ESSAYS IN FINANCE

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ABSTRACT

This thesis which compromise of three essays focuses on the theme of valuation, value premium anomaly, financing behaviour and emerging markets. The first essay studies the value growth puzzle in the context of conflict of interest between taxable and institutional investors. We model this conflict in a rational expectations framework and demonstrate how the differences in firm's characteristics (in terms of value versus growth) and the risk profile of the investors can explain the shape of CAPM's frontier in the overall economy without involving the beta parameter. We also explicate that the changes in taxable and non-taxable investors profile in a dynamic environment rationalize the value growth premium as illustrated by Malkiel (2003). Finally, our approach shed light on the issues raised by Shiller (1979,1981) and LeRoy and Porter (1981) that stock [bond] prices are too volatile to be rationalized by the discounted value of their expected dividends [coupon payments].

The second essay studies value anomaly in the context of four major emerging economies (i.e. Brazil, Turkey, China and India denoted by the acronym BTIC) with vast economic potential and Malaysia, a small emerging economy with top heavy, closely held, state-owned institutional setting. We attribute the anomaly to the investment pattern of glamour firms. Our empirical analysis illustrates that these firms have a tendency to hoard cash, delaying the undertaking of their growth options, especially in poor economic environments. This mitigates their business risk, but lowers their market valuation, driving down their returns. Our hypothesis also reconciles the diverging views stemming from both the neoclassical and behavioural perspectives.

This third essay examines the target capital structure of Malaysian firms and their adjustment process in the pre- and post- Asian financial crisis. We utilize an unbalanced panel data set comprising of 184 firms and employ the Generalized Method of Moments (GMM) to study the relationship between a firm's characteristics and its capital structure targeting behaviour

in the context of political patronage. Our results support the amalgamation of the well-known Pecking Order and Static Trade-off theories. It also illustrates that the financial crisis had a significant impact on the financial policy of Malaysian firms.

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CHAPTER ONE

1. INTRODUCTION

1.1 CONTEXT AND BACKGROUND

Theories of finance are centred around the concept of value maximisation. In a nutshell, this is how the economic agents aim to maximise the value of resources available to them through time by interacting with the existence of capital market and firms (Fama and Miller, 1972). Based on this rationale, many theories have been developed but two of the most frequently discussed in finance literature are the portfolio and capital structure theories. Portfolio theory is mainly concerned with how individuals construct an optimal portfolio that maximises their expected utility of wealth, i.e., the combination of securities that give them the highest level of return for the given level of risk. Meanwhile, capital structure theory addresses the issue on how firms finance their assets, in particular whether the financing methods have any effect on the value of firms. Although, these two theories were developed separately, Hamada (1969) and Rubinstein (1973) demonstrate the connection between these two in term of a unified approach to the cost of capital.

Despite the voluminous amount of the articles analysing and advancing these two theories, several issues remain controversial and unresolved. In the case of portfolio theory, one of the main issues is the

inability of the asset pricing model to price risky assets. Specifically, the fallacy of Capital Asset Pricing Model (CAPM) to quantify risk accordingly, leading to inaccurate valuation of risky asset, thus suboptimal allocation of financial resources. Despite having a sound theoretical argument, CAPM does not have strong empirical backing. The basic notion of CAPM in which beta (systematic risk) is the sole explanatory of risk does not seem to be supported by empirical observations. This is based on the accumulated weight of evidence on stock market anomalies, implying that there are factors apart from beta which have explanatory power to capture risk and explain return. This leads to the conclusion that CAPM with beta alone may not be a complete model, resulting in the development of a new form of CAPM with a variety of assumptions.

One of the many anomalies that question the validity of CAPM is the value premium puzzle. That is, where value stocks (high book-to-market) earn significantly higher risk-adjusted return compared to glamour stocks (low book-to-market). The evidence of the value premium is compelling, particularly in developed markets. Nevertheless, the source of it remains contentious despite several reasonable explanations that have been put forward. For instance, the advocates of rational pricing attribute the source of value premium to an additional risk factor. In contrast, behavioural researchers explicate that the cognitive biases of undervaluing value stocks and overvaluing glamour stocks leads to the premium in value stocks. Meanwhile, there are some studies that accredit the value premium to the firm's characteristics or methodological issues.

In the case of capital structure, the debate highlighting the theory behind a firm's financial behaviour is an intriguing one. On the one hand, the Static Trade-Off theory predicts that firms aim to have a capital structure that balances between the benefit and cost of debt. That is, achieving an optimal financing level that balances the benefits that arise from interest tax shield and a reduction of free cash flow problem with costs that include the agency cost of debt and potential bankruptcy cost. On the other hand, the Pecking Order theory posits that firms' financing follows a hierarchy of instruments that minimises asymmetric information. Firms prefer retained earnings as a source of financing, followed by debt and external equity as the last resort. The question of which theory is more dominant remains an elusive matter.

The other issue that has been largely under explored is research in the context of emerging economies. It is usually the case that empirical evidence provided in finance literature is based on developed markets, particularly from North America and Europe. The main assumption behind this rationale is the fact that these markets are considered to be efficient and provide reasonable data to test any new theories. There is also widespread belief among some academics and even practitioners that evidence from developed markets can be generalised and applied to developing markets. Nonetheless, this argument does not take into account the considerable differences between these two markets. For instance, many developed countries practice an economic system that is based on a "market-based" approach. In contrast, developing countries mainly practice a "relationship-based" economic system. Moreover, the developed markets are better regulated compared to

developing markets. As a result, there is a need to understand the application of finance theories in the context of emerging market.

1.2 MOTIVATIONS AND RESEARCH QUESTIONS

This research is aimed at addressing these issues. Using relevant theoretical and empirical methodologies with publicly available data from several emerging countries, this thesis which compromise of three essays focuses on the theme of valuation, value premium anomaly, financing behaviour and emerging markets.

The objective of the first essay is to provide a new theoretical framework to study the value growth puzzle. Meanwhile, the second essay aims to rationalise the value premium with economic fundamentals by reconciling the conflicting views in the neoclassical and behavioural literature. Finally, the third essay studies the impact of the financial crisis on firms' financing behaviour, particularly examining the issue of target capital structure and its adjustment process.

The first essay focuses on the theme of valuation and anomaly. The major issue that it addresses is the inability of existing asset pricing models particularly CAPM to accurately price value and growth stocks. Value stocks tend to be undervalued and vice versa for growth stocks, consequently leading to value premium anomaly. Unlike previous studies, this essay brings a new insight to asset pricing literature by taking into consideration the heterogeneity of economic agents. That is, the rivalry between taxable and

non-taxable investors in determining the optimal stakeholders of a firm. To do so, the essay not only attempts to provide a new theoretical framework to price value and growth stocks but also to provide answers to whether the rivalry between these two agents can explicate the fallacy of CAPM, explain value growth anomaly and shed light on the issue of stock price volatility.

Motivated by the findings of the first essay, the second essay aims to provide empirical analysis on the value premium anomaly by rationalising it to economic fundamentals. This study aim is to investigate whether investment patterns of growth firms can possibly explain value premium anomaly. Using several methodologies with data from five emerging markets: Brazil, China, India, Turkey and Malaysia, this essay has two sub-objectives. First, to ascertain the existence of value premium in these five markets and second to test whether our economic intuition can rationalise the presence of value premium. Furthermore, it attempts to reconcile not only the conflicting views within the neoclassical asset pricing literature but also between the neoclassical and behavioural literature.

Meanwhile, the third and final essay explores the link between capital structure and financial crisis. In particular, it examines the target capital structure of Malaysian firms and its adjustment process in the pre- and post-Asian financial crisis. Moreover, it also investigates the relationship between a firm's characteristics and capital structure targeting behaviour, mainly in the context of political patronage. Utilising an unbalanced panel data set and employing Generalized Method of Moments (GMM) this essay specifically addresses two research issues: (i) did the Asian financial crisis have a significant impact on Malaysian firms' financing policy? (ii) are there any

distinct features in terms of financing policy between firms with and without political patronage?

1.3 CONTRIBUTIONS

This section presents the contributions of this thesis to finance literature. The first essay enhances the existing framework of asset pricing models with the incorporation of heterogeneity of economic agents. This is important as the existing models do not address the issue of diversity of individual's opinions or expectations to achieve a natural idea of equilibrium (see Kirman, 1992). This, in turn, provides a new dimension to price financial assets.

This essay also shows how the shape of true CAPM's frontier in the overall economy without involving the beta parameter can be explained by: (i) the rivalry of two economic agents (taxable and non-taxable) in a rational expectations framework, (ii) the differences in firms' characteristics (in terms of value and growth) and (iii) the risk profile of the investors. In doing so, the fallacy of theoretical CAPM in predicting the true relationship between risk and return is explicated. It also demonstrates that the changes in taxable and non-taxable investors' profiles in a dynamic environment rationalises the value growth premium as illustrated by Malkiel (2003). Finally, the essay also sheds light on the issues raised by Shiller (1979,1981) and LeRoy and Porter (1981) that stock [bond] prices are too volatile to be rationalised by the discounted value of their expected dividends [coupon payments].

The second essay of this research contributes to the literature by attributing the value premium anomaly to the investment pattern of growth firms. The empirical analysis reveals that growth firms are likely to employ a strategy of stockpiling capital, particularly in less favourable economic conditions. Whilst this limits their exposure to risk, it negatively impacts on both their market valuation and their returns, thus contributing to the value premium. This essay also makes another important contribution in linking the risk- and characteristics-based models, thus, reconciling the diverging neoclassical views of Fama and French (1995) and Daniel and Titman (1997). This was done by demonstrating that distress risk is not the main cause for the wide spread in expected return between value and growth stocks but rather the risk of a firm's unique characteristics. That is, glamour firms are being endowed with growth options that entail capital outlay resulting in business risk, while in contrast, value firms have fixed assets that are used as collateral to lever up and boost their earnings, resulting in financial risk.

A further contribution is the reconciliation of the diverging neoclassical and behavioural perspectives, by utilising the Rational Expectations perspective of Lucas ((1978); and extended by Sargent (1987)), in which the inherent utility of glamour firms is attractive to investors, causing their price to be increased through bidding, though with the effect of subsequently reducing their returns.

The third and final essay examines the target capital structure of Malaysian firms and its adjustment process in the pre- and post- Asian financial crisis. The essay enhances our understanding of firms' financing behaviour in the context of an emerging economy, with political patronage

considered. The essay demonstrates that the financial crisis has had a significant impact on the financial policy of Malaysian firms. This is indicated by the higher adjustment rate towards the optimal capital structure and conservative approach to financing in the aftermath of the Asian financial crisis. Also, the essay shows the distinct impact of the crisis on firms with and without political patronage. Last but not least, the empirical analysis supports the amalgamation of the well-known Pecking Order and Static Trade-off Theories.

1.4 THESIS STRUCTURE AND SUMMARY OF ESSAY'S CONTENT

This thesis consists of three essays in finance, two on portfolio theory and one on capital structure theory, whose content is briefly described below:

1.4.1 Value versus Growth: A Theoretical Exposition

The first essay examines the issue of value premium anomaly in a theoretical framework. It studies how the rivalry between taxable and non-taxable investors determines the optimal stakeholders of a firm which ultimately impacts on the value of its debt and equity. We model this rivalry in a rational expectation economy where investors behave rationally in the process of acquiring and processing of information and to the formation of expectations (see Maddock and Carter, 1982). This is consistent with the notion of Efficient Market Hypothesis where prices reflect all the relevant information. The economy also consists of two types of firms (value versus

growth) and an exogenous entity called government. This approach allows us to generate the following results.

The differences in firms characteristics (in terms of value versus growth) and the risk profile of agents in the economy leads to the domination of one agent over the other over the control of the firm, yielding two different Capital Market Lines (CMLs). The shape of the true CMLs depends on the identity of the dominant agent in the overall economy. If the dominant agent is taxable investors, then a flatter line will be observed in the overall economy, and vice versa. This verifies the observation of many empirical studies that the relation between beta and average returns is flatter than predicted by the theoretical CAPM. Consequently, the continuous changes in the identity of net lenders in a dynamic environment rotate the aggregate frontier, demonstrating a value growth premium and changing the volatility of stocks and bonds. In a nutshell, the essay highlights the fact that in an economy with competing taxable and non-taxable agents, asset pricing is contingent on the classification of firm (value versus growth) and the risk profile of investors.

1.4.2 Rationalising the Value Premium under Economic Fundamentals: Evidence from Emerging Economies

The second essay provides empirical analysis of value premium anomaly. Even though this issue has been elaborated extensively in the literature, there is no economic justification given to rationalise the source of value premium. Therefore, this essay extends the literature by attributing value anomaly to economic fundamentals, i.e. the investment pattern of

growth firms, leading to reconciliation of diverging views not only within neoclassical but also between neoclassical and behavioural perspectives.

The essay uses data from five emerging countries obtained from DataStream and employs various econometrics methods: Ordinary Least Squares (OLS), Rolling Regression and the Panel Data estimation technique. The choice of each method simply reflects the research questions that the study intends to investigate. The various analyses undertaken generate the following results.

First, the essay confirms the existence of a significant value premium in all countries but India. Second, the essay provides evidence confirming our economic intuition that the source of the value premium is in the investment pattern of glamour firms. This is through the observations of the coefficients (HML-high minus low) of growth portfolios which are generally lower during the early growth periods, but increase considerably during the periods of expansion, implying that glamour firms delay the adoption of new strategies in periods of high economic uncertainty, in order to limit their risk. Moreover, the panel data analysis suggests that the increment in total assets - which in the context of this essay is the proxy for undertaking growth options - explains the changes in business risk of glamour firms, further reaffirming our economic intuition. A careful consideration of these results leads to reconciliation of diverging views on the source of value premium within the literature.

1.4.3 Dynamic Capital Structure under Political Patronage: A Pre- and Post- Crisis Analysis of Malaysia.

The third and final essay examines the issue of firms financing it the context of Malaysia, an emerging economy where political patronage plays a role. It considers the impact of the 1997 Asian financial crisis on the financing policy of Malaysian firms (with and without political patronage) by examining the determinants of the optimal capital structure and its adjustment process. This research is relevant as sub-optimal financial choices may lower firms' value or exposes them to bankruptcy.

This essay uses data of 184 firms from 1988 to 2009 which is split into two periods, i.e. from 1988 to 1997 representing the pre-crisis period, and 2000 to 2009 representing the post-crisis period. The essay does not include the data during the crisis period as it is extremely noisy. We employ the dynamic GMM system estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998) as it accounts for unobserved firm heterogeneity and addresses the problem of weak instruments. The validity of our estimation is subject to the Sargan test for over-identifying restrictions, and Arellano-Bond for zero autocorrelation in first-differenced errors. We also check the robustness of our results using the GMM difference estimator proposed by Arellano and Bond (1991). There are two key results that emerged from our analysis.

First, Malaysian managers recognise the importance of prudent financing policy. This is indicated by the higher adjustment rate towards optimal capital structure during post-crisis period. Moreover, the changes in

coefficients for certain determinants provide evidence that these firms have adopted a more conservative approach to financing. For instance, even firms with stable earnings chose to have lower leverage in the aftermath of financial crisis. These findings are applicable for firms irrespective of ownership structure (i.e., with or without political connection). Second, the findings facilitate the amalgamation of the well-known Pecking Order and Static Trade-off theories, as signified by the negative relationship between profitability and debt and significant partial adjustment process.

CHAPTER 2

2. VALUE VERSUS GROWTH: A THEORETICAL EXPOSITION

2.1 INTRODUCTION

"In our view, the fact that asset prices appear to fluctuate more than is consistent with most financial model in current use should be regarded as a major challenge to those models."

(LeRoy and Porter, 1981, pp. 559)

The inability of financial intermediaries to price their "toxic" assets (in the form of collateralized debt obligations) in the ongoing subprime crisis has exposed the weakness of modern asset pricing theories.[1] This crisis has reignited the issues raised earlier by Shiller (1979, 1981) and LeRoy and Porter (1981) that stock [bond] prices are too volatile to be rationalized by the discounted values of their expected dividends [coupon payments]. This issue is of utmost importance not only for valuation but for a host of issues ranging

1. Subprime mortgage constitutes home loans to borrowers with sketchy credit history or to those who are financially strapped or lack adequate income to qualify for a standard (prime) loan. They are thus lower in quality to prime loans. The subprime crisis was provoked by:(i) underwriting of negatively amortizing Adjustable Rate Mortgages (ARMs - with low "teaser" rates) at the peak of the real estate market.; (ii) coupled with the ad hoc structuring of continuously changing pool of underlying Mortgage Backed securities (MBS) into opaque collateralized debt obligations (CDOs) which endogenized leverage amongst various "tranches" (akin to a multi-purpose closed-end fund); (iii) in a deregulated environment (see Wachter, 2008).

from portfolio management to executive compensation (in shareholder value analysis).

This essay studies how the rivalry between taxable and non-taxable institutions determines the optimal stakeholders of a firm. This ultimately impacts on the value of its debt and equity. This issue is currently being reinforced in the literature of optimal asset location and allocation (see Bergstresser and Poterba 2004; Dammon et al. 2004; Shoven and Sialm, 2004; Garlappi and Huang, 2006; Gomes et al. 2006).[2] We explicate the importance of the conflict of interest between the taxable and non-taxable investors especially when it leads to the violation of the assumptions of homogeneous expectations of investors and thus the breakdown of the two-fund separation theorem of Tobin (1958). This, in turn, invalidates the linear pricing scheme of stocks and bonds integrating the Capital Asset Pricing Model (CAPM) with a firm's capital structure as developed by Hamada (1969). Further elaboration of this issue is described below in the context of the rich asset pricing literature.

The seminal study of Markowitz (1952) elaborates the advantages of diversification. Tobin (1958) extended this to demonstrate the well-known two-fund separation theorem. That is, the efficient set of investment for any investor is a combination of a risk-free asset (involving lending or borrowing) and the market portfolio. Sharpe (1964), Lintner (1965a, b) and Mossin

2. Our approach can be construed as an extension of the well-known studies of Brennan (1970) and Auerbach and King (1983) with a major difference. These earlier papers studied the impact of taxes on the Capital Asset Pricing Model by focusing on a "representative" agent who faced differential taxes on income and capital gains. We, however, focus on how *two* agents compete in an economy to own different stakeholder claims. This issue is of import as notable scholars such as Grossman and Shiller (1981) have found it difficult to elaborate the volatility of stock prices by resorting to taxes.

(1966) shaped these ideas further to the static CAPM where: (i) they quantified the risk of an asset in terms of beta; and (ii) demonstrated the relation between the risk (beta) and the return (see Fama and French, 2004; and Perold, 2004). The static CAPM is based on a simplified framework of idealistic assumptions where the risk of an asset is a function of the covariance of its return with the market return.[3] It also states that the relation between risk and return is linear indicating that high risk will earn high return.

Over the past decades, the validity of static CAPM has been tested on two issues: (i) beta is the sole explanatory variable; (ii) beta is positively and linearly related to asset return. The early empirical studies investigate these issues by focusing on the precise estimation of beta and validate the linear relationship between beta and asset return (See Blume, 1970; Friend and Blume, 1970; Black et al., 1972; and Fama and MacBeth, 1973). Ironically, despite the sound theoretical support, the static CAPM has never been observed empirically (See Douglas, 1970; Blume and Friend, 1970; Black et al., 1972; Miller and Scholes, 1972; Reinganum, 1981; and Lakonishok and Shapiro, 1986; Fama and French, 1992). Consequently, new versions of CAPM emerged with a variety of assumptions. Among the noteworthy include incorporating: (i) liquidity or non-marketability risk (Mayers, 1973;

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3. The assumptions behind the CAPM are as follows:
   (a) Economic agents (i.e., investors) are risk averse and maximize their expected utility of wealth in a mean variance framework, where they have identical estimates of expected return and standard deviation.
   (b) Agents operate in a perfect capital market. That is, agents are not subject to any transaction costs, taxes and short selling constraints.
   (c) No agent dominates over the other in our framework.
   (d) Agents can borrow or lend at a risk-free rate of return.
   (e) Agents have the same one-period horizon and make their investment decision concurrently.

Amihud and Mendelson, 1986; Pastor and Stambaugh, 2003; Acharya and Pedersen, 2005; and Liu, 2006); (ii) restricted borrowing (Black, 1972); (iii) foreign securities with exchange rate risk (Solnick, 1974; Grauer et al., 1976; Senbet, 1979); (iv) dynamic investment strategy (Merton, 1973; and Breeden, 1979); (v) heterogeneous beliefs (Lintner, 1969); (vi) dynamic betas and market risk premium (Jagannathan and Wang,1996); (vii) expected return as return measurement (Pettengill et al., 1995); (viii) taxes (Brennan, 1970; and Auerbach and King, 1983); (ix) time varying betas and asymmetric effects of news (Cho and Engle, 2000); (x) decomposed beta (Campbell and Vuolteenaho, 2004) and (xi) entrepreneurial risk (Heaton and Lucas, 2000).

Nonetheless, CAPM is still perceived as a fragile model based on the accumulated weight of the evidence from earlier studies on stock market anomalies (see Stattman, 1980; Banz, 1981; Basu, 1977, 1983; Rosenberg et al., 1985; Bhandari, 1988; Jaffe et al., 1989; Lakonishok et al., 1994; Barbee et al., 1996; and Fama and French, 1996). These studies illustrate that a firm's average stock return not only relates to the systematic risk but also to its size, book-to-market equity, earnings/price (E/P), sales/price, cash flow/price, leverage and past sales growth.[4] Adding strength to this claim, studies like DeBondt and Thaler (1985) and Jegadeesh and Titman (1993) find patters in average stock returns. While the former find a reversal in stock return (termed as contrarian strategy), the latter discover that stocks with high return in the past tend to have high return in the future (termed as momentum

4. For instance, Fama and French (1992, 1996) and Lakonishok et al. (1994) find that firms (in the United States) with high ratios of book-to market (B/M) and cash flow to price (C/P) have higher average return than firms with low B/M and C/P). Adding to this, several studies on international markets corroborate these findings (see Chan et al., 1991; Capaul et al., 1993; and Fama and French, 1998).

strategy). Most importantly, Fama and French (1992) posit that CAPM has no predictive power when beta is used alone. These findings fly in the face of the CAPM theory.

The preceding paragraphs highlight the fallacy of CAPM which is one of the crucial issues in asset pricing literature. The other issue which is of import (in the context of current literature) is the value versus growth puzzle. That is, value investing outperforms growth investing in general. However, there are periods where growth outperforms value (see Davis et al., 2000; Malkiel, 2003; Chan and Lakonishok, 2004; and Kelleher, 2006). What is so puzzling about this phenomenon is the absence of consensus rationalizing the difference between the performance of value and growth stocks.

Notwithstanding, two main theories have been put forth to explain the value versus growth puzzle: (i) rational pricing; and (ii) overreaction hypothesis. Rational pricing is based on argument that the existing model fails to capture the missing risk factor of financial distress firms (see Fama and French 1992, 1993 and 1996).[5] In contrast, the overreaction hypothesis asserts that cognitive biases of investors in undervaluing the distress stocks and overvalues growth stocks leading to premium in value stocks (see Lakonishok et al., 1994; Haugen, 1995; and Chan and Lakonishok, 2004). However, there are numerous studies that contest the above theories based on

5. The Fama and French (1992, 1993 and 1996) analysis can be construed as an agglomeration of that Basu (1977-involving P/E ratio) and Banz (1981-involving size of the firm). This is because the Fama and French three factor model incorporate size premium (in accordance with Banz, 1981), high and low book to market premium (in accordance with Basu, 1977-because book to market ratio accumulates the earnings with the original stock par value normalized with the stock price) in addition to the market premium (in accordance with the static CAPM).

the methodological issues such as data snooping and survivorship bias (see Kothari et al., 1995; Ball et al., 1995; and Conrad et al., 2003).

Although several researchers have studied these two issues separately, no one to the best of our knowledge has attempted to synthesize these two issues from a neo-classical perspective. Thus, the purpose of this study is to explicate the value versus growth puzzle in the context of the conflict of interest between taxable and non-taxable investors.[6] The intuition behind our approach stems from the fact that tax heterogeneity segregates investors into two groups with different portfolio frontiers as illustrated in Figure 2.1. Non-taxable agent prefers to maximize pre-tax returns, while taxable agent prefers to maximize after tax returns. This demarcates the efficient frontier into two distinct ones implying heterogeneous expectations.[7] Even though, this violates the basic assumption of CAPM of homogenous expectations leading to a unique tangential (market portfolio), we argue in line with Roll (1977) that a single ex-ante efficient market portfolio comprising of all assets is not possible to illustrate in the context of our model.[8] Thus, our analysis illustrates more than one efficient frontier based on agent's tax liability.

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6. We do not dwell into small versus large stocks as this is captured in the liquidity premium literature (see Amihud and Mendelson, 1986 and Liu, 2006). That is, small stocks are less liquid and hence require higher return. From a different perspective, Manuelli and Sargent (1987) demonstrate that small stocks generate higher return as they provide zero utility in the form of boasting rights to investors.

7. Our logic is in agreement with that of Kirman (1992) which states that financial market models need to address the issue of diversity of individual's opinions or expectations to achieve a natural idea of equilibrium. This is also consistent with our earlier argument that heterogeneous expectations invalidate the two-fund separation theorem.

8. Roll (1977) shows CAPM cannot be tested as the market portfolio cannot be observed.

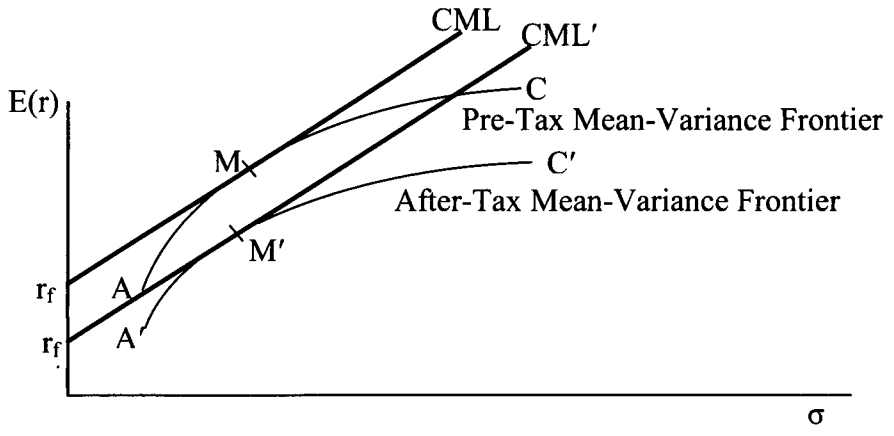

Figure 2.1: Two Distinct Efficient Frontiers Illustrate the Breakdown of the Tobin (1958) "Two Fund Separation Theorem"

Along this line, we model the conflict between these two competing taxable and non-taxable agents in a rational expectations economy, where there are two types of firms (value versus growth) and an exogenous entity called government.[9,10] The "value" firm is basically a firm in a mature sector of the economy, where it has no (or limited) access to "growth" options requiring investment. Its operating cash flows are utilized to pay off its debt and a substantial amount of dividend to its equity owners. In contrast, the "growth" firm operates in a sector of the economy where it has access to a number of "growth" options, which require funding. The "growth" firm finances these investments with its operating cash flows instead of debt as it finds agency costs of debt to be high (see Barclay et al. 2006).

9. We choose a setting involving symmetric information, as equilibrium asset prices aggregate and reveal private information (see Grossman and Stiglitz, 1976, and 1980). Thus, capital market participants can easily capture any private information held by counterparty by observing their trading patterns. This is a result of the Efficient Market Hypothesis (EMH-see Fama, 1970, 1991; Bray, 1992; Sheffrin, 1996; Malkiel, 2003).

10. Maddock and Carter (1982) define rational expectations as "the application of the principle of rational behaviour to the acquisition and processing of information and to the formation of expectations". Bray (1992) explain it further by classifying rational expectations equilibrium as "self-fulfilling" as economic agents form correct expectations given the pricing model and information.

The finance literature distinguishes value versus growth in term of book-to-market (B/M) (see Capaul et al. 1993), cash flow-to-price (C/P) (see Lakonishok et al. 1994) price-to-earning (P/E) (see Basu, 1977); and dividend yield (see Keppler, 1991; and Fama and French, 2001). Thus, firm's with high (B/M), high (C/P), low (P/E) and high dividend yield are regarded as value stocks and vice versa.[11] In this essay, we regard value stocks as paying higher dividends than growth stocks. This logic is based on growth firm's preference to finance their "growth" options using internally generated funds instead of debt or external equity to minimize the agency cost of debt and floatation costs of external equity (see Barclay et al. 2006).[12] Thus, growth stocks have very limited resources in the form of dividends to payout to its equity owners.

The difference in firm's characteristics (in terms of value versus growth) and the risk profile of agents in the economy leads to one type of agent dominating the other for the control of the firm. This occurs when one type of agent owns a larger fraction of equity in the firm using leverage supplied by the other. In other words, our framework involves endogenous use of leverage amongst the groups of agents. That is, it avoids the use of short term government debt as it does not constitute wealth but the debt of society in accordance with Barro (1974). Furthermore, the endogenous leverage used in our setting is default-free as it minimizes the agency cost of

11. The practitioner literature defines "value stock" as one that trades below its intrinsic value, in contrast to "growth stock" which trades above its intrinsic value (see Shearlock, 2006 and Kelleher, 2006). This perspective is consistent with the notion of Tobin's Q (see Tobin 1969). Thus, value stocks have comparatively higher collateral base, cash flows and dividend yield as opposed to growth stocks.

12. It should be noted that firms restrain on raising external equity also avoids sending the wrong signal on potential profitability to the market (see Myers and Majluf, 1984).

debt (see Myers 2001). This yields two different Capital Market Lines (CMLs) as illustrated in Figures 2.2 and 2.3 given below. Figure 2.2 illustrates that taxable investors dominate firm with the flatter slope (CML') in the modified CAPM as indicated by their relatively low risk aversion level and net borrowing status. We classify these types of firms with a flatter slope as a "value" firm as their risk adjusted return for below market securities is higher than that for opposite (see Figure 2.4). In contrast, Figure 2.3 illustrates the reverse of the above, where non-taxable investors dominate the firm with the steeper slope in the modified CAPM (CML") as indicated by their low risk aversion level and net borrowing status. We classify these firms with a steeper slope as a "growth" firm as their risk adjusting returns for above market risk is higher than that for the opposite (see Figure 2.4). Figure 2.3 also sheds light on the puzzling issue why bonds are observed in the portfolio of taxable investors as it is construed as "inefficient" by Agnew et al. (2003), Barber and Odean (2004) and Bergstresser and Poterba (2004). These studies have focused on the issue of efficient asset location by studying it in the context of Figure 2.2 only.

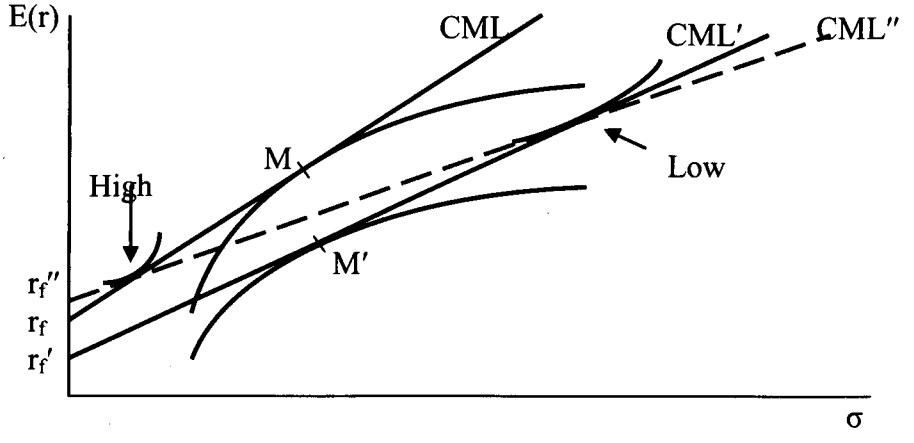

Figure 2.2: Model I illustrates the Taxable Investor ("Net Borrower") as a Dominant (i.e. Controlling) Agent of a Pure "Value" R.E. Entity

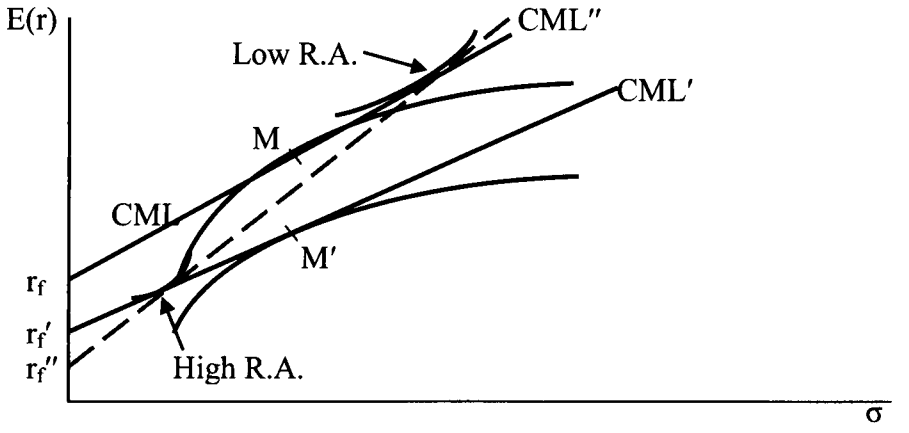

Figure 2.3: Model II illustrates the Non-taxable Investor ("Net Borrower") as a Dominant (i.e. Controlling) Agent of a Pure "Growth" R.E. Entity

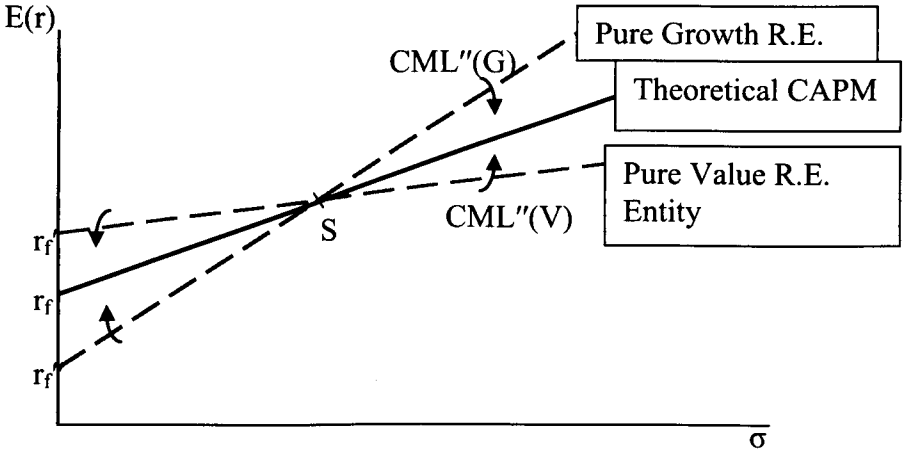

Figure 2.4: Contrasting the Frontiers of Value versus Growth

Consolidating a value firm (Figure 2.2) with a growth firm (Figure 2.3) yields Figure 2.4 which contrasts both frontiers. If we aggregate the firms across the economy we may observe an overall flat line demonstrating the net lending position of the non-taxable investors. This verifies the observation of Black et al. (1972) and Miller and Scholes (1972) illustrating that stocks with below market risk (or low beta) yield higher risk adjusted

return than that predicated by the theoretical CAPM.[13] This is also corroborated by Brennan (1970) who finds that taxes diminish the return of stocks with above market risk (or high beta).[14]

The above result proves that the shape of frontiers depends on the identity of the net lender/borrower. If the net lender in the aggregate economy is the non-taxable one then a flatter frontier will be observed for overall economy. Likewise, if the net lender is the taxable one then steeper frontier is observed for the aggregate economy. In other words the shape of the frontier is not determined by covariance risk of asset with market (i.e. beta).[15]

Moving from a static environment to a dynamic one, we can easily explain that as investor profile changes over time the aggregate frontier rotates demonstrating a value growth premium as illustrated by Malkiel (2003).[16] This also confirms the empirical observation of Bell and Jenkins (2002) and that of Collin and Kemsley (2000) illustrating that the dominant (or marginal) investors in the U.S and U.K are taxable and non-taxable agents

13. Later studies by Reinganum (1981), Lakonishok and Shapiro (1986) and Fama and French (1992) also find that the relation between beta and average returns is flat.

14. This is in line with Capaul et al. (1993) who state that value firms have low beta than growth firms.

15. Our findings are consistent with Daniel and Titman (1997) which demonstrate that the characteristics of stocks have more explanatory power to explain stock returns rather than the covariance structure of returns (beta).

16. A similar argument can be made for dynamically changing wealth across competing agents (see Ebrahim and Mathur, 2000). This is because wealth impacts on the intertemporal marginal rate of substitution making high risk averse investors behave like a low risk one. This argument is consistent with the findings of Pratt, 1964; Arrow, 1971; and Friend and Blume, 1975, which states that the absolute and relative risk aversion level decreases with wealth.

respectively.[17] This rotation of aggregate frontiers changes the volatility of stocks and bonds thereby shedding light on the puzzle cited earlier by LeRoy and Porter (1981) and Shiller (1981).

We organize our paper as follows: Section 2.2 illustrates the theoretical underpinning of the "value" firm (while insinuating the same for the "growth" firm). Section 2.3 evaluates the model solutions for the value versus growth firm (relegating all proofs to the Appendix). Finally, Section 2.4 concludes the study.

2.2 MODEL DEVELOPMENT[18]

For the sake of simplicity and mathematical tractability, we assume a two-period economy where there are two types of agents, two types of assets and an exogenous entity called the government. The agents comprise of a taxable and a fiduciary of a non-taxable institution (such as pension fund etc). Agents are endowed with distinct amounts of the numeraire good, in our economy, at times t = 0 and t = 1. They optimize their respective welfare at time t = 0. [19, 20] The assets in our economy consist of a real asset and a

17. The imposition of a low tax on pension funds assets reduces the relative impact of taxes of the taxable agent in our economy. This allows them to be more competitive with the non-taxable investors in bidding for shares of value stocks. This relative reduction in taxes can enhance leverage due to consumption smoothing effects. This result is in contrast to the tax hypothesis. Our results are corroborated by Fama and French (1998a). In case of growth stocks, where the controlling investor is the non-taxable one, increase in its tax rate reduces its demand for growth stocks. The relative decrease in tax rates of taxable investors increases his/ her demand for growth stocks and reduces the supply of debt. In case of growth stock there is a reduction of leverage. This is in tune with the tax hypothesis"

18. The model in the current study adapts the analysis of Ebrahim and Mathur (2008) to a framework of partial equilibrium.

19. Our model maximizes the expected utility of wealth instead of consumption. This approach may seem to different from the norm of optimization over consumption. However, both methods are similar as consumption evolves from wealth of assets, whose payoffs are denominated in the numeraire good. Optimization of expected utility

financial asset. The real asset consists of a project, whose payoffs at time t = 1 constitute of net operating income, NOI ($\tilde{q}_1$), and terminal value ($\tilde{P}_1$), where both $\tilde{q}_1$ and $\tilde{P}_1$ are non-negative random first-order Markov processes and their probability distributions are known to the agents in the economy as a consequence of rational expectations. Investment in the real assets is organized through an entity called a firm. The financial asset comprises of a default-free bond issued by the firm by encumbering its underlying real assets and trading off financial claims against its payoffs.[21] The government imposes a (i) corporate income tax at the rate of τ_c on the operating income of the firm, (iia) an individual tax at the rate of τ_p on the dividend paid by the firm, and (iib) an effective capital gains of $g\tau_p$ on the appreciation of the firm's stock price.[22] In general, any profits made at the firm level are passed through to the shareholders. Any losses of the firm have to be written off at the corporate level.

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of wealth is preferred over consumption because of legal constraints imposed on the fiduciary such as the "Prudent Man Rule" under the Employee Retirement Income Security Act (ERISA) of 1974 in the USA.

20. A two-period model is used instead of an overlapping generation's model as it avoids the implicit assumption of the infinite tenure of a default-free bond. This approach is consistent with that of Sharpe (1964), Lintner (1965a, b) and Mossin (1966) two-period overlapping analysis.

21. We use default-free debt as it is pareto-superior to defaulting debt (see Ebrahim and Mathur, 2007). This is consistent with Myers (2001) who states that "conflict between debt and equity investors only arise when there is a risk of default. If debt is totally free of default risk, debt holders have no interest in the income, value on risk of the firm. But if there is a chance of defaults, then shareholders gain at the expense of debt investors".

22. As the effective tax rate on capital gains is less than that on income/dividends, capital gains are preferentially taxed. Thus, g is equivalent to the ratio of the effective capital gains tax rate and the tax on income, i.e. $g = \frac{g\tau}{\tau}p \leq 1$. .

The analysis in this section is carried out by modelling the taxable investor [non-taxable] as a net borrower [lender] investing in only the firm [the firm and the bond]. This is classified as Model I (representing the "value" firm-illustrated in Figure 2.5. Here, the taxable agent has a controlling interest in the firm. The scenario is reversed in Model II

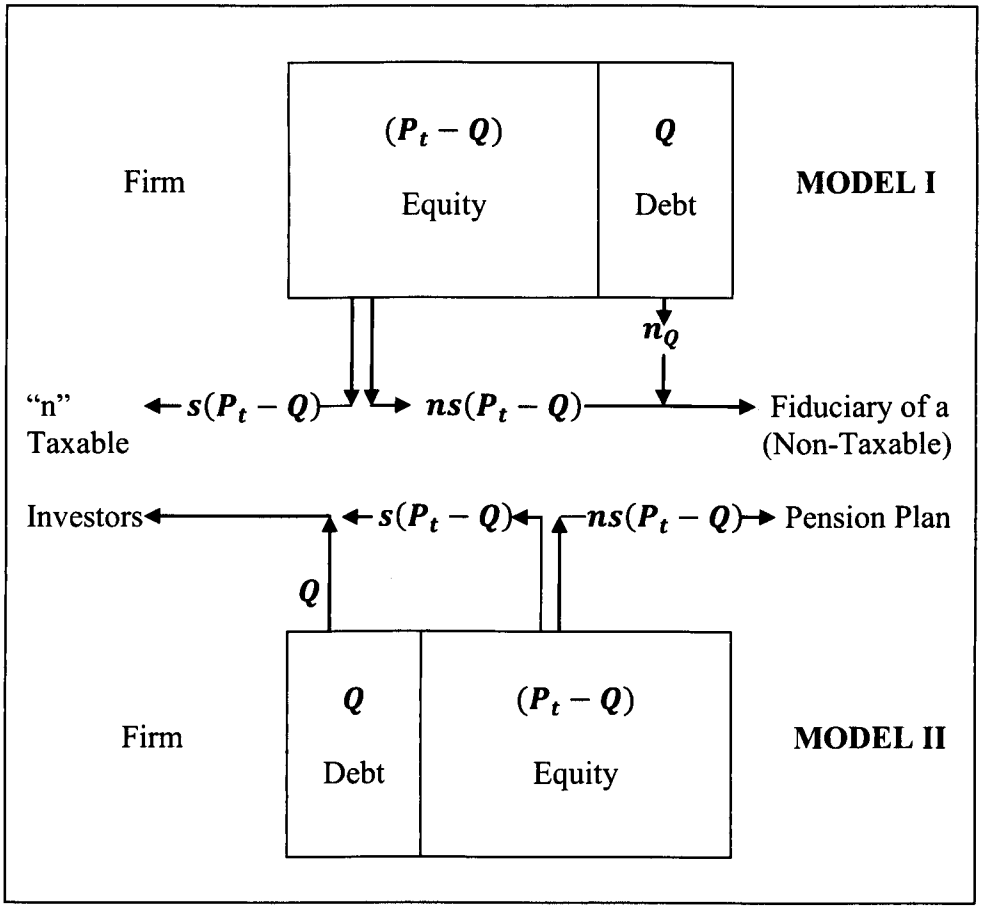

Figure 2.5: Two modes of capitalizing a firm

Source: Ebrahim and Mathur (2008)

(representing the "growth" firm-illustrated in Figure 2.5) as discussed in the following section with the taxable investor [non-taxable] as the net lender

[borrower] investing in only the firm and the bond [the firm]. Here, the non-taxable has a controlling interest in the firm. We then determine both model solutions after imposing the necessary market clearing conditions. The rationale for separating the analysis in two models is to avoid the impact of the breakdown of the Tobin Fund Separation Theorem and incorporate the competitive behaviour between the heterogeneous agents in the shaping of optimal stakeholder claims. This also encapsulates the distinct impact of taxes when the non-taxable investor is the net lender (in Model I), as opposed to the scenario where she is the net borrower (in Model II). This is consistent from a microeconomic point of view, where for every net borrower there is a net lender.

2.2.1 Modelling the Taxable Investor as Net Borrower (Agent) in a Value Firm

The objective of the taxable investor (in Model I) is to purchase s fractional shares, of the equity of the firm and to borrow an amount Q through the firm to maximize his expected utility of wealth:

$$Max.\ E_0\ \{U(w_0) + \gamma U(\tilde{w}_1)\}$$

$$(in\ w_0, w_1, s, Q)$$

subject to the temporal budget constraints

$$w_0 = e_0 - s\,[P_0 - Q]_{\text{Corporate Shell}} \qquad (1)^{23}$$

23. All borrowing is undertaken by the firm at the level, which is termed the corporate shell for explanatory purposes.

$$\tilde{w}_1 = e_1 + s\,[(\tilde{q}_1 + \tilde{P}_1) - Q\,(1 + \tilde{r})]_{\text{Corporate Shell (APT)}}$$

$$= e_1 + s\,[(\tilde{q}_1 - Qr)\,(1-\tau_c)(1-\tau_p)$$

$$+\tilde{P}_1(1-g\tau_p) + g\tau P_0 - Q)]_{\text{Corporate Shell}} \qquad (2)^{24}$$

where: $E_0\{\cdot\}$ is the expectation operator at time 0,

$U(\cdot)$ is a strictly concave and twice continuously differentiable (Von Neumann-Morgenstern) utility function of the taxable investor,

w_0 is the wealth at time 0,

$\tilde{w}_1$ is the stochastic wealth at time 1,

γ is the discount factor,

s is the fractional investment in the shares of the firm,

Q is the total amount of capital resources borrowed at the firm level,[25]

---

24. The net payoffs of a firm consist of the following components:
    (i) The *inflow* component stems from s of the firm multiplied by the dividend income added to its terminal value after deducting all the relevant taxes. First, the dividend income (after-tax) is determined by deducting the taxes on income as $(\tilde{q}_1 (1-\tau_c) (1-\tau_p)$. Second, the terminal value of the firm (after taxes) is determined by deducting the capital gains tax of $g\tau[\tilde{P}_1 - P_0]$ from the stochastic future value of the project $(\tilde{P}_1)$ as $[\tilde{P}_1(1-g\tau_p) + g\tau P_0]$.
    (ii) The *outflow* component stems from the payoff of the loan equal to $[s\,Q(1+\tilde{r})]$.

25. In the current model, Q is assumed to be positive as it denotes the amount borrowed (see Model I, Figure 2.5). The following Section IIIa.(iva) discusses the case when Q' is the amount lent (see Model II, Figure 2.5).

P_0 is the price of the underlying project of firm at time 0 (P_0 = Debt (Q) + Equity (P_0–Q)),

e_0 and e_1 are the respective endowments at times 0 and 1,

r is the real default-free interest rate,

$\tilde{q}_1$ is the NOI of the firm received at time 1,

$\tilde{P}_1$ is the terminal value of the underlying asset of the firm at time 1,

τ_c is the corporate tax rate,

τ_p is the personal tax rate on dividends

$g\tau_p$ is the tax rate on capital appreciation of the stock investment, and

The suffix "APT" denotes the residual payoffs after all personal taxes.

The budget constraint at t = 0 (Equation 1) illustrates residual wealth emanating from the initial endowment e_0 after deducting the cost of s fraction of the leveraged firm at a unit price of (P_0–Q). The budget constraint at t = 1 (Equation 2) illustrates net wealth emanating from the future endowment e_1 in addition to the payoffs of the fractional unit s of the firm's shares (after repayment of debt and taxes).

The Lagrangian L can be written as

$$L = E_0\{[U(w_0)+\gamma U(\tilde{w}_1)]+\lambda_0[e_0 - s\,(P_0 - Q) - w_0]$$

$$+\lambda_1\gamma\,[e_1+s[(\tilde{q}_1 - Qr\,(1-\tau_c)(1-\tau_p)+\tilde{P}_1(1-g\tau)+g\tau P_0 - Q]-\tilde{w}_1]\}$$

The First Order Necessary Conditions (FONCs) can be stated as follows:

(i) At the maximum, the taxable investor will bid for the fractional shares (s) of the firm, which generate net benefits equal to zero. Similarly, the investor will avoid investing in a firm if the net benefit is negative. This simplifies to the *demand* function for a firm described as follows. The price bid for a share of firm (P_0–Q) is equal to the expected value of the intertemporal marginal rate of substitution of the taxable investor ($IMRS_T = \gamma E_0[\frac{U'(\tilde{w}_1)}{U'(w_0)}]$) times the net proceeds of underlying project (after repayment of bond and appropriate taxes).

$$\gamma E_0\{[\frac{U'(\tilde{w}_1)}{U'(w_0)}][([(\tilde{q}_1 - Qr)(1-\tau_c)(1-\tau_p)+\tilde{P}_1(1-g\tau_p)+g\tau_p P_0) - Q]\}$$

$$= (P_0 - Q) \qquad (3)$$

(ii) At the maximum, the benefit of borrowing a unit amount of numeraire good is equal to its associated cost. This simplifies to the *demand* function for a bond described as follows. The $IMRS_T$ of investor times the grossed up factor (consisting of one plus the real rate of interest) is equal to the unit amount of the numeraire good:

$$\gamma E_0 \{[\frac{U'(\tilde{w}_1)}{U'(w_0)}] (1+r (1-\tau_c) (1-\tau_p)\} = 1, \forall s \neq 0 \qquad (4)$$

The above analysis segregates the investment decision from the financing one as demonstrated in Equations (3) and (4), respectively. Nonetheless, the two decisions impact each other through the optimal wealth

parameters w_0 and $\tilde{w}_1$ illustrating the violation of the well-known Fisher Separation Theorem.[26]

Thus, a unique and constrained optimization of the taxable investor's objective that the following conditions are fulfilled: First, the deterministic budget constraint (at t = 0) as given by Equation (1), and the stochastic budget constraint (for each state of the economy at t = 1), as given by Equation (2), are satisfied; Second, the simplified FONCs, i.e., Equations (3) and/ or (4), are satisfied. We note that the second order conditions are automatically satisfied as Chiang (1984) illustrates that maximization of a strictly concave and twice continuously differentiable utility function with quasi-convex constraints yields a negative definite bordered Hessian matrix.

2.2.2 Modelling the Fiduciary of an Institution as Net Lender (Principal) in a Value Firm

Similar to the previous case, the objective of the fiduciary of a non-taxable institution in Model I is to optimally select the fractional s' shares of equity of the firm to purchase along with the amount of capital resources to lend Q' to the firm to maximize her expected utility of wealth:[27]

---

26. The Fisher separation theorem states that under perfect and complete capital markets the production decision of a firm is determined purely by objective market criteria (such as maximization of wealth) without any consideration of subjective preferences. Market imperfections, such as taxes invalidate the separation (see Fisher, 1930; and Hirshleifer, 1958).

27. Maximization of the expected utility of wealth by an non-taxable (i.e. pension fiduciary is in accordance with ERISA particularly with respect to the Prudent Man's Rule. Furthermore, the beneficiaries of a pension plan may endorse a more conservative strategy with respect to their pension plan as opposed to their individual one. This is consistent with empirical literature on 401(K) plans versus an individual brokerage account (see Agnew et al., 2003; and Barber and Odean, 2004).

$$Max.\ E_0\{\ V(w'_0) + \gamma' V(\tilde{w}'_1)\}$$

$$(in\ w'_0, w'_1, s', Q')$$

subject to the temporal budget constraints

$$w'_0 = e'_0 - s'[P_0 - Q']_{\text{Corporate Shell}} - Q' \tag{5}$$

$$\tilde{w}'_1 = e'_1 + s'[(\tilde{q}_1 + \tilde{P}_1) - Q'(1+r)]_{\text{Corporate Shell [ACT]}} + Q'(1+r) \tag{6}$$

$$= e'_1 + s'[(\tilde{q}_1 - Q'r)(1-\tau_c) + \tilde{P}_1 - Q']_{\text{Corporate Shell}} + Q'(1+r)$$

where: $V(\cdot)$ represents the strictly concave and twice continuously differentiable (Von Neumann-Morgenstern) utility function of the fiduciary and notations with primes have the same meaning as that in the case of the taxable investor.

The budget constraint at time t = 0 (Equation 5) illustrates the residual wealth emanating from the initial endowment e'_0 after deducting the cost of the portfolio comprising of a fraction s' of the firm at a unit price of $(P_0 - Q')$ and a bond of Q′ made to the underlying firm. The budget constraint at t = 1 (Equation 6) illustrates net wealth emanating from future endowment e'_1 along with the payoffs of the same portfolio of the firm's stock and bond.

The Lagrangian L' can be written as

$$L' = E_0\{[V(w'_0) + \gamma' V(\tilde{w}'_1))] + \lambda_0[e'_0 - s'(P_0 - Q') - w'_0] + \lambda_1\gamma'[e'_1 + s'[(\tilde{q}_1 - Q'r)(1-\tau_c)$$

$$+ \tilde{P}_1 - Q'] + Q'(1+r) - \tilde{w}'_1]\}$$

The FONCs can be stated as follows:

(i) At the maximum, the fiduciary will bid for a fraction s' of the firm shares, which generates net benefits equal to zero. Similarly, the fiduciary will avoid investing in the firm if the net benefit negative. This too, simplifies to the *demand* function of the firm yielding an optimal price (P_0–Q′) as equal to the expected value of the intertemporal marginal rate of substitution of the fiduciary ($IMRS_F = \gamma' E_0[\frac{V'(\tilde{w}'_1)}{V'(w'_0)}]$) times the net proceeds of property after repayment of bond.

$$\gamma' E_0\{[\frac{V'(\tilde{w}'_1)}{V'(w'_0)}][(\tilde{q}_1 - Q'r)(1-\tau_c) + \tilde{P}_1 - Q']\} = (P_0 - Q') \qquad (7)$$

(ii) At the maximum, the benefit of lending is equal to its associated cost. This simplifies to the *supply* function for a bond described as follows. The $IMRS_F$ times the grossed up factor (consisting of one plus the real rate of interest) is equal to the unit amount of the numeraire good:

$$\gamma' E_0\{[\frac{V'(\tilde{w}'_1)}{V'(w'_0)}][((1+r_B(1+\tau_c(\frac{s'}{1-s'})))]\} = 1 \;\forall\; (1-s') \neq 0 \qquad (8)$$

Here too, the above analysis segregates the investment decision from the financing one as shown in Equations (7) and (8), respectively. Nonetheless, the two decisions impact on each other through the optimal wealth parameters w_0 and $\tilde{w}_1$.

Thus, a unique constrained maximum of the non-taxable fiduciary's objective requires that the following conditions are fulfilled: First, the deterministic budget constraint (at t = 0) as given by Equation (5), and the stochastic budget constraint (for each state of the economy at t = 1), as given by Equation (6), are satisfied; Second, the simplified FONCs, i.e., Equations (7) and/ or (8), are satisfied. The second order conditions for a maximum are automatically satisfied due to the properties of a strictly concave and twice continuously differentiable utility function with quasi-convex constraints (see Chiang, 1984).

2.2.3 The Market Clearing Conditions

(i) For the asset (stock) market to be in equilibrium:

The fractional shares bought must sum up to one, i.e., $s + s' = 1$. Also, the fiduciary may not be allowed to short firm's shares, i.e., $s' \geq 0$. Furthermore, in the long run; taxable investor may not permanently go short in the asset market, i.e., $s \geq 0$. (9)

(ii) For the debt (bond) market to be in equilibrium:

Funds Borrowed (Q) = Funds Lent (Q′) (10)

2.3 MODEL SOLUTION

A Rational Expectations Equilibrium (REE) is defined as one where all agents in the economy are knowledgeable of the firms payoffs $(\tilde{q_1}, \tilde{P_1})$ and their probability distributions. Assuming competitive markets and no initial

capital constraints a distinct solution, i.e., equilibria is feasible for *risk-averse* investors on satisfaction of the necessary conditions (discussed below). The optimal capital structure of a firm is contingent on the quality of the underlying project owned by it and involves the efficient financing package that minimizes the endogenous agency costs of debt under market imperfections such as taxes. The agents in the economy, thus, opt for efficient choices that involve the different clientele of the firm. If the taxable investor outbids his non-taxable counterpart and owns the firm in its entirety, as demonstrated by s = 1and s′ = 0 in Model I in Figure 2.5, it is classified as the first-corner solution. If both entities own fractions of the firm, as demonstrated by s> 0 and s′> 0 in Models I and II (Figure 2.5), it is termed as an interior solution. Finally, if the fiduciary outbids her taxable counterpart and owns the firm in its entirety, as demonstrated by s = 0 and s′=1 in Model II (Figure 2.5), it is termed as the second-corner solution. Our results are thus different from the solutions discussed in the literature stemming from linear models.

2.3.1 The Necessary Conditions for Model Solutions

2.3.1.1Lemma

A rational expectations equilibrium for a default-free bond involves at most two distinct solutions, depending on the identity of the net borrower. The first [second] equilibrium requires satisfaction of the necessary conditions (i), (ii) and (iii) [(i), (iv) and (v)] as described below:

(i) Basic Condition: The future stochastic payoffs of the underlying project owned by the firm, composed of the sum of NOI plus the terminal

value, are strictly positive even in the worst state of the economy. That is, Min. $(q_{1j} + P_{1j}) >> 0 \; \forall \; j.$ (11)

The above condition necessitates that the underlying real asset of the firm be of high quality to retain its value in the subsequent period.

(iia) Asset (Stock) Pricing Condition for the Interior Solution (when the taxable investor is the net borrower as illustrated in Model I in Figure 5) requires that the agents do not outbid each other for the ownership of the firm. In other words, the expected value of the IMRS of each investor times the net proceeds of the real estate project after repayment of the default-free bond and appropriate taxes is equal to the price of the firm:

$$\gamma E_0\{[\frac{U'(\tilde{w}_1)}{U'(w_0)}]\,[(\tilde{q}_1 - Qr\,(1-\tau_c)(1-\tau_p)+\tilde{P}_1(1-g\tau)+g\tau P_0)-Q]\}=$$

$$\gamma' E_0\{[\frac{V'(\tilde{w}'_1)}{V'(w'_0)}][(\tilde{q}_1 - Q'r)(1-\tau_c) + \tilde{P}_1 - Q']\} = (P_0 - Q), \; \forall \; s \; \varepsilon \; (0,1) \qquad (12a)$$

(iib) Asset (Stock) Pricing Condition for the First Corner Solution (when the taxable investor is the net borrower) outbidding of the non-taxable investor:

$$\gamma E_0\{[\frac{U'(\tilde{w}_1)}{U'(w_0)}][(\tilde{q}_1 - Qr\,(1-\tau_c)(1-\tau_p)+\tilde{P}_1(1-g\tau)+g\tau P_0)-Q]\}$$

$$= (P_0 - Q), \; \forall \; s=1 \qquad (12b)$$

(iii) Debt (Bond) Pricing Condition for the Interior/ First Corner Solution (when the taxable investor is the net borrower) requires equality between the demand and supply functions for default-free bond financing:

$$\gamma E_0\{[\frac{U'(\tilde{w}_1)}{U'(w_0)}][(1+r(1-\tau_c)(1-\tau_p))]\} = \gamma' E_0\{[\frac{V'(\tilde{w}'_1)}{V'(w'_0)}][(1+r(1+(\tau_c \frac{s'}{1-s'})))]\}$$

$$= 1, \forall\, s \in (0, 1] \qquad (13)$$

(iva) Asset (Stock) Pricing Condition for the Interior Solution (when the fiduciary is the net borrower as illustrated in Model II in Figure 5) requires satisfaction of the condition similar to Equation (12a). However, the wealth parameters for the case where the fiduciary is the net borrower are respectively evaluated, (differently from those in Sections II.a and II.b), as follows:

$$w_0 = e_0 - s\,[P_0 - Q]_{\text{Corporate Shell}} - Q \qquad (1a)$$

$$\tilde{w}_1 = e_1 + s\,[(\tilde{q}_1+\tilde{P}_1) - Q(1+r)]_{\text{Corporate Shell (APT)}} + Q(1+r)_{\text{APT}}$$

$$= e_1+s[(\tilde{q}_1-Qr\,(1-\tau_c)(1-\tau_p)+\tilde{P}_1(1-g\tau)$$

$$+g\tau P_0)-Q)]_{\text{Corporate Shell}}+Q(1+r(1-\tau_p)) \qquad (2a)$$

$$w'_0 = e'_0 - s'\,[P_0 - Q]_{\text{Corporate Shell}} \qquad (5a)$$

$$\tilde{w}'_1 = e'_1 + s'\,[(\tilde{q}_1+\tilde{P}_1) - Q(1+\tilde{r})]_{\text{Corporate Shell}} \qquad (6a)$$

(ivb) Asset (Stock) Pricing Condition for Second Corner Solution (when the fiduciary is the net borrower) outbidding of the taxable investor:

$$\gamma' E_0\{[\frac{V'(\tilde{w}'_1)}{V'(w'_0)}][(\tilde{q}_1 - Qr)(1-\tau_c) + \tilde{P}_1 - Q]\} = (P_0 - Q), \forall\ s = 0 \qquad (14)$$

Here too, the wealth parameters are given by Equations (5a) and (6a).

(v) Debt (Bond) Pricing Condition for Interior/ Second Corner Solution (when the fiduciary is the net borrower) requires equality between the *supply* and the *demand* functions for default free bond financing (after substituting for the wealth parameters as given in Equations (1a), (2a), (5a) and (6a)):

$$\gamma E_0\{[\frac{U'(\tilde{w}_1)}{U'(w_0)}][((1+r(1+\tau_c(\frac{s}{1-s})(1-\tau_p)))]\}$$

$$= \gamma' E_0\{[\frac{V'(\tilde{w}'_1)}{V'(w'_0)}](1+r(1-\tau_c)\} = 1, \forall\ s\ \varepsilon\ [0,1) \qquad (15)$$

2.3.2 Key Results

2.3.2.1 Proposition

In an economy with competing taxable and non-taxable agents, asset pricing is contingent on the classification of firm (value versus growth) and the risk profile of investors. In general, our results illustrate that "value" firms are dominated by taxable investors while "growth" firms are dominated by non-taxable investors.

Aggregating the two firms (i.e. value and growth) in the economy does reduce unsystematic risk. However, it yields a flat risk-return profile when the value effect dominates the growth and vice versa (sees Figure 4). This is contingent on the identity of net lender. If the net lender in that aggregate economy is the non-taxable agent then a flatter risk-return frontier will be observed for the entire economy. In contrast, if the net lender is the taxable agent then a steeper risk-return frontier will be observed for the economy. Our results also demonstrate that a single ex-ante efficient market portfolio (comprising of aggregate "value" and "growth" firms) can be observed on a flatter or steeper frontier in a static environment. This result would be invalidated in a dynamic environment with changes in investor profile which rotates the frontier. This rationale is different from that advanced by Roll (1977) which stem from non-marketable assets (like human capital etc.). The dynamic movement of the frontier rationalizes the volatility of stocks and bonds illustrated in LeRoy and Porter (1981) and Shiller (1981).

Finally our results rationalize the puzzle why bonds are observed in the portfolio of taxable agents in spite of the fact that it is deemed as inefficient by Agnew et al. (2003), Barber and Odean (2004) and Bergstresser and Poterba (2004).

2.4 CONCLUDING REMARKS

The asset pricing model is a fundamental issue in financial economies. We study this issue in a rational expectations economy by incorporating the rivalry between taxable and non-taxable investors. Our approach segregates

investors into two groups with different portfolio frontiers as non-taxable agent prefers to maximize pre-tax returns, while taxable prefers to maximize their after tax returns. This constitutes a setting where the Tobin Two Fund Separation Theorem is invalidated. This approach allows us to rationalize the value versus growth phenomenon in an aggregate and a dynamic economic environment.

We derive the following results. First, we demonstrate that the difference in firm's characteristics (in terms of value versus growth) and the risk profile of the agents, (incorporating the endogenous use of leverage) leads to one type of agent dominating over the other for the control of the firm. This, in turn, yields two different Capital Market Lines (CMLs) with contrasting frontiers. That is, flatter slope ("value" firm) due to the domination of taxable investors and steeper slope ("growth" firm) due to the domination of taxable investors. The latter also shed light on the puzzling issue raised by Agnew et al. (2003), Barber and Odean (2004) and Bergstresser and Poterba (2004) on why taxable investors own bonds in their portfolio.

Second, extending the above analysis in the aggregate economic environment, we observe an overall flat line demonstrating the net lending position of the non-taxable investors verifying the empirical observation of Brennan (1970), Black et al. (1972), Miller and Scholes (1972), Reinganum (1981), Lakonishok and Shapiro (1986), Fama and French (1992), Collin and Kemsley (2000) and Bell and Jenkins (2002). This proves that the shape of the frontiers depends on the identity of the net lender. Extending the analysis from a static environment to a dynamic one where investors profile changes

over time the aggregate frontier rotates demonstrating a value versus growth as illustrated in Malkiel (2003). The continuous rotation of this aggregate frontiers can possibly explains the volatility of stocks and bonds thereby shedding light on the puzzle raised in LeRoy and Porter (1981) and Shiller (1981).

Our results also produce implications for the applications of asset pricing particularly in the context of investment appraisal, portfolio management (in term of excess return over the expected return predicted by the asset pricing model; i.e. represented by Jensen's Alpha) and shareholder value analysis (SVA). In the case of former, asset pricing estimates the hurdle rate for any given projects, thus any underestimation [overestimation] cause the acceptance [rejection] of projects being considered (see Nicholas, 1993). As for the latter two, we conjecture a relationship between SVA and Jensen's Alpha. Since our result shows that beta line is dynamic and contingent to the identity of net lender in the aggregate economy, we argue that investment appraisal; Jensen's Alpha and SVA should also be dynamic over time. Nevertheless, we reserve these issues for future research.

Appendix I: Proofs

I.I Proof of Lemma

(i) This condition is attributed to the fact that real assets, yielding the terminal payoffs of a firm, serve as collateral for the bond. Since these real assets retain some value in the following period, it enables

the net borrower to repay the default-free bond with interest in all states of the economy.

(iia) Equation (12a) is derived using Equations (3), (7), (9) and (10).

(iib) Equation (12b) is derived using Equation (3), (9) and (10).

(iii) Equation (13) is derived using Equations (4), (8), (9) and (10).

(iva) An Equation similar to Equation (12a) is evaluated reversing the Principal-Agent relationship in Section II. It is derived by maximizing the two-period expected utility of wealth of both taxable and non-taxable investors using the budget constraints described by Equation (2a), (5a) and (6c).

(ivb) Here too, equation (14) is derived by reversing the Principal-Agent relationship in Section II. It is the counterpart of Equation (12a) with fiduciary as net borrower.

(v) Equation (15) is the counterpart of Equation (4) and (8) for a Growth Firm (where net borrower is non-taxable investor). It is also derived by optimizing the two-period expected utility of wealth of both taxable and non-taxable agents using budget constraints described by Equations (1a), (2a), (5a) and (6a)

Q.E.D

I.II Proof of Proposition

(i) The equilibrium for both value and growth firms are as a result of wealth smoothing, where the individual agent and non-taxable

fiduciary adjust this intertemporal marginal rate of substitution to own a fraction of a firm (where $s \geq 0$, $s' \geq 0$) and to trade default-free bond claims against firm's cash flow (see Stocks and Bond pricing conditions for both firms in Lemma).

(ii) For a "value" firm the dominant investor is the taxable one. In contrast, for a "growth" firm the dominant investor is the non-taxable one. Thus, the shape of the frontier is dependent on the identity of the net lender. Aggregating the two firms in the economy yields a flat risk-return profile when the value effect dominates the growth one and vice versa. This is again contingent on the identity of the net lender.

(iii) Non-marketable assets make it difficult to observe ex-ante the market portfolio reaffirming Roll (1977). However, in our case the rotation of the frontier makes it difficult to observe the market portfolio even if all the assets in our economy were all marketable assets.

(iv) The puzzle why bonds are observable in the portfolio of taxable agents is illustrated in Equation (15) and Figure 2.3.

Q.E.D

CHAPTER THREE

3. RATIONALIZING THE VALUE PREMIUM UNDER ECONOMIC FUNDAMENTALS: EVIDENCE FROM EMERGING ECONOMIES

3.1 INTRODUCTION

"Growth stocks, which derive market values more from growth options, must therefore be riskier than value stocks, which derive market values more from assets in place. Yet, historically, growth stocks earn lower average returns than value stocks."

(Lu Zhang, 2005, pp 67)

The findings of Fama and French (1992) that single factor encapsulating risk (i.e., beta) does not adequately explain cross sectional differences in stock return have unfolded a new dimension to the research in asset pricing literature. The paper has not only reignited the debate on the fundamental relationship between risk and return but also challenges the status-quo of the widely accepted Capital Asset Pricing Model (CAPM). Since then, voluminous articles both in theoretical and empirical research have been written to provide a new insight to explain the cross sectional differences in stock return. Often, the aim of these articles is to explicate the

pattern in average stock returns that are not explained by the Capital Asset Pricing Model, which are commonly known as anomalies.

This essay examines the issue of the value premium puzzle which is one of the most pronounced anomalies. That is, portfolios formed on the basis of high book-to-market (BE/ME), cash flow-to-price (C/P) and earnings-to-price (E/P) have been found to earn significantly higher risk-adjusted return compared to portfolios with contrasting characteristics. The objective of this paper is not merely to ascertain the presence of value premium in a new market as the evidence for it seems to be compelling, but rather to provide a new explanation for rationalizing it.[28] This issue is of utmost importance as there is no consensus or reconciliation of the explanations rationalizing the source of it (see Chou et al., 2010).[29]

This essay aims to justify the value premium from economic fundamentals and to reconcile the diverging perspectives. We demonstrate that this premium occurs due to the tendency of 'glamour firms' to hoard cash and delay implementing growth strategies, particularly in times of economic uncertainty (see Titman, 1985; McDonald and Siegel, 1986; and Ingersoll and Ross, 1992). Since glamour stocks derive their market value from embedded

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28. Fama and French (1998b) document the presence of value premium in twelve of the thirteen major markets they studied. Moreover, studies such as Rosenberg et al. (1985); Brown et al. (1983), Chan et al. (1991) also find value premium in United States, Australia and Japan respectively.

29. Finance literature suggests four possible explanations for the sources of value premium. First, the advocates of neoclassical finance like Fama and French (1995) attribute the source to an additional risk factor. Second, behavioral finance researchers like Lakonishok et al. (1994) asserts that the cognitive biases of investors in undervaluing the distress stocks and overvaluing the growth stocks leads to the premium in value stocks. In contrast, Daniel and Titman (1997) claim that value premium is due to a firm's characteristics and finally some contest the presence of value premium and accredit it to methodological issues.

growth (i.e. real) options (see Zhang, 2005), we believe that their hoarding behavior limits their exposure to risk and yet has a significant detrimental impact on the return of their stock. This rationalizes the value anomaly.

The theoretical basis of our study stems from Fama and French (FF – 1995) and Daniel and Titman (DT – 1997). FF developed a three-factor model wherein the coefficient capturing distress risk termed as HML, is lower for glamour firms in contrast to value firms. Demonstrating that glamour firms generate lower returns (due to their lower distress risk), they conclude that this risk is the main factor in accounting for the wide discrepancy between value and growth firms. This is challenged in Dichev (1998) and Griffin and Lemmon (2002), who claim that distress risk does not contribute to value premiums. We take this point further, and argue that both the cash-drag factor and firms' unique characteristics (illustrated in DT) need to be taken into consideration.

In contrast to value firms, glamour firms have a wider array of strategic options, which convey much more flexibility. Whilst these options contain varying levels of risk through incurring the capital outlay, the firms also have the choice of limiting their exposure to risk by not investing resources in new strategies, especially in poor economic environments. Glamour firms thus hoard cash through tough economic conditions, thus yielding lower returns. In contrast, value firms, which are prominent in mature and/or declining markets, are more limited in their options. Such firms face financial risk in addition to business risk. This is because value firms have assets in place, which are used as collateral to lever up to boost earnings. They thus have less flexibility in managing their risk, due to the

costly reversibility of their assets (Zhang, 2005). Thus, our approach in rationalizing the value premium is consistent with the neoclassical framework, where an asset with lower risk yields a lower return, and vice versa.

Since most studies on the value premium have been conducted on developed countries, it reinforces the critique of Black (1993), Campbell (2000) and MacKinlay (1995) that the value premium is a developed economy phenomenon. This study therefore prefers to study this anomaly from the perspective of emerging economies, i.e., Brazil, Russia, India and China (denoted by the acronym BRIC).[30] However, due to accessibility issues of Russian statistics in DataStream, we substitute it with Turkey, another large emerging economy. We believe Turkey is a good substitute for Russia as its represents an European emerging economy. In addition, the creator of the BRIC acronym, Jim O'Neill, is planning to include Turkey and three other emerging economies in a new grouping (Hughes, 2011). Thus, this essay studies the value premium from the BTIC countries instead of BRIC.

We believe that our sample is appropriate to test our hypothesis for several good reasons. Firstly, BTIC countries are not developed markets but rather a group of emerging economies, with periods of remarkable growth from the early 2000s.[31] Therefore, they contain plenty of firms which are

30. We also study Malaysia, an emerging economy with a top heavy, closely held, and state-owned institutional setting to check the robustness of our analysis.

31. The rapid growth of emerging economies and its impact on world economy have been discussed extensively in popular press. For instance, the August 6th, 2011 issue of the *Economist* magazine highlights several remarkable and noteworthy statistics on emerging *versus* developed economies. Emerging economies account nearly *fifty four*

endowed with growth options. Furthermore, as emerging economies these countries are exposed to high economic uncertainties. It should also be noted that these countries are emerging as important global powers, making a significant impact on the world economy. According to the World Development Indicators, BTIC share of global economy as of 2010 is almost fifteen per cent, with average GDP growth ranging from three per cent to ten per cent in the last two decades. Furthermore, these countries present vast economic potential for investors for several reasons. Firstly, the median age of the population in these countries ranges from twenty-five to thirty-five years old, implying a large pool of human resource. Secondly, the population of these countries forms forty per cent of the world population, signifying impending new markets. Finally, the market capitalization of these four countries is approximately eight trillion dollars, representing sixteen per cent of the world market capitalization.

Our research draws on two recent papers that contrast the approaches of FF with DT. Chou et al. (2010) investigates both models in the context of the Japanese market, and their findings are consistent with Davis et al. (2000), where the choice of models depends on the duration of the sample. In a similar vein to DT, another study by Chen et al. (2010) proposes a new three-factor model to incorporate characteristics that are able to explain many patterns in cross-sectional returns, in contrast to the limited model proposed

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percent of world Gross Domestic Product (GDP) measured at purchasing power parity and *three-quarters* of global real GDP growth over the last ten years. Similar trend can be seen in trade figures where exports exceeded half of the world total with import increased to forty seven percent. There also a significant jumped in foreign direct investment (FDI), commodity consumption and capital spending. Last but not least, the market capitalization increased to thirty five percent, tripled than it was in year 2000.

by FF. We aim to extend these findings, by conducting research that is not sample specific (a limitation of Chou et al., 2010), and by employing the rationale of real options where the investment perspective (based on Net Present Value in Chen et al., 2010) fails to hold.[32] This essay also reconciles the diverging views: (i) within the neoclassical asset pricing literature (as espoused by FF and DT); and also (ii) the neoclassical and behavioral perspectives in this area.

We specifically address two issues: (i) is there a value premium in BTIC markets? (ii) does our economic intuition rationalize the presence of value premium and reconcile the apparently conflicting views in the literature? The sample period covered in this study is from 1999 to 2009 and the relevant variables are obtained from DataStream. We initially demonstrate the existence of a significant value in the context of the BTIC market. Nonetheless, based on the widely-used Altman Z score model, our analysis shows that value firms are no more prone to risk than glamour firms, though there is more leverage employed by value firms.

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32. Ingersoll and Ross explain this as follows:

> *" If in making the investment today we lose the opportunity to take on the same project in the future, then the project competes with itself delayed in time. In deciding to take an investment by looking at only its NPV.*
>
> *Standard textbook solution tacitly assumes that doing so will in no way affect other investment opportunities. Since a project generally competes with itself when delayed, the textbook assumption is generally false. Notice, too, that the usual intuition concerning the "time value of money" can be quite misleading in such situations. While it is true NPV postponing the project delays the receipt of its positive NPV, it is not true that we are better off taking the project now rather than delaying it since delaying postpones the investment commitment as well."*
>
> *"Of course, with a flat, non-stochastic yield curve we would indeed be better off taking the project now, and this sort of paradox could not occur. But that brings up the even more interesting phenomenon that is central focus of this article, the effect of interest-rate uncertainty on the timing of investment."*
>
> (Ingersoll and Ross, 1992, pp. 2)

Our research provides evidence suggesting that the source of the value premium is in the investment patterns of glamour firms. Through observation we can show that the coefficients (HML) of growth portfolios are generally lower during the low growth periods, but these increase considerably during the periods of expansion. This shows that glamour firms delay the adoption of new strategies in periods of high economic uncertainty, in order to limit their risk. Finally, our regression analysis reveals that the coefficients (HML) of glamour portfolios are sensitive to changes in firms' total assets. These results suggest that the increase in total assets - which in the context of our study is the proxy for undertaking growth options - explains the changes in business risk of glamour firms. This affirms our hypothesis that the investment patterns of glamour firms has a significant impact on their risk and return.

Our results also resolve the various perspectives in the literature as follows. Firstly, reconciling the findings of FF and DT: The observation of firms' unique characteristics made by DT can be attributed to the growth options available to glamour firms; a consequence of lowering their returns due to the hoarding of cash and delaying the undertaking of these options. Yet this is what FF perceives as evidence of distress risk. We contend that FF and DT observe the same result but identifying the phenomenon in different ways. Secondly, we view the ability of glamour firms' flexibility to manage their embedded growth options not only to its operational and strategic advantage yielding capital gains and dividends, but also in providing utility in itself. This endowed options provides 'glamour firms' with an allure with which to entice investors. This 'fascination' of glamour firms is identified by

Sargent (1987) as constituting a premium in price (and hence a discount in returns) that helps aligns the neoclassical and behavioral perspectives. Lastly, the over-reaction hypothesis of DeBondt and Thaler (1985 and 1987) is rationalized through the volatile nature of value firms' leveraged equity, which is akin to Call options. These options are depressed in poor economic states but rebound in prices with improving economic climate.

This paper is organized as follows. Section 3.2 of the paper reviews the relevant literature, before illustrating our research questions and methodology used. Sections 3.3 and 3.4 then presents the data and the results of our analysis. Section 3.5 finally provides the concluding comments.

3.2 LITERATURE REVIEW

Sharpe (1964), Lintner (1965a and 1965b) and Mossin (1966) developed the Capital Asset Pricing Model (CAPM), which demonstrates that the risk of an asset (in terms of its beta) can sufficiently account for the cross-section of expected stock returns. Since its development, a number of empirical studies have tested the model, on the assumption that beta is the sole explanatory variable with a positive and linear relation to asset return, yet the results have been inconclusive. Earlier empirical studies (such as Black et al., 1972; Blume and Friend, 1973 and Fama and McBeth, 1973) provided reasonable support for the CAPM. Later studies, however, have become more critical of it due to the repeated evidence of anomalies and the questionable validity of its assumptions (see Roll, 1977; Basu, 1977, 1983; Stattman, 1980; Banz, 1981; DeBondt and Thaler, 1985; Rosenberg et al.,

1985; Bhandari, 1988; Jegadeesh and Titman, 1993; Cohen et al., 2002; and Titman et al., 2004).

FF (1992) concludes that using CAPM with a single beta does not adequately explain cross-sectional differences in stock returns. Their own study showed that as there is limited, if any, relationship between beta and the stock return. The CAPM is thus found to be insufficiently pricing risk. As a result of the evident limitations of the CAPM, they developed the three-factor model consisting of: (i) an overall market factor (R_M-R_f); (ii) a size premium (SMB) (i.e., the return on a portfolio of small stocks minus the return on a portfolio of large stock); and (iii) a value premium (HML) (i.e., the return on a portfolio of value stocks – high BE/ME – minus the return on a portfolio of glamour stocks – low BE/ME), to explain the cross-section of returns on US stocks. The intuition of FF is based on the belief that risk is multidimensional if stocks are to be priced rationally. The logic behind this is traced to Merton's (1973) intertemporal CAPM and to Ross's (1976) arbitrage pricing theory (APT). FF (1993 and 1996) thus confirm that SMB and HML are related to risk factors in stock returns. This is due to the existence of covariance between them. Furthermore, these risk factors contribute significantly to the variation in stock returns.

The development of this model attracted a great deal of academic interest, much of it centered on the source of the value premium. In line with the hypothesis of rational pricing, both FF (1993) and Chen and Zhang (1998) argued the value firms are riskier, as they are more likely to be subject to financial distress than glamour firms. FF (1995) consequently demonstrated that value [glamour] stocks are generally associated with firms that have

persistently low [strong] earnings. In light of this evidence, they suggest that value [glamour] firms have positive [negative] loading on HML, implying higher [lower] distress. This was countered by Zhang (2005), who claims that value firms are riskier as they have greater assets at risk than glamour firms. This is particularly evident in poor economic environments, where firms with fixed assets are at greater risk for investors than those with growth options. This is because the fixed assets of value firms burden them with unproductive capital as these firms face a higher cost of discarding them.

A number of alternative theories have emerged seeking to explain the value premium. Focusing on investor sentiment and trading strategies, two empirical studies (Lakonishok et al., 1994; and Haugen, 1995) demonstrate that value ('unspectacular') firms produced superior returns. This is due to investors' extrapolations from the firms' performances, where investors projected past strong [weak] performance of glamour [value] firms too far into the future. Investors then irrationally overbuy [oversell] glamour [value] firms' stocks. However, when the market realizes that the actual performance for glamour [value] firms is lower (higher) than initially expected, the glamour [value] firm's stocks end up with low [high] returns.[33] This finding is similar to the observations of De Bondt and Thaler (1985 and 1987), who argue that poorly performing stocks ('losers') over the past three to five years outperform previous 'winners' during the subsequent three to five years.

In contrast to FF (1995), DT (1997) claim that it is a firm's characteristics, as opposed to covariance risk, that offers an explanation for

33. La Porta et al. (1997) find that value firms have systematically positive earnings surprise while glamour firms display the opposite.

the value premium. The presence of high covariance between value stocks is not due to a distress factor, but rather to their common characteristics, such as being categorized in a similar line of business or comparable industries. To substantiate their claim, they showed that the presence of high covariance between stocks has no significant relation with the distress factor. That is, a high covariance exists even before the value firms become distressed.[34]

Other potential explanations for the value premium are proposed on methodological grounds. Banz and Breen (1986) and Kothari et al. (1995) suggest that the selected samples used in studies are more likely to include firms that have survived a period of distress than firms that have failed – this is commonly known as the survivor bias theory. However, such claims are later refuted by a number of studies, such as Davis (1994), Chan et al. (1995) and Cohen and Polk (1995). Yet another explanation advanced is that the value premium is due to data 'snooping', where continued testing using the same data set naturally shows patters in average returns (see Lo and MacKinlay, 1988; Black, 1993; MacKinlay, 1995 and Conrad et al., 2003). In order to test this data-snooping hypothesis Barber and Lyon (1997) propose the testing of samples from different time periods or countries.

Thus, the literature review reveals that little has been published on the rationale behind the value premium especially with respect to the emerging markets. Whilst previous studies have documented the presence of value premiums (see Geert, 1999; Drew and Veeraraghavan, 2002 and 2003), the only paper to investigate the source of it is Yen et al. (2004) that attributes its

34. In a similar note, Lee et al. (2007) find that stock characteristics provided a better explanation for United Kingdom value premiums.

presence to the one-way overreaction of value firms in Singapore. As this is the only research identified in the context of emerging markets, it is clear that many questions surrounding the controversy of the value premium remain unanswered.

3.3 DATA AND METHODOLOGY

In order to conduct our study, we collect our sample of listed firms of BTIC, and extract the relevant data in the period 1999 to 2009 from DataStream. The firms included in the sample fulfill the standard criteria employed in the literature, i.e. they all have DataStream stock prices for December of the year t-1 and June of year t, and DataStream book value for year t-1. In addition, each firm has at least two years' data on DataStream.[35]

In addressing our first research question, we employ the standard methodology as proposed by FF (1993). We initially form six portfolios (S/L, S/M and S/H; B/L, B/M and B/H) by intersecting two groups that are arranged by BE/ME (BE as net tangible assets, i.e., equity capital plus reserves minus intangibles). We use the median size for each year as the threshold point for size. Stocks with ME higher than the median are assigned as 'big' (B); conversely, stocks with a lower ME are designated 'small' (S). With regards BE/ME, we split the stocks into three groups based on the breakpoints for the bottom 30% ('low'), middle 40% ('medium') and top

35. This criterion is required to address the issue of survival bias documented by Banz and Breen (1986) and Kothari, et al., (1995).

30% ('high') of the ranked values of BE/ME.[36] We consequently compute the value-weight monthly returns of the six portfolios from July of year t to June of year t+1, when we reform the portfolios. We then repeat the same process, though using the twenty-five portfolios with intersecting BE/ME. This is to check the robustness of the results and to deal with any in-sample portfolio issues inherent in the smaller BE/ME portfolios. However, there are two differences. The twenty five size-BE/ME portfolios are constructed using equally weighted and quintile breakpoints for ME and BE/ME.

To address our second research question, we divide our analysis into two phases. In the first phase, we use measures of bankruptcy risk, as proposed by Altman (1993), to investigate whether firms with a high likelihood of distress are also firms with high B/M (value). This is undertaken to examine the relationship between the Z-score and the BE/ME ratio. Information from a negative relationship related to a price distress factor would be captured by both the BE/ME and the Z-score. However, if the relationship is positive then we can conclude that the Z-score and the BE/ME contain different information and that both variables are potentially related to differences in relative risk across firms (see Griffin and Lemmon, 2002).[37] In the context of this paper, we argue that the relative risk is attributed to each firm's characteristics.

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36. We do not use negative Book Equity (BE) firms when forming the size-BE/ME portfolios, as they do not have an economic explanation.

37. We employ the following model developed by Altman (1993) to evaluate the Z-score:
$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$
X_1 = Working Capital / Total Assets
X_2 = Retained Earnings / Total Assets
X_3 = Earnings Before Taxes + Interest / Total Assets
X_4 = Market value of equity / Total Liabilities
$X_{5=}$ Net Sales / Total Assets

We form portfolios based on three independent rankings on BE/ME, five rankings on the Z-score and two rankings on ME (size).[38] This report only contains size-adjusted data, which are the simple average of the means of the small and large groups of firms. Firms that are located in the lowest quintile of Z-scores have the highest probability of bankruptcy, with the probability decreasing the higher we move up the quintiles.

In the second phase, our focus is on the coefficient of HML, as our objective is to demonstrate that its value is determined by the risk of firms' characteristics rather than the distress risk. In order to fulfill this objective, we undertake a two-staged approach. In the first stage, we employ the FF (1995) three factor model to determine the coefficient of HML.[39] Our preliminary analysis reveals that this model is adequate to capture the portfolio return for the BTIC markets. Table 3.1a and 3.1b show that none of the alphas are significant.

In contrast to FF (1995), we argue that HML is the proxy for the firm's characteristics and the changes in loading reflect the constant changes in business and financial risks. Therefore, in order to capture this dynamic attribute, we use rolling beta regression to estimate the time varying coefficient of HML (conditioning beta) rather than conventional static

38. The break points for BE/ME and size are similar to the formation of the smaller group of six BE/ME portfolios.

39. The FF (1995) three factor model is given by: $R_{pt}-R_{ft} = \alpha + b\,(R_{mt}-R_{ft}) + s\,SMB + h\,HML + \varepsilon$. We use Ordinary Least Square (Newey-West HAC estimator) regression technique to estimate this model.

Table 3.1a

Fama and French Three Factor (FFTFM) for Weighted Monthly Excess Returns on Six Portfolios formed on Size and BE/ME: BTIC, 7/1999-6/2009, 120 Months.

(Six size-BE/ME portfolios-Overall): $R_{pt}-R_{ft} = \alpha + b\,(R_{mt}-R_{ft}) + s\,SMB + h\,HML + \varepsilon$

Portfolio	BG	BM	BV	SG	SM	SV
BRAZIL						
A	1.89	0.52	1.69	1.16	1.35	1.89
t(a)	3.46	1.05	3.34	1.45	1.70	3.19
B	0.22	0.86	0.04	0.13	0.21	0.24
t(b)	1.52	**11.12**	0.67	1.52	1.65	1.50
S	-0.28	-0.68	-0.70	0.86	0.62	0.12
t(s)	**-2.26**	**-6.21**	**-6.34**	**4.90**	**2.47**	0.73
H	-0.10	0.54	0.56	-0.73	-0.26	0.82
t(h)	-1.16	**5.50**	**5.53**	**-4.56**	-1.39	**8.48**
TURKEY						
A	0.52	-2.18	-0.04	-0.06	-1.18	-0.31
t(a)	3.22	-4.91	-0.05	-0.06	-3.09	-0.55
B	1.26	0.09	0.35	1.06	0.54	0.63
t(b)	**45.02**	**4.07**	**3.33**	**3.13**	**7.89**	**5.07**
S	-0.30	0.98	0.58	1.88	1.10	1.25
t(s)	**-14.40**	**22.98**	**4.27**	**4.62**	**10.90**	**9.80**
H	-0.32	0.92	0.63	-0.07	0.38	0.39
t(h)	**-10.09**	**29.34**	**4.73**	-0.29	**5.60**	**3.51**
INDIA						
A	-0.30	0.63	0.92	1.64	0.05	-0.08
t(a)	-1.93	3.27	1.20	2.40	0.12	-0.67
B	0.86	1.12	1.01	1.34	0.83	0.98
t(b)	**43.59**	**40.48**	**11.38**	**16.57**	**15.35**	**52.39**
S	-0.04	-0.07	0.10	2.79	0.44	0.74
t(s)	-1.86	**-2.96**	1.07	**20.52**	**3.64**	**20.14**
H	-0.02	0.01	0.13	-1.94	0.21	0.48
t(h)	-1.43	0.84	1.91	**-17.26**	**2.12**	**16.72**
CHINA						
A	-0.17	-0.02	-0.01	-0.00	0.12	-0.19
t(a)	-1.26	-0.17	-0.04	-0.04	0.80	-2.06
B	0.96	1.03	1.01	0.98	0.96	0.98
t(b)	**42.94**	**41.84**	**26.58**	**40.89**	**21.43**	**33.09**
S	0.02	-0.22	-0.09	0.87	0.78	0.96
t(s)	0.47	**-4.87**	-1.50	**19.65**	**14.45**	**28.34**
H	-0.48	-0.21	0.57	-0.39	0.00	0.43
t(h)	**-8.18**	**-3.06**	**6.50**	**-6.44**	0.02	**6.97**

Notes: B/G, big to growth; B/M, big to medium; B/V, big to value; S/G, small to growth; S/M, small to medium, S/G, small to growth. Bold (t) statistics indicates that the estimated coefficient is significant at 5%.

Table 3.1b
FFTFM for Simple Monthly Excess Returns on Twenty-five Portfolios formed on Size and BE/ME: BTIC, 7/1999-6/2009, 120 Months

$$(R_{pt}-R_{ft} = \alpha + b\,(R_{mt}-R_{ft}) + s\,SMB + h\,HML + \varepsilon)$$

BRAZIL

Size	Low	2	3	4	High	Low	2	3	4	High
			a					t(a)		
Small	3.18	0.26	7.54	3.03	4.45	1.69	0.23	1.86	2.47	3.72
2	0.31	2.75	1.95	3.11	2.86	0.34	2.28	1.98	3.35	3.17
3	0.86	2.54	2.92	1.65	3.14	0.86	2.05	2.43	2.65	1.89
4	2.57	1.74	2.10	2.60	4.56	2.80	1.82	2.11	2.79	2.90
Big	1.56	1.91	3.16	2.66	2.54	2.54	2.29	3.74	3.55	0.71
			b					t(b)		
Small	0.05	0.06	0.49	0.15	0.12	0.28	0.53	0.78	1.30	1.09
2	0.17	0.17	0.32	0.18	0.21	1.27	0.89	1.40	1.33	1.48
3	0.29	0.10	0.17	0.20	0.05	**2.72**	0.76	0.96	1.75	0.28
4	0.15	0.35	0.24	0.21	-0.09	1.10	**2.71**	1.38	1.52	-0.97
Big	0.19	0.13	0.18	0.19	1.49	1.53	0.87	0.84	1.13	1.28
			s					t(s)		
Small	1.01	0.29	-0.56	0.14	0.52	1.82	1.15	-0.67	0.45	**2.08**
2	0.43	0.70	0.09	0.42	-0.39	1.13	1.57	0.32	1.06	-1.78
3	0.12	-0.02	0.48	0.21	-0.19	0.44	-0.09	1.04	0.99	-0.58
4	0.03	0.26	-0.23	-0.34	-0.77	0.10	**2.08**	-1.12	-1.66	**-3.48**
Big	-0.12	-0.53	-0.73	-0.75	2.64	-0.71	**-2.33**	**-3.13**	**-3.57**	**2.44**
			h					t(h)		
Small	-0.49	-0.30	0.29	-0.04	0.13	-0.88	-1.32	0.39	-0.16	0.42
2	-0.46	0.24	0.15	0.01	0.71	-1.23	0.65	0.98	0.04	**3.30**
3	0.08	0.01	-0.21	0.01	0.97	0.34	0.05	-0.54	0.07	**2.73**
4	-0.15	-0.14	0.18	0.26	0.82	-0.51	-1.45	1.06	1.66	**3.49**
Big	-0.05	0.23	0.34	0.43	-1.85	-0.57	1.12	1.86	**2.88**	-0.97

Notes: S refers to size and L to BE/ME. For instance S1L1 refers to lowest quintile in size and BE/ME. Bold (t) statistics indicates that the estimated coefficient is significant at 5%.

Cont.

TURKEY

Size	Low	2	3	4	High	Low	2	3	4	High
			a					t(a)		
Small	-1.68	0.65	-0.75	-0.11	0.04	-1.30	0.48	-0.95	-0.22	0.06
2	0.23	-0.91	-0.65	-0.50	-0.35	0.09	-1.11	-0.83	-0.65	-0.50
3	1.40	-0.64	-1.12	-0.94	0.37	0.52	-0.64	-3.10	-1.16	0.73
4	-1.61	-1.24	-1.84	0.26	-0.19	-1.99	-2.59	-3.08	0.52	-0.27
Big	-0.72	-1.54	-2.08	-1.26	1.38	-1.22	-2.52	-3.61	-1.63	1.42
			b					t(b)		
Small	0.46	0.74	0.34	0.54	0.55	**2.66**	**4.81**	**4.27**	**5.87**	**5.64**
2	1.49	0.61	0.58	0.65	0.36	1.92	**5.44**	**5.53**	**4.05**	**4.22**
3	0.94	0.57	0.45	0.47	0.75	**2.72**	**2.21**	**5.71**	**2.99**	**4.60**
4	0.46	0.34	0.23	0.34	0.45	**5.35**	**8.31**	1.94	**6.10**	**4.23**
Big	0.61	0.36	0.08	0.41	0.44	**3.53**	**2.53**	0.84	**3.96**	**2.30**
			s					t(s)		
Small	1.45	0.89	1.04	1.16	1.13	**7.94**	**4.97**	**9.58**	**10.66**	**9.49**
2	2.54	1.17	0.93	1.29	1.34	**2.44**	**8.86**	**8.58**	**9.16**	**12.02**
3	1.45	0.78	1.14	1.15	1.37	**4.61**	**2.41**	**13.79**	**7.85**	**8.07**
4	0.99	0.94	1.12	0.97	0.92	**7.23**	**10.33**	**13.59**	**17.84**	**8.05**
Big	0.37	0.94	0.89	0.92	0.29	**2.02**	**7.04**	**9.59**	**8.41**	1.51
			h					t(h)		
Small	0.51	0.04	0.54	0.37	0.44	**3.04**	0.32	**6.46**	**4.87**	**6.63**
2	0.04	0.42	0.41	0.36	0.66	0.08	**3.48**	**4.03**	**2.76**	**7.77**
3	-0.11	0.30	0.55	0.41	0.51	-0.25	0.90	**8.77**	**2.71**	**4.20**
4	0.53	0.63	0.77	0.64	0.55	**6.14**	**8.08**	**7.56**	**11.32**	**5.37**
Big	0.25	0.72	0.98	0.70	0.57	1.37	**5.33**	**9.57**	**7.03**	**3.25**

Notes: S refers to size and L to BE/ME. For instance S1L1 refers to lowest quintile in size and BE/ME. Bold (t) statistics indicates that the estimated coefficient is significant at 5%.

Cont.

INDIA

Size	Low	2	3	4	High	Low	2	3	4	High
			a					t(a)		
Small	2.14	2.65	2.33	3.06	3.28	1.17	1.73	1.95	2.01	2.83
2	2.46	2.29	2.46	2.66	3.78	1.00	1.74	0.68	1.89	2.90
3	3.84	1.62	2.18	2.25	3.55	1.51	1.72	1.63	2.09	2.37
4	1.78	2.13	1.95	3.53	1.37	1.27	1.51	1.71	2.52	1.05
Big	0.98	1.85	1.76	1.95	4.30	1.41	1.48	1.27	1.27	2.70
			b					t(b)		
Small	0.26	0.31	0.32	0.33	0.33	1.28	**2.42**	**2.14**	**2.09**	**2.05**
2	0.55	0.41	0.55	0.47	0.44	**2.69**	**2.38**	1.36	**3.40**	**2.27**
3	0.13	0.56	0.41	0.35	0.42	0.33	**3.70**	**2.99**	**2.94**	**2.65**
4	0.28	0.40	0.35	0.39	0.33	1.93	**2.22**	**2.01**	**2.34**	**2.41**
Big	0.46	0.43	0.52	0.47	0.51	**2.90**	**2.57**	**2.70**	**2.81**	**3.00**
			s					t(s)		
Small	-0.01	0.06	0.12	-0.03	-0.01	-0.06	0.54	1.09	-0.40	-0.13
2	0.24	-0.02	0.24	-0.05	-0.08	1.06	-0.28	0.62	-0.57	-0.94
3	0.05	-0.00	0.04	0.01	0.06	0.61	-0.06	0.44	0.07	0.79
4	-0.02	0.04	0.04	0.06	0.08	-0.23	0.53	0.73	0.54	0.55
Big	0.08	0.04	0.05	0.01	0.06	1.33	0.59	0.64	0.09	0.39
			h					t(h)		
Small	0.01	0.04	0.09	0.07	0.06	0.06	0.76	1.45	1.71	1.32
2	0.22	0.01	0.22	0.03	-0.04	1.58	0.13	0.82	0.47	-0.72
3	0.04	0.79	0.05	0.05	0.11	1.03	1.63	0.87	0.84	**1.99**
4	0.08	0.03	0.12	0.11	0.08	1.42	0.63	**2.93**	1.66	0.79
Big	0.06	0.10	0.08	0.08	0.02	1.48	1.81	1.39	0.76	0.17

Notes: S refers to size and L to BE/ME. For instance S1L1 refers to lowest quintile in size and BE/ME. Bold (t) statistics indicates that the estimated coefficient is significant at 5%.

Cont:

CHINA

Size	Low	2	3	4	High	Low	2	3	4	High
			a					t(a)		
Small	0.56	0.91	1.55	1.95	1.06	2.78	4.27	2.20	3.12	2.02
2	-0.02	1.18	1.34	1.70	1.38	-0.09	2.38	2.54	2.67	2.42
3	0.17	0.14	0.31	0.96	0.30	0.40	0.38	1.03	1.83	1.24
4	-0.22	0.35	0.23	0.42	0.20	-0.98	1.45	0.62	2.07	0.80
Big	-0.10	0.22	0.15	0.24	0.24	-0.32	1.05	0.72	1.38	1.77
			b					t(b)		
Small	0.85	0.90	0.67	0.62	1.14	**16.67**	**15.87**	**4.58**	**6.08**	**17.71**
2	1.02	0.89	0.73	0.58	0.75	**16.38**	**7.83**	**5.74**	**3.79**	**5.76**
3	0.74	0.81	0.97	0.80	0.96	**4.90**	**7.64**	**11.80**	**6.02**	**15.19**
4	0.99	0.97	0.79	1.04	1.02	**18.83**	**11.85**	**6.94**	**24.57**	**34.15**
Big	0.72	0.93	0.92	0.96	1.04	**4.85**	**19.12**	**43.76**	**41.82**	**31.11**
			s					t(s)		
Small	0.93	0.88	0.32	-0.17	0.99	**16.40**	**13.64**	1.62	-0.87	**8.15**
2	0.86	0.47	0.21	0.16	0.21	**8.44**	**2.30**	1.00	0.84	0.93
3	0.79	0.84	0.71	0.28	0.78	**9.43**	**8.55**	**7.94**	1.28	9.92
4	0.66	0.26	0.65	0.68	0.64	**9.07**	**3.49**	**6.42**	**9.05**	**9.99**
Big	0.20	0.17	0.11	0.12	0.06	1.74	**2.38**	**2.31**	**2.40**	1.13
			H					t(h)		
Small	-0.32	-0.30	-0.25	-1.15	0.28	**-4.10**	**-2.56**	-0.72	**-2.91**	1.39
2	-0.29	-0.70	-0.55	-0.79	-0.42	**-2.63**	**-3.58**	**-2.47**	-1.71	-1.40
3	-0.11	0.21	-0.00	-0.46	0.32	-0.38	0.92	-0.04	-1.66	**2.54**
4	-0.34	-0.30	0.14	0.07	0.41	**-2.70**	**-2.11**	0.68	0.48	**3.21**
Big	-0.26	-0.36	-0.03	0.20	0.48	-0.90	**-3.62**	-0.52	**2.98**	**6.18**

Notes: S refers to size and L to BE/ME. For instance S1L1 refers to lowest quintile in size and BE/ME. Bold (t) statistics indicates that the estimated coefficient is significant at 5%.

analysis. We regress the value and glamour portfolios' excess returns using the three factor model with a 36-month rolling window.[40]

In the second stage of our analysis, we regress the time varying coefficient of HML Y'_{it} for the i^{th} portfolio on the conditioning variable known at time t. We use the mean as the central tendency measure to convert the value of coefficients from monthly to annual. Our model is given as below:

$$Y'_{it} = \alpha_0 + \sum_j \beta_j X_{jit} + \eta_i + \eta_t + \varepsilon_{it} \qquad (1)$$

Where: i represents portfolios ranging from1 to N, while t denotes the time ranging from 1 to T. X captures (J) portfolio-specific characteristics (proxy variables) which vary with time and across firms (in a panel data structure). α_0 is the intercept, η_i and η_t represents portfolio specific fixed effects and time specific effects respectively. Finally, ε_{it} is the error term assumed to be independently and identically normally distributed with zero mean and constant variance, $\varepsilon_{it} \approx$ *i.i.d.* N $(0, \sigma^2)$. The conditioning variables are the current and the lags of natural logarithms of total asset and total debt. The natural log of total asset measures the sensitivity of undertaking growth option, while the natural log of total debt measures the sensitivity of undertaking leverage. We also add interaction variables to differentiate the coefficient for value and glamour firms, and gross domestic product (GDP) to reflect the economic condition at time t.

We estimate Equation 1 using the static panel data estimation technique. This is to address the need for a larger number of data points, as

40. We use twenty-five intersecting portfolios rather than six to have a larger sample size.

the number of portfolios in our sample is very small. There are a number of advantages in using static panel data estimation. First, it increases the degree of freedom and reduces the collinearity problem (see Hsiao, 2003). Second, panel data have the ability to control for the problem of endogeneity without the need for external instrument. The choice between random and fixed is determined by conducting the Hausman test.

3.4 EMPIRICAL RESULTS

Table 3.2a shows the average excess return on the six size-BE/ME equity sorted for the full sample. The results show that the value portfolios produced higher returns than the glamour portfolios in all BTIC countries except for India where small growth (SG) dominates the small value (SV) portfolios. We suggest that this might be due to the fast growing information technology industry in India. Looking at the micro picture, value portfolios have performed exceptionally well especially in Turkey where the average value portfolios return of big and small portfolios is approximately 1.4%, the highest among all BTIC countries. In contrast, the Chinese market has the lowest return for value portfolios, but still marginally higher than the glamour portfolios. There is no significant value premium in India.

Table 3.2b reconfirms similar patterns in returns. The portfolios in the highest in BE/ME quintile generate the highest return compared to other portfolios. These findings are consistent with many studies that report high book-to-market stocks to have higher returns than big and low book-to-market equity stocks.

Table 3.2a

Summary Statistics for Weighted Monthly Percent Excess Returns on Six Portfolios formed on Size and BE/ME: BTIC, 7/1999-6/2009, 120 Months

Portfolio	RPTRFT	Portfolio	RPTRFT
BRAZIL			
BG	2.13***	**SG**	1.38**
	(3.53)		(1.67)
BM	2.21***	**SM**	2.10***
	(2.65)		(3.15)
BV	1.82***	**SV**	3.48***
	(3.22)		(4.37)
VMG	0.895		
	(1.56)*		
TURKEY			
BG	-0.84	**SG**	1.19
	(-0.70)		(0.61)
BM	0.62	**SM**	0.47
	(0.51)		(0.40)
BV	1.70*	**SV**	1.48
	(1.30)		(1.13)
VMG	1.415		
	(1.38)*		
INDIA			
BG	0.81	**SG**	8.01**
	(1.19)		(2.07)
BM	2.10**	**SM**	2.67***
	(2.32)		(2.78)
BV	2.81***	**SV**	3.91***
	(2.59)		(3.22)
VMG	-1.05		
	(-0.54)		
CHINA			
BG	0.12	**SG**	0.76
	(0.23)		(1.20)
BM	0.37	**SM**	1.09*
	(0.61)		(1.62)
BV	0.92*	**SV**	1.13*
	(1.35)		(1.60)
VMG	0.585		
	(2.45)***		

Notes: B/G, big to growth; B/M, big to medium; B/V, big to value; S/G, small to growth; S/M, small to medium, S/G, small to growth; VMG [{(SV+BV)/2}-{(SG+BG)/2}], value minus growth, RPTRFT, return of a certain portfolio minus risk free rate. We report one mean t-statistics with H_o=0 and H_1 >0 in parentheses. The symbols * indicate significance at 10%, ** at 5% while *** at 1%.

Table 3.2b

Summary Statistics for Simple Monthly Percent Excess Returns on Twenty-five Portfolios formed on Size and BE/ME: BTIC, 7/1999-6/2009, 120 Months

PT	RPTRFT	PT	RPTRFT	PT	RPTRFT	PT	RPTRFT	PT	RPTRFT
BRAZIL									
S1L1	3.59	**S2L1**	0.62	**S3L1**	1.69	**S4L1**	2.81	**S5L1**	1.90
	(1.74)		(0.70)		(1.73)		(2.93)		(3.01)
S1L2	0.26	**S2L2**	4.02	**S3L2**	2.78	**S4L2**	2.69	**S5L2**	2.07
	(0.24)		(2.67)		(3.10)		(3.50)		(2.60)
S1L3	8.97	**S2L3**	3.02	**S3L3**	3.52	**S4L3**	2.72	**S5L3**	3.39
	(2.41)		(2.92)		(3.58)		(3.34)		(3.78)
S1L4	3.48	**S2L4**	3.93	**S3L4**	2.34	**S4L4**	3.15	**S5L4**	3.00
	(3.29)		(4.39)		(3.15)		(4.08)		(3.39)
S1L5	5.30	**S2L5**	3.85	**S3L5**	4.16	**S4L5**	4.35	**S5L5**	0.46
	(4.93)		(3.67)		(2.61)		(2.35)		(0.11)
TURKEY									
S1L1	0.58	**S2L1**	2.18	**S3L1**	2.21	**S4L1**	0.26	**S5L1**	-0.60
	(0.33)		(0.63)		(1.01)		(0.20)		(-0.06)
S1L2	1.31	**S2L2**	0.84	**S3L2**	0.53	**S4L2**	0.84	**S5L2**	0.71
	(0.84)		(0.59)		(0.40)		(0.69)		(0.53)
S1L3	1.22	**S2L3**	0.74	**S3L3**	0.94	**S4L3**	0.73	**S5L3**	0.75
	(0.96)		(0.52)		(0.74)		(0.56)		(0.55)
S1L4	1.56	**S2L4**	1.24	**S3L4**	0.84	**S4L4**	2.39	**S5L4**	0.89
	(1.27)		(0.90)		(0.65)		(1.83)		(0.59)
S1L5	1.82	**S2L5**	2.15	**S3L5**	2.47	**S4L5**	0.76	**S5L5**	3.54
	(1.39)		(1.60)		(1.51)		(0.57)		(2.33)
INDIA									
S1L1	2.51	**S2L1**	4.18	**S3L1**	4.21	**S4L1**	2.26	**S5L1**	1.94
	(1.46)		(1.22)		(1.94)		(1.76)		(1.84)
S1L2	3.31	**S2L2**	2.84	**S3L2**	2.53	**S4L2**	2.84	**S5L2**	2.71
	(2.12)		(2.00)		(1.95)		(2.35)		(2.05)
S1L3	3.22	**S2L3**	2.82	**S3L3**	2.94	**S4L3**	2.73	**S5L3**	2.75
	(2.58)		(1.99)		(2.32)		(2.13)		(2.04)
S1L4	3.56	**S2L4**	3.24	**S3L4**	2.84	**S4L4**	4.39	**S5L4**	2.83
	(2.92)		(2.40)		(2.21)		(3.39)		(1.88)
S1L5	3.82	**S2L5**	4.15	**S3L5**	4.47	**S4L5**	2.16	**S5L5**	5.38
	(3.00)		(3.12)		(2.75)		(1.68)		(3.50)
CHINA									
S1L1	1.31	**S2L1**	0.83	**S3L1**	0.93	**S4L1**	0.49	**S5L1**	0.27
	(2.18)		(1.17)		(1.37)		(0.75)		(0.46)
S1L2	1.69	**S2L2**	1.51	**S3L2**	1.17	**S4L2**	0.87	**S5L2**	0.65
	(2.57)		(2.05)		(1.70)		(1.42)		(1.11)
S1L3	2.00	**S2L3**	1.54	**S3L3**	1.23	**S4L3**	1.11	**S5L3**	0.74
	(2.47)		(2.25)		(1.71)		(1.71)		(1.28)
S1L4	1.53	**S2L4**	1.63	**S3L4**	1.29	**S4L4**	1.43	**S5L4**	1.01
	(1.96)		(2.15)		(1.88)		(2.05)		(1.61)
S1L5	2.40	**S2L5**	1.67	**S3L5**	1.46	**S4L5**	1.39	**S5L5**	1.20
	(2.67)		(2.31)		(2.05)		(1.94)		(1.70)

Notes: S refers to size and L to BE/ME. For instance S1L1 refers to lowest quintile in size and BE/ME. RPTRFT, return of a certain portfolio minus risk free rate. We report one mean t-statistics with H_o=0 and H_1 >0 in parentheses.

Table 3.3 present summary statistics of the characteristics of the stocks in each group. Looking at all the five quintiles of Z-score, there seems to be no apparent difference between low BE/ME and high BE/ME stocks in all four BTIC countries, with the exception of the first quintile of Z-score for India with the Z-score -0.262 for low BE/ME stocks and 0.803 for high BE/ME stocks. Nevertheless, both types of stocks in all four countries exhibit similar scores as we move to the higher quintiles. These findings suggest that the presence of value premium is not due to distress risk, which contradicts the observation of Fama and French (1995). In term of cross countries comparison, Brazil seems to have the lowest Z-scores for all the five quintiles, while Turkey has the highest, particularly in the fifth quintile. Table 3.3 also shows the average book-to-market ratio for each quintile. Similar to Z-score, there are no significant pattern for Turkey, China and Brazil. However, for India the average book-to-market ratio is higher for firms with a low Z-score in contrast to firms with a high Z-score within the high BE/ME group.

This study also reports summary statistics of a firm's size, total asset, market leverage, and profitability for the companies in each portfolio. This is to further examine our hypothesis that Z-score and BE/ME are both related to characteristics that are considered to reflect distress risk. In the case of Turkey and Brazil, we find the low BE/ME stocks have larger asset size and market value of equity than high BE/ME stocks. In contrast, we observe the opposite pattern for China and India. This finding is simply a reflection of the different stage in economic growth for these countries.

Table 3.3

Summary Statistics of Firm Characteristics for Portfolios (BTIC) Sorted on BE/ME and the Probability of Financial Distress.

Portfolio	*L*	*M*	*H*	*L*	*M*	*H*
Z-score						
		BRAZIL			***TURKEY***	
1	0.560	0.572	0.418	0.735	0.811	0.772
2	1.414	1.389	1.608	2.105	2.160	2.051
3	2.060	2.303	2.019	3.517	3.486	3.524
4	3.590	3.157	3.040	8.939	8.810	7.979
5	7.201	8.710	8.162	69.948	62.708	69.621
		INDIA			***CHINA***	
1	-0.262	0.940	0.803	1.147	1.454	1.352
2	1.811	1.898	1.738	2.757	2.645	2.575
3	2.910	2.911	2.490	4.277	4.145	3.891
4	5.320	4.312	5.190	7.185	6.760	6.689
5	20.919	18.018	17.388	15.893	16.027	16.800
ROA						
		BRAZIL			***TURKEY***	
1	-0.561	2.582	4.204	2.129	2.518	1.161
2	8.242	7.777	10.039	10.329	11.724	8.022
3	11.840	11.093	9.718	10.876	8.793	10.851
4	12.801	11.389	12.408	11.407	11.779	11.443
5	12.895	12.508	16.960	11.201	11.186	10.703
		INDIA			***CHINA***	
1	1.279	1.113	4.326	-3.133	1.824	2.796
2	3.016	7.057	8.916	1.942	3.603	4.181
3	8.164	9.622	10.18	3.184	4.505	4.971
4	11.293	13.055	16.138	4.574	5.539	5.836
5	10.369	13.715	5.989	5.783	5.913	5.427

Notes: Firms from July 1999 to June 2009 are ranked independently every June based on their values of the probability of financial distress (Z-Score) calculated using Altman (1993) model and book-to-market ratio. Return on Assets (ROA) is the ratio of income before extraordinary items to total book assets.

Cont.

Portfolio	*L*	*M*	*H*	*L*	*M*	*H*
BE/ME						
		BRAZIL			***TURKEY***	
1	0.563	2.236	13.40	0.424	1.071	2.676
2	0.425	2.074	10.04	0.439	1.079	2.265
3	0.528	2.023	8.526	0.509	1.059	1.986
4	0.467	2.060	9.570	0.429	1.046	2.401
5	0.542	1.917	9.191	0.431	1.021	2.110
		INDIA			***CHINA***	
1	0.233	0.915	12.935	0.169	0.391	2.029
2	0.241	0.826	5.477	0.186	0.386	0.890
3	0.282	0.769	9.165	0.189	0.379	0.784
4	0.242	0.807	2.640	0.185	0.376	0.730
5	0.211	0.788	1.800	0.194	0.382	0.664
Leverage						
		BRAZIL			***TURKEY***	
1	2.373	5.260	13.883	38.514	47.914	17.290
2	1.687	3.526	12.184	2.407	3.945	1.839
3	2.347	2.235	4.987	1.595	1.887	3.097
4	0.664	1.401	2.871	0.192	0.195	0.542
5	0.294	0.311	0.686	0.019	0.0228	0.017
		INDIA			***CHINA***	
1	1.851	3.648	22.492	0.683	0.897	2.261
2	0.773	1.412	3.951	0.375	0.458	0.736
3	0.566	0.671	11.65	0.249	0.299	0.366
4	0.210	0.513	0.482	0.142	0.171	0.187
5	0.084	0.111	0.054	0.604	0.060	0.067

Notes: Firms from July 1999 to June 2009 are ranked independently every June based on their values of the probability of financial distress (Z-Score) calculated using Altman (1993) model and book-to-market ratio. BE/ME is book value of equity over market equity. Leverage is the ratio of total book assets less book equity to market equity.

Cont.

Portfolio	*L*	*M*	*H*	*L*	*M*	*H*
Size						
		BRAZIL			***TURKEY***	
1	1159.02	785.12	126.07	442.50	115.54	46.72
2	1514.87	1628.89	571.98	447.11	193.62	141.16
3	3492.90	1594.41	491.11	663.74	381.18	204.45
4	10800.00	5086.36	166.44	1920.48	273.36	116.19
5	2558.05	642.06	70.92	1574.83	698.13	571.26
		INDIA			***CHINA***	
1	11000.00	15400.00	3463.13	2969.00	4115.76	3681.60
2	46800.00	9977.45	3201.04	3105.87	4171.18	5049.86
3	27100.00	30100.00	4201.77	3517.92	6638.30	6306.43
4	81600.00	95200.00	3380.94	4494.88	8668.66	5072.71
5	33000.00	8026.51	691.83	4147.04	12100.00	3314.04
Asset						
		BRAZIL			***TURKEY***	
1	3338.94	3994.79	1799.59	6824.44	3845.21	3231.65
2	3776.39	7321.18	3065.61	1134.73	1600.13	938.01
3	4273.59	4913.85	1827.24	1214.64	1201.48	871.05
4	14600.00	8869.94	974.94	1098.99	433.44	265.09
5	2211.93	798.57	245.32	389.07	323.06	242.79
		INDIA			***CHINA***	
1	39200.00	49700.00	53200.00	3291.68	6412.77	8261.10
2	56100.00	27600.00	23400.00	2264.66	4076.56	7659.62
3	20200.00	32222.00	56500.00	2058.43	5076.09	8662.24
4	70700.00	55000.00	10200.00	1945.70	6623.17	5982.95
5	10300.00	8254.92	2415.83	1548.65	4344.95	3034.57

Notes: Firms from July 1999 to June 2009 are ranked independently every June based on their values of the probability of financial distress (Z-Score) calculated using Altman (1993) model and book-to-market ratio. Size is the market value of equity while asset is the total asset. Both size and total assets are in million.

Moreover, this also indicates that big firms in China and India have reached a more mature stage, while big firms in Turkey and Brazil are still growing. Furthermore, market leverage is negatively related to Z-score across our samples. Nonetheless, we find that firms in high BE/ME quintile have higher leverage in contrast to firms with low BE/ME which is consistent with our earlier argument that value firms have more leverage than the growth firms. Finally, profitability is positively related to Z-score, but we find no evidence that low BE/ME firms are more profitable than high BE/ME firms.

Tables 3.4a and 3.4b provides the rolling regression estimates of the Fama-French three factor model for the full sample period. Table 3.4a reports the mean regression parameter for the six BE/ME portfolios, while Table 3.4b reports the mean regression of the twenty five BE/ME portfolios. Since the focus of this study is on the coefficient of HML (h), we choose not to discuss the estimated value of other parameters. In the case of the small size BE/ME portfolios, we find the coefficients of HML (h) are either negative or have a small positive value. For instance, the average coefficient for glamour stocks in China is –0.414, Brazil is –0.6235, India is –0.6225, and Turkey is 0.005.

In the case of the twenty five BE/ME portfolios, we observe inconsistent patterns. Turkey and India have positive loadings for portfolios in the lowest quintile of BE/ME while China and Brazil have negative loadings. Nonetheless, our findings are mostly consistent with FFs arguments that glamour stocks should have negative loadings and vice versa for value stocks. However, unlike Fama and French (1995), we argue glamour firms do not have negative loadings due to lower distress, as our earlier analysis

reveals that the distress level is similar for both types of firms. In fact, we argue that glamour portfolios have lower loading because the choice of delaying growth options gives glamour firms the opportunity to reduce their risk. In addition, the process of delaying the exercising of these options gives glamour firms the ability to accumulate cash in their balance sheet. Thus, in accordance with the maxims of finance, glamour portfolios earn low returns purely due to the cash drag as cash earns very little return.

We suggest that investors display an 'infatuation' with glamour firms based on the potential growth opportunities stemming from the embedded growth options. Thus, their prices are driven higher through bidding in contrast to the 'unspectacular' value firms. In Lucas' Rational Expectations framework (1978), glamour firms constitute an 'alluring' asset, a point further extended by Sargent (1987). This reconciles the neoclassical perspective with the behavioral one.

Table 3.4a

Mean coefficients of rolling regression for six size-BE/ME portfolios (BTIC)

	BG	BM	BV	SG	SM	SV
BRAZIL						
Constant	-0.544	0.869	1.135	0.611	-0.544	1.408
Rm-Rf	0.194	0.697	0.201	0.158	0.194	0.582
SMB	0.309	-0.828	-0.900	1.115	0.309	0.412
HML	-0.297	0.599	0.782	-0.950	-0.297	0.666
TURKEY						
Constant	1.174	-2.233	0.126	-0.093	1.174	-0.457
Rm-Rf	0.733	0.037	0.730	0.885	0.733	0.568
SMB	0.494	0.996	0.061	1.981	0.494	1.265
HML	-0.085	0.977	0.283	0.090	-0.085	0.438
INDIA						
Constant	1.820	0.487	1.124	1.294	1.820	-0.050
Rm-Rf	0.407	1.067	1.006	1.194	0.407	0.968
SMB	-0.075	-0.245	0.006	2.052	-0.075	0.645
HML	0.171	0.200	0.373	-1.416	0.171	0.532
CHINA						
Constant	0.706	0.043	-0.015	-0.048	0.706	-0.087
Rm-Rf	0.847	1.008	1.009	0.983	0.847	0.986
SMB	0.724	-0.199	-0.178	0.749	0.724	0.892
HML	-0.406	-0.223	0.538	-0.422	-0.406	0.337

Notes: The coefficients are generated from rolling regression (36-month rolling window) using FFTFM.

Table 3.4b

Mean coefficients of rolling regression for twenty-five size-BE/ME portfolios (BTIC)

	L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
BRAZIL										
			Constant					***Market***		
S1	4.810	-0.544	4.752	3.298	3.740	0.097	0.194	0.296	0.212	0.312
S2	-0.179	3.387	1.571	3.135	2.802	0.211	0.321	0.361	0.124	0.570
S3	0.249	2.432	1.921	1.056	3.471	0.386	0.144	0.278	0.325	0.155
S4	2.220	1.129	1.890	2.007	2.078	0.001	0.256	0.225	0.313	-0.620
S5	1.257	1.066	2.194	1.715	4.023	0.372	0.317	0.526	0.503	1.534
			SMB					***HML***		
S1	1.742	0.309	-2.341	0.382	0.841	-0.996	-0.297	1.157	-0.228	-0.046
S2	0.760	0.951	0.087	0.464	-0.257	-0.769	-0.080	0.087	-0.081	0.777
S3	-0.030	0.165	0.024	-0.063	-0.106	0.275	-0.145	0.207	0.288	0.809
S4	-0.242	0.219	-0.304	-0.320	-0.513	0.100	-0.121	0.166	0.284	0.462
S5	-0.158	-0.457	-0.700	-0.474	3.483	0.002	0.259	0.369	0.363	-2.465
TURKEY										
			Constant					***Market***		
S1	-1.212	1.174	-0.760	-0.389	-0.059	0.025	0.733	0.390	0.453	0.352
S2	-2.760	-0.676	-0.783	-1.238	-0.209	0.494	0.644	0.226	0.471	0.262
S3	3.367	-1.641	-1.012	-1.506	0.126	1.320	0.239	0.460	0.576	0.671
S4	-2.311	-1.407	-2.324	-0.132	-0.533	0.174	0.320	0.144	0.390	0.631
S5	-0.822	-1.396	-2.300	-0.862	1.062	0.727	0.311	0.295	0.552	0.583
			SMB					***HML***		
S1	1.347	0.494	1.108	1.096	1.110	0.771	-0.085	0.552	0.459	0.541
S2	1.935	0.920	0.959	1.107	1.321	0.655	0.397	0.696	0.514	0.692
S3	1.995	1.194	1.031	1.020	1.255	-0.326	0.774	0.518	0.392	0.547
S4	0.917	0.957	1.142	1.008	0.919	0.637	0.654	0.894	0.670	0.499
S5	0.311	0.708	0.803	0.396	-0.062	0.186	0.662	0.838	0.418	0.336

Notes: The coefficients are generated from rolling regression (36-month rolling window) using FFTFM.

Cont.

	L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
INDIA										
			Constant					***Market***		
S1	1.407	1.820	1.594	1.590	2.194	-0.005	0.407	0.182	0.206	0.179
S2	-0.411	1.258	1.038	0.988	2.835	0.263	0.282	0.332	0.336	0.220
S3	5.427	0.507	1.177	1.010	2.425	-0.322	0.362	0.327	0.267	0.238
S4	0.115	0.896	1.003	2.400	0.138	0.147	0.225	0.157	0.248	-0.050
S5	0.189	0.748	-0.023	0.681	3.002	0.291	0.275	0.476	0.424	0.578
			SMB					***HML***		
S1	-0.690	-0.075	-0.745	-0.601	-0.519	0.573	0.171	0.695	0.505	0.416
S2	-0.545	-0.669	-0.571	-0.644	-0.705	0.661	0.414	0.497	0.524	0.426
S3	-0.455	-0.689	-0.670	-0.697	-0.773	0.329	0.645	0.438	0.507	0.731
S4	-0.643	-0.600	-0.654	-0.711	-1.576	0.616	0.489	0.623	0.615	0.672
S5	-0.448	-0.588	-0.632	-0.525	-0.287	0.438	0.519	0.560	0.406	0.079
CHINA										
			Constant					***Market***		
S1	0.608	0.706	0.505	0.413	0.461	0.852	0.847	0.595	0.468	1.119
S2	-0.191	0.619	0.686	0.325	1.808	1.021	0.751	0.398	0.418	0.844
S3	0.252	0.467	0.053	-0.127	0.300	0.882	0.873	0.843	0.674	0.874
S4	0.158	0.486	0.671	0.456	0.353	1.063	0.997	0.865	1.021	1.032
S5	0.347	0.489	0.467	0.379	0.425	0.908	0.949	0.967	0.972	1.030
			SMB					***HML***		
S1	0.842	0.724	-0.023	0.019	1.199	-0.409	-0.406	-0.177	-0.440	0.317
S2	0.791	0.623	0.314	0.473	0.391	-0.312	-0.352	-0.355	0.021	-0.232
S3	0.633	0.781	0.548	0.523	0.654	-0.131	0.108	0.002	0.037	0.328
S4	0.498	0.243	0.283	0.512	0.493	-0.662	-0.385	-0.057	0.133	0.280
S5	-0.230	-0.122	-0.064	0.002	-0.060	-0.562	-0.543	-0.101	0.096	0.364

Notes: The coefficients are generated from rolling regression (36-month rolling window) using FFTFM

The leverage undertaken by value firms causes a drag on their performance in poor economic environments, particularly as leveraged equity displays the volatility associated with financial options (see Merton, 1974). The expansion of the economy causes a bounce-back effect on value stocks, helping to reconcile the neoclassical perspective with the behavioral one espoused by DeBondt and Thaler (1985 and 1987). In light of our intuition, we graph the coefficient of HML of the larger twenty-five sized BE/ME portfolios of every BTIC country to provide further insight to our argument. Figures 3.1-3.100 illustrates the pattern of time varying betas (coefficient of HML) for each portfolio. Based on these figures, we observe that value portfolios not only have higher coefficients than glamour portfolios, but also exhibit a stable pattern over time. In contrast, the coefficients (HML) of glamour portfolios are generally lower and exhibit a more volatile pattern. Moreover, their coefficients are generally dependent on the economic growth.

[Insert Figures 3.1-3.100 here]

The above hypothesis is further tested has by estimating Equation 1 using the static panel data estimation technique. The Hausman test claims that the fixed effect panel is more suitable than random. Our hypothesis postulates that value portfolios should be more sensitive to natural logarithm of leverage, while glamour firms response to the natural logarithm of total asset. The estimation results for equation are presented in Table 3.5. There are few points that stand out from our analysis. First, we observed the lag of total asset is positive and significantly related to growth portfolio, confirming the sensitivity of growth portfolio to the changes in total assets. Second, we notice the interaction variable for total asset has a negative coefficient,

Table 3.5

Estimation output for Equation 1 (BTIC)

Dependent Variables: HML		
Independent Variables	**Coefficient**	**t**
Total Assets	0.0442	0.50
Total Assets (-1)	-0.0403	-0.41
Total Assets (-2)	0.1651*	1.80
Total Debt	-0.0910	-1.48
Total Debt (-1)	0.0613	0.81
Total Debt (-2)	-0.0797	-1.19
Total Assets*Dummy	-0.2980**	-2.06
Total Assets*Dummy (-1)	-0.1534	-0.97
Total Assets*Dummy (-2)	-0.2982**	-2.04
Total Debt*Dummy	0.2932***	2.67
Total Debt*Dummy (-1)	0.0748	0.62
Total Debt*Dummy (-2)	0.1572	1.43
Gross Domestic Product (GDP)	-0.0034	-0.41
Constant	1.0999	1.45

Notes: $HML = \alpha + \beta_0 \text{Total Asset}_{it} + \beta_1 \text{Total Asset}_{it-1} + \beta_2 \text{Total Asset}_{it-2} + \beta_3 \text{Total Debt}_{it} + \beta_4 \text{Total Debt}_{it-1} + \beta_5 \text{Debt}_{it-2} + \beta_6 \text{Total Asset*Dummy}_{it} + \beta_7 \text{Total Asset*Dummy}_{it-1} + \beta_8 \text{Total Asset*Dummy}_{it-2} + \beta_9 \text{Total Debt*Dummy}_{it} + \beta_{10} \text{Total Debt*Dummy}_{it-1} + \beta_{11} \text{Total Debt*Dummy}_{it-2} + \beta_{12} GDP_t + \eta_i + \eta_t + \varepsilon_{it}$

Where: η_i is an unobserved portfolio-specific effect and η_t captures any common period-specific effects. ε_{it} is the error term, which represents measurement errors in the independent variable, and other explanatory variables that have been omitted. It is assumed to be independently identical normally distributed with zero mean and constant variance. A dummy variable taking the value 1 if the portfolio is value and 0 if the portfolio is growth. Finally, the symbols *, **, *** indicate significance at 10%, 5% and 1% respectively.

implying that value portfolios have inverse relationship to the changes in total asset. Finally, the coefficient for total debt interactive term is positive, indicating value firms are positively related to changes in leverage. These findings are consistent with our intuition that glamour firms have lower risk because of their investment pattern.

3.5 ROBUSTNESS CHECK

We also reassess our hypothesis for the case of Malaysia, a small emerging economy to check the robustness of our analysis. We choose Malaysia because it has several unique and interesting attributes. First, as a small open economy and trade reliant nation, it is highly exposed to the economic health of its major trading partners. A classic example is the impact of the recession in the United States (in early 2000), which caused Malaysia to go through a period of sluggish economic growth. It has also recently weathered a severe financial crisis, from mid of 1997 to the end 1998.

Malaysia also presents an interesting case study for several other reasons. The institutional setting of Malaysian market is not similar to the developed markets like the United States, United Kingdom or Japan, as it is top heavy. The top 50 or 60 stocks, by market capitalisation, account for most of the traded volume and index movement on any given day. Furthermore, most of the stocks in the category are also state owned and closely held. As a result, the volatility of the market is low, as compared to other regional markets.

In addition, Malaysia has achieved a remarkable growth in managed fund size in the last ten years. According to the Security Commission of Malaysia, the total Net Asset Value (NAV) of investment companies nearly doubled from RM 87.385 billion (USD 22.996 billion) in2004 to RM 198.217 billion (USD 59.51billion) in 2010. This value represents 20 percent of the Kuala Lumpur Stock Exchange (KLSE) market capitalization. Moreover, there is an ongoing liberalization of the financial markets. This is attracting significant interest from foreign fund managers and has further increased the managed fund size in Malaysia. Therefore, the results of this study have a direct implication for local and foreign fund managers.

In addition, unlike other regional emerging markets, Malaysia is the only country to have capital control for a significant amount of time during our study period. There is anecdotal evidence that Malaysian economic system is established on a relationship based system (see Gomez and Jomo, 1997); a system that exhibits political patronage, cronyism and low levels of transparency. Fraser et al. (2006) find that larger and more profitable Malaysian firms with political patronage carry more leverage than the firms with less political patronage.[41]

Unlike the study on BTIC countries, the sample period covered for Malaysia is from 1990 to 2008 which includes a sub-period with rapid economic growth (1990-1996), followed by one with severe financial crisis (1997-1998), and one with a post crisis recovery (1999-2008). Similar to BTIC studies, our preliminary analysis shows that Fama and French three

41. We investigate this issue in the third chapter.

factor model is adequate to capture the portfolio return for the Malaysian market. Table 3.6a and 3.6b show that all alphas are not significant.

Table 3.6a

Fama and French Three Factor (FFTFM) for Weighted Monthly Excess Returns on Six Portfolios formed on Size and BE/ME: Malaysia, 7/1990-6/2008, 228 Months

$$R_{pt}-R_{ft} = \alpha + b\,(R_{mt}-R_{ft}) + s\,SMB + h\,HML + \varepsilon$$

Portfolio	BG	BM	BV	SG	SM	SV
a	0.16	-0.48	-0.25	-0.30	-0.08	-0.05
t(a)	0.13	-0.25	-1.14	-1.20	-0.46	-0.33
b	0.88	0.98	0.97	1.01	0.88	1.05
t(b)	**11.06**	**36.04**	**21.57**	**28.92**	**33.10**	**44.06**
s	-0.20	-0.14	0.06	1.15	0.87	0.71
t(s)	**-6.08**	**-3.74**	**0.77**	**23.91**	**23.66**	**21.60**
h	-0.20	0.21	0.63	-0.54	0.25	0.58
t(h)	**-3.79**	**5.15**	**7.40**	**-10.22**	**6.41**	**16.34**
Adj R-squared	0.75	0.87	0.87	0.91	0.77	0.91

Notes: B/G, big to growth; B/M, big to medium; B/V, big to value; S/G, small to growth; S/M, small to medium, S/G, small to growth. Bold (t) statistics indicates that the estimated coefficient is significant at 5%.

Table 3.6b

FFTFM for Simple Monthly Excess Returns on Twenty-five Portfolios formed on Size and BE/ME: Malaysia, 7/1990-6/2008, 228 Months

$$R_{pt}-R_{ft} = \alpha + b\,(R_{mt}-R_{ft}) + s\,SMB + h\,HML + \varepsilon$$

Size	Low	2	3	4	High	Low	2	3	4	High
			a					t(a)		
Small	-0.63	-0.73	0.10	0.32	1.07	-1.64	-1.44	0.21	0.35	1.07
2	-1.41	-1.32	-1.00	-0.74	-0.58	-2.80	-4.61	-3.32	-2.13	-1.12
3	-1.92	-1.40	-1.04	-0.78	-0.77	-4.50	-4.00	-3.86	-2.45	-3.43
4	-1.97	-1.06	-1.24	-0.76	-1.12	-4.84	-3.38	-4.35	-2.47	-3.97
Big	-0.71	-0.70	-0.89	-0.30	-1.26	-2.00	-3.30	-2.65	-1.06	-3.23
			b					t(b)		
Small	0.96	0.98	0.79	0.90	1.09	**17.99**	**13.84**	**13.90**	**6.91**	**7.81**
2	0.87	0.88	0.80	0.89	0.82	**12.42**	**15.03**	**18.94**	**18.57**	**11.20**
3	1.06	0.99	0.94	0.99	1.02	**18.23**	**20.16**	**16.38**	**22.35**	**15.81**
4	0.91	0.91	0.92	0.93	1.02	**16.47**	**20.67**	**21.13**	**21.65**	**18.02**
Big	0.89	0.98	1.00	1.04	1.06	**10.33**	**33.24**	**12.42**	**26.63**	**19.57**
			s					t(s)		
Small	1.29	1.11	0.78	0.99	0.91	**17.46**	**11.41**	**6.85**	**5.51**	**4.72**
2	0.80	0.74	0.84	0.91	0.71	**8.29**	**9.43**	**14.51**	**13.71**	**6.99**
3	0.78	0.58	0.51	0.47	0.52	**9.76**	**8.69**	**5.78**	**7.66**	**6.00**
4	0.18	0.18	0.27	0.33	0.36	**1.79**	**3.12**	**4.37**	**5.57**	**4.07**
Big	0.08	-0.15	-0.09	-0.98	0.04	0.90	-3.77	-1.25	-1.83	0.50
			h					t(h)		
Small	-0.41	-0.15	-0.21	0.21	0.23	**-5.04**	-1.39	-2.46	1.09	**1.10**
2	-0.37	0.06	0.32	0.49	0.20	-3.57	0.62	**4.97**	**6.88**	**1.83**
3	-0.18	0.25	0.21	0.39	0.45	-0.28	**3.40**	**1.68**	**5.95**	**4.75**
4	0.28	0.16	0.27	0.42	0.60	**1.62**	**2.39**	**4.36**	**6.57**	**5.26**
Big	-0.13	0.15	0.17	0.36	0.51	-2.20	**3.34**	**2.14**	**6.17**	**6.26**

Notes: S refers to size and L to BE/ME. For instance S1L1 refers to lowest quintile in size and BE/ME. Bold (t) statistics indicates that the estimated coefficient is significant at 5%.

Our empirical analysis for Malaysia produces the following results. Table 3.7a shows the average excess return on the six size-BE/ME equity sorted portfolios for the full sample. The results show that the value portfolios produced higher returns than the growth portfolios. For instance, BV portfolio generates returns twice as much as the BG portfolio. We can also observe similar differences in SV and SG portfolios. Meanwhile, Table 3.7b also demonstrates similar patterns in returns. The portfolios in the lowest size quintile and the highest in BE/ME quintile generate the highest return compared to other portfolios. This clearly indicates the presence of the value premium in the Malaysian market.

Table 3.7a

Summary Statistics for Weighted Monthly Percent Excess Returns on Six Portfolios formed on Size and BE/ME: Malaysia, 7/1990-6/2008, 228 Months

Portfolio	RPTRFT	Portfolio	RPTRFT
BG	0.64*	**SG**	1.27*
	(1.28)		(1.42)
BM	1.14**	**SM**	0.50
	(2.05)		(0.36)
BV	1.57**	**SV**	2.28**
	(2.20)		(2.60)
VMG	0.97		
	(2.65)**		

Notes: B/G, big to growth; B/M, big to medium; B/V, big to value; S/G, small to growth; S/M, small to medium, S/G, small to growth; VMG [{(SV+BV)/2}-{(SG+BG)/2}], value minus growth, RPTRFT, return of a certain portfolio minus risk free rate. We report one mean t-statistics with $H_0=0$ and $H_1 >0$ in parentheses. The symbol * indicate significance at 10%, ** at 5% while *** at 1%.

Table 3.7b

Summary Statistics for Simple Monthly Percent Excess Returns on Twenty-five Portfolios formed on Size and BE/ME: Malaysia, 7/1990-6/2008, 228 Months

PT	RPTRFT	PT	RPTRFT	PT	RPTRFT	PT	RPTRFT	PT	RPTRFT
S1L1	1.58	**S2L1**	-1.09	**S3L1**	-0.19	**S4L1**	-0.94	**S5L1**	-0.35
	(1.25)		(-1.32)		(-0.21)		(-1.26)		(-0.70)
S1L2	0.69	**S2L2**	-0.08	**S3L2**	-0.05	**S4L2**	-0.42	**S5L2**	0.41
	(0.76)		(-0.10)		(-0.06)		(-0.59)		(0.07)
S1L3	1.07	**S2L3**	0.52	**S3L3**	0.50	**S4L3**	0.14	**S5L3**	0.25
	(1.23)		(0.66)		(0.61)		(0.20)		(0.41)
S1L4	0.62	**S2L4**	0.80	**S3L4**	0.65	**S4L4**	0.43	**S5L4**	0.35
	(0.65)		(0.98)		(0.82)		(0.60)		(0.52)
S1L5	4.02	**S2L5**	1.45	**S3L5**	0.70	**S4L5**	0.68	**S5L5**	0.54
	(2.72)		(1.18)		(0.85)		(0.86)		(0.69)

Notes: S refers to size and L to BE/ME. For instance S1L1 refers to lowest quintile in size and BE/ME. RPTRFT, return of a certain portfolio minus risk free rate. We report one mean t-statistics with H_o=0 and H_1 >0 in parentheses.

Table 3.8 presents summary statistics of the characteristics of the stocks in each group. Looking at all the five quintiles of Z-score, there seems to be no apparent difference between low BE/ME and high BE/ME stocks. For instance, the Z-score in the lowest quintile is 0.588 for low BE/ME stocks and 0.739 for high BE/ME stocks. Moreover, both types of stocks exhibit similar scores as we move to the higher quintile, with the exception of the highest quintile.

Meanwhile, Table 3.8 also shows that within the high BE/ME group, the average book-to-market ratio is higher for firms with a low Z-score than firms with a higher Z-score, and conversely for the low BE/ME group. We also find a firm's size to be inversely related with BE/ME and positively related to Z-score. One might find this observation puzzling. However, when looking at Malaysia's economic structure, where most of the big and

successful firms are either state owned or politically connected, our results then make more sense. This is due to the fact these firms have special privileges to capture government-created rents through privatisation, licences or contracts. For instance, *Renong Bhd*, a company with a direct link to the ruling party, emerged as one of Malaysia's largest conglomerates (see Gomez, 1994). Furthermore, market leverage is negatively related to both Z-score and BE/ME. High BE/ME firms have higher leverage than low BE/ME in all Z-score quintiles. Profitability is positively related with Z-score and inversely related to BE/ME. Moreover, firms in low BE/ME have higher profitability than high BE/ME from the third to fifth quintile of Z-score.

The rolling regression estimates of the Fama-French three factor model for the full sample period are provided in Table 3.9a and 3.9b. The results show BG and SG portfolios have negative coefficients, while BV and SV have positive coefficients. We further test this model with the twenty five size-BE/ME portfolios. Table 3.9b illustrates pretty much the same pattern. Portfolios in the lowest quintile of BE/ME have either negative loading or small positive value. Meanwhile, portfolios in the higher quintile of BE/ME have higher positive loadings.

Table 3.8

Summary Statistics of Firm Characteristics for Portfolios (Malaysia) Sorted on BE/ME and the Probability of Financial Distress.

Portfolio	*L*	*M*	*H*	*Portfolio*	*L*	*M*	*H*
Z-score				***ROA***			
1	0.588	1.044	0.739	**1**	-0.039	0.003	0.021
2	2.404	2.384	2.453	**2**	0.013	0.051	0.037
3	4.438	4.175	4.133	**3**	0.056	0.070	0.054
4	9.705	9.976	12.536	**4**	0.091	0.079	0.084
5	36.995	34.459	27.248	**5**	0.071	0.109	0.061
BE/ME				***Leverage***			
1	0.309	0.852	2.111	**1**	1.814	1.773	2.219
2	0.372	0.824	1.884	**2**	0.908	0.896	1.102
3	0.392	0.822	1.771	**3**	0.366	0.473	0.572
4	0.357	0.796	1.651	**4**	0.162	0.194	0.293
5	0.368	0.835	1.865	**5**	0.068	0.081	0.116
Size				***Asset***			
1	707.81	569.46	610.97	**1**	1775.10	1533.66	1837.17
2	1234.57	400.93	451.71	**2**	2276.29	651.94	820.48
3	1645.31	613.41	730.51	**3**	1757.35	811.74	536.43
4	2339.92	1786.47	448.58	**4**	1810.52	1104.11	585.87
5	1342.18	530.58	596.07	**5**	589.68	521.31	530.02

Notes: KLSE firms from July 1991 to June 2008 are ranked independently every June based on their values of the probability of financial distress (Z-Score) calculated using Altman (1993) model. Leverage the ratio of total book assets less book equity to market equity. Return on assets is the ratio of income before extraordinary items to total book assets. Size is the market value of equity while asset is the total asset. Both size and total assets are in million.

Table 3.9a

Mean coefficient of rolling regression for six size-BE/ME portfolios (Malaysia)

	BG	BM	BV	SG	SM	SV
constant	0.033125	0.03137	-0.42815	-0.42815	-0.15097	-0.15097
Rm-Rf	0.873151	1.005195	0.973935	1.058644	0.907441	1.066236
SMB	-0.10504	-0.13366	0.130523	1.227393	0.888369	0.795085
HML	-0.21266	0.206796	0.583823	-0.55531	0.211459	0.637569

Note: The coefficients are generated from rolling regression (36-month rolling window) using FFTFM.

Table 3.9b

Mean coefficient of rolling regression for twenty-five size-BE/ME portfolios (Malaysia)

	L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
	Constant					***Market***				
S1	-0.79	-0.76	0.41	-0.26	0.40	1.04	1.09	0.85	0.85	1.47
S2	-1.45	-1.37	-1.09	-0.49	-1.54	0.86	0.92	0.86	0.89	0.88
S3	-1.62	-1.28	-1.13	-0.77	-0.80	1.05	1.03	1.01	0.99	1.09
S4	-2.09	-1.10	-1.23	-0.72	-1.04	0.93	0.88	0.93	0.85	1.07
S5	-0.75	-0.81	-0.74	-0.29	-1.56	0.89	0.98	1.02	1.03	1.04
	SMB					***HML***				
S1	1.34	1.22	0.71	0.85	1.44	-0.43	-0.21	-0.10	0.20	0.15
S2	0.99	0.78	0.79	0.74	0.72	-0.25	0.07	0.29	0.40	0.21
S3	0.70	0.54	0.45	0.46	0.53	-0.08	0.29	0.27	0.47	0.47
S4	0.29	0.19	0.29	0.25	0.36	0.38	0.25	0.28	0.44	0.64
S5	0.26	-0.05	-0.05	-0.06	0.14	-0.08	0.17	0.15	0.35	0.46

Note: The coefficients are generated from rolling regression (36-month rolling window) using FFTFM.

To provide further insight to our argument, we graph the coefficient of HML of our twenty five size-BE/ME portfolios. Figures 3.101-3.125 exhibit the pattern of time varying betas (coefficient of HML) for each portfolio. We notice that value portfolios have higher coefficients than glamour portfolios. In addition, the coefficients (HML) of value portfolios are more stable over time, except during the financial crisis period. In contrast, the coefficients (HML) of glamour portfolios are generally lower during the crisis and early recovery period. However the coefficients increase significantly during the

expansion period. This is consistent with our hypothesis that glamour firms increase their business risk by undertaking the growth options.

[Insert Figures 3.101-3.125 here]

We further test this argument by estimating Equation 1 using the fixed effect static panel data estimation technique. Table 3.10 shows the estimation output for Equation 1. We notice the current variable has no significant effect on the coefficient of HML except GDP. This is expected, as the changes in the firm's policy are not immediate. Therefore, the interpretation of lag is more appropriate in the context of our study.

We notice a significant difference between the coefficients for glamour and value portfolios. In the case of glamour portfolios, lag of natural logarithm of total asset has a positive impact on the coefficient of HML.[42] A 1 percent increase in total asset is estimated to have the effect on the coefficient of HML by 0.22, which further strengthens our argument that glamour firms increase their business risk by undertaking growth options. However, we find the opposite impact for value portfolios. A 1 percent increase in total asset is estimated to reduce the coefficient by of HML by 0.01. We also find that the lag of natural logarithm of total debt has a positive impact on the coefficient of HML, but falls short of significance. In nutshell, our findings on Malaysia support the findings the of our analysis on BTIC countries.

42. Unlike BTIC countries, we only use lag one for Malaysia as we find lag two are not significance.

Table 3.10

Estimation output for Equation 1 (Malaysia)

Dependent Variables:	HML	
Independent Variables	Coefficient	t
Constant	-0.0113	-0.02
Total Assets	-0.1695	-1.91
Total Assets (-1)	0.2222**	2.49
Total Debt	0.0630	1.52
Total Debt (-1)	0.0099	0.26
Total Assets*Dummy	0.0433	0.34
Total Assets*Dummy (-1)	-0.2348*	-1.90
Total Debt*Dummy	-0.0312	-0.52
Total Debt*Dummy (-1)	0.0431	0.77
GDP	-0.0119**	-2.94

Notes: $HML = \alpha + \beta_0 \text{ Total Asset}_{it} + \beta_1 \text{ Total Asset}_{it-1} + \beta_2 \text{Total Debt}_{it} + \beta_3 \text{Total Debt}_{it-1} + \beta_4 \text{ Total Asset*Dummy}_{it} + \beta_5 \text{ Total Asset*Dummy}_{it-1} + \beta_6 \text{ Total Debt*Dummy}_{it} + \beta_7 \text{ Total Debt*Dummy}_{it-1} + \beta_8 GDP_t + \eta_i + \eta_t + \varepsilon_{it}$

Where: η_i is an unobserved firm-specific effect and η_t captures any common period-specific effects. ε_{it} is the error term, which represents measurement errors in the independent variable, and other explanatory variables that have been omitted. It is assumed to be independently identical normally distributed with zero mean and constant variance. A dummy variable taking the value 1 if the portfolio is value and 0 if the portfolio is growth. The numbers in brackets are p-values. * indicate significance at 10% while ** at 5%.

3.6 CONCLUSION

A number of theories have been postulated to rationalize the source of the value premium. However, the issue still remains controversial. In this paper, we reassess this issue for the case of four emerging economies (i.e., Brazil, India, China and Turkey) with vast economic potential and Malaysia, a small emerging economy with top heavy, closely held, state-owned institutional setting. The main contribution of this paper is on rationalizing the value premium to economic fundamentals, attributing it to the investment

pattern of the glamour firm. That is, glamour firms are likely to stockpile capital, particularly in unfavourable economic climate. Whilst this limits their exposure to risk, it negatively impacts on both their market valuation and their returns.

In linking the risk and characteristics based models, this paper makes an important contribution by reconciling the diverging neoclassical views of FF (1995) and DT (1997). By demonstrating that distress risk is not the main cause for the wide spread in expected return between value and growth stocks but is rather a cause of the firm's unique characteristics, an important development in the understanding of value is made. This is done by illustrating that glamour firms have the unique characteristic of being endowed with growth options. This entails capital outlay enhancing their business risk and differentiating them from value firms. Value firms, by contrast, have fixed assets that are used as collateral to lever up in order to boost their earnings aggravating their financial risk. Our findings are consistent with Chen et al. (2010) in suggesting the view of DT (1997), which postulates that risk does not determine expected return, is exaggerated.

A further contribution is in the reconciliation of the diverging neoclassical and behavioral perspectives, by utilizing the Rational Expectations perspective of Lucas (1978) as extended by Sargent (1987). In our study, the range of options available to glamour firms provides a utility ('infatuation') in itself, separate from the monetary returns in the form of capital gains and dividends. This inherent utility of glamour firms is attractive to investors, causing an increase in their price with the subsequent effect of reducing their returns.

The hypotheses of this paper have been corroborated by the empirical findings. Firstly, our preliminary analysis has shown that value portfolios outperform glamour portfolios regardless of the formation technique. This finding is consistent with several other studies on developed international markets (see Chan et al., 1991; Capaul et al., 1993; and Fama and French, 1998). Secondly, by using the Altman Z-score, we found no evidence that value stocks have a greater distress risk than glamour stocks, contradicting the view of FF (1995). However, the evidence that value firms employ more leverage than glamour ones reconciles the behavioral perspective of DeBondt and Thaler (1985, 1987) with that of the neoclassical perspective of Merton (1974). That is, the leverage behavior of value firms is akin to volatile financial options, plummeting very fast during economic downturns and rebounding equally fast upon economic recovery.

Thirdly, by expanding the perspective of DT, we observe that growth portfolios have a lower risk. Our observation is based on the pattern of coefficients (HML) generated from rolling regression analysis. Finally, using static panel data analysis, we find that the coefficients (HML) of growth portfolios are sensitive to the changes in total assets, reaffirming our belief that the risk and return structure of growth firms is determined by their investment pattern. All these findings substantiate our assertion that the value premium is accredited to economic fundamentals.

We believe our paper provides further insights on the source of the value premium, particularly in the context of the under-researched emerging economies. Testing the same hypothesis in a developed market would be a worthwhile basis for further investigation.

Figures 3.1-3.25: Graphs Illustrating the Pattern of Coefficients (HML) for Portfolios of Brazil formed on Size and BE/ME

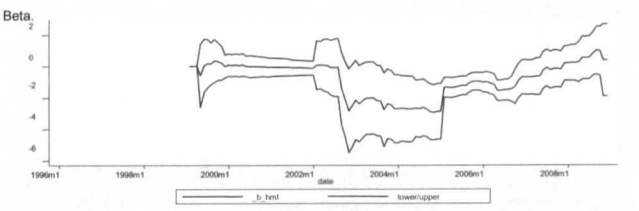

Figure 3.1: Portfolio S1L1

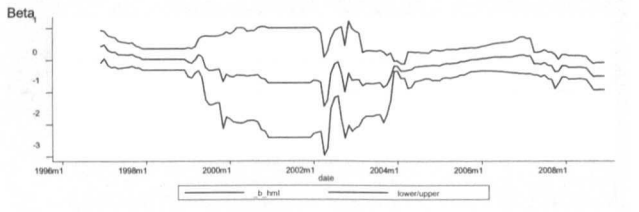

Figure 3.2: Portfolio S1L2

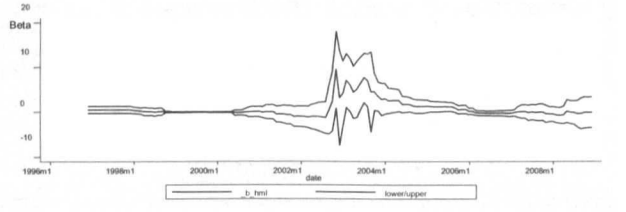

Figure 3.3: Portfolio S1L3

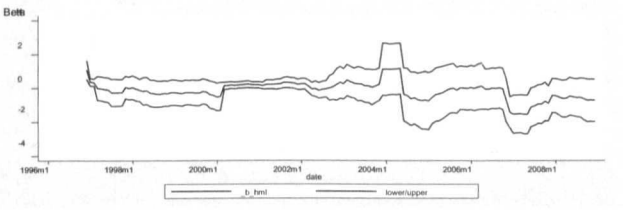

Figure 3.4: Portfolio S1L4

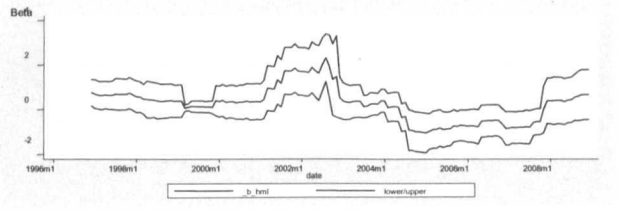

Figure 3.5: Portfolio S1L5

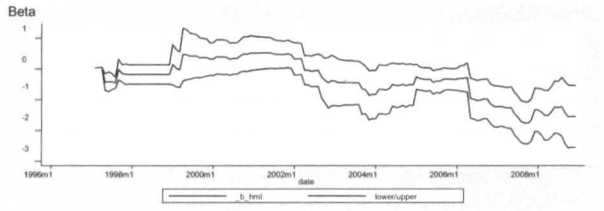

Figure 3.6: Portfolio S2L1

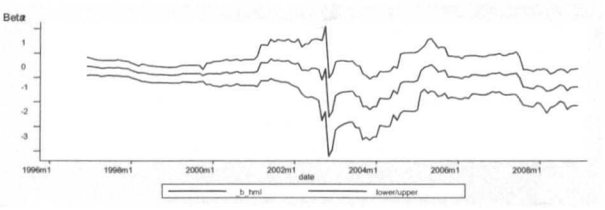

Figure 3.7: Portfolio S2L2

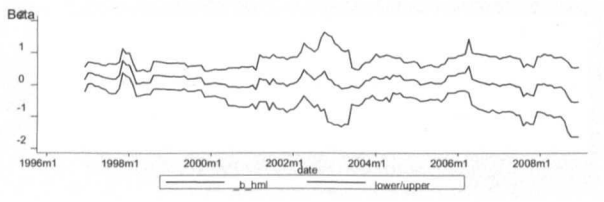

Figure 3.8: Portfolio S2L3

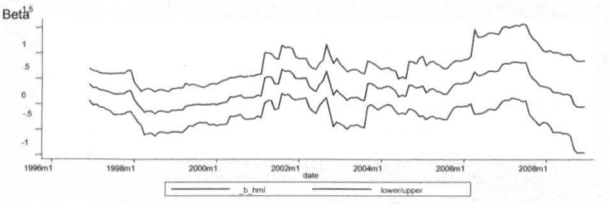

Figure 3.9: Portfolio S2L4

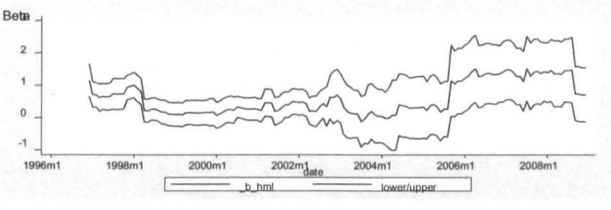

Figure 3.10: Portfolio S2L5

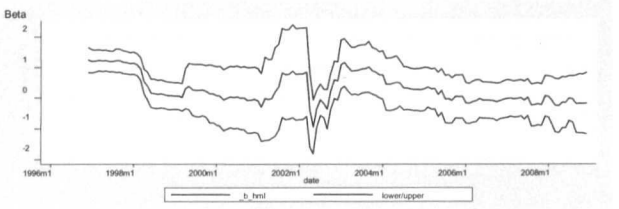

Figure 3.11: Portfolio S3L1

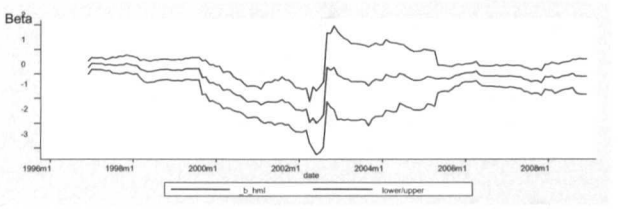

Figure 3.12: Portfolio S3L2

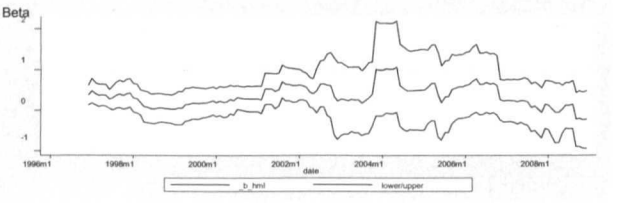

Figure 3.13: Portfolio S3L3

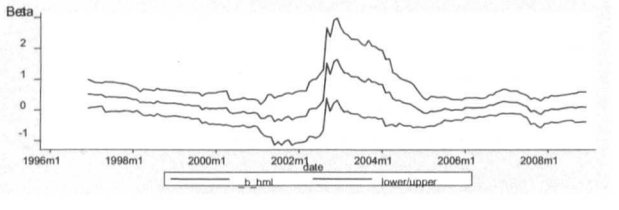

Figure 3.14: Portfolio S3L4

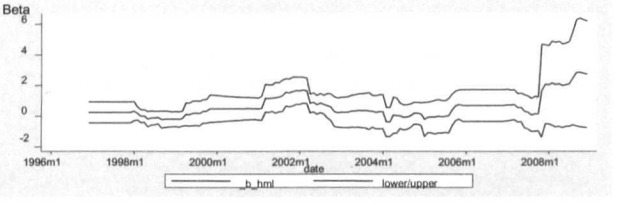

Figure 3.15: Portfolio S3L5

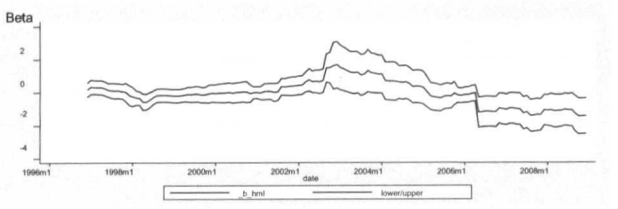

Figure 3.16: Portfolio S4L1

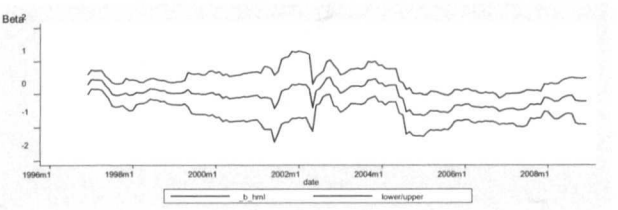

Figure 3.17: Portfolio S4L2

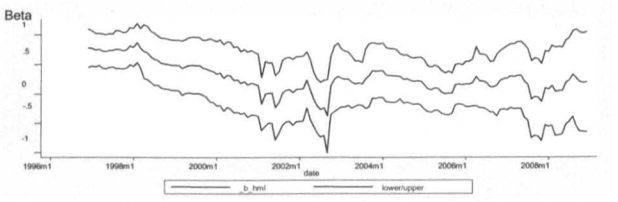

Figure 3.18: Portfolio S4L3

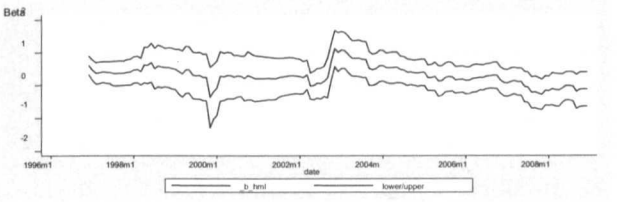

Figure 3.19: Portfolio S4L4

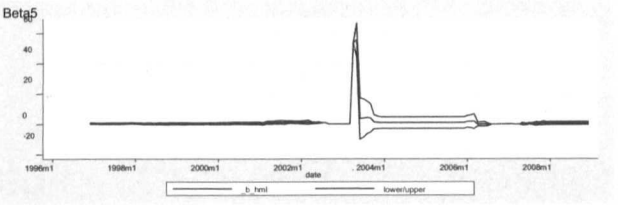

Figure 3.20: Portfolio S4L5

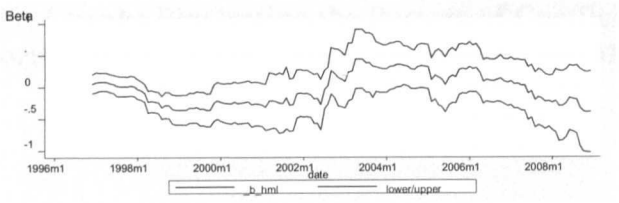

Figure 3.21: Portfolio S5L1

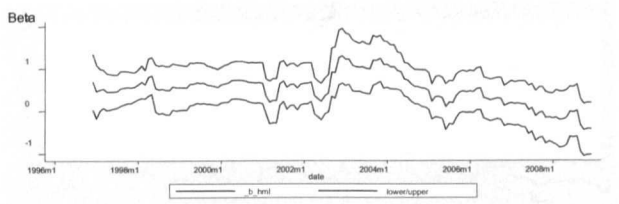

Figure 3.22: Portfolio S5L2

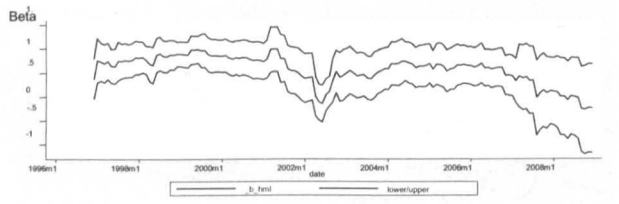

Figure 3.23: Portfolio S5L3

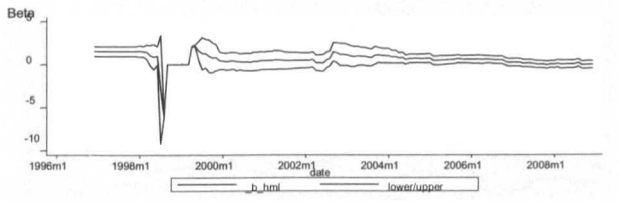

Figure 3.24: Portfolio S5L4

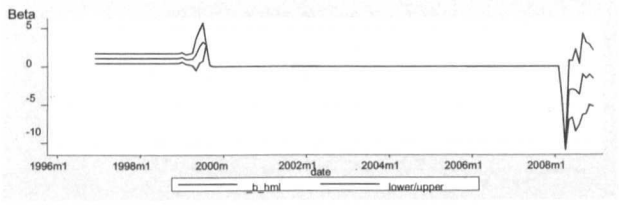

Figure 3.25: Portfolio S5L5

Figures 3.26-3.50: Graphs Illustrating the Pattern of Coefficients (HML) for Portfolios of Turkey formed on Size and BE/ME

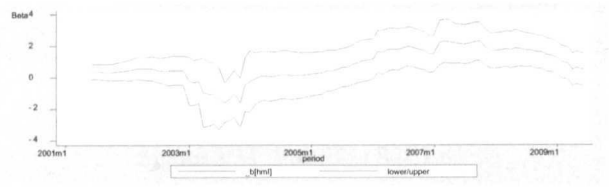

Figure 3.26: Portfolio S1L1

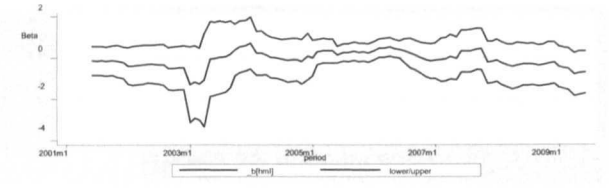

Figure 3.27: Portfolio S1L2

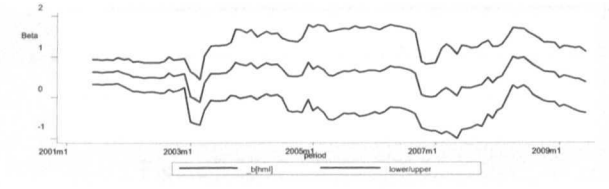

Figure 3.28: Portfolio S1L3

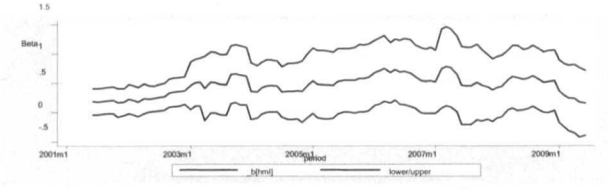

Figure 3.29: Portfolio S1L4

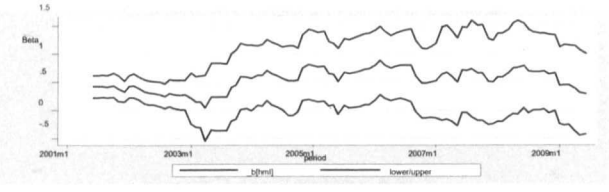

Figure 3.30: Portfolio S1L5

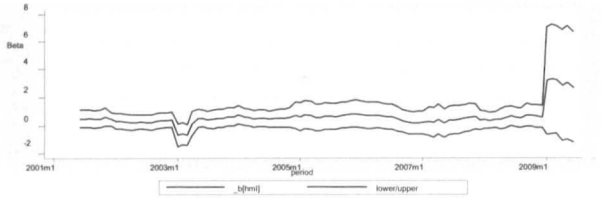

Figure 3.31: Portfolio S2L1

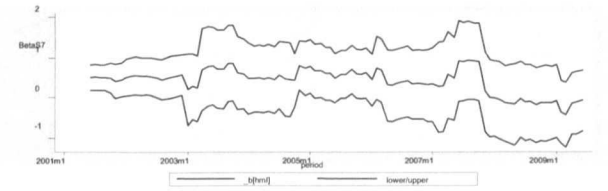

Figure 3.32: Portfolio S2L2

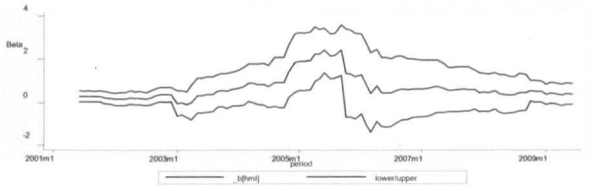

Figure 3.33: Portfolio S2L3

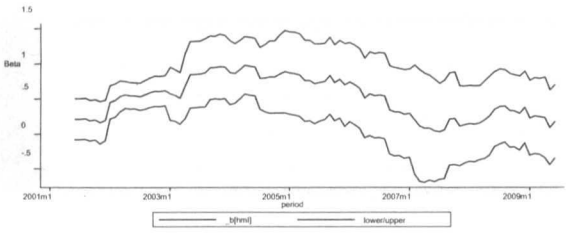

Figure 3.34: Portfolio S2L4

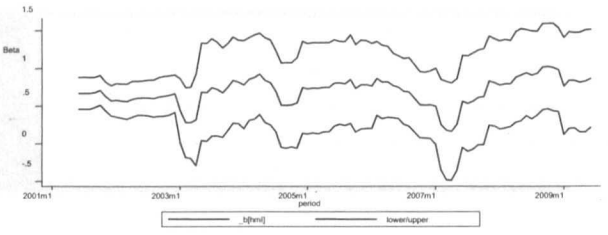

Figure 3.35: Portfolio S2L5

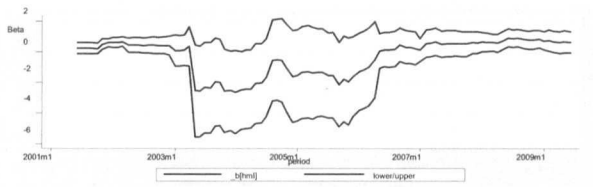

Figure 3.36: Portfolio S3L1

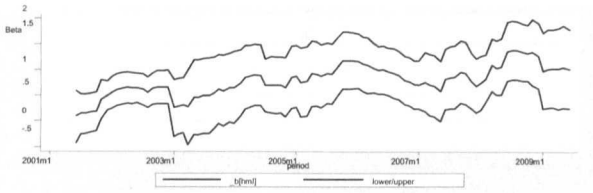

Figure 3.37: Portfolio S3L2

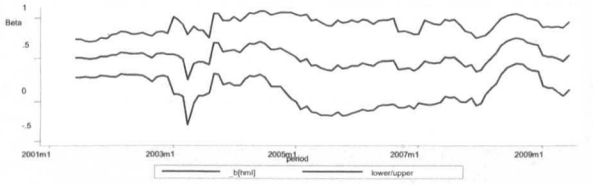

Figure 3.38: Portfolio S3L3

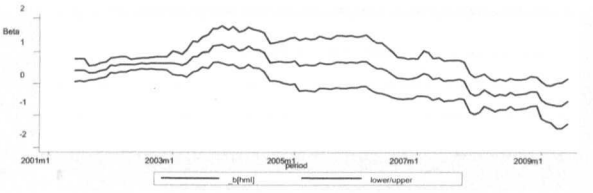

Figure 3.39: Portfolio S3L4

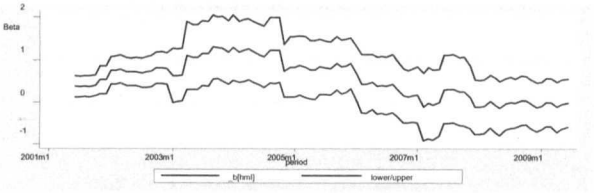

Figure 3.40: Portfolio S3L5

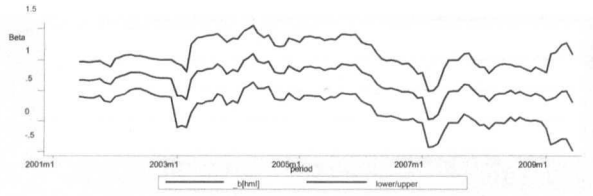

Figure 3.41: Portfolio S4L1

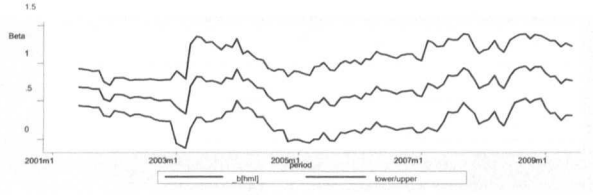

Figure 3.42: Portfolio S4L2

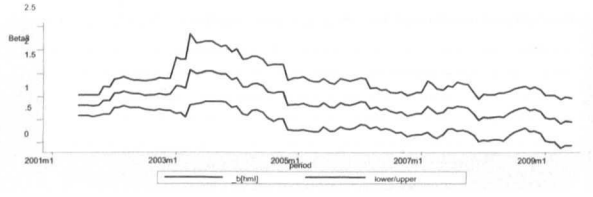

Figure 3.43: Portfolio S4L3

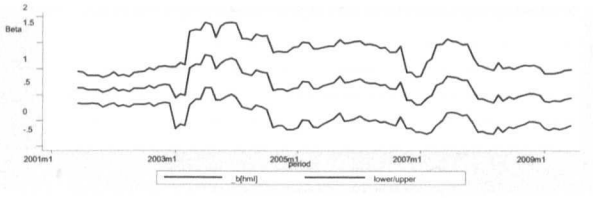

Figure 3.44: Portfolio S4L4

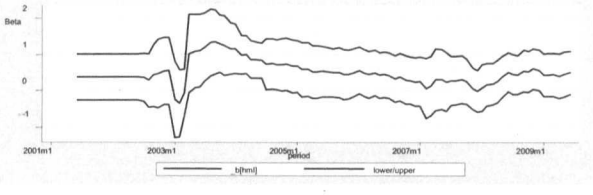

Figure 3.45: Portfolio S4L5

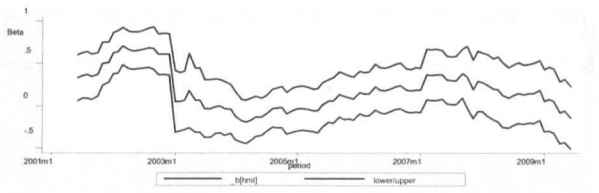

Figure 3.46: Portfolio S5L1

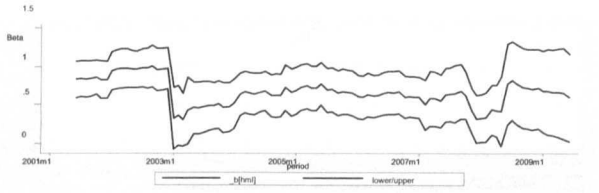

Figure 3.47: Portfolio S5L2

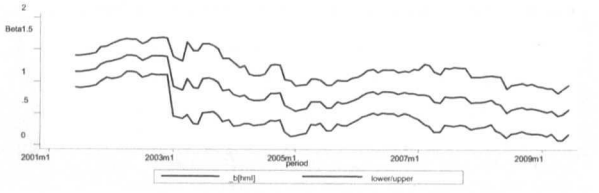

Figure 3.48: Portfolio S5L3

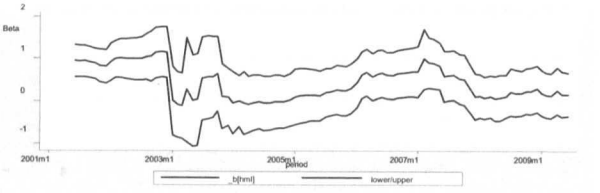

Figure 3.49: Portfolio S5L4

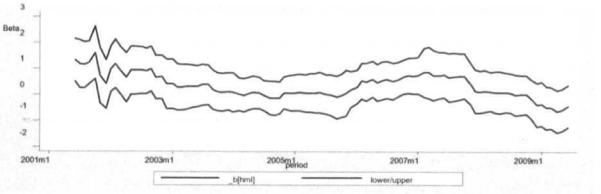

Figure 3.50: Portfolio S5L5

Figures 3.51-3.75: Graphs Illustrating the Pattern of Coefficients (HML) for Portfolios of India formed on Size and BE/ME

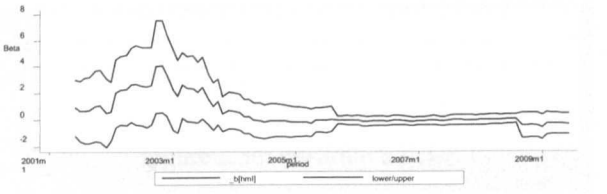

Figure 3.51: Portfolio S1L1

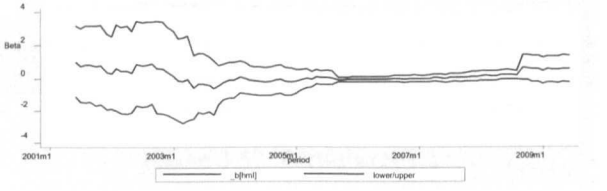

Figure 3.52: Portfolio S1L2

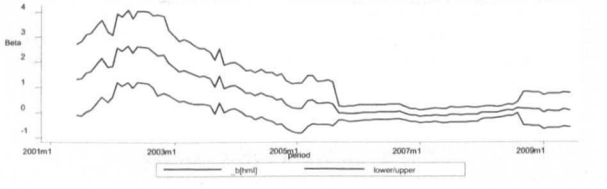

Figure 3.53: Portfolio S1L3

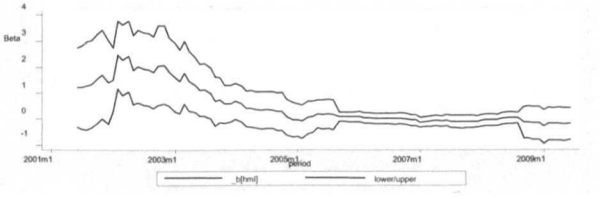

Figure 3.54: Portfolio S1L4

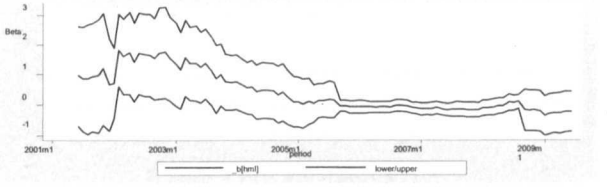

Figure 3.55: Portfolio S1L5

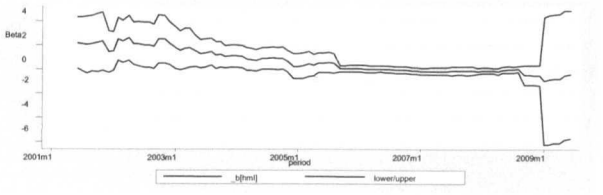

Figure 3.56: Portfolio S2L1

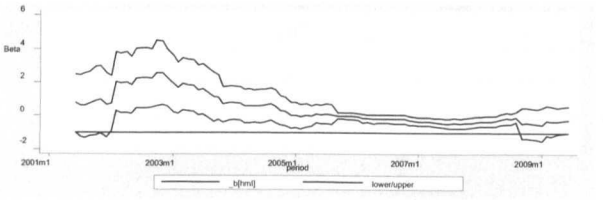

Figure 3.57: Portfolio S2L2

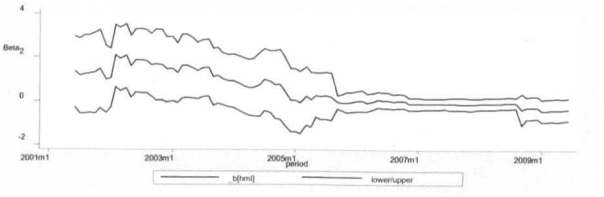

Figure 3.58: Portfolio S2L3

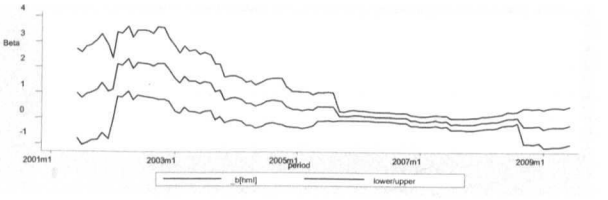

Figure 3.59: Portfolio S2L4

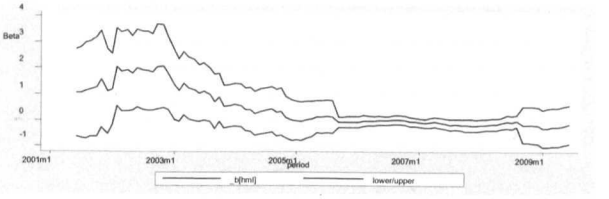

Figure 3.60: Portfolio S2L5

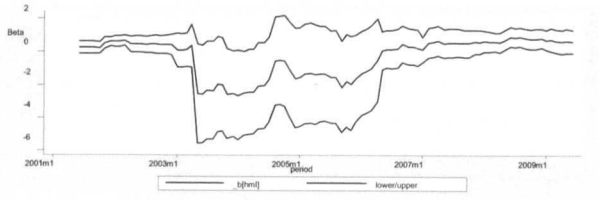

Figure 3.61: Portfolio S3L1

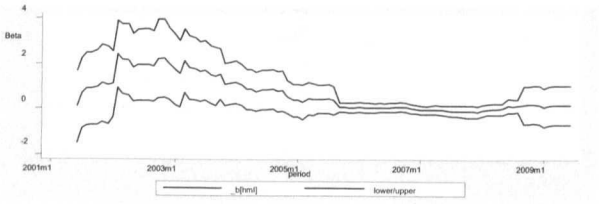

Figure 3.62: Portfolio S3L2

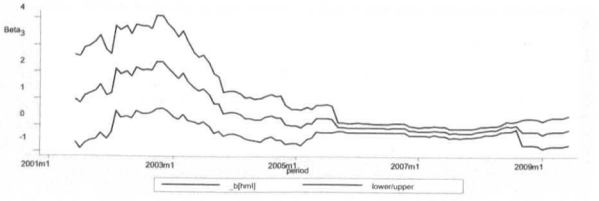

Figure 3.63: Portfolio S3L3

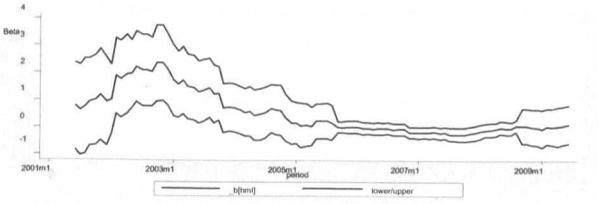

Figure 3.64: Portfolio S3L4

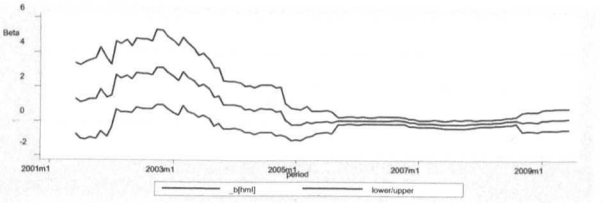

Figure 3.65: Portfolio S3L5

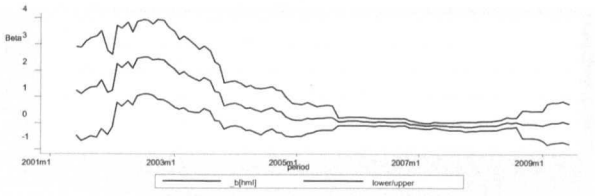

Figure 3.66: Portfolio S4L1

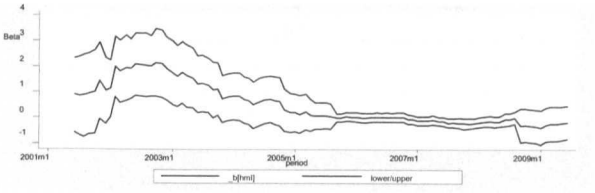

Figure 3.67: Portfolio S4L2

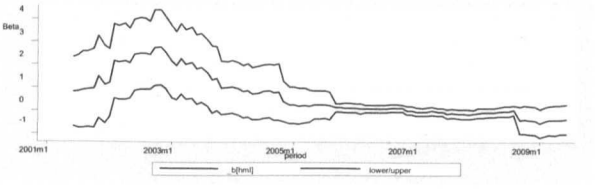

Figure 3.68: Portfolio S4L3

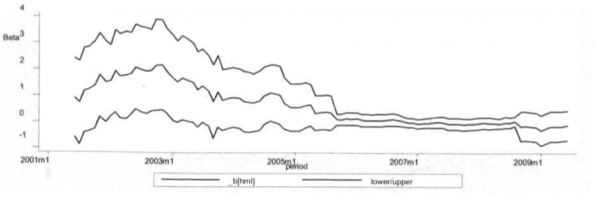

Figure 3.69: Portfolio S4L4

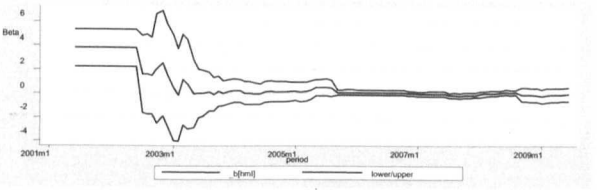

Figure 3.70: Portfolio S4L5

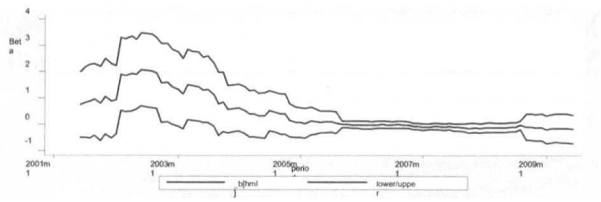

Figure 3.71: Portfolio S5L1

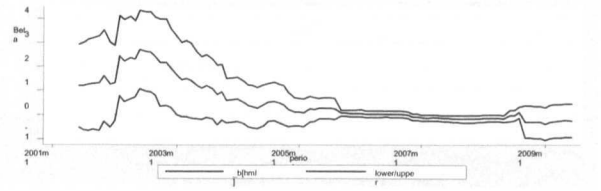

Figure 3.72: Portfolio S5L2

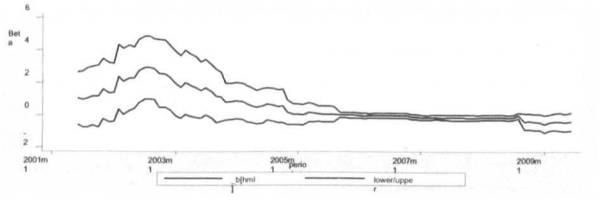

Figure 3.73: Portfolio S5L3

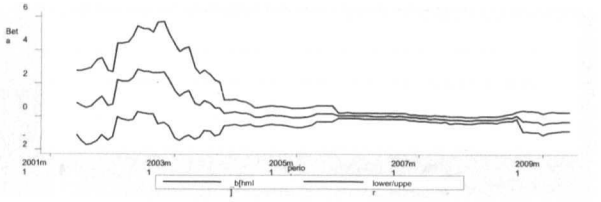

Figure 3.74: Portfolio S5L4

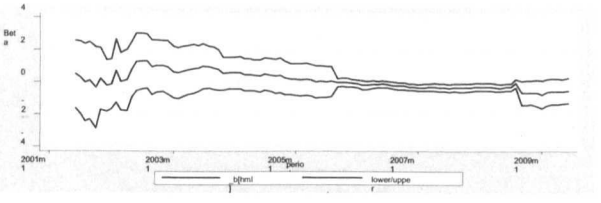

Figure 3.75: Portfolio S5L5

Figures 3.76-3.100: Graphs Illustrating the Pattern of Coefficients (HML) for Portfolios of China formed on Size and BE/ME

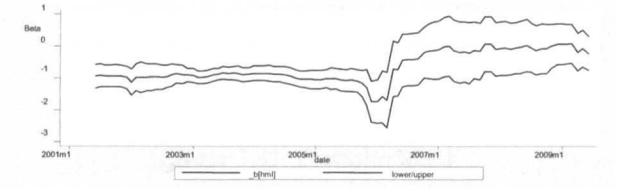

Figure 3.76: Portfolio S1L1

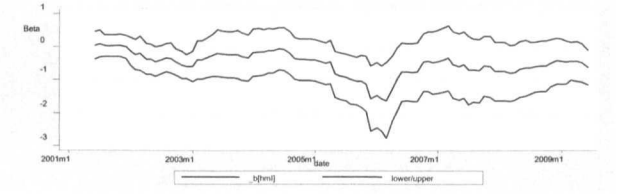

Figure 3.77: Portfolio S1L2

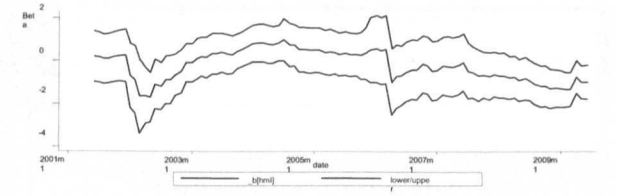

Figure 3.78: Portfolio S1L3

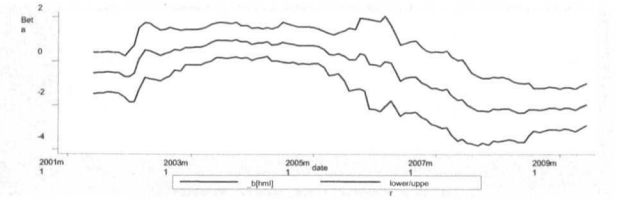

Figure 3.79: Portfolio S1L4

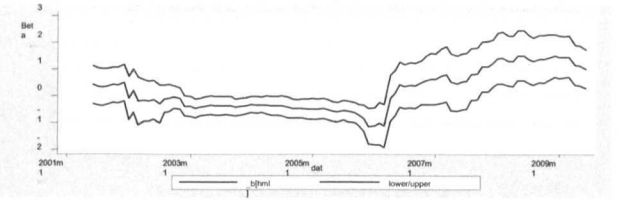

Figure 3.80: Portfolio S1L5

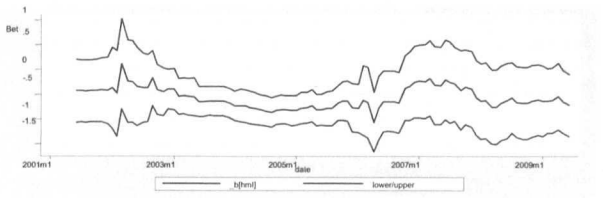

Figure 3.81: Portfolio S2L1

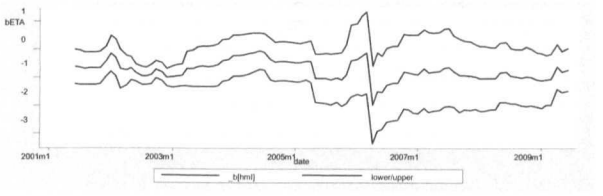

Figure 3.82: Portfolio S2L2

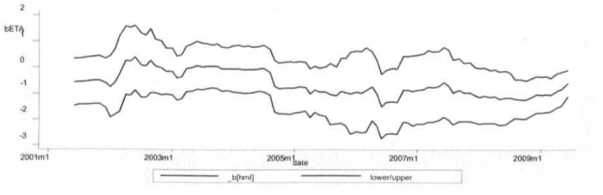

Figure 3.83: Portfolio S2L3

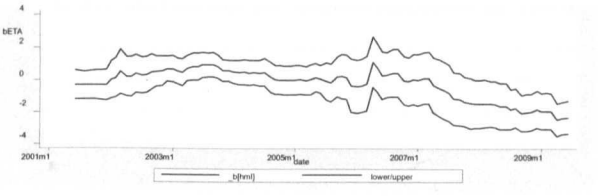

Figure 3.84: Portfolio S2L4

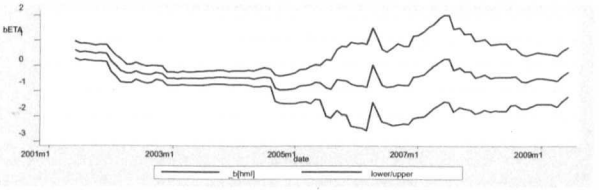

Figure 3.85: Portfolio S2L5

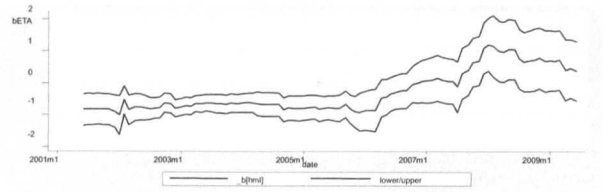

Figure 3.86: Portfolio S3L1

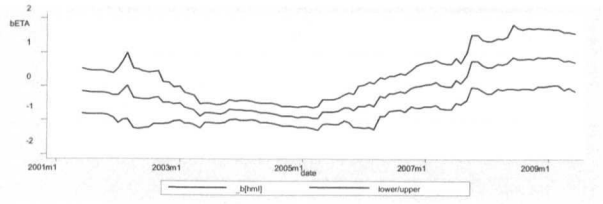

Figure 3.87: Portfolio S3L2

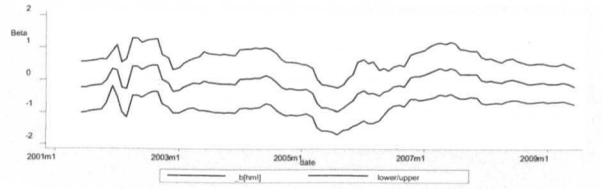

Figure 3.88: Portfolio S3L3

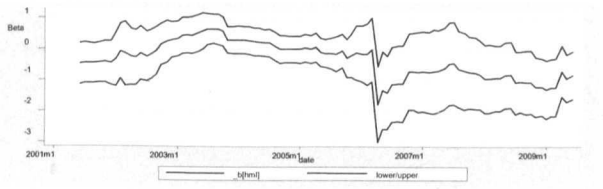

Figure 3.89: Portfolio S3L4

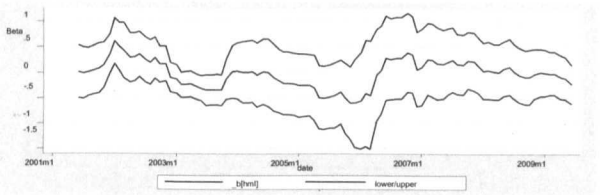

Figure 3.90: Portfolio S3L5

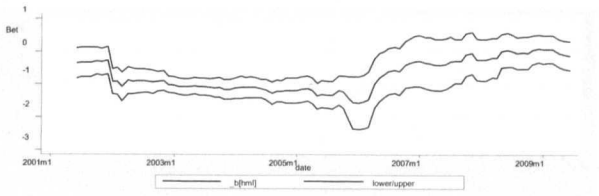

Figure 3.91: Portfolio S4L1

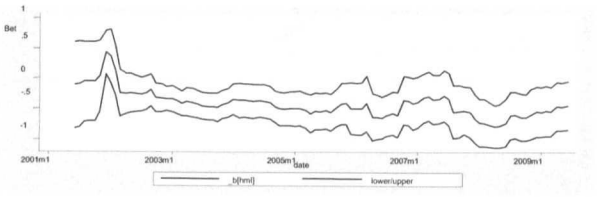

Figure 3.92: Portfolio S4L2

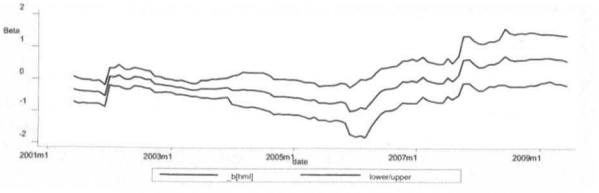

Figure 3.93: Portfolio S4L3

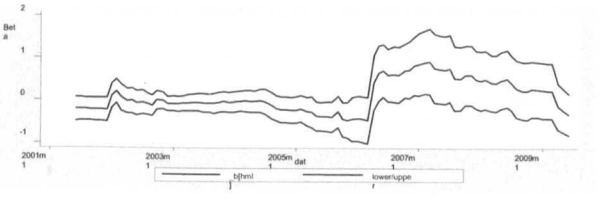

Figure 3.94: Portfolio S4L4

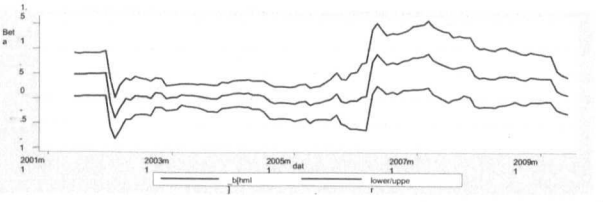

Figure 3.95: Portfolio S4L5

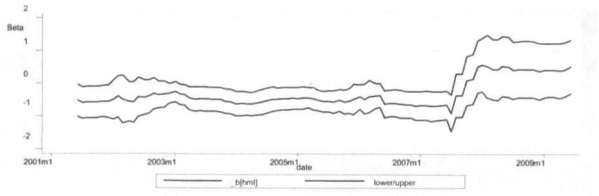

Figure 3.96: Portfolio S5L1

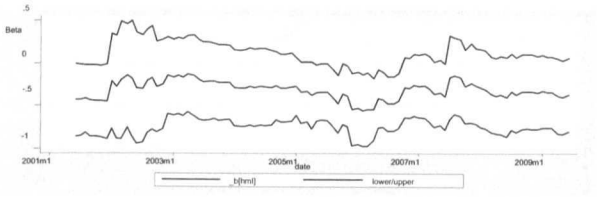

Figure 3.97: Portfolio S5L2

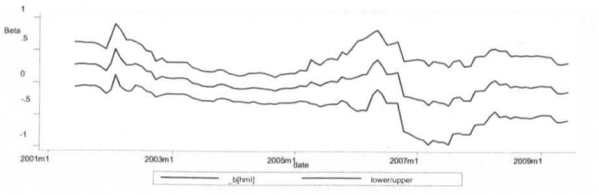

Figure 3.98: Portfolio S5L3

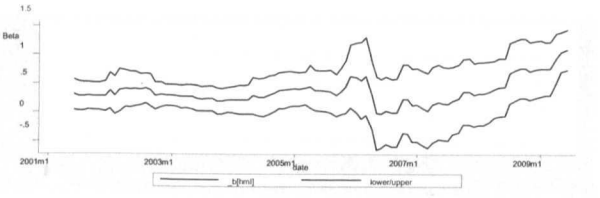

Figure 3.99: Portfolio S5L4

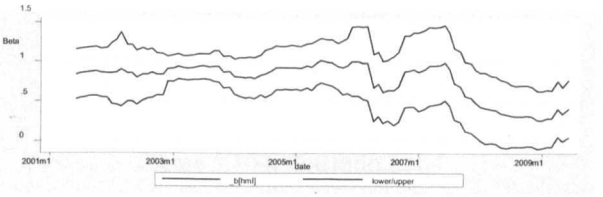

Figure 3.100: Portfolio S5L5

Figures 3.101-3.125 Graphs Illustrating the Pattern of Coefficients (HML) for Portfolios of Malaysia formed on Size and BE/ME.

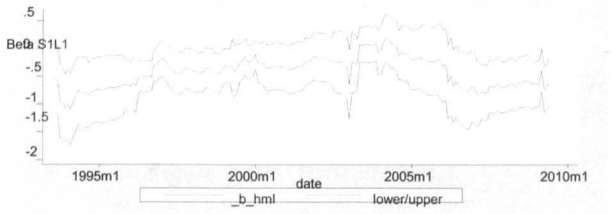

Figure 3.101: Portfolio S1L1

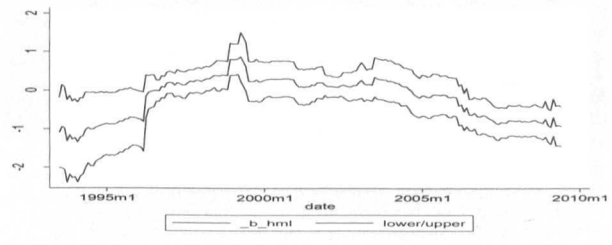

Figure 3.102: Portfolio S1L2

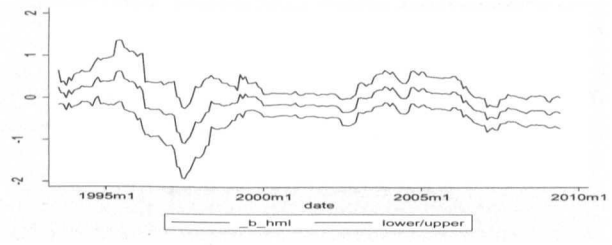

Figure 3.103: Portfolio S1L3

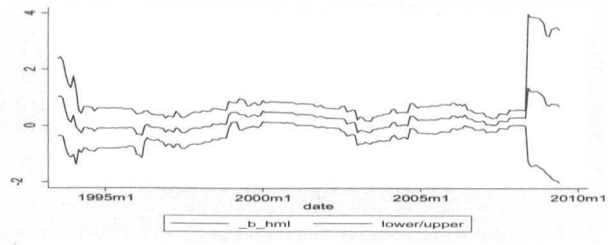

Figure 3.104: Portfolio S1L4

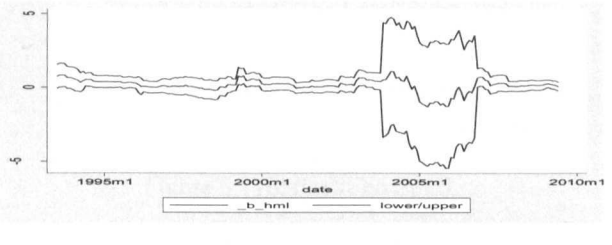

Figure 3.105: Portfolio S1L5

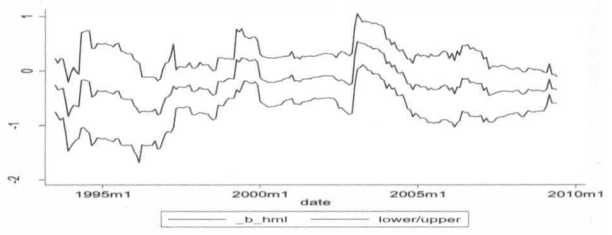

Figure 3.106: Portfolio S2L1

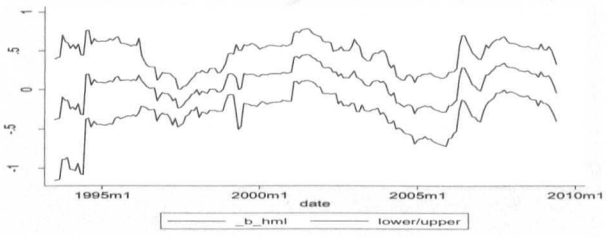

Figure 3.107: Portfolio S2L2

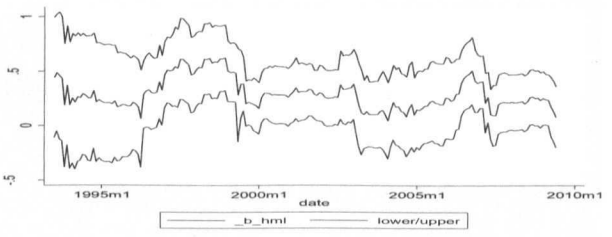

Figure 3.108: Portfolio S2L3

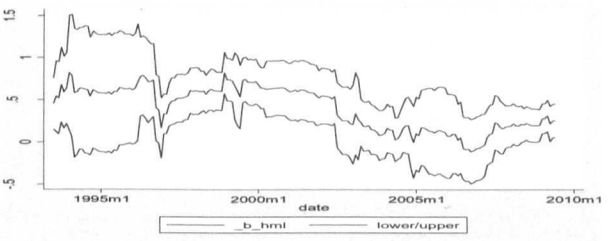

Figure 3.109: Portfolio S2L4

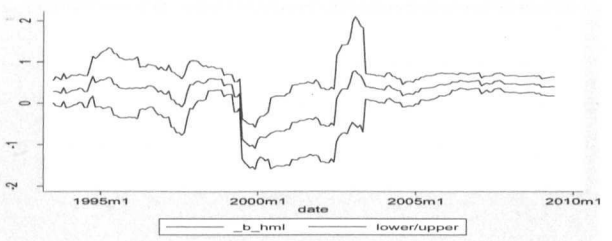

Figure 3.110: Portfolio S2L5

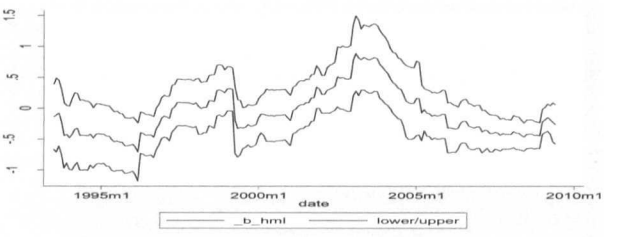

Figure 3.111: Portfolio S3L1

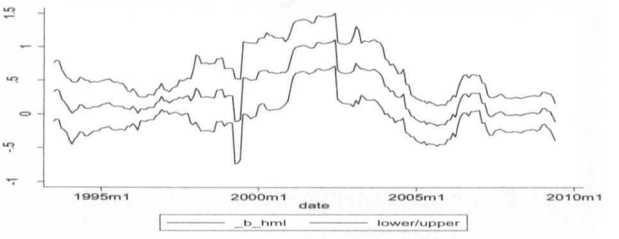

Figure 3.112: Portfolio S3L2

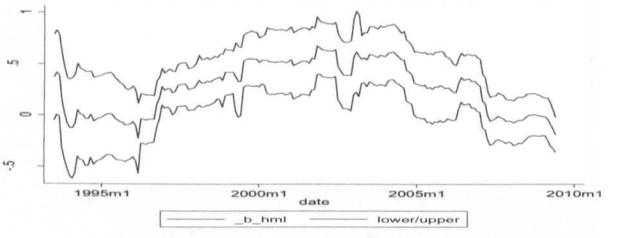

Figure 3.113: Portfolio S3L3

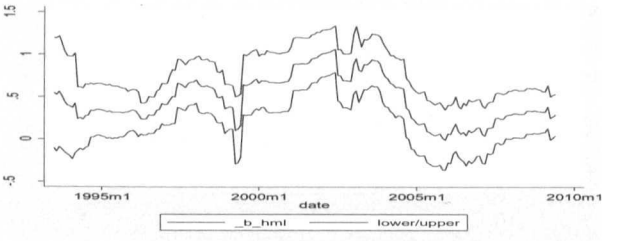

Figure 3.114: Portfolio S3L4

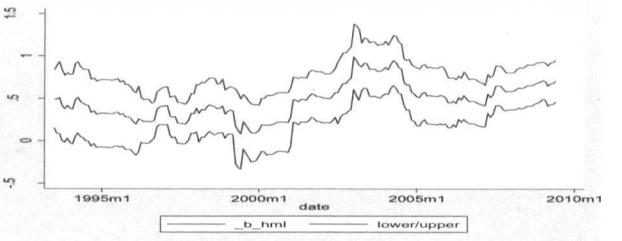

Figure 3.115: Portfolio S3L5

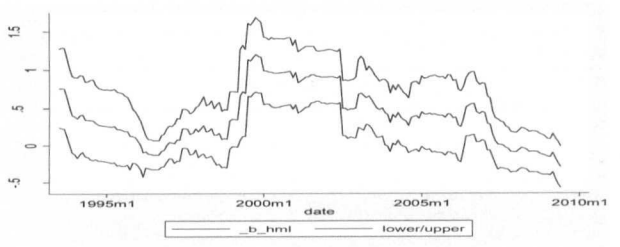

Figure 3.116: Portfolio S4L1

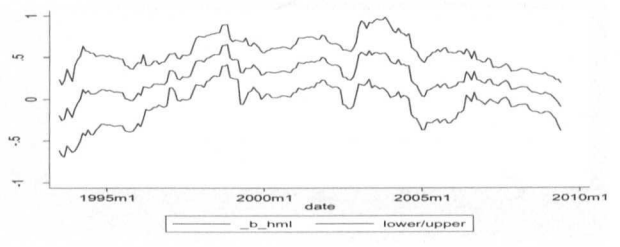

Figure 3.117: Portfolio S4L2

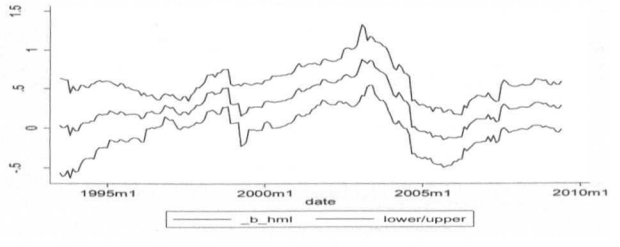

Figure 3.118: Portfolio S4L3

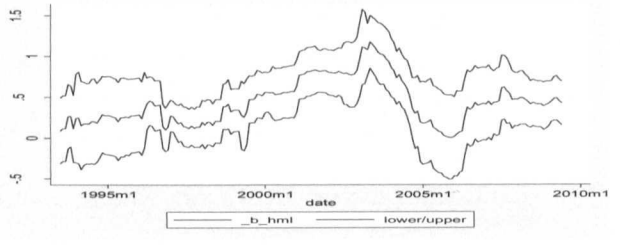

Figure 3.119: Portfolio S4L4

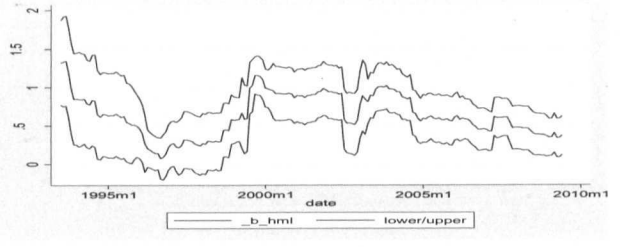

Figure 3.120: Portfolio S4L5

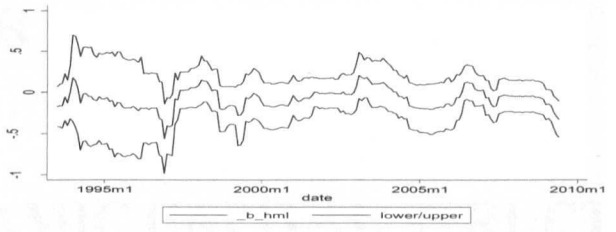

Figure 3.121: Portfolio S5L1

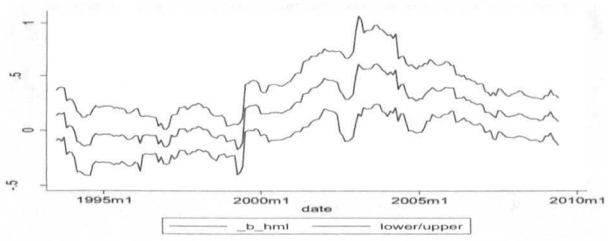

Figure 3.122: Portfolio S5L2

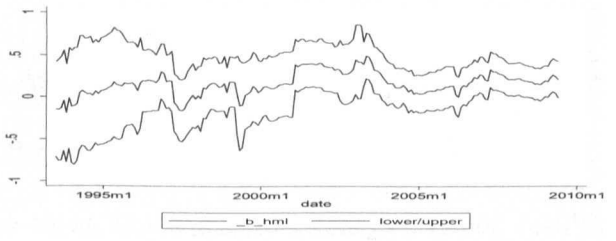

Figure 3.123: Portfolio S5L3

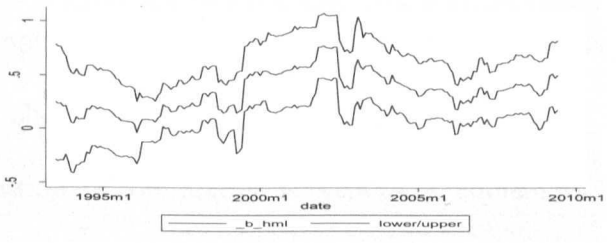

Figure 3.124: Portfolio S5L4

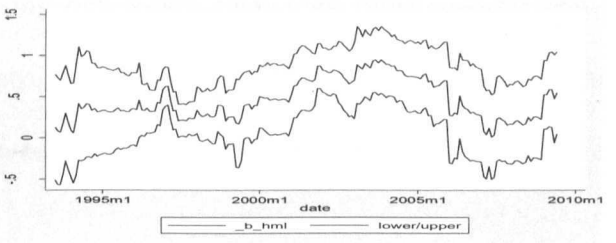

Figure 3.125: Portfolio S5L5

CHAPTER FOUR

4. DYNAMIC CAPITAL STRUCTURE UNDER POLITICAL PATRONAGE: A PRE- AND POST- CRISIS ANALYSIS OF MALAYSIA

4.1 INTRODUCTION

The 1997 Asian financial crisis is a salient example when studying theories around a firm's choice of optimal ownership structure. This is because in this crisis many firms failed due to excessive debts, resulting in employees losing their jobs and ultimately leading to the suffering of society at large. Many theoretical and empirical studies have examined the firm-level optimal capital structure, i.e. the choices of debt and equity that maximises the value of the firm.[43] The question of optimality is generally addressed by studying the relationship between the firm's capital structure and its determinants. If firms engage in optimising behaviour, then they must also be realigning towards a particular target structure. This issue is of utmost important as sub-optimal financial choices would either lead to potentially lower wealth or expose the firm to bankruptcy.

43. See Harris and Raviv (1991) for different approaches on the issue of optimal capital structure.

This paper examines the determinants of the target capital structure of Malaysian firms and the adjustment process towards this target in the pre and post 1997 Asian financial crisis. The main objectives are to explicate the changes in Malaysian firms' financing practices and quantify the adjustment process towards the optimal capital structure. This, in turn, would demonstrate the impact that the crisis has had in the context of the firms' financial policies. In other words, it would demonstrate the lessons that the Malaysian firms have learnt from the crisis. Moreover, this paper also examines the relationship between a firm's characteristics and capital structure targeting behaviour, mainly in the context of political patronage. We aim to investigate whether there is a difference in a firm's choice of capital structure and its adjustment process between firms with and without political patronage.

The main setting of this paper follows the central tenet of finance. That is, market imperfections make financial decisions relevant and have a significant impact on the value of a firm. Therefore, we argue that firms have a long term target optimal capital structure which maximizes their value and they partially adjust towards it when they deviate from it (see Strebulaev, 2007).[44, 45] We also see this paper emulating Fisman (2001), which illustrates that political patronage

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44. In their well-known survey, Graham and Harvey (2001) find that 37% of their respondents have a flexible target, 34% have a range of targets, and 10% have a strict target.

45. Strebulaev (2007) posits that in a dynamic economy, market frictions (e.g., transaction costs) make full adjustment impossible resulting in the fact that most firms' leverages are likely to differ from their target level. Therefore partial adjustment technique is widely accepted as a tool to measure this process.

is a source of value for many firms.[46] As a result, firms with political connections may not put as much emphasis on their financial policy as they do on rent seeking activities. This is illustrated empirically in Faccio (2006), who finds a significant increase in a firm's value when politicians get appointed to their boards or when their large shareholders enter politics or get elected to public office.

Within this framework, we specifically address two research issues: (i) did the Asian financial crisis have a significant impact on Malaysian firms' financing policies? (ii) are there any distinct features in terms of financing policy between firms with and without political patronage? We claim two contributions in this paper. First, to the best of our knowledge, this is the first study to investigate the impact of financial crisis on firms' financial policies using data from an emerging market. Second, this study adds to the growing literature on the role of political patronage in firms' financing strategies and their long-term performance (see Johnson and Mitton, 2003, Suto, 2003; Khwaja and Mian, 2005; Faccio, 2006; Fraser et al., 2006; Leuz and Oberholzer-Gee, 2006; and Fan et al., 2010).

To address our research questions we employ the partial adjustment technique which is commonly accepted as a mechanism to empirically test the

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46. In general, the source of value to firms with political connections include "*preferential treatment by government-owned enterprises (such as banks or raw material producers), lighter taxation, preferential treatment in competition for government contracts, relaxed regulatory oversight of the company in question, or stiffer regulatory oversight of its rivals, and many other forms. However, as emphasized by Andrei Shleifer and Robert Vishny (1994), politician themselves will extract at least some of the rents generated by connections, and corporate value will be enhanced only when the marginal benefits of the connections outweigh their marginal costs*" (Faccio, 2006, p. 369).

trade-off hypothesis. The data for relevant variables in this study is taken from the DataStream and the sample period covered is from 1988 to 2009. We divided our sample into two sub-periods as our main objective is to study the impact of financial crisis on firms' financing policy. The first sample is the pre-crisis period from 1988 to 1997, while the second is post-crisis from 2000 to 2009.

Our empirical analysis utilises an unbalanced panel dataset comprising 184 firms. We employ the Generalized Method of Moments (GMM) technique developed by Arellano and Bover (1995) and Blundell and Bond (1998) to estimate our model. Furthermore, we use the GMM difference estimator proposed by Arellano and Bond (1991) to check the robustness of our results.

We find the financial crisis has had a significant impact on the financial policy of Malaysian firms. First, the adjustment rate towards the optimal capital structure is higher after the financial crisis. Second, Malaysian firms have adopted a more conservative attitude towards the choice of capital structure and have a better way of dealing with bankruptcy risk. Third, we find some distinct features between firms with and without political connections. The adjustment rate for firms with political connections is higher than for firms without one. We reckon this is due to the greater access to financing then available as the majority of financial institutions are controlled by government (see Gomez and Jomo, 1997). Moreover, firms with political patronage have higher leverage. We conjecture that this may be due to the fact that politically connected firms have an informal support system from the government in case of financial distress. Last but not least, our analysis synthesizes the well known Pecking Order and

Static Trade-off theories, confirming the observation of Ebrahim and Mathur (2011) that optimal capital structure is simply an amalgamation of both theories in a framework of symmetric information.

This paper is structured as follows: Section 4.2 reviews relevant literature, Section 4.3 presents our modelling framework and the methodology used. Section 4.4 explains the proxy variables while Section 4.5 discusses the data. Section 4.6 presents the results and analysis and section 4.7 concludes.

4.2 LITERATURE REVIEW

4.2.1 Theory

The seminal work of Modigliani and Miller (MM) (1958) shaped the framework in capital structure research. In their paper, they demonstrate that a firm's financing choice is irrelevant in a perfect capital market. MM (1963) extended their early work with the addition of market imperfection (such as taxes) to illustrate that the firms' values are maximized at 100 per cent debt financing. Nonetheless, this extreme observation of optimal capital structure is at odds with firms' financial policies. Firms are not awash in debt and certainly do not have 100 per cent debt financing. To shed light on this issue, Miller (1977) introduced personal income tax into the MM (1963) model to make the theory more realistic and representative of reality. This extended model suggests that firms issue debt as long as the tax benefits of it at the corporate level is greater than the liability of it at the personal level. Firms stop at a point where both are

equal. This still yields an indeterminate capital structure at the firm level. However, since the demand for debt equals the supply, there exists an overall determinate capital structure in the economy.

Myers (1984), however, contends that the Miller (1977) model only works when all firms face the same marginal tax. This is quite a strict assumption. Nevertheless, Myers (1984) advances the Static Trade-off hypothesis, where firms select capital structures that offset the benefit with the cost associated with debt financing.[47] Consequently, empirical studies in capital structure have employed proxy variables that determine a firm's optimal leverage from its financial statements. The most common variables are a firm's profitability, tangibility, investment opportunity, size and business risk.[48]

Interestingly, the development of this theory has attracted a great deal of attention in academia. Much of it centres on the validity of this theory.[49] Jalilvand and Harris (1984) and Auerbach (1985) are among the early studies to

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47. The benefits of borrowing arise from the interest tax shield (MM, 1963) and from curtailing managers from squandering away a firm's free cash flow (Jensen, 1986). In contrast, the associated cost of debt includes the agency cost of debt (Jensen and Meckling, 1976 and Myers, 1977) and potential bankruptcy cost. Myers (2001), however, argues that bankruptcy costs are included in the agency costs. He states that "*conflicts* (meaning agency issues) *between debt and equity investors arise when there is a risk of default. If debt is totally free of default risk, debt holders have no interest in the income, value or risk of the firm. But if there is a chance of default, then shareholders gain at the expense of debt investors*" (Myers, 2001, p. 96).

48. Shleifer and Vishny (1992) posit that liquidation values of assets in place also impacts on the level of debt. This hypothesis is well supported empirically by Benmelech et al. (2005) and Brown et al. (2006).

49. This theory can be empirically tested by estimating the mean reversion process towards the optimal capital structure.

empirically test this theory.[50] They find that firms make partial adjustments towards their optimal target, and the speed of adjustment varies according to firm size, type of debt and price of capital. These findings are further corroborated in the more recent studies (see Hovakimian et al., 2001; Fama and French, 2002; Leary and Roberts, 2005; Flannery and Rangan, 2006; and Kayhan and Titman; 2007). The findings of these studies differ in term of speed of adjustment. Nonetheless, they all concur that firms do have a target optimal debt ratio and make partial adjustment toward it.[51]

While the trade-off hypothesis has provided useful insight to our understanding of capital structure, not all firms observe it (see Graham and Harvey, 2001). Therefore, several other theories have been put forward as alternatives. One well accepted one is the Pecking Order theory developed by Myers (1984) and Myers and Majluf (1984). This theory posits that firms have a preferred hierarchy for financing decisions due to asymmetric information. The first preference is to use internal financing, and if then external funds are needed the next preference is to use debt, followed by convertible securities, preferred stock and common stock. According to Myers (1984), internal financing is the most preferred financing as it carries the lowest asymmetric information. Therefore, the pecking order of financing hierarchy implies that as profit increases, the debt ratio will decrease due to the availability of retentions for

50. This is due to the fact that the target leverage is dynamic due to the changes in variables that impact on optimal ownership structure. The speed of adjustment indicates whether firms observe the optimal capital structure as suggested by the trade-off hypothesis.

51. In contrast, Baker and Wurgler (2002) illustrate that managers reveal insider information by issuing stock when it is overpriced, i.e., when market-to-book ratios are higher.

financing. There is empirical evidence to support this theory. For instance, Titman and Wessells (1988) and Rajan and Zingales (1995) find that firms with lower debt ratios tend to have higher past profits. However, Frank and Goyal (2003) illustrate evidence contrary to the Pecking Order theory. Myers (1977) also concurs that firms which are endowed with growth options, opt for lower debt ratio to avoid debt-holders from benefiting from the payoffs (of these real options) on default.

The debate highlighting the theory behind a firm's financial behaviour is still ongoing in the literature. Among the noteworthy studies that compare the two theories are Shyam-Sunder and Myers (1999); and Fama and French (2002). The former finds evidence supporting the pecking order while rejecting the trade-off hypothesis. In contrast, the latter not only finds partial evidence supporting both theories but also illustrates the difficulty of disentangling the predications of the two competing theories. To shed light on this puzzle, Ebrahim and Mathur (2011) demonstrate in a rational expectation (symmetric information) framework that both theories simply complement each other. Their theoretical model shows that risky debt is at best Pareto-neutral to risk-free debt. This implies that low agency cost instruments (such as risk-free debt) are more preferable, consistent with Pecking Order Theory. Their study also illustrates that the subsequent choice of financing is risky debt, echoing the Static Trade-off Hypothesis. Therefore, in the context of the Ebrahim and Mathur (2011) study, Pecking Order precedes Static-Trade-off as the welfare of agents depends on the type of financing. This ranking is, however, contingent on the quality of assets employed

by the firm, thereby confirming the prognosis of Shleifer and Vishny (1992). In a nutshell, the Pecking Order and Static Trade-Off hypotheses work together rather than being independent of each other.

4.2.2 Malaysian economy, political patronage and Asian financial crisis

Malaysia is a multiracial country where the native Malays account for sixty per cent of the population, while Chinese, Indians and other minor ethnic groups account for the remaining forty per cent. The country gained independence from Britain in 1957, a time of serious economic hardship and extreme poverty due to the narrow focus on a natural resource based economy. In addition, there was a socio-economic imbalance between the ethnic groups. The Malays, despite being the majority, only owned three per cent of equity in the economy.

To address these issues, the Malaysian government embarked on a series of populist economic transformation programs. First, the government undertook polices such as Import Substitution Industrialization (ISI) in the 1960s and Export Oriented Industrialization (EOI) in the 1980s to industrialize the nation (see Fraser et al., 2006). These policies helped the country to become one of the most industrialized areas in the region. Second, the government took a special initiative to uplift the social status of the Malays and increase their participation in business activities. The two main instruments used were the New Economic Policy (NEP) from 1970 to 1990 and the National Development Policy (NDP)

from 1991 to 2000. The former policy was implemented in the aftermath of the 1969 racial riots, while the latter is simply the continuation of the former under a new name. These populist polices gave special privileges to the Malays in term of access to higher education and involvement in business activities, especially on government projects. In term of specific targets, the aims were to increase the overall Malay ownership from three per cent to thirty per cent and to reduce poverty levels across all races to less than five per cent. The NEP/NDP policies of the Malaysian government were temporary measures to uplift the economic status of the Malays. Currently, these policies are being gradually dismantled and replaced with the New Economic Model (NEM), a policy that promotes fair and equal opportunity to all races.

In pursuing its NEP/ NDP policies, the Malaysian government chose to adopt a "relation-based" capitalism where identified firms received political patronage or special incentives. The policymakers believed that this was the best way to accelerate the economy while addressing the issue of socio-economic imbalance. This was due to the conviction that the Malays would not be able to compete with the ethnic minorities without the support from government.

The political patronage in Malaysia has been practiced in three ways.[52] First, the government forms firms controlled through its sovereign wealth fund called *Khazanah Nasional.* These firms are Government-Linked Companies (GLCs) and are pivotal institutions in the Malaysian economy. For example, *Khazanah Holdings* owns *Tenaga Nasional Berhad* (TNB), the only electricity

52. See Gomez and Jomo (1997) for a more detailed discussion.

provider in Malaysia. Second, the patronage is given to firms substantially owned by institutional investors sponsored by the government. For example, *Permodalan Nasional Berhad* (PNB) was established to increase the corporate ownership of Malays.[53] Last but not least, political patronage is the terms of informal ties with the politicians. These are firms which are either owned by relatives/friends of politician or politicians themselves through proxy.

These populist (but controversial) policies, infringing on the property rights of minorities, have transformed the landscape of the Malaysian economy. Today, Malaysia is one of the largest economies in the South East Asia region. It is not only the biggest producer of crude palm oil, but also a major player in the financial services, manufacturing and oil and gas industries. Nonetheless, the success of the Malaysian economy has not come easily. The country has gone through a number of financial crises. The most severe amongst these was the Asian financial crisis from 1997 to 1999. This crisis started as a speculative attack on the Baht currency in Thailand but spread quickly to the rest of the region through its contagion.

The former Malaysian Prime Minister, Dr Mahathir Mohamed put the blame chiefly on foreign speculators. Nonetheless, a thorough review shows that the financial practice of Malaysian firms is also to be blamed. Suto (2003) demonstrates that prior to the crisis the financing of Malaysian firms was heavily concentrated on external borrowings especially from banks. The study shows that the borrowing from depository institutions ranged from fifty two per cent to

53. The structure of these institutions is similar to mutual funds.

eighty two per cent of total external financing from 1990 to 1997, while the issuance of new equity only ranged from eleven per cent to forty percent. In addition, Schmukler and Vesperoni (2006) show that financial liberalization of the Malaysian market in 1989 increased the long term debt of Malaysian firms. We believe that the speculative attack on the Malaysian currency simply triggered the inevitable; the crisis had been in the making for many years due to the financial practice of firms.

Several arguments have been put forward to explain this phenomenon. First, many firms, especially the ones with the political patronage, have easy access to bank loans (see Borsuk, 1993). This is due to the fact that most of the financial institutions in Malaysia are controlled by the government (see Gomez and Jomo, 1997). In addition, bank loans are the cheapest form of financing. Second, the bond market was not very well developed prior to the crisis. These arguments, coupled with the fact that new equity is an expensive source of financing, led Malaysian firms to go for higher debt financing, especially in the form of bank loans.

The crisis had a severe impact on the Malaysian economy. The Gross Domestic Product (GDP) contracted nearly *six* per cent in 1998, while the stock market value decreased by nearly *eighty* per cent. Unlike other countries, the Malaysian government chose to impose capital controls instead of taking a bail-out from the International Monetary Fund (IMF). In addition, the government pegged the ringgit (Malaysian currency) to the US dollar. These steps were taken to insulate the country's economy from further attacks from speculators

and to assist the restructuring efforts. Furthermore, three government agencies were set up to restructure the financial sector and balance sheets of Malaysian firms. The Corporate Debt Restructuring Committee (CDRC) was created to restructure the debt, *Danamodal* to recapitalize the banks and finally *Danaharta* to buy bad loans from banks. The Malaysian economy finally began to recover in early 2000.

4.3 MODELLING FRAMEWORK AND METHODOLOGY

The optimal debt-equity ratio Y'_{it} for the i^{th} specific firm at time t is described as follows.

$$Y'_{it} = \alpha_0 + \sum_j \beta_j X_{jit} + \alpha_i + \alpha_t + \varepsilon_{it} \qquad (1)$$

Where: i represents firms ranging from 1 to N; while t denotes the time ranging from 1 to T. X captures (J) firm-specific characteristics (proxy variables) which vary with time and across firms (in a panel data structure). α_i and α_t represents unobserved firm-specific and time-specific effects variables. ε_{it} is the error term which is assumed to be independently identical and normally distributed with zero mean and constant variance, i.e., $\varepsilon_{it} \approx i.i.d.\ N(0, \sigma^2)$

In a perfect (i.e., frictionless) world with no adjustment costs, the firm is expected to respond to a variation in the explanatory variables by changing its existing leverage to equal its optimal leverage, i.e. a complete adjustment. This

implies that at any point in time the leverage ratio of a firm equals its optimal leverage, $Y_{it} = Y'_{it}$ Therefore, any change in leverage is exactly equal to the change needed for the firm to be at its optimal leverage, i.e. $Y_{it} - Y_{it-1} = Y'_{it} - Y_{it-1}$

However, in the real world with imperfect knowledge and adjustments costs, the firm may not be able to adjust towards its optimal capital structure instantaneously. That is, only a partial adjustment may be done. This can be represented as below

$$Y_{it} - Y_{it-1} = \lambda_{it}(Y'_{it} - Y_{it-1}) \qquad (2)$$

Where: λ_{it} is the coefficient of adjustment or the speed of adjustment. Equation (2) can be rewritten as follows.

$$Y_{it} = (1 - \lambda_{it})\, Y_{it-1} + \lambda_{it} Y'_{it} \qquad (3)$$

Substituting (1) into (3) in order to remove the unobservable optimal leverage Y'_{it}, we get the following:

$$Y_{it} = (1 - \lambda_{it})\, Y_{it-1} + \lambda_{it}(\alpha_0 + \sum_j \beta_j X_{jit} + \alpha_i + \alpha_t + \varepsilon_{it}) \qquad (4)$$

This is rewritten as:

$$Y_{it} = \varphi_0 + \theta_0 Y_{it-1} + \sum_j \theta_j X_{jit} + \eta_i + \eta_t + \mu_{it} \qquad (5)$$

Where: $\varphi_0 = \lambda_{it}\alpha_0$, $\theta_0 = (1-\lambda_{it})$, $\theta_j = \lambda_{it}\beta_j$, $\eta_i = \lambda_{it}\alpha_i$, $\eta_t = \lambda_{it}\alpha_t$, and $\mu_{it} = \lambda_{it}\varepsilon_{it}$

Equation (5) is estimated using the Generalized Methods of Moments (GMM) estimation technique. We chose this because the OLS method on dynamic panel regression does not yield consistent estimators. This is attributed to a possible correlation between the lagged endogenous variable and the residuals in equation (5). There is also a possibility that the lag of endogenous variables (in the model) may be related to the error terms. This may violate the orthogonality condition. Chamberlain (1984) proposed a GMM estimator that allows the regressors to be transformed to realize orthogonality with the error terms. The GMM estimator is indeed the most efficient one within the class of instrumental variable estimators.

In this paper, we employ the GMM system estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998). The reason behind this is because it combines the regression in differences with regression in levels. The instrument variables for the differences are the lagged levels, while for the levels they are the lagged difference of the corresponding variables. The GMM system estimator is more efficient as it addresses the problem of weak instruments for the regression equation in differences (see Blundell and Bond, 1998). This is due to the assumption that the lagged values of the dependent variable and the other explanatory variables are valid instruments with no serial correlation in the error terms.

In testing these assumptions, we conduct two standard tests: (i) Sargan test for over identifying restrictions; and (ii) Arellano-Bond for zero autocorrelation in first-differenced errors. We also estimate the model using the

GMM difference estimator proposed by Arellano and Bond (1991) to check the robustness of our results.

4.4 PROXY VARIABLES

In this paper, we use five proxy variables with the inclusion of dummy variables to capture the effect of the political patronage. The selected proxies are as follows:[54,55]

4.4.1 Leverage

This represents the debt ratio of firms. As proxies for leverage, we use book value of debt ratios (total debt/ total assets).[56] Given that our main objective is to measure the gradual adjustment process towards the optimal value, we believe that the book value of debt ratio is more appropriate as a proxy than market value. This is due to the fact that market value is quite volatile. Therefore, it is unlikely for firms (subject to market frictions) to constantly adjust their capital structure with a rapidly changing market value. Our choice is

54. Our definition of financial and accounting variables are in accordance with DataStream 5.0.

55. We do not use taxes as a proxy variable as the information on personal taxes of investors is not available. We also have difficulty in constructing a proxy for non-debt tax shields.

56. Total debt represents all interest bearing and capitalized lease obligations. In contrast, total asset represents the sum of total current assets, long term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment, and other assets.

supported by Flannery and Rangan (2006), who provide evidence on the comparability of using both market and book ratios.

4.4.2 Business Risk (Volatility)

Finance theory posits that business risk is entailed by all businesses, while financial risk is optional. This is due to fact that business risk arises due to changing economic conditions. In contrast, financial risk results from firms employing debt in their capital structure. Nonetheless, financial risk can aggravate the very existence of a firm. In other words, financial risk exacerbates business risk. This implies that business risk is negatively related to the leverage ratio. We use the natural logarithm of total asset for volatility following the argument of Fama and French (2002) that larger firms are likely to have less volatile earnings and net cash flows. We also agree with them that estimating volatility using time series data will limit our sample size.[57]

4.4.3 Profitability

Profitability is another variable which has a significant impact on leverage. Similar to size and growth, the literature suggests conflicting predictions for the effect of profitability on leverage. The first prediction is based on the argument of Myers and Majluf (1984). That is, profitable firms

57. Total asset may also be proxy for other factors. For instance, larger firms have fewer problems with asymmetric information. They are likely to be more transparent than smaller firms and thus have a lower agency cost of debt (see Fama and Jensen, 1983). Fama and French (2002) suggest that size can also be a proxy for age and ease of access to capital markets. Finally, Kurshev and Strebulaev (2006) demonstrate that size is a proxy for fixed cost of financing.

prefer to use internal funds for financing instead of issuing new debt or equity. The rationale behind this argument is that firms with high profitability are able to internally generate large amount of funds. They, thus, require a lower amount of debt in their financing. This implies a negative relationship between profitability and leverage. In contrast, Rajan and Zingales (1995) predict a positive relationship as profitability enables firms to meet future financial obligations. This is consistent with Jensen's (1986) free cash flow theory, which predicts that profitable companies employ more debt as a mechanism to control their managers. We use Earnings before Interest and Taxes/Total Asset as a proxy for profitability.

4.4.4 Growth (Investment Opportunities)

The literature also suggests that a firm's growth rate has an influence on their leverage level. Similar to profitability, the relationship between growth rate and leverage can be either positive or negative. On the one hand, firms with high growth rates are capable of issuing more debt than those with low growth rates, implying a positive relationship between growth and leverage. This is due to the fact that high growth rates signify the firm's ability to meet future financial obligation.

In contrast, firms with high growth rates may opt for lower leverage ratio, implying a negative relationship. This argument is based on Myers (1977), who suggests that high leverage ratios limit firms' ability to undertake new investment opportunity. Therefore, high growth firms would limit the leverage ratios to protect their future growth options. Lemmon and Zender (2010) empirically

confirm the prognosis of Myers (1977). Nonetheless, they argue that high growth firms have low leverage ratios due to their lower debt capacity. We use the market to book value ratio as a proxy for growth (see also Barclay and Smith, 1995).[58]

4.4.5 Tangibility

In general, firms with high tangible assets (such as plants and equipment) can use them as the collateral for their debt. Scott (1977) demonstrates that firms are able to borrow at lower interest rates if their debt is secured with these assets. Thus, the relationship between tangibility and debt is expected to be positive. For instance, Booth et al. (2001), in a study of 10 developing countries, find a positive relationship between tangibility and firms' leverage. We use net tangible assets/total assets as a proxy for tangibility.[59]

4.4.6 Political Patronage

We use three criteria to classify firms with political patronage. First, we use the work of Johnston and Mitton (2003) and Mitchell and Joseph (2010) which are based on Gomez and Jomo (1997) to identify firms with informal political connections.[60] Second, we include firms which are under the control of *Khazanah Nasional.* Finally, we incorporate firms under the institutional

58. Market value is defined as share price multiplied by the number of ordinary shares in issue, while book value is defined as proportioned common equity. The market to book ratio is also termed by financial analysts as Tobin's Q ratio (see Tobin, 1969).

59. Fixed assets represent property, plant, and equipment adjusted for accumulated depreciation.

60. This approach has also been adopted by Johnson and Mitton (2003) and Mitchell and Joseph (2010).

investors sponsored by the Malaysian government (such as *Permodalan Nasional Berhad, Tabung Haji* and Employee Provident Fund). We use dummy variables to categorize firms with and without political patronage. Appendix II lists each firm in our sample with their connection status and the nature of the connection.

4.5 THE DATA

The financial and accounting data were extracted from the DataStream database from 1988 to 1997 for the pre-crisis period and 2000 to 2009 for the post-crisis one. We purposely exclude the data during the crisis period as it is extremely noisy. We utilize an unbalanced panel data set comprising of 184 firms which have data for both periods, in which 34 are classified as firms with political patronage. The sample covers firms from all industries except the financial sector.

Tables 4.1a and 4.1b provide some descriptive statistics for all variables. The average leverage in the sample for the pre-crisis period is 20 per cent. Interestingly, the ratio increased by almost 7 per cent to 26.9 per cent for the post-crisis period. Even though this finding contradicts our expectation, we undertake a detailed investigation to reveal the rationale behind it. Figures 4.1a and 4.1b illustrate the pattern in leverage ratio for the pre and post crisis period. We notice that the leverage ratio steadily increases from 15.25 per cent in 1988 to 27.3 per cent in 1997. This is roughly a 12 per cent increase in ten years. In contrast, the leverage ratio in the post-crisis period decreases from 27 per cent in

2000 to 20.5 per cent in 2009, with a transitory increase from 2002 to 2004. These findings signify that Malaysian firms began to adopt a more conservative approach in their financing by reducing their leverage in the aftermath of the financial crisis.

Table 4.1a

Summary Statistics of Proxy Variables

(Pre-crisis and Overall sample)

	LEVERAGE	VOLATILITY	TANGIBILITY	GROWTH	PROFITABILITY
Mean	0.1994	13.0010	0.4122	3.0605	0.0919
Maximum	2.8694	17.4718	0.9525	87.5313	0.5847
Minimum	0	8.8843	0	-77.7665	-0.7808
Std. Dev.	0.1921	1.3368	0.2352	6.8644	0.0877

Notes: LEVERAGE is defined as the ratio of total debt to total assets, VOLATILITY is the natural logarithm of total assets, TANGIBILITY is the ratio of fixed assets to total assets, GROWTH is the ratio of market to book value, and PROFITABILITY is the ratio of operating profits before taxes and interest to total assets.

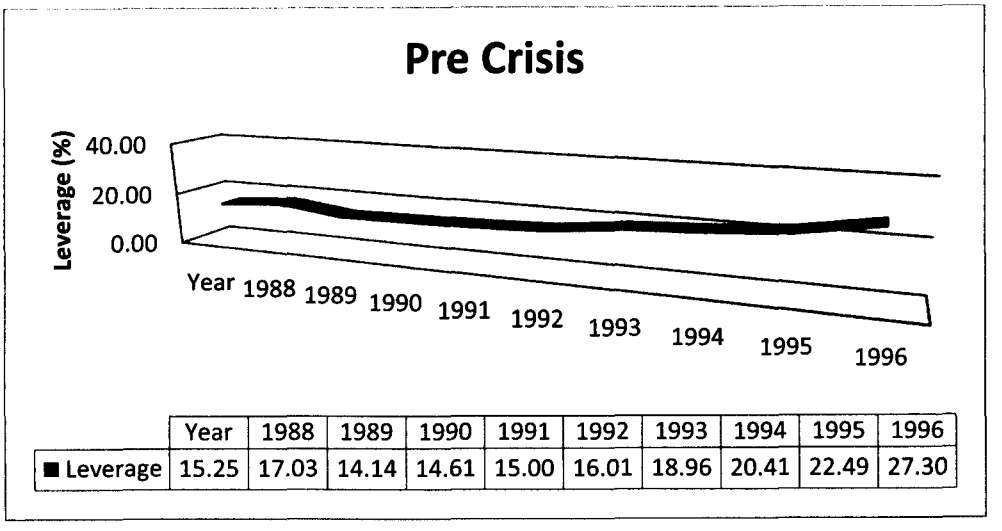
Table 4.1b

Summary Statistics of Proxy Variables

(Post-crisis and Overall sample)

	LEVERAGE	VOLATILITY	TANGIBILITY	GROWTH	PROFITABILITY
Mean	0.2689	13.4547	0.4142	1.0958	0.0493
Maximum	10.2731	18.4518	0.9670	37.7639	2.0074
Minimum	0	7.7098	0	-310.3986	-2.2482
Std. Dev.	0.4363	1.4471	0.2153	7.8090	0.1480

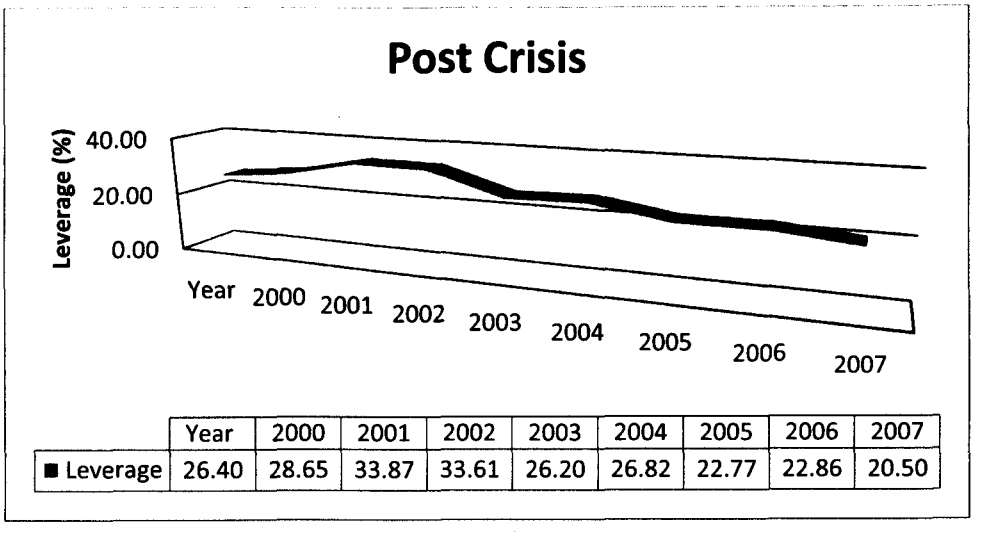
Notes: LEVERAGE is defined as the ratio of total debt to total assets, VOLATILITY is the natural logarithm of total assets, TANGIBILITY is the ratio of fixed assets to total assets, GROWTH is the ratio of market to book value, and PROFITABILITY is the ratio of operating profits before taxes and interest to total assets.



	Year	1988	1989	1990	1991	1992	1993	1994	1995	1996
■ Leverage	15.25	17.03	14.14	14.61	15.00	16.01	18.96	20.41	22.49	27.30

Figure 4.1

Malaysian Firm Leverage in Pre-Crisis Period (from 1988 to 1997)



	Year	2000	2001	2002	2003	2004	2005	2006	2007
■ Leverage	26.40	28.65	33.87	33.61	26.20	26.82	22.77	22.86	20.50

Figure 4.2

Malaysian Firm Leverage in Post-Crisis Period (from 2000 to 2009)

In the case of the other variables, volatility and tangibility are similar for both periods. There is, however, a remarkable drop in profitability during the post-crisis period. This is expected as the gross domestic product of Malaysia retracted in the pre-crisis period. This is corroborated with a significant drop in investment opportunities (i.e., growth) of firms.

In the context of political patronage, we find that firms with political connection generally have a higher leverage ratio for both periods. Tables 4.1c and 4.1d show that during the pre-crisis period, firms with political connections have an average debt ratio of 23.2 per cent, while firms without political connections have only 19 per cent. Based on Tables 4.1e and 4.1f, we observe a similar pattern during the post-crisis period where the debt ratio of firms with political connections increased to 32.7 per cent. In contrast, the debt ratio of firms without political patronage only increased to 25.6 per cent. Nonetheless, there are no sharp differences in profitability, tangibility, growth and volatility between firms with and without political connections. We conjecture that one of the possible reasons why firms with political patronage have a higher debt ratio is due to the fact that their assets in place are informally supported by the Malaysian government. This is consistent with the Shleifer and Vishny (1992) hypothesis. In the case of economic downturns, the government is expected to intervene to support these firms. Therefore, these firms have a better ability to repay their debt in times of financial distress.

Table 4.1c

Summary Statistics of Proxy Variables

(Pre-crisis and Firms without Political Connection)

	LEVERAGE	VOLATILITY	TANGIBILITY	GROWTH	PROFITABILITY
Mean	0.1904	12.7675	0.4089	3.2064	0.0947
Maximum	0.9412	16.1283	0.9525	87.5313	0.5847
Minimum	0	8.8843	0	-77.7665	-0.3878
Std. Dev.	0.1751	1.2404	0.2280	7.6992	0.0859

Notes: LEVERAGE is defined as the ratio of total debt to total assets, VOLATILITY is the natural logarithm of total assets, TANGIBILITY is the ratio of fixed assets to total assets, GROWTH is the ratio of market to book value, and PROFITABILITY is the ratio of operating profits before taxes and interest to total assets.

Table 4.1d

Summary Statistics of Proxy Variables

(Pre-crisis and Firms with Political Connection)

	LEVERAGE	VOLATILITY	TANGIBILITY	GROWTH	PROFITABILITY
Mean	0.2325	13.8573	0.4243	2.5255	0.0815
Maximum	2.8694	17.4718	0.9398	9.4604	0.3541
Minimum	0	10.9554	0.0081	-1.9852	-0.7808
Std. Dev.	0.2420	1.3314	0.2600	1.4975	0.0938

Notes: LEVERAGE is defined as the ratio of total debt to total assets, VOLATILITY is the natural logarithm of total assets, TANGIBILITY is the ratio of fixed assets to total assets, GROWTH is the ratio of market to book value, and PROFITABILITY is the ratio of operating profits before taxes and interest to total assets.

Table 4.1e

Summary Statistics of Proxy Variables

(Post-crisis and Firms without Political Connection)

	LEVERAGE	VOLATILITY	TANGIBILITY	GROWTH	PROFITABILITY
Mean	0.2555	13.2644	0.4095	0.9966	0.0471
Maximum	10.2731	18.4518	0.9670	37.7639	2.0074
Minimum	0	7.7098	0	-310.3896	-2.2482
Std. Dev.	0.4265	1.3687	0.2124	8.5719	0.1510

Notes: LEVERAGE is defined as the ratio of total debt to total assets, VOLATILITY is the natural logarithm of total assets, TANGIBILITY is the ratio of fixed assets to total assets, GROWTH is the ratio of market to book value, and PROFITABILITY is the ratio of operating profits before taxes and interest to total assets.

Table 4.1f

Summary Statistics of Proxy Variables

(Post-crisis and Firms with Political Connection)

	LEVERAGE	VOLATILITY	TANGIBILITY	GROWTH	PROFITABILITY
Mean	0.3273	14.2869	0.4349	1.5296	0.0589
Maximum	5.6646	18.0833	0.9549	28.7423	0.7234
Minimum	0	9.9900	0	-11.6388	-1.2724
Std. Dev.	0.4731	1.4882	0.2268	2.4801	0.1338

Notes: LEVERAGE is defined as the ratio of total debt to total assets, VOLATILITY is the natural logarithm of total assets, TANGIBILITY is the ratio of fixed assets to total assets, GROWTH is the ratio of market to book value, and PROFITABILITY is the ratio of operating profits before taxes and interest to total assets.

Tables 4.2a and 4.2b report the pair wise correlation between the variables. A few points are noteworthy. Leverage is: (i) significantly related to profitability and volatility at 5 per cent significant level, and (ii) related to growth and tangibility at 10 per cent during both periods. The remarkable feature here is the changes in the sign of correlation. In the pre-crisis period, leverage is positively correlated with volatility and growth, while in the post-crisis period, the correlation reverses to become negative. This provides further evidence that Malaysian firms have become more conservative in their choice of capital structure.

In the next step of our analysis, we aim to get a better idea of the relationship between leverage and the proxy variables. Tables 4.3a and 4.3b present the result of an exploratory econometric analysis where we regress leverage on the five proxy variables with either panel fixed or random effect regression.[61] Unlike the pair wise correlation analysis, this econometric technique illustrates the relationship between leverage and each proxy variable while controlling for the effect of the other proxy variables.

For both periods, we use fixed panel effect regression as the Hausman test shows that there are systematic differences in the individual coefficients. We find that volatility is significantly related to leverage (with a positive sign) during the pre-crisis period. In contrast, profitability is significantly related to leverage (with a negative sign), while tangibility shows no significant relationship (despite

61. The choice between fixed and random is determined by the Hausman test.

Table 4.2a

Correlation Coefficients of Proxy Variables

(Pre-crisis and Overall Sample)

	LEVERAGE	VOLATILITY	PROFITABILITY	GROWTH	TANGIBILITY
LEVERAGE	1.0000				
VOLATILITY	0.0733**	1.0000			
PROFITABILITY	-0.5173**	0.0280	1.0000		
GROWTH	0.0597*	0.0010	0.0979*	1.0000	
TANGIBILITY	0.0553*	0.0248	-0.0094	-0.0485	1.0000

Notes: LEVERAGE is defined as the ratio of total debt to total assets, VOLATILITY is the natural logarithm of total assets, TANGIBILITY is the ratio of fixed assets to total assets, GROWTH is the ratio of market to book value, and PROFITABILITY is the ratio of operating profits before taxes and interest to total assets. Finally, the symbols ***, ** and * indicate significance at the 1%, 5% and 10% level.

Table 4.2b

Correlation Coefficients of Proxy Variables

(Post-crisis and Overall Sample)

	LEVERAGE	VOLATILITY	PROFITABILITY	GROWTH	TANGIBILITY
LEVERAGE	1.0000				
VOLATILITY	-0.1099**	1.0000			
PROFITABILITY	-0.2833**	0.1760*	1.0000		
GROWTH	-0.0345*	0.0622*	0.1231*	1.0000	
TANGIBILITY	0.0307*	0.1160*	-0.0305	-0.0048	1.0000

Notes: LEVERAGE is defined as the ratio of total debt to total assets, VOLATILITY the natural logarithm of total assets, TANGIBILITY is the ratio of fixed assets to total assets, GROWTH is the ratio of market to book value, and PROFITABILITY is the ratio of operating profits before taxes and interest to total assets. Finally, the symbols ***, ** and * indicate significance at the 1%, 5% and 10% level.

having positive coefficients). These findings simply substantiate our earlier pair-wise correlation analysis.

Table 4.3a

Static Panel Regressions

(Pre-Crisis)

	Fixed	**Random**
Volatility	0.023***	0.019***
	(0.01)	(0.00)
Profitability	-1.334***	-1.315***
	(0.06)	(0.06)
Growth	0.000	0.001
	(0.00)	(0.00)
Tangibility	0.050	0.045
	(0.04)	(0.03)
Constant	0.004	0.066
	(0.08)	(0.07)
R-sqr	0.384	0.382

Notes: Leverage = $\varphi_0 + \gamma_1$ Volatility + γ_2 Profitability + γ_3 Growth + γ_4 Tangibility + $\eta_i + \eta_t + \mu_{it}$

Where: η_i is a firm-specific effect, η_t captures any common period-specific effects and μ_{it} is the error term representing measurement errors in the independent variable and other explanatory variables that have been omitted. It is assumed to be independently identical normally distributed with zero mean and constant variance, i.e., $\mu_{it} \approx$ i.i.d. N (0, σ^2). LEVERAGE is defined as the ratio of total debt to total assets, VOLATILITY the natural logarithm of total assets, TANGIBILITY is the ratio of fixed assets to total assets, GROWTH is the ratio of market to book value, and PROFITABILITY is the ratio of operating profits before taxes and interest to total assets. Finally, the symbols ***, ** and * indicate significance at the 1% , 5% and 10% level.

Table 4.3b

Static Panel Regression

(Post-crisis)

	Fixed	Random
Volatility	-0.185***	-0.054***
	(0.02)	(0.01)
Profitability	-0.624***	-0.693***
	(0.07)	(0.07)
Growth	0.000	0.001
	(0.00)	(0.00)
Tangibility	-0.029	0.053
	(0.07)	(0.06)
Constant	2.809***	1.005***
	(0.29)	(0.15)
R-sqr	0.103	0.209

Notes: Leverage = $\varphi_0 + \gamma_1$ Volatility + γ_2 Profitability + γ_3 Growth + γ_4 Tangibility + $\eta_i + \eta_t + \mu_{it}$

Where: η_i is a firm-specific effect, η_t captures any common period-specific effects and μ_{it} is the error term representing measurement errors in the independent variable and other explanatory variables that have been omitted. It is assumed to be independently identical normally distributed with zero mean and constant variance, i.e., $\mu_{it} \approx$ i.i.d. N (0, σ^2). LEVERAGE is defined as the ratio of total debt to total assets, VOLATILITY the natural logarithm of total assets, TANGIBILITY is the ratio of fixed assets to total assets, GROWTH is the ratio of market to book value, and PROFITABILITY is the ratio of operating profits before taxes and interest to total assets. Finally, the symbols ***, ** and * indicate significance at the 1%, 5% and 10% level.

For the post-crisis period, we find that volatility is significantly related to leverage (with a negative sign), while tangibility has an insignificant negative link. In contrast, profitability consistently demonstrates a significant relationship with leverage, with the same sign in both periods. A striking point that stands out from this preliminary analysis is that profitability and volatility have the most significant relationships with leverage. This is an indication that the Malaysian firms' choice of capital structure depends mainly on their profitability and business risk. Nonetheless, we need to highlight the fact that this analysis is only exploratory and merely intended to shed some light on the link between leverage and the proxy variables.

4.6 Economic Results

4.6.1 Main Analysis

The GMM system estimates and difference estimators of the dynamic capital structure of equation (5) are provided in Tables 4.4a, 4.4b, 4.5a and 4.5b. The main analysis of this study is based on the estimation on the GMM system estimator since it addresses the problem of weak instruments. Before proceeding to the analysis, we first subject the estimation to the relevant diagnostic tests (i.e. the Sargan tests of over identifying restrictions and the Arellano-Bond test for zero autocorrelation in the first-differenced errors). The results indicate no over-identifying problem and autocorrelation for all estimations.

The prime interest of this study is in the coefficient of the lagged leverage variable Y_{it-1}. Our overall regression analysis in Tables 4.4a and 4.4b shows that

Table 4.4a

Dynamic Panel Regression

(Pre-crisis)

	GMM System	GMM Difference
Leverage (-1)	0.518***	0.450***
	(0.02)	(0.04)
Volatility	-0.000	-0.009
	(0.01)	(0.01)
Profitability	-1.054***	-0.999***
	(0.08)	(0.10)
Growth	0.001	-0.000
	(0.00)	(0.00)
Tangibility	0.043	0.054
	(0.04)	(0.06)
Constant	0.162	0.274
	(0.10)	(0.16)
Sargan test	41.958	30.642
A -bond test(2^{nd} Order)	0.2410	0.1941

Notes: Leverage = φ_0 + γ_0 Leverage $_{(-1)}$ + γ_1 Volatility + γ_2 Profitability + γ_3 Growth + γ_4 Tangibility + η_i + η_t + μ_{it}

Where: η_i is a firm-specific effect and η_t captures any common period-specific effects. μ_{it} is the error term representing measurement errors in the independent variable and other explanatory variables that have been omitted. It is assumed to be independently identical normally distributed with zero mean and constant variance, i.e., $\mu_{it} \approx$ i.i.d. N (0, σ^2). LEVERAGE is defined as the ratio of total debt to total assets, VOLATILITY the natural logarithm of total assets, TANGIBILITY is the ratio of fixed assets to total assets, GROWTH is the ratio of market to book value, and PROFITABILITY is the ratio of operating profits before taxes and interest to total assets. Finally, the symbols ***, ** and * indicate significance at the 1%, 5% and 10% level.

Table 4.4b

Dynamic Panel Regression

(Post-Crisis)

	GMM System	GMM Difference
Leverage (-1)	0.496***	0.456***
	(0.01)	(0.01)
Volatility	-0.497***	-0.287***
	(0.02)	(0.03)
Profitability	-0.695***	-0.603***
	(0.06)	(0.05)
Growth	0.012	0.013*
	(0.01)	(0.01)
Tangibility	0.071	0.028
	(0.04)	(0.04)
Constant	6.908***	4.030***
	(0.25)	(0.39)
Sargan test	85.576	69.082
A-Bond test (2^{nd} Order)	0.3204	0.3104

Notes: Leverage = $\varphi_0 + \gamma_0$ Leverage $_{(-1)} + \gamma_1$ Volatility + γ_2 Profitability + γ_3 Growth + γ_4 Tangibility + $\eta_i + \eta_t + \mu_{it}$

Where: η_i is a firm-specific effect and η_t captures any common period-specific effects. μ_{it} is the error term representing measurement errors in the independent variable and other explanatory variables that have been omitted. It is assumed to be independently identical normally distributed with zero mean and constant variance, i.e., $\mu_{it} \approx$ i.i.d. N (0, σ^2). LEVERAGE is defined as the ratio of total debt to total assets, VOLATILITY the natural logarithm of total assets, TANGIBILITY is the ratio of fixed assets to total assets, GROWTH is the ratio of market to book value, and PROFITABILITY is the ratio of operating profits before taxes and interest to total assets. Finally, the symbols ***, ** and * indicate significance at the 1%, 5% and 10% level.

in the pre-crisis period the coefficient's value is 0.51, implying that Malaysian firms made an approximately 49 per cent partial adjustment towards optimal capital structure. There seems to be only a marginal improvement in the post-crisis period with an adjustment rate increase of 2 per cent.

Our further regression analysis with interaction variables in Tables 4.5a and 4.5b demonstrate a significant difference between pre and post crisis periods. In the pre-crisis period, the coefficient's value is 0.71 for firms without political patronage, implying that these firms make about 29 percent partial adjustment towards their optimal capital structure. The scenario, however, is completely different in the post-crisis period, where the coefficient value of variable Y_{it-1} is 0.52. This means that the coefficient of adjustment is 0.48, implying that firms make 48 per cent partial adjustment towards the optimal capital structure.

In the case of firms with political patronage we observe higher adjustment rates for both periods in contrast to firms without political patronage. This is illustrated by the negative coefficient of the interaction variable. Nonetheless, the adjustment rate is slightly lower for the post-crisis period. Since our sample mainly comprises of firms without political patronage, we conclude that Malaysian firms have realized the importance of adjusting their capital structure towards the optimal level. We believe that the firms' managers have acknowledged the cost of being off target as relatively high compared to the cost of adjusting the debt ratio.

Table 4.5a

Dynamic Panel Regression

(Pre-crisis)

	GMM System	GMM Difference
Leverage (-1)	0.713***	0.594***
	(0.05)	(0.05)
Volatility	0.017	0.014
	(0.01)	(0.02)
Profitability	-0.791***	-0.737***
	(0.11)	(0.11)
Growth	0.002**	0.001
	(0.00)	(0.00)
Tangibility	0.163**	0.128
	(0.06)	0.08)
Political Patronage	0.986**	
	(0.33)	
Politics*Volatility	-0.038	-0.046
	(0.02)	(0.02)
Politics*Profitability	-0.952***	-0.958***
	(0.17)	(0.19)
Politics*Growth	-0.021**	-0.022**
	(0.01)	(0.01)
Politics*Tangibility	-0.304***	-0.199
	(0.08)	(0.10)
Politics* Leverage (-1)	-0.618***	-0.595***
	(0.08)	(0.08)
Sargan test	40.954	30.526
A-Bond test (2nd Order)	0.1883	0.1398

Notes: Leverage = φ_0 + γ_0 Leverage $_{(-1)}$ + γ_1 Volatility + γ_2 Profitability + γ_3 Growth + γ_4 Tangibility + γ_5 Political (Pol) + γ_6 Pol*Volatility + γ_7 Pol*Profitability + γ_8 Pol*Growth + γ_9 Pol*Tangibility + γ_{10} Pol*Leverage$_{(-1)}$ + η_i + η_t + μ_{it}.

Where: η_i is a firm-specific effect and η_t captures common period-specific effects. μ_{it} is the error term representing measurement errors in the independent variable and other explanatory variables that have been omitted. It is assumed to be independently identical normally distributed with zero mean and constant variance, i.e., $\mu_{it} \approx$ i.i.d. N (0, σ^2). LEVERAGE is defined as the ratio of total debt to total assets, VOLATILITY the natural logarithm of total assets, TANGIBILITY is the ratio of fixed assets to total assets, GROWTH is the ratio of market to book value, and PROFITABILITY is the ratio of operating profits before taxes and interest to total assets. Finally, the symbols ***, ** and * indicate significance at the 1%, 5% and 10% level.

Table 4.5b

Dynamic Panel Regression

(Post-Crisis)

	GMM System	GMM Difference
Leverage (-1)	0.518***	0.461***
	(0.01)	(0.01)
Volatility	-0.462***	-0.176***
	(0.03)	(0.04)
Profitability	0.501***	-0.440***
	(0.07)	(0.06)
Growth	0.010	0.011
	(0.01)	(0.01)
Tangibility	-0.096	-0.034
	(0.08)	(0.07)
Political Patronage	1.023	
	(0.66)	
Politics*Volatility	-0.127**	-0.317***
	(0.05)	(0.05)
Politics*Profitability	-1.673***	-1.426***
	(0.10)	(0.09)
Politics*Growth	-0.025*	-0.027**
	(0.01)	(0.01)
Politics*Tangibility	0.677***	0.529***
	(0.12)	(0.11)
Politics* Leverage (-1)	-0.117***	-0.037*
	(0.02)	(0.02)
Sargan test	93.180	63.821
A-Bond test (2^{nd} Order)	0.2864	0.2859

Notes: Leverage = φ_0 + γ_0 Leverage $_{(-1)}$ + γ_1 Volatility + γ_2 Profitability + γ_3 Growth + γ_4 Tangibility + γ_5 Political (Pol) + γ_6 Pol*Volatility + γ_7 Pol*Profitability + γ_8 Pol*Growth + γ_9 Pol*Tangibility + γ_{10} Pol*Leverage$_{(-1)}$ + η_i + η_t + μ_{it}

Where: η_i is a firm-specific effect and η_t captures any common period-specific effects. μ_{it} is the error term representing measurement errors in the independent variable and other explanatory variables that have been omitted. It is assumed to be independently identical normally distributed with zero mean and constant variance, i.e., $\mu_{it} \approx$ i.i.d. N (0, σ^2). LEVERAGE is defined as the ratio of total debt to total assets, VOLATILITY the natural logarithm of total assets, TANGIBILITY is the ratio of fixed assets to total assets, GROWTH is the ratio of market to book value, and PROFITABILITY is the ratio of operating profits before taxes and interest to total assets. Finally, the symbols ***, ** and * indicate significance at the 1% , 5% and 10% level.

On the determinants of the capital structure, our overall regression analysis shows that only profitability is found to be highly significant at the 1 per cent level for the pre-crisis period, while other proxy variables have no significant relationship with leverage. In the post-crisis period, profitability and volatility are significant at the 1 per cent level while tangibility and growth are found to be non-significant variables. Profitability shows the highest significance and is negatively related to leverage in both periods. While the observation seems to be consistent with the Pecking Order Theory of Myers (1984) and Myers and Majluf (1984), it contradicts that of Rajan and Zingales (1995) and Jensen (1986). This is due to the fact that Malaysian firms prefer to use internal equity as this financing method has zero floatation cost and minimum asymmetric information problem.

In the case of volatility, finance theory postulates a positive relationship between stability of earnings and leverage in the sense that managers should be able to finance debt when the earnings are stable. Nonetheless, this study finds the relationship between leverage and volatility to be different between pre and post crisis periods. In the pre-crisis period, we find the relationship to be non-significant, confirming with the study of Annuar and Shamser (1993), while in the post-crisis period, we find the relationship to be negative and statistically significant. Even though this is not in accordance with our expectation, we conjecture that even firms with stable earnings have become more conservative in their financing.

Our further analysis confirms the direct link between political patronage and capital structure during the pre-crisis period. Firms with political patronage carry more debt than firms without political patronage. However, their link is not significant during the post-crisis period. In terms of interactive proxy variables, we find an indirect relationship between political patronage and capital structure through the proxy variables. Profitable firms with political patronage appear to carry less debt than firms without political patronage for both periods. Another point that stands out is that tangibility is negatively related to leverage for firms with political patronage during the pre-crisis period. This indicates that firms with political connections had access to financing without collateral at that time. This situation, however, changes during the post-crisis environment where tangibility has a positive relation with leverage. This shows that conservatism prevailed in this environment, illustrated by the improvement in the financial practice of firms with political connections.

In a nutshell, our analysis illustrates that the crisis has had significant impacts on the Malaysian firms' financing policies. These findings indicate that Malaysian firms have become more conservative in their financial policies. For instance, a negative coefficient of volatility during the post-crisis period indicates that even firms with stable earnings prefer to have lower debt ratios. Indeed, the crisis has a significant impact particularly in the way firms deal with bankruptcy risk based on the higher partial adjustment rate towards optimal capital structure after the financial crisis. Moreover, political patronage is no longer linked to capital structure in the post-crisis period. No doubt the current strategy put

Malaysian firms in a more stable position in contrast to the pre-crisis period. Perhaps this safer choice of financing could be one of the reasons why Malaysian firms remain unscathed during the subprime crisis.

Our analysis not only illustrates the significant impact of the Asian financial crisis on the Malaysian firms' capital structure but also synthesizes the Pecking Order and Static Trade-off theories (Myers, 1984; Myers and Majluf, 1984). We show that profitability is the most significant variable that determines the debt ratio with a negative relationship confirming the Pecking Order Theory. Our results also confirm the trade-off hypothesis as we observe the partial adjustment process toward the optimal capital structure. This confirms the theoretical results of Ebrahim and Mathur (2011) which reflect the amalgamation of Pecking Order and Static Trade-off hypothesis in a rational expectations framework.

4.6.2 Robustness Check

We also estimate equation 5 using the GMM difference technique to support our main analysis. The dissimilarity in this estimation technique is the exclusion of the dummy variable due to the process of differencing. Nonetheless, the overall results remain similar, with the exception of the impact of tangibility during the pre-crisis period. Unlike the previous analysis, we find that tangibility is no longer significantly related to leverage.

4.7 CONCLUSION

This paper examines the determinants of the target capital structure of Malaysian firms and the adjustment process towards this target during time periods pre and post the Asian financial crisis. We explicate the association of leverage with four firm-specific variables: tangibility, profitability, investment opportunity (i.e., growth), and business risk. We also investigate whether there are differences in a firm's choice of capital structure and its adjustment process based on the presence of political patronage. Using a panel sample of 184 firms, we estimate the determinants of the firms' leverage and quantify the adjustment process using the Generalized Methods of Moments (GMM) system estimator technique.

Our empirical analysis illustrates the following results. First, we demonstrate that the rate of adjustment process for Malaysian firms is higher after the financial crisis, implying that the firms' managers have acknowledged the cost of being off target is relatively high compared to the cost of adjusting the debt ratio. We also find that the leverage ratio, despite having a higher average during the post-crisis period, shows a decreasing trend. In a nutshell, our analysis provides evidences that Malaysian firms have become more conservative in choosing their choice of financing. This indicates that the financial crisis has had a general positive impact on the financial practice of Malaysian firms.

Second, we illustrate the distinct impacts of the financial crisis on firms with and without political connections. We find that firms with political connections have higher adjustment rates in both periods. We conjecture that this may due to fact that they have greater access to financing. Another interesting point is that firms with political connection have become more sensible in their choice of capital structure after the financial crisis. This is pointed out by the positive relationship between tangibility and leverage after the financial crisis, implying that these firms have initiated using collateral for borrowing. This further reaffirms our argument that Malaysian firms, irrespective of ownership structure (i.e., with or without political connections), have become more conservative when it comes to managing their capital structure.

Last but not least, our analysis synthesizes the amalgamation of the well-known Pecking Order and Static Trade-off theories of Ebrahim and Mathur (2011). We show that Malaysian firms' choice of debt ratio mainly depends on their profitability with a negative relationship, confirming the Pecking Order theory. In addition, we observe the Static Trade-off hypothesis as indicated by the significant partial adjustment process in our analysis. We also conjecture that firms with political patronage may have more debt due to the fact that their assets in place have the strong backing of government. Consequently, these firms have a better ability to pay their debt in the case of financial distress.

We believe our paper has provided an insight to understanding the impact of the Asian crisis on the financial practice of firms (in the context of emerging

markets and relation-based economies). This can provide a clue on how firms in the developed markets will probably evolve from the contagion of the current subprime crisis.

Appendix II: Politically Connected *versus* Unconnected firms in our sample

No.	Company	Politically connected firms			Politically unconnected firms
		Gomez and Jomo (1997) criteria	*Khazanah Nasional*	Firms owned by sponsored institutions	
1	ADVANCE SYNERGY BHD	X			
2	AIC CORPORATION BHD		X		
3	ALUMINIUM COMPANY				X
4	AMALGAMATED IND'L				X
5	AMCORP PROP	X			
6	ANCOM BERHAD				X
7	BATU KAWAN BERHAD				X
8	BERJAYA LAND BHD				X
9	BERJAYA SPORTS TOTO	X			
10	BOUSTEAD HEAVY				X
11	BOUSTEAD HOLDINGS			X	
12	BREM HOLDING BERHAD				X
13	BRITISH AMERICAN TOBACCO				X
14	CAHYA MATA SARAWAK				X
15	CARLSBERG BREWERY				X
16	CHEMICAL COMPANY				X
17	CHIN TECK PLANTATION				X
18	C.I. HOLDINGS BERHAD				X
19	COMPUTER FORMS BHD				X
20	CONCRETE ENGINEERING				X
21	CYCLE & CARRIAGE	X			
22	DAIBOCHI PLASTIC				X
23	DOLOMITE CORPORATION				X
24	DRB-HICOM BERHAD		X		
25	DUTALAND BHD				X
26	DUTCH LADY MILK INDU			X	
27	EASTERN PACIFIC				X
28	ECOFIRST CONSO BHD				X
29	EG INDUSTRIES BHD				X
30	EKOVEST BERHAD				X
31	EKSONS CORP BHD				X
32	ENG TEKNOLOGI HLDGS				X
33	ESSO MALAYSIA BERHAD				X
34	FABER GROUP BERHAD	X	X		
35	FACB INDUSTRIES INC				X
36	FAR EAST HOLDINGS				X
37	FCW HOLDINGS BERHAD				X

38	FIMA CORPORATION BHD		X
39	FITTERS DIVERSIFIED		X
40	FRASER & NEAVE		X
41	GAMUDA BERHAD		X
42	GENTING BERHAD		X
43	RESORTS WORLD BHD		X
44	GENTING PLANTATIONS		X
45	GEORGE KENT BERHAD		X
46	GLENEALY PLANTATIONS		X
47	GOH BAN HUAT BERHAD		X
48	GOLDEN PHAROS BERHAD		X
49	GOPENG BERHAD		X
50	GRAND CENTRAL		X
51	GUINNESS ANCHOR BHD		X
52	HAP SENG CONSOLIDATE		X
53	HEXZA CORP BHD		X
54	HIL INDUSTRIES BHD		X
55	HIROTAKO HLDGS BHD		X
56	HO HUP CONSTRUCTION	X X	
57	HONG LEONG INDUS BHD	X	
58	HUBLINE BHD		X
59	IJM CORPORATION BHD		X
60	INCH KENNETH KAJANG		X
61	INSAS BERHAD		X
62	INTEGRATED LOGISTICS		X
63	INTEGRATED RUBBER		X
64	IOI CORPORATION BHD		X
65	IREKA CORPORATION		X
66	JAVA BERHAD	X	
67	JAYA TIASA HLDGS BHD		X
68	J.T. INTERNATIONAL	X	
69	KECK SENG (M) BHD		X
70	KESM INDUSTRIES BHD		X
71	KFC HOLDINGS BERHAD	X	
72	KIAN JOO CAN FACTORY		X
73	KIM HIN INDUSTRY BHD		X
74	KONSORTIUM LOGISTIK		X
75	KPJ HEALTHCARE BHD		X
76	KRETAM HOLDINGS BHD	X	
77	KUALA LUMPUR KEPONG		X
78	KUANTAN FLOUR MILLS		X
79	KULIM (MALAYSIA) BHD		X
80	KUMPULAN JETSON BHD		X
81	KYM HOLDINGS BHD		X
82	LAFARGE MALAYAN		X
83	LANDMARKS BERHAD	X	
84	LEADER UNIVERSAL		X
85	LEONG HUP HOLDINGS		X

86	LIEN HOE CORPORATION				X
87	LINGUI DEVELOPMENTS				X
88	LION CORP BERHAD				X
89	LION DIVERSIFIED				X
90	LION FOREST IND				X
91	LION INDUSTRIES				X
92	MALAYAN FLOUR MILLS				X
93	MALAYAN UNITED INDS				X
94	MALAYSIA AICA BERHAD				X
95	MALAYSIA PACKAGING				X
96	MALAYSIAN AIRLINE	X	X	X	
97	MALAYSIAN PACIFIC				X
98	MALAYSIAN RESOURCES	X		X	
99	MALPAC HOLDINGS BHD				X
100	MAMEE-DOUBLE DECKER				X
101	MARCO HOLDINGS BHD				X
102	MAXBIZ CORPORATION				X
103	MBM RESOURCES BERHAD				X
104	MELEWAR INDUSTRIAL				X
105	MENTIGA CORPORATION				X
106	MERCURY INDUSTRIES				X
107	MINHO (M) BERHAD				X
108	MISC BHD		X		
109	MMC CORPORATION BHD				X
110	MTD ACPI ENG BHD				X
111	MUDA HOLDINGS BERHAD				X
112	MUHIBBAH ENGINEERING				X
113	MULPHA INTERNATIONAL				X
114	MWE HOLDINGS BERHAD				X
115	NEGRI SEMBILAN OIL				X
116	NESTLE (MALAYSIA)				X
117	NYLEX (MALAYSIA) BHD				X
118	OCB BERHAD				X
119	OLYMPIA INDUSTRIES				X
120	ORIENTAL HOLDINGS				X
121	PAN MALAYSIA CORP				X
122	PAN MALAYSIA HLDGS				X
123	PAN MALAYSIAN				X
124	PANASONIC MFG				X
125	PANSAR BHD				X
126	PARKSON HOLDINGS				X
127	PELIKAN INT'L CORP				X
128	PERAK CORP BHD				X
129	PERUSAHAAN SADUR				X
130	PETRONAS DAGANGAN				X
131	PETRONAS GAS BERHAD				X

132	BEST WORLD LAND BHD				X
133	PJ DEVELOPMENT HLDGS				X
134	POLY GLASS FIBRE (M)				X
135	POS MALAYSIA BHD		X	X	
136	PPB GROUP BHD				X
137	PRESS METAL BERHAD				X
138	PROLEXUS BERHAD				X
139	PROTON HOLDINGS BHD		X	X	
140	PUBLIC PACKAGES HLDG				X
141	RELIANCE PACIFIC BHD				X
142	ROCK CHEMICAL				X
143	SAM ENGINEERING				X
144	SAPURA RESOURCES BHD	X			
145	SAPURACREST PETROL				X
146	SARAWAK OIL PALMS				X
147	SCIENTEX BERHAD				X
148	SHANGRI-LA HOTELS				X
149	SHELL REFINING CO				X
150	SIN HENG CHAN				X
151	SINO HUA-AN INTL				X
152	SINOTOP HOLDINGS BHD				X
153	SOUTHERN STEEL BHD				X
154	SPK-SENTOSA CORP				X
155	STAR PUBLICATIONS	X			
156	SUNWAY HOLDINGS BHD				X
157	SUPER ENTERPRISE				X
158	TAN CHONG MOTOR				X
159	TASEK CORPORATION				X
160	TDM BERHAD				X
161	TEBRAU TEGUH BHD	X			
162	TELEKOM MALAYSIA BHD		X	X	
163	TENAGA NASIONAL BHD		X	X	
164	TEO GUAN LEE CORP				X
165	STORE CORPORATION				X
166	THETA EDGE BHD				X
167	TIME ENGINEERING BHD		X	X	
168	TIONG NAM LOG HLDGS				X
169	TRADEWINDS CORP BHD		X		
170	TRADEWINDS (M) BHD		X		
171	TRIPLC BHD				X
172	TSM GLOBAL BERHAD				X
173	UAC BERHAD				X
174	UMW HOLDINGS BERHAD			X	
175	UNITED MALACCA BHD				X
176	UNITED PLANTATIONS	X			
177	UTUSAN MELAYU	X			
178	WIJAYA BARU GLOBAL	X			
179	WING TAI MAL				X

180	WTK HOLDINGS BHD		X
181	YEE LEE CORPORATION		X
182	YEO HIAP SENG		X
183	YTL CEMENT BERHAD	X	
184	ZELAN BHD		X

Note: The table lists all firms in our sample with and without political connection. The criteria for politically connections are based on: (i) the work of Gomez and Jomo (1997); (ii) firms under the control of *Khazanah Nasional*; and (iii) firms under the institutions sponsored by the Malaysian government such as *Permodalan Nasional Berhad* (PNB), Employee Provident Fund (EPF) and *Tabung Haji (TH)*.

CHAPTER FIVE

5. CONCLUSION

5.1 OVERVIEW

By means of these three essays, this thesis makes valuable contributions regarding several issues in finance literature. The first essay analyses the value growth puzzle in the rational expectation framework. In doing so, it provides theoretical explanations on some of the controversial issues within the portfolio theory literature. In rationalising the value growth puzzle, the essay explicates the reasons behind the fallacy of the well-known Capital Asset Pricing Model (CAPM), while shedding light on the issue of stock price volatility.

The second essay provides empirical analysis of the value growth puzzle. In contrast to previous studies, this essay attributes the value premium to economic fundamentals using data from five emerging markets. Furthermore, the essay makes important contributions, by reconciling the diverging views not only within the neoclassical literature but also between neoclassical and behavioural literature.

Finally, the third essay examines the impact of the financial crisis on firms' financial practice. It investigates this issue in the context of Malaysia, an emerging market in which political patronage plays an important role. The

results demonstrate that the financial crisis had a significant impact on the financial policy of Malaysian firms, and supports the amalgamation of the well-known Static Trade-off hypothesis and Pecking Order Theory.

5.2 SUMMARY OF MAIN FINDINGS

The three essays have provided interesting and insightful findings to further enhance our understanding of finance, particularly on portfolio and capital structure theories.

The first essay demonstrates that agent heterogeneity in terms of taxable and non-taxable investors leads to invalidation of Tobin's two fund separation theorem, thus nullifying the CAPM. This is due to the rivalry between these two agents that demarcates the efficient frontier into two distinct patterns. The difference in firm's characteristics (in terms of value versus growth) and the risk profile of agents yields two distinct Capital Market Lines (CMLs). A flatter CML slope can be observed when the net lender in the aggregate economy is a non-taxable agent. In contrast, a steeper slope is observed when the net lender is a taxable agent. This clarifies the issue as to why CAPM - which was built on the notion of a single beta - does not adequately explain cross sectional differences in stock returns. The actual CML differs from the theoretical CML due to the heterogeneity of agents in the economy. In the case of the value growth puzzle, a value premium is observed when the true CML is flatter, reflecting the dominance of taxable agents and vice versa.

The second essay provides a new economic insight into the value premium puzzle. Empirical research reveals the tendency of glamour firms to hoard cash and delay the undertaking of their growth options especially in uncertain economic environments. Whilst this behaviour mitigates business risk, it also lowers their market valuation, driving down their returns, explicating the underlying reason for value premium. The findings also provide a means to reconcile the existing explanations for value premium. From a neoclassical viewpoint, our results reconcile the findings of Fama and French (FF) and Daniel and Titman (DT). The observation of firms' unique characteristics made by DT and FF providing evidence of distress risk are in fact similar but identified in a different way.

Meanwhile, in the context of aligning neoclassical and behavioural perspectives, we put forward two possible explanations. The first concerns, the endowed option of glamour as identified by Sargent (1987), where firms entice investors to pay a premium in price, which lowers their return. Second, the volatile nature of value firms' leveraged equity aggravates their losses in a poor economic climate, but leads to a rebound in prices as the economic situation improves. This clarifies the over-reaction hypothesis of DeBondt and Thaler (1985 and 1987).

Finally, the third essay studies the impact of the financial crisis on firms' financing practices by focussing on different ownership structures, in this case, firms operating with or without political patronage. It also sheds light on the intriguing debate between the Static Trade-off and Pecking Order Theories, two well-known hypotheses behind a firm's financial behaviour.

The study finds that the financial crisis has had a positive impact on the financing practice of Malaysian firms irrespective of ownership structure. This was based on the higher adjustment process towards an optimal capital structure in the post-crisis period and a significant reduction in leverage. This is further supported by the changes in coefficient of the determinants of the target capital structure, indicating the conservatism of Malaysian firms after the financial crisis. For instance, the changes in the coefficient of volatility (business risk) from positive to negative in the aftermath of the crisis indicates that even firms with stable earnings preferred to have lower debt ratio. Also, the changes in the coefficient of tangibility for firms with political patronage from negative to positive implies that collateral is required for financing despite the privilege of having political connections. Finally, the significance of profitability with a negative relationship with debt ratio, and the presence of the partial adjustment process provide evidence in synthesising the well-known Pecking Order and Static Trade-off Theories.

5.3 FURTHER RESEARCH

The findings of these three essays have a significant impact on the future direction of research in finance. The first essay demonstrates that asset pricing is contingent on classification of firms and risk profile of investors due to the presence of taxes. This, in turn, challenges the fundamental assumptions of the Capital Asset Pricing Model and all its applications, including the notions of investment appraisal, use of the Jensen Alpha and shareholder value analysis (SVA) that mainly depends on the accuracy of

CAPM. In the case of investment appraisal, CAPM estimates the hurdle rate that determines the rejection or acceptance of a project. Thus, any underestimation [overestimation] causes the acceptance [rejection] of projects being considered. With regards to the Jensen Alpha, the computation of excess return based on the existing theoretical CAPM may not be accurate as it does not take into consideration the dynamic nature of true beta line. The inaccuracy in the Jensen Alpha measurement will have a significant impact on SVA.

The second essay provides a new economic intuition in understanding the source of value premium. Nonetheless, the analysis undertaken is limited to data from emerging markets. Testing the same intuition in the context of a developed market should present an interesting opportunity to further enhance the transferability and reliability of our findings. A similar direction of research applies to our third essay. Due to data limitation, this study was confined to relatively large publicly listed companies. Hence it is not clear how some of the major findings generalise to small and medium sized unlisted companies. Data permitting, it would therefore be interesting to investigate the capital structure-political patronage nexus in the context of these companies, in view the significant role they play within the Malaysian economy.

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