Determinants of Cross-border Mergers and Acquisitions of Firms in Thailand

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In this paper, we evaluate the effects of firm-level and country-level variables on the firms' probability of having cross-border M&A deals and the size of the deals. Our sample consists of 87 firms from SET100 Index (firms from financial industry are excluded), and the data between 2009 to 2018 is used in this paper. The results indicate that the increase in ownership advantages of the firms, namely, size and profitability raise the chance of the firms having cross-border M&A deals and the size of the deals. For country-level variables, the results agree with the gravity model that an increase in GDP of both the Thai and host country economies leads to an increase in cross-border M&A deal value. However, the increase in the distance between host countries and Thailand reduces the cross-border M&A deals' size. The rise in average wage of host countries reduces the size of cross-border M&A deals from Thai firms, implying the efficiency motive.

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TABLE OF CONTENTS

LIST OF TABLES

Chapter 1: Introduction

There are many modes that companies could use for expanding their businesses and products internationally such as exporting the products abroad, giving the right to foreign companies to produce them (licensing), forming the alliance with partners in other countries, or foreign direct investment (FDI). FDI happens when a company has an ownership with significant degree of influence, usually at least 10% of voting stock, in a company in another country (UNCTAD, 2007), as well as reinvestment of earnings and intra-company loans. FDI creates links across countries that promote international trade, economic integration, transfer of technology, and economic growth (OECD, 2002). The companies could use many methods to obtain the ownership, for example, buying the shares of foreign companies, joint ventures (JV), greenfield investments (GI), or mergers and acquisitions (M&A).

Joint venture (JV) is the agreement between two or more companies to share their resources and create another separate entity to complete specific goals such as Google cooperate with NASA to create Google Moon (Dino, 2005) or BMW and Peugeot create BMW Peugeot Citroën Electrification (Amal, Raboch, & Tomio, 2009) to develop hybrid technology (Ehlen, 2011). Greenfield investments (GI) occur when the multinational companies set up foreign subsidiaries from scratch to operate in other countries; thus, those companies have full control over the operations and strategies such as choosing prices of the products or types of marketing strategies. However, the advantages may come at the expense of lacking knowledge for the markets and might be hard to penetrate the foreign markets with several competitors and fierce competitions. Mergers refer to the situation where two companies combine to become a single company, while the acquisitions occur when a company takes over and gains control of other companies.

Thailand successfully transformed itself from low-income country into middle-income country. However, Thailand still stuck at this development for decades and could not progress further. As a result, Thai government stated that one of the biggest goals of Thailand is to escape the middle-income trap and become a high-income country within 2036 (OECD, 2018). To reach

that goal is certainly not an easy task, Thailand would need significant improvement in many aspects such as productivity, human resources, innovation, and technology to support and maintain the growth of Thai economy. Over the years, Thai government has introduced several policies such as free school or Thailand 4.0 with the hope that these policies could be the one that lead Thailand into the list of high-income countries. However, based on the economic performance and development of Thailand for the past 20 years, there has been a long way to go before Thailand could complete the goal. As a result, more actions and policies have to be done in Thailand. Encouraging Thai firms to do more cross-border M&As could be one of the ways that help and be the stepping stone for Thailand in achieving the high-income country status that Thailand has long been craving for.

Over the past years, the Thai government has introduced some polices to stimulate the cross-border mergers and acquisitions of Thai firms. For example, Thai government has provided tax exemptions & benefits, information, and technical guidance to help Thai firms go and invest abroad. Moreover, the Bank of Thailand (BOT) has modified some of the regulations to ease the transfers of funds across countries such as the increase in the amount limit of the transactions or the availability of foreign exchange risk managements to encourage the cross-border M&As of Thai firms (OECD, 2021). As a result, there were hundreds of cross-border merger and acquisition deals of Thai firms around the world over the past decade.

The disadvantages of cross-border mergers and acquisitions are the difficulty in communicating and coordinating among departments within a firm because of the firms' huge size and the differences in corporate culture. Moreover, large amount of capital is required to be paid at the beginning. On the contrary, the advantages of cross-border mergers and acquisitions to the acquiring firms are gaining existing market share, knowledge, experience, technology, and brand recognition of target firms in foreign countries. Doing cross-border M&As could reduce the risk of the acquiring firms as well, especially if they diversify their portfolio by taking over the firms from other industries. In addition, the firms are bigger after M&As; therefore, they are more competitive and have more power in negotiating transactions with other firms in regional or global stage. Therefore, we are interested in the factors that drive Thai firms to do cross-border

M&As in other countries. By knowing these factors, Thai government could implement the policies to stimulate the cross-border M&A deals of Thai firms.

When Thai firms do cross-border M&A deals, the transactions themselves would bring the benefits to the acquiring firms as mentioned above and Thai economy as a whole (OECD, 2021). For example, by exploiting the advantages of cross-border M&As and expanding to regional and global markets, Thai firms could have more customers and thus increase their sales. The increase in sales and more production of the products could then lead to the economies of scale and scope that benefit the firms even more. Furthermore, Thai firms could relocate parts of the production that are labor-intensive to the countries with low wage of labor such as Cambodia, Laos, Myanmar, and Vietnam to improve the firms' efficiency and competitiveness. Moreover, when the firms have more profits, they could transform some of the profits into the funds for further investments both internationally and domestically. When the firms transfer the funds back to Thailand and use them for domestic investment or expansion, they would stimulate the employment and economic activities in Thailand. The economic growth and the increase in the funds for investment could then lead to the rise in the productivities and higher wage for workers in Thailand in the long run as well.

Furthermore, Thai firms that go abroad and do cross-border M&As could gain newer technology, knowledge, or human resources from target firms that improve their business operations and productivities. With better technology and knowledge, the firms could create new products or diversify themselves into other industries to increase their competitiveness and reduce their risk. In the long run, these benefits could spread to other firms in Thailand (spillover effect). All of the acquiring firms, Thai workers, and Thailand in general could get the benefits from the cross-border M&A deals. In conclusion, the findings of our paper could be important for Thai government in implementing the policies to stimulate cross-border M&As of Thai firms. The increase in cross-border M&As of Thai firms would then help Thailand transform into high-income country.

The majority of past papers focused more on country-level variables such as GDP or interest rate to be the determinants of cross-border M&As. However, only some of them have

studied firm-level variables. As a result, we would like to fill the gap and thus include both firm-level variables, such as size, internal funds, and profitability, as well as the country-level variables into our models. In addition, by adding the firm-level variables into the models, we could examine the theory of ownership advantages and the principal-agent theory. In contrast, we use country-level variables to evaluate the motives for FDI, Eclectic theory, and gravity model.

1.1 Objectives of this paper

1. To provide some background about cross-border M&As

2. To examine the effects of firm-level variables on the probability and the size of cross-border M&A deals of Thai firms

3. To examine the effects of country-level variables on the size of cross-border M&A deals of Thai firms

4. To find policy implications for the promotion of cross-border M&As

1.2 Scope

In this paper, we evaluate both firm-level and country-level determinants of outward cross-border M&A deals of Thai firms from SET100 Index in the Agro & Food, Industrials, Property & Construction, Resources, Services, and Technology industries between 2009 to 2018. We exclude the firms from financial industry because of their capital structures and they do not have the production of physical assets. More detail is explained in Chapter 4. After excluding 13 firms from financial industry, our data consists of 87 firms with yearly data for each of them for the period 2009 to 2018. Among these 87 firms, there are 26 firms with at least 1 cross-border M&A deals between 2009 to 2018. The total number of cross-border M&A deals of these 26 firms are 205 deals. There are 44 host countries across Africa, Asia, Australia, Europe, North America, and South America continent, where host countries are the countries that received the

cross-border M&A deals from Thai firms. Similarly, we have yearly data for the country-level variables of both Thailand and host countries.

The rest of this paper is structured as follows. We discuss conceptual theories that explain the determinants of cross-border M&As in Chapter 2. Chapter 3 is the literature review about firm-level and country-level determinants of cross-border M&As. Chapter 4 is the data about outward M&As of Thai firms, while chapter 5 discusses model and variables. Chapter 6 is the results of determinants of outward M&As of Thai firms and is followed by the conclusion in Chapter 7.

Chapter 2: Conceptual framework

In this chapter, we discuss 6 theories that explain the determinants of cross-border mergers and acquisitions. We select these theories because they have been used and mentioned before in several past research. As a result, we would like to examine whether these theories are appropriate and useful in explaining the determinants of cross-border mergers and acquisitions of the firms in the context of Thailand.

The first theory is the principal–agent theory. This theory states that shareholders (owners) and managers of the companies are different groups with conflict of interest. The shareholders want to maximize profits of the companies, whereas the managers want to maximize their own utility by increasing the size of companies because they gain more utility and benefits from managing larger companies (empire building theory). When shareholders have less control on managers, the managers have more discretion to follow the strategy that maximizes their own utilities rather than to focus on generating profits for the companies. As a result, these managers are more likely to do mergers and acquisitions even if the transactions do not benefit the shareholders and companies.

Second, the efficiency theory states that the companies' desire to improve their efficiency through the financial, operational, and managerial synergy would lead to M&As. Financial synergy is the situation where the cost of capital of the companies are lower after the companies do M&As with other companies. The firms become larger after the M&A; therefore, they have more negotiation power. Moreover, the investors might regard larger companies as safer investment. As a result, they require lower return to compensate for the risks. Both situations mean lower cost of capital for the companies. The increase in size and more efficient allocation of resources of the companies after M&As could make them easier to access cheaper capital as well. Furthermore, the companies could decrease their systematic risk by merging with or acquiring other companies in different industries. When the companies have lower risk, the investors require lower return to compensate for the risk which means lower cost of capital for the companies. Operational synergy occurs after the companies merge and share their resources, knowledge, and technology that lead to lower costs and higher revenues. After M&As, companies

have more market share and more sales. The increase in sales volume and production of the products could lead to the economies of scale and lower cost. On the other hand, managerial synergy is the situation where the management teams of acquiring companies are better than the management team of target companies; hence, the acquiring companies could take over the target companies and increase their performance. Furthermore, it is possible that creative ideas are found after the combination of management teams which would enhance the overall performance of the consolidated companies or could solve the problems that are difficult for each company to solve separately.

The third theory is the monopoly theory. Mueller (1969) argues that the companies' interests in gaining market share and market power are the driving forces behind the mergers and acquisitions. Taking over other companies in the markets is a quick way to expand market share and at the same time reduces the competition. Furthermore, obtaining more market share and reputation of the competitors leads to more market power. As a result, the companies can charge higher prices for their products to increase the profits.

The fourth theory is common motives for outward foreign direct investment (Dunning, 1993). The theory states that the main motives for FDI consists of market-seeking, resource-seeking, efficiency-seeking, and asset-seeking motives. Going abroad to access new markets and expand businesses is called market-seeking motive, and it focuses on the demand of customers. When the home market is too competitive and does not have enough customers, the domestic companies could be forced to go abroad in search of new markets and customers. Host countries with large market size, high growth rate, and many potential buyers with high income would attract this type of FDI. Resource-seeking motive drives the companies to go abroad to obtain resources that could not be found at home or accessible at lower cost. The resources can be in many forms such as petroleum, metals, minerals, or agricultural products. Countries with abundant natural resources attract resource-seeking FDI that involve producing or extracting raw materials such as mining, petroleum extraction, or fishery. For example, African countries are rich with diamond; therefore, several diamond producers were attracted to Africa and various diamond mines are now operating in Africa. Efficiency-seeking refers to the situation where companies invest abroad in host countries to take advantages of special tax incentives, factor

endowment, or institutional arrangements. These advantages could help the companies achieve synergies and economies of scale that enhance overall operation of the companies. Furthermore, the countries that are open to the investment from broad with good transportation and infrastructure systems would lead to the increase in efficiency-seeking FDI. For example, multinational companies could relocate the parts of production of the products that are more labor-intensive such as shoes or textile to developing countries with low wages of workers but place the parts of production that are more capital-intensive in developed countries with better technology and capital. Instead of developing on their own, the companies could gain additional technology, knowledge, human capital, brands, distribution networks, or experience in some specific areas by taking over other companies, and the process is called asset-seeking motive. By gaining these assets in which some of them cannot be found domestically, the companies could increase their competitiveness, management capabilities, and operate more efficiently in both domestic and internationally.

Fifth, Eclectic theory or ownership, location, internationalization (OLI) paradigm is a theory that explain the decision of companies in doing cross-border investment (Dunning, 1979). Ownership advantages refer to company-specific advantages that increase the competitiveness of the companies over their competitors. The advantages can be in many forms such as technology, economies of scale, good management, access to raw materials, factor productivity, or reputation. When the companies expand internationally or try to penetrate into foreign markets, they would have to deal with higher costs compared to the existing companies in the foreign markets because the companies do not have knowledge in the foreign markets. Furthermore, it could be more costly to communicate across countries. Moreover, the difference in institutions, regulation, culture, and language between countries could increase the costs as well and this is called the liability of foreignness (Hymer, 1976). As a result, the companies need to develop their own ownership advantages at home before doing cross-border investment so that they could transfer these advantages abroad and use them to overcome higher costs or uncertainty resulting from investing overseas. Without the ownership advantages, the companies might not be able to survive in foreign markets. Location advantages refer to country-specific advantages that help the countries attract foreign investment from abroad. It could be geographical advantages such as locating close to the ocean to reduce transportation cost or other advantages such as large market

size, high quality factors of production, availability of natural resources, regulations, low labor wage, or good transportation system. In addition, the location advantages could affect the company's decision whether to produce at home and export the products or to produce them at host countries and exploit hosts' location advantages. The countries with high level of location advantages would attract foreign direct investment. Before going abroad, the companies have to compare between foreign direct investment and other modes such as export or licensing. If the companies decide to produce domestically and export the products to foreign markets, the companies might have to deal with higher transportation cost for the products or barriers to entry from foreign countries such as quota or tariff. On the other hand, giving license involves the costs of finding and evaluating the ability of potential partners to meet qualities and standards of the companies as well as negotiating and mandating contracts with the foreign partners. In addition, the companies do not have full control on their partners. However, the foreign partners could provide better experience and knowledge in foreign markets to the companies. The last advantages of doing FDI, internalization advantages, are that the companies can manage or control their activities and strategies along with keeping their knowledge, technology, and patents secretly within the companies.

The sixth theory is the gravity model based on Newton's law of gravitation. The gravity between two objects depends positively on their mass and negatively on the distance between them. Tinbergen (1962) then came up with the gravity model of trade theory. The theory stated that trade volume between two countries is positively affected by their mass or equivalently their size of economy. On the other hand, trade volume is negatively affected by the distance between the countries or other trade costs such as tariffs, non-tariff barriers, and communication costs. Since then, several papers have extended the gravity model to other areas, for instance, migration, traffic, foreign direct investment (FDI), and M&A.

Chapter 3: Literature review

In this chapter, we examine past papers about the determinants of cross-border M&As. We classify the chapter into 2 parts. In the first part, we discuss firm-level determinants, and the second part is about the country-level determinants. In each part, we present the results of past papers and combine them with the theories to form the hypothesis and expectation for each variable.

3.1 Firm-level variables

In this paper, we evaluate the impacts of firm-level variables on the probability of firms having cross-border M&As and the size of the deals in both the first and the second model.

3.1.1 Size of firm

Several past papers concluded that the increase in size of firms had positive effects on the cross-border M&As. Large firms have more resources, reputation, credibility, and experience that help them do cross-border M&As in foreign countries. For example, Forssbæck and Oxelheim (2008) studied the effects of firm-level and country-level variables on the decisions of firms regarding cross-border acquisitions. The sample consisted of 1,379 firms from 12 developed European countries in 44 target countries. They revealed that the increase in the size of firms raised the ownership advantages of the firms and therefore, the firms had more probability of doing cross-border acquisitions.

Furthermore, Gugler, Mueller, and Weichselbaumer (2012) evaluated 5,767 M&A deals in the US, the UK, and mainland Europe (Austria, France, Germany, Italy) between 1991 to 2004. The authors found that the increase in size of firms led to larger cross-border M&A deals. They stated that it would be more difficult and costly to change the managers of large firms. As a result, the managers of large firms had more discretion to take over other firms to increase the firm's size, along with their own benefits and utilities. Therefore, the increase in the size of firms led to larger cross-border M&A deals.

Popli and Sinha (2014) evaluated 1,721 cross-border M&A deals of Indian firms from 2001 to 2011. They concluded that the companies with large size went abroad for cross-border M&As faster than other companies. Large companies already enjoyed the benefits from domestic markets such as economies of scale that led to lower cost of production. Furthermore, large firms had more experience in large scale operations, resources, and domestic workers. Therefore, they had more capabilities to overcome the risks of foreign investment. Moreover, Dessyllas and Hughes (2005) reported that the increase in the size of firms led to the increase in the probability that firms having cross-border M&As. In our paper, we measured the size of firms by natural log of total assets similar to Forssbæck and Oxelheim (2008) and Gugler et al. (2012).

Hypothesis 1: The increase in size of firms leads to the increase in the probability that firms have cross-border M&A deals and the size of the deals.

3.1.2 Internal fund

Using internal funds or idle resources to finance the firms' investment could be cheaper and less risky than using external funds such as bank loans. As a result, the firms had more capability to do cross-border M&As when there were abundant of internal funds available within the firms. Furthermore, Schwartz (1983) argued that the probability of the firms going bankruptcy would increase when the firms increase the borrowing of funds. Internal funds also offered more flexibility to firms because the firms did not have to keep paying interests to the creditors. As a result, the firms with more internal funds had more capability in doing cross-border M&As.

Similarly, Myers and Majluf (1984) argued that using internal funds to finance the investment could be cheaper and less risky for the firms than using external funds such as borrowing or selling shares because internal funds were generated within the firms. Therefore, the firms did not have to deal with additional transaction costs such as negotiating with other parties. Moreover, internal financing did not affect the structure of ownership as selling shares might did. In addition, the firms did not need to sign lengthy contracts with banks or other financial institutions if they used internal financing (Carter, MacDonald, & Cheng, 1997).

In addition, Gugler et al. (2012) disclosed that the increase in the ratio of cash flow to assets, which captured the internal funds of the companies, led to the increase in the acquisition size of the companies from. In this paper, we measured the internal funds of firms with the ratio of cash and cash equivalents to total asset similar to Pablo (2009).

Hypothesis 2: The increase in internal funds or idle resources of firms leads to the increase in the probability that firms have cross-border M&A deals and the size of the deals.

3.1.3 Profitability

Financial performance or profitability captured the efficiency of firms in generating profit from the assets they had. With the increase in profitability, the firms could then transform some of the profit into the funds for cross-border M&As. As a result, the firms with high profitability had more funds and readiness for the cross-border expansions. Moreover, Popli and Sinha (2014) concluded that Indian firms with good financial performance, captured by net profit to total assets ratio, did cross-border M&As earlier than other firms.

Dessyllas and Hughes (2005) evaluated 9,744 cross-border M&As of the firms from Australia, Canada, France, Italy, Japan, the Netherlands, Sweden, Switzerland, the UK, and the US for the period 1984 to 2001. They concluded that the increase in the profitability of firms had positive effect on the probability that the firms doing cross-border M&As. Furthermore, Vyas, Narayanan, and Ramanathan (2012) stated that the increase in profit margin led to the increase in the amount of free cash flow within the firms. Free cash flow could be used as the source of funds for the cross-border M&As of the firms. Therefore, the increase in the profitability of firms led to more possibility that the firms do cross-border M&As. Blonigen and Taylor (2000) also reported that the increase in the profitability of firms led to the increase in the number of M&As deals. In this paper, we followed Pablo (2009) and Popli and Sinha (2014) in measuring profitability of the firms by their return on assets (ROA).

Hypothesis 3: The increase in profitability of firms leads to the increase in the probability that firms have cross-border M&A deals and the size of the deals.

3.1.4 Leverage

The increase in leverage, or using more debt, of firms affected the default risk of the firms. As a result, the investors required higher return from the firms. These firms were more difficult and had higher costs to borrow additional money or funds to finance their investment projects. Therefore, the rise in the leverage of firms had negative effect on the firms' ability to do cross-border M&As. Gugler et al. (2012) also stated that the increase in leverage of firms led to the decrease in the size of cross-border M&A deals. They argued that higher leverage meant more limitations for firms in accumulating the funds.

Moreover, Hussan (2016) argued that higher leverage meant higher risk and thus increased the default risk of the firms, which is the situation where the firms could not pay back the interests and the borrowed funds to investors. As a result, the investors required more return from the firms and thus made it harder for the firms to borrow and gather the funds for their cross-border M&A deals. In addition, Vyas et al. (2012) argued that leverage of firms put more pressure on financial constraints of the firms and thus negatively affected the firms' decision in doing cross-border M&As.

Nisbet, Thomas, and Barrett (2003) examined the factors that encouraged UK companies to invest in the US by merger and acquisition method. The authors concluded that the leverage ratio of UK companies had negative impact on the cross-border M&As of UK firms flowing to the US. Similar to Schwartz (1983), Gugler et al. (2012), Lim and Lee (2017), we proxied leverage by debt to equity ratio.

Hypothesis 4: The increase in leverage of firms leads to the decrease in the probability that firms have cross-border M&A deals and the size of the deals.

3.1.5 Market valuation

The market valuation of firms reflected the confidence and belief that investors had in the firms. The firms with high market valuation could trade their shares in the markets at high price. As a result, it was easier for those firms to raise the funds for cross-border M&As. By using quarterly data between 1987 to 2008, Boateng, Hua, Uddin, and Du (2014) studied the effects of macro variables of the United Kingdom on its outward cross-border mergers and acquisitions.

The authors revealed that the increase in share prices of the UK companies led to the increase in cross-borders M&A deals of the UK companies. When the companies' share prices increased, the companies had more capability to do cross-border M&As and took over other companies using their shares. In addition, Forssbæck and Oxelheim (2008) used the ratio of price to sales to measure how much the investors valued the firms. The authors stated that high market valuation of firms led to lower cost of capital that further stimulated the probability of having cross-border M&A deals of the firms.

Pablo (2009) employed logistic regression to evaluate the effects of firm-level and macro variables of host and home countries on cross-border mergers and acquisitions. The sample consisted of 868 M&As deals of the firms from Latin American countries from 1998 to 2004. The results revealed that the ratio of market to book of firms increased their probabilities of doing cross-border mergers and acquisitions.

Gugler et al. (2012) revealed that the weighted average of price to earnings ratio reduced the acquisition size of unlisted acquiring companies in the UK and mainland Europe, whereas it increased the acquisition size of listed acquiring companies. This contrast could be explained by overvalued shares theory. The theory stated that share prices were higher during stock market booming periods and the managers of the companies knew the booms would end at some point. Therefore, they exploited the booms by trading the companies' shares with other companies' assets. On the other hand, unlisted companies did not gain from the stock market booms because their stocks were not traded in stock exchanges. As a result, unlisted companies found it harder to take over other companies because of the rising share prices. In this paper, we proxied the market valuation of firms by their market to book ratio, which is similar to Pablo (2009).

Hypothesis 5: The increase in the market valuation of firms leads to the increase in the probability that firms have cross-border M&A deals and the size of the deals.

3.1.6 Power of owners

The principal-agent theory indicated that shareholders (owners) and managers of the firms were different groups with conflict of interest. The shareholders wanted to maximize profits

of the firms. In contrast, the empire building theory predicted that managers wanted to maximize their own utilities by increasing the size of firms because they felt proud and gained utilities from managing larger companies. With more shares, the shareholders had more power and incentive to strictly control and monitor managers; therefore, the managers had less chance for unnecessary cross-border M&As.

Schwartz (1983) and Gugler et al. (2012) measured the power that the owners had on the managers by using the average number of stocks held by stockholders and the fraction of shares held by the largest shareholder, respectively. Schwartz (1983) reported that the increase in power that the owners had on the managers led to the reduction in the probability that firms doing cross-border M&As and the size of the deals as well. Gugler et al. (2012) also argued that the increase in the fraction of shares held by the largest shareholder led to the decrease in the size of cross-border M&A deals of firms. Similar to Gugler et al. (2012), we measured the power that the owners had on the managers by using the fraction of shares held by the largest shareholder.

Hypothesis 6: The increase in the power that the owners had on the managers leads to the decrease in the probability that firms have cross-border M&A deals and the size of the deals.

3.2 Country-level variables

Several previous studies revealed that country-level variables had effects on cross-border M&As. As a result, we evaluate the impacts of country-level variables on the size of cross-border M&As of Thai firms in the second model.

3.2.1 Size of economy of host countries and Thailand

The gravity model presented that the increase in size of economies of two countries (mass of two objects) led to higher interaction (gravitational force) between them. Forssbæck and Oxelheim (2008) pointed out that the increase in gross domestic product (GDP) of host countries positively affected the probability of cross-border acquisitions from foreign investors. In addition, Boateng et al. (2014) concluded that the increase in the UK's gross domestic product (GDP) led to the increase in the number of cross-border M&A deals from the UK companies. The increase

in GDP meant more output for the UK companies and thus the companies had more funds for cross-border M&As.

Furthermore, Ibrahim and Raji (2018) employed panel regression on yearly data between 1996 to 2015 to study the impacts of country-level variables of Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam on their cross-border mergers and acquisitions activities. The authors concluded that the increase in real gross domestic product (GDP) of home countries led to the increase in the number of target companies in host countries being acquired by the firms from home countries. Higher GDP meant more output and funds available for domestic companies for their outward cross-border M&As.

In addition, Di Giovanni (2005) examined the determinants of the size of 40,332 cross-border M&A deals around the world between 1990 to 1999. The results revealed that the size of cross-border M&As between two countries was positively affected by their size of economy. Similarly, Hur, Parinduri, and Riyanto (2011) evaluated the determinants of cross-border M&As of 165 countries from 1997 to 2006. They revealed that the increase in the size of GDP of host countries led to the rise in total value of cross-border M&As.

Hyun and Kim (2010) evaluated over 30,000 cross-border M&A deals between 1989 and 2006 across 101 countries. Consistent with the gravity model, they found that the increase in the size of economy of host and home countries led to the increase in size of cross-border M&As between the two countries. In this paper, we measured the size of economy of host countries and Thailand by the sum of natural log of GDP of host countries and Thailand.

Hypothesis 7: The increase in size of the economy of host countries and Thailand leads to the increase in the size of cross-border M&A deals.

3.2.2 Distance between host countries and Thailand

The gravity model presented that the increase in the distance between two countries led to lower interaction between them. Hyun and Kim (2010) revealed that the increase in the distance between host and home countries negatively affected total value of cross-border M&As flowing between the countries. Similarly, Di Giovanni (2005) reported that the value of cross-

border M&As between two countries was negatively affected by the distance between the two countries as well.

In addition, Erel, Liao, and Weisbach (2012) applied multivariate regression on cross-border M&A deals that occurred from 1990 to 2007 in 48 countries. The authors revealed that the increase in distance and difference in cultural background, measured by religion and language, between home and host countries reduced the total number of cross-border M&As between them. By using the gravity model, they argued that the increase in distance between the two countries raised the transaction and the cost of operating companies in foreign countries. Moreover, the companies could find it harder to invest in the countries that use different languages.

Anwar and Mughal (2015) estimated the determinants of cross-border mergers and acquisitions of Russian companies in 53 countries from 1999 to 2013. They concluded that the increase in the distance between host countries and Russia led to the reduction in the number of cross-border M&As of Russian companies. Similar to Erel et al. (2012), we captured the distance by natural log of geographic distance between the capital city of host countries and home countries, which is Bangkok.

Hypothesis 8: The increase in the distance between host countries and Thailand leads to the decrease in the size of cross-border M&A deals.

3.2.3 Development of financial market of host countries

Deng and Yang (2015) studied the determinants of cross-border M&A deals of the firms from 9 emerging markets between 2000 to 2012. They stated that the increase in size and development of financial market, captured by the ratio of market capitalization to GDP, of host countries led to the increase in the number of cross-border M&As. The authors argued that the increase in size of financial market of host countries meant more firms for being acquired, whereas the development of financial market of host countries facilitated the transfer of funds and the process of doing cross-border M&As.

Agbloyor, Abor, Adjasi, and Yawson (2012) evaluated the determinants of cross-border M&As flowing to 11 African countries between 1993 to 2008. They found that the increase in the

development of banking sector of host countries led to the increase in total value of cross-border M&As. Furthermore, Rossi and Volpin (2004) examined the cross-border M&A deals of 49 countries from 1990 to 2002 and revealed that the improvement in the accounting standards and the protection of investors of host countries led to the increase in the volume of cross-border M&As. Similar to Deng and Yang (2015), we captured the development of financial market of host countries as the ratio of stock market capitalization to GDP.

Hypothesis 9: The increase in the development of financial market of host countries leads to the increase in the size of cross-border M&A deals.

3.2.4 Market size of host countries

The market size was related to the market-seeking motive of Dunning (1993). Market-seeking motive occurred when the firms invested abroad to gain the access to new markets and increase the number of customers. Large market size of host countries would offer more customers and increase sales for the firms. As a result, the increase in the market size of host countries would lead to more cross-border M&As from foreign firms to take advantage of larger market size. In addition, Anwar and Mughal (2015) revealed that the GDP per capita of host countries, captured market-seeking motive, had positive effect on the number of cross-border M&A deals of Russian companies in host countries.

Nisbet et al. (2003) argued that the fast-growing market of host country would provide the possibility for the firms to increase their profits. Furthermore, entering the host country by cross-border M&As would allow the firms to exploit and obtain the profits faster than creating the production from scratch (greenfield investment). As a result, the authors stated that the increase in market size of host country would lead to more cross-border M&As. In this paper, we measured the market size of host countries by the ratio of population of host countries to population of Thailand.

Hypothesis 10: The increase in the market size of host countries leads to the increase in the size of cross-border M&A deals.

3.2.5 Natural resources of host countries

The availability of natural resources was related to the resource-seeking motive of Dunning (1993). Resource-seeking motive occurred when the firms invested abroad to gain the accesses to natural resources, which were unavailable at home or available at lower cost than home country. The firms were attracted to the countries with abundant natural resources to take advantages of them. As a result, the increase in the availability of natural resources of host countries would lead to more cross-border M&As from foreign firms especially the firms that involve producing or extracting raw materials. Moreover, consistent with resource-seeking motive, Deng and Yang (2015) stated that the increase in the ratio of export of ore and metal to total merchandise of host countries attracted more cross-border M&As.

Furthermore, Anwar and Mughal (2015) reported that the increase in the ratio of share of ores exports to merchandise exports of host countries led to the increase in the number of cross-border M&As of Russian companies. In this paper, similar to Ross (2015) we measured the availability of natural resources of host countries as the ratio of natural resources rents to GDP.

Hypothesis 11: The increase in the availability of resources of host countries leads to the increase in the size of cross-border M&A deals.

3.2.6 Wage of host countries

Wage was related to the efficiency-seeking motive of Dunning (1993). The rise in the wage of host countries led to higher cost of labor and production that made the countries less attractive from the perspective of foreign firms or investors. Forssbæck and Oxelheim (2008) reported that monthly wage of host countries, which captured the production cost, had negative effect on the probability of cross-border acquisitions of firms. In addition, Anwar and Mughal (2015) stated that the increase in the startup cost, which is the proxy of efficiency-seeking motive, of host countries led to the decrease in the number of cross-border M&A deals of Russian companies. Moreover, Di Giovanni (2005) disclosed that the increase in the wage of host countries reduced total value of cross-border M&As flowing between home and host countries. In this paper, we measured the wage of host countries by using the ratio of average monthly wage of host countries to Thailand (all of the wages were measured in USD).

Hypothesis 12: The increase in the wage of host countries leads to the decrease in the size of cross-border M&A deals.

3.2.7 Interest rate of Thailand

Higher interest rate raised the cost of funds for Thai firms; therefore, it was harder and more costly for the firms to accumulate the funds for cross-border M&As. Gugler et al. (2012) revealed that the interest rate reflected the cost of borrowing for companies. As a result, the increase in interest rate reduced the acquisition size of the companies in the UK, mainland Europe, and the US. Furthermore, Boateng et al. (2014) reported that the rise in the interest rate of the UK, home country in their study, decreased the number of cross-border mergers and acquisitions of UK companies. The rise in the UK interest rate raised the cost of funds for the UK companies. As a result, these companies decreased the number of cross-border M&As.

Moreover, Ibrahim and Raji (2018) revealed that the increase in the money supply of home countries led to more cross-border M&As. The authors argued that the increase in money supply reduced the interest rate or equivalently the cost of funds; therefore, the companies from the countries had more cross-border M&As. In this paper, we proxied the interest rate of Thailand by the policy rate of Bank of Thailand.

Hypothesis 13: The increase in the interest rate of Thailand leads to the decrease in the size of cross-border M&A deals.

Chapter 4: Outward M&A of Thai firms

In this chapter, we provide background and stylized facts about cross-border M&A deals of Thai firms from SET100 Index. First of all, we looked at 100 firms in SET100 Index and excluded the firms from financial industry. There was no firm in the consumer products industry that existed in SET100 Index. Therefore, our final sample consisted of 87 firms from agro & food, industrials, property & construction, resources, services, and technology industries. Among these 87 firms, 26 firms had at least one cross-border M&A deal between 2009 and 2018. The total number of cross-border M&A deals of these 26 firms during the period was 205 deals in 44 host countries. Our data consisted of firm-level data of Thai firms and country-level of Thailand and host countries.

We excluded the firms from financial industry such as banks, investment management firms, or insurance firms because these firms were involved in the financial activities such as providing of loans, holding of funds, and managing the risks. As a result, it was possible that these firms behaved differently from the firms in other industries. For example, the money that people deposited in the banks was counted as debts, but the banks also earned profits from the deposits by lending them and charged higher interest rate. Therefore, using leverage ratio or internal funds to judge financial firms' performance and ability in doing cross-border M&As could be wrong. In addition, the firms from financial industry did not have the production of physical assets, for instance, cars or food. Therefore, some of country-level variables of host countries such as the wage of labors, cost of raw materials, or the amount of natural resources could have less effect on financial firms in making decision regarding cross-border M&As.

As shown in the second column of Table 4.1, most of 87 firms in SET100 Index were from property & construction, resources, and services industries at 21, 24, and 24 firms, respectively. Regarding the third column, which showed the number of firms with at least 1 cross-border M&A deals from 2009 to 2018, 10 of them were from resources industry. On the other hand, agro & food, industrials, property & construction, services, and technology industries had between 2 and 4 firms each. The highest number of cross-border M&A deals occurred in the agro & food industry at 73 deals, followed by resource industry with 49 deals and industrials industry

with 44 deals. Technology industry had the lowest number of cross-border M&A deals with only 2 deals. The last column reported that resources industry had the highest average size of cross-border M&A deal at 7,874 million Baht, whereas technology industry had the lowest average deal size at only 9 million Baht.

Table 4.1: Number of firms and average size of cross-border M&A deals by industry from 2009 to 2018

Industry	Number of firms	Number of firms with cross-border M&A deal(s)	Number of cross-border M&A deals	Average deal size (million Baht)
Agro & Food	8	4	73	4,665
Industrials	3	2	44	4,847
Property & Construction	21	4	28	1,822
Resources	24	10	49	7,874
Services	24	4	9	649
Technology	7	2	2	9
Total	**87**	**26**	**205**	**4,862**

Source: SET

From Table 4.2, most of the cross-border M&A deals of these 26 firms from SET100 Index occurred in Asia at 84 deals, followed by Europe and Australia at 44 and 40 deals, respectively. Less than 10 cross-border M&A deals from Thai firms occurred in Africa and South America. The average size of the cross-border M&A deals is highest in North America at 9,140 million Baht per deal, followed by Europe at 6,699 million Baht per deal. On the other hand, the average size of the cross-border M&A deals is lowest in Africa at 702 million Baht per deal. Regarding the number of cross-border M&A deals in each country, Australia was the country that received the highest number of cross-border M&A deals of Thai firms at 38 deals, while the U.S. came second at 23 deals. With respect to Asia, Indonesia came first with 16 cross-border M&A deals of Thai firms, followed by China and Vietnam.

Table 4.2: The number of cross-border M&A deals and average size by continent from 2009 to 2018

Continent	Number of deals	Average size (million Baht)	Country	Number of deals	Country	Number of deals	Country	Number of deals
Africa	7	702	Egypt	2	South Africa	1	Yemen	1
			Nigeria	1	Tanzania	1	Zambia	1
Asia	84	3,310	Cambodia	2	Israel	2	Philippines	5
			China	14	Japan	3	Singapore	12
			Hong Kong	2	Malaysia	5	Sri Lanka	2
			India	3	Maldives	1	Taiwan	2
			Indonesia	16	Mongolia	1	Vietnam	14
Australia	40	3,371	Australia	38	New Zealand	2		
Europe	44	6,699	Austria	1	Italy	1	Spain	2
			Belgium	1	Netherlands	1	Switzerland	1
			Czech	1	Norway	3	Turkey	2
			France	6	Poland	2	Ukraine	1
			Germany	6	Portugal	5	U.K.	7
			Ireland	1	Russia	3		
North America	28	9,140	Canada	3	Mexico	2	U.S.	23
South America	2	6,868	Brazil	2				

Source: SET

Table 4.3 shows top 10 firms from SET100 Index with the highest number of cross-border M&A deals. Half of these 10 firms were from resources industry, whereas 3 firms were from agro & food industry. Only one of them was from industrials industry. By considering each firm, MINOR INTERNATIONAL PCL. had the highest number of cross-border M&A deals at 43 deals, followed closely by INDORAMA VENTURES PCL. with 41 deals. CHAROEN POKPHAND FOODS PCL. and THE SIAM CEMENT PCL. occupied the third and fourth spots with around 20 deals each. These 10 firms totally had 169 cross-border M&A deals or 82.4% of 205 deals in the sample of our study between 2009 to 2018.

Table 4.3: Top ten firms with the highest number of cross-border M&A deals,

industry, and the number of cross-border M&A deals from 2009 to 2018

Firm	Industry	Number of cross-border M&A deals
MINOR INTERNATIONAL PCL.	Agro & Food	43
INDORAMA VENTURES PCL.	Industrials	41
CHAROEN POKPHAND FOODS PCL.	Agro & Food	22
THE SIAM CEMENT PCL.	Property & Construction	19
PTT PCL.	Resources	11
BANPU PCL.	Resources	8
THAI UNION GROUP PCL.	Agro & Food	7
ELECTRICITY GENERATING PCL.	Resources	6
PTT EXPLORATION AND PRODUCTION PCL.	Resources	6
SIAMGAS AND PETROCHEMICALS PCL.	Resources	6
Total		**169**

Source: SET

Table 4.4 reported the top 10 largest cross-border M&A deals of the firms in SET100 Index between 2009 and 2018 by deal value. Half of them were from resources industry and the other 4 deals were from agro & food industry. The largest cross-border M&A deal was made by MINOR INTERNATIONAL PCL. from Agro & Food industry at 86,867 million Baht, followed by the deal of CHAROEN POKPHAND FOODS PCL. which also came from the same industry. Each of these 10 deals worth more than twenty billion Baht. On the other hand, the average deal value of all 205 deals is 4,862 million Baht per deal.

Table 4.4: Top 10 largest cross-border M&A deal size from 2009 to 2018

Rank	Firm	Industry	Deal size (million Baht)	Country
1	MINOR INTERNATIONAL PCL.	Agro & Food	86,867	Spain
2	CHAROEN POKPHAND FOODS PCL.	Agro & Food	71,249	Hong Kong
3	PTT EXPLORATION AND PRODUCTION PCL.	Resources	60,107	U.K.
4	PTT EXPLORATION AND PRODUCTION PCL.	Resources	59,926	Canada
5	BANPU PCL.	Resources	58,819	Australia
6	PTT EXPLORATION AND PRODUCTION PCL.	Resources	41,668	Indonesia
7	CHAROEN POKPHAND FOODS PCL.	Agro & Food	39,073	U.S.
8	THAI UNION GROUP PCL.	Agro & Food	28,742	France
9	PTT PCL.	Resources	25,456	Singapore
10	INDORAMA VENTURES PCL.	Industrials	24,977	U.S.

Source: SET

Table 4.5 reported the number of cross-border M&A deals by year for the firms in SET100 Index from 2009 to 2018. The lowest number of cross-border M&A deals was in 2009 with only 5 deals. This might be because the 2008 financial crisis reduced the firms' performance and earnings; hence, firms had less funds for doing cross-border M&As. The number of cross-border M&A deals had increased since 2010 and reached the highest number in 2011 and 2017 at 28 deals each. Since 2015, there have been more than 20 cross-border M&A deals per year.

Table 4.5: Number of cross-border M&A deals of 26 firms by year from 2009 to

2018

Year	Number of cross-border M&A deals	Year	Number of cross-border M&A deals
2009	5	2014	18
2010	13	2015	21
2011	28	2016	24
2012	25	2017	28
2013	17	2018	26

Source: SET

Chapter 5: Methodology & Data

This thesis consisted of two models where only firm-level variables were used as explanatory variables in the first model, whereas both firm-level variables and country-level variables were used in the second model. Regarding the first model, the dependent variable was binary variable that took the value of 1 if the firm had cross-border M&A deal in the year and 0 otherwise during the period 2009 to 2018. We evaluated how firm-level variables affected the probability of the firms in doing cross-border M&As.

For firm-level variables, several literatures such as Cai, Boateng, and Guney (2019) and Popli and Sinha (2014) captured the ownership advantage of the firms by their size, internal fund, and profitability. In addition, Forssbæck and Oxelheim (2008) and Pablo (2009) concluded that the market valuation of firms positively affected their cross-border M&As. Nisbet et al. (2003) revealed that leverage had negative effect on cross-border M&As. Moreover, the fraction of shares held by the largest shareholder was added to test the principal-agent theory, similar to Gugler et al. (2012).

In conclusion, the explanatory variables for the first model were the firms' size, internal fund, profitability, leverage, market valuation, power of owners, and dummy for each industry. The data for the first model consisted of 87 Thai firms from SET100 Index by excluding the firms from financial industry. The firm-level variables were lagged variables to account for the time that the firms might need for making the decision to do the cross-border M&As, negotiating for the deals, and completing of the deals.

The equation of the first model is shown below.

$$MA_t = \beta_0 + \beta_1 S_{it-1} + \beta_2 F_{it-1} + \beta_3 P_{it-1} + \beta_4 L_{it-1} + \beta_5 M_{it-1} + \beta_6 Sh_{it-1} + \beta_7 In_{it-1} + \varepsilon_t \qquad (1)$$

Where MA = dependent variable (probability of firms having cross-border M&A deal), S = Size of firm, F = Internal fund, P = Profitability, L = Leverage, M = Market valuation, Sh = Power of owners, In = Industry dummy, subscript i refers to the 87 firms from SET100 Index and t refers to time.

Based on the structure of the data of 87 firms during the period 2009 to 2018, we used panel probit regression in the first model. We then ran joint significance of differing group means test, Breusch-Pagan test, and Hausman test to decide whether to choose pooled OLS, random effect, or fixed effect. The results suggested the random effect.

For the second model, only firms with cross-border M&A deals were included. There were 26 firms with 205 cross-border M&A deals. The dependent variable was the size of cross-border M&A deal, measured in million Baht. Both firm-level variables and country-level variables were included as the explanatory variables in this model. For country-level variables, we would like to test the gravity model. Furthermore, the Dunning motives of market, resources, and efficiency-seeking that were widely mentioned in previous studies were included as well. In addition, many literatures revealed that the interest rate of home countries negatively affected cross-border M&As. Similar to Deng and Yang (2015), financial market was used to capture the development, liquidity, and the availability of firms in the stock market of host countries.

In conclusion, the second model had firm-level variables, namely, size of firm, internal fund, profitability, leverage, market valuation, power of owners, and industry dummy. Furthermore, the country-level variables were the size of economy of host countries and Thailand, distance between host countries and Thailand, development of financial market of host countries, market size of host countries, natural resources of host countries, wage of host countries, and interest rate of Thailand.

We then used Auxiliary regression for non-linearity test, Variance Inflation Factor (VIF) value, expectation of residual, and Breusch-Pagan test to examine the structure of the data on four assumptions before choosing the appropriate regression model. The four assumptions were the linearity in parameters, multicollinearity, conditional mean zero, and homoscedasticity. The results suggested that the data had heteroskedasticity problem. As a result, we decided to use weighted least squares (WLS) and ordinary least squares (OLS) with Heteroskedasticity-robust standard errors regressions to handle the problem.

The equation of the second model is shown below.

$$SMA_t = \beta_0 + \beta_1 S_{it-1} + \beta_2 F_{it-1} + \beta_3 P_{it-1} + \beta_4 L_{it-1} + \beta_5 M_{it-1} + \beta_6 Sh_{it-1} + \beta_7 In_{it-1} + \beta_8 E_{hTHt-1} +$$
$$\beta_9 Dist_{ht-1} + \beta_{10} Fin_{ht-1} + \beta_{11} Pop_{ht-1} + \beta_{12} Nat_{ht-1} + \beta_{13} W_{ht-1} + \beta_{14} I_{THt-1} + \varepsilon_t \qquad (2)$$

Where SMA = dependent variable (size of cross-border M&A deal, measured in million Baht), S = Size of firm, F = Internal fund, P = Profitability, L = Leverage, M = Market valuation, Sh = Power of owners, In = Industry dummy, E = Size of economy, Dist = Distance, Fin = Development of Financial market, Pop = Market size, Nat = Natural resources, W = Wage, I = Interest rate, subscript i refers to 26 acquiring firms, subscript h is host countries, subscript TH refers to Thailand.

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Table 5.1 reported the summary of the measurements, predictions, and data sources for all of the firm-level variables in this study. Furthermore, we provide brief explanations or theories for each variable.

Table 5.1: Summary of firm-level variables

Variable	Measurement	Predicted Sign	Explanation/ Theory	Data Source
Size of firm	Natural log of total assets of firm (million Baht)	+	Ownership advantage	SET
Internal fund	Ratio of cash and cash equivalents to total asset, expressed in percentage	+	Ownership advantage	SET
Profitability	Return on assets (ROA) ratio, expressed in percentage	+	Ownership advantage	SET
Leverage	Debt to equity (D/E) ratio	-	Higher debt raises the firm's cost of funds	SET
Market valuation	Price to Earning (P/E) ratio	+	Trading shares at high price are easier for firms to raise funds	SET
Power of owners	Fraction of shares held by the largest shareholder, expressed in percentage	-	Principal–agent theory and empire building theory	SET
Industry dummy	Industry of firm: agro & food, industrials, property & construction, resources, services, technology	No prediction		SET

Table 5.2 reported the summary of the measurements, predictions, explanations, theories, and data sources for the country -level variables.

Table 5.2: Summary of country-level variables

Variable	Measurement	Predicted Sign	Explanation/ Theory	Data Source
Size of economy	Sum of natural log of GDP of host countries and Thailand (in million USD)	+	Gravity model	THE WORLD BANK
Distance	Natural log of the distance between the capital city of host countries and Thailand	-	Gravity model	DistanceFromTo
Development of Financial market	Ratio of stock market capitalization to GDP	+	Development or liquidity of financial market	The Global Economy
Market size	Ratio of population of host countries to Thailand	+	Market-seeking motive	THE WORLD BANK
Natural resources	Ratio of natural resources rents to GDP, expressed in percentage	+	Resource-seeking motive	THE WORLD BANK
Wage	Ratio of average wage of host countries to Thailand	-	Efficiency-seeking motive	THE WORLD BANK
Interest rate	The policy rate of Bank of Thailand, expressed in percentage	-	Cost of funds of Thai firms	International Monetary Fund

Table 5.3 reported the basic summary statistics for the variables in this study. We provide the value of the maximum, minimum, mean, median, and standard deviation for each variable.

Table 5.3: Basic summary of data

Variable	Max	Min	Mean	Median	S.D.
Size of firm	14.39	8.03	11.81	11.68	1.22
Internal fund	38.97	1.16	7.07	5.48	5.85
Profitability	40.83	3.09	10.89	9.43	6.02
Leverage	2.93	0.20	1.51	1.47	0.55
Market valuation	57.84	4.95	21.53	17.92	12.32
Power of owners	74.36	6.56	36.01	30.00	20.54
Size of economy	16.00	6.94	12.94	12.88	1.67
Distance	9.72	6.29	8.51	8.92	0.87
Development of Financial market	11.25	0.00	0.95	0.75	1.09
Market size	20.03	0.01	2.94	0.95	5.28
Natural resources	24.28	0.00	4.23	2.77	4.49
Wage	21.52	0.21	7.74	8.77	6.25
Interest rate	3.25	1.25	2.02	2.00	0.62

Chapter 6: Determinants of outward M&A of Thai firms

In this chapter, we discuss the results of our regressions and compare them with those from previous studies, expectations, and the theories. Table 6.1 shows the results of the first model where we evaluate the effects of firm-level explanatory variables on the probability of Thai firms doing cross-border M&As. We use panel probit with random effect as the estimation model for the first model. (Full detail of the first model is shown in appendix.)

Table 6.1: The results from the first model

Variable	Expectation	Coefficient (T-statistic)
Constant		-12.836 (-3.931) ***
Size of firm	+	0.534 (3.686) ***
Internal fund	+	0.048 (3.124) ***
Profitability	+	0.050 (2.400) **
Leverage	-	0.046 (0.260)
Market valuation	+	0.001 (0.122)
Power of owners	-	0.008 (1.159)
Agro & Food Industry		-0.016 (-0.017)
Property & Construction		-1.147 (-1.248)
Resources		-0.601 (-0.719)
Services		-2.314 (-2.219) **
Technology		-2.681 (-2.573) **
lnsigma2		1.024 (2.484) **

The symbols ***, **, and * means significance at level 1%, 5%, and 10%, respectively.

The results of the first model reveal that as expected, the increase in the ownership advantages of the firms, namely, size, internal fund, and profitability leads to higher probability that the firms doing cross-border M&As. When entering the foreign markets, the firms face liability of foreignness (Hymer, 1976) such as the barriers to entry, higher costs, and more risks. The firms would need ownership advantages to help them overcome these costs.

We find that the increase in size of the firms positively affects the probability that the firms do cross-border M&As. Large firms are usually well-known with more credibility to investors and have good networks. As a result, they have more access to the funds for cross-border M&As or can get them at cheaper rates. They also have high revenues and thus can afford more cross-border M&As. In addition, large firms could enjoy other advantages such as economies of scale, special discount from production, and doing transactions at large quantities. Forssbæck and Oxelheim (2008) and Popli and Sinha (2014) also found the positive effects of firms' size on cross-border M&As.

As for the internal fund variable, we find that the increase in internal funds of firms had positive effect on the probability that the firms do cross-border M&As. This finding is consistent with our hypothesis and similar to Schwartz (1983) and Gugler et al. (2012). Using internal funds to finance cross-border M&As of firms is safer and less expensive than external funds such as borrowing or selling shares. When the firms use internal funds, they do not have to pay the transaction cost or interest to their creditors. Moreover, the increase in borrowing would lead to higher chance of bankruptcy for the firms. Therefore, with more internal funds, the firms have more capabilities to do cross-border M&As.

Profitability of firms reflects how well the firms are performing or the efficiency of the firms in generating profit from the assets they have. The increase in profitability means the operation of firms bring more profit. Moreover, some of the profit could be transformed into the funds for additional cross-border M&As for the firms. As a result, the firms with high profitability have more funds and readiness for cross-border expansion. The result reveals that the increase in the profitability of Thai firms leads to higher probability that Thai firms have cross-border M&As. Moreover, our result is similar to Dessyllas and Hughes (2005), Vyas et al. (2012), and Popli and Sinha (2014).

On the other hand, the coefficient of power of owners variable is insignificant but positive which contradicts our expectation of negative sign based on the principal-agent theory. Gugler et al. (2012) explained that the number of shares held by shareholders reflected the power and influence they had on the managers and firms. During stock market boom or the rise in stock

price, both managers and shareholders were more confident and optimistic about the market. As a result, both of them were willing to take advantages of the boom by acquiring other firms. Furthermore, the benefits from taking over other firms to shareholders depended positively on the number of shares they hold. Therefore, the shareholders with more shares have more incentive and power to encourage the firms in doing cross-border M&As which could lead to the positive effect of shares variable on the cross-border M&As.

Table 6.2 presents the results of the second model where the dependent variable is the size of the cross-border M&A deals. This model consists of both firm-level variables and country-level variables as explanatory variables. In the second model, we use the estimation models weighted least squares (WLS) and ordinary least squares (OLS) with Heteroskedasticity-robust standard errors. (Full detail of the second model is shown in appendix.)

Similar to the results of the first model, the ownership advantages of firms, namely, size and profitability of the firms, have positive effects on the size of cross-border M&A deals. This finding is consistent with Gugler et al. (2012). Compared to smaller firms, large firms have more resources, employees, and networks that could help them in cross-borders expansion. Furthermore, the increase in size of firms could lead to more revenues and lower cost of production because of the economies of scale as well. With more revenues and lower cost, the firms could have more funds to do large cross-border M&A deals. It is also possible that large firms have more experience in massive investments or operations. As a result, they could handle the problems from negotiating and completing large cross-border M&As and from managing the firms in foreign countries more efficient than smaller firms. Therefore, big firms have more capability to complete and operate large cross-border M&As in foreign countries.

Table 6.2: The results of the second model

	Variable	Expectation	WLS	OLS
			Coefficient (T-stat)	Coefficient (T-stat)
	Constant		-3.026 (-1.142)	-3.057 (-0.933)
Firm-level	Size of firm	+	0.431 (3.561) ***	0.418 (2.861) ***
	Internal fund	+	-0.016 (-0.774)	-0.013 (-0.363)
	Profitability	+	0.041 (2.283) **	0.040 (1.544)
	Leverage	-	-0.469 (-1.687) *	-0.432 (-1.224)
	Market valuation	+	-0.014 (-1.316)	-0.013 (-0.891)
	Power of owners	-	-0.009 (-0.839)	0.005 (0.356)
Industry dummy	Agro & Food		-0.909 (-1.514)	-0.297 (0.369)
	Property & Construction		-1.005 (-1.670) *	-0.391 (-0.527)
	Resources		-0.023 (-0.046)	0.172 (0.244)
	Services		0.222 (0.372)	-0.428 (-0.349)
	Technology		-3.612 (-4.397) ***	-3.655 (-3.391) ***
Country-level	Size of economy	+	0.270 (1.801) *	0.173 (1.085)
	Distance	-	0.483 (2.009) **	0.496 (1.600)
	Development of Financial market	+	0.018 (0.096)	0.182 (0.837)
	Market size	+	-0.027 (-0.890)	-0.014 (-0.403)
	Natural resources	+	0.005 (0.151)	-0.005 (-0.132)
	Wage	-	-0.062 (-1.957) *	-0.058 (-1.536)
	Interest rate	-	-0.454 (-1.783) *	-0.319 (-0.966)

The symbols ***, **, and * means significance at level 1%, 5%, and 10%, respectively.

Furthermore, we find that the increase in the profitability of Thai firms leads to larger cross-border M&A deals of the firms. The finding is similar to Blonigen and Taylor (2000). The

increase in the profitability of firms means that the firms can generate more profit from their operation and assets. With more profit, the firms could then transform some of the profit into the funds for cross-border M&As. As a result, it is easier for the firms with high profitability to accumulate the funds for larger cross-border M&As and therefore, these firms have more capability to afford larger cross-border M&A deals.

On the other hand, the increase in leverage has negative effect on the size of cross-border M&A deals. The result is consistent with our hypothesis and Nisbet et al. (2003). Higher leverage increases the default risk of the firms. As a result, the investors are willing to lend the funds to the firms only if they get higher rate of return. Therefore, the firms have to borrow the funds at higher rate. Borrowing at higher rate would reduce the capability of firms in accumulating the funds for large cross-border M&A deals.

Turning to the country-level variables, we first look at the size of economy of host countries and Thailand, which is measured as the sum of natural log of GDP of host countries and Thailand. Consistent with the gravity model, we find that the increase in size of the economy of host countries and Thailand leads to larger cross-border M&A deals of Thai firms. Similar to the law of gravitation, the increase in the GDP of host countries (mass of objects) increase the interaction between them. The result is similar to Di Giovanni (2005), Hyun and Kim (2010), and Mishra and Jena (2019).

On the other hand, the distance between host countries and Thailand leads to smaller cross-border M&A deals of Thai firms. This result contradicts the gravity model but it is still similar to Amal and Tomio (2012). The explanation for the positive effect of the distance between host countries and Thailand on the size of cross-border M&A deals of Thai firms is that the farther geographical distance means higher transportation cost (Camisón-Haba & Clemente-Almendros, 2020; Martínez-Zarzoso & Nowak-Lehmann, 2007). Therefore, exporting products to those countries could be less attractive for Thai firms than having the production abroad by doing greenfield investments or cross-border M&As. Moreover, Erel et al. (2012) found that longer distance between two countries came with larger cultural difference. Looking at our data, the correlation between the distance of two countries and the cultural difference, measured by Kogut

and Singh Index, is 0.5919 and significant at 1%. The positive and significant correlation in our data supports the claim of Erel et al. (2012) that there is positive relationship between distance and the difference in culture between two countries. Furthermore, Buch, Kleinert, and Toubal (2003) and Deng and Yang (2015) stated that larger cultural differences of two countries meant more uncertainty and higher communication costs. As a result, the firms are more inclined to use cross-border M&As over greenfield investment to obtain the experience and knowledge from foreign firms when they invest in the countries with large cultural difference.

From our sample, the firms in Europe and North America are larger than the firms in other continents; therefore, Thai firms pay higher purchase price for those cross-border M&A deals. The average value of cross-border M&A deals are 6,999 and 9,140 million Baht for the firms from Europe and North America, respectively. These numbers are higher than 4,862 million Baht which is the average value of all 205 cross-border M&A deals in our sample. Moreover, in our data, the average distance from Thailand to Europe and North America are 9,109 kilometers and 14,180 kilometers, respectively. The numbers are higher than the average of the distance between Thailand and host countries of all 205 cross-border M&A deals in our sample which stands at 6,710 kilometers.

On the contrary, the negative and significant effect of the wage variable implies that the rise in average wages in host countries decreases the size of cross-border M&A deals of Thai firms. The finding is consistent with the efficiency-seeking motive. The rise in average wage of host countries means higher cost of labor and production; hence, these countries are less attractive from the perspective of Thai firms. As a result, Thai firms would be willing to spend less money for cross-border M&A deals in those countries. This finding is similar to Di Giovanni (2005) who found that the increase in the wages of host countries led to the reduction in the size of cross-border M&A deals between home and host countries.

Similar to the wage variable, the coefficient of interest rate variable is also negative and significant. The rise in interest rate of Thailand leads to smaller cross-border M&A deals of Thai firms. The explanation could be that the rise in interest rate of Thailand raises the cost of funds for Thai firms. Therefore, gathering or obtaining the funds for cross-border M&A deals is more

costly, more difficult, and riskier for Thai firms because of the increase in the default risk and interest burden. As a result, these firms have smaller cross-border M&A deals. Our finding is consistent with the expectation and similar to Amal et al. (2009), Boateng et al. (2014), and Ibrahim and Raji (2018).

In contrast, the ratio of stock market capitalization to GDP does not have significant effect on the size of cross-border M&A deals of Thai firms. This finding implies that the development of financial market of host countries does not affect the size of cross-border M&A deals of Thai firms. In addition, both market size and natural resources variables show insignificant effect on the size of cross-border M&A deals as well. Therefore, the results indicate that the market-seeking motive and resource-seeking motive are not the main determinants of the size of cross-border M&A of Thai firms. This result is similar to Scott‑Green and Clegg (1999) and Pablo (2009). Scott‑Green and Clegg (1999) argued that the firms used host countries as the production hub and then distribute the products to the markets around host countries. Furthermore, Deng and Yang (2015) concluded that the acquiring firms were more interested in obtaining the patents, knowledges, and assets of target firms than the availability of natural resources in host countries.

In conclusion, the results of the first model indicate that the increase in the firms' size, internal fund, and profitability leads to the increase in the probability of Thai firms having cross-border M&As. In addition, the results of the second model suggest that the increase in the firms' size and profitability leads to the increase in the size of cross-border M&A deals of Thai firms, whereas the increase in leverages reduces the size of the deals. As for the country-level variables, we find that the increase in the size of economy of host countries and Thailand leads to the increase in the size of cross-border M&A deals of Thai firms. In contrast, the increase in the distance between host countries and Thailand, wage of host countries, and the interest rate of Thailand reduces the size of cross-border M&A deals of Thai firms.

As for policy implication to stimulate the cross-border M&A deals of Thai firms, the results indicate that the increase in the firms' size and profitability leads to the increase in the probability of Thai firms doing cross-border M&As and the size of the cross-border M&A deals.

Furthermore, the increase in internal fund of firms also raises the probability that the firms have cross-border M&As. As a result, Thai government should implement the policies that accommodate the environment to support the growth of Thai firms and help them in getting higher revenues and profits. The objective of this policy is to keep the Thai economy in stable and good conditions which would lead to higher confidence of Thai people. With more confidence, Thai people are ready to spend and buy more products from these firms; therefore, the firms can grow, earn higher revenues, and get more profit.

Furthermore, the policies that facilitate the expansion or operation of firms would be appropriate for promoting the firms' growth. For example, the government should reduce the regulations or unnecessary processes to decrease the costs and time that the firms needed for applying for the permission to build factories, warehouses, or offices. Next, Thai government should introduce the policy that helps the firms or investors in the transfer of properties, assets, and funds to stimulate the transactions and interactions between them. Moreover, the government could also reduce the transfer fee for the transfers of property and land. In addition, improving the accuracy and coverage of the information regarding the ownership of land or factory would encourage interaction of firms and investors.

Moreover, Thai government should propose the policies that help new investors create and start new businesses such as decreasing the costs and minimum funds required for setting up new firms. Reducing the procedures and time needed for obtaining the access to electricity and water could be important as well. Furthermore, Thai government could also provide subsidies or reduce tax burden for new firms to ensure their progression and development. These actions would lead to the increase in the growth for the firms.

In addition, Thai government should propose the policies that reduce the costs for the firms and increase the efficiency or productivity of their operations. For example, the government should encourage and provide the support for research and development activities of the firms by supplying the funds or proposing tax credit for R&D expenses. Moreover, the government could cooperate with firms to develop better technology or produce new products, leading to the improvement in the performance and productivity of firms. The improvement in the technology or

productivity of the firms could be spread to other firms in Thailand as well. Moreover, given the current level of technology, the requirements for physical paper documents for transactions among public organizations or firms in Thailand should be transformed to e-documents for the improvement in efficiencies and speed.

Moreover, the government could improve the enforcement of laws, contracts, and protection of intellectual property rights. Therefore, firms are more willing to do transactions or trade among themselves because the firms know that they would not get cheated. Better protection of intellectual property rights would provide more incentives for the firms to do R&D activities to get better technology or new products because the firms know that their technology, knowledge, or products would not be replicated by other firms. As a result, the firms could attract more customers for years without the fear of intervention by other firms. With more customers, the firms would have more revenues, profit, and internal fund.

In addition, Thai government should mitigate the conflict of interest within the firms and prevent the directors or managers from running the firms for their own benefits. This could be done by introducing the policies that raises the involvement of shareholders in making the decision for firms and increase the liability of managers in case of the destruction of the firms. Moreover, the government could provide more protection to small investors or shareholders of firms by facilitating the process of suing or charging the directors or managers of firms.

Furthermore, our result suggests that the cost of funds of Thai firms is one of the determinants of the size of cross-border M&A deals of Thai firms. As a result, Thai government should look at the financial sector and propose the policies that facilitate the transactions between borrowers and lenders. For example, the government could implement the policies that reduce the procedures and time for reaching the agreements between borrowers and lenders. In addition, the government could also implement the policies that provide more protection to the lenders by decreasing the time and costs in enforcing or recovering the money for lenders in cases of defaults by the borrowers. As a result, the lenders know they would get back their money easier and thus, are more willing to provide the loans to borrowers and possibly at cheaper rates as well. In addition, the government could offer cheaper interest rates or extended the periods for repayment

of the loans for Thai firms that do cross-border M&As.

Regarding the acquiring firms, we recommend the firms to create financial policies in accumulating and managing the funds. Good and well-planned financial policies could be important for the firms' development and growth. First of all, financial policies could help control and mitigate the conflict of interest between each department of the firms. For instance, when the production department wants to expand the production and build more factories, the firms would then need to generate or find the funds for the investment plans such as borrowing, issuing bonds, or selling shares. On the other hand, the finance department might be against the plan of additional investment especially when they think the investments would not provide enough benefits or the costs of funds are too high. Financial policies would help the firms choose between the suggestion of the production department or the finance department.

In addition, it is possible that the managers or executives have too much freedom to behave according to their opinion especially when the firms do not have financial policies as the guideline. They might do some actions that do not benefit or too risky for the firms. For example, when they choose to implement too many investments projects, it is possible that some of the projects are ineffective investments. Furthermore, the managers or executives could finance these investments projects with more borrowing. These actions would then negatively affect the capital structure and debt management of the firms; hence, the default risk of the firms is higher.

Furthermore, the investors have more confidence in the firms with good management of assets, efficient allocation of debts, and cash flow management. With more confidence from the investors, the firms would have more valuation and can access the funds at cheaper rate. In addition, the firms with good financial discipline would have high probability of surviving under difficult situations or shocks such as financial crisis or political turmoil. With these shocks, customers have less confidence and thus are willing to spend less money. The decrease in consumer spending would lead to the reduction in the revenues, cash flow, and profit of the firms. However, the firms still have to pay the borrowed funds or other obligations back to their creditors. If the firms could not make these payments, they face liquidity or insolvency problem. The firms would be forced to sell their assets to generate enough cash for the payment to avoid

going bankruptcy. In addition, the firms sometimes have to sell the assets at significantly lower prices than the actual worth or value of the assets. The loss of these assets could then hinder the ability of the firms to grow.

Moreover, the liquidity issues could lead to the decrease in the confidence from investors and the credibility of the firms in the long run. Moreover, negotiation, signing the contracts, and doing transactions with banks or other firms could be easier for the firms with high credibility. Furthermore, the increase in the transparency and clear steps on how to spend the funds or handle the obligations would benefit the firms. As a result, with good financial policies as guideline, the firms could have more capabilities in doing cross-border M&As. With more cross-border M&As, the firms have more chance to grow and be more competitiveness.

In summary, Thai government should encourage cross-border M&As of Thai firms by introducing the policies to stimulate the growth of the firms and provide support for new firms. For example, the government could propose the polices that keep the Thai economy in good conditions, increase the liability of director or managers, reduce tax burden for new firms, and raise the enforcement of law, contracts, and property rights. Furthermore, Thai government could also promote R&D activities of Thai firms. Regarding financial sector, the government should implement the polices that provide more protection to lenders and stimulate the interaction between borrowers and lenders.

Chapter 7: Conclusion

Over the past decade, Thai firms have taken hundreds of cross-border merger and acquisition deals. We are interested in the factors that affect the decision of Thai firms in doing cross-border M&As. The first model is to examine how firm-level variables affect the probability of firms in having cross-border M&A deals. Our results reveal that the firms' ownership advantages, namely, size, internal fund, and profitability, lead to the increase in the probability of going abroad for cross-border M&As. The explanation is that the increase in size, internal fund, and profitability of firms brings the benefits to the firms such as better access to the funds, more credibility, and economies of scale. As a result, the firms have more probability of doing cross-border M&As.

In the second model, we examine how firm-level variables and country-level variables affect the size of cross-border M&A deals of Thai firms. The results indicate that the increase in the size and profitability of the firm leads to larger cross-border M&A deals of Thai firms, whereas the increase in the leverage of the firm leads to smaller cross-border M&A deals. Large firms have more experiences in completing and running large-scale investments, manufactures, or operations. In addition, the increase in profitability of firms means the firms have more profit, which could be transformed into the funds for larger cross-border M&As. On the other hand, higher leverage raises the default risks of firms; therefore, the firms have to borrow the funds at a higher rate. As a result, it is harder for these firms to accumulate the funds for large cross-border M&As.

Turning to the country-level variables, the increase in size of the economy of host countries and Thailand leads to larger cross-border M&A deals of Thai firms. The finding is consistent with the gravity model. On the other hand, the increase in the distance between host countries and Thailand reduces the size of cross-border M&A deals of Thai firms. The result contradicts the gravity model. However, it could be explained that the increase in the distance between two countries means that export is less competitive because of the rise in transportation cost. As a result, doing cross-border M&As to have the production and operation abroad could be more desirable for the firms. In addition, the further geographical distance also comes with the

increase in the differences in culture and uncertainty between two countries. As a result, the firms prefer cross-border M&As over greenfield investments when they invest in the countries with large cultural difference. Moreover, the rise in the average wage in host countries raises the cost of production and labor in the countries; therefore, the countries could be less attractive for Thai firms. As a result, Thai firms would like to spend less money on those countries. In addition, the rise in interest rate of Thailand decreases the size of cross-border M&A deals of Thai firms because it raises the cost of funds for Thai firms. Therefore, it is more costly for Thai firms to accumulate the funds for large cross-border M&As.

Regarding the policies to encourage cross-border M&A deals of Thai firms. Thai government should propose the policies that create good environment that supports the growth of Thai firms and help the investors in creating new firms. Furthermore, the government should implement the policies that decrease the steps, costs, and time needed in expanding the businesses or making transactions between the firms and investors.

Moreover, Thai government could look at the financial sector. The government should propose the policies that facilitate the process of accumulating the funds for Thai firms and help borrowers and lenders in reaching agreements. The government could also subsidize the firms that do cross-border M&As, provide them lower borrowing rate, and extend the time of repayments of the loans.

The acquiring firms should set up the financial policies as the guidance for their growth and benefits. The financial policies could help the firms alleviate the conflict of interest across different departments, prevent the managers or executives from having too much discretion, lead to better management of the firms in the capital structure, reduce the chance of bankruptcy of the firms, and increase the credibility of firms and confidence from investors.

The limitation of this paper is that we only evaluate the firms from SET100 Index and the firms from SET100 Index are usually large firms with high market valuation, reputation, and liquidity. Therefore, it is possible that these firms perform differently than other types of firms. For example, small and medium enterprises (SMEs) or startups with less funds would need more support from the government than large and established firms from SET100 Index. As a result,

we suggest that future studies increase the number of firms or include the startups or small and medium enterprises (SMEs) in the studies. Furthermore, future studies could also extend the length of the study period or use several different periods to get more generalized conclusion because the firms from different time periods might perform differently.

REFERENCES

Agbloyor, E. K., Abor, J., Adjasi, C. K., & Yawson, A. (2012). Domestic banking sector development and cross border mergers and acquisitions in Africa. *Review of Development Finance, 2*(1), 32-42.

Amal, M., Raboch, H., & Tomio, B. T. (2009). Strategies and Determinants of Foreign Direct Investment (FDI) from Developing Countries: Case Study of Latin America. *Latin American Business Review, 10*(2-3), 73-94. doi:https://doi.org/10.1080/10978520903212532

Amal, M., & Tomio, B. T. (2012). Determinants of Brazilian Outward Foreign Direct Investment (OFDI): A Host Country Perspective. *XXXVI Encontro da ANPAD*.

Anwar, A., & Mughal, M. (2015). Determinants of Russian Firms' Merger and Acquisition Activities. *Economics Bulletin, 35*, 2382-2394.

Blonigen, B. A., & Taylor, C. T. (2000). R&D intensity and acquisitions in high‐technology industries: evidence from the US electronic and electrical equipment industries. *The Journal of Industrial Economics, 48*(1), 47-70.

Boateng, A., Hua, X., Uddin, M., & Du, M. (2014). Home country macroeconomic factors on outward cross-border mergers and acquisitions: Evidence from the UK. *Research in International Business and Finance, 30*, 202-216. doi:https://doi.org/10.1016/j.ribaf.2013.08.001

Buch, C. M., Kleinert, J., & Toubal, F. (2003). Determinants of German FDI: New evidence from micro-data. *Deutsche Bundesbank, Economic Research Centre Discussion Paper, 09/03*.

Cai, H., Boateng, A., & Guney, Y. (2019). Host country institutions and firm-level R&D influences: An analysis of European Union FDI in China. *Research in International Business and Finance, 47*, 311-326. doi:https://doi.org/10.1016/j.ribaf.2018.08.006

Camisón-Haba, S., & Clemente-Almendros, J. A. (2020). A global model for the estimation of transport costs. *Economic Research-Ekonomska Istraživanja, 33*(1), 2075-2100. doi:https://doi.org/10.1080/1331677X.2019.1584044

Carter, S., MacDonald, N. J., & Cheng, D. C. B. (1997). *Basic finance for marketers*. Rome: Food and Agriculture Organization of the United Nation.

Deng, P., & Yang, M. (2015). Cross-border mergers and acquisitions by emerging market firms: A comparative investigation. *International Business Review, 24*(1), 157-172. doi:https://doi.org/10.1016/j.ibusrev.2014.07.005

Dessyllas, P., & Hughes, A. (2005). R&D and Patenting Activity and the Propensity to Acquire in High Technology Industries. *Working Paper No. 298*.

Di Giovanni, J. (2005). What drives capital flows? The case of cross-border M&A activity and financial deepening. *Journal of international Economics, 65*(1), 127-149.

Dino, J. (2005). NASA Takes Google on a Journey into Space. Retrieved from https://www.nasa.gov/vision/earth/technologies/google.html

DistanceFromTo. Distance Between Cities on Map. Retrieved from https://www.distancefromto.net/

Dunning, J. H. (1979). Explaining changing patterns of international production: in defence of the eclectic theory. *Oxford bulletin of economics and statistics, 41*(4), 269-295.

Dunning, J. H. (1993). *Multinational Enterprises and the Global Economy*. Harlow: Addison-Wesley Publication Company.

Ehlen, J. (2011). BMW Group and PSA Peugeot Citroën Create Joint Venture to Enhance Cooperation on Hybrid Technologies. Retrieved from https://www.press.bmwgroup.com/global/article/detail/T0096234EN/bmw-group-and-psa-peugeot-citro%C3%ABn-create-joint-venture-to-enhance-cooperation-on-hybrid-technologies?language=en

Erel, I., Liao, R. C., & Weisbach, M. S. (2012). Determinants of Cross-Border Mergers and Acquisitions. *The Journal of Finance, 67*(3), 1045-1082. doi:https://doi.org/10.1111/j.1540-6261.2012.01741.x

Forssbæck, J., & Oxelheim, L. (2008). Finance-specific factors as drivers of cross-border investment—An empirical investigation. *International Business Review, 17*(6), 630-641. doi:https://doi.org/10.1016/j.ibusrev.2008.09.001

Gugler, K., Mueller, D. C., & Weichselbaumer, M. (2012). The determinants of merger waves: An international perspective. *International Journal of Industrial Organization, 30*(1), 1-15. doi:https://doi.org/10.1016/j.ijindorg.2011.04.006

Hur, J., Parinduri, R. A., & Riyanto, Y. E. (2011). Cross-border M&A inflows and quality of country governance: Developing versus developed countries. *Pacific Economic Review,*

16(5), 638-655.

Hussan, M. J. (2016). Impact of Leverage on Risk of the Companies. *Journal of Civil & Legal Sciences, 5*(4). doi:https://doi.org/10.101610.4172/2169-0170.1000200

Hymer, S. H. (1976). *The International Operations of National Firms: A Study of Direct Foreign Investment*. Cambridge, MA: The MIT Press.

Hyun, H. J., & Kim, H. H. (2010). The determinants of cross‒border M&As: The role of institutions and financial development in the gravity model. *World Economy, 33*(2), 292-310.

Ibrahim, Y., & Raji, J. (2018). Cross-border merger and acquisition activities in Asia: the role of macroeconomic factors. *Studies in Economics and Finance, 35*(2), 307-329. doi:https://doi.org/10.1108/SEF-06-2017-0146

International Monetary Fund. International Financial Statistics (IFS). Retrieved from https://data.imf.org/?sk=4c514d48-b6ba-49ed-8ab9-52b0c1a0179b&sId=1409151240976

Lim, M.-H., & Lee, J.-H. (2017). National economic disparity and cross-border acquisition resolution. *International Business Review, 26*(2), 354-364. doi:https://doi.org/10.1016/j.ibusrev.2016.09.004

Martínez-Zarzoso, I., & Nowak-Lehmann, F. D. (2007). Is distance a good proxy for transport costs? The case of competing transport modes. *The Journal of International Trade & Economic Development, 16*(3), 411-434. doi:https://doi.org/10.1080/09638190701527186

Mishra, B. R., & Jena, P. K. (2019). Bilateral FDI flows in four major Asian economies: a gravity model analysis. *Journal of Economic Studies*.

Mueller, D. C. (1969). A Theory of Conglomerate Mergers. *The Quarterly Journal of Economics, 83*(4), 643-659. Retrieved from https://doi.org/10.2307/1885454

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics, 13*(2), 187-221. doi:https://doi.org/10.1016/0304-405X(84)90023-0

Nisbet, P., Thomas, W., & Barrett, S. (2003). UK direct investment in the United States: a mode of entry analysis. *International Journal of the Economics of Business, 10*(3), 245-259. doi:https://doi.org/10.1080/1357151032000126229

OECD. (2002). *Foreign Direct Investment for Development*. Paris: OECD Publishing.

OECD. (2018). *Multi-dimensional Review of Thailand: Volume 1. Initial Assessment*. Paris: OECD Publishing.

OECD. (2021). *OECD Investment Policy Reviews: Thailand*. Paris: OECD Publishing.

Pablo, E. (2009). Determinants of cross-border M&As in Latin America. *Journal of Business Research, 62*(9), 861-867. doi:https://doi.org/10.1016/j.jbusres.2008.10.004

Popli, M., & Sinha, A. K. (2014). Determinants of early movers in cross-border merger and acquisition wave in an emerging market: A study of Indian firms. *Asia Pacific Journal of Management, 31*(4), 1075-1099. doi:https://doi.org/10.1007/s10490-014-9378-8

Ross, A. G. (2015). An empirical analysis of Chinese outward foreign direct investment in Africa. *Journal of Chinese Economic and Foreign Trade Studies, 8*(1), 4-19. doi:https://doi.org/10.1108/JCEFTS-12-2014-0025

Rossi, S., & Volpin, P. F. (2004). Cross-country determinants of mergers and acquisitions. *Journal of financial economics, 74*(2), 277-304.

Schwartz, S. (1983). Micro Determinants of Conglomerate Mergers. In *Industrial Organization, Antitrust, and Public Policy* (pp. 207-241): Springer, Dordrecht.

Scott‑Green, S., & Clegg, J. (1999). The determinants of new FDI capital flows into the EC: a statistical comparison of the USA and Japan. *JCMS: Journal of Common Market Studies, 37*(4), 597-616.

SET. SETSMART (SET Market Analysis and Reporting Tool). Retrieved from https://www.set.or.th/th/products/info/setsmart_p1.html

The Global Economy. Stock market capitalization, in dollars - Country rankings. Retrieved from https://www.theglobaleconomy.com/rankings/stock_market_capitalization_dollars/l/

THE WORLD BANK. Indicators. Retrieved from https://data.worldbank.org/indicator

Tinbergen, J. (1962). Shaping the world economy; suggestions for an international economic policy.

UNCTAD. (2007). *World Investment Report* Switzerland: UNITED NATIONS PUBLICATION.

Vyas, V., Narayanan, K. M. A., & Ramanathan, A. (2012). Determinants of Mergers and Acquisitions in Indian Pharmaceutical Industry. *Eurasian Journal of Business and Economics, 5*(9), 79-102.

Appendix

In this part, we provide full detail for the estimations of the first and the second models. We start with the first model.

1st model (full detail): Panel probit with random effect

	coefficient	std. error	z	p-value	
const	-12.8358	3.26490	-3.931	8.44e-05	***
Size	0.533708	0.144789	3.686	0.0002	***
Internalfund	0.0477233	0.0152752	3.124	0.0018	***
Profitability	0.0499949	0.0208352	2.400	0.0164	**
Leverage	0.0457484	0.176235	0.2596	0.7952	
Marketvaluation	0.00106922	0.00879791	0.1215	0.9033	
Shares	0.00795028	0.00686088	1.159	0.2465	
AgroFood	-0.0158980	0.939543	-0.01692	0.9865	
PropertyConstr~	-1.14723	0.919483	-1.248	0.2121	
Resources	-0.600966	0.835846	-0.7190	0.4721	
Services	-2.31370	1.04264	-2.219	0.0265	**
Technology	-2.68122	1.04188	-2.573	0.0101	**
lnsigma2	1.02431	0.412297	2.484	0.0130	**

Mean dependent var	0.149362	S.D. dependent var	0.356770
Log-likelihood	-149.8752	Akaike criterion	325.7503
Schwarz criterion	381.7556	Hannan-Quinn	347.6380

sigma_u = 1.66888
rho = 0.73581

Number of cases 'correctly predicted' = 472 (86.0%)

```
          Predicted
            0     1
Actual 0   457   10
       1    67   15
```

Excluding the constant, p-value was highest for variable 8 (AgroFood)

LR test for rho = 0
  Test statistic: Chi-square(1) = 60.6307
  with p-value = 6.8852e-015

The following two estimations are from the second model. We start with the WLS estimation, followed by the OLS with robust standard error estimation.

2nd model (full detail): WLS

	coefficient	std. error	t-ratio	p-value	
const	-3.02623	2.65100	-1.142	0.2552	
Firmsize	0.431436	0.121162	3.561	0.0005	***
Internalfund	-0.0158087	0.0204140	-0.7744	0.4398	
Profitability	0.0408957	0.0179133	2.283	0.0237	**
Leverage	-0.468683	0.277831	-1.687	0.0934	*
Marketvaluation	-0.0136883	0.0104016	-1.316	0.1899	
Shares	-0.00898408	0.0107088	-0.8389	0.4027	
AgroFood	-0.908960	0.600250	-1.514	0.1318	
PropertyConstruc~	-1.00512	0.602025	-1.670	0.0968	*
Resources	-0.0234221	0.510208	-0.04591	0.9634	
Services	0.222204	0.598112	0.3715	0.7107	
Technology	-3.61246	0.821518	-4.397	1.92e-05	***
Sizeofeconomy	0.270178	0.149996	1.801	0.0734	*
Distance	0.483433	0.240650	2.009	0.0461	**
Financialmarket	0.0184119	0.190905	0.09645	0.9233	
Population	-0.0271027	0.0304360	-0.8905	0.3745	
Naturalresources	0.00494590	0.0327345	0.1511	0.8801	
Wage	-0.0620690	0.0317243	-1.957	0.0520	*
Interestrate	-0.453772	0.254498	-1.783	0.0763	*

Statistics based on the weighted data:

Sum squared resid	546.7030	S.E. of regression	1.782837
R-squared	0.624149	Adjusted R-squared	0.584816
F(18, 172)	15.86826	P-value(F)	7.67e-28
Log-likelihood	-371.4481	Akaike criterion	780.8963
Schwarz criterion	842.6895	Hannan-Quinn	805.9254

Statistics based on the original data:

Mean dependent var	6.768677	S.D. dependent var	2.113737
Sum squared resid	657.4263	S.E. of regression	1.955057

Excluding the constant, p-value was highest for variable 10 (Resources)

2nd model (full detail): OLS with robust S.E.

	coefficient	std. error	t-ratio	p-value	
const	-3.05666	3.27770	-0.9326	0.3524	
Firmsize	0.418430	0.146237	2.861	0.0047	***
Internalfund	-0.0133235	0.0366734	-0.3633	0.7168	
Profitability	0.0403856	0.0261575	1.544	0.1244	
Leverage	-0.431752	0.352850	-1.224	0.2228	
Marketvaluation	-0.0129906	0.0145737	-0.8914	0.3740	
Shares	0.00513953	0.0144557	0.3555	0.7226	
AgroFood	-0.297096	0.804987	-0.3691	0.7125	
PropertyConstruc~	-0.391476	0.743357	-0.5266	0.5991	
Resources	0.172182	0.706857	0.2436	0.8078	
Services	-0.427990	1.22616	-0.3490	0.7275	
Technology	-3.65527	1.07795	-3.391	0.0009	***
Sizeofeconomy	0.172815	0.159317	1.085	0.2796	
Distance	0.495891	0.309909	1.600	0.1114	
Financialmarket	0.181842	0.217201	0.8372	0.4036	
Population	-0.0138846	0.0344581	-0.4029	0.6875	
Naturalresources	-0.00545664	0.0412408	-0.1323	0.8949	
Wage	-0.0580468	0.0377936	-1.536	0.1264	
Interestrate	-0.318692	0.329907	-0.9660	0.3354	

Mean dependent var	6.768677	S.D. dependent var	2.113737
Sum squared resid	641.3669	S.E. of regression	1.931030
R-squared	0.244471	Adjusted R-squared	0.165404
F(18, 172)	28.95459	P-value(F)	1.03e-42
Log-likelihood	-386.6991	Akaike criterion	811.3982
Schwarz criterion	873.1914	Hannan-Quinn	836.4273

Excluding the constant, p-value was highest for variable 17 (Naturalresources)

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