, Peru, Philippines, Poland, Russia, South Africa, South Korea, Taiwan, Thailand, Turkey and Venezuela.

[2]No company has negative total assets. Some companies, however, have negative equity and/or market capitalization values.

After processing the firm-specific data, we decide to retain only those countries for which the number of firms is greater than 10 (De Jong et al., 2008): Hungary, Jordan, and Morocco are thus excluded. We also decide to exclude countries for which macroeconomic, financial, and institutional data are not available. We thus exclude China, Poland, Russia, the Czech Republic, and Taiwan. Our final sample no longer includes European emerging markets.

The final sample consists of 4735 non-financial listed firms with an unbalanced panel. These firms belong to 18 emerging markets from different geographical regions with different financial orientations (Market versus Bank) and opposite legal origins (Civil versus Common law).

Thus, the final sample is mainly composed of Asian firms (81%). More than half of the firms (62%) belong to countries with market-oriented financial systems. The percentage of companies from countries influenced by the Anglo-American system known as "Common law" amounts to 58%[3].

3.2.3. Methodology

The "Micro-Macro" model includes all firm and country-specific variables:

$$Lev_{ijt} = \alpha_0 + \alpha_k X_{ijt-1} + \beta_m Y_{jt-1} + Z_j + \varepsilon_{ijt}$$

Where $LEV_{i,j,t-1}$ is one of the four different measures of leverage of firm i in country j for time period t-1[4]; X_{ijt-1} is a vector of firm-specific determinants; Y_{jt-1} is a vector of macro-economic and financial determinants; Z_j is a vector of legal determinants and ε_{ijt} is the unobserved error term[5].

The econometric model may also be so presented:

$$LEV_{i,j,t} = \alpha_0 + \beta_1 Size_{i,j,t-1} + \beta_2 Tang_{i,j,t-1} + \beta_3 Prof_{i,j,t-1} + \beta_4 MTB_{i,j,t-1} + \beta_5 GDPg_{j,t-1} + \beta_6 Inf_{j,t-1} + \beta_7 Mket_{j,t-1} + \beta_8 Credit_{j,t-1} + \beta_9 SR_j + \beta_{10} CR_j + \beta_{11} Leg_j + \varepsilon_{ijt}$$

Where $LEV_{i,j,t-1}$ is one of the four different measures of leverage of firm i in country j for time period t-1. Leverage can be expressed in book values but also in market values. It can be calculated based on total debt or on long term-debt. Firm-specific variables are: the size of the firm "Size", the asset tangibility "Tang", the profitability "Prof" and the Market to Book ratio "MTB". GDP growth rate "GDPg", inflation rate "Inf", market capitalization/GDP "Mket" and private credit/GDP "Credit" are the economic and financial variables. Shareholder rights index "SR", Creditor rights "CR" and Legality index "Legality" are the legal determinants. α_0 is the constant and ε_{ijt} is the error term.

Using principal components analysis, Berkowitz et al. (2003) propose the « Legality » index, an index measuring the strength of the legal system (Aggarwal & Klapper, 2003; Cumming, Schmidt, & Walz, 2010; Tiede, 2018).

For each emerging market, we calculate the « Legality » index as defined by Berkowitz et al. (2003):

Legality = 0.381× Efficiency of Judiciary + 0.578 × Rule of Law + 0.503 × Absence of Corruption + 0.347 × Risk of Expropriation + 0.384 × Risk of Contract Repudiation.

Table 3 gives the values of the composite « Legality » index by country.

Table 3. Legality index.

Country	Judicial system	Rule of law	Corruption	Risk of expropriation	Risk of contract repudiation	Legality
South Africa	6	4.42	8.92	6.88	7.27	14.507
Argentina	6	5.35	6.02	5.91	4.91	12.343
Brazil	5.75	6.32	6.32	7.62	6.3	14.087
Chili	7.25	7.02	5.3	7.5	6.8	14.610
Columbia	7.25	2.08	5	6.95	7.02	11.587

[3] Detailed tables are also available by request.

[4] Alves and Ferreira (2011); Gurcharan (2010); Deesomsak et al. (2004); Song and Philippatos (2004); Bevan and Danbolt (2002) and Rajan and Zingales (1995).

[5] We tested three models: "Micro", "Macro" and "Micro-Macro". In the first model, only company-specific factors are considered, while in the second, macroeconomic and institutional factors are taken into account. To save space, we will only present the results of the "Micro-Macro" model.

Country	Judicial system	Rule of law	Corruption	Risk of expropriation	Risk of contract repudiation	Legality
South Korea	6	5.35	5.3	8.31	8.59	14.227
Egypt	6.5	4.17	3.87	6.3	6.05	11.343
India	8	4.17	4.58	7.75	6.11	12.798
Indonesia	2.5	3.98	2.15	7.16	6.09	9.158
Israel	10	4.82	8.38	8.25	7.54	16.57
Malaysia	9	6.78	7.38	7.95	7.48	16.691
Mexico	6	5.35	4.77	7.29	6.55	14.557
Pakistan	5	3.03	2.98	5.62	4.87	8.976
Peru	6.75	2.5	4.7	5.54	4.68	10.1004
Philippines	4.75	2.73	2.92	5.22	4.8	8.511
Thailand	3.25	6.25	5.18	7.42	7.57	12.938
Turkey	4	5.18	5.18	7	5.95	11.838
Venezuela	6.5	6.37	4.7	6.89	6.3	13.333
Mean	6.437	5.316	5.392	7.582	6.983	13.55

It should be noted that we tested three models: "Micro," "Macro," and "Micro-Macro." Only firm-specific factors are considered in the first model, "Micro," while macroeconomic and institutional factors are considered in the second model, "Macro"[6]. The main focus of the studies was on the firm-specific factors. More recently, researchers recognized that macroeconomic factors also explain the capital structure of firms. To our knowledge, this is the first time that the composite «Legality» index is used in a model of capital structure. The legal/institutional factors most commonly identified are "rule of law," "shareholder rights" index, and "creditor rights" index.

Once all the variables are defined, the "Micro-Macro" model is then tested by panel data by Ordinary Least Squares (OLS) and/or panel data that appear to be most used in economic studies. Generally, the linear regression model estimates the change in the different leverage ratios, utilizing the panel's data methodology. Moreover, and as mentioned above, four different leverage ratios are retained. The principal objective is to find out whether the results obtained are dependent on the choice of the method and/or the leverage ratio used (Hamouda et al., 2023).

For comparative purposes, the results are presented by country, by region, by legal origin, and by financial system's orientation. They are also presented for the whole group of emerging markets. Dummy variables are therefore introduced in the different models. The empirical study concludes with sectoral comparisons. It also concludes the impact of the Asian financial crisis on capital structure determinants in emerging markets[7].

In fact, very few studies evaluate the effect of the 1997Asian financial crisis on the firm capital structure decisions; few country samples are composed of firms from emerging markets (Foster & Young, 2013; Gurcharan, 2010; Mateus & Terra, 2013; Mitton, 2008). Therefore, we chose to use data from 1990 to 2007, focusing on a large sample of firms from emerging markets. Deesomsak et al. (2004) are only interested in Asia Pacific region. More recently, Zeitun et al. (2017) describe how leverage ratios of GCC[8] firms are impacted by the 2008 financial crisis; still more recently, Lyubov and Heshmati (2023) examine the impact of the 1997 Asian financial crisis and the 2008 Global economic crisis on the capital structures; Korea is the only country studied. Tekin and Polat (2023) investigate both the Asian financial crisis and the global financial crisis; the objective is to compare whether these two crises have different effects on capital structure decisions. The authors use 86,030 firm-years, and the sample consists of eight East Asian countries. The debate about the effects of the 1997 Asian financial crisis on capital structure decisions is therefore not yet over. For this reason, we think that it is always interesting to find out how firms can choose between debt and equity, especially during periods of transition and crisis.

[6]To save space, we will only present the results of the "Micro-Macro" model.

[7]Results are not all presented in this paper. They are available upon request.

[8] Gulf Cooperation Council.

4. RESULTS

4.1. Descriptive Statistics

We begin by discussing the descriptive statistics of the dependent variable, the leverage ratio; we must carefully explain its trend over time.

4.1.1. Leverage Ratios

The Figure 1 shows an upward trend in different leverage ratios between 1990 and 1997 and a downward trend between 1997 and 2005, with peaks reached in 1997-1998.

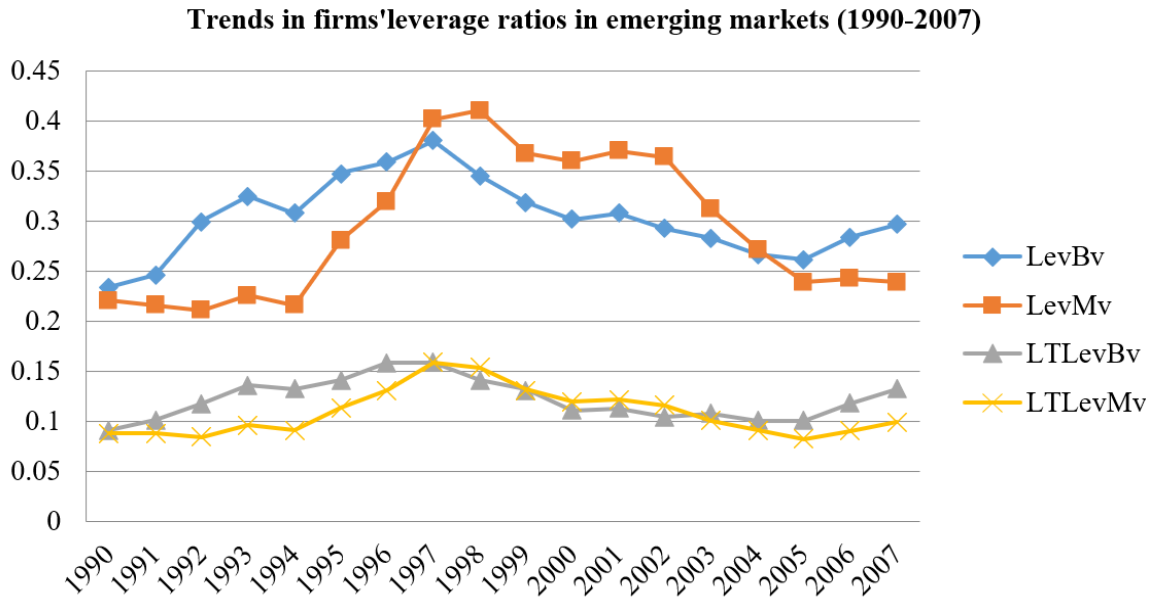


Figure 1. The evolution of leverage ratios in emerging markets (1990-2007).

The study sample consists mainly of Asian companies, and the Asian financial crisis began in August 2007 and worsened in October 2008. Moreover, and as shown in Figure 1, over the pre-crisis period 1990-1997 and from 2005, leverage ratios expressed in book values are generally higher than those expressed in market values (Dell'Acqua et al., 2013). The stock markets seem to have played an important role during this period. Between 1997-2004, total leverage ratios expressed in market values exceeded those expressed in book values.

4.1.1.1. Cross-Country and Regional Comparisons

For cross-country comparisons, descriptive statistics are presented in Table 4:

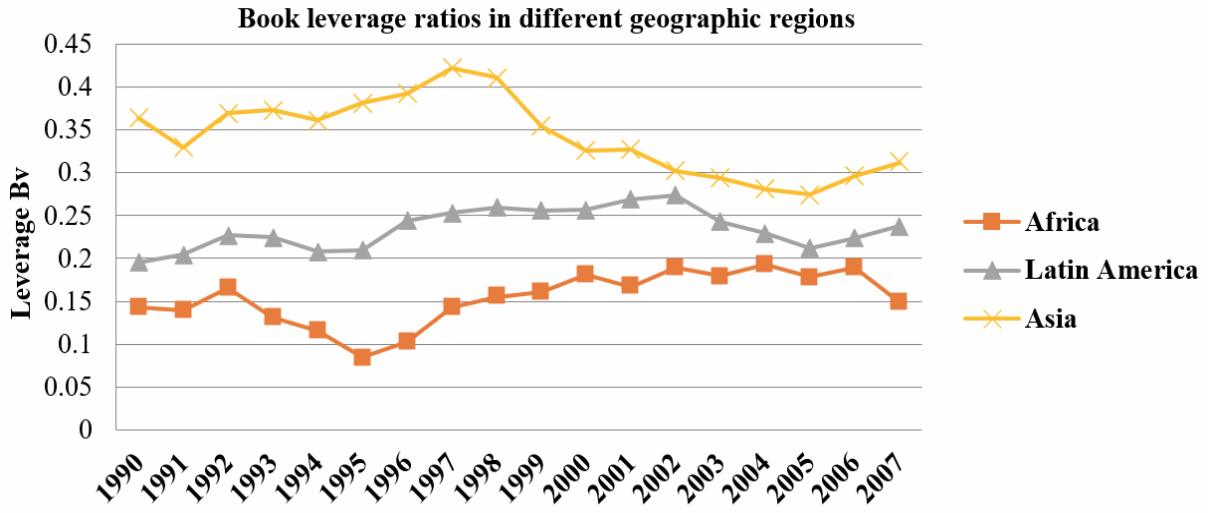
Table 4. Leverage ratios.

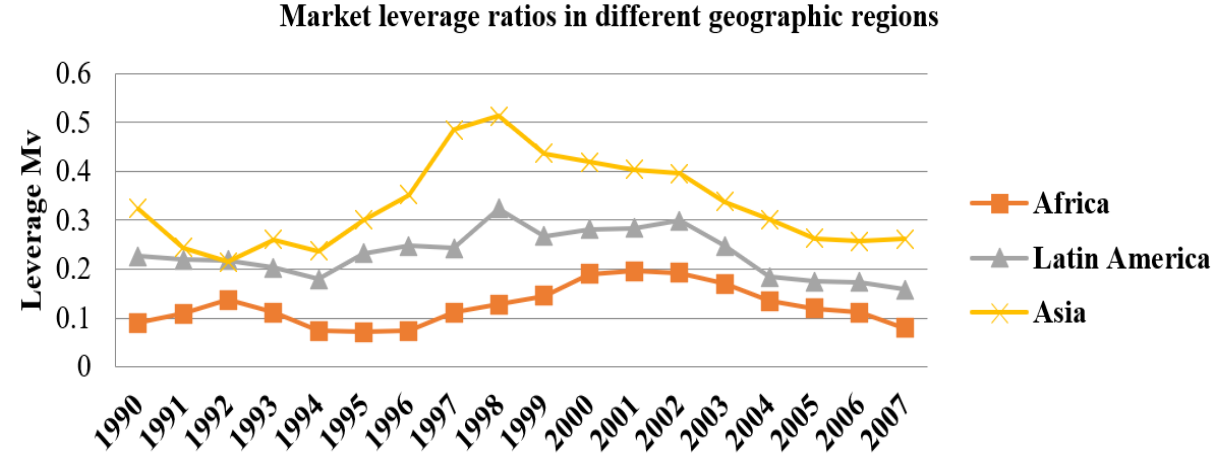
Country	Total leverage		Long term leverage		Number of firms
	LevBv	LevMv	LTLevBv	LTLevMv	
South Africa	0.1842	0.1722	0.1007	0.0892	265
Argentina	0.2599	0.2807	0.1417	0.1507	48
Brazil	0.268	0.2897	0.143	0.1507	266
Chili	0.246	0.2272	0.1504	0.1354	106
Colombia	0.144	0.184	0.0906	0.1152	27
Korea	0.335	0.367	0.1447	0.1547	905
Egypt	0.329	0.265	0.198	0.1513	26
India	0.327	0.294	0.2096	0.1879	1313
Indonesia	0.377	0.3596	0.214	0.2003	210
Israel	0.3402	0.279	0.2017	0.1679	55
Malaysia	0.276	0.268	0.1109	0.107	636

Country	Total leverage		Long term leverage		Number of firms
	LevBv	LevMv	LTLevBv	LTLevMv	
Mexico	0.273	0.2610	0.184	0.179	110
Pakistan	0.3605	0.344	0.163	0.152	104
Peru	0.2756	0.225	0.137	0.110	55
Philippines	0.312	0.3293	0.185	0.194	94
Thailand	0.377	0.3598	0.1610	0.1510	377
Turkey	0.274	0.226	0.104	0.084	122
Venezuela	0.182	0.253	0.105	0.144	16
Mean	0,3098	0,305	0,159	0,153	4735

Table 5 reports summary statistics for each of the four different leverage ratios. Examination of this table shows that leverage ratios differ across countries. India, Indonesia, the Philippines, and Thailand have the highest levels of leverage ratios. South Korea, Israel, and Pakistan have ratios higher than the average levels. Total leverage ratios, expressed in book values, vary, for example, between 37.68% for Thailand and 14.31% for Colombia. The lowest levels are in South Africa, Colombia, Turkey, and Venezuela.

Regional comparisons further show that the Asian and Latin American firms are the highly indebted companies, contrary to those in Africa.





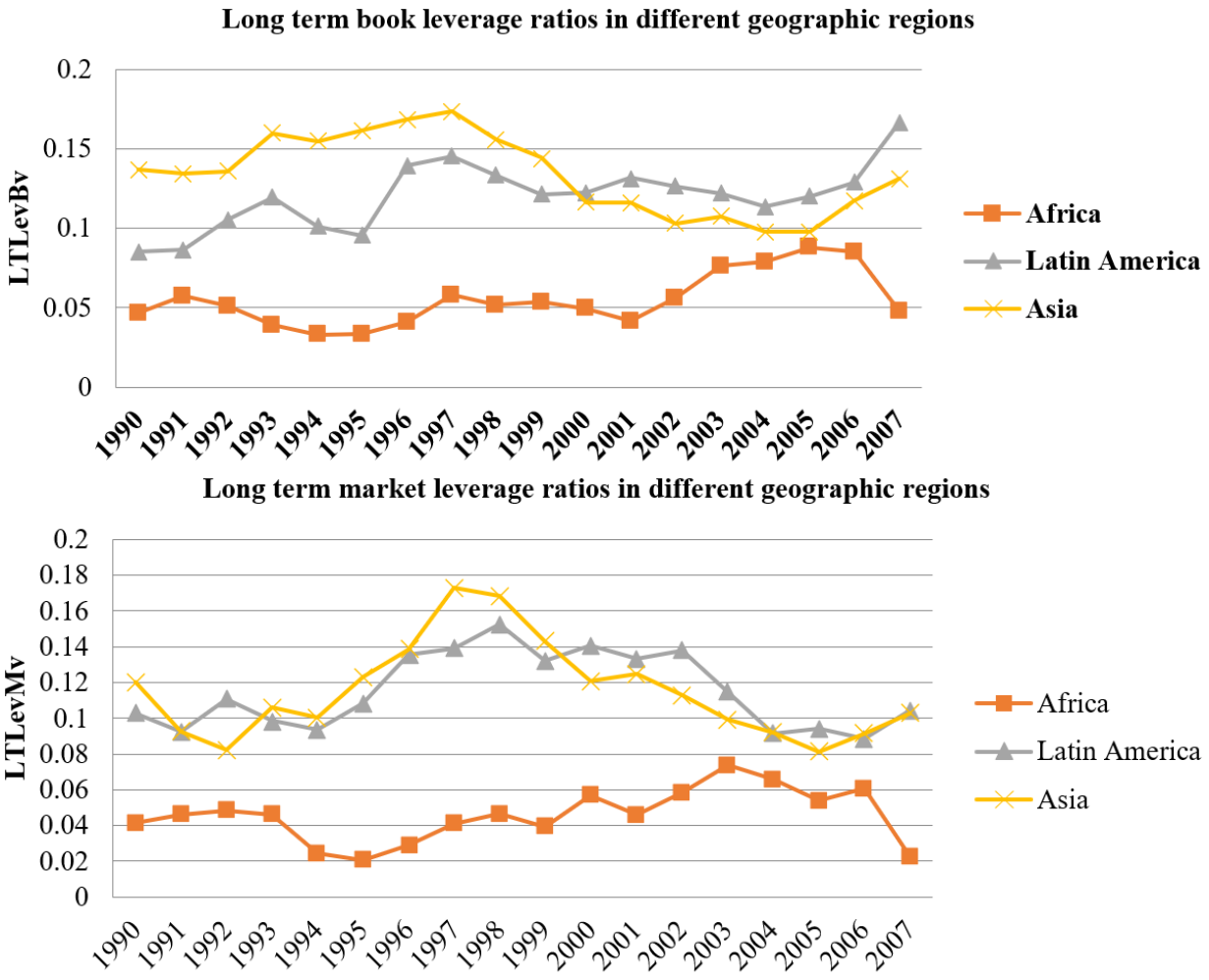


Figure 2. The evolution of leverage ratios by geographic region (1990-2007).

4.1.1.2. Financial System Development: Bank-Based Versus Market-Based Countries

As indicated in the next figure, Figure 3, the market-oriented countries have lower levels of leverage than bank-oriented countries when leverage ratios are expressed in their book values. However, that is not always the case, in particular before 1990 and during the 1995-1998 period.

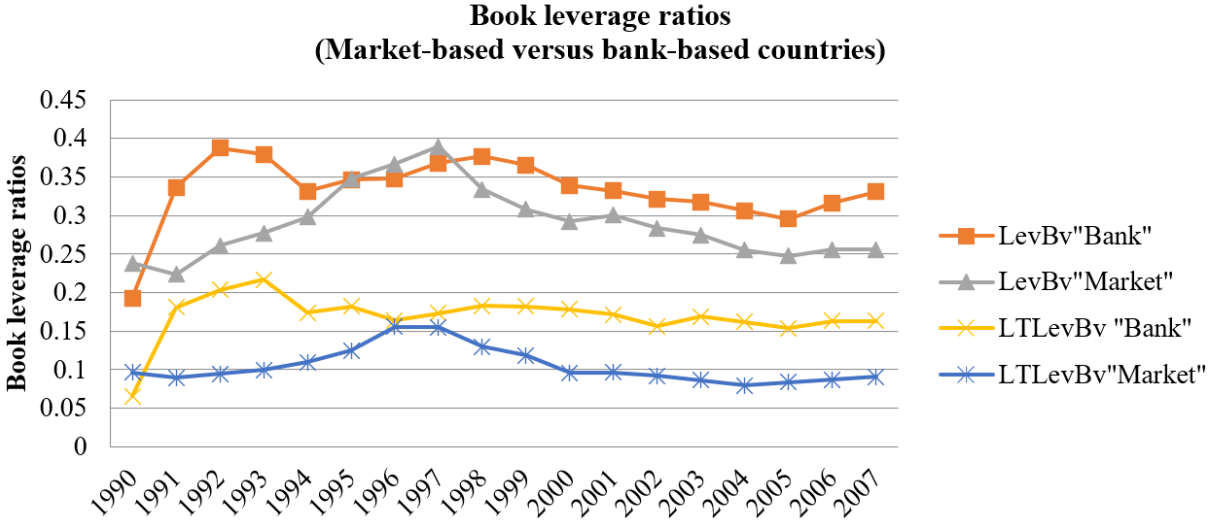


Figure 3. The evolution of book leverage ratios: Market-based versus bank-based countries.

As shown in Figure 4, total leverage ratios are nearly similar over the period. One notable difference is that the long-term leverage ratio levels are lower in market-based countries than in bank-based countries.

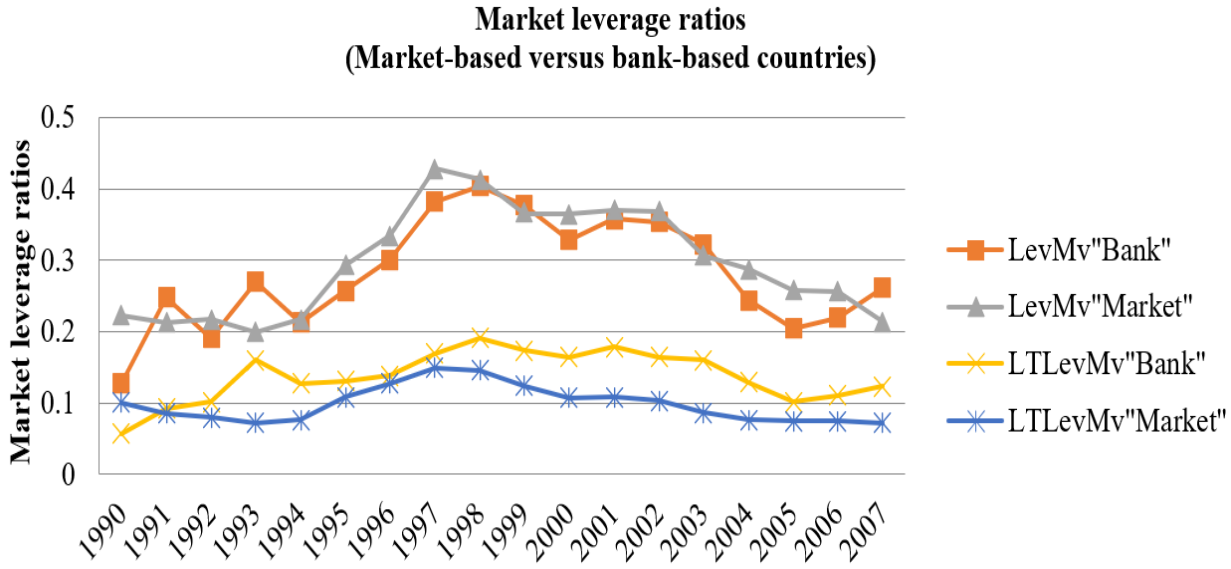


Figure 4. The evolution of market leverage ratios: Market-based versus bank-based countries.

Kayo and Kimura (2011) suppose that firm leverage is higher in market-based countries; the ownership structure is less concentrated, and the debt, according to the agency theory, plays an important disciplinary role. The manager's opportunistic behavior, in fact, should be monitored and sanctioned.

4.1.1.3. Legal System: Common Law Versus Civil Law Countries

The following two figures (Figures 5 and 6) show that firms in Common law have lower leverage ratios, specifically when the ratios are expressed on market values and calculated using long-term debt (Figure 6). However, of 2003 and as presented in Figure 5: (leverage ratios expressed on book values), the situation is reversed.

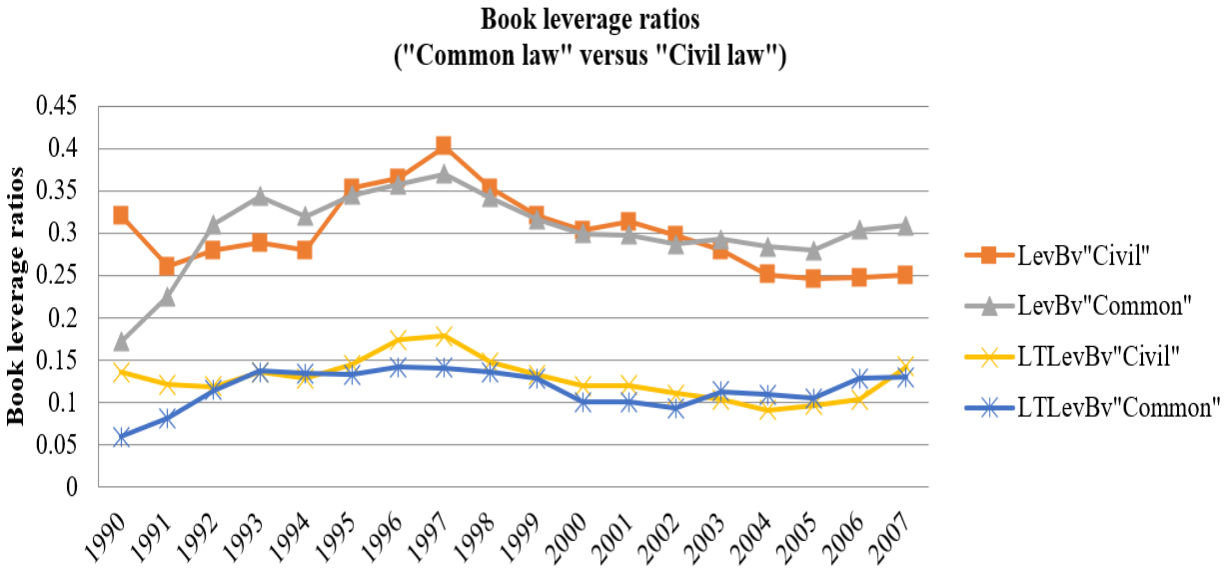


Figure 5. The evolution of book leverage ratios: Common versus civil law countries.

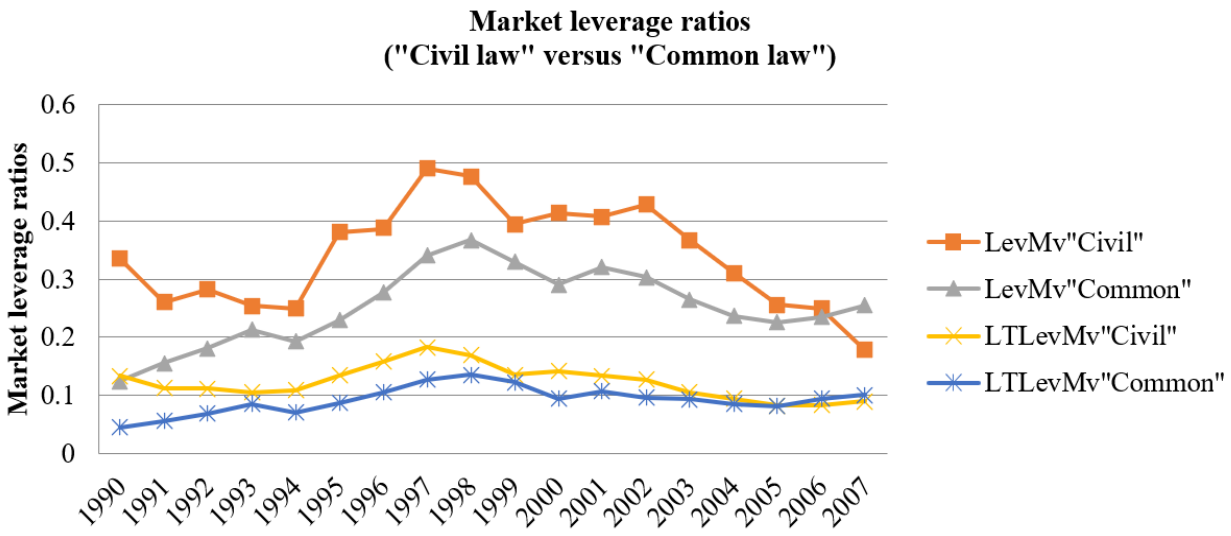


Figure 6. The evolution of market leverage ratios: Common versus civil law countries.

4.1.2. Firm And Country - Specific Factors

Table 5 presents summary descriptive statistics of firm and country explanatory variables. The specific set of variables that represent the key determinants of corporate capital structure differ considerably across countries[9].

Table 5. Descriptive statistics of firm and country-specific determinants.

Country	Firm-specific determinants				Country-specific determinants						
					Economic determinants		Financial determinants		Legal determinants		
	Size	Tang	Prof	MTB	GDPg	Inf	MketCap	PrivateCr	SR	CR	Leg
South Africa	10.962	0.297	0.100	1.435	2.753	8.770	167.684	124.158	5	3	14.507
Argentina	11.521	0.457	0.110	2.102	3.446	21.674	38.410	17.409	4	1	12.343
Brazil	12.629	0.445	0.155	3.078	2.736	236.849	36.798	41.308	3	1	14.086
Chili	11.842	0.523	0.124	1.317	4.727	6.830	96.651	73.119	5	2	14.699
Colombia	12.108	0.471	0.108	2.848	3.301	16.287	16.885	29.782	3	0	11.587
Korea	12.235	0.377	0.093	1.033	5.144	3.183	55.411	27.434	2	3	14.226
Egypt	12.090	0.555	0.167	1.514	4.527	6.825	57.192	58.589	2	4	11.343
India	11.195	0.404	0.163	1.693	7.617	5.868	66.045	34.537	5	4	12.797
Indonesia	11.143	0.444	0.120	1.288	4.547	13.684	25.409	33.155	2	4	9.157
Israel	12.691	0.397	0.116	1.366	3.717	3.781	64.035	81.239	3	4	16.569
Malaysia	10.833	0.425	0.084	1.254	5.718	4.024	156.738	121.002	4	4	16.691
Mexico	12.888	0.536	0.120	1.166	4.426	9.554	21.178	25.233	1	0	14.556
Pakistan	10.590	0.481	0.153	1.277	4.450	8.400	22.561	24.735	5	4	8.976
Peru	10.967	0.481	0.148	13.124	4.208	7.030	33.382	22.006	3	0	10.100
Philippines	11.017	0.503	0.103	1.208	4.264	6.567	51.289	40.770	3	0	8.511
Thailand	11.094	0.450	0.121	1.246	4.622	3.413	59.917	115.676	2	3	12.938
Turkey	11.313	0.348	0.207	1.475	4.573	42.878	25.717	19.137	2	2	11.837
Venezuela	12.310	0.595	0.121	0.739	2.373	35.544	8.223	14.111	1	NA	13.332
Mean	11.511	0.420	0.122	1.553	5.224	21.627	73.672	65.880	3.367	3.049	13.549

Descriptive statistics for firm-specific determinants by country reveal that, over the period 1990–2007, the average size of firms in emerging markets is 11.51. The Mexican firms are large companies (12,88), whereas the small companies are from Pakistan (10,962). We note, moreover, that tangible assets represent less than half of the total assets (42%); the values of the variable « Tang » vary very significantly between 59.53% in Venezuela and 29.73% in South Africa. As regards the profitability, the third independent variable, we can observe that companies operating in Turkey are the best performing (20.74%), with an average rate of profitability of 12.23%. Malaysian firms are the

[9]Additional statistics, charts, and tables may be given on request (geographical region, legal origin, and financial system).

least profitable (8.36%). Descriptive statistics of firm-specific determinants show finally that the market-to-book ratio, an approximate measure of growth opportunities, has a mean value of 1.553.

Furthermore, descriptive statistics of country-specific determinants, and, more precisely, of macroeconomic determinants, show that India, Malaysia, and Korea have the highest levels of GDP growth rate, with inflation rates below the emerging markets average. On the other hand, Brazil and Venezuela show lower rates of GDP growth (2.73% and 2.37%) and higher rates of inflation. Regarding financial determinants (Stock market capitalization/GDP and private credit/GDP), as shown in the table, Chile, Malaysia, and South Africa are distinguishable in terms of their financial importance: both banking sector and stock market development.

As regards legal determinants, the average «Shareholder-rights» (SR) index is 3.36 (over a total of 6), while the average Creditor-rights «CR» index is 3.049 (over a total of 4): In emerging markets, shareholders appear to be less protected than creditors. It should be noted, however, that in some of these countries, Colombia, Mexico, Peru and Philippines, no protection is afforded to creditors. To refine the overall analysis, a third legal index proposed by Berkowitz et al. (2003) is retained: Legality index. It varies between 8.976 in Pakistan and 16.691 in Malaysia; in Malaysia, a sound legal framework guarantees the rights of different creditors and shareholders.

4.2. Correlation Matrix

The following correlation table or correlation matrix (Table 6) presents the correlation coefficients between different dependent variables and a set of independent variables. In total, we have four dependent variables (Lev) and 11 independent variables.

Results indicate that there is a high correlation between the four different leverage ratios (dependent variables). However, because each regression model selects only one leverage ratio measure, the heteroscedasticity problem would not arise.

4.3. Regression Results

4.3.1. Study of the Capital Structure Determinants by Country and for All Emerging Markets

The Table 7 shows that the explanatory power of microeconomic determinants (firm-specific factors) is higher than that of macroeconomic determinants (country-specific factors), regardless of the leverage ratio used (Alves & Ferreira, 2011; De Jong et al., 2008; Lemma & Negash, 2013).

Overall, the results are consistent with the predictions of the various theories of capital structure: the leverage ratio is positively related to firm size, the tangibility of assets, private credit to GDP, and the creditor rights protection index. When leverage ratios are expressed in market values, they are negatively related to profitability, GDP growth rate, inflation rate, market capitalization/GDP ratio, shareholder rights protection index, and "Legality" index.

The tangibility of assets and the indices of protection of shareholders' and creditors' rights are the least sensitive factors to the choice of the leverage ratio. The only factor that has no impact on the leverage ratio of firms is the market-to-book, regardless of the leverage ratio chosen.

The first and third hypothesis (H1 and H3) can thus be considered verified in the context of emerging markets.

Table 6. Correlation matrix.

Variable	LevBv	LevMv	LTLevBv	LTLevMv	Size	Tang	Prof	MTB	GDPg	Inf	MketCap	PrivateCr	SR	CR	Leg
LevBv	1.000														
LevMv	0.855***	1.000													
LTLevBv	0.717***	0.575***	1.000												
LTLevMv	0.661***	0.726***	0.902***	1.000											
Size	0.047***	0.029***	0.074***	0.058***	1.000										
Tang	0.204***	0.240***	0.300***	0.328***	-0.004	1.000									
Prof	-0.051***	-0.064***	-0.019**	-0.031***	0.050***	0.000	1.000								
MTB	-0.012*	-0.038***	-0.009	-0.025***	-0.003	-0.003	0.001	1.000							
GDPg	-0.020***	-0.109***	0.028***	-0.038***	-0.046***	-0.048***	0.012*	-0.003	1.000						
Inf	-0.051***	-0.017**	-0.034***	-0.011	0.066***	0.047***	0.006	0.011	-0.070***	1.000					
MketCap	-0.145***	-0.208***	-0.135***	-0.183***	-0.149***	-0.084***	-0.031***	-0.007	0.222***	-0.092***	1.000				
PrivateCred	-0.030***	-0.022**	-0.153***	-0.144***	-0.142***	-0.051***	-0.056***	-0.012	-0.091***	0.032***	0.656***	1.000			
SR	-0.083***	-0.145***	0.040***	-0.010	-0.223***	-0.027***	0.027***	0.006	0.219***	-0.029***	0.362***	-0.016*	1.000		
CR	0.092***	0.034***	0.051***	0.013*	-0.223***	-0.094***	-0.002	-0.021***	0.289***	-0.162***	0.306***	0.245***	0.426***	1.000	
Leg	-0.115***	-0.077***	-0.148***	-0.125***	0.069***	-0.055***	-0.038***	-0.010	0.004	0.008	0.563***	0.608***	0.047***	0.120***	1.000

Note: *, ** and*** show significance at 10%, 5% and1%, respectively.

Table 7. Capital structure determinants for all emerging markets.

Variable	Total leverage ratios						Long term leverage ratios					
	Panel A: LevBv			Panel B: LevMv			Panel C: LTLevBv			Panel D: LTLevMv		
	Micro	Macro	Micro-Macro	Micro	Macro	Micro-Macro	Micro	Macro	Micro-Macro	Micro	Macro	Micro-Macro
Size	0.0060***		0.0041***	0.0002		-0.0039***	0.0084***		0.0090***	0.0053***		0.0042***
	(7.33)		(4.38)	(0.19)		(-4.04)	(12.29)		(11.10)	(7.76)		(5.29)
Tang	0.1661***		0.1862***	0.2155***		0.2230***	0.2132***		0.2345***	0.2360***		0.2491***
	(25.96)		(26.42)	(31.93)		(30.00)	(39.64)		(39.04)	(43.42)		(41.14)
Prof	-0.0177		-0.0149	-0.0199		-0.0182	-0.0091		-0.0075	-0.0101		-0.0095
	(-1.40)		(-1.25)	(-1.28)		(-1.14)	(-1.52)		(-1.40)	(-1.34)		(-1.20)
MTB	-0.0000		-0.0000	-0.0001		-0.0000	-0.0000		-0.0000	-0.0001		-0.0001
	(-0.40)		(-0.40)	(-0.40)		(-0.34)	(-1.83)		(-1.62)	(-0.96)		(-0.92)
GDPg		-0.1688**	-0.1629**		-0.2406***	-0.2315***		-0.0942*	-0.0864		-0.1087*	-0.0995*
		(-3.03)	(-2.96)		(-3.92)	(-3.85)		(-2.00)	(-1.90)		(-2.23)	(-2.12)
Inf		-0.0073***	-0.0081***		0.0002	-0.0007		-0.0027***	-0.0037***		0.0019**	0.0009
		(-9.52)	(-10.48)		(0.22)	(-0.79)		(-4.89)	(-6.50)		(2.90)	(1.26)
MketCap		0.0021	0.0054		-0.0490***	-0.0437***		0.0027	0.0060		-0.0177***	-0.0133***
		(0.39)	(0.99)		(-8.69)	(-7.75)		(0.64)	(1.47)		(-4.30)	(-3.36)
PrivateCr		0.1063***	0.1060***		0.0601***	0.0604***		0.0281**	0.0279**		-0.0113	-0.0113
		(9.62)	(9.71)		(4.92)	(5.01)		(3.08)	(3.18)		(-1.21)	(-1.25)
SR		-0.0503***	-0.0402***		-0.0415***	-0.0337***		-0.0363***	-0.0217***		-0.0302***	-0.0173***
		(-12.91)	(-10.11)		(-9.10)	(-7.19)		(-11.75)	(-6.94)		(-9.47)	(-5.33)
CR		0.0006	0.0035		0.0244***	0.0276***		0.0078**	0.0116***		0.0198***	0.0236***
		(0.16)	(0.90)		(5.28)	(5.69)		(2.64)	(3.75)		(6.59)	(7.41)
Leg		-0.0262***	-0.0270***		-0.0050	-0.0043		-0.0068***	-0.0087***		0.0040*	0.0030
		(-10.46)	(-10.45)		(-1.69)	(-1.37)		(-3.49)	(-4.27)		(2.00)	(1.45)
_cons	0.0186	0.6825***	0.5119***	0.0428*	0.3174***	0.2101***	-0.0899***	0.3129***	0.0539	-0.0803***	0.1166***	-0.0992**
	(1.02)	(18.05)	(12.71)	(2.22)	(7.20)	(4.47)	(-6.30)	(10.71)	(1.74)	(-5.67)	(3.98)	(-3.14)
N	22037	17534	17534	22037	17534	17534	22037	17534	17534	22037	17534	17534
R^2	0.140	0.113	0.154	0.193	0.141	0.190	0.171	0.090	0.190	0.184	0.099	0.200

Note: *, ** and*** show significance at 10%, 5% and 1%, respectively.

Table 8. Micro-economic determinants by emerging market.

Panel A: LevBv																		
Variable	**ZAF**	**ARG**	**BRA**	**CHL**	**COL**	**KOR**	**EGY**	**IND**	**IDN**	**ISR**	**MYS**	**MEX**	**PAK**	**PER**	**PHL**	**THA**	**TUR**	**VEN**
Size	-0.026***	0.014	0.014***	0.023***	0.035***	0.011***	0.030	-0.003*	0.016***	0.000	0.022***	0.023***	0.002	-0.021	0.028***	0.022***	-0.000	0.008
	(-8.198)	(1.447)	(4.817)	(9.440)	(3.446)	(6.576)	(1.275)	(-2.037)	(3.699)	(0.056)	(9.635)	(5.360)	(0.442)	(-1.722)	(6.064)	(6.536)	(-0.067)	(0.956)
Tang	0.167***	0.077	0.070**	0.071**	0.106	0.120***	0.085	0.403***	0.183***	0.296***	0.102***	-0.028	0.399***	-0.27***	0.214***	0.058**	-0.022	0.123
	(6.304)	(1.190)	(3.137)	(3.218)	(1.527)	(8.486)	(0.620)	(32.478)	(6.406)	(5.571)	(6.789)	(-0.809)	(11.615)	(-3.707)	(6.345)	(3.095)	(-0.469)	(1.194)
Prof	-0.023	-0.182*	-0.22***	-0.28***	-0.249	-0.04***	0.092	-0.003	-0.30***	-0.195	-0.40***	-0.152*	-0.57***	-0.120	-0.35***	-0.50***	-0.26***	-1.10***
	(-0.976)	(-2.064)	(-5.676)	(-4.399)	(-0.986)	(-5.613)	(0.239)	(-1.316)	(-6.656)	(-1.379)	(-13.31)	(-2.568)	(-7.562)	(-0.991)	(-4.461)	(-11.10)	(-3.625)	(-7.137)
MTB	-0.017***	-0.000	0.000	-0.001	0.015	0.007	-0.031	-0.01***	-0.002	0.037	0.000	-0.022	0.002	-0.000	0.004	-0.008	-0.025*	0.227***
	(-3.691)	(-0.038)	(0.781)	(-0.094)	(0.390)	(1.863)	(-0.580)	(-13.06)	(-0.283)	(1.572)	(0.070)	(-1.700)	(0.130)	(-0.865)	(0.361)	(-1.301)	(-2.069)	(5.059)
Constant	0.405***	0.088	0.060	0.011	-0.359*	0.332***	0.003	0.167	0.006	0.087	-0.050	-0.089	-0.017	0.552**	-0.066	0.120	0.425**	0.002
	(7.517)	(0.534)	(1.111)	(0.247)	(-2.361)	(7.232)	(0.008)	(1.829)	(0.067)	(0.511)	(-1.236)	(-1.184)	(-0.111)	(2.749)	(-0.693)	(1.050)	(2.969)	(0.018)
N	900	213	1426	826	147	4590	72	4482	1080	261	3471	692	732	172	459	1952	457	105
R^2	0.193	0.348	0.141	0.213	0.174	0.203	0.590	0.306	0.240	0.340	0.100	0.255	0.432	0.433	0.281	0.216	0.235	0.752
Panel B:LevMv																		
Size	-0.024***	0.001	-0.003	0.013***	0.037**	0.010***	0.010	-0.010***	0.003	-0.001	0.021***	0.021***	-0.001	0.040**	0.020***	0.012***	-0.011	0.002
	(-7.728)	(0.054)	(-0.831)	(5.249)	(2.933)	(5.706)	(0.468)	(-5.801)	(0.755)	(-0.138)	(9.003)	(4.835)	(-0.118)	(2.664)	(4.102)	(3.604)	(-1.905)	(0.250)
Tang	0.163***	0.138	0.140***	0.102***	0.138	0.181***	0.139	0.451***	0.163***	0.269***	0.114***	0.002	0.383***	-0.376***	0.252***	0.052**	-0.014	0.143
	(6.470)	(1.906)	(5.629)	(4.620)	(1.586)	(11.680)	(1.128)	(32.548)	(5.648)	(5.649)	(7.429)	(0.043)	(11.134)	(-4.153)	(7.057)	(2.817)	(-0.340)	(1.105)
Prof	-0.021	-0.271**	-0.312***	-0.374***	-0.241	-0.033***	-0.334	-0.002	-0.347***	-0.285*	-0.412***	-0.228***	-0.616***	-0.295	-0.475***	-0.604***	-0.183**	-1.44***
	(-0.914)	(-2.758)	(-7.129)	(-5.784)	(-0.763)	(-4.081)	(-0.974)	(-0.686)	(-7.569)	(-2.249)	(-13.32)	(-3.731)	(-8.115)	(-1.962)	(-5.657)	(-13.41)	(-2.972)	(-7.419)
MTB	-0.038***	-0.003*	0.000	-0.057***	-0.075	-0.036***	-0.033	-0.025***	-0.048***	-0.065**	-0.048***	-0.116***	-0.064***	-0.001	-0.087***	-0.072***	-0.062***	0.117*
	(-8.843)	(-2.393)	(1.162)	(-7.110)	(-1.538)	(-9.316)	(-0.704)	(-20.31)	(-8.846)	(-3.125)	(-11.53)	(-8.824)	(-5.290)	(-1.702)	(-6.867)	(-11.61)	(-6.059)	(2.082)
Constant	0.372***	0.276	0.357***	0.208***	-0.288	0.384***	0.103	0.032	0.220*	0.209	0.014	0.009	0.275	0.122	0.107	0.282*	0.599***	0.241
	(7.293)	(1.510)	(5.916)	(4.678)	(-1.512)	(7.661)	(0.308)	(0.310)	(2.276)	(1.363)	(0.337)	(0.120)	(1.808)	(0.487)	(1.062)	(2.489)	(4.892)	(1.434)
N	900	213	1426	826	147	4590	72	4482	1080	261	3471	692	732	172	459	1952	457	105
R^2	0.269	0.378	0.215	0.370	0.246	0.251	0.715	0.388	0.321	0.430	0.201	0.366	0.552	0.417	0.494	0.363	0.340	0.766
Panel C: LTLevBv																		
Size	-0.023***	-0.001	0.012***	0.022***	0.019*	0.007***	0.045*	0.003	0.026***	0.013*	0.020***	0.028***	0.004	-0.019	0.021***	0.025***	-0.000	0.023**
	(-8.292)	(-0.117)	(5.651)	(10.379)	(2.264)	(6.283)	(2.220)	(1.922)	(6.586)	(1.981)	(12.292)	(7.680)	(1.224)	(-1.908)	(4.760)	(8.989)	(-0.056)	(2.794)
Tang	0.197***	0.130*	0.076***	0.099***	0.049	0.148***	0.288*	0.435***	0.279***	0.365***	0.144***	0.028	0.402***	-0.120*	0.297***	0.167***	0.067*	0.299**
	(8.780)	(2.237)	(4.622)	(5.175)	(0.842)	(14.752)	(2.410)	(41.495)	(10.581)	(8.797)	(13.400)	(0.953)	(17.066)	(-1.977)	(9.381)	(10.643)	(2.009)	(2.764)
Prof	0.002	0.001	-0.114***	-0.168**	-0.284	-0.022***	0.444	-0.003	-0.107*	-0.042	-0.088***	-0.069	-0.298***	-0.024	-0.222**	-0.211***	-0.173***	-1.176***
	(0.091)	(0.019)	(-3.885)	(-3.018)	(-1.358)	(-4.242)	(1.337)	(-1.303)	(-2.568)	(-0.377)	(-4.079)	(-1.360)	(-5.734)	(-0.236)	(-2.975)	(-5.565)	(-3.438)	(-7.218)
MTB	-0.006	-0.000	-0.000	0.001	0.029	0.015***	-0.070	-0.007***	0.005	0.002	0.002	-0.011	0.014	-0.000	-0.000	0.012*	0.010	0.205***
	(-1.673)	(-0.086)	(-0.069)	(0.191)	(0.879)	(6.063)	(-1.540)	(-8.003)	(1.087)	(0.132)	(0.717)	(-1.036)	(1.663)	(-0.608)	(-0.043)	(2.363)	(1.150)	(4.375)
Constant	0.290***	0.148	-0.031	-0.148***	-0.206	0.086**	-0.437	0.090	-0.286**	-0.132	-0.189***	-0.320***	-0.104	0.320	-0.238**	-0.247*	0.106	-0.403**
	(6.348)	(1.014)	(-0.782)	(-3.878)	(-1.635)	(2.663)	(-1.343)	(1.164)	(-3.238)	(-0.990)	(-6.545)	(-4.954)	(-1.000)	(1.921)	(-2.667)	(-2.576)	(1.065)	(-2.856)

Panel A: LevBv																		
Variable	**ZAF**	**ARG**	**BRA**	**CHL**	**COL**	**KOR**	**EGY**	**IND**	**IDN**	**ISR**	**MYS**	**MEX**	**PAK**	**PER**	**PHL**	**THA**	**TUR**	**VEN**
N	900	213	1426	826	147	4590	72	4482	1080	261	3471	692	732	172	459	1952	457	105
R^2	0.214	0.246	0.151	0.211	0.185	0.152	0.581	0.342	0.195	0.434	0.114	0.258	0.452	0.228	0.320	0.183	0.123	0.633
Panel D:LTLevMv																		
Size	-0.019***	-0.006	0.003	0.015***	0.018	0.008***	0.022	-0.001	0.020***	0.009	0.019***	0.027***	0.003	0.009	0.017***	0.019***	-0.007	0.028**
	(-8.245)	(-0.637)	(1.115)	(7.719)	(1.704)	(6.480)	(1.120)	(-0.970)	(5.100)	(1.422)	(11.008)	(7.114)	(0.856)	(0.919)	(3.473)	(6.847)	(-1.782)	(2.763)
Tang	0.188***	0.177**	0.108***	0.104***	0.074	0.187***	0.331**	0.456***	0.252***	0.330***	0.147***	0.047	0.369***	-0.161**	0.344***	0.153***	0.056*	0.379**
	(9.721)	(2.893)	(6.095)	(5.944)	(1.043)	(17.474)	(2.904)	(41.325)	(9.617)	(8.864)	(13.458)	(1.541)	(16.128)	(-2.701)	(9.992)	(9.901)	(2.023)	(2.858)
Prof	0.005	-0.053	-0.166***	-0.213***	-0.359	-0.013*	0.269	-0.002	-0.172***	-0.132	-0.108***	-0.107*	-0.327***	-0.163	-0.308***	-0.274***	-0.144***	-1.478***
	(0.281)	(-0.634)	(-5.286)	(-4.171)	(-1.392)	(-2.421)	(0.847)	(-0.886)	(-4.139)	(-1.332)	(-4.925)	(-2.016)	(-6.463)	(-1.645)	(-3.803)	(-7.350)	(-3.420)	(-7.408)
MTB	-0.018***	-0.002	-0.000	-0.032***	-0.005	-0.003	-0.068	-0.014***	-0.021***	-0.046**	-0.017***	-0.075***	-0.018*	-0.001	-0.051***	-0.022***	-0.007	0.161**
	(-5.411)	(-1.583)	(-0.061)	(-5.067)	(-0.137)	(-1.060)	(-1.566)	(-14.490)	(-4.296)	(-2.846)	(-5.791)	(-6.578)	(-2.211)	(-1.819)	(-4.123)	(-4.207)	(-0.940)	(2.797)
Constant	0.249***	0.220	0.139**	-0.021	-0.144	0.091**	-0.300	-0.048	-0.163	-0.062	-0.143***	-0.271***	0.048	0.055	-0.153	-0.140	0.200*	-0.404*
	(6.332)	(1.421)	(3.216)	(-0.593)	(-0.926)	(2.613)	(-0.967)	(-0.592)	(-1.864)	(-0.517)	(-4.865)	(-3.995)	(0.472)	(0.333)	(-1.574)	(-1.492)	(2.398)	(-2.338)
N	900	213	1426	826	147	4590	72	4482	1080	261	3471	692	732	172	459	1952	457	105
R^2	0.247	0.291	0.167	0.260	0.196	0.181	0.587	0.389	0.215	0.480	0.134	0.303	0.475	0.306	0.424	0.212	0.166	0.651

Note: *, ** and*** show significance at 10%, 5% and 1%, respectively.

4.3.2. Study of the Capital Structure Determinants by Emerging Market

The Table 8 reflects only firm-specific factors, also called micro-economic determinants of capital structure. They are presented by country.

Taken together and following Hamouda et al. (2023), Hamouda and Jilani (2023), Öztekin (2015), Alves and Ferreira (2011), and Cheng and Shiu (2007) these results can be summarized in the following Table 9:

Table 9. Micro-economic determinants: Number of positive/negative coefficients.

Number of positive/Negative coefficients	Size	Tangibility	Profitability	MTB
Panel A: Book leverage ratio				
Number of positive coefficients (Positive and significant)	13 (9)	15 (11)	1	6(1)
Number of negative coefficients (Negative and significant)	3 (2)	3 (1)	17 (13)	8 (3)
Number of « zero » coefficient	2	0	0	4
Panel B: Market leverage ratio				
Number of positive coefficients (Positive and significant)	12 (8)	16 (11)	0	1 (1)
Number of negative coefficients (Negative and significant)	6 (2)	2 (1)	18 (13)	16 (13)
Number of « zero » coefficient	0	0	0	1
Panel C: Long-term book-leverage				
Number of positive coefficients (Positive and significant)	14 (12)	17 (16)	3	10 (4)
Number of negative coefficients (Negative and significant)	3 (1)	1 (1)	15 (10)	4 (1)
Number of « zero » coefficient	1	0	0	4
Panel D: Long-term market-leverage				
Number of positive coefficients (Positive and significant)	14 (8)	17 (15)	2	1 (1)
Number of negative coefficients (Negative and significant)	4 (1)	1 (1)	16 (11)	16 (11)
Number of « zero » coefficient	0	0	0	1

4.3.3. The Determinants of the Capital Structure by Geographical Region

Results show that in Africa, and more precisely in Egypt and South Africa[10], the most influential factors are the tangibility of assets, the GDP growth rate, and the inflation rate. The effect of size on leverage is negative, which is not consistent with the predictions of the arbitrage theory. In the emerging markets of Latin America, the company-specific factors, with the exception of the market-to-book ratio, have all the expected signs and are significant. The most influential factor is profitability, which surprisingly has a negative impact. The economic indicators harm leverage, while the financial development indicators have positive effects. The two legal indicators that harm a firm's capital structure are the shareholder protection index and the "legality" index.

In Asia, the firm-specific determinants are all significant with the expected signs[11]. Asset tangibility has a more significant influence on leverage than other firm-specific factors. The GDP growth rate has a consistently significant negative effect on a firm's capital structure. Regarding the other financial and institutional development factors, their impacts are generally significant and exhibit expected patterns. The shareholder protection index is the most insensitive variable to the choice of leverage ratio, regardless of the geographical region.

4.3.4. The Capital Structure Determinants According to the Orientation of the Financial System

Comparisons show that the major differences between bank- and market-oriented countries lie in the fact that certain micro- and macroeconomic factors influence the capital structure of firms differently. Profitability is a factor that plays a very important role in Market-oriented countries, which is not the case in particular in bank-oriented countries. The tangibility of assets, on the other hand, has a much greater effect in bank-oriented countries than in market-oriented countries. The effect of market capitalization, expressed as % of GDP, on leverage is positive in bank-oriented countries and negative in market-oriented countries. On the other hand, the legal indicators have generally

[10]The table may be given on request.

[11]The only exception is firm size, which has a negative and insignificant effect on total leverage ratio, expressed in market values (Panel B).

the same effects in both groups of countries: negative effects of the shareholder rights protection index and the "Legality" index and a positive effect of the creditor rights protection index.

All of these factors have a better explanatory power in bank-oriented emerging countries than in market-oriented countries, whatever the leverage ratio used. The R^2 is, however, higher with total debt expressed in market values[12].

4.3.5. The Capital Structure Determinants by Legal Origin

Results show that the assumptions made about all the micro and macroeconomic factors are better verified in the common law countries than in the civil law countries. The factors with positive effects are the tangibility of assets, private credit, and the creditor rights protection index. Other determinants with negative effects are profitability, inflation, the "Legality" index, and the shareholder protection index. Profitability plays a more important explanatory role in civil law countries than in common law countries. The tangibility of assets is the most important factor in common law countries. The MTB, on the other hand, has a negative and significant effect in the common law countries.

As for the other factors external to firms, they have almost all the expected signs, independently of the legal origin, with the exception of the market capitalization/GDP. Its effect is, in fact, positive in civil law countries, which means that companies finance themselves more with debt, despite their developed stock markets.

Results show, moreover, that R^2 is higher in common law countries than in civil law countries and that the total leverage ratio, expressed in market values, gives better results for both common law and civil law countries[13].

4.4. Robustness and Additional Tests

This article proposes, finally, a comparative analysis of different capital structure determinants by sector of activity (Li & Islam, 2019) and for two distinct periods: 1990-1996 (pre-crisis period) and 1999-2007 (post-crisis period).

4.4.1. The Capital Structure Determinants by Sector of Activity

Table 10 presents the number of observations by sector of activity.

Table 10. Number of observations by sector of activity.

Sector	Abbreviation	Number of observations	%
Agriculture, forestry, fishing and resources	I1	1292	4.61
Construction	I2	1169	4.17
Food	I3	2412	8.60
Tobacco, textiles, wood, and furniture	I4	2395	8.55
Paper, printing, and publishing	I5	1158	4.13
Chemicals, pharmaceuticals, and petroleum	I6	3477	12.41
Rubber, leather, and stone	I7	2428	8.66
Metal, machinery, and other manufacturing	I8	4895	17.47
Electronics	I9	1789	6.38
Transportation, trade, and services	I10	7007	25
Total		28022	100

[12]The table may be given on request.

[13]The table may be given on request.

Table 11. Capital structure determinants by sector of activity.

Panel A: Book leverage										
Variable	**I1**	**I2**	**I3**	**I4**	**I5**	**I6**	**I7**	**I8**	**I9**	**I10**
Size	-0.013***	0.025***	0.019***	-0.013**	0.040***	0.010***	0.008*	0.009***	0.001	0.012***
	(-3.730)	(4.317)	(5.373)	(-2.996)	(7.629)	(4.163)	(2.500)	(4.425)	(0.311)	(7.091)
Tang	0.029	0.103**	0.071**	0.183***	0.207***	0.257***	0.146***	0.211***	0.294***	0.143***
	(1.046)	(2.820)	(2.821)	(6.777)	(5.245)	(13.751)	(6.398)	(12.223)	(8.279)	(13.365)
Prof	-0.425***	-0.438***	-0.589***	-0.382***	-0.370***	-0.524***	-0.682***	-0.387***	-0.393***	-0.289***
	(-7.464)	(-4.752)	(-11.283)	(-6.939)	(-4.455)	(-12.299)	(-13.788)	(-11.920)	(-6.471)	(-11.117)
MTB	-0.000	-0.029**	-0.005	-0.005	0.009	-0.020***	0.006	-0.014***	-0.000	-0.008***
	(-0.923)	(-2.609)	(-1.011)	(-0.771)	(0.785)	(-6.181)	(1.122)	(-4.931)	(-0.032)	(-3.672)
GDPg	0.000	-0.004	-0.002	-0.001	-0.002	-0.003*	-0.003	-0.003*	-0.002	0.000
	(0.008)	(-1.414)	(-1.029)	(-0.695)	(-0.847)	(-1.985)	(-1.754)	(-2.100)	(-1.046)	(0.376)
Inf	-0.000*	-0.000	-0.000**	-0.000***	-0.000**	-0.000***	-0.000*	-0.000***	-0.000**	-0.000***
	(-2.395)	(-1.678)	(-2.966)	(-3.570)	(-3.257)	(-4.793)	(-2.095)	(-6.409)	(-2.746)	(-4.435)
MketCap	0.000	-0.000	0.000*	0.001**	0.000	0.000*	-0.000	0.000	0.000	0.000
	(0.128)	(-0.531)	(2.349)	(3.273)	(0.058)	(2.247)	(-0.663)	(1.842)	(0.170)	(0.067)
PrivateCr	0.002***	0.001	0.001*	0.001**	0.001**	0.001	0.001*	0.001***	0.001*	0.001***
	(3.653)	(0.900)	(2.568)	(2.770)	(3.082)	(1.869)	(2.299)	(3.437)	(2.352)	(4.695)
SR	-0.020	-0.055**	-0.056***	-0.180***	-0.075***	-0.056***	-0.039***	-0.065***	-0.047	-0.024**
	(-1.382)	(-2.634)	(-5.234)	(-7.362)	(-4.912)	(-3.834)	(-3.805)	(-6.272)	(-1.648)	(-2.647)
CR	-0.009	0.014	0.015	0.065**	0.018*	0.034**	0.004	0.035***	0.060*	-0.002
	(-1.142)	(0.989)	(1.657)	(2.788)	(2.333)	(3.000)	(0.577)	(4.875)	(2.419)	(-0.241)
Leg	-0.028***	-0.026**	-0.041***	-0.075***	-0.026***	-0.035***	-0.015***	-0.015**	-0.006	-0.019***
	(-4.796)	(-3.129)	(-6.326)	(-8.724)	(-4.648)	(-5.567)	(-3.841)	(-3.188)	(-0.381)	(-5.835)
Constant	0.701***	0.533**	0.735***	1.870***	0.214*	0.661***	0.468***	0.414***	0.350	0.385***
	(6.210)	(3.024)	(6.679)	(10.424)	(2.018)	(5.476)	(5.361)	(4.580)	(1.623)	(5.777)
N	926	671	1656	1473	728	2187	1700	2890	914	4389
R^2	0.224	0.257	0.257	0.332	0.393	0.325	0.359	0.216	0.201	0.179
Panel B: MketLev										
Size	-0.010**	0.016**	0.010**	-0.013**	0.027***	0.003	-0.001	0.006*	0.002	0.007***
	(-2.851)	(2.751)	(2.827)	(-2.818)	(4.753)	(1.100)	(-0.358)	(2.543)	(0.413)	(4.052)
Tang	0.010	0.128***	0.105***	0.274***	0.243***	0.274***	0.114***	0.240***	0.389***	0.155***
	(0.329)	(3.410)	(4.052)	(9.419)	(5.729)	(14.180)	(4.602)	(12.965)	(10.251)	(14.308)
Prof	-0.519***	-0.284**	-0.682***	-0.418***	-0.423***	-0.566***	-0.758***	-0.518***	-0.506***	-0.396***
	(-8.390)	(-2.993)	(-12.741)	(-7.079)	(-4.728)	(-12.847)	(-14.092)	(-14.893)	(-7.806)	(-15.042)
MTB	-0.001**	-0.087***	-0.061***	-0.077***	-0.076***	-0.049***	-0.046***	-0.033***	-0.004*	-0.030***
	(-3.147)	(-7.592)	(-11.121)	(-11.329)	(-5.982)	(-14.939)	(-8.206)	(-11.073)	(-2.245)	(-14.477)

GDPg	-0.000	-0.004	-0.001	-0.002	-0.001	-0.003	-0.003	-0.002	-0.003	-0.001
	(-0.014)	(-1.393)	(-0.492)	(-1.120)	(-0.553)	(-1.757)	(-1.697)	(-1.121)	(-1.506)	(-1.157)
Inf	0.000	-0.000	-0.000	-0.000*	-0.000	-0.000	-0.000	-0.000*	-0.000	-0.000
	(0.023)	(-0.690)	(-1.376)	(-2.202)	(-1.040)	(-1.483)	(-0.517)	(-2.575)	(-0.273)	(-1.462)
MketCap	-0.000*	-0.000	0.000	0.000	-0.000	-0.000	-0.000	-0.000*	-0.000*	-0.000**
	(-2.197)	(-0.838)	(0.761)	(1.498)	(-1.184)	(-0.806)	(-1.692)	(-2.158)	(-2.210)	(-2.614)
PrivateCr	0.001*	0.000	0.001	0.000	0.001*	0.001	0.000	0.000	-0.000	0.001***
	(2.532)	(0.208)	(1.587)	(0.773)	(2.230)	(1.740)	(0.474)	(1.406)	(-0.883)	(4.040)
SR	-0.009	-0.032	-0.015	-0.128***	-0.052**	-0.045**	-0.015	-0.041***	-0.033	0.002
	(-0.568)	(-1.472)	(-1.405)	(-4.870)	(-3.146)	(-2.988)	(-1.326)	(-3.685)	(-1.075)	(0.224)
CR	-0.007	-0.008	-0.011	0.046	0.011	0.021	-0.009	0.034***	0.096***	-0.013
	(-0.784)	(-0.546)	(-1.129)	(1.857)	(1.275)	(1.805)	(-1.418)	(4.350)	(3.658)	(-1.309)
Leg	-0.024***	-0.024**	-0.051***	-0.058***	-0.022***	-0.021***	-0.020***	-0.007	0.021	-0.016***
	(-3.910)	(-2.801)	(-7.766)	(-6.261)	(-3.582)	(-3.308)	(-4.703)	(-1.448)	(1.177)	(-4.890)
Constant	0.667***	0.595**	0.954***	1.555***	0.359**	0.696***	0.692***	0.334***	-0.090	0.353***
	(5.443)	(3.272)	(8.450)	(8.073)	(3.144)	(5.586)	(7.280)	(3.448)	(-0.391)	(5.243)
N	926	671	1656	1473	728	2187	1700	2890	914	4389
R^2	0.264	0.273	0.370	0.409	0.434	0.453	0.433	0.318	0.342	0.272
Panel C: LTBookLev										
Size	-0.014***	0.020***	0.019***	0.002	0.033***	0.010***	0.017***	0.014***	0.007*	0.014***
	(-5.083)	(3.885)	(6.951)	(0.712)	(7.915)	(5.260)	(6.132)	(8.696)	(2.235)	(9.977)
Tang	0.156***	0.107**	0.189***	0.287***	0.248***	0.312***	0.243***	0.260***	0.200***	0.197***
	(6.807)	(3.206)	(9.435)	(14.295)	(7.937)	(19.912)	(12.528)	(19.373)	(7.819)	(22.104)
Prof	-0.205***	-0.104	-0.320***	-0.139***	-0.179**	-0.256***	-0.284***	-0.170***	-0.096*	-0.153***
	(-4.385)	(-1.228)	(-7.725)	(-3.405)	(-2.726)	(-7.166)	(-6.756)	(-6.718)	(-2.203)	(-7.092)
MTB	0.000	-0.014	0.002	0.003	0.024**	-0.007**	0.003	-0.006**	-0.000	-0.004*
	(0.041)	(-1.370)	(0.398)	(0.721)	(2.609)	(-2.681)	(0.586)	(-2.789)	(-0.190)	(-2.097)
GDPg	0.002	-0.002	-0.001	-0.001	0.000	-0.004**	-0.002	-0.001	-0.001	-0.000
	(1.176)	(-0.841)	(-0.493)	(-0.664)	(0.139)	(-2.737)	(-1.575)	(-0.730)	(-0.473)	(-0.158)
Inf	-0.000*	-0.000	-0.000**	-0.000*	-0.000**	-0.000**	-0.000	-0.000**	-0.000	-0.000**
	(-2.286)	(-1.223)	(-2.800)	(-2.382)	(-3.014)	(-3.080)	(-0.035)	(-2.692)	(-1.061)	(-2.665)
MketCap	0.000	-0.000	0.000	0.000**	-0.000	0.000**	-0.000	0.000	0.000	0.000
	(0.625)	(-1.340)	(0.780)	(2.661)	(-0.256)	(2.773)	(-0.125)	(0.901)	(0.210)	(1.068)
PrivateCr	0.001*	0.001	0.000	0.000	0.001*	0.001	-0.000	0.000	0.000	-0.000
	(2.412)	(0.892)	(0.466)	(0.942)	(1.986)	(1.868)	(-0.333)	(0.057)	(1.147)	(-0.179)
SR	-0.013	-0.056**	-0.028***	-0.057**	-0.039**	-0.017	-0.027**	-0.013	-0.003	-0.003
	(-1.077)	(-2.889)	(-3.345)	(-3.169)	(-3.228)	(-1.347)	(-3.062)	(-1.684)	(-0.162)	(-0.359)
CR	0.008	0.039**	0.031***	0.001	0.006	0.002	-0.001	0.016**	0.034	0.001
	(1.204)	(3.097)	(4.165)	(0.042)	(1.021)	(0.237)	(-0.109)	(2.795)	(1.922)	(0.176)

Leg	-0.010*	-0.016*	-0.014**	-0.022***	-0.009*	-0.020***	-0.007*	-0.002	0.003	-0.009***
	(-2.040)	(-2.146)	(-2.846)	(-3.394)	(-2.002)	(-3.827)	(-2.171)	(-0.490)	(0.236)	(-3.403)
Constant	0.277**	0.182	0.078	0.519***	-0.147	0.210*	0.074	-0.106	-0.171	0.036
	(2.993)	(1.124)	(0.897)	(3.904)	(-1.756)	(2.080)	(1.001)	(-1.508)	(-1.104)	(0.658)
N	926	671	1656	1473	728	2187	1700	2890	914	4389
R^2	0.222	0.189	0.218	0.363	0.402	0.304	0.360	0.250	0.140	0.180
Panel D: LT MketLev										
Size	-0.011***	0.016**	0.013***	0.002	0.027***	0.007***	0.010***	0.012***	0.007*	0.010***
	(-4.014)	(3.272)	(4.693)	(0.534)	(6.131)	(3.747)	(3.511)	(7.355)	(2.324)	(7.443)
Tang	0.139***	0.132***	0.190***	0.339***	0.257***	0.316***	0.213***	0.265***	0.241***	0.194***
	(6.010)	(4.185)	(9.647)	(16.271)	(7.771)	(20.196)	(10.561)	(19.378)	(9.061)	(22.465)
Prof	-0.268***	-0.044	-0.368***	-0.168***	-0.214**	-0.284***	-0.360***	-0.242***	-0.174***	-0.217***
	(-5.708)	(-0.550)	(-9.049)	(-3.963)	(-3.085)	(-7.968)	(-8.214)	(-9.411)	(-3.824)	(-10.339)
MTB	-0.001	-0.045***	-0.026***	-0.037***	-0.025*	-0.025***	-0.024***	-0.016***	-0.002	-0.017***
	(-1.958)	(-4.708)	(-6.217)	(-7.640)	(-2.530)	(-9.431)	(-5.235)	(-7.168)	(-1.580)	(-10.099)
GDPg	0.002	-0.002	0.000	-0.001	0.000	-0.003*	-0.002	-0.000	-0.002	-0.001
	(0.930)	(-1.006)	(0.192)	(-0.477)	(0.129)	(-2.486)	(-1.234)	(-0.024)	(-0.980)	(-1.188)
Inf	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	0.000	0.000	0.000	-0.000
	(-0.262)	(-0.538)	(-1.739)	(-1.187)	(-1.175)	(-0.296)	(1.366)	(0.147)	(0.623)	(-0.604)
MketCap	-0.000	-0.000	0.000	0.000*	-0.000	0.000	-0.000	-0.000	-0.000	0.000
	(-0.748)	(-1.861)	(0.536)	(2.257)	(-0.131)	(0.645)	(-0.159)	(-0.846)	(-0.863)	(0.027)
PrivateCr	0.000	0.000	-0.000	-0.000	0.000	0.000	-0.001*	-0.000*	-0.000	-0.000
	(1.217)	(0.227)	(-0.312)	(-0.762)	(0.948)	(1.304)	(-2.420)	(-2.056)	(-1.312)	(-1.333)
SR	-0.006	-0.039*	-0.007	-0.037	-0.031*	-0.006	-0.009	-0.004	0.015	0.013
	(-0.503)	(-2.143)	(-0.802)	(-1.948)	(-2.450)	(-0.515)	(-1.027)	(-0.515)	(0.717)	(1.829)
CR	0.012	0.027*	0.012	-0.003	0.001	-0.007	-0.011*	0.015**	0.041*	-0.006
	(1.790)	(2.300)	(1.626)	(-0.194)	(0.165)	(-0.688)	(-2.107)	(2.611)	(2.212)	(-0.731)
Leg	-0.008	-0.011	-0.023***	-0.013*	-0.006	-0.012*	-0.011**	0.002	0.006	-0.008**
	(-1.771)	(-1.512)	(-4.559)	(-1.979)	(-1.358)	(-2.230)	(-3.203)	(0.600)	(0.497)	(-3.102)
Constant	0.242**	0.157	0.257**	0.368**	-0.059	0.217*	0.240**	-0.136	-0.287	0.037
	(2.591)	(1.021)	(2.997)	(2.670)	(-0.662)	(2.156)	(3.103)	(-1.904)	(-1.776)	(0.694)
N	926	671	1656	1473	728	2187	1700	2890	914	4389
R^2	0.214	0.204	0.268	0.406	0.406	0.393	0.368	0.279	0.218	0.219

Note: *, ** and*** show significance at 10%, 5% and 1%, respectively.

Table 11 shows the results by industry for each of the four leverage ratios. The factors defined as the main determinants of the capital structure better explain the financing policy of firms in the following four sectors: "Tobacco, textiles, wood, and furniture," "Paper, printing, and publishing," "Chemicals, pharmaceuticals, and petroleum," and finally "Rubber, leather, and stone." Their explanatory power is less important in the other sectors of activity, which are "Electronics," "Agriculture, forestry, fishing, and resources," "Transportation, trade, and services," "Construction," and "Food."

he results seem robust. Indeed, they are insensitive to the choice of leverage ratio. The microeconomic hypotheses are in most cases verified, regardless of the sector of activity and the leverage ratio chosen. The same is true for other economic, financial, and legal factors. The shareholder rights protection index and the legality index are generally consistent with theoretical and empirical predictions but are more sensitive to the choice of the leverage ratio and differ significantly from one industry to another.

In sum, we can say that firms in the same sector facing similar types of difficulties may have capital structures that differ from firms in other sectors of activity. The factors likely to explain the financial choices of firms are not, in fact, of the same importance in all sectors of activity.

4.4. 2. The Determinants of the Capital Structure "before" and "after" the Asian Crisis

Examination of the Table 12 shows that the impact of the determinants of capital structure on debt is not the same in the two periods: pre-crisis (1990-1996) and post-crisis (1999-2007).

Table 12. The impact of the determinants of capital structure on deb before" and "after" the Asian crisis.

Variables	Leverage ratio				LT Leverage ratio			
	Panel A: Book leverage ratio		Panel B: Market leverage ratio		Panel C: LT book leverage ratio		Panel D: LT market leverage ratio	
	Before	After	Before	After	Before	After	Before	After
Size	0.004	0.006***	-0.006**	-0.002*	0.010***	0.010***	0.003	0.005***
	(1.869)	(5.998)	(-2.613)	(-2.000)	(6.050)	(11.813)	(1.607)	(5.920)
Tang	0.109***	0.201***	0.119***	0.225***	0.193***	0.240***	0.164***	0.251***
	(7.477)	(25.989)	(7.726)	(27.253)	(16.568)	(38.707)	(14.671)	(39.991)
Prof	-0.538***	-0.011***	-0.798***	-0.012***	-0.280***	-0.005*	-0.429***	-0.006**
	(-14.228)	(-3.927)	(-19.927)	(-3.999)	(-9.244)	(-2.444)	(-14.716)	(-2.748)
MTB	0.000	-0.001***	0.000	-0.004***	-0.000	-0.000	-0.000	-0.002***
	(0.387)	(-4.307)	(0.661)	(-10.939)	(-0.465)	(-1.647)	(-0.692)	(-7.268)
GDPg	-0.188	-0.166*	-0.076	-0.417***	-0.188	-0.067	-0.073	-0.201***
	(-1.274)	(-2.316)	(-0.488)	(-5.440)	(-1.594)	(-1.160)	(-0.644)	(-3.439)
Inf	-0.002	0.056*	0.000	-0.080***	-0.001	0.009	0.000	-0.056**
	(-1.797)	(2.542)	(0.030)	(-3.418)	(-1.236)	(0.499)	(0.523)	(-3.131)
MketCap	0.024*	0.022	0.002	0.002	0.018	0.010	0.006	0.004
	(2.049)	(1.697)	(0.181)	(0.109)	(1.905)	(0.943)	(0.641)	(0.351)
PrivateCr	0.022	0.061**	-0.018	-0.078***	0.043*	0.015	0.004	-0.074***
	(0.898)	(3.129)	(-0.690)	(-3.746)	(2.177)	(0.945)	(0.193)	(-4.640)
SR	-0.051***	-0.057***	-0.032***	-0.007	-0.034***	-0.022***	-0.023***	0.004
	(-7.533)	(-7.968)	(-4.450)	(-0.867)	(-6.170)	(-3.847)	(-4.296)	(0.721)
CR	0.008	0.053***	0.012*	0.033***	0.003	0.027***	0.006	0.018***
	(1.536)	(12.374)	(2.270)	(7.120)	(0.835)	(7.948)	(1.638)	(5.264)
Leg	-0.015***	0.002	-0.002	-0.001	-0.011***	-0.000	-0.002	-0.000
	(-4.615)	(1.027)	(-0.478)	(-0.512)	(-4.278)	(-0.039)	(-0.706)	(-0.222)
Constant	0.511***	0.052	0.442***	0.243***	0.161***	-0.072*	0.140***	0.013
	(9.715)	(1.476)	(7.927)	(6.416)	(3.838)	(-2.535)	(3.450)	(0.441)
N	2832	12878	2832	12878	2832	12878	2832	12878
R^2	0.319	0.128	0.334	0.171	0.279	0.181	0.278	0.195

Note: *, ** and*** show significance at 10%, 5% and 1%, respectively.

The micro- and macroeconomic factors with positive effects on leverage are asset tangibility, market capitalization to GDP, and the creditor protection index. After the Asian crisis, asset tangibility and the creditor protection index have a stronger influence on leverage. This result is robust and not dependent on the choice of the leverage ratio. Furthermore, after the Asian crisis, profitability is becoming less important as an explanatory variable for the capital structure. This reasoning seems quite understandable: creditors will become increasingly demanding after the crisis. They will demand additional guarantees and will ensure that their rights are duly protected and secured (Deesomsak et al., 2004).

5. CONCLUSION

The corporate capital structure determinants are one of the most controversial topics. The debate on this issue continues, particularly in view of the recent events in the financial markets and in the economy as a whole. Emerging markets, an obvious candidate for future outperformance, have been hit by the global financial market conditions.

This study allows us to identify the factors influencing the financial choices of firms in 18 emerging markets. The importance of these factors varies by time, industry, and region. It also depends on the legal system and the orientation of the financial system.

Putting all the factors that affect capital structure into one model shows that the factors specific to the firm explain debt more effectively in emerging markets than the broader economic, financial, and legal factors. All of these determinants explain capital structure better in Asia than in America and in common law countries than in civil law countries. They are also more important in bank-oriented countries than in market-oriented countries.

The study conducted on two different periods before and after the Asian crisis shows that the microeconomic determinants have the same impact on the leverage ratio in terms of signs before and after the 1997 crisis. It should be noted that after the Asian crisis, the impact of tangibility on debt becomes more important; the same is true of the creditor protection index. On the other hand, profitability becomes less important. Creditors thus become much more wary of providing credit after the crisis and demand more guarantees.

In this empirical study, however, we have limited ourselves to the static aspect of the data. A dynamic model would allow us to discuss the costs as well as the speed of adjustment of firms towards their target debt ratios. Various other factors can also be taken into account and contribute to a better explanation of firms' financing decisions, both within and across countries. Furthermore, it would also be interesting to know whether the other more recent global crises have had the same impacts on firms' capital structure in emerging markets and around the world (Zeitun et al., 2017).

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