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Burak Evren

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Abstract

Diese Diplomarbeit analysiert den Einfluss von internen Finanzierung auf das Investitionsverhalten von Firmen aus zehn Schwellenländern (Hong Kong, Indonesien, Indien, Korea, Malaysia, Philippinen, Singapore, Taiwan, Thailand und die Türkei.). Die Arbeit verwendet ökonometrische Methoden und firmenspezifische Daten von der Periode 1985-2004. Drei Institutionelle Faktoren (Rechtskreis, Korruptionsniveau und die Eigentümerstruktur) haben einen ökonomisch und statistisch signifikanten Einfluss auf das Investitionsverhalten von Firmen.

Abstract

I analyse the impact of three institutional factors (legal origin, percevived corruption level and ownership structures) on the cash flow sensitivity of investment in ten emerging markets (Hong Kong, Indonesia, India, Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand and Turkey.). Common Law origin countries and countries which reveal a low level of perceived corruption indicate economically and statistically lower sensitivities. The impact of ownership is less conclusive, which is likely to be a consequence of complex structure.

Contents

1. Introduction

Several studies in the field of corporate finance and industrial economics provide empirical evidence on a strong relationship between investment and cash flow. For simplicity I will call this relationship as “Investment-Cash Flow Sensitivity” (*I-CFS*) exactly the same as in some other previous studies (Kaplan and Zingales, 1997, 2000; Moyen, 2004; Yurtoglu et. al., 2004; Alti, 2003 etc.). Besides that, some other studies have found evidence about the effect of firm’s ownership structure, as well as country’s level of corruption and legal origin on the investment activities (La Porta, Silanes, Schleifer and Vishny, 1996 (hereafter LSSV); Yurtoglu, 1999; Shin and Park, 1999, etc). The main subject of this master thesis is to compare the role of ownership structures, corruption levels and the legal origin as determinants of investment on the information asymmetry-and managerial discretion- levels of ten different emerging economies, by using cash flows and Tobin’s q as proxies.

This country-level research includes the following emerging markets; Hong Kong, India, Indonesia, South Korea, Singapore, Philippines, Taiwan, Thailand and Turkey. To minimize the country-specific errors, I chose for the estimation only the developing capitalist economies which have similarities in the past and during their transition stage (the transition process after the war or dependency). However those countries are differing in sizes (market capitalization, GDP, population, etc.) and in governmental structures (laws, regulations etc.). Additionally, all of the companies in the sample are listed in stock markets and belong to industrial sector, therefore they can be seen as competitors in a growing global market. This leads me to expect that they would follow similar routes or decide within the similar range of strategies if they were faced with the same external effects (corruption, legal origin, creditor- and shareholder- rights, etc.). Apparently, the most important starting point should be to determine firm’s investment behaviour and the related theories at micro-level before comparing the differing countries in macro-level. I will introduce the cash flows as the most solid determinant of investment and then the related theories concerning the use of cash flow and its implications on the level of management, shareholders and the capital market.

Although the sensitivity between cash flow and investment plays an important role in the firm's behaviour, unfortunately there have been little research exploring it. Besides, the problem of finding the reliable data on firms still exists, which can be seen as a barrier for the consistency of those studies. Some considerable gaps which can affect the reliability of information sources for a robust empirical research can be summarized as follows:

1. Complexity or impossibility to enter the information sources of some companies.
2. Diversity of governmental activities and social structures between countries.
3. Differences in corruption-level of economies which allows for asymmetrical information especially in field of accounting sector.
4. Differences in length and speed of transition process of countries being observed.
5. Varying sample size between countries due to economic structure, size and population.

The data which is used in this thesis (unbalanced panel) is taken from the Compustat® Global database of Standard & Poors.[1] The Analysis includes totally 43038 observations on the listed firms of those already defined developing countries, between periods 1985 and 2004. Firms are differentiated by the Three-Digit Standard Industrial Classification (SIC) Code table. There exist constitutional differences between those countries which can be seen as gaps that can affect the consistency of this analysis. Section 5 should be helpful to compensate this problem, by giving information for each country for a deeper understanding of economic, social and political profiles of the objective countries. Then I will introduce some summary statistics for the descriptive analysis of the sample. Related theories concerning cash flows and Tobin's q and previous findings are explained in Section 2. The variable definitions and statistical model are explained in Sections 3 and 4 respectively. Estimation results and conclusions will be discussed and presented in Section 6 and 7 respectively. Last Section is reserved for the appendix and literature.

1 www2.standardandpoors.com

2. Investment-Cash Flow Sensitivity Under Asymmetrical Information and Managerial Discretion

2.1 Cash Flow as a Determinant of Investment

Since a couple of decades there have been several studies which showed the strong correlation between investment and cash flow (hereafter *CF*). However, this evidence opened a broad highway of debates after a decade. One of the earliest studies on the relationship of cash flow and investment, and an important milestone in this research area was introduced by Kuh and Myer (1957) which showed the importance of internal funds as a determinant of investment. This is followed later on by the first empirical evidence from Fazzari et al. (1988). In contrast, Modigliani and Miller Theory (1958) (*MMT*) argued that firms' investment decisions are in a strong relation with the neoclassical cost of capital assuming a perfect capital market with no asymmetrical information and perfectly substituted financial products for investment rather than availability of internal funds (cash flows).[2] This approach is of great interest to this study, since the cross country levels of information asymmetry (hereafter *AI*) and managerial discretion (hereafter *MD*) are assumed to be reflected by cash flows and Tobin's q which will be explained later.

MMT is followed by two major contradicting approaches of firm's investment behaviour, namely the asymmetrical information (Myers and Majluf, 1984; Fazzari et al. (1988) and the managerial discretion theory (Grabowski and Mueller, 1972), which analyze the investment decisions taken by the firm within the framework of the firm-capital market-link and the conflicting utilities of shareholders and managers as well as the firm's performance.[3] Both *AI* and *MD* state the existence of the relationship between investment and cash flows and hence consider the internal funds as a determinant for explaining the investment behaviour.

In this cross-country analysis cash flows are predicted to have positive and significant impact on investments, if the firm has a shortage of external capital for funding

2 F. Modigliani and M. Miller, "The Cost of Capital, Corporation Finance and the Theory of Invetsment", American Economic Review (June 1958).
See Appendix for Modigliani-Miller Theory and its contribution to my thesis.

3 Also see Gugler and Peev, 2007, ECGI, Finance Working Paper N°. 169/2007, May 2007.

investments (in the case of *AI* and *MD*). Therefore, if β_1 denotes the coefficient of cash flow in an investment equation, then it must be greater than zero. Note that if *MMT* is valid then $\beta_1 = 0$, but none of its assumptions are met in reality. Thus *MMT* should give only an intuition that any factor other than cash flow could *also* effect the investment decision of the firm. Those factors (ownership identity, legal origin and corruption level) are explained in following sections.

Why should β_1 be greater than zero? Because, if the extreme assumptions of *MMT* do not hold as it is (usually the case) then one must consider an imperfection between firm and the capital market (AI) or a conflict between managers and shareholders (MD). Hence, it can be a huge mistake to omit cash flows from the investment equation. In most empirical cases it is hard to distinguish between AI and MD, which is the reason I used Tobin's q as a second explanatory variable for investment, although there are existing debates concerning the reliability of Tobin's q, because it is partly based on the market perceptions. All those findings and the logic behind Tobin's q is explained in the following sections.

Another field is the firm-valuation in which the cash flows are ultimately important, where several types of techniques being used such as discounted cash flows in which in-and out-flows (negative and positive cash flow streams) of firms are being analyzed to make a prognosis about the future value of firms.[4] Also the cash flow approach could be helpful in analyzing firm's liquidity level. For example, if a company takes a risky investment decision and cannot provide sufficient amount of positive cash outflow to its financial lenders or cannot cover its cost of capital, than it can go bankruptcy although its business actions exhibit positive cash inflows (e.g. profits). Therefore, cash flow/total net fixed assets- ratio must be considered firstly rather than nominal, total cash flows before financing the investment activities with these internal funds. That is why I have scaled all variables of interest with firms' total net fixed assets to avoid firm-specific size effects during the analysis.

4 Firm valuation is of no interest in this study, therefore I prefer to refer only to cash flow ratio.

2.2 I-CFS, AI and MD

AIH investigates *I-CFS* on the level of financial markets and states that the firm is more likely to use its cash flows for investing, if the firm data received by the external market (where the sources for investment available) comprise insufficient, wrong or non-transparent information which leads to the hardening of external financial constraints.[5] This theory has some important (only the necessary ones) assumptions to be considered before entering the whole content[6]:

I. Firm has insufficient cash flows to finance an attractive investment with a high expected return which is greater than its cost of capital (positive NPV), but cannot finance this investment opportunity either because of external constraints (e.g. no chance of taking credit) or because its dividend payments are nearly zero and therefore not applicable dividend cutting.

II. Managers are perfectly informed about the returns on this investment activity.

III. Managers are perfectly informed about the under-valued (according to market perception) existing assets of the firm.

IV. Issuing shares is out of interest because it can harm shareholders during the time when share prices are low.

V. Manager's aim is to maximize only the existing shareholder's wealth, because there is no chance for issuing shares for other investors to finance investment.

5 Fazzari, Hubbard and Petersen, 1988; Financing Constraints and Corporate Investment. Brooking Papers on Economic Activity, 141-195
Hoshi T., Kashyap A., Scharfstein D., 1991; Corporate Structure liquidity and Investment. Evidence from Japanese Industrial Groups. The Quarterly Journal of Economics, 33-59
See also: Yurtoglu, Ownership structure, Cash Flow and Investment: Evidence from Turkish Business Groups, 1999

6 See Myers and Majluf (1986) for a full exposition. See also Klaus Gugler, Dennis C. Mueller and B. Burcin Yurtoglu; Corporate Governance and the Determinants of Investment, 2007

Under these assumptions, it is possible that only firms with sufficient cash flows can realize those attractive investment opportunities. Not surprisingly, there are also studies which support exactly the opposite aspect that the firms rely less on their cash flows for investment when they face least financial constraints, but for the goal of this study it is more convenient to consider the first aspect. [7] Most studies tested asymmetric information problem by estimating the following investment equation[8]:

$$I_t = a + cCF_{t-1} + bq_{a,t-1} + \mu_t \quad (2.1)$$

Where I_t stands for investment at time t, CF_{t-1} for cash flows from previous period, a the average return on total assets (also represents Tobin's q but explained later), b and c for the related parameters, μ_t for the residual and finally $q_{a,t-1}$ stands for the ratio between the market value of firm and the replacement cost of capital (Q-Theory). It states that the investments should rise with q. In other words, the firm is more likely to invest if the market value exceeds the replacement cost of capital (profitability of investment). To eliminate the endogeneity problems, the explanatory part of the equation is lagged.

AIH of investment is similar to the adverse selection problem in public economics, especially in field of insurance where some individuals give missing or wrong information to insurance companies to reduce the monthly payment which forces the companies to a pooling equilibrium which is for the honest individuals not the optimum. On the level of corporations the same occur if there is hidden or a cloudy information not visible to the creditors. In corporate governance, monitoring is of great interest, because investors want to be aware of the business strategies and actions taken by managers. It is previously mentioned that investors are not limited to internal agents such as shareholders (this point will be discussed later while referring *MDH*). Assumptions of the theory also indicate that financial institutions in external markets must be also considered, since issuing shares for funding investment is not always the best idea.

7 Kaplan and Zingales (1997) and Cleary (1999).

8 Klaus Gugler, Dennis C. Mueller and B. Burcin Yurtoglu; Corporate Governance and the Determinants of Investment, 2007

In reality, far from these extreme theoretical aspects, as firms have started to rely more on external funds rather than cash flows, credit rating agencies such as S&P and Fitch have become more popular, especially during the last decades. Improvements have also been made in the banking sector, particularly in 1990s (e.g. Basel II) while the global business has become more risk-averse because of volatile horizon and huge bankruptcies. All of these evidences caused more expensive bank loans especially to those firms with poor credit histories. For instance, in the practice of credit risk management, it is necessary to be aware of the so-called soft and hard facts of the borrower, where soft facts represent industry assessment, management- and product quality and hard facts represent balance sheet and bank account data. It is obvious that hard facts are easy to monitor, however for the soft facts one cannot assert the same notion, and this should be the point of interest when investigating the level of *AI*.

Especially when we consider investment as a mirror for the future profitability of a firm, financial history in a bank account might be of little interest, because managerial reputation and integration degree of the firm to external funds matter more. Under the term *degree of integration*, the relationship-quality and the affinity of target strategies between the firm and the financial suppliers must be understood. This degree of integration should proxy the level of *AI*. Precisely, the firm must reflect the perfect information about this investment opportunity to its external financial source, stating the exact estimated returns on investment. Assume that a firm has an investment opportunity which will provide high returns in the long term, but due to its weak cash flows and low share price, firm cannot finance this investment with its internal resources (e.g. cash flows). A creditor or financial supplier (e.g. Bank) which monitors the firm cannot foresee this investment opportunity either because of transparency or information problems or just because its target strategies are not the same with those of the firm. In this case, a valuable investment opportunity might be missed, which could have in return increased the share value and profit and herewith increase the utility of shareholders.

Previously mentioned literature is mostly based on the independent corporations or firms. Business groups must be also considered, since some studies found

interesting evidence on these those firms which are members of such business groups. By analyzing a group-affiliated firm it is very important to search for the availability of banks or similar financial suppliers within the same group, because it can lead to completely different results than that of the aforementioned literature. The reason of this should be that the degree of integration is relatively higher within the business groups than that of between independent firms and their external market. Previous study from Hoshi et. al. (1991) suggests that the *keiretsu* members (family owned business groups in Japan) have closer links to their main bank (belongs to the business group) as to other external financial sources and thereby they don't face difficulties of getting financial support for investment.[9] Hence, those group-affiliated firms with no profitable investment projects may rely less on their cash flows to invest although they would, if they were independent. On the other hand, having a bank or a financial supply in a group reduces the cost of monitoring and obtaining information on the firm, which can reduce the information asymmetry in case of a profitable investment opportunity. Hoshi et. al. (1991) also found evidence that independent firms which do not belong to *keiretsu* tend to use more from internal cash flows to invest. This could be seen as a severity of *AI*, that the cost of monitoring is higher for the independent firms relative to that of group members.

Although several business groups have such resources, it is uncertain whether they provide well-judged financial support to their family members or not. Shin and Park (1999) argued that the internal cross-funding between business group members may not be efficient if the net present value (NVP) of the investment is low. The main subject in their study was to compare the investment behaviour between chaebol (large business groups in Korea) and independent (non-chaebol) firms. Shin and Stulz (1998) emphasized another interesting fact in their study that investment behaviour of small group-affiliated firms are strongly affected by cash outflow of the other large firms with in the same group. Secondly, they found out similarities between the investment policy of large group firms and the independent firms.[10] On account of this, it is beyond dispute to consider the handicap of independent firms which have possession of low share values, insufficient cash flows and unreputable

9 Hoshi, T., A. Kashyap and Scharfstein D., 1991. Corporate Structure, Liquidity, and Investment: Evidence from Japanese Industrial Groups. Quarterly Journal of Economics 106, 33--60.

10 Shin, H. H., Stulz, R. L., 1992. Are Internal Markets efficient? Quarterly Journal of Economics 113, 531-552

credit rating for issuing debt or equity to finance valuable investment opportunities with positive NVP.

Since Turkey and South Korea are also being investigated in this study, it is plausible to refer to the previous analysis of Shin and Park (1999) which is suggesting the dependence of investment to availability of internal funds if internal and capital markets are not perfect substitutes (absence of *MMT*).[11] More precisely, firms rely more on internal financing if the cost of external financing is relatively high. Similar to the study of Hoshi et. al. (1991), they found out that investment of a *chaebol*-member is not sensitive to its cash flows because of the availability of cross-funding and cross-shares in-between the group.

Monitoring of corporations is of great importance for debt holders but also considerable for shareholders. Some improvements have been made to monitor the interest of shareholders in a convenient way. For example, in some developed countries, many large corporations have corporate boards which do not always consist of only the official directors of corporations, also of the member- executives from external business circle to limit managerial incentives. These kinds of reforms could be helpful to reduce the concentration of management and control and therefore to switch to an attractive, transparent market for investors in developing countries.

MDH refers to I-CFS from a different point of view, and concentrates on the conflicts caused by managerial investment decisions.[12] According to the theory, growth seeking managers of irregularly or inefficiently monitored companies, have the tendency to underprice firm's market value by overinvestment. Some important assumptions should be considered before the explanations:

I. Manager's target function is to accelerate or to sustain the growth of the firm without considering the shareholders' wealth.

11 Hyun-Han Shin, Young S. Park, 1999; Financing Constraints and Internal Capital Markets: Evidence From Korean'Chaebols'

12 Kathuria and Mueller, 1995. Marris, 1964

II. Managers have tendency to allocate the internal funds for investment, rather than using loans or issuing equity or debt (Supporting the Pecking Order Theory).[13]

MDH is based on the conflicting utilities of shareholders and managers. Grabowski and Mueller (1972) pointed out this fact for some Anglo-Saxon countries and stated that the separation between ownership and control boost the principal-agent problem between managers and shareholders.[14] Shareholders try to maximize their utility from increasing firm market value (share prices), whereas manager's objective is to accelerate the growth of the firm through issuing shares or corporate bonds to use this capital in investment (which can reduce the firm's market value), or alternatively he/she can provide this financial support through borrowing from external third parties.

More precisely, the manager under *MDH* has a tendency to reflect the investment decision in an opportunistic way, such as relying more on internal funds (or issuing shares) by reasoning the higher cost of external funding (creditors or from other third parties) although it is not actually reflecting the optimal managerial strategy.[15] Furthermore, this action can be resulted as an overinvestment while on the other hand maintaining the growth of the firm. A manager under *MDH* can only support the interest of shareholders by paying the difference between the cash flows and the invested amount (low investment occasion). In an extreme situation, where the manager invests more than rational and the share price fall to the minimum level, it can be said that the manager is under the risk of a takeover or a replacement. As Yurtoglu et. al. have mention the fact exactly as- *"Thus, growth-maximizing managers can be expected to choose a level of investment that equates their marginal gains from increased investment and growth to their marginal cost from an increase in the threat of takeover."* Two hypotheses; *AIH* and *MDH* exposed some conflicting arguments about the selected factors to differentiate the financially constrained firms

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

14 Managerial and Stockholder Welfare Models of Firm Expenditures" (with Henry Grabowski), Review of Economics and Statistics, 54, February 1972, pp. 9-24

15 B. Burcin Yurtoglu, Ownership structure, Cash Flow and Investment: Evidence from Turkish Business Groups, 1999. See also Gugler and Peev, Ownership changes and Investment in Transition Countries, ECGI (European Corporate Governance Institute), Finance Working Paper N°. 169/2007, May 2007.

from the less constrained ones.[16] In order to distinguish between these two theories, Table 1.1 depicts the relationship between investment and cash flow under the notion of these two hypotheses.[17]

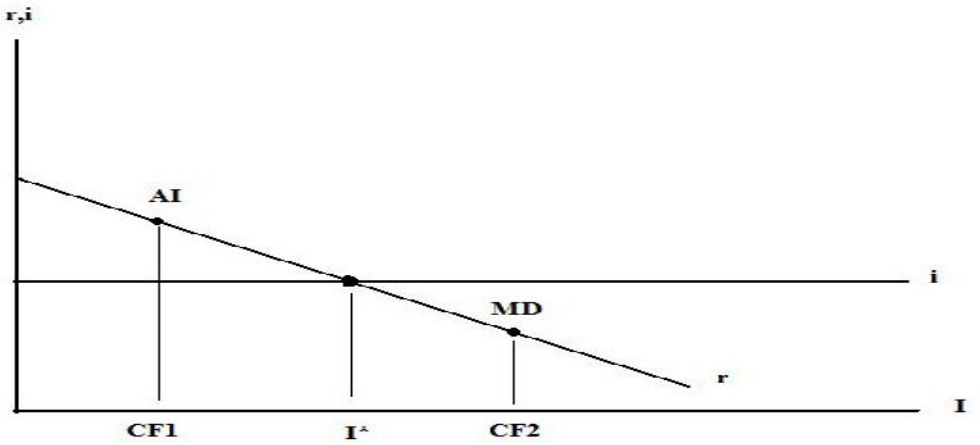


Figure 2.1 AI, MD and optimal investment[18]

While considering *MDH* it is important to discuss the managerial concentration in the firm. Managerial concentration is determined by the ownership structure. The definition behind ownership structure is straightforward; Corporations can be a partnership of families, individuals, banks, state, industrial companies or financial institutions, etc., as percentage of shares, or oppositely, they can belong completely to one of these agents. On the other hand, management concentration should refer to the fact that how investment and business decisions are taken and who decides for these. For example, in many family corporations in developing countries, decisions are taken only through family members or through hired CEOs whereas in some corporations consensus or decision of a board of directors is needed to decide on business activities which are in the center of interest of shareholders. It is necessary to remark that Shin and Park (1999) found out evidence on the existence of *MD* for Korean Chaebol firms, especially those which have minor shareholders.

Recently, in many large corporations where voting rights are well diversified (Anglo-Saxon countries), owners have relatively small amount of insider shares. This

16 Moyen, 2004; Cleary et al. 2006; Also see: Rejie George, Rezaul Kabir, Jing Qian, Is investment - cash flow sensitivity a good measure of financing constraints?

17 See the Section Appendix for the interpretation.

18 r: return on capital, i: cost of capital, I: Investment, CF: Cash flows

amount might reflect the link between the incentives of managers and stakeholders. A previous study from Morck, Schleifer and Vishny (1988) investigated an alternative approach for this aspect and concluded significant results. However, this study contradicted to the determination of the firm value.[19] They have argued and find out a non-linear relationship, that the firms (a sample of Fortune 500 firms) in which board members have relatively small managerial shareholdings (≤ 5%) exhibit higher market values as that of the firms with higher managerial shareholdings (≥ 5%). Their study suggests that as the ownership concentration increases, shares become less attractive to investors, because they might believe that the managers with large shareholdings would react for their own goals. Contradictions which are against this evidence concerned the determination of firm's value, because ownership concentration is believed to be an insufficient explanatory variable, and instead of that one should use the ratio of firm's market value to its book value. Figure 2.2 depicts the finding of Morck et al.

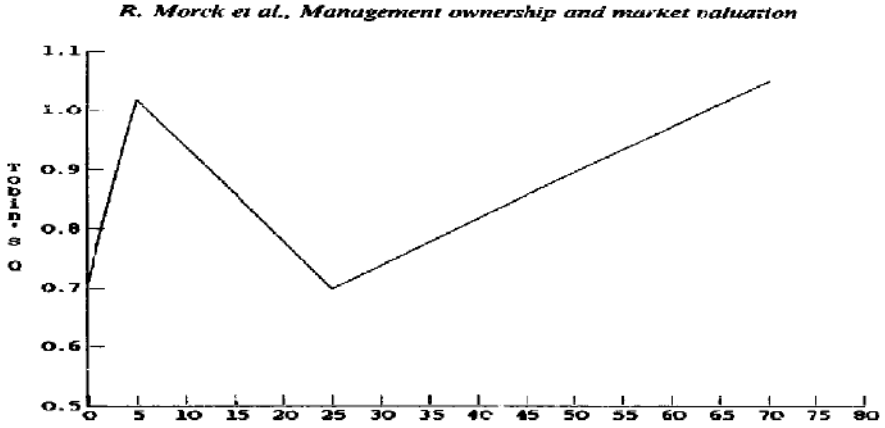


Figure 2.2

Non-linear Relationship between managerial shareholdings and the market value

In a well-diversified financial market where shares represents voting rights, a shareholder (e.g. individuals, financial institutions, other companies) can only reduce this distance by taking the control and monitor of the firm, if he/she buys a certain amount (e.g. 20%) of total stocks, but bearing behind the firm-specific risk of an undiversified portfolio. From the point of view of shareholder such an investment

19 Morck, R., A., Vishny, R.W., 1988. Management ownership and market valuation: an empirical analysis, Journal of Financial Economics 20, 293-315

might be unacceptable risky and unfortunately can lead to the widening the gap between the interests of managers and shareholders if the ownership is highly concentrated on one person or a corporation. In contrast to Anglo-Saxon countries, the latter is valid for Continental European Countries. Gugler, Mueller and Yurtoglu (2007) reported that the ownership concentration lies over 14% for United States, 15% for the other Anglo-Saxon countries and 40% for the Continental Europe.[20] It is useful to refer to the fact that, Anglo-Saxon (English spoken countries, e.g. USA, England, Ireland, Australia, New Zealand, etc.) Economies are observed to be more liberal, where governments provide less service with a low taxation, whereas Continental Economies are observed to be less liberal where government provides more services with a relatively higher taxation.[21]

2.3 Legal Origin, AI and MD

The most obvious distinction between the countries of sample is their legal origin.[22] Grinblatt and Titman (2002) find out that the countries maintaining strong legal systems for the protection of outside (excluding insider shareholdings) shareholders have relatively large and active stock markets to that of the countries with weaker protection for outside shareholders where fewer new companies going public.[23] This evidence suggests that there is a strong correlation between increased stock market activity and investor protection. Moreover, using a sample of 49 countries, LSSV (1997) stated another conclusion about the legal origin, considering legal systems and ownership concentration which was a milestone of the theory of the legal origin.[24] They pointed out that the small shares of ownerships in Anglo-Saxon countries are relatively more protective against managerial incentives than the legal systems are in Continental European Economies.

There are two leading legal systems throughout the world, namely The Common Law and The Civil Law. Common Law is used mostly in English spoken- or in the post-(English)-colony-countries. Main property of this system is that, it draws abstract

20 Klaus Gugler, Dennis C. Mueller and B. Burcin Yurtoglu; Corporate Governance and the Determinants of Investment, 2007

21 Katinka Barysch; Liberal versus Social Europe, CER Bulletin, ISSUE 43, Centre for European Reform, 2005

22 See Data (Section 5) for the definition.

23 Mark Grinblatt, Sheridan Titman; Financial Markets and Corporate Strategy, 2002, pages: 627- 651

24 R. Vishny, Lopez-de-Silanes, F. , R. La Porta, A. Shleifer 1997; Legal Determinants of External Finance. Journal of Finance, LII, pages: 1131-1150

rules from specific cases, where the cases are primary sources of law. This system tries to balance the powers between legislative and executive organs. French, Scandinavian and German legal systems are common types of Civil Law which starts with the abstract rules and applies these to specific cases. In contrast to Common Law, this system separates the legislative and executive organs, where the legislation is the primary source of cases.

Legal system should have an impact at both macro-and micro- levels, namely, on country-, company-, or borrower- level. For the country-level La Porta et al. (1998) pointed out the superiority of English Common Law against other law systems. Similarly, Beck, Kunt and Levine (2003) found evidence on the borrower-level and argued that the private sector credit as a percentage of GDP is significantly lower in countries of French legal origin. Besides, an important finding about the firm-level was introduced by John, Litov and Yeung (2004), stating that the companies enjoying better legal protection take on more risk, and that firms taking on more risk grow faster.

My sample countries have different legal origins which are shown in Table 2.1. I have used the data which was introduced by the previous studies of LSSV (1996 and 1997). Moreover I have divided the countries into two groups by using a dummy variable which takes 1 if the country belongs to English Legal Origin and zero otherwise. My first prediction in this thesis is that the firms in countries of common law (Hong Kong, India, Malaysia, Singapore and Thailand) should exhibit lower level of *AI* and/or *MD* relative to those firms in other legal systems (Indonesia, Korea, Philippines, Taiwan and Turkey) and therefore the firms of common law would be less dependent to cash flows for investment (lower β_1 if Legal Origin= English).

2.4 Corruption Level, AI and MD

In developing countries where investor protection is generally weak, growth seeking companies which have tight relations with governments could turn out to be favoured against the counterparts which might lead to MD. On the other hand, profitable foreign direct investment projects could be harmed through corruption where foreign

firms cannot enter the domestic market might lead to AI. Consider a situation as an example; if the bribe paid by the local firm is smaller than the total foreign direct investment returns to GDP, than that foreign firm would be indirectly subjected AI. A previous findings from Smarzynska and Wei (2000) provided evidence about the diminishing FDI and also the tendency of ownership identity towards joint venture as the corruption level of the subjected country increases. Parallel to this evidence, Sarkar and Hasan (2001) pointed out the positive effect of the decrease in corruption level of the host country to the productivity and volume of investments.

I used Corruption Perception Index (hereafter *CPI*) of Transparency International Berlin as an interaction variable for my investment equation. *CPI* is a composite index and expected to be a measure of perceived corruption in different countries. The disadvantage of the index is that the ratings highly depend on the perception of limited number of experts, business people and institutions chosen for each country, rather than public agents. Thus, *CPI* is far from being a population survey. The advantage of the index is that the scores are obtained from the experienced, reliable channels which are directly faced with the level of corruption in the country; hence the *CPI* is less affected from the misleading information provided by public or media agents which could be also exposed to corruption. Transparency International defines the *CPI* as follows: *"CPI focuses on corruption in the public sector, and defines corruption as the abuse of public office for private gain…If a country is believed to be corrupt, but is willing to reform, this should serve as a signal to donors that investment is needed in systemic approaches to fight corruption. And if donors intend to support major development projects in corrupt countries, they should pay particular attention to corruption 'red flags' and make sure appropriate control processes are set up to limit graft…The country with the lowest score is the one perceived to be the most corrupt of those included in the index…While ranking countries enables Transparency International to build an index, a country's score is a much more important indication of the perceived level of corruption in a country…The index primarily provides an annual snapshot of the views of business people and country analysts, with less of a focus on year-to-year trends."*[25]

25 Article is taken from the Transparency International Report for CPI 2004.

Figure 2.3 and 2.4 depicts the corruption and FDI levels of each country for years 2000, 2005 and 2006. Similar to the latter two findings there is a positive relationship between FDI and corruption levels but in different proportions The highest value of FDIs and the lowest *CPIs* belongs to Hong Kong and Singapore whereas the the lowest FDIs and the highest *CPIs* belong to Philippines and Indonesia respectively.

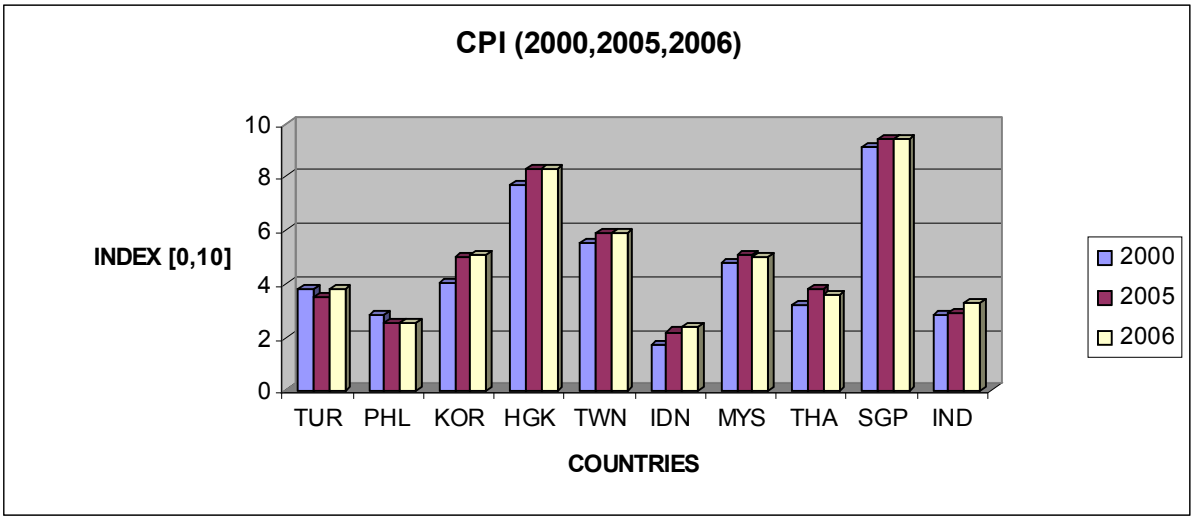


Figure 2.3: Corruption Levels

Source: The World Bank; World Development Indicators Database, April 2008. Department of Investment Services, Ministry of Economic Affairs, Taiwan. Transparency International, Berlin.

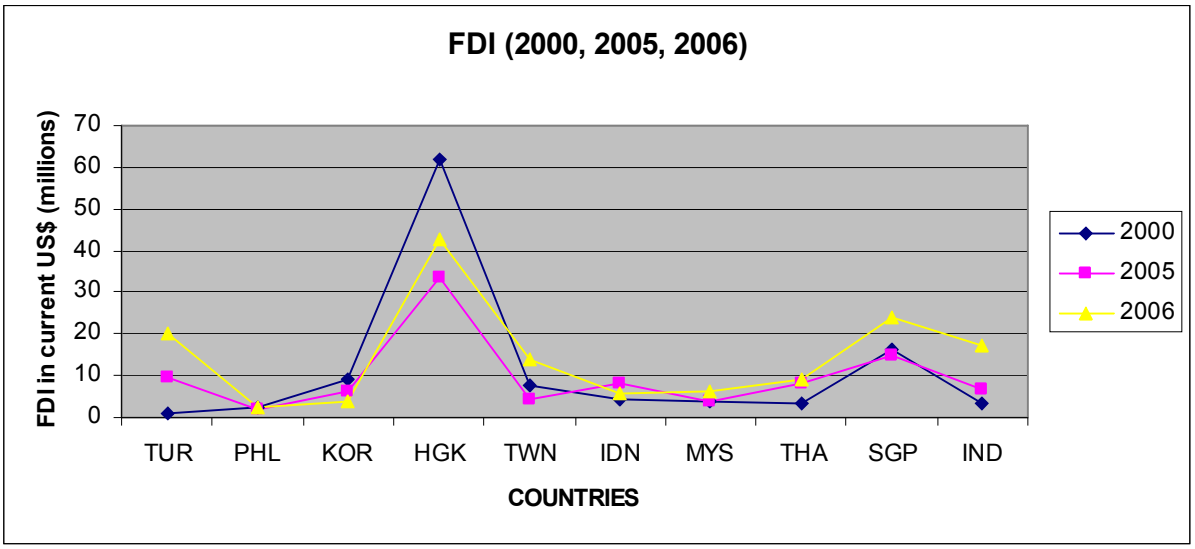


Figure 2.4: Foreign Direct Investment (FDI) among the sample-countries

Source: The World Bank; World Development Indicators Database, April 2008. Department of Investment Services, Ministry of Economic Affairs, Taiwan

Note that, since the content of the survey differs from year to year there is no standard criterion for the *CPI*. In my sample the countries are subjected to different perceived corruption levels which are shown below in Table 2.1. I took the *CPI* of 2000 as the base value for my estimations.

The related data on *CPI* between 2000 and 2004 can be found in the Appendix-Section. I have divided the countries into two groups; high corruption- (*CPI* < 4) and the low corruption (CPI $\geq$ 4) - groups by using a dummy variable which take 1 if the country belongs to low corruption- group and zero otherwise. The *CPI* is indexed from 1 (highest corruption) to 10 (lowest corruption) for each country. Hence, my first prediction in this thesis concerns with the level of corruption and its effect on investment behaviour as well as the level of *AI* and/or *MD*.[26] Frankly, the firms of countries of lower perceived corruption (Hong Kong, Korea, Malaysia, Singapore and Taiwan) should be less dependent to cash flows for investing, than those firms of countries of higher perceived corruption (India, Indonesia, Philippines, Thailand and Turkey). Therefore, it should be exactly that; lower the *CPI* lower the β_1 .

	HGK	IND	INDO	KOR	MYS	PHL	SGP	THA	TWN	TUR
Legal Origin	ENG	ENG	FR	GER	ENG	FR	ENG	ENG	GER	FR
CPI	7.7	2.8	1.7	4	4.8	2.8	9.1	3.2	5.5	3.8

Table 2.1: Legal Origins and Corruption Levels of the Sample Countries

ENG: English, FR: French, GER: German. Range (CPI) = (1,10), 1 for the highest corruption, 10 for the lowest corruption

2.5 Some real cases concerning *AI* and *MD*

Firms must make investment decisions so as to remain competitive in a global growing market. These types of investments could be the reason for either expanding their borders within the market by increasing the market share or just for insuring the status quo. If we deduct these investments and taxation (e.g. corporate tax) from *gross cash flows* (after EBIT and accruals), we can determine *free cash flows* which

26 See Methodology for the predictions.

can be used either as a positive return on shareholders as well as debt holders or as a source for further investment plans.[27] From managerial perspective the main objections are investors, customers, suppliers and employees. A manager must assign weights for each of these objections. More precisely, the firm should make a decision about the amount of cash leftover to maintain the firm's future sustainability.

Managers have also other choices for financing investment; bank loans, issue of debt or equity. A study of Opler and Titman (1994) found out a significant evidence for the U.S firms between 1976 and 1993, stating that managers prefer debt issuing when the share prices are low, and they favour equity issuing if the share prices are high. Furthermore, they showed that the firms with low asymmetric information problems tend to issue equity whereas the leveraged firms with small amount of debts prefer issuing debt for financing investment.[28] A supporting research by Dittmar and Thakor (2007) on U.S exchanges between 1993 and 2002 reported also some evidence, that is in fact against the Pecking Order Theory from Myers and Majluf (1984)[29], which states that, for financing investment, managers tend to rely firstly on income from operations (cash inflows) and then on riskless debt, then on risky debt and lastly in case of an extreme situation on equity.[30]

It is very obvious, that the taken actions for investment cannot always satisfy the pareto-efficiency between the firm and its investors. In other words, it is complicated to find an equilibrium point in real life where the taken action from one party does not harm the utility of the other part. It is actually not more than a balancing problem between the benefits of financiers (share and debt holders) and managers. Companies which invest in capital markets seek positive return such as increased profits whereas shareholders expect to receive positive returns, such as dividends or increased share prices.[31] There is some evidence from history, in which the incentives of managers harm the benefits of shareholders. For instance, Enron Case is a good confirmation for the casualties of insider problem, asset stripping and the *AI* and/or *MD* problem leading to moral hazard in an overpriced enterprise. Similarly,

27 Kruschwitz, Löffler; Discounted Cash Flow, A theory of Valuation of Firms, pp:2-3

28 Tim Opler, Sheridan Titman; The Debt-Equity Choice: An Empirical Analysis, 1994

29 Myers, Stewart C., and Nicholas S. Majluf, 1984, Corporate financing and investment decisions when firms have information that investors do not have, Journal of Financial Economics 13, 187-221

30 Dittmar, Amy K. and Thakor, Anjan V., "Why Do Firms Issue Equity", Journal of Finance, Vol. 62, No. 1, February 2007

31 Denzil Watson and Antony Head; Corporate Finance, Principles & Practice, Pages: 1- 22

Parmalat was another huge corporation which let a considerable amount of debt to the state after its collapse. Parmalat can be seen as evidence of bankruptcy as a consequence of overinvestment (or relatively higher negative cash flows), accounting and agency problems assisted by reputable rating companies and banks that led to adverse selection from the point of view of shareholders. These two examples are subjected to global companies of broad board of directors, but there are also some other findings, especially the case of Occidental Petroleum is of interest. Occidental Petroleum was founded by a single person called Armand Hammer in 1920s and later on listed as one of the compelling and successful oil companies in USA. However, through 1980s until 1991 the death of Mr. Hammer, the company chose a strategy of investment which was only concentrated on the personal incentive of the founder rather than regarding the benefits of shareholders. The strategy was to build a museum for Hammer's art collection at a value of $120 million which was afterwards responded by the shareholders, resulting in decreased share value. In 1989 Hammer influenced the stock value through a rumour which was stating that he was seriously ill. This news was a motivation for shareholders, for those who expect a managerial replacement and share prices went up 3$ per share which indicated $300 increase in shareholder value, although it was later published that he was just in a routine check up in a hospital.[32] This event clears the fact that if manager's investment decision is not correlated with shareholders' objectives, it could damage the firm by reducing the firm value. Incentives and information problems complicate the efforts for reaching mutual benefits for both sides. *AI* and *MD*- Hypotheses assert this dilemma supporting the positive *I-CFS* under two different aspects.

3 Ownership Structure and Investment

The ownership structure of firms is important determinant of investment. There should be a difference in the investment behaviour between firms indicating different types of shareholders. Ownership structure can also helpful by determining the type of a firm. A firm is called "independent", if it is directly owned by families and/or individuals and it is called "group-affiliated", if it is a part of diversified business

32 Mark Grinblatt, Sheridan Titman; Financial Markets and Corporate Strategy, 2002, pages: 627- 651

group.[33] A previous study of Yurtoglu (1999) distinguished some independent firms, which are partly related to business groups, from perfectly independent firms, by only considering the direct ownership. (e.g. Holding Company as a major owner).

It is worth mentioning the fact that the ownership structure can change over time; since companies can be seen as organisms that transform according to the environmental situations. In this sample we have companies which are observed from 1985 to 2004 and therefore some of them might have been subjected to mergers and acquisitions.

It is often criticized by the existing literature that, if the payoffs received as a group-affiliated or an independent firm differs or not.[34] As a matter of interest of this analysis, it is necessary to mention that diversified business groups are very common in developing countries. In many of these groups, the distance between the ownership and control differs. First of all, it is necessary to determine how the control is maintained, namely by means of equity or social relations. An example to equity-related-control could be the vertical-shaped groups (Common in Korea and Turkey) which are controlled directly from top seniors or the horizontal-shaped groups which are controlled with respect to the percentage of shares (cross-shareholdings). Evidence for the social-related-control can be the groups with a family or similar social identity which managed by the chosen person(s) from inside the circle to maintain the autonomy and permanency. Additionally, Almeida and Wolfenzon (2004) improved a theory stating that the vertical formation of groups is caused by the efforts to receive the control-right to cash flows which is closely related to the literature investigating *I-CFS*.[35] However being part of a business group or the opposite is not the main goal of this study; therefore I gave only brief information about the previous findings.

The sample provides the following data for the ownership structure includes the information on differing shareholder types ranking from the 1st largest owner to the 10th largest owner with respect to percentage shares:

22,33 B. Burcin Yurtoglu, Ownership structure, Cash Flow and Investment: Evidence from Turkish Business Groups, 1999

34 See for entire relevant critics: Khanna and Yafeh; Business Groups in Emerging Markets: Paragons or Parasites?, 2005

35 Almeida, H. and D. Wolfenzon; A Theory of Pyramidal Ownership and Family Business Groups, unpublished manuscript, NYU. 2004

I. Individual(s) or family(ies),
II. Financial company,
III. Corporations,
IV. State,
V. Other shareholders, aggregated (more than one shareholder, either containing a mixture of companies and individuals or multiple companies),

It is already mentioned that ownership structure is can influence cash flow and investment decisions and furthermore the corporate performance as well as the levels of *AI* and *MD*. Block holders, management authority and voting rights can determine the firm's strategy.

The existence of family controlled firms has great importance to this study, since this type of ownership structure is very common in developing countries. A previous study from Lyagoubi (2003) on approximately 700 French family companies between 1995 and 2000 pointed out, firstly, that *AI*- problem diminishes as more family companies go public. Secondly, those family companies which run by a hired CEO from outside are more indebted than owner-managed family firms.[36] This evidence suggests the severity of Principal-Agent Problem (hereafter PAP) in family corporations implying the risk of cash flows controlled by outsider managers. On the other hand, AI-Problem increases with the family-run- management and makes the monitoring of the firm more complicated by the external parties, letting them undervalue the investment opportunities. Generally, family companies prefer to take the family members in to charge to reduce the agency cost. This should be because of that, in many family firms the risk on return on investment projects are a part of total risk beared by the firm and therefore the family members are tending to be more risk-averse against reductions in wealth, caused by high debt issues under bankruptcy risk. Precisely, family companies with sufficient net income earned are expected to follow the Pecking Order Theory[37], relying more on cash flows for investment purposes and considering external funds as last resort. This is also a part of my last prediction to this thesis.

36 Lyagoubi, M.; Family firms and financial behaviour: How the preferences of family shareholders influence firm financing?, IFERA and Family Business Network World Conference, Lausanne, 2003.

37Myers, Stewart and Nicholal S. Majluf, "Corporate Financing and Investment Decisions when Firms have Information that Investors Do Not Have", Journal of Financial Economics, Vol. 13, No. 2.

A different aspect referring the early stages of family companies states that, the family companies try to maintain the status quo, in other words, the sustainability of the managerial autonomy and the company's existence rather than subsequent investments targeting the growth.[38] Evidence from the study of Anderson and Reeb (2003), investigating the quoted family firms of UK and USA, found out that the firms targeting growth and having closer links to their external funds have outperformed the other S&P 500-counterparts.[39] This existing literature suggests that the private family firms (apart from public shares) should face *AI*-problem if they have poor connections with banks or other financial sources.

Insider ownership is very closely related with family owned companies and certainly an evidence which is open for debates concerning its influence on *I-CFS*, *AI* and *MD*. As already mentioned before, insider shares can influence the shareholder's utility in two ways. Firstly, for a remarkable amount of insider shares (more than 10%), shareholders can believe that the manager is on the mutual path of strategy and therefore targeting the shareholder value which could in turn provide an increase in share price. Secondly, if the amount of shares is too small, then from the viewpoint of shareholders it is more likely that manager could have incentives (*MD*) not related with the shareholders' interests where low share price and the threat of takeover could be its concomitants. It is important here to underline that these two possibilities are from the perception of shareholders. Therefore the likelihood of PAP exists. For example, Gugler et al. argued about the two conflicting effects of increasing insider shares, namely the alignment- and the entrenchment effect.[40] According to this determination, an increase in insider share can either have positive wealth effect (alignment) on the shareholders' utility or decrease the possibility of takeover (entrenchment) which can lead the manager to pursue his/her own goal. Furthermore, Hadlock (1998) points out the fact that, non-linear relationship between *I-CFS* and the insider ownership, where a simultaneous increase in both insider

38 Panikkos Zata Poutziouris, the Structure and Performance of the UK Family Business PLC economy, Handbook of Research on Family Business , Elgar Publishers, pages: 552-574, 2006.

39 Anderson, R, and Reeb D. 2003. Founding Family Ownership and Firm Performance, Evidence from the S&P 500.
The Journal of Finance, 58(3): 1301-1328.

40 Klaus Gugler, Dennis C. Mueller and B. Burcin Yurtoglu; The Effects of Ownership Concentration and Identity on Investment Performance: An International Comparison

shares and I-CFS observed.[41] Ownership concentration is another determinant of investment behaviour. Financial companies, insurance companies, banks, corporations exhibited significant effects on *I-CFS*, *MD* and *AI* in the existing literature of corporate governance, as the largest owners ($\geq$10% of the shares outstanding). If a financial institution is the first owner of the firm then it is more likely to expect a lower level of *AI* and a weaker *I-CFS* for that firm relative to that of family- or dispersedly owned firms (assuming that the improvements in capital markets are the same between the countries). Another important fact is to determine the effect of cash flows on investment by considering hard or soft of budget constraints on state-owned firms from the transition years until today.[42] The sample for this empirical study consists of 10 economies and some of them are subjected to the post-communist, post-colonial, post-war stage or coup d'états, and therefore they have a transition period (convergence to development) in their history. Until the 1980s the state-owned firms were in the dominant role in these economies and most of them were supported by the state by means of subsidies or soft budget politics to compete against liberal economies, despite huge bankruptcy risks (high *MD*-level). In this sample, the date of establishment of firms ranges from 1862 to 1996 and hence there should be firms which are/were owned by the state.[43] Gugler and Peev (2007) found out evidence that the I-CFS of state-owned firms in transition economies was negative during the early transition stage (Soft budget constraint), whereas positive thereafter (*MD*). Similarly, a previous study from Cho (1995) might be a helpful evidence for the effect of state subsidies which investigated the changes in fixed assets of Korean firms between periods 1982 and 1991 by taking the global oil crisis in 1985 as an exogenous shock.[44] Cho argued that chaebols which were favoured by state during the economic expansion tend to rely less on their cash flows for investment. Additionally, several reforms have been made during these transition stages, including changes in organic law, in jurisdiction of financial markets, priority and creditor rights, privatisation, etc. to reduce the level of AI and/or MD, which is parallel with the other finding of Gugler and Peev (2007), stating diminishing *I-CFS* as the markets and corporate governance develop.

41 Charles J. Hadlock; Ownership, Liquidity, and Investment, The RAND Journal of Economics, Vol.29, No. 3, pp.487-508

29,42 See Kornai et al. (2003); Gugler and Peev, Ownership changes and Investment in Transition Countries, ECGI (European Corporate Governance Institute), Finance Working Paper N°. 169/2007, May 2007

43 By considering also M&A.

44 Cho, Y. D., 1995. Company Investment Decisions and Financial Constraints: An Analysis of a Panel of Korean Manufacturing Firms. Working Paper, School of East Asian Studies, University of Sheffield

During my analysis I gave attention only to the largest ownership type with shareholdings $\geq$10% and the dispersedly owned firms (1st owner has less than 10% of the shares outstanding), because I assumed that the firm's control should be dominated by the first owner. It is worth mentioning again that the target of this study is to compare the investment behaviour at the country-, rather than at the firm-level. Because of the structural differences at country-levels, it is quite complicated to differentiate between the behaviour of firms from different economies, although their ownership structures seem similar. Assuming that there is no structural difference between these economies, I put the firms into the same basket which belong to the largest owners of the same type. For my last prediction I put the firms into two subsets according to their predicted *AI*- and/or *MD*- situations. Family- or dispersedly owned firms should belong to the subset of high *AI* and/or *MD*-levels, whereas firms with the largest owner of other types (state or financial institution or corporations) should belong to subset of low *AI* and/or *MD*-levels. Frankly, family- or dispersedly owned firms should exhibit higher level of AI and/or MD relative to that of the firms of other types.

As it can be seen from the Figure 3.1, there are differing number of observations on family-or dispersedly owned firms in each sub-sample. Those firms in Taiwan constitute the largest, whereas those in Indonesia the smallest fraction of the pooled sample.

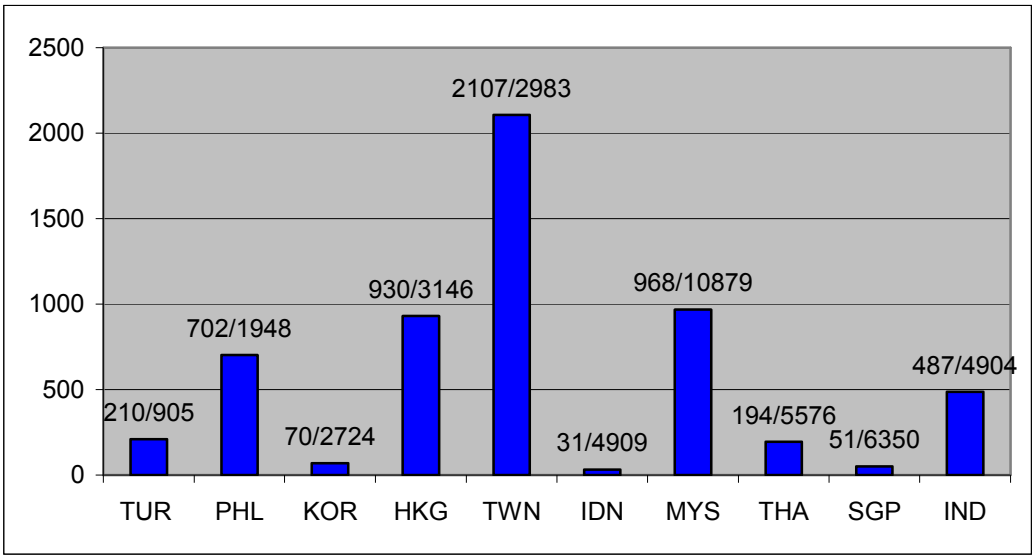


Figure 3.1: Family- or Dispersedly owned firms

(With respect to largest owners)

Number of observed firms / Total observations

Figure 3.2 shows that other firms (owned by financial institution, corporation or state) with respect to largest shareholders are less observed than family-or dispersedly owned firms, for all countries except Indonesia, Thailand and Singapore. Totally, there are 5750 observations on family-or dispersedly owned firms, whereas 2347 observations of firms of other types of aforementioned largest shareholders.

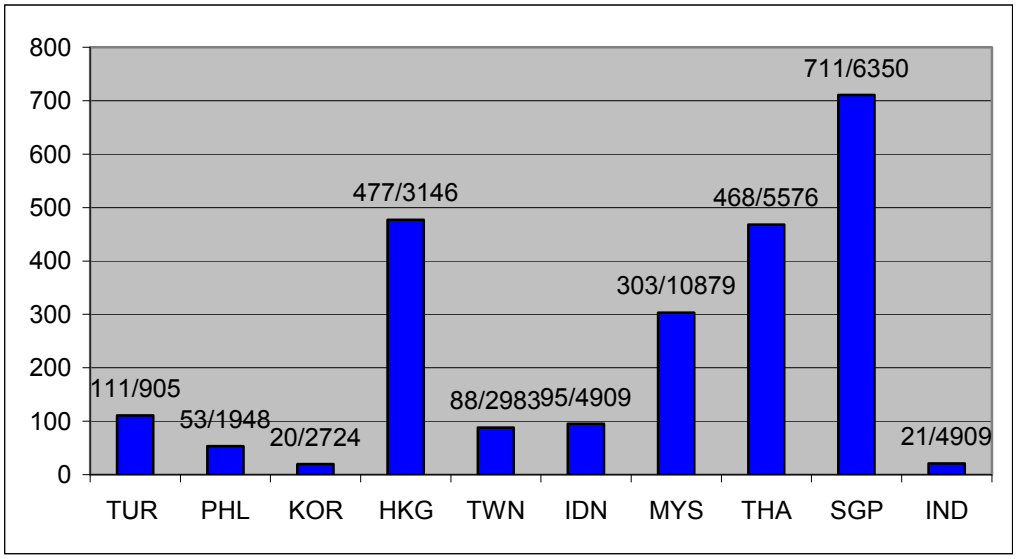


Figure 3.2: Firms owned by State, Financial Institutions or Corporations

(With respect to largest owners)

Number of observed firms / Total observations

4. The Data

The reliance of the information gathered from sample firms is of great importance to maintain the significance and the consistency of the analysis. Thus, the most reliable data can be obtained from the stock exchange-listed company of origin, which should provide more transparency during analysis, especially when the objection is an emerging economy. However, one must pay attention to the total stock market capitalizations which are varying from one country to another and almost

independent of the GDP levels of the related countries.[45] Table 4.1 shows the differing levels of change in the stock market capitalization of the countries that are being analyzed. Those numbers are measured in billions US-Dollars. It is clear that there are huge differences in the size and annual changes between the stock market of these countries. Although the source of information belongs to year 2006, it is clear that (2 years after the end period of this sample) South Korea, India, Hong Kong and Taiwan are close to each other in size. The same can be thought for Singapore, Malaysia, Turkey, Thailand, Indonesia and Philippines but for the lower levels of capitalization with poor annual change. Other than this, if someone takes the total market capitalization in USA as a reference, then it can lead to surprising results; the market cap of USA is 20 trillion $ which is almost 30 times larger than the market capitalization of South Korea indicating a huge gap in-between. An anecdote from this paper can be helpful to explain this gap: "…*One company, General Electric, if placed on this list, would be between Taiwan and Mexico to take 9th place…"* Since my study concerns more with the relative numbers than the absolute ones, it only matters to understand the market conditions of these countries before comparison.

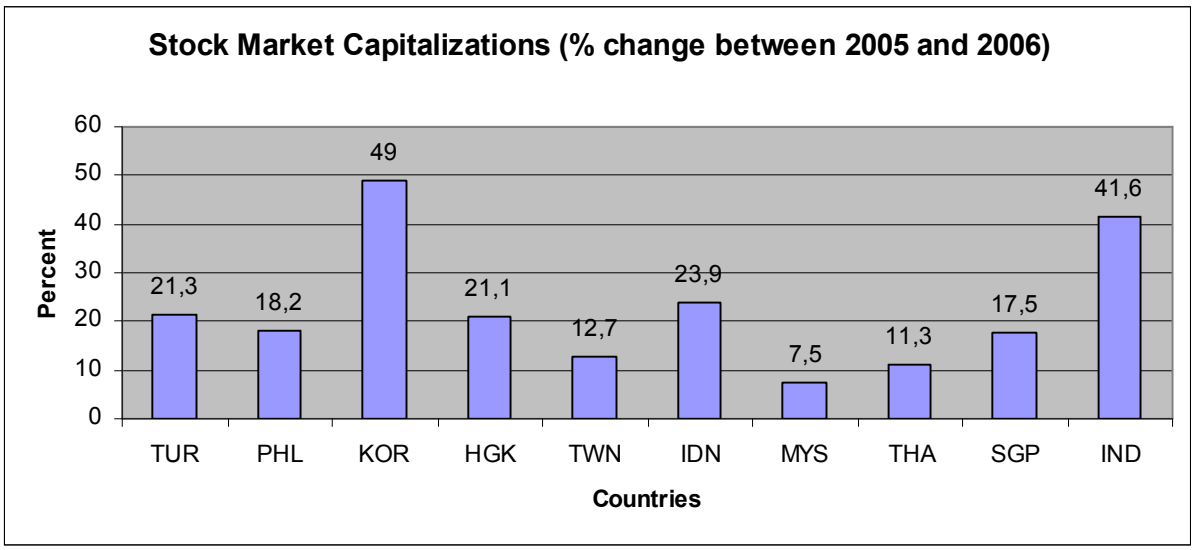


Figure 4.1: Stock Market Capitalisations

(Percentage change between 2005 and 2006)

Source: The Futurist; Stock Market Capitalization in Developing Countries, July 2006

Size of the stock market as well as the improvements in jurisdictions of financial markets of a developing country is of great interest. In countries where the market

45 The Futurist; Stock Market Capitalization in Developing Countries, July 2006.

capitalization is large, it could be the case that the cost of monitoring is low or the link between firms and third parties are close or the legal and accounting systems are well-improved, than it is presumable that the *AI* and/or *MD* should lose ground in those countries. Figure 4.2 depicts the market capitalizations as well as the GDP values of the countries of sample.

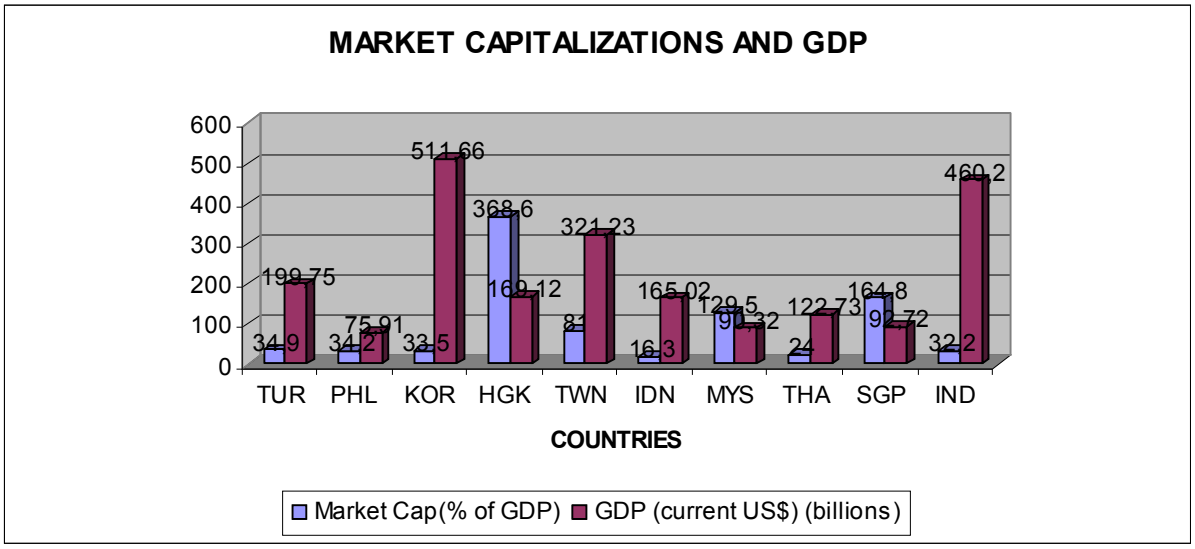


Figure 4.2: Market Cap and GDP of the sample-countries

Source: The World Bank; World Development Indicators Database, April 2008. Department of Investment Services, Ministry of Economic Affairs, Taiwan

It should be clear that, since the explanation of investment should not uniquely depend on cash flows, one must also bear in mind the effects of other explanatory factors affecting investment decisions taken by companies such as size, sector, ownership structure, total assets, depreciation rates, leverage, age, date of establishment etc.

In this sample there are some data on important characteristics of firms which can be helpful to determine the investment behaviour, as well as to compare the countries. Additionally, there are also some string variables which specify some features of the firms, such as date of incorporation, year of observation, company name, main exchange market, industry definition (SIC) and the unique identifier which can be used as a tool to distinguish each firm from another. Hence, it is necessary to describe the logic behind some factors before beginning with the estimations.

4.1 Cash Flow (CF)

According to the general accepted accounting principles there are three categories for defining the change in cash (in-or -outflow) amount between two accounting periods and classified as follows: cash provided or used by (1) operating activities, (2) investing activities, and (3) financing activities.[46] Respectively; cash provided/used by operating activities are the cash flows from sales or provided services (including cash paid to employees and inventory purchases), cash provided/used by investing activities are making and collecting of loans and acquiring and disposing of debt and equity investments and property, plant and equipment, and lastly the cash provided/used by financing activities are the cash flows from borrowed (or repaid) amounts from (to) creditors, also the cash received from the issuance and cash paid for the repurchase of the equity.[47] In this study, these three classifications simply summarize the importance of cash flow as a necessary source for the sustainability of firm, a considerable subject for monitoring and also an efficient candidate for determining investment.

4.2 Tobin's q (*TQ*)

Tobin's q (*TQ*) represents the ratio between the market value of firm to its total (net fixed) assets (COMPUSTAT item number 6) assuming that the firm is free of debt and it is in fact an important measure to figure out the average performance (management quality) or from a different angle, the severity of agency problems regarding investment. Tobin's q implies the ratio of the return on assets relative to its cost of capital (profitability of investment) and therefore used in several studies as an indicator of *AI*-and *MD*-Level.[48] Simply, if the firm has an investment opportunity with returns higher than its cost of capital then the ratio r_a/i must be greater than 1. Then for the *AI*-Hypothesis only the firms matter with r_a/i greater or equal to 1 and this

46,6 Charles W. Mulford and Eugene E. Comiskey; Creative Cash Flow Reporting, Uncovering Sustainable Performance, pages: 1- 10

48,32, 33 See Appendix for the related formulation, also see: Klaus Gugler, Dennis C. Mueller and B. Burcin Yurtoglu; Corporate Governance and the Determinants of Investment, 2007

condition is expected for the small firms which have low degree of integration to external links. This leads to a different conclusion for the *MD*-Hypothesis; an overinvesting manager targets only the growth of the firm, not the wealth-maximization of the shareholders. Hereby, one can capture such an investment approach if the return on investment smaller than its cost of capital, thus r_a/i must be smaller than 1. Then for MDH only the firms matter with r_a/i smaller or equal to 1 and this condition is expected. Additionally, in case of r_a/i equal to 1 the book value represents the market value and moreover firm does not undertake such an investment.[49] However, using *TQ* in an investment equation can be criticized. The reason is quite clear; *TQ* represents the reflection of changes in firm's market value (perceived future profitability) on its investment, but firms actually do not invest according to the movements in their market value. Generally, for the investment decisions matters only the net present value of the firm in which the investment projects are evaluated according to future payment (Discounted cash inflow)-streams. Therefore, a rational firm (without *MD*) would invest as long as the NVP of the marginal return on investment is positive. Lastly, it would not undertake an investment if the NVP marginal return is negative.

4.3 Total assets and Fixed Assets (Net)

Total assets include all investment activities, all cash-convertible current assets and fixed assets. Total assets can also be a good indicator of firm's size and herewith firm's financial constraints. It is very important to pay particular attention to the size of company since it varies within the sample and also expected to be strongly correlated with investment decisions which affect the outcome of the analysis. Size of a firm can depend on several indicators such as market size, market capitalisation, wages, industry type, country's environment, financial market conditions, judicial system and R&D investments. Krishna B. et. al. (1999) provides significant evidence on a positive relation between the market size and firm size from a sample of 15 developed European Countries. Moreover they pointed a positive correlation between size of R&D intensive companies and judicial improvements (negative correlation between

31 See Table 1.1

size of capital intensive companies and judicial developments). Their study also supports the evidence that the capital intensive companies are larger in size if the financial markets are better improved.[50] Fixed assets can be regarded as tangible and intangible fixed assets. Tangible fixed assets are for long-term-use purpose, exposed to depreciation such as buildings, plants or machinery and have low degree of cash-convertibility. Intangible fixed assets represent the physically intangible assets such as patent, goodwill, mining exploration, brand, legal rights, design etc. and usually measured initially by cost of acquisitions.[51]

4.4 Additions to fixed assets

Additions to fixed assets represent the change in the growth of the firm by means of changes in its tangible and intangible fixed assets. These alterations can be seen as a proxy for investment, therefore its ratio with lagged total assets (can be seen as returns on total assets after one period) is selected as the dependent variable of the investment equation. Attention must be paid while using fixed assets as a proxy for investment, especially if one tries to compare this sample with a US sample of firms. For instance, Shin and Park (1999) have commented that, if a firm invests more on R&D by selling its fixed assets, it can appear that firm's capital expenditure on fixed assets is negative, although it is in reality positive. The reason behind could be that the capital expenditures might differ from the changes in fixed assets. For simplicity I assume that the accounting terms have the same definition through out the whole sample.

4.5 Long term debt

Long term debt refers to the assets owed to suppliers or creditors which are due more than or equal to one year and includes bank loans, debentures, convertible debt, lease liabilities and other long term interest bearing debt. Long term debts can be helpful to clarify the credibility of the firm from external parties. The amount of

50 Krishna B. Kumar, Raghuram G. Rajan, Luigi Zingales, NBER Working Paper No. 7208, Issued in July 1999

51 Yoshinori Kawamura; Accounting News in Japan, http://www2g.biglobe.ne.jp/~ykawamur/

external debt could be an efficient determinant of firms' reputation and history from the vision of creditors. In other words, if the amount of debt is high, than the link between the firm and third parties should be close. However, I prefer to be bounded with the traditional point of view and therefore expect that firms with high current liabilities or long term debts have higher *I-CFS*. More precisely, if the firm has a high amount of debt it cannot cover it from a different creditor and hence use its internal funds for financing its debt and for other investment opportunities.

4.6 Operating revenue / turnover (sales)

Operating revenue / turnover stands for the amount received from the net sales and other revenues of the firm.

4.7 Depreciation and Depletion

Depreciation and depletion are a part of cash flows (e.g. cash outflows for investing activities). Especially in the field of manufacturing industry they make up an important part of *CF*. Depreciation can be seen as a replacement investment, but non-cash charges which is defined periodically as a part of gross investment. In other words it is a cost of investment (provision) which in return indirectly affects the profit after the business period. Fixed assets are exposed to depreciation and to clarify the change in investment during a whole period one must sum up the change in the stock of depreciable capital of previous period plus the depreciated capital of the current period. Depletion is another factor to be considered, especially for the industrial sector where non-renewable raw materials used as input for production. Depletion can affect consumer price index (especially for the goods with low elasticity of demand) as well as cash flows and further the operating life of the firm, that's why there is a global upward-trend in R&D investments for renewable resources particularly in fields of mining and oil industry.

4.8 Market Value

Market value is defined as the market value of common equity (share price at the end of the fiscal year- Item 199 / COMPUSTAT) times common shares outstanding (Item 25/COMPUSTAT) plus the book value of preferred stock (Items 56, 10, 130/ COMPUSTAT) plus the book value of total debt (the sum of the current liabilities- Item 9 / COMPUSTAT) and total long term debt (total long term debt- Item 34 / COMPUSTAT).Market value can be an efficient indicator of firm's actual size and also necessary for calculating the Tobin's q. Market value can vary across time, due to asset sales, acquisitions or stock repurchases but generally due to expected profitability. However, this parameter is commonly based on the market estimation including market perception, expectations from future and it is not directly related to firm's historical background, therefore it can differ often from the book value of the firm. That is why I assume for simplicity that the financial markets are efficient and prices reflect the perfect information. A positive correlation is expected between firm's market value and external funding. Firms with large caps are generally large corporations with a stable history in credit ratings and hence they are likely to reduce the risk of default from the point of view of financial suppliers.

4.9 Book value

Book value of a firm is the sum of its shareholders' equity. In other words, it represents the total value of shares owned by those shareholders who have superior rights attached to their shareholdings. Book value can often differ from the market value, since it represents the value from the balance sheet, hence not the market perceptions.

4.10 Income before extraordinary items

According to the accounting standards, income before extraordinary items is the amount of income of the firm after all expenses but before paying provisions or dividends and is a part of the firm's income statement to its managers and

investors.[52] Summing this amount with the depreciation and dividends paid (or provisions) one can get the amount of cash flows of the firm open for investing, operating or financing activities.

5. METHODOLOGY

The observations (including the missing values on some variables) construct an unbalanced cross-section time series (panel) data on 10 developing economies between periods 1985 and 2004. The source of this is the COMPUSTAT Global Vantage of Standard and Poor's.[53] There are a total of 43038 observations from 2300 firms from different industries.

The development of financial markets, number of transactions, legal systems and type of ownership structures vary across countries. Since the goal of this cross-country study is to investigate and compare the *I-CFS* under the two hypotheses of *AI* and *MD*, the aforementioned indicators (Legal Origin, *CPI*, ownership structure) are interacted with the independent variables in the investment equation.

Before beginning with the estimations I will give brief information on each country to compare the economies in a qualitative way. Afterwards, there will be an international comparison on the investment behaviour. An important assumption should be made to control for the changes in the ownership structure. Hence, I will assume that the ownership structure of all firms remain constant during the period 1985-2004. Moreover, the accounting terms are also assumed to be the same across countries, otherwise all terms which are used in the investment equation would be invalid.

In order to determine the cash flows one needs the income before extraordinary items (*IB*), total depreciation (*DEP*) and dividends (*DIV*) paid. Since there is no information on dividends I will regard to cash flow as of the following form:

(5.1) $$CF_t = IB_t + DEP_t - Div_t$$

52 Standard & Poor's, a division of the McGraw-Hill Companies, Inc, 2001

53 See References

Cash flows do not imply any quantitative information if its ratio to firm's total assets is not specified. This ratio would imply the ability of firm to generate cash flows given its size:

(5.2) $$Cash\ Flow\ Ratio_t = \frac{CF_t}{K_t}$$

As I have already mentioned in the previous sections, Tobin's q is a useful measure defining firm's performance and investment opportunities and helpful to analyse *AI*- and *MD* levels. It is defined as the ratio of the market value of the firm (*MV*) plus the book value of total debt plus long term debt (*LTD*)) to its total assets and can be represented as:

(5.3) $$TQ_t = \frac{MV_t + LTD_t}{K_t}$$

Similar with that of the existing literature, the investment equation (without the indicators) takes the form:

(5.4) $$\frac{I_{it}}{K_{it-1}} = \alpha_i + \lambda_t + \beta_1 \left(\frac{CF_{it-1}}{K_{it-1}} \right) + \beta_2 TQ_{it-1} + u_{it}$$

The subscript t stands for the year and i for the firms. Right side of the investment equation is lagged one period and all variables are scaled with the net fixed assets to avoid endogeneity problems and size-specific errors respectively. Moreover, each variable is normalized by the relevant consumer price index (inflation as %) of each year to receive real values where 1995 is taken as the base year. Additions to fixed assets can be taken from the data as a proxy for investment (I_t) which is equal to the capital stock of the recent year minus the capital stock of the previous year minus

the depreciated capital stock of the previous year. α_i denotes industrial dummies (with respect to SIC table) and λ_t the time dummies (1985-2004). *CF* stands for the sum of the net profit after tax and depreciation. Tobin's *q* is denoted by *TQ*, residual by u_{it}.

The main goal of my study is to estimate the investment equation separately for each of the aforementioned interaction variables (Legal Origin, *CPI* and ownership structure) to compare the effects of these factors as the determinants of investment. After adding those terms the investment equation takes the form:

$$(5.5) \qquad \frac{I_t}{K_{it-1}} = \alpha_i + \lambda_t + \beta_1 \left(\frac{CF_{it-1}}{K_{it-1}} \right) + \beta_2 TQ_{it-1} + \delta_1 D_{LO,CPI,OS} \left(\frac{CF_{it-1}}{K_{it-1}} \right) + \delta_2 D_{LO,CPI,OS} TQ_{it-1} + \varepsilon_{it}$$

Where $D_{LO,CPI,OS}$ stands for the dummies of Legal Origin, Corruption Perception Index and the ownership structure (used separately) respectively.[54]

This study introduces 2 different LS-estimations (Equations 5.4 and 5.5) with and without the interaction variables respectively. The main goal is to investigate the effects of these three different factors on the investment ($\beta_j - \delta_j$, where j=1, 2) by using *CF* and *TQ* as tools. Note that t-values are corrected by White's H.C.S.H[55] in case of a suspicion on heteroskedasticity.

54 The notation δ_j is referred from Jeffrey M. Wooldridge, Introductory Econometrics, A Modern Approach, South-Western, Div of Thomson Learning; 2nd Ed., 2002.

55 White's Correction for Heteroskedasticity Robust Standard Errors.

5.1 Setup of the Empirical Analysis:

The following steps are taken during the analysis:

I. Qualitative information and Summary Statistics: Brief history, social, economic and politic profiles of each country.

II. Quantitative Information and the Regression Analyses: Summary Statistics, and LS-Estimations. Interpretation of the results, statistical significance of the coefficients (t-test, F-test etc.),

III. Conclusions: I predict supporting evidences for the following 3 theses:

1) *"The firms in countries of common law (Hong Kong, India, Malaysia, Singapore and Thailand) should exhibit lower level of AI and/or MD relative to those firms in other legal systems (Indonesia, Korea, Philippines, Taiwan and Turkey) and therefore the firms of common law would be less dependent to cash flows for investment (if Legal Origin= English* $\Rightarrow$ *lower I-CFS or* $\delta_1 < 0$ *)."*

2) *"The firms of countries of lower perceived corruption (Hong Kong, Korea, Malaysia, Singapore and Taiwan) should be less dependent to cash flows for investing, than those firms of countries of higher perceived corruption (India, Indonesia, Philippines, Thailand and Turkey). (CPI=Low* $\Rightarrow$ *lower I-CFS or* $\delta_1 < 0$ *)."*

3) *Family- or dispersedly owned firms should belong to the subset of high AI and/or MD-levels, whereas firms with the largest owner of other types (state or financial institutions or corporations) should belong to subset of low AI and/or MD-levels. Hence, family- or dispersedly owned firms should exhibit higher level of AI and/or MD relative to that of the firms of other types. (If family or dispersed ownership* $\Rightarrow$ *lower I-CFS or* $\delta_1 < 0$ *).*

6. COUNTRIES AND SUMMARY STATISTICS

Countries will be discussed separately due to their differing characteristics. The aim of this section is to give sufficient information on the social, economic and politic perspectives of each country.[56] To generalize, it is now necessary to point out that most of the East Asian economies of the sample suffered from the Asian crisis in 1998 and it played a trigger-effect in their capital markets' development. Beginning with this shock, significant improvements have been made in banking, money and stock exchange markets to reduce the risks of investment and to sustain the transparency. The most important strategy was to reduce the dependency to banks for capital investments through increasing stock market participation of the companies and attracting the investors to stock exchange markets via improvements in the monitoring and investor-minority shareholder-rights. However, despite all of these improvements, the markets are still relatively smaller (not well-diversified), transaction costs are higher and the capital markets are less liquid on average than those of the developed western economies.

Note that, in the country information section, the *CPI* values are from the CPI 2007 and therefore represents the latest ranking of each country. I used the rankings of year 2000 as the base year in my estimations. Since there is no distinct volatility among the *CPI* –values of the sample countries, any choice between 2000 and 2004 could be also plausible.

6.1 Country Information

6.1.1 Hong Kong

Hong Kong as the Hong Kong Administrative Region is dependent to China in the field of defence and foreign relations since 1997 after receiving the sovereignty from UK. Hong Kong has its own legal and monetary system supporting the government non-intervention. It exhibits the highest GDP per capita within the borders of China and the 6th in the overall world ranking as of 2006. Furthermore, it is ranked for

56 Please visit the literature section for the referred country literature.

thirteen successive years as the world's freest economy in the index of economic freedom. Hong Kong has a free capital market with low corporate taxation. As one of the pioneer trading territories of the world it has a national currency, Hong Kong dollar which is pegged to USD under the fixed exchange rate regime. Hong Kong's imports are generally the raw materials and food due to the scarcity of the natural resources. Hong Kong Stock exchange exhibits the second highest value of initial public offering (IPO) after London, with a market capitalization of 2.97 Trillion USD as of October 2007. Hong Kong has been ranked as the 3rd best financial center in the world and the best in Asia for year 2007. Before the sovereignty the dominant sector in the economy was the manufacturing which had been transferred mostly to the hinterland China. Thereafter, government went through with the laissez-faire policy as many companies declared IPO. Recently, the manufacturing covers only 9% of GDP, where the service sector is in the leading position with 90%. Hong Kong is one of the four Asian Tigers with a fast-moving industrialization and economic growth. It suffered from a 5.3% decrease in the GDP after the Asian Crisis in 1998 but with the support of the developments in capital markets, it recovered again in 2000 with a 10% increase. From 2000 until 2005 Hong Kong has exercised a deflationary period by reducing cost of production to attract the foreign and domestic investments. At the end of this stage the annual inflation was near 0%. Hong Kong is ranking as 14th out of 180 countries in the CPI as of 2007 indicating the second lowest perceived corruption within the whole sample.

6.1.2 India

Republic of India is the most populous multiethnic democracy and the 7th largest country in the world. After colonisation in 1947, India gained its independence and became a nation-state. As of the 2006 Report of IMF, it is the 12th largest economy with respect to market exchange rates and 3rd largest with respect to the purchasing power. India has exercised quasi-socialist stage in the post-colony period by strict control of state on the fields of private and trade sector and also on foreign direct investment (FDI). Throughout some economic reforms it has became one of the rapid growing economies and opened its market gradually (since 1991) to the global chain by reducing the government control on international trade and private sector.

Privatizations played also a leading role to attract FDI. Recently, the economy suffers from poverty where 27.5% of the population living below the poverty line with 10% of income groups earning approximately 30% of the total income as of 2004 and 2005. As a developing economy, India fulfils the convergence hypothesis with an average 9.4% increase in GDP rate as of 2006 and 2007. GDP is contributed by 54% from services, 28% from agriculture and related industries and 18% from industry, respectively. India's leading industry fields are automobile, chemicals, cement consumer electronics, food processing, machinery, mining, petroleum, steel and pharmaceuticals. It became an important outsourcing destination for multinational corporations. India is ranking as 72nd out of 180 countries jointly with Mexico, Morocco, Peru and Suriname in the CPI as of 2007 indicating third highest perceived corruption ahead of Indonesia and Thailand among the countries of this sample.

6.1.3 Indonesia

Republic of Indonesia is the world's 4th most populous country. Indonesia entered the transitory stage through development after World War II by gaining its independence (Dutch colonisation). Indonesia is a unitary state with 3 organs governed constitutionally. During the early development stage it suffered from the political instability and economic nationalism which deteriorated the economic sustainability. In the middle of 1960s Indonesia has declared the degree of discipline which targeted low inflation, currency stabilisation to attract FDI. Until early 1990s it has profited from FDI. There have been developments especially in the manufacturing sector which became dominant for the exports. After maintaining an average GDP growth rate of 7% from 1989 to 1997 it became one of the fastest growing economies in the world. However, the aftermath of the Asian Crisis in 1998 had demolishing effects on the whole economy followed by a 13% fall in GDP, currency devaluation. Thereafter, the political instability and half-way economic reforms accelerated the corruption in the levels of government and private sector and complicated the process of recovery. Also, the oil prices had a negative effect on the poverty level because the leading export good was the crude oil. Indonesia's GDP consists of services by 45.3%, industry by 40.7% and agriculture by 14%. It has rich natural sources and the major industries are petroleum, gas, textiles and mining. Indonesia is

ranking as 143rd jointly with Gambia, Russia and Togo out of 180 countries in the Corruption Perception Index CPI as of 2007 indicating the 2nd highest perceived corruption among the countries of this sample.

6.1.4 Malaysia

Malaysia is the federation of 13 states and 3 federal territories. It was a colony of United Kingdom until 1946 and gained its independence in 1957. Malaysia had a transition period which took the economy from being reliant on mining and agriculture to an economy that depends more on manufacturing. Malaysia exhibited a fast economic development by implementing five-year plans and attaching weight to international trade. Especially the Japanese FDIs caused the exports to be the growth engine of the whole economy. Between 1980 and 1990 Malaysia had 7% average GDP growth with a low taxation. Government sustained a favouring policy against some ethnic groups in the field of education, business and housing. In 1998 the Asian crisis caused huge losses for the economy accelerated with the sharp decrease in FDI and increase in capital outflow. Malaysia recovered the losses partly by the export of computer electronics. Government ownership plays also an important role in industrial sector where the policy is to invest through a fund in specific industrial companies for the benefit of the whole country. As of 1999, manufacturing sector was 30% of GDP. Agriculture and mining sector was near 9.3% and 7.3% respectively. Malaysia has a rich endowment of natural resources, particularly in field of agriculture and mining. Malaysia is ranking as 43rd jointly with South Africa and South Korea out of 180 countries in the CPI as of 2007 indicating the better-than-average perceived corruption among the countries of this sample. Malaysia is known as a newly industrialized country (NIC) where the economy is below the first-world status but has in a macroeconomic sense outpaced its counterparts and exercises a fast economic growth.

6.1.5 Philippines

The Republic of Philippines is the world's 12th most populous country and the 37th largest economy in the world as of 2006. Philippines was a sequent colony of Spain and USA respectively until 1946. The country is accepted to be a newly industrialized country which is mostly dependent to agriculture. It is one of the cost-effective countries in Asia with a growing demand for business outsourcing. During 1960s the economy was the 2nd largest in the Asia, right after Japan. In the following decades until 1990s the economy suffered from the government-linked monopolies which pushed the country into recession. Thereafter, the economy covered its losses gradually through some liberal reforms. Unlikely to its other Asian neighbours, the Philippines- economy did not suffer much during the Asian Crisis with the assistance of strict fiscal policies boosted by the aid of IMF. Between 2004 and 2007 the average GDP growth was 6.5% which was over the mean of Asian economy growth rate. Recently, In order to maintain the development program, Philippines continue with the privatization of state owned corporations and improvements in taxation. But interestingly it is one of the exceptional countries where the contribution of remittances to GDP exceeds that of the FDIs. In some country-regions government encourages the investment projects to remain in the country-level competition. Philippines is ranking as 131st out of 180 in the CPI as of 2007, indicating the highest perceived corruption among the countries of this sample.

6.1.6 Singapore

Republic of Singapore is an ex-colony of United Kingdom, which was an important commercial and military center of the British Empire. In 1963 it united with Malaya, Sabah and Sarawak to form Malaysia but after 2 years splitted from the Malaysia and became independent. State-assisted industrialisation and the attracting of FDI were the two key factors in the transitory stage which led to a highly developed market based economy relying on electronics, manufacturing, petrochemicals and financial services. Singapore is one of the four Asian Tigers as world's 17th richest country in terms of GDP per capita. Furthermore, Singapore is the world's 4th largest foreign exchange trading center and rated as the most business friendly economy with

thousands of multinational corporations. After Asian crisis, Singapore took its part in the global recession in 2001, but thereafter it covered up soon. Manufacturing constitutes 26% of GDP as of 2005. Singapore is ranking as 4th out of 180 countries jointly with Sweden in the CPI as of 2007, indicating the lowest perceived corruption among the countries of this sample.

6.1.7 South Korea

Before the transitory stage, between 1910 and 1953 South Korea struggled with the casualties of the Japanese control and the Korean War. The modern republic was established in 1948. Transition through development began with the government's five-year plans which were interrupted several times through constitutional changes and undemocratic presidential elections. At the beginning of 1950s it was one of the poorest countries in Asia. South Korea entered the growth-path in 1960s and exhibited a sustained over-the-average GDP growth by giving weight to capital intensive industry. This transition process was weighted on the supporting of the large firms and the family-controlled Chaebols through easy access to external capital (also state-subsidies) and low corporate taxation. Thereafter, accelerated by the alignment with Japan in specific sectors, it became the 3rd largest economy in Asia and 11th largest in the world. As one of the four Asian Tigers, Korea is a high-income nation with high-tech intensive industrial sector. Recently, It is the leading country in fields of electronics, computers and digital displays which are produced by stock exchange-listed Chaebol-members (ex: Samsung, LG etc.). Moreover, Korea is the 3rd largest steel manufacturer, 5th largest automobile and 1st largest ship producer of the world. Asian Crisis in 1998 and the collapse of Daewoo (as one of the huge bankruptcies in the world) gave a start to the governmental and structural reforms concerning the changes in the corporate structure, the discipline in the financial sector and the control on the debt-equity ratios of companies. These improvements reduced the number of Chaebols by nearly 50% and slowed down the GDP growth to 4% per year as of 2003 and 2005. By getting used to have surplus in exports, Korea follows a moderate inflation with low unemployment. Korea is ranking as 43rd out of 180 countries jointly with Malaysia in the CPI as of 2007, indicating the 4th lowest perceived corruption among the countries of this sample.

6.1.8 Taiwan

Taiwan as the Taiwan Province of the Republic of China was under Japanese Control until the end of World War II. Thereafter Taiwan suffered from the military administration which allowed for monopolies in many industries and from the party-state dictatorship until 1987. In the following decades it became more liberalized and democratized through several reforms in the fields of money market and law. Governmental investments are gradually decreased by privatizations of many large state-owned companies. In the past three decades the average GDP growth was almost 8%. Taxation and inflation are low in Taiwan. 78% of the contribution to GDP is coming from the service sector. On the path of development, labour-abundant industries were replaced with the capital-abundant high-tech industries. It has suffered not much from the Asian Crisis as a cause of the success in the regulatory system. As one of the four Asian Tigers and the 17th largest economy in the world, Taiwan is the world's largest computer chip and LCD panel manufacturer. As of 2005 the industrial growth rate was nearly 4%. The country is lack of natural resources and as a consequence it depends heavily on foreign trade which transformed the foreign exchange reserves of Taiwan to the world's largest. Government follows a mutual way with the private and industry sector by providing assessment and information to corporations. State controlled companies contribute to nearly 18% of the industrial output and often criticized by the public (57% in 1952). Taiwan is ranking as 34th out of 180 countries jointly with United Arab Emirates and Macao in the CPI as of 2007, indicating the 3rd lowest perceived corruption among the countries of this sample.

6.1.9 Thailand

Since the revolution in 1932 Kingdom of Thailand is governed by monarchy. It is the only South East Asian country never to have been colonized. Thailand suffered mostly from the coup d'états through decades which complicated the stability of economy until 1980s. Thailand is also accepted as a NIC and exhibited a 9% average GDP growth between years 1985 and 1996. After 2000 it has found a path of GDP growth with 5-7% on average. Thailand is the world's largest rice supplier. Construction, agriculture, Industry and services contribute to GDP with 7%, 13%,

32% and 48% respectively. After the crisis in 1997 Thailand received financial aid from IMF and from other foreign financial institutions to cover its losses. Recently, electronic and computer related products are the leading exports of the country. Despite improvements in economy and law, Thailand continues to suffer from political instability and instable prices. Poverty is decreasing with an annual change of 2%. There have been improvements in the financial and banking sector. Thailand is ranking as 84th out of 180 countries in the CPI as of 2007, indicating the 2nd highest perceived corruption ahead of Indonesia among the countries of this sample.

6.1.10 Turkey

Republic of Turkey started with its transition stage after the World War I. Lying on a strategic and geopolitical location for trade and defence between two continents was an easy access for its integration with west by improving the international relations with the east. Dominancy of the state-control on private sector, regular military takeovers almost after every 10 years and several alterations in organic law complicated the sustainability of growth and the stability of the governance. In 1980s Turkey exercised a series of reforms to shift the economy from stability to a more private sector-intensive market-based economy. These improvements led to faster GDP growth until the successive financial crisis occurred in 1994, 1999 and 2001 respectively which were the result of missing additional reforms, poor banking system, large public sector, increased corruption in levels of bureaucracy and two-digit inflation policy. Turkey exhibited an average annual GDP growth rate of 4% between 1981 and 2003. After 2001 Turkey received aid from World Bank and IMF targeting to recover the losses. Through additional reforms in financial markets and privatizations, Turkey became gradually an attractive location for FDI by maintaining the inflation and unemployment in single-digit levels, continuing to reduce the state-control as on private-sector. Also a shift from agriculture- to capital- intensive industry and to service sector boosted the sustainability in growth. The GDP growth in 2005 was 7.4% making Turkey one of the fastest growing economies. Agriculture contributes to GDP by 11.9%, industry by 23.7% and service sector by 64.5%. Key determinants of the economy are tourism, construction, automobile manufacturing and textiles. Income inequality is severe with 46% of disposable income earned by

the 20% of income groups (as of 2004). Turkey's EU-Accession-Program accelerated the improvements in a short time, targeting the sustained growth, structural changes in banking, private and public sector. Turkey is ranking as 64th out of 180 countries in the CPI as of 2007, indicating a near-the-median perceived corruption among the countries of this sample.

6.2 Summary Statistics

6.2.1 Introduction

In each country, there are a different number of listed firms available for estimation. Without regarding the missing values, the largest sub-sample belongs to Malaysia with almost 25% and the smallest to Turkey with 2.2% of the total observations (43038) (Figure 6.1).[57] There is an interesting similarity among the countries of the sample; maximum values of *I*, *TQ* and *CF* are in the industry field of Health Service (light industry) for India, Indonesia, Singapore, Malaysia, Philippines and Thailand. The minimum values of those variables are in the field of mining (heavy industry) and also same for those countries. Hong Kong, Korea and Taiwan exhibit the largest values in the field of service industry whereas the minimum values of *I*, *TQ* and *CF* belong to the heavy industry sectors for all countries except for Taiwan and Turkey.[58] Note that there are several definitions on the difference between heavy-and light industry. I prefer to follow the definition that heavy industries produce outputs for other industries instead of end users, whereas light industries are related to last stage of production.[59] Table 6.1 summarizes the descriptive values related to the variables and interaction variables after controlling for the outliers and missing values.

57 See Figure 5.1

58 See Table 5.2.

59 Morris Teubal, Heavy and Light Industry in Economic Development The American Economic Review, Vol. 63, No. 4. (Sep., 1973), pp. 588-596; Vocabulary of Geography, IV, British Association Glossary Committee, The Geographical Journal, Vol. 118, No. 3. (Sep., 1952), pp. 345-346.

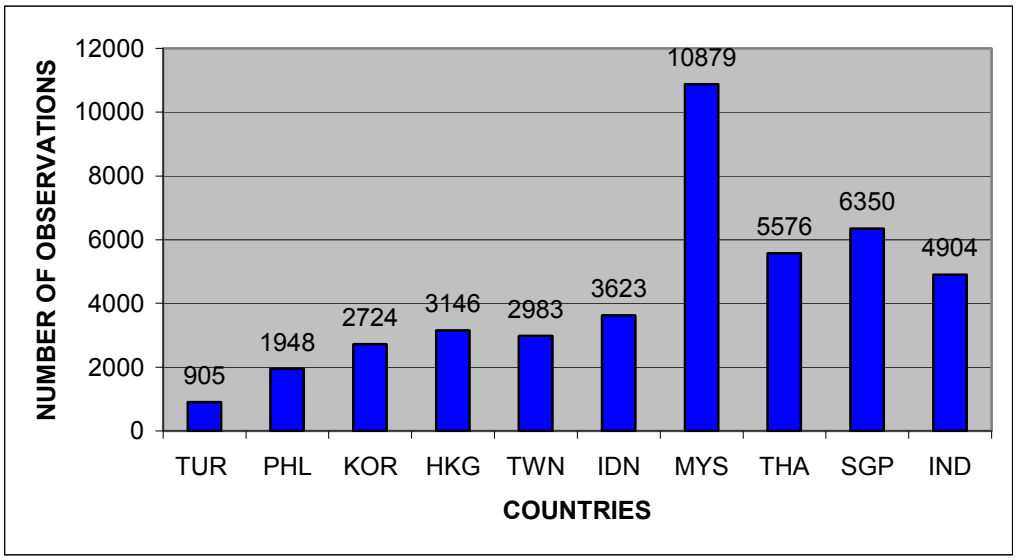


Figure 6.1: Total observations by Country

6.2.2 Tobin's Q (TQ)

Mean value of *TQ* is the highest for Turkey indicating a higher valuation perceived by the market to firms or a better firm performance relative to that of other countries on average. Mean value of *TQ* is second highest for India and Taiwan and the lowest for Philippines. Note that the standard deviation of *TQ* is high for all countries but almost with the same ratio. The difference between mean and median values is on average low and similar for all countries. Except Korea and Philippines, all countries have average *TQ* close to sample mean and greater than 1. Therefore, if *TQ* would be an efficient measure of firm's performance, than one can state that the firms of this sample are performing well on average.

6.2.3 Cash Flows (CF)

The mean value of *CF* is the lowest for Philippines with a magnitude of one-third of the sample mean. This should imply that firms in Philippines cannot meet the amount of cash flows-required on average, given the firms' size. Highest average *CF*-ratio belongs to Turkey (almost 3 times larger than the sample mean) and thereafter to India and Taiwan. Besides, there is no large dispersion in the mean of *CF* for the

other countries (all greater than 1 except for Philippines). Again, the standard deviations are large but in the similar ratio for all countries except Turkey and India.

6.2.4 Investment (I)

Mean values of *I* is the largest for Turkey, and Korea which are almost one-and half times larger than the sample mean and that of other countries. Standard deviation of *I* for India and Malaysia are still relatively high due to large investments which are well dispersed from the mean value of *I*. However, there is no need to make further eliminations to prevent the information loss. Maximum investments undertaken by firms for each country are represented in Table 6.2. As already mentioned, there are similarities in industry fields among countries, where the maximum investment is undertaken. It seems that the most profitable (levered) investments are (with respect to *CF* and *TQ*) in the field of service-intensive light industry for all countries. The reason behind this could be the higher cost of heavy industry investments or the inflation-level or the increasing demand to those light industry sectors promising large positive cash flow streams etc, especially for Philippines, India and Indonesia which exhibit relatively lower GDP per capita than that of other countries. Also, an alternative reason could be the global slowdown in fix heavy investment projects in the countries which are converging to the last stage of the heavy industrial development such as Korea and Thailand.

7. ESTIMATION RESULTS AND CONCLUSIONS

7.1 Introduction

I introduce the Least Squares Estimation (LS) with and without interaction variables, respectively. I worked with STATA 9.0 - statistical package for this study. As already mentioned, some outliers with extreme values are dropped from the estimations for

more consistent results.[60] All countries are analyzed within the same regression model with industry- and time specific dummies, *CF* and *TQ* as explanatory variables and dummy-interacted variables (*CF* and TQ with Legal Origin, *CPI* and ownership structure). Using a pooled investment equation with categorical variables should capture the effects on *I-CFS* in a more descriptive way than that of running separate regression models for each country. Note that, R²-values and standard deviations are moderate ($R^2 \approx .10$) for each regression shown by Table 7.1.

7.2 Interpretation of the Estimation Results

7.2.1 Pooled Sample without the interaction variables

Firstly, I refer to the regression results without any interaction variables (indicators) and then to those with interaction variables. Table 7.1 shows the estimation results for all cases. F-test on the pooled sample regression confirmed the joint significance of the variables after controlling for outliers and heteroskedasticity. The coefficients on *CF* and *TQ* ($|t_{CF}| = 14.23, |t_{TQ}| = 12.65$) are highly significant and positive for the whole sample. The partial effect of *CF* on *I* ($\frac{\partial I}{\partial CF}$) is 0.041. This result states that a 1 dollar increase in *CF* contributes to 4.1 cents increase in *I*. The *I-CFS* without any interaction term is positive for the whole sample. The partial effect of *TQ* on *I* ($\frac{\partial I}{\partial TQ}$) is 0.034 in which a dollar increase in TQ is related to 3.4 cents increase in *I.*

7.2.2 Pooled sample with Legal Origin

The Legal Origin-dummy takes the value 1, if the country is of English Legal Origin. Results are shown in Table 7.1. The subtractions in the brackets represent the difference between the slopes of the variable and the interacted variable ($\beta_j - \delta_j$).

60 I_{it} >2 (which affect the mean values largely) are dropped from the regression equation.

The industrial dummies (intercepts) are statistically significant at conventional levels, only for those industrial fields which are shown in Table 7.2 for all categories. The coefficients on *TQ* and *CF* are highly significant ($|t_{CF}| = 5.40, |t_{TQ}| = 7.44$) and positive at 1%-Level. *I-CFS* is smaller (by 56.5%) for Hong Kong, India, Malaysia, Singapore and Thailand (with English Common Law). Similarly, the coefficient on *TQ* is smaller (by 54.5%) for those countries.

7.2.3 Pooled sample with Corruption Level (CPI)

The *CPI*-dummy takes the value 1, if the country has a CPI greater than or equal to 1 (low corruption). The coefficients on *TQ* and *CF* are highly significant ($|t_{CF}| = 6.91, |t_{TQ}| = 6.96$) and positive at 1%-Level. *I-CFS* is smaller (by 62.1%) for Hong Kong, Korea, Malaysia, Singapore and Taiwan (countries of lower perceived corruption). Similarly, the coefficient on *TQ* is smaller (by 51.7%) for those countries.

7.2.4 Pooled sample with Ownership Structure

I run separate regressions for each ownership category. Ownership-dummy takes the value 1 for each of the ownership identities. Ownership structure brought no desirable result for a comparison. The coefficient on *CF* for family and dispersedly owned firms is insignificant and positive whereas that of firms of other types of ownership structure is positive and significant at 5%-Level. If the coefficient on *CF* were significant for family-or dispersed ownership, it would have been the case that those firms exhibit slightly higher *I-CFS* than that of other types of ownership and therefore the last prediction could have been (slightly) satisfied.

7.3 Conclusions

As already mentioned, if the Modigliani-Miller Theory holds, than firm's market value must be must be independent of its capital structure. More precisely, if there is a

perfect information and the financial markets are efficient, than firm's investment decisions should not rely on the availability of the internal funds. In the opposite case the problem of AI and/or MD arise. What *MMT* implies; If all the taken actions of the regulator are for the efficiency and improvement of the market conditions and business relations, than *AI* and *MD* should relatively diminish. More clearly, β_1 should diverge to zero.

In the absence MMT where there is no perfect information and the market is imperfect than one must consider the existence of *AI* and/or *MD*-problems. Hence, the results confirmed the existence of these problems ($\beta_1 > 0$) but they did not give any significant explanation about the levels which was the first problem in this study. The reason is quite clear that *TQ* is on average greater than 1 for the pooled sample and differs not much across countries, thus it has no obvious explanation on the *AI*- and/o *MD*-levels.

The second problem is that, the estimations provided no significant explanation for the ownership structure which was my last and the unique prediction on the internal effects.

My predictions about the Legal Origin and Corruption Level as external effects found support from the estimation results. I have two comments on those results; Firstly, the English Common Law is likely to have superior advantages against German or French Civil Law systems especially in commercial sector, on the levels of shareholders, firms and creditors which could be the reason that firms rely less on their internal funds or be less constrained from the external capital market for investing activities. Secondly, the corruption level deepens the market imperfection and also it might boost the level of asymmetry (adverse selection) indirectly, by hardening the external capital constraints of the subjected firms (especially of the foreign competitors). Note that, I assumed that *CPI* reflects the true values of the corruption levels (or the true ranking). Thus those firms in countries of higher perceived corruption exhibit higher *I-CFS* than that of firms (even in the same industrial field) in countries of lower perceived corruption.

		Pooled Sample	Hong Kong	India	Indonesia	Korea	Philippines	Singapore	Malaysia	Taiwan	Thailand	Turkey
I	Median	.120183	.1070787	.147546	.1608712	.2454839	.0700121	.1291046	.0961929	.0755087	.1442424	.2572403
	Mean	.1945686	.1829812	.2167903	.2428612	.305445	.145231	.2111057	.1592911	.1630901	.2193882	.3360439
	St. Dev	.2164987	.2217053	.2105131	.2452301	.2352756	.1911992	.2274868	.1904201	.2613208	.2276757	.3028274
	#Obs.	11441	1105	1658	1164	22	220	2358	4009	13	816	76
CF	Median	.1934059	.2024917	.2357814	.171537	.1523439	.112983	.1990778	.1689321	.206261	.227046	.5584355
	Mean	.2420353	.2313688	.3357873	.1534742	.2188389	.0749103	.2834195	.1766011	.3098193	.2663297	.8238314
	St. Dev	.8177648	1.091712	.4245693	.866752	1.014346	.8437621	.9255748	.8059043	.6224323	.6644595	1.104146
	#Obs.	21329	1475	2298	1555	1050	769	3438	6005	1296	3138	305
TQ	Median	.8853236	.7931824	.8802035	.9101921	.6720068	.6819308	.8833605	.9287013	1.077654	.8868448	1.300113
	Mean	1.182051	1.104664	1.369789	1.123004	.8442117	.9357475	1.120456	1.231355	1.347652	1.152297	1.652657
	St. Dev	.9339262	.9674558	1.260587	.8017321	.6697128	.8294666	.775769	.9303857	.9274667	.8701647	1.181451
	#Obs.	18175	1275	1934	1407	997	716	2659	4763	1266	2868	290

Table 6.1/ Summary Statistics (without interaction variables)

	HGK	IND	IDN	KOR	SGP	MYS	PHL	TWN	THA	TUR
Max [I]	Amusement And Recreation Services	Health Services	Health Services	Amusement And Recreation Services	Health Services	Health Services	Health Services	Amusement And Recreation Services	Health Services	Miscellaneous Retail
Min [I]	Mining	Mining	Mining	Construction	Mining	Mining	Mining	Manufacturing (Petroleum)	Mining	Manufacturing (Food)
Max [$\frac{CF}{K}$]	Amusement And Recreation Services	Health Services	Health Services	Amusement And Recreation Services	Health Services	Health Services	Health Services	Amusement And Recreation Services	Health Services	Miscellaneous Retail
Min [$\frac{CF}{K}$]	Mining	Mining	Mining	Construction	Mining	Mining	Mining	Manufacturing (Petroleum)	Mining	Manufacturing (Food)
Max [TQ]	Amusement And Recreation Services	Health Services	Health Services	Amusement And Recreation Services	Health Services	Health Services	Health Services	Amusement And Recreation Services	Health Services	Miscellaneous Retail
Min [TQ]	Mining	Mining	Mining	Construction	Mining	Mining	Mining	Manufacturing (Petroleum)	Mining	Manufacturing (Food)

Table 6.2: Maximum Investment, Cash Flow Ratio and Tobin's q with respect to SICs (Standard Industrial Classification).

Dependent Variable: Investment (*I*)		**Without Interaction Variables**	**Legal Origin** *1 if English*	**Corruption Level Low** *(CPI<4)*	**Largest Owner** *Family or Dispersed*	**Largest Owner** *Fin. or Corp.*
CF	β_1 (St. Dev)	.0414416*** (.0029126)	[.082831 -.0468336]*** (.0086789)	[.0821147 -.0510055]*** (.0073818)	[.0398922 + .010613] (.0083047)	[.0379579 + .013958]** (.0064367)
TQ	β_2 (St. Dev)	.0341743*** (.0027018)	[.068849 -.0375158]*** (.0050431)	[.0430671 - .0222707]*** (.003486)	[.0356066 - .009588]** (.0045657)	[.0378943 -.0131416]*** .0035558)
Percent Change $\beta_1 - \delta_1$			**- 56,5 %**	**-62,1 %**	**+ 26,6 %**	**+ 36,8 %**
Percent Change $\beta_2 - \delta_2$			**- 54,5 %**	**- 51,7 %**	**-26,9 %**	**- 34,7 %**
#Obs.		9939	9939	9939	9939	9939
R^2		0.1008	0.1107	0.1131	0.1013	0.1022
Prob.>F		0.0000	0.0000	0.0000	0.0000	0.0000

Table 7.1 Estimation Results (OLS)

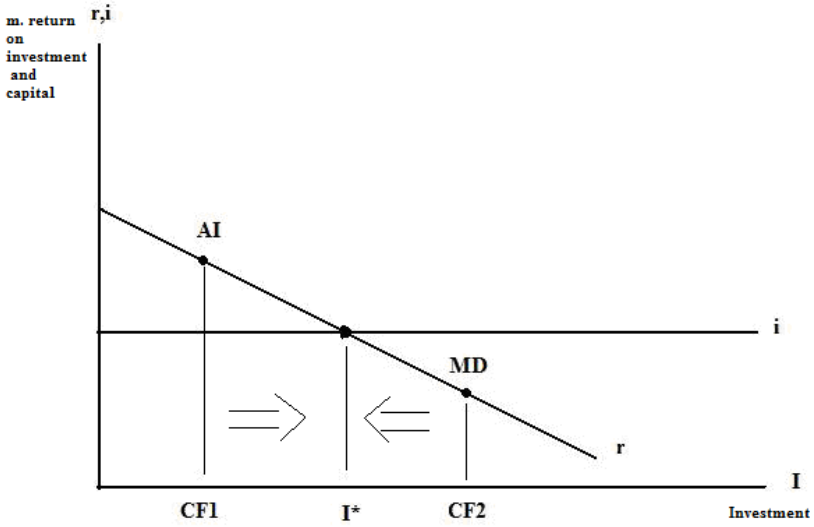
The subtractions in the brackets represent the difference of the slopes by using the interaction terms, $(\beta_j - \delta_j)$ to capture the effect of each category on the explanatory variables. Statistical Significance (t-statistics): *=10 %-, **=5 %-, ***=1 %- Level.

Dependent Variable: Investment (*I*)	**Average Changes in investment (Percentage) with respect to Categories and Industrial Fields**			
Industrial Field	**Legal Origin** *1 if English*	**Corruption Level Low** *(CPI<4)*	**Largest Owner** *Family or Dispersed*	**Largest Owner** *Fin. or Corp.*
Plastic Foam Products	+9.33% ***	+8.71%**	+7.79%**	+8.37%**
Special Industry Machinery	+9.85% **	+8.98%***	+7.77%**	+8.42%**
Motor Vehicles and Motor Vehicle Equipment	+6.32% *	(-)	(-)	(-)
Retail Trade	+6.25% *	+6.16%*	(-)	(-)
Telephone Communications except Radio Telephone	+11.91%***	+12.09%*	+10.25%***	+11.5%***
Electronic and Other Electrical Equipment and Components except Computers	+11.13%***	+10.75%***	+8.97%***	+9.5%***
Local and Suburban Transit and Interurban Highway Transportation	+5.811% *	5.83%*	(-)	(-)

Table 7.2: Average Changes in investment (Percentage) with respect to Categories (as intercept γ_i) and Industrial Fields. Statistical Significance:*=10%, **=5%, ***=1%-Level, (-) =not significant at conventional levels.

8. APPENDIX

1. AI, MD and optimal investment



Interpretation:

The point where the cost of capital equals to the marginal returns on investment represents the equilibrium. On this point the firm can meet the investment costs with its returns from investment without relying on any internal fund. According to the assumptions of AI-Theory, firm is not able to pay any dividend to shareholders and the marginal returns on investment exceed the cost of capital *i* which cannot be monitored by the external financing sources. Thus firm must use its cash flows to finance investment and move to the optimal investment equilibrium where the marginal cost and returns are equal. For MD to occur firm must have marginal returns on investment smaller than the marginal cost of capital. Additionally, there is an excess of cash flows which can be paid as a dividend to shareholders. Thus a growth maximizing manager can pursue his/her own goal by moving to the optimal investment level where cost of capital equals the marginal return on investment rather than paying dividends to shareholders.

2. Calculating Tobin's Q:

K_j : Capital Stock of the firm j.

V_j : Market Value of the firm j.

r_a : Average return on total (assets) capital

π_j : Profits ➔ $\pi_j = r_a K_j$ (average return on total assets $\times$ capital stock)

i : Discount Rate (Cost of capital)

q_j : $\dfrac{\text{Market Value of the firm}}{\text{Capital Stock of the firm}}$

Value of the firm changes with respect to the discount rate,

$$V_j = \pi / i \,,$$

$$q_j = V_j / K_j \,, \Rightarrow$$

$$\Rightarrow \quad q_j = \frac{\pi_j / i}{K_j} = \left(\frac{r_a K_j / i}{K_j} \right) = r_a / i$$

Substitution leads to the ratio of the return on total assets to the cost of capital.

3. Market Capitalization / GDP- ratio by Country between 2000-2004

Year	Hong Kong	India	Indonesia	Korea, Rep.	Singapore	Phil.	Malaysia	Taiwan	Thailand	Turkey
2000	369	32	16	34	165	34	129	81	24	35
2001	304	23	14	46	137	58	136	103	31	32
2002	283	26	15	46	116	51	130	89	36	18
2003	451	46	23	54	248	30	162	124	85	28
2004	519	56	29	63	258	33	152	129	72	32

Table A-1

4. Corruption Perception Index 2000-2004

Country	Rating 2000	Rating 2001	Rating 2002	Rating 2003	Rating 2004
H. Kong	7.7	7.9	8.2	8	8
India	2.8	2.7	2.7	2.8	2.8
Indonesia	1.7	1.9	1.9	1.9	2
Korea	4	4.2	4.5	4.3	4.5
Malay.	4.8	5	4.9	5.2	5
Phlippines	2.8	2.9	2.6	2.5	2.6
Singapore	9.1	9.2	9.3	9.4	9.3
Taiwan	5.5	5.9	5.6	5.7	5.6
Thailand	3.2	3.2	3.2	3.3	3.6
Turkey	3.8	3.6	3.2	3.1	3.2

Table A-3

Source: Transparency International, Berlin; www.transparency.org.

5. MODIGLIANI-MILLER THEORY

Assumptions:

I. N Homogeneous firms in sets of indebted and all-equity firms (expected returns on equity vary across firms with respect to risk of investment projects.)
II. Perfect Capital Market,
III. Lending and borrowing rates of debt are equal,
IV. Neutral Taxes ($\tau = 0$),
V. No transaction costs,
VI. Debt and Equity are perfect substitutes[61],
VII. Law of one Price: Due to arbitrage and simultaneous transactions of the agents the equilibrium is maintained at same time,

61 This assumption relaxes the problem of investment-funding and assumes that there is no information asymmetry and the markets are efficient for substituting these assets as risk-free in well diversified derivative markets. See Modigliani and Miller (1958)

The Model with two Firms (without taxes, $\tau = 0$):

p_j: Price of the stock,

x_j: The expected return on equity,

$\overline{x_j}$: Average return on equity,

ρ_k: Required rate of return on equity, where k represents the class of firms according to their risk-class.

V_j: Value of firm j, where j = 1, 2

d_k: Required rate of return on debt (cost of debt),

μ_j: expected return on a share.

$\frac{D_j}{E_j}$: Debt-Equity ratio of the firm.

Propositions[62]**:**

Proposition 1

For any firm; $$V_j \equiv D_j + E_j = \frac{\overline{x_j}}{\rho_k},$$

That is the market value of the firm is the sum of its total debt and equity or simply the average return on equity divided by the required return on the equity. This leads to;

$$\frac{\overline{x_j}}{V_j} = \rho_k$$

Average return on equity can be considered as the average cost of capital where no taxes and market imperfection exist. Than this equation simply implies that the average cost of capital is independent from its capital structure (from how it is financed) but dependent with the risk measured by *k* (set of firms due to risk level).

62 I explain only the propositions which are mostly related to my thesis therefore I exclude the one considering the taxes.
For more details please see Modigliani and Miller (1958) and Miller and Modigliani (1963)

This equation also represents the capitalisation rate where the average return on equity (cash flows) is divided by the market value. More simply this ratio indicates how rapid the investment covers its cost through cash flow streams.

Proposition 2:

$$\mu_j = \rho_k + (\rho_k - d_j)\frac{D_j}{E_j}$$

That is the expected return on firm's share is equal to the capitalization rate plus the spread between the capitalization rate and the cost of debt (return of "to be indebted") times the debt-equity ratio (leverage). Assume that μ_j is 1, that is the return on shares is one unit, than;

$$1 = \rho_k + (\rho_k - d_k)\frac{D_j}{E_j} = \rho_k + \rho_k - d_k\left(\frac{D_j}{E_j}\right) \Rightarrow$$

$$\Rightarrow d_k\left(\frac{D_j}{E_j}\right) = \left[1 + \left(\frac{D_j}{E_j}\right)\right]\rho_k = \left(\frac{D_j + E_j}{E_j}\right)\rho_k \Rightarrow$$

$$\Rightarrow d_k\left(\frac{D_j}{E_j}\right)\left(\frac{E_j}{D_j + E_j}\right) = \rho_k \Rightarrow$$

$$\Rightarrow \frac{d_k D_j}{D_j + E} = \frac{d_k D_j}{V_j} \Rightarrow \frac{d_k D_j}{\frac{\overline{x_j}}{\rho_k}} = \rho_k \Rightarrow$$

$$\overline{x_j} = d_k D_j \Rightarrow \frac{\overline{x_j}}{d_k} = D_j$$

Equity is eliminated from the equation.

Therefore the cost of capital (return on equity) is a linear function of the debt-equity ratio. The higher the $\frac{D_j}{E_j}$, the higher the return on equity, as a consequence of risk sheltered by owning the equity through using debt. Moreover $\frac{\overline{x_j}}{d_k}$ represents the ratio of return on equity to cost of debt and hence the recovery rate of investment in paying back the debt. Thus if μ_j=1, than as D_j increases $\overline{x_j}$ must also increase at the same proportion by holding the cost of debt as given.

Proposition 3:

Let ρ^* the rate of return on the investment and suppose that firm in the set of *k* borrows *I* amount of fund for this investment project.

I have already $V_j \equiv D_j + E_j = \frac{\overline{x_j}}{\rho_k}$ and

$$V_i = \frac{\overline{x_j} + \rho^* I}{\rho_k} = V_j + \frac{\rho^* I}{\rho_k},$$

$$E_i = V_i - D_i = V_j + \frac{\rho^* I}{\rho_k} - \left(D_j + I\right) \Rightarrow$$

$$E_i = \left(V_j - D_j\right) + \frac{\rho^* I}{\rho_k} \Rightarrow$$

$$E_i = E_j + \frac{\rho^* I}{\rho_k} - I$$

Thus the resulting equation has no interpretation on how the investment is financed or if it is profitable to undertake such an investment. So according to the theory, by assuming that the managers try to maximize the shareholder wealth, a manager will

only undertake such an investment if the ρ^* is equal to or larger than ρ_k regardless of the source of financing..

5.1 The Intuition behind the Modigliani-Miller Theory:

Theory states that if the conditions (the aforementioned assumptions) are met, than one must think of other variables rather than the market value or the internal funds which can have impact on the firm's capital structure or on its investment decisions. The theory assumes that there is a perfect information and a perfect market (no sign of *AI*). On the other hand managers maximize the shareholders' wealth (no sign of *MD*) rather than undertaking investments with negative NPV. Therefore these all imply straightforward that the improvements in markets and legal systems converging to the theory's assumptions lead to a decrease in *MD* and *AI* level which constructs the logic behind my thesis.

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Lebenslauf

Angaben Zur Person

Nachname / Vorname	**Burak Evren**
Adresse	Millergasse 3/3, A-1060, Wien, Österreich
Mobil	+43 (0) 699 124 743 21
E-mail	burak.ewren@gmail.com
Staatsangehörigkeit	Türkei
Geburtsdatum / Ort	01.05.1979 / Istanbul
Geschlecht	Männlich

Schul- und Berufsbildung

Zeitraum	01.03.2001 – 06.2008
Bezeichnung der erworbenen Qualifikation	Diplom-Volkswirt / Mag. rer. soc. oec. / MSc.
Hauptfächer/berufliche Fähigkeiten	Diplomarbeitsthema: Determinants of Investment In Emerging Markets. Schwerpunkt: Industrieökonomie/ empirische Forschung.
Name und Art der Bildungs- oder Ausbildungseinrichtung	Universität Wien
Stufe der nationalen oder internationalen Klassifikation	ISCED 5A
Zeitraum	01.10.1999 – 27.09.2000
Bezeichnung der erworbenen Qualifikation	Zulassung als ordentlicher Hörer an der Universität Wien
Hauptfächer/berufliche Fähigkeiten	Ergänzungsprüfung aus Deutsch
Name und Art der Bildungs- oder Ausbildungseinrichtung	Vorstudienlehrgang der Wiener Universitäten
Stufe der nationalen oder internationalen Klassifikation	ISCED 4C

Zeitraum	17.09.1990 – 30.06.1997
Bezeichnung der erworbenen Qualifikation	Reifeprüfung
Hauptfächer/berufliche Fähigkeiten	Vorbereitung auf die Reifeprüfung (Matura)
Name und Art der Bildungs- oder Ausbildungseinrichtung	Eyüboglu High School (Mitglied des European Council of International Schools (ECIS) mit englischsprachigem Unterrichtsangebot) Siehe: http://www.eyuboglu.k12.tr/eng/index.asp
Stufe der nationalen oder internationalen Klassifikation	ISCED 3A