FINANCIAL CONSTRAINTS AND FIRM INVESTMENT IN MALAYSIA

BY

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ABSTRACT

According to neo-classical investment theory, factor prices and technology determine a firm's desired capital stock. Moreover, this theory is based on an assumption of complete information. Therefore, cash flow and other counterparts are not important, because all investments are assumed to be financed. However, agents in capital markets are not well informed. That is, firms may present the best project proposal for their prospective lenders, but they may not make a full disclosure to lenders in order to avoid leaking information to competitors. The lenders may investigate firms, but this incurs a high expense. Alternatively, lenders may use credit rationing to reduce losses due to moral hazard. Mature firms that have good relationship with lenders and a reputation among the public may easily obtain external sources of finance by taking loans or issuing new shares to smooth investments. However, it is not easy for young firms to obtain new loans or issue new shares. Therefore, they prefer internal financing rather than external funds, because for them, internal funds are relatively cheaper. As a result, their investments are much more affected by fluctuations in cash flow or retained earnings. This study investigates the presence of financial constraints and how firms behave in facing these constraints in order to smooth investment activities. This study employs a panel estimation technique to explore this issue and finds that indeed, financial constraints are present in the Malaysian capital market. This finding implies that in general, firms in Malaysia are affected by financial constraints. However, when the sample of firms is split into sub-samples according to their size, the results show that only small firms suffer from these constraints. This study also finds that the prior assumptions regarding the role of financial liberalisation and financial crisis as related to constraints are rejected in the case of Malaysia, as neither liberalisation nor crisis affects financial constraints among firms.

ملخص البحث

وفقا لنظرية الاستثمار الكلاسيكية الجديدة، الأسعار لعوامل الانتاج والتكنولوجيا تحدد مخزون رأس المال المطلوب للشركة. فإن هذه النظرية تقوم على اقتراض معلومات كاملة. ولذلك، كانت التدفقات المالية وغيرها من النظائر المالية ليست ذات أهمية، وذلك لأن جميع الاستثمارات يفترض تمويلها. ومع ذلك، العملاء في أسواق رأس المال ليسوا على علم كامل نحو جميع المعلومات لسوقية. وهذا يعني، إن الشركات يمكن أن تقدم أفضل المشروعات المقترحة للمقرضين المحتملين، ولكنها لا تقدم جميع المعلومات المتعلقة بالمشروع المقترح تجنبا لتسرب المعلومات الى متنافسيها. ولذلك يمكن للمقرضين أن يحققوا تلك الشركات أنفسهم ولكن هذا العمل يتحمل نفقات عالية. بدلا من ذلك، يستخدم المقرضون الائتمان للحد من الخسارة الناجمة عن المخاطر المعنوية. والشركات الناضجة التي لديها علاقات جيدة مع المقرضين وسمعة طيبة لدى الجمهور يمكن بسهولة الحصول على مصادر خارجية للتمويل من خلال القروض أو إصدار أسهم جديدة لتسهيل الاستثمارات. بيد أنه ليس من السهل على الشركات الصغيرة للحصول على قروض جديدة أو إصدار أسهم جديدة. ولذلك، فإنهم يفضلون التمويل الداخلي بدلا من الأموال الخارجية، وذلك لأن الأموال الداخلية رخيصة نسبيا. ونتيجة من ذلك، كانت استثماراتها أكثر متضررة من التقلبات في التدفقات النقدية أو الأرباح غير الموزعة. ولذلك، تحقق هذه الدراسة وجود القيود المالية للشركات وكيفية التصرف في مواجهة هذه المعوقات من أجل تسهيل الأنشطة الاستثمارية. وتستخدم هذه الدراسة أسلوب اللوحة التقديرية لاستكشاف هذه المشكلة، ونرى أنه في تحقيقنا، أن القيود المالية موجودة في سوق رأس المال في ماليزيا. وهذه النتيجة تعني أن الشركات في ماليزيا تتأثر بالقيود المالية عامة. ومع ذلك، عندما تنقسم العينة من الشركات إلى العينات الفرعية وفقا لحجمها، تظهر النتائج أن الشركات الصغيرة تعاني من هذه القيود. هذه الدراسة أيضا تجد أن افتراضات مسبقة بشأن دور التحرر المالي والأزمة المالية من حيث علاقتها بالقيود في ماليزيا، تثبت أنه لا توجد أزمة ولا يؤثر تحرير القيود المالية فيما بين الشركات.

APPROVAL PAGE

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DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated. I also that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Mohd Adib Bin Ismail

Signature:………………………….. Date:………………...

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To my wife, Mawar,

And sons, Akram and Adham.

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LIST OF ABBREVIATIONS

2SLS	Two-Stage-Least Squares	MA(2)	Moving Average Process of Order 2
AR(1)	Autoregressive Process of Order 1	MM	Modigliani and Miller
BBC	The British Broadcasting Corporation	MNC	Multinational Company
		MPK	Marginal Productivity of Capital
BLUE	Best-Linear Unbiased Estimator	OECD	The Organisation for Economic Co-operation and Development
BNM	Bank Negara Malaysia	OLS	Ordinary Least Squares
CDRC	Corporate Debt Restructuring Committee	R&D	Research and Development
FDI	Foreign Direct Investment	REIT	Real Estate Investment Trust
FEM	Fixed Effects Model	REM	Random Effects Model
GDP	Gross Domestic Product	SARS	Severe Acute Respiratory Syndrome
GLS	Generalised Least Squares	SME	Small and Median Enterprise
GMM	Generalised Method of Moments	UKM	*Universiti Kebangsaan Malaysia*/National University of Malaysia
i.i.d.	Independently and Identically Distriburted	UNCTAD	United Nations Conference On Trade & Development
IIUM	International Islamic University Malaysia	UPM	*Universiti Putra Malaysia*
IV	Instrumental Variables	US	United States of America
LM	Lagrange Multiplier		
LSDV	Least Squares Dummy Variable	USD	American Dollar
MA(1)	Moving Average Process of Order 1	vs.	Versus

CHAPTER 1

INTRODUCTION

1.1 RESEARCH BACKGROUND

Financial constraints can be defined as financial obstacles that hinder a firm's access to external funds in financing their investment activities. Financially-constrained firms are firms that are unable to smooth and secure their investments through external financing. However, effects of financial constraints on firms can be different; this difference can divide firms into two major groups, namely, constrained and unconstrained firms. The first research to raise the importance of financial constraints and explore this issue was Fazzari et al. (1988). Before that project, earlier studies were based on models that "undermine the role of internal finance in the investment decision" (Vilasuso 1997).

In order to show how assumptions can be relaxed due to financial constraints, two related models are presented here. The first model was introduced by Modigliani and Miller (MM) (1958), who provided the foundations for a theory that elucidates which firm investments are irrelevant to a firm's financial structure. Under the MM theorem, a firm's market value is not affected by its financial structure. This is because a firm's value is an added sum of equity and leverage. Firms may either reduce the equity side by increasing debt, or they also may enlarge their equity portion by issuing more shares. Thus, since the total of the two is the same, the value of the firm stays the same. All this presumably happens under the condition of a perfect capital market in which players are well informed, and products traded are perfect substitutes. Therefore, the firm's decisions regarding real activities are irrelevant to its

financial decisions, because these real decisions are only aimed at optimizing shareholder claims.

The concept that the foundation of a firm's capital structure is irrelevant in investment decisions was used to construct the neo-classical theory of investment pioneered by Dale Jorgenson (1963). According to this theory, firms in investment activities must incur the cost of capital in order to acquire the desired stock of capital. As far as the firm can afford the purchase of the stock, the firm will acquire the new capital. Mathematically, the firms will employ new capital until the marginal cost of capital equals the marginal product of capital. This equality is obtained from the optimisation process that relates interest rates, output, capital prices and tax policies to the desired stock of capital (Toit and Moolman 2004). Thus, based on this argument, financial constraints are unimportant, because the optimisation process of firms does not depend on financial factors[1]. The model only takes into account factors that may affect the cost of capital, such as changes in the government's tax policy. This is because the policy affects the price of capital input, i.e., the cost of capital that will eventually affect the firm's investment decisions[2].

As emphasised by the above theories, internal and external funds are perfect substitutes. Thus, firms under this assumption can easily obtain external financing to smooth their investments. In fact, using internal funds for investments incurs opportunity costs. Opportunity costs are the expected earnings that can be generated if a fund is saved in a bank, i.e., it is the interest earnings a firm receives. Therefore, once the opportunity cost exceeds the cost of external funds, obtaining external funds is more advantageous. However, if the cost of using external funds is higher than the

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[1]Financial factors include, for example, cash flow and leverage.
[2]Hall and Jorgenson (1967) examined the relationship between tax policy and firm investment behavior using a neo-classical framework.

cost of using internal funds, it is better for firms to retain their earnings in order to finance investments internally. Under the assumption of a perfect capital market, this issue does not arise, because the elasticity of substitution between external and internal funds assumes unity, and the costs of obtaining external funds is similar to the opportunity costs of raising internal funds (Vilasuso 1997). Thus, this implies that all productive investments with positive expected net return will be financed.

Nevertheless, in real life there are many imperfections, frictions and impediments in the market, especially in developing nations like Malaysia. These imperfections take place because of the presence of information asymmetries[3]. Under such conditions, economic agents are not equally well informed. Agents with better information may exploit the market for their own interests. For other agents, it may become very expensive to gather information. In this case, the former and the latter may be financers or financees, respectively. As a result, the assumption of a perfect capital market is relaxed. The internal and external funds are no longer perfect substitutes. This condition leads to the existence of financing hierarchy in a firm's financial decision-making. This hierarchy represents a firm's hierarchical preference regarding financing sources. The hierarchy shows that firms will first choose internal funds, followed by debt financing and equity financing. Myers and Majluf (1984) have shown how information asymmetries affect equity financing when outside

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[3]There are three sources of the market imperfection, including information asymmetries, agency cost and transaction cost (Oliner and Rudebusch 1992; Kadapakkam et al. 1998; Koo and Maeng 2005). Oliner and Rudebusch (1992) found that information asymmetries are a source of financing hierarchy, while transaction cost plays no significant role in this hierarchy. The existence of financing hierarchy indicates that external and internal financing sources are not perfect substitutes, suggesting the presence of financial constraints. Regarding agency cost, there is a close relationship between information asymmetries and agency cost, because information problems create a conflict of interest between inside and outside investors. Thus, two significant source of financing hierarchy include information asymmetries and agency problems. Therefore, Bhaduri (2005) has argued that the magnitude of market imperfection depends on information asymmetries and agency problems.

investors ask for a premium to purchase a firm's equity. This premium increases the cost of external funds.

In the case of debt financing, information asymmetries lead lenders to fulfil only a part of borrower requirements for loans. As a result, only some investments with positive expected net values will be financed, while others are abandoned, though they may produce positive profits. Even if lenders agree to give loans, they may employ rationing, which has become a common practice in the financing sector used to mitigate moral hazard problems. For instance, in presenting business proposals to lenders, borrowers usually do not reveal all related facts and information but rather only the most relevant facts, because borrowers are anxious that the facts may leak to prospective rivals. In fact, these undisclosed facts may be very important in loan approval, as they may indicate a firm's true performance and actual ability to repay debts. Therefore, firms do not disclose all facts in order to cover for poor past performance. To reduce the possibility of the latter, banks impose credit rationing, and in fact, Stiglitz and Weiss (1981) have shown that credit rationing is practiced to mitigate problems of information asymmetries. As this practice increases, the cost of external financing increases as well.

The second factor involving market imperfection is the agency problem. This problem is closely related to information asymmetries, because it stems from a situation in which outside investors do not have enough relevant information on firm investment activities and returns. Alternatively, managers who have inside information may pursue their own interests, rather than the interests of outside investors. This conflict of interest can increase the cost of external finance (Oliner and Rudebusch 1992). Therefore, in order to avoid jeopardizing outsider interests, the outside investors can implement a management control system to monitor firm

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activities. However, this monitoring system produces additional cost to management. Besides, outside investors may also be unwilling to purchase shares in the firm, except at a reduced price (Schiantarelli 1996). Eventually, this increases the cost of external financing.

In spite of this, the long-term goal of firms is to sustain firm market position if not improve it. To achieve that, firms must maintain a positive profit from investment activities. However, these activities are subject to a firm's current financial budget, which limits the need to enhance investments beyond its available internal funds. Therefore, firms need financial help in the form of outside funds to finance additional profitable projects. In an imperfect capital market in which information asymmetries and agency problems exist, firms must face the costs associated with external finance, as mentioned above. These costs cause firms to become less able to access external funds. As a result, firms must retain most of the profit gained from previous investments and pay fewer dividends in order to smooth their investment activities, because if firms exhaust all internal funds, they are unable to make more investments but rather must abandon the ones they already have. Consequently, investment activities become very sensitive to the availability of internal fund flows, and as a result, their investments fluctuate. However, if firms are still able to obtain external funds, investments can be smoothed. Firms that can easily obtain external funds without facing the costs discussed above are not financially constrained.

Financial constraints do not only affect investments at the firm level; in addition, constraints also influence investments at the macro level. As mentioned before, in the presence of financial constraints, firm investments fluctuate according to the availability of internal funds. These fluctuations may induce fluctuations in output, because investment constitutes one of the components of gross domestic product

(GDP). These fluctuations are exacerbated in the context of financial constraints, because constraints can magnify the macroeconomic effect of shocks on cash flow or liquidity, thus reducing firm access to low-cost finance and worsening their balance sheet finance at the firm level (Fazzari et al. 1988). Kocherlakota (2000) also argued that financial constraints may exaggerate the effects of an unanticipated monetary policy. Accordingly, Agung (2000) has suggested that the government be careful in implementing monetary policies by taking into account the role of financial constraints; otherwise, the policy may worsen the current economic situation. The market structure of the economy plays an important role; if constrained firms dominate the market, investment fluctuations will negatively affect the GDP. However, if unconstrained firms dominate the market, negative effects brought about by constrained firms can be marginalised. Applying these insights to Malaysia, it thus becomes necessary to identify which type of firm dominates the Malaysian market through an empirical study.

The effects of financial constraints on firm investments can be reduced if financial liberalisation is implemented. According to Jaramillo et al. (1996), the effects of financial constraints on investments can be eased by liberalizing the financial market. Koo and Maeng (2005) argued that financial liberalisation reduces the effects of financial constraints by alleviating asymmetric information and agency problems. According to this study, liberalisation improves the ability of banks to screen firms and thus reduce asymmetric information problems. Banks also tend to intensively monitor managerial behaviour, which eventually reduces problems due to conflicts of interest.

The deregulation of the interest rate is one feature of financial liberalisation. In Malaysia, the deregulation of the interest rate took place in 1991, after which point

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rates were determined by market forces (Ang and McKibbin 2005; Laeven 2003). According to Ang and McKibbin (2005), Malaysia adopted a gradual approach to financial liberalisation, which has taken place since the 1970s. Other features of liberalisation include a reduction in reserve requirements, a reduction in directed credit, pro-competition measures, a reduction in entry barriers, the privatisation of banks, increases in prudential regulations, securities market development and international financial liberalisation. After liberalisation, more firms are assumed to be able to access to external finance. However, how true this is for Malaysia requires further investigation. Such an investigation may also reveal the effectiveness of liberalisation with regards to investments at the firm level.

Between the 1970s and today, Malaysia has experienced two major economic crises. The first crisis happened in the mid-1980s. However, the second, most challenging crisis occurred during 1997-1998. This financial crisis occurred at a time when the capital market had already been greatly developed. Since the positive effects of financial liberalisation on financial constraints can be reversed by crisis, the government took several steps to shield and strengthen the economy. These steps included an expansionary monetary policy, counter-cyclical fiscal measures, bank-strengthening programs and selective exchange control measures.

Overall, the impacts of financial crisis can be regarded as an external factor that worsens financial constraints on firms in the domestic market as well as narrows their access to external funds. As a result, firms are likely to become more constrained. As internal factors, government policies may reduce the effects of financial constraints on 'recipient sectors'. As a result of these policies, firms are expected to become less constrained, especially recipient sectors. Furthermore, the impact of financial crises does not quickly disappear; this may explain the slowdown

in economic recovery in Malaysia as well as the effectiveness of government policies in handling the crisis. Nevertheless, Galindo and Schiantarelli (2002) have argued that firms with ties to external funds appear to be less constrained in a post-crisis period.

To sum up, an investigation of financial constraints and firm investments is important, since firms play a major role in the growth of Malaysia, not only from an investment aspect but also in terms of trade performance. As Malaysia is an open economy, firms do not only produce goods to fulfil domestic needs, but they also export their products and services abroad. They also import inputs, including raw materials and machinery equipment. This activity contributes to the expansion of added-value industries, which leads to a positive trade balance, because Malaysian firms exports higher-value products. In addition, firms may also expand their operations overseas and bring home profits, which it again increases net transfer payments. These two dynamics should increase national income. However, this may not occur if firms are constrained in obtaining external funds in the form of either loans or new share issuance, because these additional funds provide firms with opportunities to produce beyond their original production frontiers. This intuitively means that eliminating financial constraints may increase investment and output. Therefore, this research will employ firm financial data to examine the presence of financial constraints and their effects on firm investment.

1.2 OBJECTIVES OF THE STUDY

This study primarily aims to examine the presence of financial constraints among firms in Malaysia. Understanding the existence of financial constraints is very crucial, as constraints are closely related to the internal financial position of a firm, its access to external funds and its investment financing. If the constraints are present, the firms

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that have exhausted their internal funds will fail to smooth their investment, because they are less able to access external funds.

Since each firm has its own distinctive characteristics in terms of retention practices, ownership types, ownership concentration and size, firms may behave differently. Therefore, as a second objective, this study will categorise firms into groups based on size using three distinctive measures of size[4] to examine the presence of financial constraints within these groups and to understand the importance of particular characteristics in explaining the constraints that determine the investment behaviour of firms. Identifying these influential characteristics is vital for policy makers to be able to take actions that suit at least the fast majority of firms.

The study also evaluates the effects of financial liberalisation on financial constraints. Financial liberalisation is assumed to ease constraints. That is, in a liberalised economy, many firms that were previously constrained become unconstrained and, moreover, gain increased access to external funds. In Malaysia, financial liberalisation took place in stages. According to Laeven (2003), Malaysia deployed prudential regulation in 1989, deregulated interest rates and credit controls in 1991 and liberalised entry barriers and reserve requirements in 1994. Since Malaysia's banking institutions are already private institutions, all six indicators of financial liberalisation as discussed in Laeven (2003) were all implemented after 1994. Therefore, the firms in our sample can be divided into pre- and post-liberalisation periods by using 1994 to split the sample.

Lastly, this study aims to investigate the effects of financial crisis on financial constraints. It is important to understand firm investment behaviour during and after a crisis, because the crisis may worsen financial constraints. Furthermore, the effect of

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[4]These measures will be described in Chapter 3.

crisis is long-lived. This means that firms will be constrained for a long period after a crisis. If this is indeed the case, the presence of financial constraints during and after Malaysia's crisis may explain why the economy was slow to recover.

1.3 SIGNIFICANCE OF THE STUDY

As has been argued in the background section, in order to survive in the market, firms must be dynamic in the sense that they must invest regularly and receive continuous flows of income. In order to smooth its investment path, a firm should also be certain that its financing funds are always sufficient. However, capital market imperfections are common in developing economies. As a result, firms tend to retain a certain fraction of their income flows to finance future investments. To obtain external funds, firms must bear the financing costs, because outside investors may ask for reduced prices as a premium on shares purchased, and loan managers may also engage in credit rationing instead rather than merely requesting a premium for loans given. If firms fail to smooth their investments using external funds once their own funds are exhausted, they are understood as affected by financial constraints.

As such, this study is important, because it investigates the presence of financial constraints and their effects on firm investment activities. The presence of financial constraints may cause firms to be less accessible to external funds and thus cause their investments to fluctuate. Constraints may affect the economy if these firms constitute a major portion of the investment sector, since their investment fluctuations will have a large impact on investment fluctuations at the aggregate level. At the same time, this study analyses which types of firms are affected by constraints. This is because each type of firms may react differently to financial constraints.

Moreover, this study also relates financial constraints to financial liberalisation and financial crisis. These two latter events may have contradicting effects on investment. In Malaysia, liberalisation began in the early 1990s, and financial crisis followed later that decade. The former was expected to accelerate investment activities insofar as more firms had greater access to external funds, while the latter reversed these effects. Finally, the crisis may also increase the number of constrained firms. Therefore, this study is useful, because it can help to explain this crisis and the causes behind the Malaysian economy's slow recovery and low output growth.

Information regarding financial constraints and their effects on firm investments is very useful for policy makers. Using this information, they can ascertain appropriate monetary policies to reduce financial constraints on firm investments and increase firm accessibility to financing sources. This is important in order to achieve the ultimate goal of firms, that is, sustainable growth generated by private investment. In addition, policy makers can also determine which firms are significantly affected by constraints in order to identify them as policy targets. This is possible, because certain firm characteristics, such as firm size and the presence of foreign ownership, may explain the severity of financial constraints. This is important to ensure that implemented policies are effective.

This study is also helpful insofar as the presence of financial constraints also determines the success of monetary policies in enhancing economic growth, as constraints may magnify shocks initiated by such policies. For instance, assume that Bank Negara Malaysia (BNM) implements an unanticipated contractionary monetary policy. This decrease in money supply leads to an increase in the interest rate. This rise may induce a reduction in output, because the cost of external finance increases, and firm ability to carry out investment decreases. In the presence of financial