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Financial Flexibility as an Investment Efficiency Factor in Asian Companies

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Abstract: This study explores the impact of a company's financial flexibility on the effectiveness of its investments.The number of companies that have financial flexibility was calculated with the application of thespare debt capacity method. The research identifies the impact of financial flexibility on investment activity and on the level of suboptimal investments. The data from 1,736 companies in theAsian region, during the 2005-2015time period, are presented. The Asian region has unique institutional, economic and commercial environments that present a great basis for this paper. The results of the research reveal that financially flexible companies spend more on their investment expenditure and conduct more effective investment policiesby reducing the level of over- and underinvestment. Financial flexibility helps companies to make effective investments during a crisis period, but the difference in the flexibility between developed and developing countries and between large and small companies was not observed.

Keywords: financial flexibility; financial leverage; investment expenditure; spare debt capacity; suboptimal investment

JEL classification: D92, G01, G31, G32

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Introduction

Financial flexibility is a company's capability to obtain financial resources in order to have a timely reaction to any future unexpected events and to maximize the company's value. Flexibility is closely connected to the availability of external financing, since this method of obtaining funds has gained an increasing importance in capital structure decisions. The importance of financial flexibility for a company is a relevant subject, as in recent years receiving capital from third-party credit organizations has become crucial for companies that want to achieve a sustainable pace of development, expand their business and have a financial advantage over their competitors.

Authors focus on Asian countries because of their diversity and varied economic potential. The region is represented by both well-established countries and quickly growing economies with growing numbers of educated people and increased domestic consumption. The question of financial flexibility's presence is essential for Asian companies because the developing economies stimulate new investment opportunities and cause managers to find tools for increasing the flexibility, in order to attract additional resources for their businesses' development.

The goal of this research is to identify the existence of a relationship between financial flexibility and the investment decisions' effectiveness. The execution of efficient investment decisions is a vital objective for most companies, as it facilitates sustainable growth and contributes to the maximization of shareholders' wealth. This work combines methods for determining a company's financial flexibility and assessing its investment efficiency, which was not done in previous works on the subject of flexibility. The paper also examines the effects of flexibility in the broad, fast-growing and diverse Asian region. The dataset consists of 1,736 Asian public companies from 8 countries – India, Indonesia, China, Japan, South Korea, Taiwan, Hong Kong and Singapore.

Theoretical frame works, along with the empirical research, imply that financial flexibility plays a significant role in mitigating the issues of suboptimal investments. Most studies on financial flexibility and its various effects on company performance were undertaken in the late 2000s by such authors as Byoun (2007), DeAngelo and DeAngelo (2007), Marchica and Mura (2010). Works by Byoun (2007) and DeAngelo and DeAngelo (2007) have primarily focused their attention on determining the sources of financial flexibility, while later research focuses more on the implications of flexibility and have a more holistic approach to its calculation. The connection between financial flexibility and investment activity relates to the pecking order theory of Myers and Majluf (1984) and was also covered by Yung et al. (2015), Ferrando et al. (2016) and others. Brief considerations of flexibility's effects on investment efficiency were described by Ma and Jin (2016), Nouri and Jafari (2016).

The problem of firms' investment efficiency is of great interest to scholars and researchers, due to its relevance and practicality. While most of the current research provides insights into how flexibility affects investment levels, the volume of equity payouts and firm value, authors contribute to the financial literature by examining the impact of financial flexibility, in the form of the spare debt capacity, on the reduction of suboptimal investment decisions. Authors investigate whether financially flexible companies make more optimal investment decisions (by reducing the levels of over- and

underinvestment)compared to the inflexible ones and whether the level of suboptimal investment expenditure is consequently less.In terms of the practical application of the research, the presence of financial flexibility can be considered by the managerial board while making its investment policy preparations, which in turn will increase the company's value - that is why the analysis provided here can be used in business development decision making.

In contrast to previous research, authors have combined two types of decisions by companies - financial and investment. The outcome of the research revealed that financial decisions directly affect investment decisions and that a correctly selected capital structure leads to more optimal decisions for the investment policy, by reducing the level of suboptimal investments and increasing the company's value.

Authors investigate three other topics in addition to the main purpose of the article. The 2008-2009 financial crisis raised many questions concerning the efficiency of the investment strategies by companies of various sizes and in firms operating in countries with various levels of economic development. To investigate these effects, firstly, authors have taken data from the Asian region, which is a vast and rapidly growing economic zone that consists of many emerging and developed economies. Authors assume that during a crisis it is easier for financially flexible companies to implement an optimal investment strategy, since these companies have more resources at hand. Secondly, authors focus theirs research on the implications of countries' economic development on firms' investment decisions. Authors suppose that this factor can significantly increase the impact of flexibility's presence, as with less developed financial institutions it represents the stability and trust-worthiness of the company. And finally, authors explore companies of various sizes, suggesting that larger companies have more financial freedom and are less risky, so they consequently implement more effective investment decisions.

The rest of this paper is structured as follows. *Section 1* provides the summary of previous research in to the concepts of financial flexibility, investment efficiency and their relation. *Section 2* develops the hypotheses. *Section 3* describes the methods that will be used in this paper. *Section 4* describes the sample of data used in the research. *Section 5* presents the analysis and discusses the results of the paper.

Literature Review

Financial Flexibility

Even though active studies on the topic of financial flexibility have only been brought out in recent decades, the roots of the question can be traced back to the classic works in the field of finance. Modigliani and Miller (1963) were one of the first scientists to introduce the overall definition of flexibility, which they defined as a company's ability to maintain "a substantial reserve of untapped borrowing power." These authors have stated that even though higher levels of debt present a tax shield advantage, firms with significant amounts of liabilities more commonly face financial constraints. Such an ambiguity makes firms lower the reserve of their borrowing power, but not eliminate it completely. Myers (1984) confirms that firms plan to fund some of their investment through borrowing; however they try to restrain themselves to avoid the cost of financial distress. Companies also maintain the level of their borrowing power through their financial slack,

which is represented in the form of cash, real assets or marketable securities.

Despite the recognition of flexibility as a significant factor in the determination of capital structure in those works, it has not been discussed at length until recently. Byoun (2007), and DeAngelo and DeAngelo (2007), as well as many other researchers, have shifted their focus towards this topic because the role of corporate finance strategy has greatly increased and the efficient management of capital no longer results in just minimizing the cost of capital and cash management. The detailed research by Graham and Harvey (2001) proved that the management of companies do value financial flexibility, because it allows them to make future expansions and acquisitions more easily. This means that companies follow the Modigliani and Miller (1963) trade-off theory and target their debt ratios.

One of the first modern works that is focused primarily on the topic was the article by DeAngelo and DeAngelo (2007). According to authors, flexibility represents the critical missing link in the previous theories of capital structure. The research introduces its own approach to the capital structure theory, which links the agency costs, dividend policies and the need for financial flexibility. Companies maintain low leverage to store their unused debt capacity, in case of future unexpected events. Stockpiling cash reserves is expensive because of the potential tax dis-

Table 1. **Leverage/Cash Methods of Estimating Financial Flexibility**

Article	Authors	Year	FF Variables/Calculation	Notes
Capital Structure, Payout Policy, and Financial Flexibility	DeAngelo and DeAngelo	2007	Leverage, Dividend Payouts, Cash	One of the first examinations of flexibility in firms
Financial Flexibility, Leverage, and Firm Size	Soku Byoun	2007	Cash Flow, Dividend Payouts, Leverage, Credit Rating	Paper studies the attributes of flexible firms over a long-term timeframe
Financial Flexibility, Corporate Investment and Performance: Evidence from Financial Crises	Özgür Arslan-Ayaydin, Chris Florackis, Aydin Ozkan	2013	Cash, Leverage	Flexibility is an important determinant of investment and performance, mainly during the crisis period
The Impact of Timely Identification of Unrealized Losses on Firms Financial Flexibility	Khadije Rabie, Zeinab Bozorgpour	2016	Same as Arslan-Ayaydin et al.	Companies with more conservative policies reserve less money and are more successful in financing through external debt

Table 2. **Mathematical and Other Financial Methods of Estimating Financial Flexibility**

Article	Authors	Year	FF Variables/Calculation	Notes
Growth Opportunities and the Choice of Leverage, Debt Maturity, and Covenants	Matthew T. Billett, Tao-Hsien Dolly King, David C. Mauer	2007	Covenant Index - financial flexibility is higher with the decreasing number of covenants	Stable and mature firms more flexible because the can dictate the number o covenants and their esse
Financial Flexibility, Investment Ability and Firm Value: Evidence from Firms with Spare Debt Capacity	Maria-Teresa Marchica, Roberto Mura	2010	Spare Debt Capacity model that combines leverage, market-to-book ratio, tangibility, size, profitability and industry leverage	One of the first articles t implement the mathema approach to the flexibilit model
Financial Inflexibility and the Value Premium	Michael Poulsen, Robert Faff and Stephen Gray	2013	Inflexibility Index - multiplication of normalized fixed assets ratio, leverage and financial constraints	Financial inflexibility is significantly related to th book-to-market ratio
Financial Flexibility and Capital Structure	Chris Harris	2015	Financial Flexibility is the ratio of share repurchases to the total payout	Higher levels of financial flexibility obtained throu share repurchases are positively related to high levels of firm debt
What Drives the Relationship Between Financial Flexibility and Firm Performance: Investment Scale or Investment Efficiency? Evidence from China	Chun-Ai Ma, Yanbo Jin	2016	Financial Flexibility Index (FFI), which accounts for the basic cash holdings, potential cash inflows and financing costs (i.e. external debt ability)	Proved that there is a lin between the flexibility an investment efficiency/sc

advantages, high opportunity costs and potential agency problems. DeAngelo refers to La Porta et al. (2000)and Shleifer and Vishny (1997), stating that mature firms limit the overall level of their internal funds by issuing substantial dividend payouts.

Byoun (2008) continued the analysis of the importance of financial flexibility and created one of the first independent definitions of the term, which is "the degree of capacity and speed at which the firm can mobilize its financial resources in order to

take reactive, preventive and exploitive actions to maximize firm value." The author supported the idea that businesses primarily maintain their flexibility through the preservation of debt and equity payouts. The author also suggested the existence of a negative relation between cash holdings and leverage, contrary to the framework of DeAngelo.

The scope of the papers on the topic has greatly improved and now studies offer a bigger variety of definitions for flexibility. Tables 1 and 2provideanoverall view of the various approaches to financial flexibility that scientists have shown in the recent years.

Two main approaches can be defined from the analysis. The first one accounts for two factors, debt and cash reserves and is narrower and more consistent with the classical theories. The second approach is broader, as it also includes other variables, such as liquid assets sales, dividend reductions etc. The latter method is more up-to-date – researchers are attempting to give flexibility a stricter definition and find ways to calculate the values or dummies for the flexibility.

The use of leverage, as the proxy for financial flexibility, is currently the most robust method that produces results which are consistent with the economic theory and previous research. According to the hierarchy theory, the information asymmetry that exists in the imperfect financial world gives debt financing a clear advantage, compared to additional equity financing. The main challenge in the use of leverage relates to the idea of estimating the debt's target level. The research that is developing the financial flexibility proxies, based on the leverage approach, use the works about the adjustments of capital structures to find out the factors that define companies' capital policies. The basis of that method lies both in the classical empirical studies and in the current studies.

Flannery and Rangan (2006) confirmed that firms identify and pursue targeted capital ratios. The targeting behavior was observed in various definitions of leverage and authors estimated that with the occurrence of financial shocks, the firms adapt their strategies and quickly return to their target levels. Frank and Goyal (2009) studied the factors that affect the capital structure decisions of public companies. Authors have gathered data from various research papers and created a list of factors, such as size, growth, profitability and many others, that can influence corporate leverage.

Many authors have adopted and expanded the use of the leverage model. Marchica and Mura (2010) provided evidence that companies with higher levels of flexibility demonstrate improved levels of investments. Their work has defined flexibility as the presence of deviation between the predicted and real value of leverage, now called the spare debt capacity. A similar technique was used by Yung et al. (2015) – that research showed that the conservative policy of low leverage is beneficial for businesses in developing countries and confirmed the value of flexibility during the global crises.

Investment Activity and Efficiency

The importance of financial flexibility is closely related with a company's investment ability. According to the managers' surveys, flexibility in the form of a conservative leverage policy allows managers to make decisions in imperfect markets (those that feature contracting issues and asymmetric information). Companies are eager to maintain a certain level of flexibility, so that they can

escape the potential financial distress when negative shocks appear and put money into lucrative projects when such possibilities arise.

The efficiency of the investments is related to the deviations from the optimal level of investments – the level in which the company chooses to pursue all the profitable projects and reject all the cases that will generate losses. In the imperfect capital markets that suffer from agency problems and information asymmetry, firms may choose projects that have a negative Net Present Value (NPV), or not carry out ones with a positive NPV – those situations are defined as overinvestment and underinvestment respectively. La Rocca et al. (2008) explains why companies choose to keep their debt ratio low, even when there are lucrative options from lenders to attract additional funds. The choice of a specific leverage ratio for a certain period is a strategic tool for the company that influences the financial behaviournot only of the firm itself, but of its competition as well.

There exist various approaches to calculate the efficiency of investments - Titman et al. (2009); Cherkasova and Zakharova (2016)all used the historic average level of investments for a 5- or 3-year period to estimate the optimal level of investment. If the average value of investments in the last three periods was the same as the current period's investment volume, the company was undertaking its optimal level of investment. Authors have found a negative relation between an abnormal level of investments and stock returns. Richardson (2006) decomposed total investments in to the sum of capital expenditure, acquisitions and the expenses for research and development. The total amount of investment can be divided into three categories: maintenance investments, investment expenditures into efficient projects and abnormal investments. A company's growth potential, financial leverage, cash flow, age, company size, stock returns, sector specificity and investments from the previous period are the main determinants of its optimal investments.

Richardson's technique proves to be versatile; it is used in various papers that examine the problems of investment efficiency. Han and Zhang (2016) modified the approach of Richardson and have implemented monetary policy factors, such as the growth rates of the money supply and policy changes, to analysethe impact of those factors on the efficiency of the investment. Chen et al. (2011) and Biddle et al. (2009) proved the existence of the link between the quality of financial reports and the subsequent efficiency of the investments. Ma and Jin (2016) have used this particular approach to determine the relation between investment efficiency and the Financial Flexibility Index (FFI) that they have calculated.

Linking Financial Flexibility and Investment Efficiency

Both the importance of the flexibility obtained through leverage and cash holdings from the company's investment activity and the connection of these factors with investment efficiency have created a new field of study that is being developed currently by some financial researchers. Modern studies expand on the idea of financial flexibility as the missing link between capital structure decisions and firm performance. Researchers have discovered that this flexibility can serve as a mediator between the external borrowing power and the implementation of profitable projects on-time and in-line with the competition. There exist several possible explanations about how and why flexibility

serves as an intermediary between investments and their efficiency.

The effect of this flexibility can be described with behavioral terms. The flexibility allows corporate managers to undertake riskier projects, despite the market's friction that would otherwise prevent the firm from undertaking some profitable deals. Flexibility also affects the reduction of the principal-agent conflict. The high amount of debt does not provide investors with confidence, because it means that the company is being exposed to the risk of default or bankruptcy. The prudent behavior of managers reduces the suspicions of the investors and eliminates inefficient investments, to a certain extent. (Myers 1974)

De Jong et al. (2012) proved that financial flexibility is one of the integral parts in capital policy decisions, which have a positive impact on companies' future investments. The ability to issue additional debt results in thereduction of investment distortions, especially in the periods when access to capital is constrained. The findings support the fact that flexibility can be one of the reasons why firms have lower leverage, even though additional debt may provide a lucrative option for tax-shielding.

Bancel and Mittoo (2011) state that flexible firms experience a lower effect from a crisis on their business operations. The results of their research into the2008 financial crisis on the flexibility and performance of the European firms also confirm that flexibility is one of the more important determinants of the capital structure policy of a firm during an economic downfall.

Ma and Jin (2016) developed a mechanism that defines the investment scale and efficiency as a mediator between flexibility and firm performance. According to their analysis, flexibility has a positive and significant effect on the two main parts of an investment strategy – scale and efficiency. The research stated that flexibility's effect is greater on the investment scale compared to its effect on efficiency. This outcome may be explained by the nature of the rapidly growing Chinese economy that authors are studying – in the developing countries companies are more willing to pay more attention towards expansion rather than focusing on efficiency factors.

Yung et al. (2015) examined the effects of flexibility in emerging countries and showed that flexibility can enhance afirm's investment ability and contribute to the reduction of its investment sensitivity from cash flows. Authors state that flexibility has a more significant effect during a global economic crisis. Flexible companies cut less funding from their investment levels in comparison with inflexible firms and have a better overall operating performance.

Some of the research, however, opposes the results stated above. Gdala (2009) argues that for the companies present on the Warsaw Stock Exchange, there is no significant relationship between their debt policies and changes in their capital expenditure. Moreover, the value of cash holdings is proven to be more significant for their growth prospects. Nouri and Jafari (2016) examined the importance of flexibility on investment efficiency with respect to managerial ownership and discovered a correlation that contradicts the other studies. According to authors, the increase in flexibility levels leads to an increase in both over- and under-investment. Although the article does not comment on the obtained results and does not provide a possible explanation for thisbehaviour, which is inconsistent with other research, it shows that certain approaches may expose the

negative relation between financial flexibility and the efficiency of investments.

Unlike other authors, authors want to combine the methods for determining a company's financial flexibility and investment efficiency, so authors can examine the relation between the two in this paper. The provided theoretical background gives the opportunity to prove that firms can use this flexibility factor in their future investment policies, to make their decisions more effective.

Hypotheses Development

Modigliani and Miller (1963) state that firms tend not to use an abnormal amount of debt in their capital structure, despite the tax advantages from doing so - the reason for that is "the need for preserving flexibility." Marchica and Mura (2010) provide evidence that a conservative policy of low leverage helps companies to maintain their financial flexibility, which in turn allows firms to exhibit enhanced levels for their investment abilities. Flexibility gives the corporate managers the opportunity to anticipate certain growth possibilities in the future and increase the level of their capital expenditure. The theoretical framework provided gives the idea that a period of flexibility prevents the company from borrowing and presents better growth opportunities in the future. The major subject of this research is to define the relationship between financial flexibility and investment efficacy and this task is reflected in the first hypothesis.

Hypothesis 1: Financial flexibility has a positive impact on the investment expenditure of a firm.

Our second hypothesis is connected with the idea of the increased efficiency of investments in flexible companies – the idea that has been discussed by some of the previous researchers. Ma and Jin (2016) and Denis and McKeon (2012) state that companies use flexibility to respond to positive shocks and adapt their investment policies accordingly. Flexibility has a positive effect on firm performance, serving as a mediator between investment and performance levels.

Following the provided theoretical research, authors can assume that flexibility gives more opportunities for the managers not only to increase the levels of investment, but also to invest funds in profitable projects and avoid the projects with higher amounts of risk and lower returns. This consequently means that financial flexibility can improve the investment strategy of the firm and the company's overall performance as a result.

Hypothesis 2: Flexibility has a positive effect on reducing the level of suboptimal investments.

To make the study more complex and coherent, authors also pose several additional hypotheses that are concerned with the additional factors that affect flexibility and investment efficiency. These factors are the company's size, the economic development of the country where the firm operates and the presence or absence of an economic crisis.

Financial flexibility has a significant effect during a period of crisis, especially on the levels of investment and performance. Arslan-Ayaydin et al. (2014) have found out that firms in the East Asian region, during the period from1994 to2009 maintained their flexibility through a conservative leverage policy and by their cash holdings, which created a buffer during times of uncertainty. More importantly, financial flexibility turned

out to be a major determinant of investment and performance levels during the Asian crisis of 1997-1998.

Hypothesis 3: An economic crisis significantly increases the impact of financial flexibility on the efficiency of investments.

Ma and Jin (2016) examined the effect of financial flexibility on both investment's efficiency and scale in the rapidly developing Chinese economy and conclude that while flexibility has a much greater impact on the scale of the investments, rather than on their efficiency, both effects are significant for the emerging country. Yung et al. (2015) states that in the data sample of 33 emerging countries, flexibility improves firms' investment abilities and values. Authors claim that the importance of flexibility in those economies is greater compared to the developed ones, since volatile capital flows, which are typical in the developing markets, confine the availability of bank credit. This turns financial flexibility into an important instrument for the firms in the rapidly growing countries, the value of which is more significant than in the established economies.

Hypothesis 4: Flexibility has a more significant impact on investment efficiency in developing countries.

Byoun (2011) states that flexibility's presence assures credit organisations about the stability of a company and allows them to supply it with credit at little risk. Financial flexibility's status gives a signal about the competitive advantage for large and small companies that either struggle with obtaining money for projects that require significant capital expenditure, or have a very narrow access to the capital market.

Ferrando et al. (2016) shows that while the presence of flexibility is more common in larger firms, it also plays an important part in the policies of smaller sized companies. Being a larger size allows a company to have a more efficient investment policy; while for a smaller firm flexibility gives it the opportunity to have a broader variety of credit options, which improves its investments.

Hypothesis 5: Flexibility has an identical impact on the investment efficiency of small and large companies.

Research Design

Determining Financially Flexible Companies

The methods in our research stay in-line with those from prior studies while expanding them further with the help of additional variables and model specifications. The first step is connected with finding financially flexible firms using the Marchica and Mura (2010)space debt capacity model. The second and third steps involve modelling the investment efficiency and finding the link between financial flexibility and investment ability, while later research is dedicated towards the influence of the additional factors of flexibility and investment efficiency.

The methods in our research stay in-line with the ones from prior studies, while being expanded further with the help of additional variables and model specifications. Modern studies provide evidence that financial flexibility is being maintained primarily through leverage decisions (Graham and Harvey 2001; Bancel and Mittoo 2011). Because flexibility is being defined by corporate decisions about the possibilities for future growth, in the mathematical framework it is being defined as a factor that will generate the difference between the predicted and observed levels of leverage. To calculate the estimation for the

leverage, authors are going to use the modified version of the Marchica and Mura (2010) approach, which captures the effect of financial flexibility in the leverage model.

For the first step of the analysis, authors use the model to divide companies into two groups of flexible and inflexible firms. The equation for calculating the baseline level of the leverage for each company is represented below:

$$Leverage_{it} = \alpha Leverage_{i,t-1} + \beta_1 Industry\ Leverage_{i,t} + \beta_2 MTB_{i,t} + \beta_3 Size_{i,t} + \beta_4 Tangibility_{i,t} + \beta_5 Profitability_{i,t} + u_{i,t} \quad \text{.....(1)}$$

where $Leverage_{it}$ is the ratio of the book value of total debt to total assets, $Industry\ Leverage_{it}$ is the median industry level of leverage, MTB_{it} is the market-to-book value, which is a ratio calculated as the book value of the assets plus the market value of equity minus the book value of equity divided by the book value of the assets, $Size_{it}$ is the natural logarithm of total assets (measured in thousands of U.S dollars), $Tangibility_{it}$ is the ratio of fixed assets to total assets and $Profitability_{it}$ is the return on assets' ratio.

The leverage prediction is estimated with the use of the dynamic generalized method of moments methodology, proposed by Arellano and Bond (1991). This approach allows us to control for heteroscedasticity and collinearity problems that arise when the model includes the lagged value of the dependant variable. Table 2 provides a detailed description of the variables used.

The data are used to calculate the linear prediction of the estimated leverage from the fitted model - firms that will have a negative difference between their actual and predicted leverage are assumed to have Spare Debt Capacity (SDC). This means that the companies had an ability to use their additional debt funding, but they chose not to use it. The difference should be more than 5 percent to exclude all the insignificant results that might impact the outcome of the further calculations.

Works using the SDC model usually state that a firm is financially flexible when it has demonstrated at least three consecutive years of SDC. While authors said that this time-span does not follow any previous rationale, this technique can reduce the presence of noise in the model. Financial flexibility is then defined as a dummy variable (0, 1) which is given a value of 1 when the firms show three consecutive years of spare debt capacity and is given a value of 0 otherwise.

Finding the Link between Financial Flexibility and Investment Ability

In line with the capital structure theory, authors assume that when a firm reaches financial flexibility, it will increase its investment. The equation that tests this notion is as follows:

$$Investment_{it} = \alpha_1 Investment_{i,t-1} + \beta_1 CF_{i,t-1} + \beta_2 TobinQ_{i,t} + \beta_3 FF_{i,t} + \beta_4 (FF_{i,t} \times CF_{i,t-1}) + u_{i,t} \quad \text{.....(2)}$$

where $Investment_{it-1}$ is the ratio of the net changes in property, plant and equipment with the addition of the maintenance costs to the total assets, CF_{it-1} is the ratio of earnings before interest, taxes, depreciation and

amortisation divided by total assets, $Tobin\ Q_{it}$ is the ratio of the value of the company to the total assets and FF_{it} is the availability of spare debt capacity, as defined in Step 1 of the methodology. The model incorporates the FF dummy as well as its interaction with the cash flow of the firm. This interaction will show how flexibility defines the presence of the cash flow in the overall investment and explains whether the flexible firms have a lower sensitivity of investment to the cash flow compared to the inflexible ones.

Following Richardson, authors will calculate the total investment as the sum of new investments and the maintenance cost. Authors are going to sum these parts to find each company's real investment level. This model will test Hypothesis 1 – the financial flexibility dummy should have a positive and significant effect on the capital expenditure of the companies. In line with Marchica and Mura (2010) the negative interaction between the cash flow and financial flexibility should also be observed; that will mean that flexible firms are more willing to fund external investments thought debt rather than through their internal funds.

Measurement of Investment Efficiency and Regression Models

The third step of the research is dedicated to the calculation of the investment's efficiency, which was previously defined as the level of abnormal investments (over-investment and under-investment).

To calculate the optimal level of investment, authors are going to use Richardson's (2006) model. The regression predicts the possible investment level, along with the number of main determinants for the investment. Authors are going to modify the model in accordance to our goals and include additional factors that can affect the level of investment:

$$Inv_{it} = \alpha_0 + \beta_1 Leverage_{i,t-1} + \beta_2 Cash_{i,t-1} + \beta_3 MTB_{i,t-1} + \beta_4 Size_{it-1} + \beta_5 Return_{it-1} + \beta_6 Inv_{it-1} + e_{it} \quad (3)$$

where $Cash_{i,t-1}$ is a ratio of the cash assets and short-term investments to the total assets and $Return_{i,t-1}$ is the annual stock return, calculated as the change in the market capitalization of the company in two periods. Other variables have been defined in the previous equations – the full list of variables used, along with their definitions, is presented in Table 3.

Authors will then calculate the residuals that were observed in the model from Equation 3 - positive residuals will mean a case of over-investment by the company, while the reverse situation will be valid for the under-investment scenario. The absolute value of e_{it} from Equation 3 will become the proxy for the efficiency of the investments, which will be named as IE_{it} in further estimations.

In the next part of the research authors are going to estimate the effect of financial flexibility along with the supporting factors:

$$IE_{it} = \alpha_0 + \beta_1 FF_{it} + \Sigma\beta_n ControlVar_{i,t-1} + u_{it} \quad (4)$$

where IE_{it} is the absolute value of error e_{it} that authors obtained from the previous model and stands for the value of suboptimal investments; $ControlVar_{i,t-1}$ stands for the variables that can also define the efficiency of the investment – authors are going

Table 3. **Description of Variables Used in the Research**

Variable Name	Description
Leverage	Ratio of book values of total debt to total assets
Industry Leverage	Median industry level of leverage in the certain year, obtained from the company data
MTB, Market-to-Book Value	Ratio calculated as book value of assets plus market value of equity minus book value of equity divided by book value of assets
Size	Natural logarithm of total assets (measured in thousands of U.S dollars)
Tangibility	Ratio of fixed assets to total assets
Profitability	Return on assets, ratio of net income to total assets
Investment	Ratio of the net changes in property, plant and equipment with the addition of the maintenance costs to the total assets
Cash Flows	Ratio of earnings before interest, taxes, depreciation and amortization divided by total assets
Tobin's Q	Ratio of the value of the company to the total assets, where value of the company is the sum of company's market capitalization and total liabilities
FF	Financial flexibility - availability of spare debt capacity, as defined in the Step 1 of the methodology
Cash	Ratio of cash assets and short-term investments to the total assets
Return	Annual stock return, calculated as the change in the market capitalization of the company in two periods

to use size, tangibility and Tobin's Q. Investment efficiency depends on the financial flexibility calculated in Section 3.1, based on the previous period's financial results. The results will test *Hypothesis 2* – authors expect to see a negative and significant value for the β_1 coefficient - the flexibility status lessens the error component, increasing the efficiency of those expenses.

Hypothesis 3 will be tested though the same model as in Equation 4, by examining the effect of the additional crisis dummy variable, which will take the value 1 during the period of the world's economic crisis (2008-2009) and 0 otherwise, as well as the interaction between the two dummy variables.The actual state of the economy and the existence of a financial crisis influence the current effectiveness of the company's decisions.

$$IE_{i,t} = \alpha_0 + \beta_1 FF_{it} + \beta_2 Crisis_{i,t} + \beta_3 (FF_{i,t} \times Crisis_{i,t}) + \Sigma_n \beta_n ControlVar_{i,t-1} + u_{it} \quad (5)$$

The impact of a crisis should be negative since more companies are constrained and are more likely to make suboptimal investment decisions. The presence of financial flexibility should reduce the distortion during the period of the crisis (Arslan-Ayaydin et al. 2014).

Hypothesis 4 will incorporate a similar designed dummy for the economic development of the country, entitled $Developing_{i,t}$ - it equals 0 if the economy is considered as developed by the World Bank List of High Income Economies, and will take the value 1 if the country is classified as a developing one.

$$IE_{i,t} = \alpha_0 + \beta_1 FF_{it} + \beta_2 Developing_{i,t} + \beta_3 (FF_{i,t} \times Developing_{i,t}) + \Sigma_n \beta_n ControlVar_{i,t-1} + u_{it} \quad (6)$$

Developing countries are more exposed to inefficiency risks due to their restrained access to capital, so authors expect a positive value for the β_2 coefficient. The beta coefficient of the interaction between developing countries and financial flexibility is expected to be negative – this will mean that flexibility plays a more substantial role in the emerging and rapidly growing economies.

For *Hypothesis 5* the data will be split into two groups: firms that are smaller or larger than the mean level. Equation 4 will be calculated from two datasets, to provide the preliminary results about the differences in flexibility – then dummy $Small_{i,t-1}$ will be introduced– it will take the value of 1 for those companies whose total assets are smaller than the mean, while the value 0 will be given to all the other firms. The dummy variable will replace the control variable of size to avoid any collinearity issues. Furthermore, size (and consequently the $Small$ categorization) along with the other financial results from previous periods that determine a company's flexibility, or affect the future investment efficiency of a firm will also be replaced, unlike the external factors of development and crisis that the business is exposed to in the current period and that affect the current performance of investments.

$$IE_{i,t} = \alpha_0 + \beta_1 FF_{it} + \beta_2 Small_{i,t-1} + \beta_3 (FF_{i,t} \times Small_{i,t-1}) + \Sigma_n \beta_n ControlVar_{i,t-1} + u_{it} \quad (7)$$

The value of the β_2 coefficient should be positive, since smaller companies are more restrained in their financing choices and choose projects not based on their efficiency, but on the external financing sources available to them and the amount of debt that they can obtain. To prove *Hypothesis 5* the β_3 coefficient should be insignificant – for all the presented companies' flexibility presents similar levels of importance that do not fluctuate with an increase in the total assets.

Sample Description

The sample in our research consists of eight countries over the period from 2005 to 2015. The data were taken from Thomson Reuters DataStream database. Authors eliminated the outliers' effect by winsorising the financial variables at the 1 percent level. The final sample consists of 1,736 firms over 11 periods that comprise 19,096 firm-year observations.

Much of the data came from Japan, China and South Korea, which are some of the largest economies in the Asian region. Because certain models and variables require the use of market-based values, the firms in the dataset have all been public since the year 2005at least. The represented economies play a large role in the global economy – some of those economies are growing at a faster pace or have a higher level of development, hence they have a bigger share in the dataset. The developing countries comprise 25 percent of the data – the smaller size can be explained by the fact that a smaller number of companies from the emerging countries are public companies and have all the data necessary for the research.

The majority of the companies are concerned with the production of industrial and consumer goods, such as car manufacturing (16%), chemicals (22%), as well as electronics production (22%). Such a sectoral structure is valid for analysingcompanies with various levels of economic development and shows the diversity of the Asian economies.

Figure 1. **Country Distribution in the Dataset**

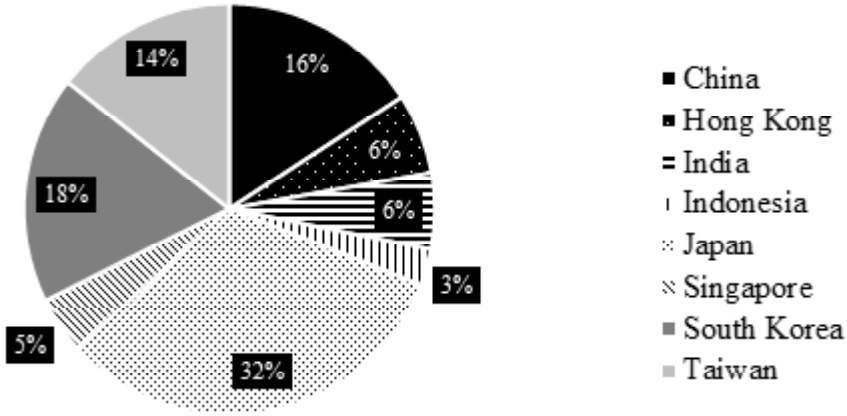
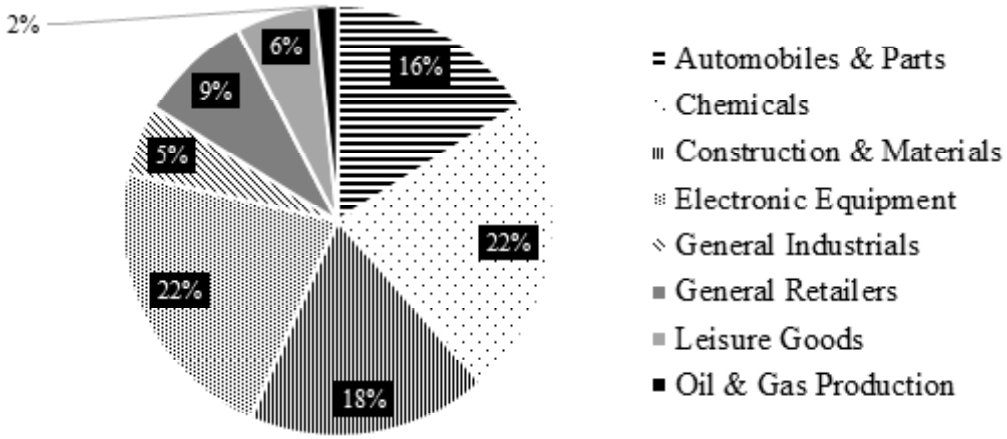


Figure 2. **Industry Distribution in the Dataset**



Results and Discussion

Identification of Financially Flexible Behavior in Companies

In the first step authors are going to determine the financial flexibility of the companies in the data sample. Table 3 provides the required characteristics of the companies before authors turn to the regression analysis.

As authors can see from Table 4 above, an average firm has its total debt to assets ratio at about 24 percent and has about 32 percent of its total assets in the form of plant, property or equipment. The statistics of the average firm size, market-to-book ratio and tangibility are comparable to the recent data from similar works on the topic of financial flexibility.

Table 4. **Descriptive Statistics of the Financial Flexibility Determinants**

	(1)	(2)	(3)	(4)	(5)
Variables	**N**	**Mean**	**Std. Dev**	**Min**	**Max**
Leverage	19,096	0.239	0.169	0	0.679
Market-To-Book Ratio	19,096	1.682	1.981	-0.170	13.53
Tangibility	19,096	0.318	0.177	0.00768	0.761
Size	19,096	12.66	1.617	9.336	17.28
Profitability	19,096	0.0237	0.0725	-0.338	0.207
Industry Leverage	19,096	0.226	0.0282	0.147	0.310
Number of companies	1,736	1,736	1,736	1,736	1,736

Table 5. **Regression Results of the Target Leverage Model**

Dependant Variable – Leverage			
Variables		**Variables**	
$Leverage_{t-1}$	0.639*** (0.0247)	Ind. $Leverage_t$	0.281*** (0.0413)
MTB $Ratio_t$	0.00365** (0.00159)	$Size_t$	0.00886** (0.00363)
$Tangibility_t$	0.119*** (0.0316)	$Profitability_t$	-0.239*** (0.0483)
Observations		15,624	
Number of companies		1,736	

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Authors will move on to the regression analysis and the prediction of the target leverage level for the companies – this estimation will then be used to identify the level of spare debt capacity and the presence of financial flexibility in the companies. Table 12 presents the correlation matrix of all the used variables in this and the later steps of the research. Authors can observe the expected correlation between the current and lagged levels of leverage – this confirms the idea of the firms' intention to follow the target leverage approach. The model that authors will use to determine the results accounts for such a correlation effect.

Table 5 shows the results of the regression that determines the impact of financial factors on the debt issuing behaviourof the firm and estimates the possible target level of its leverage. Authors divide the firm/year observations into two groups: when the company showed flexible behavior and when it did not. Authors assigned the firm a financially flexible badge only when it demonstrated three years of consecutive spare debt capacity. The use of the previous periods allows us to find flexibility's status during the 2008 to 2015 period only. In our dataset, authors see that 70 percent of the firm/year observations can be classified as representing the financial flexibility status of the company for a certain period. The results show that most of the companies in the non-financial sector are pursuing the policy of having spare debt capacity.

Determining the Connection between Financial Flexibility and Investment Ability

The second step determines whether flexibility has any impact on the company's investment policy. Flexible companies are less

Table 6. **Regression Results of the Investment Activity Model**

Dependant Variable - Investment			
Variables		**Variables**	
$Investment_{t-1}$	0.139***	$Cash\ Flow_{t-1}$	0.124***
	(0.0180)		(0.0346)
$FF_t \times Cashflow_{t-1}$	-0.0835**	$Financial\ Flexibility_t$	0.0174***
	(0.0412)		(0.00434)
Tobin's Q_t	0.00955***		
	(0.00151)		
Observations		12,152	
Number of companies		1,736	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

constrained financially and should therefore show higher levels of investment activity. Authors are going to prove the existence of the link between flexibility and investment activity. Table 6 presents the outcome of the calculation.

The results show that financial flexibility's effect is positive and statistically significant, which proves the descriptive results obtained earlier. Their conservative leverage policy allows firms to borrow additional funds without high levels of risk– this provides the opportunity for them to spend more on their investment projects - something the inflexible firms cannot afford to do. This evidence and the big share of the flexible firms in the sample may suggest that after achieving a flexible status, companies tend to increase their investments to finance more projects. The increase is not large, so that the companies can maintain their levels of stability, avoid inflexibility and use the excess debt capacity to respond to possible market shocks.

We can also see that while the availability of the cash flow increases capital expenditure, flexible firms are less dependent on it - flexible companies may shift their focus from equity sources to debt sources when funding new projects. These results allow us to claim that *Hypothesis 1* is not rejected.

Examining the Link between Financial Flexibility and Investment Efficiency

In this stage authors consider the impact of flexibility's presence on investment's efficiency. Firms with spare debt capacity

Table 7. **Regression Results of the Expected Investments Model**

Dependant Variable - Investment			
Variables		**Variables**	
$Investment_{t-1}$	0.0506*** (0.0129)	$Return_{t-1}$	0.00484*** (0.00122)
$Leverage_{t-1}$	-0.0863*** (0.00987)	$MTB\ Ratio_{t-1}$	0.000852 (0.000550)
$Cash_{t-1}$	0.0885*** (0.0116)	Intercept	0.250*** (0.0337)
$Size_{t-1}$	-0.0159*** (0.00271)		
Observations		15,624	
Number of companies		1,736	
Year Effects		Yes	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

increase their overall investment and, because of the easy access to external financing and less pressure from the debt holders and shareholders, they should also make better investment decisions. Financial flexibility, while increasing the investment amount, should also serve as a mediator between the investments and their efficiency.

Authors will begin the analysis by constructing the investment predictions for all the available time periods. The results will then be used to find the residuals of this model, which will be used as proxies for the over- and underinvestment amounts in each firm/year observation. Following the approach of Richardson, authors are going to

Table 8. **Impact of Financial Flexibility on Investment Efficiency**

	Dependant Variable – Investment Efficiency	
Variables	**Independent Variable – Financial Flexibility**	**Independent Variables – Financial Flexibility, Crisis, Financial Flexibility • Crisis**
$Financial\ Flexibility_t$	-0.00539*** (0.00109)	-0.00440*** (0.00112)
$FF_t \times Crisis_t$		-0.00645** (0.00267)
$Crisis_t$		0.00722*** (0.00261)
$Size_{t-1}$	-0.00301*** (0.000359)	-0.00298*** (0.000359)
$Tangibility_{t-1}$	0.0432*** (0.00373)	0.0432*** (0.00371)
Tobin Q_{t-1}	0.00389*** (0.000747)	0.00387*** (0.000746)
Intercept	0.0604*** (0.00566)	0.0567*** (0.00556)
Observations	12,152	12,152
Number of companies	1,736	1,736
Year Effects	Yes	Yes
Industry Effects	Yes	Yes

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

use the fixed effects regression model, accounting for the year-specific effects.

The results show that the level of investments is growing with the higher levels of returns, investments from the previous period and the bigger stock of cash and the high level of debt reduces the amount of investment, which is consistent with the results of previous studies. A possible explanation for the negative relation of the company's size and investment level may lie in the notion that large and mature companies find it difficult to manage their increasing number of assets and hence implement large-scale projects less often. Market-to-book value shows itself as insignificant, which may be caused by the unobserved factors that cause a small impact in this dataset. Expected investment is in accordance with previous research and is reliable to measure the size of non optimal investments.

Authors will begin with the testing of *hypotheses 2* and *3*. The first regression will include the effect of flexibility only, while the second one will also add the crisis dummy variable, as well as the interaction between the two dummy variables. The results can be seen in Table 8.

Authors can observe that the presence of financial flexibility negatively affects the absolute value of the investment model's errors. The control variables also show the expected behavior - increasing levels of fixed assets and Tobin's Q results in the undertaking of more suboptimal projects. Firms classed as being flexible face less financial

Table 9. **Impact of Financial Flexibility on Investment Efficiency in the Developing Countries**

Dependant Variable – Investment Efficiency			
Variables		**Variables**	
Financial Flexibility$_t$	-0.00588*** (0.00131)	Size$_{t-1}$	-0.00307*** (0.000358)
Developing Country$_t$	0.00169 (.0021719)	Tangibility$_{t-1}$	0.0422*** (0.00379)
FF$_t$ × Developing Country$_t$	0.00246 (0.00237)	Tobin's Q$_{t-1}$	0.00325*** (0.000825)
Size$_{t-1}$	-0.00307*** (0.000358)	Intercept	0.0618*** (0.00571)
Observations		12,152	
Number of companies		1,736	
Year Effects		Yes	
Industry Effects		Yes	

constraints and undertake their projects with fewer distortions, which the inflexible companies face. Flexibility serves as the interaction variable that creates a connection between the investments and their efficiency, which allows us to state that *Hypothesis 2* is not rejected.

The effect of a crisis is proven to be significant, and the impact of flexibility during the crisis turned out to be significant as well. This notion leads to the idea that flexible companies could undertake some projects that were efficient for their business, even during a period of economic recession. While a crisis influences investment performance, financially flexible companies could implement projects that other firms are not able to pick up, due to the recession's effects. In this situation flexibility worked as a tool that allowed companies to take advantage of the unexpected market shock. In general, such results lead to the conclusion that *Hypothesis 3* is not rejected.

In the next step authors are going to introduce the dummy variable of the developing country, which takes a value of 1 when the country is emerging and 0 otherwise.

Table 9 provides the regression results which include the dummy of the country's economic development. The importance of flexibility in the sample remained significant, however the effects that were added with the inclusion of the developing country effect showed their insignificance in the model. The outcome suggests that while the underdevelopment of the economy could present some

Table 10. **Comparison of Financial Flexibility Effect in Companies of Various Size**

Dependant Variable – Investment Efficiency		
Variables	**Small Companies**	**Large Companies**
Financial Flexibility$_t$	-0.00391** (0.00161)	-0.00514*** (0.00152)
Size$_{t-1}$	-0.00446*** (0.00128)	-0.00370*** (0.000782)
Tangibility$_{t-1}$	0.0436*** (0.00635)	0.0398*** (0.00530)
Tobin's Q$_{t-1}$	0.00392*** (0.00104)	0.00434*** (0.00122)
Intercept	0.0776*** (0.0159)	0.0695*** (0.0119)
Observations	6,042	6,110
Year Effects	Yes	Yes
Industry Effects	Yes	Yes

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

challenges to the company, those challenges are not connected to the process of obtaining further debt. This result may be explained by the fact that companies around the world have much wider access to capital from global banks and conglomerates. Firms are not restricted to only borrowing money from credit organizations inside their own country but can afford to seek funds from other countries, especially if these firms have financial flexibility. One of the other explanations might lie in the idea that most of the developing Asian countries have established financial institutions that are similar to the ones in the developed economies, in terms of their debt policies. The results allow us to conclude that *Hypothesis 4* is rejected.

Authors are going to continue the research by exploring whether the flexibility effects vary with changes to the total assets' volume. Authors begin with the preliminary estimation of the FF βcoefficients in two groups of observations. The smaller companies are the ones that have total assets that are less than the mean amount, large companies have more assets compared to the average level.

Table 10 shows that the effect remained similar for both groups and did not show signs of a substantial difference. The results show that generally small companies tend to make more suboptimal decisions compared to their larger counterparts. This is consistent with the financial literature, where size is one of the reasons for asymmetry and agent issues. Larger firms can attract the money they need to borrow more easily, so they experience fewer issues with large investment programs.

Table 11. **Impact of Financial Flexibility on Investment Efficiency in the Smaller-Sized Companies**

Dependant Variable – Investment Efficiency			
Variables		**Variables**	
Financial Flexibility$_t$	-0.00623***	Tangibility$_{t-1}$	0.0430***
	(0.00141)		(0.00376)
Small Company$_{t-1}$	0.00576***	Tobin's Q$_{t-1}$	0.00412***
	(0.00191)		(0.000761)
FF$_t$ × Small Company$_{t-1}$	0.00120	Intercept	0.0188***
	(0.00205)		(0.00255)
Observations		12,152	
Number of companies		1,736	
Year Effects		Yes	
Industry Effects		Yes	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 12. **Overall Correlation Matrix**

	Lev_t	Lev_{t-1}	MTB_t	$Tang_t$	$Ind.Lev_t$	$Size_t$	$Profit_t$	$Tang_{t-1}$	$Size_{t-1}$	Inv_t	Inv_{t-1}
Lev_t	1.0000										
Lev_{t-1}	0.8976	1.0000									
MTB_t	0.0972	0.0964	1.0000								
$Tang_t$	0.3195	0.3063	-0.0534	1.0000							
$Ind.Lev_t$	0.1124	0.0983	-0.0676	0.2289	1.0000						
$Size_t$	0.1362	0.1215	-0.0446	0.0657	0.1732	1.0000					
$Profit_t$	-0.2649	-0.1975	-0.0216	-0.0463	0.0737	0.1331	1.0000				
$Tang_{t-1}$	0.3032	0.3168	-0.0343	0.9383	0.2389	0.0639	-0.0215	1.0000			
$Size_{t-1}$	0.1646	0.1532	-0.0443	0.0673	0.2013	0.9982	0.1417	0.0667	1.0000		
Inv_t	0.0893	0.0165	-0.0264	0.3826	0.1063	0.1259	0.1868	0.1733	0.0701	1.0000	
Inv_{t-1}	0.1333	0.1002	-0.0166	0.3960	0.1085	0.1343	0.0765	0.3005	0.1248	0.3023	1.0000
CF_{t-1}	-0.1465	-0.1631	0.0056	0.1348	0.1003	0.1676	0.4990	0.1243	0.1562	0.2733	0.2558
$FF_t \times CF_{t-1}$	-0.2924	-0.3203	-0.0117	0.1050	0.0953	0.1761	0.4538	0.0973	0.1680	0.2050	0.1730
FF_t	-0.4906	-0.5578	-0.0749	0.0168	0.0486	0.0951	0.1173	0.0168	0.0894	0.0209	-0.0128
Tobin's Q_t	-0.0121	0.0166	0.6684	-0.0778	-0.1233	-0.0740	0.0652	-0.0778	-0.0978	-0.0226	-0.0344
Tobin's Q_{t-1}	-0.0082	0.0024	0.6912	-0.0756	-0.0938	-0.0427	0.1107	-0.0687	-0.0731	0.0651	-0.0181
IE_t	0.1372	0.1287	0.0780	0.2219	0.0154	-0.0988	-0.1647	0.1946	-0.1027	0.1046	0.0873
$FF_t \times Crisis_t$	-0.0561	-0.0820	-0.0775	0.0215	0.1156	0.1761	-0.0342	0.0215	-0.0114	-0.0020	0.0548
$Crisis_t$	0.0239	0.0180	-0.0806	0.0237	0.1208	-0.0777	-0.0485	0.0237	-0.0554	-0.0045	0.0670
$FF_t \times Dev_t$	0.0168	0.0060	0.3520	0.1253	0.0965	0.0964	0.0877	0.1253	0.0626	0.1002	0.0916
Dev_t	0.1883	0.1985	0.4304	0.1253	0.1070	0.0983	0.0691	0.1253	0.0880	0.1075	0.1160
$FF_t \times Small_{t-1}$	-0.3378	-0.3643	-0.0057	-0.0438	-0.1231	-0.6057	-0.0105	-0.0438	-0.6095	-0.0624	-0.1007
$Small_{t-1}$	-0.1433	-0.1277	-0.0008	-0.0596	-0.1861	-0.7857	-0.1061	-0.0596	-0.7739	-0.1152	-0.1211

Table 12. *Continued*

	CF_{t-1}	$FF_t \times CF_{t-1}$	FF_t	Tobin's Q_t	Tobin's Q_{t-1}	IE_t	$FF_t \times Crisis_t$	$Crisis_t$	$FF_t \times Dev_t$	Dev_t	FF_t	$Small_{t-1}$
Lev_t												
Lev_{t-1}												
MTB_t												
$Tang_t$												
$Ind.Lev_t$												
$Size_t$												
$Profit_t$												
$Tang_{t-1}$												
$Size_{t-1}$												
Inv_t												
Inv_{t-1}												
CF_{t-1}	1.0000											
$FF_t \times CF_{t-1}$	0.7373	1.0000										
FF_t	0.1367	0.5375	1.0000									
Tobin's Q_t	0.0490	0.0436	-0.0054	1.0000								
Tobin's Q_{t-1}	0.1075	0.0954	-0.0455	0.8181	1.0000							
IE_t	-0.0817	-0.0978	-0.1006	0.0711	0.0777	1.0000						
$FF_t \times Crisis_t$	0.0303	0.1826	0.2192	0.0086	-0.0791	-0.0062	1.0000					
$Crisis_t$	0.0004	0.0037	-0.0041	-0.0466	-0.0779	0.0367	0.8101	1.0000				
$FF_t \times Dev_t$	0.1104	0.2395	0.2784	0.3669	0.3470	0.0390	0.0409	-0.0017	1.0000			
Dev_t	0.1012	-0.0833	-0.1075	0.4036	0.3985	0.0709	-0.0177	0.0000	0.7342	1.0000		
$FF_t \times Small_{t-1}$	-0.0468	0.0815	0.4776	0.0226	-0.0010	0.0072	0.1158	0.0383	0.0078	-0.1156	1.0000	
$Small_{t-1}$	-0.1350	-0.1001	-0.0567	0.0358	0.0382	0.0764	0.0364	0.0559	-0.1163	-0.1572	0.7053	1.0000

To confirm the idea that the availability of the spare debt capacity does indeed play an equally important role for the companies, regardless of their size, authors will construct another regression model where authors are going to include the dummy variable that shows whether the company is small or not. The effects of flexibility in companies of various sizes that were obtained during the research are presented in Table 11.

The interaction between size and flexibility showed no real significance – smaller flexible companies can attract additional debt issuing options, because banks can see their stability and hence are less hesitant to fund the projects. Bigger firms face less constrains, which provides an opportunity to respond to shocks in the market. The flexibility likelihood may increase with the companies' size, because it is easier for larger companies to maintain flexibility. The effect on investment efficiency, on the other hand, will remain similar whether the firm is large or small, because in both cases it allows them to attract the funds they need to respond to changes in the market and will help to reduce the effect of suboptimal capital expenditure. Therefore, authors can conclude that Hypothesis 5 is not rejected.

To conclude, the overall results are in line with the previous research and with the majority of our expectations. Some of the findings were not anticipated, but authors found explanations for the behaviour, taking into the account Asia's business and economic environment.

Conclussion

This study continues and expands the research into the topic of financial flexibility. The research pays closer attention to the connection between flexibility and the effectiveness of investments. Financial flexibility is usually called the "missing link" in the capital structure decisions that have a considerable impact on firm performance. This research has investigated how flexibility affects the investment decisions and their performance in Asian countries. Authors took 1,736 firms from 8 Asian countries and determined their flexibility status using the spare debt capacity model. The results showed that most of the companies are showing the presence of flexibility.

The main results of this study include conclusions regarding the link between flexibility and investment efficiency, as well as the impact of external and internal factors on this relationship. Authors calculated the impact of the flexibility on the investment levels and the efficiency of those investments. Companies in the dataset showed that flexible firms tend to increase their investment levels, using flexibility as a mediator that allows them to undertake projects with a positive NPV and reduce the level of suboptimal expenditure. The flexibility helped to reduce the level of inefficient investments during the economic crisis, which was beneficial during the expansion of the Asian economy during that period. Amore detailed study of the impacts of the crisis in the region, along with a more detailed study of corporate governance models during that period are among the most attractive areas for further research.

The difference inflexibility's effects between developing and developed countries in the dataset was not observed. The process of globalization and the expansion of financing services around the world make firm characteristics more important than changes in the macroeconomic factors, especially in such countries where fluctuations in the economy are not large. The results show that flexibility's impact is similar for large and small firms.

While bigger companies are more likely to demonstrate flexible behaviour, the volume of its impact does not change and remains significant.

This research confirms most of the outcomes that were obtained in other articles that are connected to examining the impact of financial flexibility. Apart from its academic relevance, the research can also be helpful in the practical sphere, especially when making decisions about the capital structure of a firm.This paper provides further evidence that flexibility plays a big role in company decisions and demonstrates the positives of flexibility on investment performance. The research in this field is rather topical, because more and more companies are getting interested in gaining greater access to capital markets around the world and the presence of financial flexibility is a big advantage that can improve these firms' performance.

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