EFFECT OF INTERNATIONALIZATION ON IPO UNDERPRICING IN THAILAND: THE MODERATING ROLES OF INSTITUTIONAL INVESTORS AND FOUNDER STATUS

THARITSAYA KONGKAEW

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF
PHILOSOPHY PROGRAM IN BUSINESS ADMINISTRATION
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Program	Business Administration
Dissertation Advisor	Assistant Professor Supa Tongkong, Ph.D.
Dissertation Co-advisor	Associate Professor Sungworn Ngudgratoke, Ph.D.
Academic Year	2021

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January 10, 2022

หัวข้อดุษฎีนิพนธ์	ผลของความเป็นนานาชาติต่อการเสนอขายหลักทรัพย์ครั้งแรกต่อประชาชนต่ำกว่ามูลค่าทางทฤษฎีในประเทศไทย: อิทธิพลกำกับของนักลงทุนสถาบันและสถานะผู้ก่อตั้ง
ชื่อ-นามสกุล	นางธฤษญา กองแก้ว
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บทคัดย่อ

งานวิจัยมีวัตถุประสงค์เพื่อ 1) ศึกษาผลของความเป็นนานาชาติต่อการเสนอขายหลักทรัพย์ครั้งแรกต่อประชาชนต่ำกว่ามูลค่าทางทฤษฎี 2) วิเคราะห์อิทธิพลกำกับของนักลงทุนสถาบันที่ส่งผลต่อความเป็นนานาชาติที่มีผลต่อการเสนอขายหลักทรัพย์ครั้งแรกต่อประชาชนต่ำกว่ามูลค่าทางทฤษฎี และ 3) วิเคราะห์อิทธิพลกำกับของนักลงทุนสถาบันและสถานะผู้ก่อตั้งที่ส่งผลต่อความเป็นนานาชาติที่มีผลต่อการเสนอขายหลักทรัพย์ครั้งแรกต่อประชาชนต่ำกว่ามูลค่าทางทฤษฎีของบริษัทจดทะเบียนในตลาดหลักทรัพย์ในประเทศไทย

กลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้ ได้แก่ บริษัทที่จดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทยและบริษัทที่จดทะเบียนในตลาดหลักทรัพย์เอ็มเอไอ ตั้งแต่ปี 2556 ถึงปี 2563 ที่มีความเป็นนานาชาติและมีการเสนอขายหลักทรัพย์ครั้งแรกต่อประชาชนต่ำกว่ามูลค่าทางทฤษฎี ซึ่งมีจำนวน 80 บริษัทจากจำนวนบริษัทจดทะเบียนทั้งหมด 220 บริษัท เก็บรวบรวมข้อมูลจากหนังสือชี้ชวน เวบไซต์ของตลาดหลักทรัพย์ และฐานข้อมูล BISNEWS สถิติที่ใช้ในการวิเคราะห์ข้อมูล ประกอบด้วยการวิเคราะห์การถดถอยพหุคูณเพื่อทดสอบผลของความเป็นนานาชาติต่อการเสนอขายหลักทรัพย์ครั้งแรกต่อประชาชนต่ำกว่ามูลค่าทางทฤษฎี และ การวิเคราะห์ตามการถดถอยของ Hayes เพื่อทดสอบอิทธิพลกำกับของนักลงทุนสถาบันและสถานะผู้ก่อตั้ง

ผลการศึกษา พบว่า ความเป็นนานาชาติไม่มีผลต่อการเสนอขายหลักทรัพย์ครั้งแรกต่อประชาชนต่ำกว่ามูลค่าทางทฤษฎีและนักลงทุนสถาบันไม่มีอิทธิพลกำกับความสัมพันธ์ระหว่างความเป็นนานาชาติกับการเสนอขายหลักทรัพย์ครั้งแรกต่อประชาชนต่ำกว่ามูลค่าทางทฤษฎี ณ ระดับนัยสำคัญทางสถิติ .05 และพบว่านักลงทุนสถาบันและสถานะผู้ก่อตั้งมีอิทธิพลกำกับความเป็นนานาชาติที่มีผลต่อการเสนอขายหลักทรัพย์ครั้งแรกต่อประชาชนต่ำกว่ามูลค่าทางทฤษฎี กรณีบริษัทมีสัดส่วนนักลงทุนสถาบันในระดับต่ำหรือระดับปานกลางและมีผู้ก่อตั้งกิจการไม่ได้เป็นประธานกรรมการบริหาร ความเป็นนานาชาติมี

ผลทางลบต่อการเสนอขายหลักทรัพย์ครั้งแรกต่อประชาชนต่ำกว่ามูลค่าทางทฤษฎี แต่ถ้าบริษัทมีสัดส่วนนักลงทุนสถาบันในระดับต่ำหรือระดับปานกลางและมีผู้ก่อตั้งกิจการเป็นประธานกรรมการบริหาร ความเป็นนานาชาติมีผลทางบวกต่อการเสนอขายหลักทรัพย์ครั้งแรกต่อประชาชนต่ำกว่ามูลค่าทางทฤษฎี

คำสำคัญ: การเสนอขายหลักทรัพย์ครั้งแรกต่อประชาชนต่ำกว่ามูลค่าทางทฤษฎี ความเป็นนานาชาติ นักลงทุนสถาบัน สถานะผู้ก่อตั้ง อิทธิพลกำกับ

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ABSTRACT

The objectives of this research were, in the context of Thai listed companies, 1) to study the effect of internationality on initial public offerings (IPO) underpricing, 2) to examine the moderating effect of institutional investors on the effect of internationalization on IPO underpricing, and 3) to investigate the moderating effects of institutional investors and founder status on the effect of internationalization on IPO underpricing.

The samples used in this research included companies listed on the Stock Exchange of Thailand (SET) and companies listed on the Market for Alternative Investment (mai) from 2013 to 2020 with international and IPO underpricing, which amount to 80 companies from 220 listed companies. Data were collected from prospectus issued by each company, the SET website, and BISNEWS database. The statistical methods used to analyze the data were multiple linear regression to test the effect of internationalization on IPO underpricing along with Hayes's regression-based analysis to test the moderating effects of institutional investors and founder status on the effect of internationalization on IPO underpricing.

The study results revealed that internationalization had no effect on IPO underpricing and the institutional investors had no moderating effect on the effect of internationalization on IPO underpricing at a statistically significant level of .05. Moreover, it was found that institutional investors and founder status moderated the effect of internationalization on IPO underpricing. In the case of a company with a low or medium proportion of institutional investors and a non-founder CEO, internationalization

had a negative effect on IPO underpricing whereas in a company with a low or medium proportion of institutional investors and a founder CEO, internationalization had a positive effect on IPO underpricing.

Keywords: IPO underpricing, internationalization, institutional investors, founder status, moderating effect

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Tharitsaya Kongkaew

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Abbreviation	Meaning
DOI	Degree of internationalization
IPO	Initial public offering
CEO	Chief executive officer
FCEO	Founder CEO

CHAPTER 1
INTRODUCTION

1.1 Background and Statement of the Problem

An initial public offering (IPO) is the first effort to increase the capital of private firms moving to public (R. Carter & Manaster, 1990; Ritter, 1998). Going public is one of the most considerable events in the life cycle of a corporate firm. An IPO might appear to be a specific stage in the growth of a company (Bharat A Jain & Kini, 1994). It is not only benefitting to a firm are a capital increase but also cover the opportunity for the company issuer to make easier posterior public offerings of debt, equity and other corporate securities (Chemmanur, He, & Nandy, 2009). Because the firms go public indicate the strong quality their firms to market that impact to increase capital easily in the next time. Moreover, the firms can raise the liquidity of insiders' portfolios and the firms can access to capital financing. (W. Kim & Weisbach, 2008). However, firms transitioning from a private to a public company face challenges such as a change in ownership structure and a more rigorous judgement mechanism by capital market stakeholders and competition regulators (Bharat A Jain & Kini, 2000). As a result, an IPO is an important source of funding for a company.

This research identifies IPOs for equity securities. The issuing firm sells common shares to the public for the first time on the primary market, referred to as IPO shares, and then lists the IPOs on the secondary market. IPO listing in the secondary market enhance IPO success, because investors who buy IPOs in the primary market can exchange them in the secondary market, newly issued IPO shares will gain liquidity. As a consequence, the attracted investors to invest in IPOs, allowing the IPO to successfully raise funds.

For over 40 years, one of the most important issues when companies go public is the post-IPO performance (Certo, Holcomb, & Holmes Jr, 2009).In clouding, the first-day closing price in the secondary market is increased from offer price in the primary market, It is called IPO underpricing (Beatty & Ritter, 1986; Ibbotson, 1975; Loughran & Ritter, 2002b; Miller & Reilly, 1987; Rock, 1986). Academics use the terms "first-day returns" and "underpricing" interchangeably (Loughran & Ritter, 2004; Ozdemir &

Upneja, 2016; Ritter & Welch, 2002). The point of short-term IPO performance is the underpricing issue (Certo et al., 2009). According to the literature review, IPO underpricing is a phenomenon that occurs in the stock market (Ritter, 1998), exists in many stock markets around the world (Boulton, Smart, & Zutter, 2017; Engelen & van Essen, 2010). As a result of underpricing, an investor receives capital gains as initial returns on their IPO shares, whereas firms as new will have a higher cost of going public as a result will receive less funding than it should be (Arthurs, Hoskisson, Busenitz, & Johnson, 2008). However, IPO underpricing is necessary for new stock in order to reward the investors risk compensation their investment (Beatty & Ritter, 1986). It's intriguing to consider in this case, “Can a newly listed company issue an IPO at a lower discount?”. Because the high underpricing is a major problem for some small and young businesses. However, this phenomenon has occurred all over the world. (Duong, Goyal, Kallinterakis, & Veeraraghavan, 2021). Causing research on IPO underpricing is becoming increasingly popular.

Underpricing can also be expressed as the (dollar) amount of "money left on the table." This is calculated by multiplying the number of shares sold by the difference between the offer price and the first-day closing market price. Which money was left on the table as an explanation that company issuers consider the increase in wealth? It explains that the amount of wealth lost by leaving money on the table is less than the remaining stock value of the amount of wealth gain from a higher stock price. The term "money left on the table" refers to the indirect cost of issuing firms (Loughran & Ritter, 2002a; Ritter, 1987). As a result, avoiding the issue of "money left on the table" allows the private firm to increase its capital when going public. Hence, underpricing reduces the firm's capital available for expansion. (Platt, 1995).

Several academic studies have been conducted to investigate the phenomenon of IPO underpricing. According to academic literature, one of the primary reasons for IPO underpricing is the degree of information asymmetry (R. Carter & Manaster, 1990; Loughran & Ritter, 2002b; Rock, 1986). Asymmetric information concepts assume that two parties know inequality information by one party access more information than the other. Baron and Holmström (1980) and Baron (1982) present that underwriters take

advantage of superior market knowledge to assess pricing to offer IPO underpricing. Due to underwriter is better informed about stock market condition than issuing firms, lead to an agency problem. Additional, Welch (1989) document that issuer firm is better informed about its intrinsic firm's value than investor. With high quality firm signaling is used to communicate investor by underpricing. Furthermore, Rock (1986) categorized investors into two types: informed and uninformed. He defined informed investors as who use their knowledge for an opportunity to profit from investment and attempt to invest in IPO underpriced. While defined uninformed investors as who cannot analyze their investment and they will be allocated only a small IPO share. Issuing firm need to reward the uninformed investor for taking the risk of the IPO investment and that uninformed investor must be remunerated for IPO issuing, according to adverse selection theory (Brau & Fawcett, 2006).

Thus, following literature review in IPO underpricing phenomenon, IPO underpricing is examined by agency theory (Baron, 1982; Loughran & Ritter, 2002a, 2002b) , signaling theory (Certo, Daily, & Dalton, 2001; Welch, 1989) and adverse selection theory (Ritter, 1987; Rock, 1986), which are based on asymmetric information. However, it was discovered that the degree of information asymmetry varies depending on the nature of the capital market. As a result, it is proposed that the level of information asymmetry occurs more frequently in emerging market countries than in developed market countries (Parkatt, 2016; Vithessonthi, 2014). For instance, an average underpricing of IPO in China 123.02% from 1997-2009 (Liu, Uchida, & Gao, 2014), whereas in the U.S. document an average underpricing of 18.1% from 1986-2014 (Nielsson & Wójcik, 2016).

When, Lucas and McDonald (1990) and Choe, Masulis, and Nanda (1993) show that if the information asymmetry between the firm and its investors can be reduced by improved market conditions, the cost of issuing a share will be reduced. Information demonstrating the company's advantage may help to reduce underpricing. By using publicity or information about the company's potential, investors will understand the company's past performance and be more confident in investing in this company in the expectation of long-term returns rather than initial returns (underpricing). The cost of a road show or advertising by the issuing firm may be less expensive than IPO

underpricing. If at all possible, newly listed companies will set offer prices that are not too low (low underpricing). Thus, for IPO issuing, transparency and accuracy of information communicated to the public are important considerations. (Cai & Zhu, 2015; Lewellyn, 2014).

In this study, provided to interface between finance and international business. Because the issuance of an IPO is influenced by information that demonstrates the specifics of the company. According to the internationalization perspective, company internationalization aims to enter the international market in accordance with the development of the product life cycle. In terms of the product life cycle, the product matures after the growth stage. The product is initially manufactured in its home country before expanding into a new market in another country (Robert Vernon, 1966; Vernon, 1971). The advantages of internationalization include expanding their business activities into foreign markets, obtaining low-cost resources, learning about the market and competition (Oviatt & McDougall, 1994) and diversifying firm value (Saudagaran, 2002). International firms' exporting capabilities differ from domestic firms' exporting capabilities, and exporting influences market development and productive growth (Wu, 2014). Small and young businesses can cultivate early internationalization in their life cycle to seek opportunities in international markets(Oviatt & McDougall, 1994; Zahra, 2005). This allows them to quickly enter international markets and create wealth for their founder and owner. Internationalization can increase the value of the firm (Farok J Contractor, Kundu, & Hsu, 2003; Stanton & Stanton, 2011; Zahra, Ireland, & Hitt, 2000). As a result, increased internationalization is accompanied by golden opportunities and innovative solutions not available in solely domestic firms (Zahra et al., 2000).

Previous research on the internationalization-performance relationship in finance and management has encompassed over two decades (e.g., Doukas and Travlos 1988; Pantzalis 2001; Denis et al, 2002, Kim, Hoskisson and Wan, 2004; Lu and Beamish 2004; Hitt et al, 2006). The concept of business internationalization may vary depending on the context of the research. Such as, a firm’s international business involvement can be limited to certain forms of exporting activities alone

(Cavusgil, 1984; Jones, 1999). The format of international activities has to provide services and products without requiring investment in another country. This is one that demonstrates the need for direct investment and commercial presence in foreign markets to supply goods and services on a global magnitude (Bhagwati, 1984).

However, there are numerous issues concerning the relationship between the degree of internationalization and firm performance. There is not conclusive definition of the concept of internationalization it is implicitly stated in the research focus of a firm's internationalization at IPO stage studies (Stanton & Stanton, 2011). The results, the finding is not clear-cut; to a positive relationship (A., W., & Yousuf, 2013; Zahra et al., 2000), to a negative relationship (Kotabe, Srinivasan, & Aulakh, 2002), and even to no relationship (Gerpott & Jakopin, 2005; Morck & Yeung, 1991). Furthermore, There are empirical explore more complex forms of relationship which ranging from a linear relationship (Kotabe et al., 2002), non-linear relationship including U-shaped (Capar & Kotabe, 2003) and S-shaped (Farok J Contractor et al., 2003). Most studies have tested non-linear forms of this relationship (Farok J. Contractor, Kumar, & Kundu, 2007; Thomas & Eden, 2004).

The advantages of internationalization in the context of an IPO have been proposed by Certo et al. (2009). Certo et al. (2009) survey theoretical and empirical studies published in management and entrepreneurship journals. They reported that the numerous researches interest in the study of IPO context. They suggest filling important gaps in IPO research which investigate internationalization in the IPO short term performance. And, they extend their review and guide future research examining IPO research question, how does international diversification at IPO influence short-term IPO performance? Also, they summarized the measurement of short-term IPO performance from literature reviews.However, there is a limit study to examine the effect of internationalization on short-term performance, and the majority of the work will involve locating studies of the sample from developing markets (Al-Shammari, Ross O'Brien, & Hamed AlBusaidi, 2013; LiPuma, 2012; Ozdemir & Upneja, 2016). For example, LiPuma (2012) examine 184 IPO US between 1997-2003 and present that the IPO of domestic of a new venture is higher underpricing than a company with high international intensity (proportion of foreign sale). In the contrast, the work of

Ozdemir and Upneja (2016), who examine the impact of internationalization on IPO performance by 1,822 IPO in US from 1980 to 2009. The finding show that newly listed company's internationalization help reduce money left on the table (reduce underpricing). They reported that the IPO of domestic is higher underpricing than international firm. This knowledge of internationalization on IPO performance of the newly listed company will support managers increase motivations going public and expand globally. So doing, the degree of internationalization (DOI) was used as a measure of internationalization in this study (Al-Shammari et al., 2013; Bloodgood, Sapienza, & Almeida, 1996; LiPuma, 2012; Ozdemir, 2012; Ozdemir & Upneja, 2016; Sullivan, 1994; Zahra et al., 2000). And the IPO performance is measure using underpricing (Certo et al., 2009).

Furthermore, the association between IPO performance and corporate governance is literature in management and entrepreneurship (i.e., compensation contracts, board structure, and ownership structure) (Certo et al., 2009). On other important firm characteristic for investors evaluating investment opportunities in an IPO firm is the ownership structure of the IPO firm. The board of directors and chief executive officer (CEO) an IPO firm are a powerful motivator for increasing investor confidence in investing in the firm issuer and retaining it as a long-term owner (Certo, Daily, Cannella Jr, & Dalton, 2003). There is evidence that board structure impact short-term IPO performance, which is consistent with agency problem related to reducing information asymmetry (Certo et al., 2009). While, Darmadi and Gunawan (2013) examined how board structure and ownership structure are associated with IPO underpricing. The finding provides some support for signaling theory.

Al-Shammari et al. (2013) extend interaction between DOI and IPO underpricing by ownership structure (i.e., blockholder ownership and CEO ownership) as a moderator variable which explains under agency theory and signaling theory. They found the positive relationship between ownership structure and IPO underpricing by linear relationships. This study posits that IPO ownership structure moderates the relationship between internationalization and IPO performance. In doing so, this research responds to Daily, Trevis Certo, Dalton, and Roengpitya (2003), they suggest using moderation effect analysis or interaction analysis to test relationship between DOI and

IPO underpricing and consistent with the study of McDougall and Oviatt (1996) which show the relationship between DOI and IPO underpricing may not be a direct one. Examples of the moderator variables are ownership, product diversification, innovation, and entrepreneurial orientation, certain practices in human resources and marketing (Gaur & Kumar, 2009).

In this research, provides the hidden variables that driven the affect of DOI and IPO underpricing. There are institutional investors and founder role (Certo, Covin, Daily, & Dalton, 2001; Certo, Daily, et al., 2001; Ong, Mohd-Rashid, & Taufil-Mohd, 2020). To build the conceptual framework of this study, the effect of internationalization and IPO underpricing should be explained clearly using adverse selection theory, agency theory, and signaling theory. First, these study details are examined by institutional investors as primary moderators of the relationship between DOI and underpricing. Because of the institution investor, who is represented as an informed investor who is a professional and effective monitor, institutional ownership is chosen to be a moderator. Institutional investors are knowledgeable and capable of identifying high-quality firms. (Aggarwal, Prabhala, & Puri, 2002). Institutional investors' ownership structure transmits a quality signal to minority investors. This apart from the proportion of institutional ownership, which, according to signaling theory, leads to better firm performance because institutional investors can reduce conflict of interest (Jensen & Meckling, 1976). However, that underpricing seems to be a reward for uninformed investors as a result of information asymmetry between informed and uninformed investors (Rock (1986)), according to adverse selection theory. Thus, the allocation of proportion of institutional ownership may perceive the DOI effect to underpricing(A. P. Ljungqvist & Wilhelm Jr, 2002).

Second, to examine the role of founder leadership as a secondary moderator in the interaction effect of DOI and institutional investors on IPO underpricing. The role of founder leadership is considered as the moderator because role of founder leadership who CEO or otherwise might differ in extend to IPO underpricing with consist of an agency problem. Research provides arguments that founder CEO leadership effect on post-IPO underpricing with both a positive and negative, depend on firm specific characteristics such as technological orientation (Gao & Jain, 2011). In this study, the suggestion of firm

specific characteristics through DOI of IPO firm, to examine conditional effects of the DOI at values of the role of founder.

From literature review, the empirical research on IPO underpricing is based on US data and developed countries (Canada, Germany, UK, France, Australia, Japan, etc.) which are financial markets, especially the stock exchanges, have been an important component of economic development for centuries. Emerging countries are interested in increasing the level of stock market liberalization to investors and foreign institutions by reducing government intervention in the financial sector. The policy is expected to boost economic growth by raising additional savings or increasing foreign capital inflows (Bekaert, Harvey, Lundblad, & Siegel, 2011). Thus, the motivation of investment in emerging markets has given encouragement to the adaptation of investment of models to current situations in these emerging markets (Bekaert & Harvey, 2003). However, underpricing occurs in emerging markets, and emerging market countries have a higher level of underpricing than developed countries. Because of information asymmetry, suspicion is extremely high in an emerging market environment.

When comparable with that of Malaysia, Mexico, Poland and Thailand find average returns of IPO of emerging markets are over 55 percent (Suren, 2007). This study is used Thai capital market represents an example of an emerging market for several reasons. First, the newly-listed companies in Thailand both the Stock Exchange of Thailand (SET) and mai are interesting to analyze because these is volume of IPOs increasing and the Thai capital market is relative small and thinly traded market but it impact into the global financial market (Komenkul, Sherif, & Xu, 2016). Second, the potential investors in Thailand may be expected high initial return in the newly listed company (average initial return is 15.82% (Vithessonthi, 2014)) than the IPO investment in UK (average initial return is 11.41% (Hill & Wilson, 2006) and US (average initial return is 10% (Arthurs et al., 2008). Which high initial return means the underpricing of IPO caused the cost of going public as well. Studying this research work is interesting if found marginal of underpricing cost is more than promoting cost of newly listed company. The issuing firm should the underpricing of IPO be less and support information to the public with benefit's firm. The advantage of the firm gets the investor to earn a high return in long-term which compensate low return in the first-day trading.

The low underpricing will save the newly listed company money left on opportunity costs. Third, based on information has disclosed information through the capital market in Thailand, it is found that foreign income encourages more business value. However, international activities do not result in a decrease in income from domestic activities. The Thai capital market has used efforts to disclose income data from foreign countries to help investors use that information to make investment decisions. That information support to study the effect of DOI on IPO underpricing. The final reason, to provide increasing the literature in international business and finance, especially in IPO in Thailand between 2013-2020. This new empirical research is extending the limit previous research.

The purpose of this study is contributed to the international business, management and finance literature, to extend previous research and address this gap in the not yet investigated the effect of DOI and IPO underpricing in Thailand. Furthermore, to examine the impact of a firm's internationalization on IPO underpricing through an interaction analysis of multiple additive moderators of institutional investors and founder CEO variables that its applicants' adverse selection theory, agency theory, and signaling theory.

With the objective of developing a regression model and explaining the causes of an IPO's underpricing, particularly the three-way interaction effect on IPO underpricing (i.e., internationalization, founder status, and institutional investors), this research contributes to the body of knowledge contribution by adding international business and finance literature. If findings believe that the DOI influences the IPO underpricing and moderated by institutional investors and founder CEO.Stakeholder may pay attention to the information of internationalization, institutional investors and founder CEO role of newly listed companies.

Practical contributions, the benefits of post-IPO performance in this study provide meaningful insights four parties. First issuers will gain the information to plan for successful in issue IPOs in order to increase capital for their growth. In the road-show, IPO activity is communicated to potential investors, company issuers could feel confident with their internationalization. The investor can use the evaluate knowledge the DOI concern going global and going public. Second, the investors will

receive the signal of future growth for investment in IPO's internationalized firm and get an opportunity for diversification their internal portfolio. Due to, the firm will concern the kinds of quality signals about internationalization can send to a potential investor. The uninformed investors can utilize this information to make an investment in an internationalized firm decision follow investment of a potential investor. Third, the underwriter will gain reputation because underwriters have judgment regarding whom shares are apportioned to investors. The firm that goes public is not necessary to underprice their IPO offerings in order to succeed as listed company limited. The result from lower underpricing get IPO issuers to decrease the money left on the table which the money left on the table is indirect costs of IPO activities of a public company limited. Fourth, internationalization newly listing company will benefit to country in order to develop stock market.

1.2 Purpose of the Study

The purpose of this study is extent advantages of internationalization into the valuation of IPO firms; try contributing effect of firm internationalization on IPO underpricing. In this study, to integrate relevant theories of international with theoretical explanations of motivation for going public and IPO underpricing, to develop empirically test.

This study aims to provide performance of newly listed companies in the Stock Exchange of Thailand (SET) and the Market for Alternative Investment (mai) between 2013 and 2020.

Thus, the objectives of this study are as follows:

1. To explore the IPO underpricing phenomenon of Thai listed companies,

2. To investigate the influence of the degree of internationalization (DOI) on short-term IPO performance measured by IPO underpricing,

3. To examine the moderating effect of the proportion of institutional investors on the effect of DOI on IPO underpricing, and

4. To investigate whether founder status moderates the two-way interaction effect of institutional investors and DOI on IPO underpricing.

1.3 Research Question and Hypotheses

This aim of the study to find the answer to what is the mechanism that causes an internationalization effect on IPO performance. This study attempts to address this gap by investigating the effect of internationalization on IPO performance by moderating role. The preceding discussion raised the following major research questions for this study as:

Research Question 1: Does internationalization affect the IPO underpricing of listed companies in Thailand?

Research Question 2: Do institutional investors moderate the effect of internationalization on IPO underpricing and when do they moderate?

Research Question 3: Do both institutional investors and founder status moderate the effect of internationalization on IPO underpricing and when do they moderate?

The answers to research questions contribute significantly to the existing body of knowledge: First, in order to improve management IPO success, open innovation about internationalization should be expanded. The findings contain a description of how internationalization affects IPO underpricing for newly listed companies. Second, highlight two moderators of the effect of internationalization or underpricing (i.e., institutional investors and founder role).

However, underpricing caused by asymmetry information and motivations for going public (Ritter, 1987). low underpricing reflects less information asymmetry and lowers the cost of IPO issuance (Lucas & McDonald, 1990). Many researches have advanced to try explain the IPO underpricing in different context, such as adverse selection theory (Rock, 1986), signaling theory (Brealey, Leland, & Pyle, 1977) and principal-agent theory (Baron & Holmström, 1980). In addition, the theoretical prospect of internationalization effects on IPO performance is discussed. As a consequence, the following hypotheses were proposed.

Research Hypothesis

Hypothesis 1: The degree of internationalization affects IPO underpricing.

Hypothesis 2: The proportion of institutional investors moderate the effect of DOI on IPO underpricing, such that the effect is stronger in firms with high proportion of institutional

investors than firms with low proportion of institutional investors after controlling for firm characteristics and IPO characteristics.

Hypothesis 3: Founder status moderates the two-way interaction effect of institutional investors and DOI on IPO underpricing. Specifically, the effect of DOI on IPO underpricing is more negative in firms with low proportion of institutional investors and have non-founder chief executive officer (CEO) than the firms with low proportion of institutional investors and have founder CEO.

1.4 Scope of Study

For the aim of the study, the population in capital market includes both the newly-listed companies in the Stock Exchange of Thailand (SET) and Market for Alternative Investments (mai) which companies require increasing capital with new investors in public market. It uses data for 80 specific international firms listed in the Stock Exchange of Thailand (SET) and Market for Alternative Investment (mai) from 8-year period between January 2013 – October 2020 and issuing IPOs with an underpricing were studied. The sources of information are IPO prospectuses, companies' website, SET database and Bisnews.

1.5 Limitation of Study

This study still has some limitations that will necessitate further investigation. First, the sample size in this study is rather small due to limited numbers of non-founder CEOs in internationalized IPO firms. In the future, a qualitative research with in-depth interviews should be conducted to confirm and generalize the results of this current research.

Second, this study measures a firm's internationalization by income from exports, and only certain new firms disclose such information. Thus, future research should study from more dimensions, such as direct investment, production, employment, and technological knowledge in the international environment. Third, this study focuses on internationalization affecting short-term IPO performance. Thus, future research should also concentrate on long-term IPO performance.

Finally, there is a limitation regarding the opening of other hidden factors from corporate governance such as institutional investor and reputation of the underwriter. Thus, future research should investigate whether these factors may moderate the relationship between internationalization and IPO performance.

1.6 Definitions of Terms

1.	Degree of Internationalization	The index of degree of internationalization is the dimension of company internationalization as production and sales(Sullivan, 1994) . Here, which undertake revenue from abroad from operation overseas and exports revenue from factories based in Thailand.
2.	IPO underpricing	The percent of difference between first day closing price and offer price (A. Ljungqvist, 2007). It represents an initial return of IPO as performance of IPO (Certo et al., 2009).
3.	Institutional investors	It represents the percentage of institutional ownership of firms' IPO stock
4.	Founder CEO	A founder CEO is a person who establishes a company and serves as its chief executive officer (CEO).
5.	Non-Founder CEO	A non-founder CEO or professional CEO who is hired an external manager or who is not controlled by a family.
5.	Firm Characteristics	Firm characteristics is proxy by firm age.
6.	IPO Characteristics	IPO characteristics is proxy by underwriter reputation, IPO proceeds and hot market

1.7 Conceptual Framework

In this study, it is briefly explained the two streams of theories, IPO underpricing and internationalization. Theories of underpricing, the best established of these are the asymmetric information based models (A. Ljungqvist, 2007). This study provided four theories to explain underpricing phenomenon: adverse selection theory, signal theory, principal-agent theory, and market timing theory. These theories based on asymmetric information between three primary parties in the IPO process namely the issuer, the investor and the underwriter. IPO underpricing is a response to information asymmetry between issuers and underwriter (Baron, 1982), issuers and investors (Welch, 1989) and informed investors and uninformed investors (Rock, 1986). Additional, market timing theory is used to describe the IPO phenomenon.

According to the two main stages model of the product life cycle theory (Raymond Vernon, 1966) explains the concept of the process of internationalization base, companies start non-export or only domestic and expand another country later.

Fig. 1.1 illustrates the conceptual framework of this research, which focuses on internationalization, institutional investors, and founder role: Three-way interaction effects on IPO underpricing.

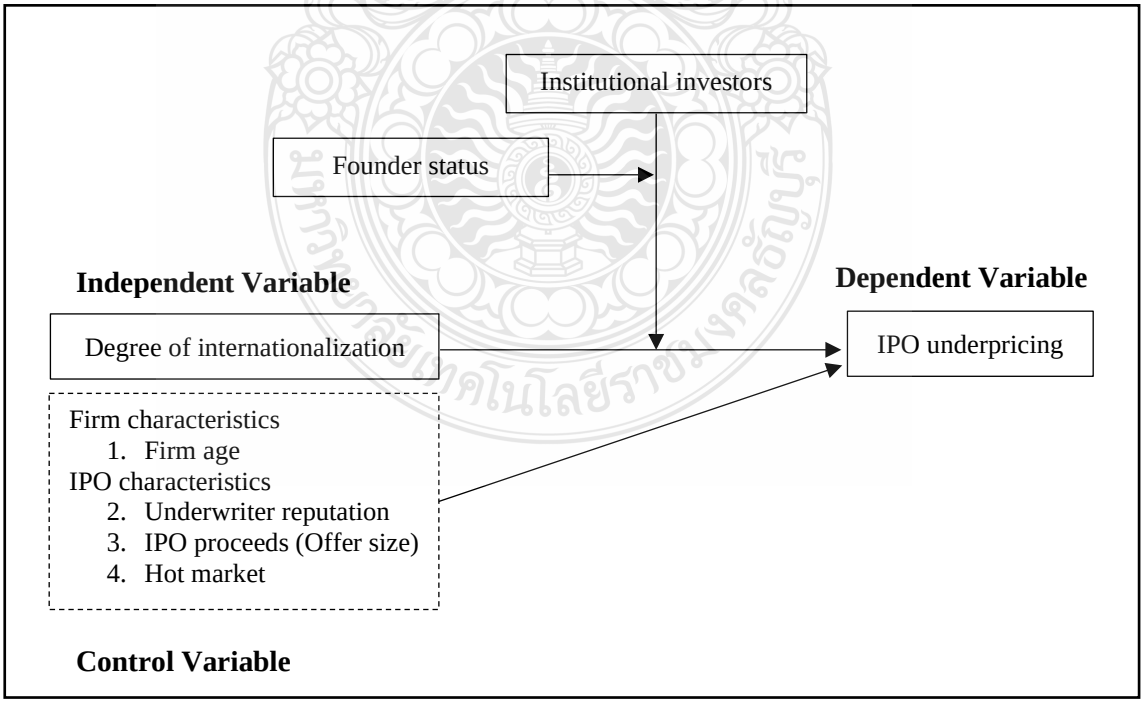

Figure 1.1 Research Framework

1.8 Contribution Knowledge

To provide answers to research questions, this study contributed moderated moderation analysis. The founder role and institutional investors can change the effect of internationalization on IPO underpricing. According to the main effect analysis, internationalization has no effect on IPO underpricing. It is contradiction of previous studies. More specifically, a moderating effect founder role on the effect of DOI on IPO underpricing were found. The effect of DOI on IPO underpricing can be altered by founder role according to signaling theory and principal-agent theory. A non-founder CEO can reduce the conflict of interest between the founder and the management, and also reduce asymmetry information between issuer and investors. Meanwhile, A founder CEO enhance the effect of DOI on IPO underpricing positive, as result the founder is CEO that impact to monitoring process is poor. Additionally, institutional investors enhance the strongly moderating the two-way interaction effect of internationalization on IPO underpricing depend on founder role. The institutional investors cannot moderate the effect of DOI on IPO underpricing without secondary moderator such as founder role.

The findings can reveal how internationalization enhances successful IPO management with a clear understanding of the effect of internationalization on IPO underpricing for newly listed companies. They can also explain the mechanism of internationalization and how it supports newly listed companies to financing success. Issuers can use internationalization, CEO and institutional investor allocation to promote their quality. Moreover, stakeholders, such as individual and foreign investors, institutional investors and underwriters can use the results of this research to analyze and make an investment decision during an IPO event.

1.9 Organization of the Study

Chapter 2 reviews the IPO literature giving special attention to IPO initial returns and examines the internationalization literature with special attention to the impact of internationalization on firm value. Chapter 3 develops and introduces hypotheses to be tested, data sources, and statistical methods to be employed to test hypotheses. Chapter 4 reports the results of the study, and Chapter 5 provides the summarizes, discussion, concludes, limitation and suggest for future research.

CHAPTER 2
REVIEW OF THE LITERATURE

This chapter presents a literature review relevant to the hypotheses developed in the study. In order to understand IPO context and related research questions of this study, the literature review consists of four parts: overview concept of IPO and Thai IPO research, theoretical explanations on IPO underpricing, theories of internationalization, and existing empirical work.

2.1 Overview Concept of IPO and Thai IPO Research

2.1.1 Overview Concept of IPO

Firms that desire to expand their business require funding sources. The key point is how a manager get funding to expand the business. An initial public offering (IPO) is a solution since it is a process of a private firm to increase its capital by selling its stocks to the public market (R. Carter & Manaster, 1990; Ritter, 1998). In addition, going public is a stage in the growth process of a company (Pagano, Panetta, & Zingales, 1998). After the IPO, newly listed firms can raise capital by selling equity shares to public investors. The main reason of selling IPO shares is to increase external equity and use this fund to increase the profitability in the future (Bancel & Mittoo, 2009; Boehmer & Ljungqvist, 2004; W. Kim & Weisbach, 2008). Interestingly, firms can also motivate their employees by distributing IPOs to them. Employee stock ownership can encourage and retain quality employees to be more willing to work since they have a stake in the company (Draho, 2004).

Going public is considered as an advantage for a newly listed firm since this process helps enhance its reputation and recognition among investors, customers, creditors, and suppliers (Maksimovic & Pichler, 2001) which is beneficial in raising funds in the future. However, a newly listed firm certainly encounters various challenges, such as a change in ownership structure, a more rigorous investigation mechanism, being monitored by stock market participants and competition regulators (Bharat A. Jain & Kini, 2008), and higher cost in conducting an IPO including underwriter fees. These challenges can lead to the success of fundraising.

There have been several researches focusing on post-IPO performance. The empirical evidence suggests the price of first day trading is higher than offer price in primary market. This phenomenon is known as IPO underpricing (Brau & Fawcett, 2006). 'Money left on the table' is the dollar cost of underpricing which is defined as an indirect cost of IPO (Ritter, 1987). The underpricing occurs when investors have bought IPOs from the first market and resell them in the secondary market in order to obtain a higher return on investment. This event indicates that the firm leaves money on the table while investors get positive initial return. Thus, the study on the factors of IPO underpricing is important for IPO issuing firms, investors and underwriters participating in IPO issuing event.

2.1.2 IPO Research in Thailand

In Thailand, there are numerous studies on the factors that impact IPO underpricing. Vithessonthi (2014) studied 187 Thai IPOs during 2000-2012 and found that an average underpricing was 18%. Moreover, the underpricing of IPO during the post-1997 financial crisis is lower than the pre-1997 financial crisis. He stated that reducing the level of asymmetry information and attracting foreign investors to participate in the IPO market can lead to stock market development. In addition, Boonchuaymetta and Chuanrommanee (2013) studied 153 IPOs listed in 2001-2011 and found that the length of the lock up period, industry, issue size, and hot issue market had a positive relationship with underpricing significantly, while institutional investors have limited roles in the IPO activity in Thailand. In contrast, underwriter reputation, book building, and a small change in ownership concentration do not indicate underpricing.

The studies on Thai IPOs have presented the views and concepts describing the IPO phenomena based on asymmetry information in developing markets (Mehmood, Rashid, & Tajuddin, 2020). It was found that the level of asymmetry information in the developing markets among issuers, informed and uninformed investors was higher than in the developed ones which could lead to underpricing. Furthermore, share issuance timing should not be ignored either according to Boehmer and Ljungqvist (2004). Theories used to explain IPO underpricing in Thailand are Adverse selection theory (Komenkul & Siriwattanakul, 2016), signaling theory (Komenkul et al., 2016), principal

agency theory (Vithessonthi, 2014), and market timing (Boonchuaymetta & Chuanrommanee, 2013).

Theoretical explanations of IPO underpricing, empirical evidences, and theories, such as internationalization theory will be further discussed in the following section.

2.2 Theoretical Explanations of IPO Underpricing

The underpricing of IPO is a well-documented phenomenon (Ibbotson, 1975), and the most common measure of short-term performance (Certo et al., 2009). Numerous researchers defined IPO underpricing as an event when the price of the initial offerings is lower than the closing price in the secondary market (Brau & Fawcett, 2006; Engelen & van Essen, 2010; Loughran & Ritter, 2002b; Moshirian, Ng, & Wu, 2010; Ritter, 1987). It is considered an indirect cost, known as money left on the table caused by asymmetry information and motivations for going public (Ritter, 1987). Thus, low underpricing reflects less asymmetry information, and reduces the cost of IPO issuing (Lucas & McDonald, 1990). In addition, it also indicates IPO performance of the issuer (LiPuma, 2012; Ozdemir & Upneja, 2016).

Asymmetric information, institutional environment, control considerations, and behavioral approaches can explain IPO underpricing (A. Ljungqvist, 2007). However, the asymmetric information-based models are best acknowledged. In this study, underpricing phenomenon will be explained based on adverse selection theory, signaling theory, agency theory and market-timing theory. These theories focus on the asymmetric information among the three primary stakeholders in the IPO issuing activity: the issuer company, the investors and the underwriters. Thus, IPO underpricing is a result of information asymmetry between issuer company and underwriter (Baron, 1982), issuer company and investors (Welch, 1989), and informed investors and uninformed investors (Rock, 1986).

2.2.1 Adverse Selection Theory

The adverse selection cost problem of IPOs is the most actively studied viewpoint. This model was developed by Rock in 1986. Rock (1986) divided investors into two groups of investors: informed investors and uninformed investors based on information asymmetry and different knowledge of investment. The issuer attempts to

offer IPO underpricing to investors to participate in the IPO event. Informed investors with their ability to access to information of the IPO firm issuer can evaluate the intrinsic value of its IPO stock. On the other hand, uninformed investors who randomly invest without any knowledge of the IPO issuer firm would lose the opportunity to profit from their IPO investment in case the equity issuer sets its IPO price at the intrinsic value. The adverse selection problem is that a firm issuer guarantees the best offer pricing to uninformed investors. Thus, the uninformed investors should be compensated with underpricing by a firm issuer in order to reduce serve adverse selection problems (Ritter, 1987).

2.2.2 Signaling Theory

The key assumptions of signaling theory are that the issuer knows its intrinsic value, while uninformed investors do not. This is due to the fact that the issuer, a signal sender, would not often fully publicize its private information. As a result, the signal sender and signal receivers are not aligned. In the IPO context, issuer firms attempt to send the quality signals of the firm value and the investment opportunity to potential investors. Brealey et al. (1977) found that allocating a volume of IPO shares to insiders shows the principle-agent conflict. The high-quality company tries to reduce this problem by retaining a large amount of post IPO. Welch (1989) presented that high-quality firm owners can send signals to the public with underpricing because they can response to the cost of underpricing better than low-quality firms. In additional, Chemmanur (1993b) revealed that only good quality firms can offer allocated IPO shares by underpricing to compensate uninformed investors. The cost of signaling of a high-quality firm was found to be higher than a low-quality firm. IPO underpricing is a strategy to communicate the quality of the firm to the public. Thus, low-quality firms try to adopt a similar strategy in order to attract investors to participate in the IPO.

The explanation of the degree of underpricing is based on a theoretical and empirical study of signaling. There are two main factors: firm characteristics factor and IPO characteristics or issue-specific factor. The IPO firm characteristics factors include firm size and firm age. Prior studies have represented that firm size affects underpricing. A large firm size has a low degree of underpricing due to low information asymmetry and good firm performance. The empirical study supports that firm size and the degree of

underpricing and are negatively related (Al-Shammari et al., 2013; Heeley, Matusik, & Jain, 2007; Ozdemir & Upneja, 2016). The age of the firms has been taken into explanation in many of these studies of IPO underpricing effects and found to have an effect on firm performance in terms of internationalization of the company. Since older firms have financial outperform than younger firms which reflects retained wealth, firm age impacts the initial offer price (Certo, Covin, et al., 2001). Additionally, older firms can disclose their past operations and performance which leads to lower risks and underpricing (R. B. Carter, Dark, & Singh, 1998; Ritter, 1998).

Issue-specific factors are used as the variables to study the influence of IPO underpricing. The IPO proceeds or offer size are considered as a proxy for signaling. Huge IPOs are usually issued by old firms, and the risk of the issuer is minimal; therefore, underpricing or the initial returns should be diminished (R. B. Carter et al., 1998). It was found that the relationship between IPO proceeds and IPO underpricing is positive (Al-Shammari et al., 2013) since small IPO proceeds of the newly listed company are necessary to compensate the investors for the higher risks than a newly listed company with large IPO proceeds. However, the relationship between IPO proceeds and underpricing was found to be negative (Boonchuaymetta & Chuanrommanee, 2013; Judge et al., 2015). This study also expects a negative relationship between IPO proceeds and IPO underpricing since IPO proceeds show that the large firms raise the capital with a large offer size (Pagano et al., 1998). Addition, the reputable underwriters in an IPO deal may give the public market a signal that the offer price is a valuation of a firm's wealth (Booth & Smith II, 1986). Reputable underwriters associated with the new firm can reduce the level of short-run underpricing (R. Carter & Manaster, 1990; R. B. Carter et al., 1998) since their reputation can guarantee the quality of such IPOs (Ritter & Welch, 2002). Moreover, underpricing costs is also reduced due to an attempt to reveal their low-risk characteristics. Thus, issuing firms may underprice by selecting the underwriter with high prestige. According to R. Carter and Manaster (1990) and R. B. Carter et al. (1998), reputable underwriters are related to a low-risk offer and lower underpricing.

2.2.3 Principal Agency Theory

Principal agency theory developed by Jensen and Meckling (1976) concentrates on the relationship between the principal and his agent. Jensen and Meckling (1976) defined the relationship as an agreement between the principal and his agent. Grossman and Hart (1983) considered that the shareholder or owner is the principal, and the manager is the agent. Since the shareholders are unable to manage all tasks, the manager as their agent has to manage the firm and generate returns in favor of the shareholders.

However, agency problem occurs when the management and shareholders have different goals with inconsistent benefit. According to Baron (1982), who studied the demand for investment banking in charge of underwriting, advising, and distribution, informational asymmetry between an issuer of new securities and an investment banker occurs since the investment bank (agent) is better informed about the capital market than the issuer (manager). Since the issuer cannot distribute their new IPO shares, firms that wish to issue IPO shares must return to their agent and grant the agent the right to set discounted IPO share price and sell the shares below the market price to provide investors, especially large clients who buy new stocks and use investment banking services regularly. Interestingly, the more uncertainty in the market, the more difficult it is to set the price.

However, traditional agency theory captures the problem of information asymmetry between underwriters and IPO issuers (e.g. (Baron & Holmström, 1980; Habib & Ljungqvist, 2001; Loughran & Ritter, 2004)). Loughran and Ritter (2004) emphasized that underwriters choose underpricing and leave money on the table due to two advantages. First, it helps reduce the risk occurred from unsold distributed stocks. Underpricing can make the stocks be sold at ease. Second, potential investors tend to seek potential IPOs. The initial returns are considered as short-term returns from investing in IPOs. This is an incentive for underwriters. However, issuing firms have the burden in the form of money left on the table. Similarly, several studies found that underwriters prefer underpricing (R. B. Carter et al., 1998; A. Ljungqvist, 2007; Loughran & Ritter, 2002b; Ritter & Welch, 2002) since principal / agent IPO models concentrate on the asymmetric information between issuers and underwriters. The uncertainty of the firm

increases asymmetry information between issuing firms and lead underwriters which also increases underpricing.

Since boards of directors and their management roles influence IPO underpricing, the researchers suggested using corporate governance as a monitoring mechanism based on agency theory (Al-Shammari et al., 2013; Arthurs et al., 2008; Gounopoulos & Pham, 2017; Haniffa & Hudaib, 2006). Agency problems and the moral hazard problem occur when managers can access to confidential information related to the decision-making for the firm, and go versus shareholders' benefits by acting for their own interests instead. According to Certo et al. (2009), the most themes of research on IPOs published in management and entrepreneurship is corporate government. Thus, the corporate governance factors are chosen to study in the IPO context.

2.2.4 Market Timing Theory

According to Ibbotson and Jaffe (1975), investors usually seek new securities in the hot market with large IPOs since they expect a higher return in new issuing securities (Ritter, 1984). However, investors avoid new issuing securities in the cold market. There are three theories that explain the timing of IPOs classified by Ritter and Welch (2002).First, entrepreneurs take benefit of the hot market, or bull market, which includes present overall market conditions and industry conditions to attract investors with stock prices (Lucas & McDonald, 1990; Pagano & Röell, 1998). Second, the timing of IPO has an effect on motivating investors to invest in new securities. Lowry and Schwert (2002) stated that the IPO performance on the first trading day in the secondary market attracts other firms to make their decision to go public. The issuing of shares was a result of the capital markets investment sentiment. Many firms prefer going public and issuing IPO when the market is booming. (Choe et al., 1993). Third, Choe et al. (1993) and Lowry (2003) presented that when firms needs an expansion in the business cycle, they require external capital due to their insufficiently internal fund. Thus, several firms decide to go public for more opportunities and growth in business by following business cycle.

Additionally, Boehmer and Ljungqvist (2004) examined theories of the IPO timing decision that increases firm valuations and investment opportunity. Agathee, Brooks, and Sannassee (2012) found that the average degree of underpricing IPO in a hot

market is higher than in the cold market. Thus, the market time influences motivation of going public (Lowry, Michaely, & Volkova, 2017) and affect underpricing.

2.3 Theories of Internationalization

Product Life Cycle Theory

Life cycle theory developed by Haire (1959) begins with a formation stage and continues through later stages of growth and maturation, ultimately leading to a subsequent stage of firm transition or decline (Baird & Meshoulam, 1988; Greiner, 1989; Robert & Robert, 1990). Since IPOs are clearly diverse and their starting points as public firms vary considerably, the organizational life cycle literature differentiates and characterized IPO firms by their needs, behaviors, and structures (Sottile, 2005).

According to Vernon (1966; 1971), internationalization process explains the product life cycle. At the initial stage, products are produced for the domestic market; however, the products can be expanded to other countries when the products reach the mature phase. New products can be exported to many markets simultaneously due to a decrease in trade barriers, globalization, technology, and innovation in particular. Since internationalization increases the degree of resource allocation, experiential knowledge, and commitment (Johanson & Wiedersheim-Paul, 1975), the firms can obtain more advantage with higher performance from international operations.

Moreover, exporting supports entering the international market greater than foreign direct investment (FDI) due to lower commitment and risk. In regards to FDI, a firm requires a new plant location and has to encounter an increasing complication.

In this study, finance literature and international business literature concerning underpricing are concentrated. A summary of implication of underpricing theories is provided follow table 2.1

Table 2.1 A summary of implication of underpricing theories

Theories	Explanations/Assumptions	Arguments	Implications of Underpricing
Adverse Selection	There are two type of investors; informed investors and uninformed investors. The informed investors use their knowledge to evaluate the intrinsic value of common stock, but uninformed investors cannot.	The uninformed investors receive a firm guarantee offer with underpricing. (Rock,1986)	Underpricing phenomenon for issuing firms is a disadvantage because the issuer receives reducing fund.
Signaling	The signal senders and signal receivers have conflict of interests. The firms send a quality signal to potential investors without fully publicizing their intrinsic information.	The cost of underpricing of the high-quality firm is lower than the low-quality firm due to the communication from the owner to the potential investor (Welch,1989).	High quality IPO firms include reputation of underwriter and effective monitoring of the firm.
Principal Agency	The firm's performance depends on its agent's action without being monitored by the manager.	Conflict of interest between the agent (issuer) and the principal. (underwriter). (Loughran and Ritter, 2004)	The underwriters choose underpricing since it is easier to sell IPOs and get engaged with potential investors.

Table 2.1 A summary of implication of underpricing theories (Cont.)

Theories	Explanations/Assumptions	Arguments	Implications of Underpricing
Market Timing	The investors might seek new issue securities in the bull market period or hot market in order to earn a highly positive return. They avoid investment in the cold market period.	The issuer firm expects to maximize issue proceeds from funding and leaves the minimum amount of money on the table. Thus, the firm decides to go public in the period of low initial returns (Lowry, Michaely, & Volkova, 2017).	The average of IPO underpricing in the hot market is higher than in cold market.

2.4 Existing Empirical Work

2.4.1 The Review of Internationalization and Firm Performance

According to the international management literature, there are three recognized opportunities in the international market. The first opportunity is the economy of scale and scope, the second one is broader learning opportunities compared to domestic firms, and the last on is the benefit from factors of production, such as lower cost of labor, materials, energy (W. C. Kim, Hwang, & Burgers, 1993).The past research hypothesized that degree of internationalization (DOI) impacted firm performance due to considerably benefits from international advantage, such as high market power (Hymer, 1976), lower costly resource (Rugman, 1979), learning development (Vernon, 1971). This is in line with another study which claimed that DOI affects firm performance in a linear form (Morck & Yeung, 1991). DOI has continuously been found to enhance the firm value (C.-C. Hsu & Pereira, 2008; Lin, Liu, & Cheng, 2011; Pangarkar, 2008; Xiao, Jeong, Moon,

Chung, & Chung, 2013). Moreover, several empirical studies found that the effect of DOI on firm performance depends on moderation analysis (C.-C. Hsu & Pereira, 2008; W.-T. Hsu, Chen, & Cheng, 2013; Xiao et al., 2013). Foreign sale to total sale (FSTS) (Sullivan, 1994) is used to measure is the DOI measure most used in past studies.

However, the relationship between DOI and firm performance is not clear-cut, following a summary of previous studies since 2000 is shown in Table 2.2

Table 2.2 A summary of previous studies on the relationship between internationalization and firm performance

Author(s)	Year	Source	Sample	DOI measure	Firm performance measure	Form/Direction
Zahra, S. A., Ireland, R. D., & Hitt, M. A.	2000	Academy of Management journal	12 industries in U.S. firms,1993	International diversity (Number of countries, Technological diversity, Cultural diversity, Geographic diversity, Foreign segments) and Mode of entry (Start-ups, Acquisitions, Licensing, Exporting)	Return on equity (ROE, Sales Growth	Positive with moderation analysis of knowledge integration.
Denis, D. J., Denis, D. K., & Yost, K.	2002	The journal of Finance	44,288 U.S. firms ,1984-1993	Industrially diversified firm-years, number of industrial segments, sales-based Herfindahl index, foreign sale to total sale (FSTS)	Market value of total capital, long-term debt/total assets, EBIT/sales, capital expenditures/sales, R&D/sales and advertising/sales	Negative

Table 2.2 A summary of previous studies on the relationship between internationalization and firm performance (Cont.)

Author(s)	Year	Source	Sample	DOI measure	Firm performance measure	Form/Direction
Kotabe, M., Srinivasan, S. S., & Aulakh, P. S.	2002	Journal of international business studies	49 industries in US firms,1984-1993	FSTS	Return on Asset (ROA), ratio of sales to operating costs (OPSALINV)	Positive impact on return on asset, negative on sales to operating costs with moderation analysis of R&D intensity and marketing intensity.
Ruigrok, W., & Wagner, H.	2003	Management International Review	84 German firms,1993–1997	FSTS	ROA, Operating costs to total sales (OCTS)	U-shaped

Table 2.2 A summary of previous studies on the relationship between internationalization and firm performance (Cont.)

Author(s)	Year	Source	Sample	DOI measure	Firm performance measure	Form/Direction
Capar, N., & Kotabe, M.	2003	Journal of International Business Studies	81 major German service firms,1997-1999	FSTS	Return on sales (ROS), ROA	U-shaped
Contractor, F. J., Kundu, S. K., & Hsu, C.-C.	2003	Journal of international business studies	11 service industries in U.S. firms,1990	FSTS, Number of foreign employees/total number of employees, number of foreign offices/total number of offices, number of foreign offices/total number of offices quadratic and cubic terms, respectively	ROS, ROA	U-shape and inverted-U-shape

Table 2.2 A summary of previous studies on the relationship between internationalization and firm performance (Cont.)

Author(s)	Year	Source	Sample	DOI measure	Firm performance measure	Form/Direction
Gerpott & Jakopin	2005	Telecommunications Policy	14 European MNO (mobile network operators) ,1997-2003	foreign revenue (FR), proportionate foreign subscriber (FS), foreign employee (FE), foreign asset (FA)	EBITDA-margin, ROS, ROA, Average revenue per user (ARPU)	Insignificant and negative with EBITDA-margin, strongly and negatively with ROS, and not significantly correlated with ARPU.
Lu, J. W., & Beamish, P. W.	2006	International Entrepreneurship and Management Journal	164 Japanese SMEs,1986–1997	Export revenues	ROS	Negative with moderation analysis of firm age at the time of internationalizing.

Table 2.2 A summary of previous studies on the relationship between internationalization and firm performance (Cont.)

Author(s)	Year	Source	Sample	DOI measure	Firm performance measure	Form/Direction
Pangarkar, N.	2008	Journal of world business	500 Singapore SMEs ,2003-2005	Foreign sales across geographic regions	ROS, growth in sales, foreign profits, growth in profits, ROA, experience and knowledge gained from foreign operations, Growth of sales, Foreign profits to total profits (FPTP), Growth of profits, ROA Experience or knowledge gained as a result of entering foreign markets	Positive with moderation analysis of capabilities and host market attractiveness.

Table 2.2 A summary of previous studies on the relationship between internationalization and firm performance (Cont.)

Author(s)	Year	Source	Sample	DOI measure	Firm performance measure	Form/Direction
Hsu, C. C., & Pereira, A.	2008	Omega	110 U.S.MNEs,1990-2000	Product advantage, Resources available for international expansion	ROS, Return on investment (ROI) and ROE	Positive with moderation analysis of organizational learning.
Gaur, A. S., & Kumar, V.	2009	British Journal of Management	240 Indian Firmsv,1997-2001	FSTA	ROS and ROA	U-shaped with moderation analysis of group affiliation.
Lin, W. T., Liu, Y., & Cheng, K. Y.	2011	Journal of international Management,	179 high-technology listed companies in Taiwan,2000-2005	The sum of FSTS, FATA, and geographic dispersion)	ROA	Positive with moderation analysis of Organizational slack.

Table 2.2 A summary of previous studies on the relationship between internationalization and firm performance (Cont.)

Author(s)	Year	Source	Sample	DOI measure	Firm performance measure	Form/Direction
Hsu, W. T., Chen, H. L., & Cheng, C. Y.	2013	Journal of World Business	187 Taiwanese SMEs,2003–2009	FSTS and Foreign asset to total asset (FATA)	ROA	Positive with moderation analysis of characteristics of top executives.
Xiao, S. S., Jeong, I., Moon, J. J., Chung, C. C., & Chung, J.	2013	Journal of International Management	114,398 firms in China,2001-2007	Ratio of export sales to total sales (ESTS).	ROS	S-shaped with moderation analysis of the governance structure.

2.4.2 The Review of Internationalization and IPO Underpricing

The literature review on IPO and DOI reported that IPO issuance is a stage juncture in the development of a firm. Internationalized firms focus on their post-IPO performance. Thus, they attempt to send signals showing their advantages in DOI and their value to motivate investors to invest in their IPO. Investors are willing to invest in underpriced IPO to compensate for information asymmetry. Spence (2002) stated that reducing information asymmetry according to the signaling theory would help the issuer reduce the underpricing phenomenon and save money left on the table. In particular, investors can consider the characteristics of the firm prior to investment.

Studies on DOI and its effect on underpricing were investigated in develop market while Thailand are currently limited. For example, LiPuma (2012) who studied the relationship between DOI and IPOs' pre-money valuation by examining 184 IPOs in U.S. technology sector from 1997 to 2003, DOI was classified into 5 levels: domestics (no foreign revenue), intensity-low (foreign revenue is lower 2.5%), intensity moderate (foreign revenue is from 2.5% to 10%), intensity significant (foreign revenue is 10% to 25%), and intensity-high (foreign revenue is greater than 25%). The findings show a negative relationship between international intensity and pre-money valuation, especially among young ventures.

Additionally, Ozdemir and Upneja (2016), whose examination of DOI on IPO underpricing was motivated by signaling theory, studied 1822 IPOs issued by service firms from 1980 to 2009. International firms were found to leave less money on the table than domestic firms. Moreover, IPO issuers promote their value to potential investors with confidence. According to Peng, Jia, and Chan (2021), who studied 891 Chinese IPOs from 2003–2016 found that DOI can reduce IPO underpricing. However, Certo et al. (2009) pointed out that DOI may not increase an IPO underpricing, but it increases the firm performance during post-IPO. Thus, the following hypothesis is as follows:

Hypothesis 1: The degree of internationalization affects IPO underpricing.

2.4.3 The Interaction effect Between DOI and Institutional Investors on IPO Underpricing

Lemmon and Lins (2003) confirm that proportion of ownership structure between major shareholders and minor shareholders causes agency problem and influences valuation of the firm**.** Agency problem is a conflict of interest when the manager's interest negatively affects the wealth of majority shareholders (Jensen & Meckling, 1976). Besides DOI which leads to better firm performance according to signaling theory as in hypothesis 1, the allocation IPO to institutional investors is another factor for investors to take IPO investment decision. Institutional investors are knowledgeable investors who have access to information about issuing companies and the market. As a result, institutional investors are knowledgeable and capable of identifying quality firms (Aggarwal et al., 2002). Moreover, the proportion of institutional investors were allocated IPO shares reduces the degree of IPO underpricing which may reflect the decrease in agency problems (Arthurs et al., 2008; Haniffa & Hudaib, 2006; Katti, Phani, & Finance, 2016; A. P. Ljungqvist & Wilhelm Jr, 2002). Thus, the proportion of institutional investors, as a moderator variable, will be taken into account in order to find the moderator effect of the factors. In contrast, underpricing is a strategy used to encourage institutional and retail investors to invest in IPOs of companies that go public (Brau & Fawcett, 2006; Chemmanur, 1993a). That is, institutional investors benefit from underpricing because institutions are capable of monitoring the issuer firm (Stoughton & Zechner, 1998). Thus, underpricing is preferred by institutional investors and companies that want to attract institutional investors to compensate for the risk to investors.

Previous studies specified a stronger relationship between DOI and IPO underpricing with ownership as a moderator effect**.** Al-Shammari et al. (2013), who studied blockholder and CEO equity ownership as a moderator variable in the relationship between firm’s DOI and IPO underpricing, found that there was high underpricing when IPO performance was measured by investor’s return, and DOI impacted higher underpricing**.** In conclusion, the relationship between DOI and IPO underpricing was positive and stronger**.**

According to A. P. Ljungqvist and Wilhelm Jr (2002), if institutional investors or informed investors are preferred, there is less underpricing. Similarly, 336 CFOs in the United States surveyed by Brau and Fawcett (2006) also agreed that favored institutional investors are important to IPO issuance, and may impact underpricing. Therefore, the percentage of institutional investors is an important part for firms' growth and value since institutional investors have experience, expertise, availability in resources, and potential to monitor and protect their interest through their asset management . Furthermore, foreign institutional investors, in particular, play important roles in monitoring corporate governance (Claessens & Fan, 2002; Gillan & Starks, 2003).

This study highlights the institutional investors' shares reflect the quality of newly listed companies, and institutional investors may reduce the asymmetry information between an issuer and uninformed investors. Response to agency theory and signaling theory, agency problem between insider/ manager and outside investors/ minority shareholders occurs due to institutional investors and their ownership concentration level. Since institutional investors are professional analysts and able to effectively monitor the firm, they are classified as informed investors (Bethel & Liebeskind, 1993). Thus, the IPO activity of institutional investors represents the quality signal of the firm's value to the minority investors.

In conclusion, DOI lowers IPO underpricing with the high proportion institutional investors. Thus, the hypothesis is as follows:

Hypothesis 2: The proportion of institutional investors moderate the effect of DOI on IPO underpricing, such that the effect is stronger in firms with high proportion of institutional investors than firms with low proportion of institutional investors after controlling for firm characteristics and IPO characteristics.

2.4.4 Three-way Interaction effects among the Internationalization, Institutional Investors and Founder Role on IPO Underpricing

Daily et al. (2003), and McDougall and Oviatt (1996) found an indirect link between DOI and IPO performance. However, moderator variable could examine that DOI impacts IPO performance. Certo et al. (2009) studied IPOs from a top journal in management and entrepreneurship published and summarized that there were four interesting themes in IPO studies which consist of corporate governance, upper echelons,

social influence, and innovation. The themes concentrate on corporate governance, board mechanism, and ownership structure. In order to reduce agency problems, newly listed companies are required to disclose information, and shall present the firm's governance structure in the prospectus (Certo, 2003).

In regards to founder role, the study of Daily and Dalton (1992) on the persistence of founder influence revealed that there are differences between founder- and non-founder managed firms in terms of performance and management activity that the power to monitor and supervise a company will be constrained if the founder additionally functions as its CEO. In the case of the non-founder CEO, the founder can strongly monitor and control the CEO's activities. Hence, professional CEOs can help to eliminate conflicts of interest problem between the founder and CEO (Gao & Jain, 2011). In addition, Nelson (2003) found that founder-CEO impacts the performance of IPO. In case a CEO with his ability to lead a company to grow and achieve the firm's goal is also the firm's founder, success of the firm has been established from its foundation. Therefore, the founder CEO role and his management are the key to the success of IPO.

In IPO performance context, Gao and Jain (2011) examined the relationship between founder CEO and long run return in IPO investment. Their finding showed that founder CEO is positively and significantly related to greater returns on investment than non-founder CEO. Furthermore, the newly listed company that lacks reputation and credibility depends on reputation of its founder and CEO to motivate investors to invest in its IPO (Basu, Dimitrova, & Paeglis, 2009). Founder CEOs have to encounter challenges, such as financial, competitor, stake holder and regulations in the stock market (Adams, Almeida, & Ferreira, 2009).

Moreover, founder-led firms affect IPO price in the secondary market greater than non-founder CEO because the founder CEO influence does insist on corporate governance and ownership provision (Nelson, 2003). Similarly, the impact of business group internationalization on IPO underpricing firms affiliated with business groups was investigated by Hsieh, Chen, and Tsai (2017). Internationalization of a business group takes into account factors such as foreign assets, foreign sales, and foreign subsidiaries. When measured in terms of foreign sales, the relationship between group internationalization and IPO underpricing is significant and positive. The effect of

business group internationalization on IPO underpricing is more positive and significant for a family-controlled business group than for a non-family-controlled business group. Agency problems are common in family-controlled businesses because the family business focuses on self-interest and exploiting the interests of minority shareholders through benefits and wealth transfers. As a result of the effect of business group internationalization and business operating risk, IPO underpricing increases. As a result, outside investors anticipate a premium. Furthermore, greater ownership reduces IPO underpricing caused by group internationalization. Moderation effect analysis or interaction analysis were also proposed to test the relationship between DOI and IPO underpricing.

Newly listed companies are required to disclose their corporate governance and executive mechanisms in the prospectus, which can assist in addressing agency issues. An examination of the relationship between corporate governance and short-term IPO performance revealed a conflict of interest between value investors and executives, which agency theory can explain (Certo, 2003). The role of founders is an important component of corporate governance mechanisms that reduce the problem of agency between managers and controlling or minority shareholders.

Because the founders' role is critical to the success of an IPO issuance, his management can generate wealth for the firm and influence an IPO underpricing (Certo, Daily, et al., 2001). Furthermore, the effect of DOI on IPO underpricing becomes stronger, especially when a company has a non-founder CEO. Apart from internationalization, a non-founder CEO can improve corporate governance. This can also help to reduce agency problems and IPO underpricing. As a consequence, a non-founder CEO is a more powerful quality signal, and it is hypothesized that

Hypothesis 3: Founder status moderates the two-way interaction effect of institutional investors and DOI on IPO underpricing. Specifically, the effect of DOI on IPO underpricing is more negative in firms with low proportion of institutional investors and have non-founder chief executive officer (CEO) than the firms with low proportion of institutional investors and have founder CEO.

To summarize, this analysis includes factors IPO performance determinants. As shown in Table 2.3, the signs of relationship with IPO performance are determined

research results from past empirical studies, and predicted effects are determined based on IPO performance from existing theories. Focusing on internationalization and governance, the conceptual framework of this research and the methodology of the research is provided in the next chapter

Table 2.3 Determinants of IPO performance and related theories.

Study	Country	Period	Sample	Independent Variable	Moderator Variable(s)	IPO Performance Measure	Theory		
							Adverse Selection	Signaling	Agency
Effect of internationalization on IPO performance									
LiPuma (2012)	US	1997 to 2003	184	FSTS		ST-Pre-money (−)			↑/↓
Ozdemir and Upneja (2016)	US	1980 to 2009	1822	International/Domestic (dichotomous)		ST-UP (−) LT-CAR (+), BAH (+)		↓ ↑ ↑	
Peng et al. (2021)	China	2003 to 2016	891	FSTS		ST-UP			↓
Effect of governance on IPO performance									
Certo et al. (2001a)	US	1990 to 1998	748	Outside directors Board reputation		ST-UP (+) ST-UP (−)		↓ ↓	
Aggarwal et al. (2002)	US	1997 to 1998	174	Institutional allocation		ST-UP (+)	↑		
Ljungqvist et al. (2002)	37 countries	1990 to 2000	1037	Institutional allocation		ST-UP (−)			↓
Brau and Fawcett (2006)	US	2003	336	Institutional allocation		ST-UP (+)	↑		
Gao and Jain (2011)	US	1997 to 2000	1963	Founder CEO	High/Low technology	LT- BAH (+)		↑	↑

Table 2.3 Determinants of IPO performance and related theories.

Study	Country	Period	Sample	Independent Variable	Moderator Variable(s)	IPO Performance Measure	Theory		
							Adverse Selection	Signaling	Agency
Effect of internationalization (proxy is FSTS) and governance on IPO performance									
Al-Shammari et al. (2013)	US	1997, 1998, 2001 and 2002	1084	FSTS	Block holder CEO ownership	ST-UP (+/−)		↑	↑
						ST-UP (+)		↑	↑
Hsieh et al. (2017)	Taiwan	2001–2010	109	FSTS	Family/Non-controlled business groups	ST-UP (+/+)			↑
					Business group owner ship	ST-UP (−/−)			↓

Note: FSTS refers to the ratio of foreign sales to total sales. Pre-money refers to puqt - puqi, where pu is the final IPO subscription price, qt is the number of shares outstanding, and qi is the number of IPO shares offered. ST-UP refers to short-term underpricing, LT-CAR refers to the long-term cumulative abnormal returns, and BAH refers to the long-term buy-and-hold. Sign (−) refers to negatively relationship, sign (+) refers to positively relationship, sign (↑) refers to increased IPO performance, and sign (↓) refers to decreased IPO performance.

CHAPTER 3
RESEARCH METHODOLOGY

This study concentrates on how internationalization contributes to IPOs firm performance. In order to answer the research questions and examine the hypotheses, this chapter consists of sample and data sources, variables, and statistical model.

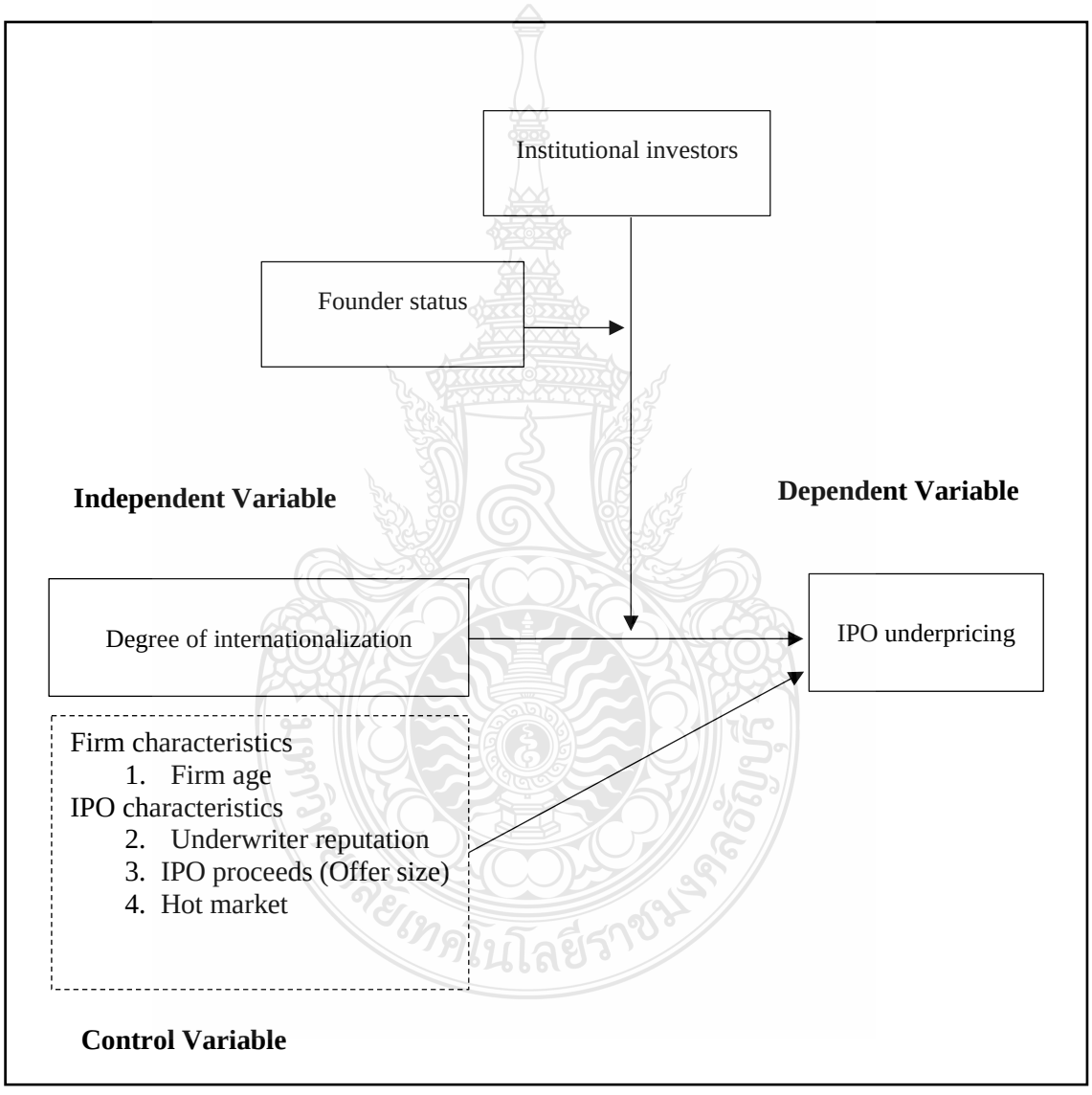

Figure 3.1 Research Framework

3.1 Sample and Data Source

3.1.1 Sample

The sample for this study consists of firms on the Stock Exchange of Thailand (SET) and the Market for Alternative Investment (mai) consist of the manufacturing and service sectors were examined. Since the beginning of 2012, export has been continuously shrinking from the slowdown of economic conditions in both the European Union and the United States. At the end of the year, export industry in Thailand was recovered after the big flood in 4th quarter 2011. Similarly, Japan as Thailand's main trading partner was also recovered from the tsunami in 2011. In order to avoid the effects of abnormal economic conditions, this study only concentrates on IPO published from 2013 to 2020.

Table 3.1 presents the sample selection process of 80 IPOs. According to the dataset on SET and mai, there were 227 IPO listed from January 2013 to October 2020. However, 7 firms with no prospectus or no data return, 42 firms with overpricing, 11 firms in financial industry, and domestic firms were excluded in this study. Thus, the total number of firms in this study consists of 80 firms.

Table 3.1 Sample selection process

Sample Selection Process	**Number of Firms**
Total IPOs issued between during 2013-2020	227
Less: Missing (no prospectus or no data return)	7
After removing firms with missing data	220
Less: Overpricing	44
Less: Financial industry	11
Before removing domestic firms	165
Less: Outlier	2
Less: Domestic	85
Final sample	80

The data of the sample's money left on the table from 2013 to 2020 was collected from the Stock Exchange of Thailand (SET) website. The data of the number of IPOs and amount in IPO process within each year is displayed in Table 3.2 Panel A. IPOs

are categorized into 7 sectors according to the Stock of Thailand. The number of IPOs within the 7 sectors are presented in Table 3.2 Panel B.

Table 3. 2 Number and percentage of newly listed international firms between 2013-2020

Year	Number of newly listed companies	Percentage
Panel A: by year		
2013	12	15.00
2014	18	22.50
2015	15	18.75
2016	11	13.75
2017	15	18.75
2018	3	3.75
2019	4	5.00
2020	2	2.50
Total	**80**	**100.00**
Panel B: by Industry sector		
Agriculture & Food	15	18.75
Consumer Products	7	8.75
Industrials	13	16.25
Property & Construction	11	13.75
Resources	10	12.5
Services	19	23.75
Technology	5	6.25
Total	**80**	**100**

SOURCE: Stock Exchange of Thailand

3.1.2 Data Source

In this study, internationalization is the main independent variable. The degree of internationalization (DOI) can be measured in various dimensions, such as production and foreign sale as specified in the prospectus available on the website of the Securities and Exchange Commission (SEC), the Stock Exchange of Thailand (SET) and the official website of newly listed companies. The data relevant to the stock return analysis on the database of SETTRADE and Bisnews were also collected and analyzed in this study.

3.2 Variables in the Study

3.2.1 Dependent Variable

The objective of the firms when they go public is to increase capital from the public by attracting investors. During the IPO process, IPO shares are allocated to investors. IPO price reflects the willing and motivation of founders, executive officers, underwriter, insider investor and institutional investor (Certo et al., 2009). Therefore, the difference between the offer price in primary market and market price in secondary market of IPO stock indicates the first- day IPO return (initial return) as well as underpricing.

Underpricing is used to measure short- term IPO performance (Certo et al., 2009). Previous studies on IPO found phenomena associated with underpricing (Ibbotson (1975), Beatty and Ritter (1986), Rock (1986)). In case the price of initial offerings is lower than the closing price on first trading day in the secondary market (Ritter & Welch, 2002), the difference in prices indicates underpricing. The following formula can be used to calculate underpricing (Arthurs et al., 2008; A. Ljungqvist, 2007).

$$UP_{i,t} = \frac{P_{i,1}-P_{i,0}}{P_{i,0}} \quad (3.1)$$

where:

$UP_{i,t}$ = the underpricing at the time of IPO for stock “i”

$P_{i,0}$ = the IPO offer price of the stock “i”

$P_{i,1}$ = the first-day closing price of the stock “i”

Since the market performance in IPOs illustrates changes in the stock conditions which may affect the initial return of IPO stocks, it becomes a famous measurement for

many researchers (Mehmood et al., 2020). Thus, underpricing with market returns is adjusted to market change, and used to measure short-term IPO performance in this study. The market return calculation is

$$Rmi,t = \frac{MI_{i,t}-MI_{i,0}}{MI_{i,0}} \quad (3.2)$$

where:

$Rm_{i,t}$ = the market return of the corresponding stock exchange at the time of IPO "t" for stock "i".

$MI_{i,0}$ = the closing price of the corresponding stock exchange index where stock "i" was listed at the offering day of the company.

$MI_{i,t}$ = the closing price of the corresponding stock exchange index where stock "i" was listed at the end of the first-day trading.

Boonchuaymetta and Chuanrommanee (2013) stated that the initial return of the market-adjusted return for Thai IPOs study. Thus, market adjusted underpricing ($MAUP_{i,t}$) is calculated as follow:

is the underpricing of the stock "i" adjusted to the market effect of the corresponding stock exchange for period of IPO "t" as follows:

MAUP = UP- $Rm_{i,t}$

MAUP represents a market-adjusted IPO underpricing of the stock "i" adjusted to the market effect of the corresponding stock exchange for period of IPO "t"

Underpricing is considered as indirect cost or money left on the table of issuing firm when the firm increases its capital. This event also leads to capital loss which is less than the remaining value stock of the amount of capital gained from a higher stock price (Loughran & Ritter, 2002a). This is the reason why underpricing is measured by using the first-day closing prices. According to IPO literature, underpricing or the difference of the price on the first trading day in the secondary market and the offer price calculated by market-adjusted underpricing has been primarily used to measure IPO performance in a short term.

3.2.2 Independent Variable

DOI is defined as an index to measure the degree of the company's DOI by exporting its products to other countries (Hitt, Tihanyi, Miller, & Connelly, 2006). Numerous researchers have measured DOI in various dimensions. Jankowska (2011) measured DOI by the activities of the company, including production and sales (export sales, international contracts and foreign direct investment), a component of production (employment, deliveries of materials, fixed asset and services and technology knowledge), and capital market (share of foreign capital and share of portfolio investment). This is consistent with Sullivan (1994), who claimed that DOI is reflected in three dimensions: activities (global activities), structure (foreign resources), and attitude (top management's international experience).

Interestingly, export of product and the ratio of foreign sales to total sales (FSTS) are commonly used to measure DOI. Consistent with the previous research, FSTS is used in both single measure and combination measures (Capar & Kotabe, 2003; Farok J Contractor et al., 2003; W.-T. Hsu et al., 2013; Lin et al., 2011; Ruigrok & Wagner, 2003). A number of researchers indicated that it is unnecessary for internationalized companies to allocate their own facilities to other countries while they can be internationalized by exporting their products (Johanson & Vahlne, 1977; McDougall, Shane, & Oviatt, 1994).

In fact, Thai listed companies in SET and mai have expanded their business to the foreign market for growth. Their objectives are to expand their market, to expand their new resource and facilities, and to enhance their production efficiency, technology, and innovation. The foreign sale of Thai firms is publicly reported as the revenue from their overseas operations which include subsidiaries, associated companies, joint venture, and export sales from facilities based in Thailand. Moreover, investment of multinational corporations in Thailand also benefits the revenue of newly listed companies.

To measure DOI, this study utilized the ratio of foreign sales to total sales (FSTS) which refers to the expansion to other countries apart from the firm's domestic market on account of resource availability.

3.2.3 Moderate Variables

Institutional investors

The primary moderator to test the impact of the allocation IPO to institutional investors of the effect of DOI on IPO underpricing is the percentage of IPO allocated to institutional investors underpricing (Boonchuaymetta & Chuanrommanee, 2013).

Founder status

The second moderator variable is founder role, as a dichotomous variable (1 = the CEO is also of the firm's founders, 0 = the CEO is not firm's founder) (Certo, Covin, et al., 2001; Pour, 2015).

3.2.4 Control Variables

Firm age

Beatty and Ritter (1986) stated that the ex-ante uncertainty of the new issues is related to asymmetry information and underpricing. Firm age is a particular characteristic and a proxy of the ex-ante uncertainty. Firm age and its effects on IPO underpricing have been explained in numerous studies. Certain studies found that firm age affects firm performance, and the older firms have been found to financial outperform a younger firm. Since firm age reflects retained wealth, it may influence the initial offer price (Certo, Covin, et al., 2001). The results of some studies also revealed that older firms can disclose their past operation and performance, and have lower risk and less underpricing than younger firms (R. B. Carter et al., 1998; Mutai, 2019; Ritter, 1998).

Firm age is included as a control variable in the examination IPO underpricing since older firms are able to access and evaluate information which reduces information asymmetries (Heeley et al., 2007). Previous studies used firm age as a control variable, and found a negative relationship between firm age and IPO underpricing, according to R. B. Carter et al. (1998), Arthurs et al. (2008), Bharat A Jain, Jayaraman, and Kini (2008), Al-Shammari et al. (2013), Boonchuaymetta and Chuanrommanee (2013),Judge et al. (2015), and Ozdemir and Upneja (2016). Firm age was operationalized by the difference between its founding year and its IPO year (Certo, Daily, et al., 2001; Daily et al., 2003; Ozdemir & Upneja, 2016). Thus, this study expects that firm age negatively affects IPO underpricing.

Underwriter reputation

Underwriters play an essential role in IPO process since they influence the IPO pricing. The involvement of a reputable underwriter in an IPO deal may signal the public market. Empirical studies indicated the impact of reputable underwriters on IPO underpricing due to the fact that underwriters put their reputation on an IPO guarantee (Loughran & Ritter, 2002b). In addition, underwriter reputation is correlated with the decrease in underpricing of new firms (R. Carter & Manaster, 1990; R. B. Carter et al., 1998). Low-risk companies tend to have low underpricing costs; therefore, the reputable underwriter is commonly selected by newly listed company in order to decrease its underpricing costs. This corresponds to R. Carter and Manaster (1990) and R. B. Carter et al. (1998), as well as La Rocca (2019) and Bandi, Widarjo, and Trinugroho (2020), who found that underwriter reputation is related to a low-risk offer and decreases underpricing. On the other hand, Kirkulak and Davis (2005) indicated that the relationship between reputation and underpricing relied on the demand of the IPOs. If the IPOs is priced in the market with high demand, the relationship between underwriter reputation and the level of underpricing is positive and significant. However, their relationship is negative if the IPO is priced in the market with low demand. Thus, it is possible that underwriter reputation affects underpricing either positively or negatively.

With established reputation and a solid foundation of the bank group, a broker that is a subsidiary of bank is capable of underwriting service that are strongly supported by the range of services and facilities available throughout their bank group. An underwriter which is a securities firm whether it is a commercial bank or not ensures issuers' success and investors' perspective (Papaioannou & Karagozoglu, 2017), and the underwriter reputation can support issuer to IPO success. Therefore, two dummy variables in this study are subsidiary of bank, and non-subsidiary of bank (1 represents underwriter that is a subsidiary of bank, and 0 represents other cases).

IPO proceeds

The ex-ante uncertainty is related to the size of the IPO offer or IPO proceeds. According to Beatty and Ritter (1986), smaller offering has higher average initial returns. If ex-ante uncertainty increases, a representative investor will compensate the risk with high initial returns or underpricing. It is necessary for a small newly listed company to

compensate its investors for the higher risks than a company with a large offer size (A. Ljungqvist, 2007). In case the issuers are well-known old firms with a large amount of the IPO proceeds, the investors may perceive that there is low risk and low underpricing (Judge et al., 2015; Wei & Marsidi, 2019).

IPO proceeds are intended to control variables. Huge IPOs are usually issued by the firm that was founded a long time ago, and the risk of the company issuer is minimal. Therefore, underpricing or the initial returns should be diminished (R. B. Carter et al., 1998). IPO proceed is commonly used as a control variable in research studies (Al-Shammari et al., 2013; Boonchuaymetta & Chuanrommanee, 2013; Judge et al., 2015). Small IPO proceeds of newly listed company are used to compensate the investors for the higher risks. Thus, the relationship between IPO proceeds and IPO underpricing can be found positive (A., W., & Yousuf, 2013), and negative (Boonchuaymetta & Chuanrommanee, 2013; Judge et al., 2015).

Since firms offer IPOs to raise capital (Pagano et al., 1998), IPO proceeds presented by the IPO funding are measured by the total IPO proceeds earned at IPO event (Judge et al., 2015; Ozdemir & Upneja, 2016). Particularly, IPO proceeds reflect the capital an offering generates, which is the product of the offer price and the number of shares sold in the offering. (Ibbotson & Ritter, 1995). Therefore, certain scholars use IPO proceeds to represent IPO success and measure short-term IPO performance (Heugens, Engelen, van Essen, Turturea, & Bailey, 2018). This study expects that IPO proceeds negatively affect IPO underpricing.

Hot market

Hot market is defined as the period when the high initial returns and the volume of issuers or companies going public tend to be greater (Lowry et al., 2017; Ritter, 1984). Hot market in the Stock Exchange of Thailand was defined by Vithessonthi (2014) as initial return greater than 10%. Boonchuaymetta and Chuanrommanee (2013) who studied IPOs in Thailand between 2001-2011 found that the period between 2002 and 2003 was hot market.

Table 3. 3 Average underpricing by year of issuance

Year	N	Average of Returns (%)	Standard deviation	Max of Returns (%)	Min of Returns (%)	Annual market return (%)	t-Value	P
2013	28	57.55	68.64	200.00	-29.33	-7.73	4.44***	0.0001
2014	36	83.26	71.20	200.00	-25.47	21.69	7.01***	0.0001
2015	33	51.66	59.49	200.00	-12.84	-13.16	4.99***	0.0002
2016	23	57.95	48.57	200.00	7.00	22.13	5.72***	0.0001
2017	38	27.45	32.60	151.09	-10.26	12.16	5.19***	0.0001
2018	18	11.15	26.98	71.58	-21.33	-12.07	1.75*	0.0981
2019	28	2.47	17.07	47.06	-30.07	0.89	0.77***	0.0001
2020	16	53.46	71.31	200.00	-3.68	-15.63	3.00***	0.0001
Total	220	44.61	58.60	200.00	-30.07	1.03	11.29***	0.0001

SOURCE: The average initial returns are calculated by the average percentage of the difference between the offer price and the first-day closing price in the secondary market. Market return is calculated based on SET index return. The data were collected from the Stock Exchange of Thailand website. Significance level of 10% is denoted with***,** significance level of 5% is denoted with**, and significance level of 1% is denoted with***

Due to a hot issue market in 2014, the volume of trading and the stock market return abnormally increased. Table 3.3 presents underpricing in 2013,2014,2015,2016 and 2020, and the average of returns per year were 57.55%, 83.26%, 51.66%, 57.95% and 53.46% respectively which are higher than the average. In 2014, there was an annual market return greater than average and the volume of issuing company was the largest. It is obvious that the underpricing in 2014 is also significant. Thus, 2014 is considered as a hot market and classified as a control variable, which is a binary variable (1 = IPO issue in 2014,0 = others)

All variables in regression models are summarized and presented in Table 3.4

Table 3.4 Variables definitions

Variables	Short Form	Definition and operationalization	Expect Sign
Dependent variable			
Underpricing	MAUP	The percentage difference between the first-day closing price and offer price is divided by the offer price (Arthurs et al., 2008) and market-adjusted underpricing (Boonchuaymetta and Chuanrommanee ,2013)	
Independent Variable Degree of internationalization	DOI	Ratio of foreign sales to total sales (FSTS) (Oviatt and McDougall ,1994).	-
Moderator Variable			
Institutional investors	INS	The percentage of IPO allocated to institutional investors underpricing (Boonchuaymetta & Chuanrommanee, 2013).	-
Founder status	FCEO	1 represents founder CEO, 0 represents non-founder CEO (Yu & Zheng, 2012).	+
Control Variable			
Firm Characteristics			
Firm age	AGE	The difference between firm's founding year and IPO year (Certo, Daily, et al., 2001, Daily et al., 2003).	-
IPO Characteristics			-
Underwriter reputation	UWR	Types of underwriter are used to measure the reputation (1 represents subsidiary of bank,0 represents others).	-
IPO proceeds	PROCEED	Gross proceeds are calculated as the product of offer price and share volume (Judge et al., 2015; Ozdemir & Upneja, 2016).	+/-
Hot market	HOT	Hot market represents the hot issue market (1 represents IPO issue in 2014, 0 represents others).	+

3.3 Statistical and Conceptual Diagrams

The data were analyzed by path analysis. The antecedent is synonymous with a predictor or independent variable, and the consequent is synonymous with the outcome or dependent variable. Moderation effect analysis or interaction analysis is used to investigate the mechanism, and interpret the causal relationship between antecedent and consequent. The interaction analysis is a hidden variable study on relationship between an antecedent and consequent. The moderator explains that when an antecedent and consequent are related, the moderation effect can be enhancing where the increasing moderator (M) increases the effect of an antecedent variable (X) on a consequent variable (Y) . The moderation effect can also be buffering where the increasing moderator decreases the effect of an antecedent variable on a consequent variable. Lastly, it can be antagonistic where the increasing moderator reverses the effect of an antecedent variable on a consequent variable.

In this study, PROCESS for SPSS developed by Hayes (2012)will be conducted in order to analyzes the moderator effect.PROCESS reduces the calculation of the product of X and M because it generates a new variable term automatically. This helps interpret the conditional moderation effect. Importantly, this analysis can examine simple slopes or a spotlight analysis, called the pick- a- point approach which is implemented by regression centering. This approach requires various values of M to estimate the conditional effect of X on Y when M is equal to the mean. With a plus and minus one standard deviation from the mean, it represents "low" , "moderate" and " high" on the moderator. In addition, PROCESS can automatically provide output from the pick- a- point approach to probing interactions when a moderator model is specified with the effect of X on Y moderated by another variable.

However, all predictors are required to transform to mean- centered version to avoid multicollinearity. Mean centering option does not affect the test of the interaction, its coefficient in the model or its standard error. It results in a model with the same R^2 fitted values of Y, and the estimation of the conditional effects or simple slope is unaffected. However, mean centering guarantees that the coefficients for the two variables defining the product can be interpreted within the range of the data. Thus, the use of the mean centering feature of PROCESS should be optional to investigate the effect

of X (antecedent variable) and Y (consequent variable) which is dependent on M (moderator variable). Unlike regular regression, PROCESS can easily produce the product of X and M. Moreover, it helps interpret the conditional moderation effect using the pick-a-point approach.

The research framework considers DOI as an antecedent variables and IPO underpricing as the consequent variable. Additionally, the model extended in this study identified institutional investors and founder role as the moderator variables. Multiple regression model is used to test the hypotheses as provided in Chapter 2.

3.3.1 Model Test: The Effect of Internationalization on IPO Performance

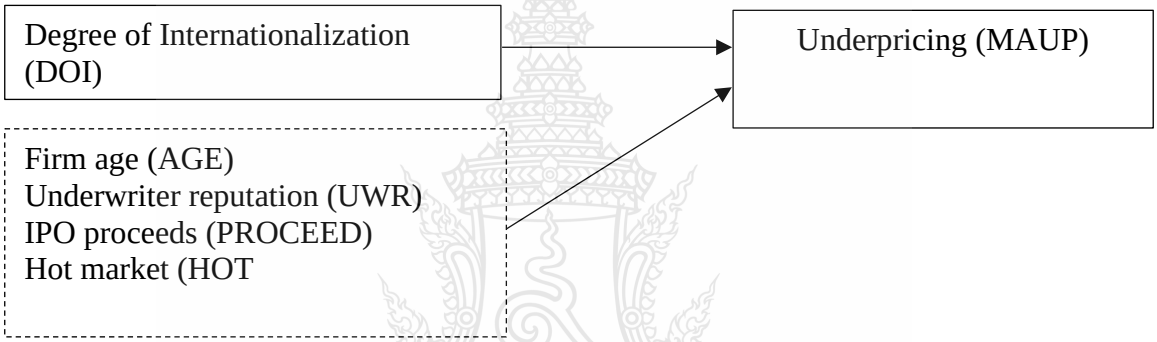

Figure 3.2 The effect of DOI on IPO underpricing conceptual diagram

The first model examines the effect of DOI on IPO underpricing (H1). It represents a conceptual diagram in figure 3.2 and a statistical diagram as shown in Figure 3.3

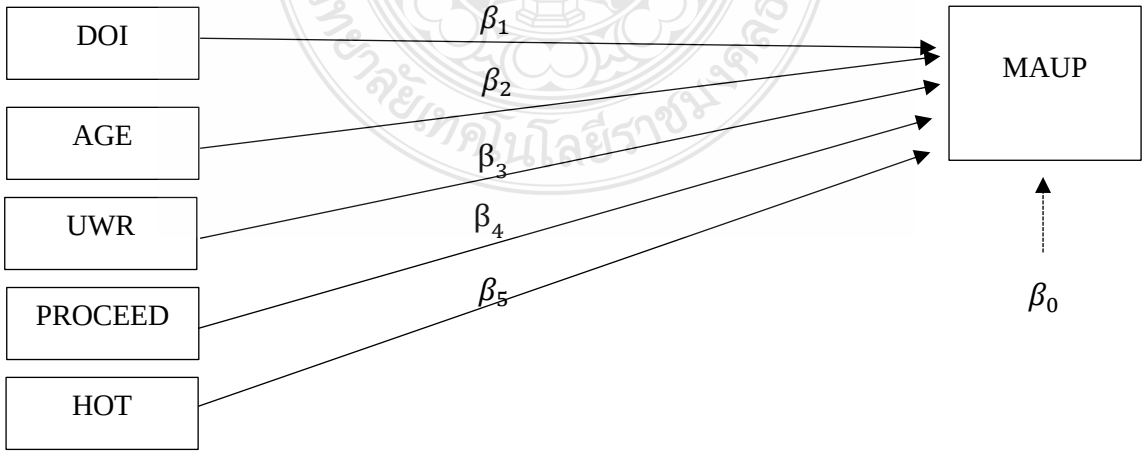

Figure 3.3 The effect of DOI on IPO underpricing statistical diagram

Formally, the underpricing IPO performance is tested using Equation 1.

$$MAUP_{it} = \beta_0 + \beta_1 DOI_{it} + \beta_2 AGE_{it} + \beta_3 UWR_{it} + \beta_4 PROCEED_{it} + \beta_5 HOT_{it} + \varepsilon_{it} \quad (3.3)$$

Where i = IPO firm, t = year of the IPO

Hypothesis 1 was set in order to examines the effect of DOI on IPO underpricing.

Hypothesis 1: The degree of internationalization affects IPO underpricing.

3.3.2 Model Test: Two-way Interaction effect Between the Internationalization and IPO Underpricing on Institutional Investors

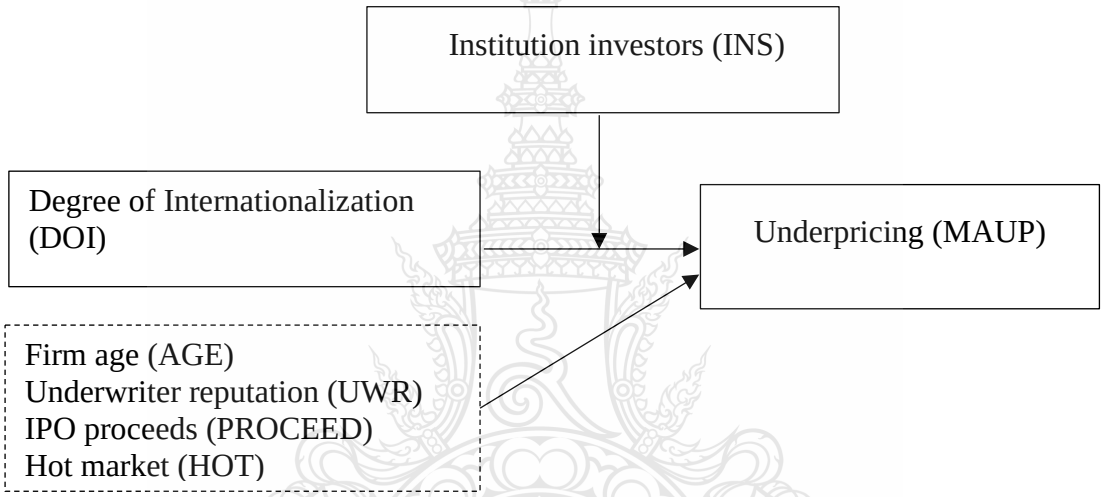

Figure 3.4 Two-way interaction effect between DOI and IPO underpricing on institutional investors conceptual diagram

The conceptual diagram depicts an antecedent variable DOI's effect on consequent variable IPO underpricing as moderated by institutional investors. The second model examines the interaction between the DOI and IPO underpricing depend on institutional investors. To test hypothesis 2 whether institutional investors interacts between DOI and IPO underpricing, a conceptual diagram and a statistical diagram are illustrated in Figure 3.4 and Figure 3.5 respectively.

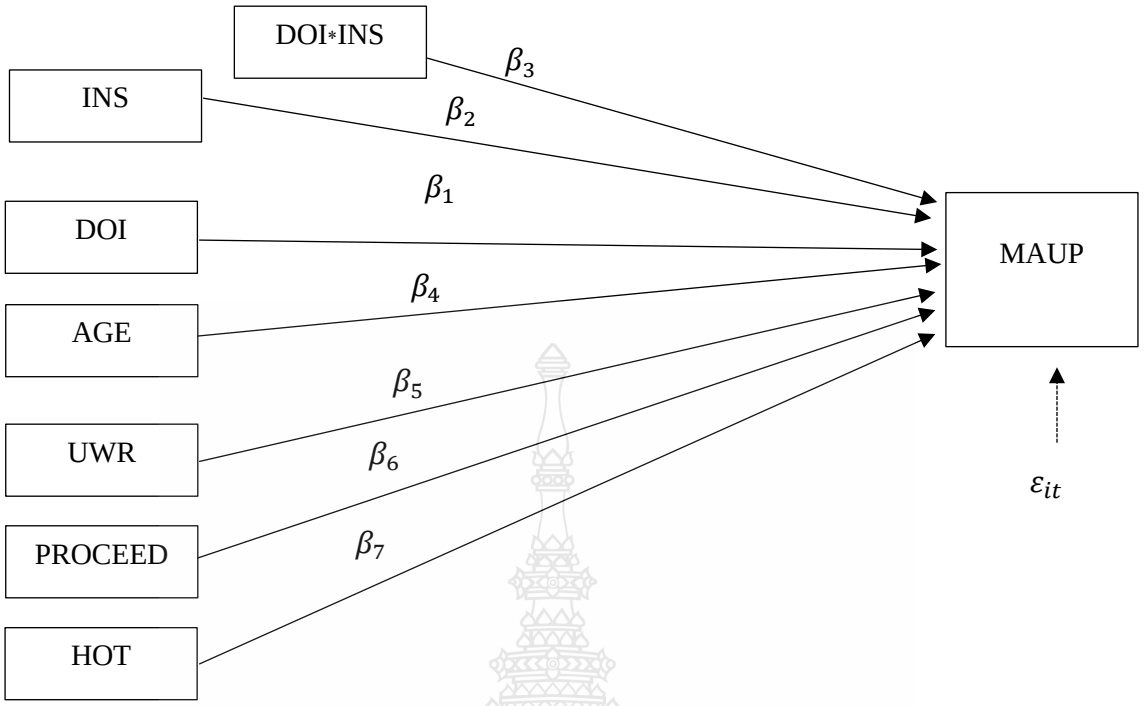

Figure 3. 5 Two-way interaction effect between DOI and IPO underpricing for institutional investors statistical diagram.

The mean-centered version of the interaction between X and M is necessarily applied to avoid multicollinearity. The mean-centered version of the variable has a mean of zero and a standard deviation equal to the standard deviation of its variable. Therefore, the mean of X is subtracted from each value of X in the data to produce a new variable as such $X' = X - \bar{X}$ and the mean of M is subtracted from each value of M in the data to produce a new variable as such $M' = M - \bar{M}$. Thus, DOI and INS must be put in the mean-center version in the model. As a result, β_1 can estimate the effect of X when $M = \bar{M}$, and β_2 can estimate the effect of M when $X = \bar{X}$.

Equation 2 is used to test the underpricing IPO performance.

$$MAUP_{it} = \beta_0 + \beta_1 D\acute{O}I_{it} + \beta_2 I\acute{N}S_{it} + \beta_3 D\acute{O}I_{it} \times I\acute{N}S_{it} + \beta_4 AGE_{it} + \beta_5 UWR_{it} + \beta_6 PROCEED_{it} + \beta_7 HOT_{it} + \varepsilon_{it} \quad (3.4)$$

Where $D\acute{O}I = DOI - \overline{DOI}$ and $I\acute{N}S = INS - \overline{INS}$

i = IPO firm, t = year of the IPO

Hypothesis 2: Institutional investors moderate the degree of internationalization on IPO underpricing, such that the effect is stronger in firms with high proportion of institutional investors than firms with low proportion of institutional investors after controlling for firm characteristic and IPO characteristics.

Hypothesis 2 was set in order to examines the two-way interaction effect between the DOI and IPO underpricing on institutional investors (INS).

3.3.3 Model Test: **Three-way Interaction effect Among the Internationalization, Institutional Investors and Founder Role on IPO Underpricing**

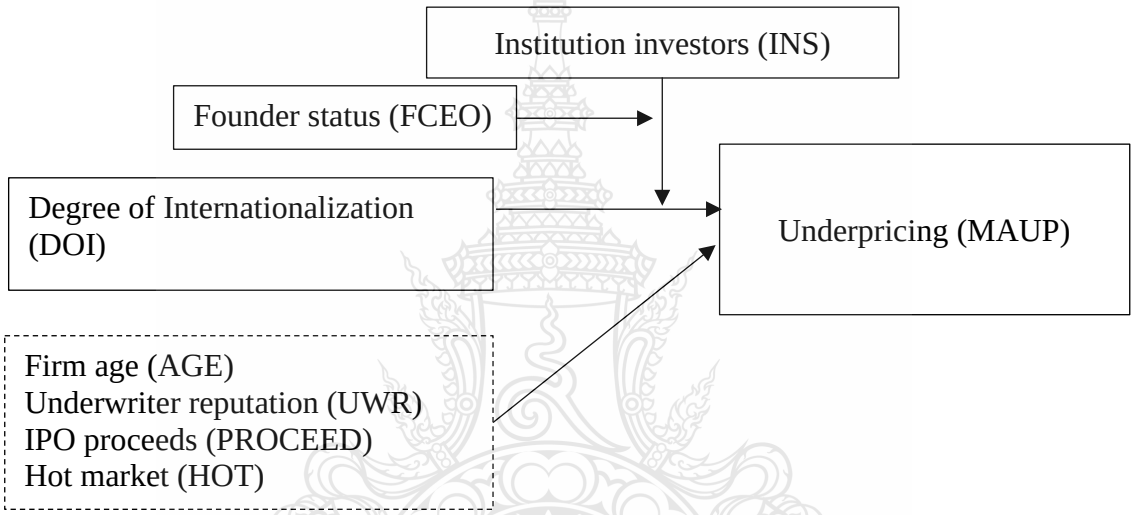

Figure 3.6 Three-way interaction effect among internationalization, institutional investors and founder role on IPO underpricing conceptual diagram

The third model examines the interaction among the DOI, IPO underpricing, and founder CEO to test H3. A conceptual diagram and a statistical diagram are shown in Figure 3.6 and Figure 3.7 respectively. Finally, founder-CEO is used to examine the interaction between the DOI and IPO underpricing as in H3. A statistical diagram is illustrated in Figure 3.8

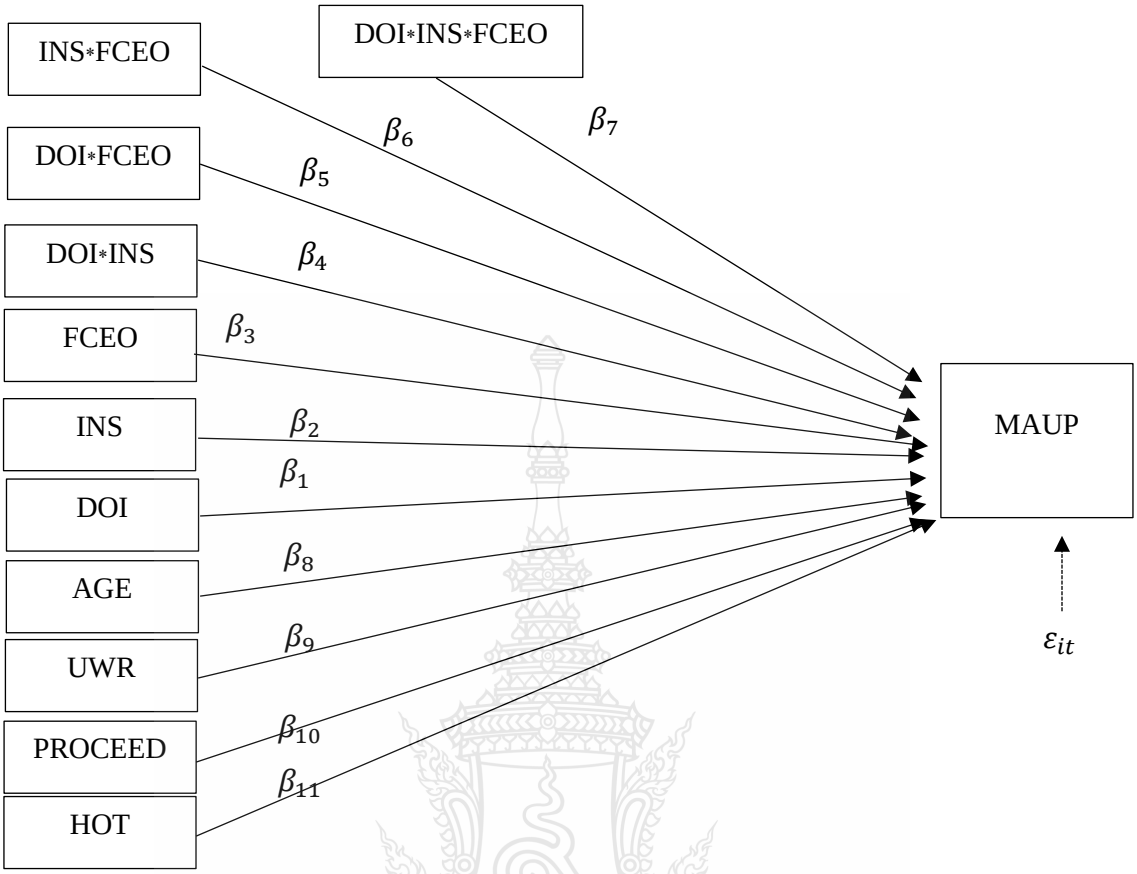

Figure 3.7 Three-way interaction effect among internationalization, institutional investors and founder role on IPO underpricing statistical diagram

Equation 3 is used to test IPO underpricing.

$$MAUP_{it} = \beta_0 + \beta_1 DOI_{it} + \beta_2 INS_{it} + \beta_3 FCEO_{it} + \beta_4 DOI_{it} \times INS_{it} + \beta_5 DOI_{it} \times FCEO_{it} + \beta_6 INS_{it} \times FCEO_{it} + \beta_7 DOI \times INS_{it} \times FCEO_{it} + \beta_8 AGE_{it} + \beta_9 UWR_{it} + \beta_{10} PROCEED_{it} + \beta_{11} HOT_{it} + \varepsilon_{it} \quad (3.5)$$

Hypothesis 3: Founder status moderates the two-way interaction effect of the degree of internationalization and institutional investors on IPO underpricing. Specifically, the effect of internationalization on IPO underpricing more negatively when firms have non-founder CEO with the low portion of institutional investors than the firms have founder CEO.

The research findings will be clarified in the next chapter.

CHAPTER 4
RESEARCH RESULT

The objective of this chapter is to address the results of the multiple regression models used to test the hypotheses as presented in Chapter 3. The results, theoretical concepts and the previous empirical studies are discussed in this part.

4.1 Descriptive Statistics

The data of IPOs listed in Thailand from 2013 to 2020 presented in Table 4.1 indicate that 220 IPOs were underpriced during the years with 506,545.15 million Baht raised by IPO proceeds. The trend of issuing IPO shares and the amount of funds raised in the stock market increased each year. Additionally, the reported amount of money left of table was approximately 74,171.60 million Baht. The average initial returns of IPOs were approximately 44.61% which shows that the offer price is less than the first-day closing price with an average of 44.61%.

The number of IPO issues in 2017 was found to be the most of newly listed companies, which account for 17.27% (38 of 220 IPOs), followed by the number of IPO issues in 2014, which account for 16.36% (36 of 220 IPOs). However, IPO issues from January to October in 2020 were found to be the lowest number of IPOs, which account for 7.27% (16 of 220 IPOs) with 116,042.74 million Baht as the largest IPO proceeds. This accounts for 22.91% of 506 billion Baht as the total amount of IPO proceeds from January 2013 to October 2020.

Table 4.1 Number of IPOs, average of underpricing and IPO proceeds between 2013-2020 in Thailand

Year	Issuance of IPOs		Sum of IPO proceeds		Money left on the table	Average of underpricing (%)	Standard deviation
	Number	%	Million Baht	%	Million Baht		
2013	28	12.73	39,062.12	7.71	7,191.86	57.55	68.64
2014	36	16.36	53,474.20	10.56	15,313.00	83.26	71.20
2015	33	15.00	39,891.82	7.88	9,299.32	51.66	59.49
2016	23	10.45	32,612.56	6.44	11,856.90	57.95	48.57
2017	38	17.27	92,393.56	18.24	15,170.85	27.45	32.60
2018	18	8.18	26,481.42	5.23	1,671.07	11.15	26.98
2019	28	12.73	106,586.73	21.04	389.72	2.47	17.07
2020	16	7.27	116,042.74	22.91	13,278.89	53.46	71.31
Total	220	100.00	506,545.15	100.00	74,171.60	44.61	58.60

SOURCE: Money left on the table is calculated by the first-day closing price minus the offer price of IPO shares, and multiplied by the number of IPO shares. The average initial returns are calculated by the average percentage of the difference between the offer price and the first-day closing price in the secondary market. IPO proceeds, the amount raised from issuing IPOs, is the product of the offer price multiplied by the number of shares sold in the offering. The data were collected from the Stock Exchange of Thailand website by the author.

The overall of the amount of money left on the table in Thai IPO was about 74,171.60 million Baht. The highest amount was around 15,313 million Baht in 2014 while the lowest amount of money left on the table was approximately 389.72 million Baht in 2019.

The distribution of underpricing IPO by year shows that IPO issues in 2013, 2014, 2015, 2016, and 2020 are 57.55%, 83.26%, 51.66%, 57.95% and 53.46% respectively which are higher than the total average underpricing value. Particularly, the underpricing in 2014 is significant since 2014 is considered hot market.

Table 4.2 presents difference tests related to the number of IPOs, IPO proceeds, and the average underpricing categorized by industry comparison of international firms and domestic firms from January 2013 to October 2020. The average underpricing of IPOs is positive and statistically significant for all sectors, except agriculture & food sector of domestic firm.

Table 4.2 Comparison of international IPO firms and domestic IPO firms by using number of IPOs, IPO proceeds and average of underpricing by industry between 2013-2020 in Thailand

	N	Sum of Proceeds (Million Baht)	Average of UP (%)	Standard deviation	Max of UP	Min of UP
Panel A: International IPO firms						
AGRO	17	49,035.49	26.53	32.77	105.56	-20.16
CONSUMP	7	20,187.92	77.94	44.18	164.00	27.78
FINCIAL	0	-	-	-	-	-
INDUS	14	9,825.51	59.50	68.97	200.00	-9.57
PROPCON	12	18,727.29	48.45	53.49	168.42	-8.73
RESOURC	11	38,738.78	30.38	46.27	148.00	-11.11
SERVICE	20	22,781.66	69.26	64.54	200.00	0.00
TECH	5	2,600.60	63.56	26.89	101.25	38.46
Total	**86**	**161,897.25**	**51.72**	**54.68**	**200.00**	**-20.16**
Panel B: Domestic IPO firms						
AGRO	3	3,640.12	62.56	62.56	200.00	-10.26
CONSUMP	5	2,125.00	54.14	54.14	89.66	28.57
FINCIAL	14	40,973.28	52.13	52.13	200.00	-0.87
INDUS	19	47,377.36	30.32	30.32	115.38	-3.68
PROPCON	22	65,593.22	23.72	23.72	200.00	-30.07
RESOURC	16	71,283.46	34.49	34.49	200.00	-25.47
SERVICE	45	110,968.12	32.33	32.33	200.00	-29.33
TECH	10	2,687.34	107.38	107.38	200.00	-10.40
Total	**134**	**344,647.90**	**40.05**	**40.05**	**200.00**	**-30.07**
Panel C: All IPO firms						
AGRO	20	52,675.61	31.93	50.71	200.00	-20.16
CONSUMP	12	22,312.92	68.02	37.59	164.00	27.78
FINCIAL	14	40,973.28	52.13	65.21	200.00	-0.87
INDUS	33	57,202.87	42.70	52.92	200.00	-9.57
PROPCON	34	84,320.51	32.45	59.33	200.00	-0.07
RESOURC	27	110,022.24	32.81	57.64	200.00	-25.47
SERVICE	65	133,749.78	43.69	56.99	200.00	-29.33
TECH	15	5,287.94	92.77	74.67	200.00	-10.40
Total	**220**	**506,545.15**	**44.61**	**58.60**	**200.00**	**-30.07**

NOTE: UP represents underpricing (initial return), and its values are presented in percentages. ARGO represents agriculture & food sector. CONSUMP represents consumer products sector. FINCAIL represents financial sector. INDUS represents industrials sector. PROPCON represents property & construction sector. RESOURC represents resources sector. SERVICE represents service sector. TECH represents technology sector.

Panel A of Table 4.2 presents the number of IPOs, IPO proceeds, and the average underpricing of international firms. The average underpricing is positive and statistically significant for all industry sectors. In service sector, 20 IPOs were found to be the largest number of newly listed companies, followed by 17 IPOs in agriculture & food sector. In addition, agriculture & food sector had the largest IPO proceeds with

49,035.49 million Bath from January 2013 to October 2020. However, internationalization was not found in firms in financial sector.

Panel B of table 4.2 presents the number of IPOs, IPO proceeds, and the average underpricing of domestic firms. The average underpricing of IPOs is positive and statistically significant for all industry sectors, except agriculture & food sector. Services sector was found to have the largest number of newly listed companies with 45 IPOs, followed by 22 IPOs in property & construction sector. Meanwhile, services sector was found to have the largest IPO proceeds with 110,968.12 million Bath, followed by resources sector with 71,283.46 million Bath. The findings can be concluded that there is a significant difference in average underpricing of international firms and domestic firms, and the average underpricing of international firms is higher than domestic firms.

Panel C of Table 4.2 shows that both international and domestic firms have 44.61% of underpricing which is significantly different from zero (*t*-stat = 11.29). It indicates that the offer price of IPOs in primary marker is lower than the first trading day in secondary market.

Descriptive statistics of the variables used in the study, including mean, standard deviation, minimum and maximum were generated for each variable for 80 publicized international firms during the period between January 2013 and October 2020. Only underpricing and international cases were in focus. The statistics and the number of IPO companies classified by published year are shown in Table 4.2 and Table 4.3 respectively.

Table 4.3 Descriptive statistics

	Mean	**Std. Deviation**	**Minimum**	**Maximum**
Firm age	19.60	12.00	2.00	53.00
Underwriter reputation	0.46	0.50	0.00	1.00
IPO proceeds	1,796.86	2,951.63	90.00	14,904.92
Hot market	0.23	0.42	0.00	1.00
Degree of internationalization	37.36	32.96	0.50	100.00
Institutional investors	20.59	21.38	0.00	61.92
Founder CEO	0.76	0.43	0.00	1.00
Underpricing	55.31	54.02	0.22	200.51
Observations = 80				

The results in Table 4.3 shows that the mean of firm age is 19.60 years while its minimum and maximum value are 2 and 53 years respectively. The mean of underwriter reputation is 0.46 which means 37 out of 80 IPO firms have a subsidiary of bank as their underwriters. The mean, minimum and maximum of IPO proceeds are 1,796.86 million bath, 90 million bath and 14,904.92 million baht respectively. The mean of hot market is 0.23 which means there were 14 IPO firms out of 80 firms listed in the capital market in 2014. The mean of DOI is 37.36%. The minimum and maximum value are 0.5% and 100% respectively. The mean of portion of institutional investors is 20.59%. Its minimum and maximum value are 0% and 61.92% respectively. The mean of founder role is 0.76. 61 out of 80 IPO firms were found to have CEO-founder. Finally, the mean of underpricing is 55.31%. Its minimum and maximum value are 0.22% and 200.51% respectively.

Table 4.4 illustrates a correlation matrix among all the control, independent and moderator variables as antecedent variables. Correlations among the antecedent variables examine multicollinearity. Moreover, no pair of variables is highly correlated. The highest correlation among these variables is 0.504. Thus, the problem of multicollinearity is not serious in regression model of the data in hypothesis 1. However, in order to test interaction analysis in hypotheses 2 and 3, interaction term variables were created in the mean centering form to reduce multicollinearity. In addition, none of variable inflation factors (VIFs) approaches the threshold of 10 (Neter, Kutner, Nachtsheim, & Wasserman, 1996). Therefore, multicollinearity problem is not considered as a serious threat in regression analysis.

Table 4.4 Correlations among all variables

	AGE	UWR	PROCEED	HOT	DOI	INS	FCEO
Control							
AGE							
UWR	0.105						
PROCEED	0.192	0.296**					
HOT	-0.100	-0.020	-0.101				
Independent							
DOI	-0.001	0.088	-0.056	-0.011			
Moderator							
INS	0.292**	0.504**	0.374**	-0.144	0.096		
FCEO	0.104	-0.189	-0.050	0.019	0.124	-0.170	
Dependent							
MAUP	-0.286*	-0.375**	-0.247*	0.285*	0.059	-0.342**	-0.006

** Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).
Notes: AGE: firm age, UWR: underwriter reputation, PROCEED: offer size of IPO, HOT: hot issue market, DOI: degree of internationalization, INS: institutional investors, FCEO: founder role and MAUP: market adjust underpricing.

4.2 Hypothesis Testing

Ordinary Least Square (OLS) presented in Table 4.5 was used to test the effect of firm characteristics (firm age) and IPO characteristics (underwriter reputation, IPO proceeds and hot market) as control variables on IPO underpricing.

Table 4.5 Results from a regression analysis examining the moderation role of the effect of DOI on IPO underpricing, controlling for firm size, firm age, underwriter reputation, IPO proceeds and hot market

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	59.7787	85.8159	82.7173	83.8150	78.5857
AGE	-0.0026	-0.9508**	-0.8854*	-0.6884	-0.6587
UWR	-25.9609***	-35.8585***	-32.3620**	-30.4765**	-28.3805**
PROCEED	-0.0018	-0.0014	-0.0009	-0.0018	-0.0020*
HOT	41.5832***	32.2316**	30.2928**	24.7216*	20.9197*
INT	2.7997				
Main effect					
DOI		0.1418	0.1658	-0.8545**	-1.4460***
INS			-0.2240	-0.6725	-0.5072
FCEO				-6.2301	-0.6104
2-way interaction terms					
DOI × INS			-0.0035	0.0012	0.0512***
DOI × FCEO				1.2807***	1.8854***
INS × FCEO				0.4567	0.2824
3-way interaction terms					
DOI × INS × FCEO					-0.0588***
R^2	0.1532	0.2811	0.2879	0.3937	0.4633
R^2 Adjusted	0.1264	0.2325	0.2187	0.3058	0.3765
R^2 Change			0.0068	0.1058	0.0696
VIF	1.02-1.31	1.02-1.15	1.06-1.57	1.08-5.49	1.09-7.47
F	5.7165***	5.7857***	4.1590***	4.4801***	5.3358***
Number of Observations	165	80	80	80	80

NOTES: Significant at*p= .1,**p= .05 and ***p =.01; n = 80 for all models; unstandardized coefficients are reported.

In model 1, INT variable refers to the internationalization with dummy-code 1, and 0 otherwise. Control variables, such as firm age (AGE), underwriter reputation (UWR), IPO proceeds (PROCEED) and hot market (HOT) account for 15.32% of the variance in support for IPO underpricing. The results in model 1 indicate that firm age, underwriter reputation have a negative significant influence on underpricing. In contrast, hot market has a positive significant influence on underpricing. In addition, international firms and IPO proceeds insignificantly influence underpricing. Which are detailed below.

Firm age affects underpricing with a coefficient of -0.95 ($p < 0.05$). Thus, if firm age increases by 1 year, the underpricing decreases 0.95%. The finding supports Mutai (2019), who claimed that older firms have lower risk and less underpricing than younger firms since they can disclose their past operation and performance.

Underwriter reputation was measured by two types of underwriters: a securities firm, and a subsidiary of commercial bank. Underwriter reputation has a negative significant influence on underpricing with a coefficient of -34.79 ($p < 0.01$). Thus, if the issuer chooses a subsidiary of commercial bank to be an underwriter, underpricing decreases 34.79%. The finding supports R. Carter and Manaster (1990), R. B. Carter et al. (1998), La Rocca (2019), and Bandi et al. (2020), who found that underwriter reputation is related to a low-risk offer and decrease in underpricing.

Hot market affects underpricing with a coefficient of 32.03 ($p < 0.05$). This can be interpreted that IPO issued in 2014 increase underpricing by 32.03%. The finding supports (Lowry et al., 2017; Ritter, 1984) that hot market period lead to an increase in initial returns timing and the volume of going-public issuers.

In additional, four regression models (Model 2,3,4 and 5) are found and presented in Table 4.5 to assess the effect of internationalization on IPO underpricing and the moderating effect of institutional investors and founder role on the effect of internationalization on IPO underpricing, to test three hypotheses.

Hypothesis 1 predicted that DOI affects IPO underpricing. The results in model 2 in Table 4.5 showed DOI at Time 1 had insignificant influence on underpricing with a coefficient of 0.14 ($P > 0.1$). Hence, DOI cannot predict IPO underpricing. Thus, hypothesis 1 is not supported.

Hypothesis 2 predicted that institutional investors moderate the effect of DOI on IPO underpricing. Thus, the effect is stronger with high proportion institutional investors, and low proportion institutional investor after firm characteristic and IPO characteristics are controlled. This study utilized PROCESS for SPSS developed by Hayes (2012). Hayes also recommended using mean centering before regression analysis. Because the antecedent variable (X) and the interaction term (XM) are highly correlated. This produces estimation problems caused by multicollinearity which results in poor estimation of regression coefficients, large standard errors, and reduced power of the

statistical test of interaction. Additionally, centering is recommended in order to avoid multicollinearity and increase power of the statistical test of interaction. Mean centering was used for interaction analysis in model 3,4 and 5. PROCESS also reported that the output of R-square increase was due to interaction that generates output from pick-a-point approach.

Model 3 in Table 4.5 shows that the interaction effect of DOI and institutional investors on IPO underpricing was statistically insignificant with a coefficient of -0.0035 ($P > 0.1$). Hence, institutional investors cannot moderate the effect of DOI on IPO underpricing. Thus, hypothesis 2 is not supported. However, model 4 in Table 4.5 shows that the interaction effect of DOI and founder role on IPO underpricing was significant with a coefficient of 1.2807 ($P <0.01$), above the effect of control variables. Interestingly, the regression coefficient for the product of DOI and founder role is positive and statistically significant ($b = 1.2807$, $p < 0.01$), and accounts for approximately 10.14% of incremental variance in support for IPO underpricing, the main effects of DOI and FCEO, and the interaction effect. The results indicate that the effect of DOI on IPO underpricing depends on the founder role. This can be interpreted that the effect of DOI on IPO underpricing is stronger and antagonistic when founder is also the CEO of the firm or not.

Thus, the output from Model 4 in Table 4.5 shows that the institutional investor variable is not the primary moderator since the two-way interaction effect of DOI and institutional investor on IPO underpricing is not significant. However, the two-way interaction effect of DOI and founder role on IPO underpricing is significant. Thus, the founder role variable could be the primary moderator. This reflects that the effect of DOI on IPO underpricing does not depend on institutional investors. Can interpret, institutional investor does not moderate the effect of DOI on IPO underpricing.

Hypothesis 3 predicted that founder role moderates the two-way interaction effect of the degree of internationalization and institutional investors on IPO underpricing. Specifically, the effect of internationalization on IPO underpricing becomes more negative when firms have a non-founder CEO with the low portion of institutional investors than the firms with founder CEO. The results as shown in model 5 of Table 4.5 presents the three-way interaction effect of DOI, institutional investors, and founder role on underpricing. DOI effect is moderated by institutional investors which depends on

founder role. The three-way interaction effect of DOI, institutional investors, and founder role on underpricing was significant with a coefficient of -0.0588, t(68) = -2.9693, p = 0.0041. The incremental variance explained by the three-way interaction effect is 6.96%. The significant interaction effects are shown in Table 4.3 model 5, in Figure 4.1

Figure 4.1 shows the output from the PROCESS by specifying model=3. The section is labeled with “Test of conditional x*w interaction at value(s) of Z”. It shows that there is a negatively significant two-way interaction between DOI and founder role. The effect of DOI between founder CEO group and non-founder CEO is statistically significant different. The results shows that the effect of DOI and non-founder CEO on IPO underpricing is negatively significant with a value of 0.0512 (p = .0067). However, the effect of DOI and founder CEO is insignificant (p = .3309). Hence, founder CEO does not moderate the effect of DOI on IPO underpricing.

```
Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Version 3.00 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3

**************************************************************************
Model  : 3
    Y  : MAUP
    X  : DOI
    W  : INS
    Z  : FCEO

Covariates:
 AGE      UWR_Dumm Proceed  HOT

Sample
Size:  80

**************************************************************************
OUTCOME VARIABLE:
 MAUP

Model Summary
          R       R-sq        MSE         F       df1        df2          p
      .6806      .4633  1819.6932    5.3358   11.0000    68.0000      .0000

Model
              coeff         se         t         p       LLCI       ULCI
constant    78.5857   14.8011    5.3094    .0000   49.0504   108.1211
DOI         -1.4460     .3943   -3.6674    .0005   -2.2328     -.6592
INS          -.5072     .5287    -.9593    .3408   -1.5621      .5478
Int_1         .0512     .0183    2.7970    .0067     .0147      .0878
FCEO         -.6104   12.2091    -.0500    .9603  -24.9733    23.7525
Int_2        1.8854     .4301    4.3836    .0000    1.0271     2.7436
Int_3         .2824     .5725     .4933    .6234    -.8601     1.4249
Int_4        -.0588     .0198   -2.9694    .0041    -.0983     -.0193
AGE          -.6587     .4373   -1.5063    .1366   -1.5314      .2139
UWR        -28.3805   11.5614   -2.4548    .0167  -51.4509    -5.3100
PROCEED      -.0020     .0018   -1.0686    .2890    -.0056      .0017
HOT         20.9197   11.9200    1.7550    .0838   -2.8663    44.7058

Product terms key:
 Int_1    :        DOI    x        INS
 Int_2    :        DOI    x        FCEO
 Int_3    :        INS    x        FCEO
 Int_4    :        DOI    x        INS    x        FCEO
```

Figure 4.1 Output from the PROCESS for the three-way interaction effect of DOI, institutional investor, and founder CEO on underpricing including control variables.

```
Test(s) of highest order unconditional interaction(s):
         R2-chng          F        df1        df2          p
X*W*Z      .0696     8.8172     1.0000    68.0000      .0041
----------
    Focal predict: DOI    (X)
          Mod var: INS    (W)
          Mod var: FCEO   (Z)

Test of conditional X*W interaction at value(s) of Z:
       FCEO     Effect          F        df1        df2          p
      .0000      .0512     7.8232     1.0000    68.0000      .0067
     1.0000     -.0076      .9590     1.0000    68.0000      .3309

Conditional effects of the focal predictor at values of the moderator(s):

      INS       FCEO     Effect         se          t          p       LLCI       ULCI
   -20.5900      .0000    -2.5006      .6790    -3.6825      .0005    -3.8556    -1.1456
   -20.5900     1.0000      .5954      .2403     2.4774      .0157      .1158     1.0750
      .0021      .0000    -1.4459      .3943    -3.6673      .0005    -2.2326     -.6591
      .0021     1.0000      .4394      .1691     2.5981      .0115      .1019      .7768
    21.3842      .0000     -.3507      .3729     -.9406      .3502    -1.0948      .3933
    21.3842     1.0000      .2773      .2282     1.2152      .2285     -.1781      .7327

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
 DOI      INS      FCEO       MAUP       .
BEGIN DATA.
   -32.9684   -20.5900      .0000   146.6060
     -.0041   -20.5900      .0000    64.1759
    32.9602   -20.5900      .0000   -18.2542
   -32.9684   -20.5900     1.0000    38.1095
     -.0041   -20.5900     1.0000    57.7378
    32.9602   -20.5900     1.0000    77.3661
   -32.9684      .0021      .0000   101.3906
     -.0041      .0021      .0000    53.7278
    32.9602      .0021      .0000     6.0649
   -32.9684      .0021     1.0000    38.6266
     -.0041      .0021     1.0000    53.1102
    32.9602      .0021     1.0000    67.5937
   -32.9684    21.3842      .0000    54.4405
     -.0041    21.3842      .0000    42.8788
    32.9602    21.3842      .0000    31.3171
   -32.9684    21.3842     1.0000    39.1636
     -.0041    21.3842     1.0000    48.3050
    32.9602    21.3842     1.0000    57.4464
END DATA.
```

Figure 4.1 Output from the PROCESS for the three-way interaction effect of DOI, institutional investor, and founder CEO on underpricing including control variables (Cont.)

The analysis of spotlight of moderation analysis generates output from the pick-a-point approach, in line the study of Bauer and Curran (2005). The output of PROCESS is used to probe regression with interaction analysis. The section is labeled as “Conditional effects of the predictor at value of moderator(s)”. The value of institutional investors level corresponds to the mean = 20.5921 or = 0 based on mean centering form (AvgINS), mean plus one standard deviation = 41.9742 or = 21.3821 based on mean centering form (HighINS), and mean minus one standard deviation = 0 or = -20.5921 based on mean centering form (LowINS). Thus, there are six combinations as in Table 4.3

Table 4.6 Conditional effect of the DOI on IPO underpricing as moderators

Institutional investors (INS)	**Founder role (FCEO)**	**Results**
Low (INS = 0%)	FCEO	DOI predicts IPO underpricing.
Low (INS = 0%)	Non-FCEO	DOI predicts IPO underpricing.
Average (INS = 20.59%)	FCEO	DOI predicts IPO underpricing.
Average (INS = 20.59%)	Non-FCEO	DOI predicts IPO underpricing.
High (INS = 41.97%)	FCEO	DOI does not predict IPO underpricing.
High (INS = 41.97%)	Non-FCEO	DOI does not predict IPO underpricing.

Figure 4.4 illustrates the across test in six lines. PROCESS was used to plot options. The section is labeled “Data for visualizing the conditional effect of the focal predictor”. The findings show that the portion of institutional investors with three levels (low, average and high) in founder CEO group and non-founder CEO group, which moderate the effect of DOI on IPO underpricing. The slope for the group of founder CEO is shown as Figure 4.4 Panel A, meanwhile the slope for the group of non-founder CEO is shown as Figure 4.4 Panel B.

With low institutional investors and non-founder CEO case (LowINS_NonFCEO) had the most slope line which represents effect. The effect size is -2.5006, t=-3.6825, p = .0005. It shows that non-founder CEO interacts with DOI and low

portion of institutional investors (0%) which leads to a decrease in IPO underpricing. The slope line of the non-founder CEO group with average institutional investors (AvgINS_NonFCEO) is shown next. Its effect size is 1.4459, t=-3.6672, p =.0005.

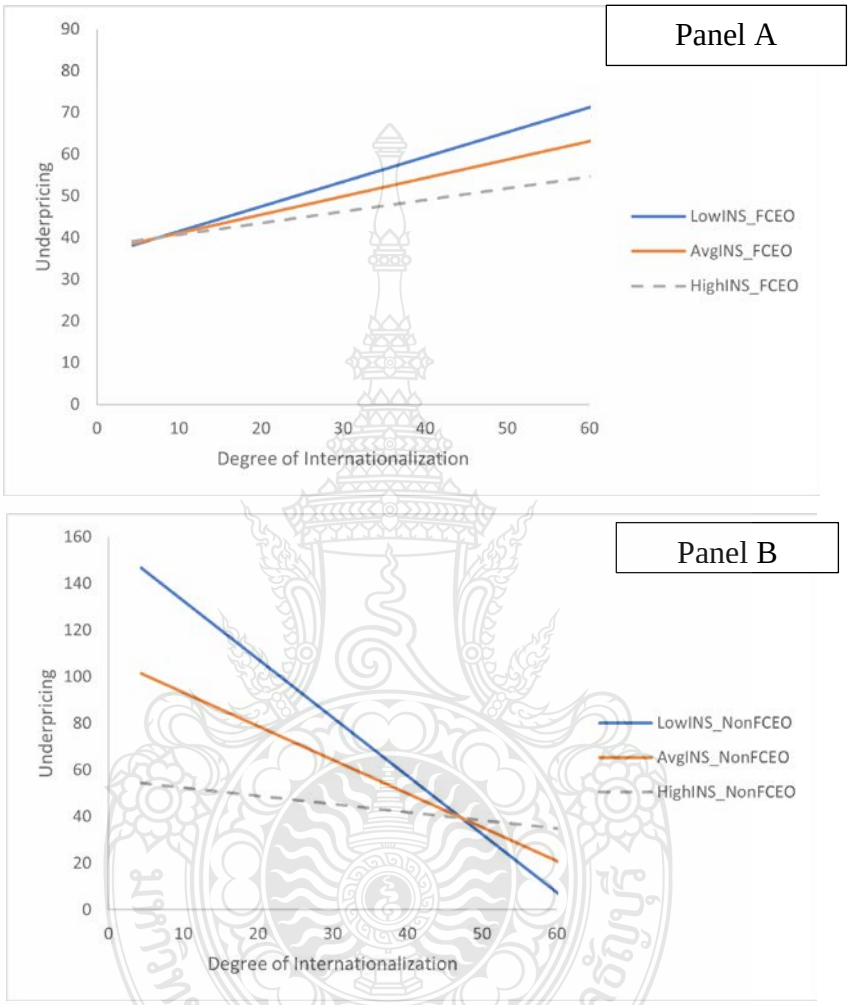

Figure 4.2 presents the three-way interaction effect of DOI, institutional investor, and founder role, including founder CEO and non-founder CEO, on IPO underpricing (INS represents institutional ownership, FCEO represents founder CEO, and NonFCEO represents non-founder CEO.).

In contrast, the most slope line of the founder CEO group is low institutional ownership (LowINS_FCEO) with statistically significant effect size of 0.5954, t= 2.4774, p = .0157. It can be interpreted that, in founder CEO group, the interaction of DOI and

low institutional ownership (0%) causes an increase in IPO underpricing. The slope line of the founder CEO group with average institutional investors (AvgINS_FCEO) is shown next. Its effect size is 0.4394, t=2.5980, p = .0115.

Therefore, hypothesis 3 is supported. The three-way interaction was significantly stronger with a non-founder CEO than with a founder CEO. The three-way interaction effect of DOI, institutional investors on IPO underpricing depends on founder role. In addition, the low institutional investors in non-FCEO group is the strongest, the most statically significant and negative.

4.3 Regression Diagnostics

According to the Gauss–Markov assumptions, there are concerns in regard to the set of error in random variables in the regression analysis that were used to test hypotheses as follows:

1. Residuals are normally distributed. The assumption of normality of the residuals is confirmed by histogram of standardized residuals, normal probability plot of standardized residuals and Kolmogorov- Smirnov for tests of normality as shown in Appendix A. Histogram of standardized residuals are normally distributed. In addition, normal probability plot of standardized residuals close to the line indicates that the standardized residuals are very close to the fitted value. According to the normality test by Kolmogorov- Smirnov test, the data follow a specified distribution. In this case, the residuals are normality. In other words, if the test result is significant at $P < 0.05$, it can be concluded that the null hypothesis is rejected, and residuals are not normality. However, if the test result is insignificant with P-value of 0.200, the residuals seem to be normally distributed.

2. Residuals have equal variance. Appendix B shows the scatter plot for linearity when ZRESID (standardized residuals) is on the y-axis, and the ZPRED (standardized predictors) is on the x-axis. The equal variance assumption is met if the residuals do not fan out in a triangular fashion. Thus, the variance of the residuals is consistent with all fitted values. However, the picture does not show any heteroscedasticity.

3. Residuals are independent. In linear regression analysis, it is required that residuals are not be independent of each observation, or there must be little or no

autocorrelation in the data. Durbin-Watson statistics was used in an autocorrelation test, and it always assumes a value between 0 and 4. The value of Durbin-Watson = 2 which indicates that there is no autocorrelation. According to Durbin-Watson, there is no autocorrelation if the test value is between 1.5-2.5. Thus, there is no autocorrelation in this analysis since the value obtained in this test is 2.189 as shown in Appendix C.

Moreover, multicollinearity is also considered in multiple regression analysis. Multicollinearity refers to a situation where there are two or more predictor variables in the multiple regression models. In this case, the relationship between the independent variables and the dependent variables may be distorted due to a stronger relationship between the independent variables. Thus, the relationships may be incorrectly interpreted (Milliken & Johnson, 2001). Another issue is relevant to the correlation which is due to an increase of the standard error of predictors coefficients. This can cause the variance of the predictor's coefficients to be inflated. In case collinearity is discovered in the regression output, the interpretation of the relationships should be considered as false and rejected until the issue is resolved (Robust 2013).

The tolerance value and variance inflation factor (VIF) are used to measure and quantify the amount of inflated variance. Tolerance is the amount of variability in an independent variable. In fact, tolerance equals 1- $R2$. If its value is less than 0.10, there is collinearity. If VIF is more than 10, the tolerance value and variance inflation factor are highly correlated. The tolerance value and VIFs calculated for all model in appendix D show that tolerance is greater than 0.1 and VIFs is less than 10. Thus, there is no multicollinearity among the predictor variables, and multicollinearity does not affect this analysis.

The discussion of the results, implication, conclusion, limitation, and future research are presented in the next chapter.

CHAPTER 5
CONCLUSION AND RECOMMENDATIONS

The last chapter of this dissertation deals with the conclusion and recommendations of the study. This includes the research methodology and main conclusion, discussion of research findings, and their theoretical contributions and practical contributions. In addition, the limitations and suggestions for further research are also provided in this chapter.

5.1 Conclusion

This dissertation aimed to investigate, in the context of Thai listed companies, the effect of internationalization on initial public offerings (IPO) underpricing, the moderating effect of institutional investors on the effect of internationalization on IPO underpricing, and the moderating effects of both institutional investors and founder status on the effect of internationalization on IPO underpricing. The samples used in this study included new listed companies on the Stock Exchange of Thailand (SET) and the Market for Alternative Investment (mai) from 2013 to 2020 that had internationalization and demonstrated an IPO underpricing, which amount to 80 companies from the total of 220 new listed companies. Data were collected from the prospectus issued by each company, the SET website, and BISNEWS database. The statistical methods used to analyze the data were multiple linear regression to test the effect of internationalization on IPO underpricing along with Hayes's regression-based analysis to test the moderating effects of both institutional investors and founder status on the effect of internationalization on IPO underpricing.

This study aimed to answer the following research questions:

Research Question 1: Does internationalization affect the IPO underpricing of listed companies in Thailand?

Research Question 2: Do institutional investors moderate the effect of internationalization on IPO underpricing and when do they moderate?

Research Question 3: Do both institutional investors and founder status moderate the effect of internationalization on IPO underpricing and when do they moderate?

The objectives of this study were: 1) to explore the IPO underpricing phenomenon of Thai listed companies; 2) to investigate the influence of the degree of internationalization (DOI) on short- term IPO performance measured by IPO underpricing; 3) to examine the moderating effect of the proportion of institutional investors on the effect of DOI on IPO underpricing; and 4) to investigate whether founder status moderates the two-way interaction effect of institutional investors and DOI on IPO underpricing.

According to the research questions and objectives, the hypotheses were proposed as follows:

Hypothesis 1: The degree of internationalization affects IPO underpricing.

Hypothesis 2: The proportion of institutional investors moderate the effect of DOI on IPO underpricing, such that the effect is stronger in firms with high proportion of institutional investors than firms with low proportion of institutional investors after controlling for firm characteristics and IPO characteristics.

Hypothesis 3: Founder status moderates the two- way interaction effect of institutional investors and DOI on IPO underpricing. Specifically, the effect of DOI on IPO underpricing is more negative in firms with low proportion of institutional investors and have non- founder chief executive officer (CEO) than the firms with low proportion of institutional investors and have founder CEO.

5.2 Findings and Discussion

The significant findings and discussion of this study are given as follows:

5.2.1 Overview of IPO Underpricing in Thailand

There were 220 IPOs firms listed from 2013 to 2020, in which 86 were IPOs international firms and 134 were IPOs domestic firms. Most of IPOs firms (176 firms, 80%) demonstrated underpricing with an average of 44.61%, amount to total money left on the table of 74,171 million Baht out of total IPO proceeds of 506,545 million Baht. The findings indicated that the average underpricing of IPOs was greater than the IPO

underpricing in developed capital markets such as IPOs in the United Kingdom was 15.6% as reported by Kotlar, Signori, De Massis, and Vismara (2018), and in United State was 22.74% as reported by Ozdemir and Upneja (2016). The findings supported the study of Parkatt (2016) who discovered that the degree of information asymmetry varies depending on the nature of the capital market. The level of information asymmetry occurs more frequently in emerging market countries than in developed market countries. As Thailand capital market is as an emerging market, therefore, the IPO underpricing level in Thailand is higher than the IPO underpricing level in developed market countries.

Moreover, the study also found that overseas enterprises' average underpricing was roughly 51.72%, which was greater than domestic firms' average underpricing of 40.05%. It contradicts Chinese IPOs during the period 2003 to 2016 reported by Peng, Jia, and Chan (2021), enterprises' average underpricing was roughly 48.85%, which was lower than domestic firms' average underpricing of 56.03%. They concluded that benefit of internationalization can reduce IPO underpricing. However, the findings of the present study agree with those of Hsu, Chen, and Cheng (2013) who found firm internationalization has a positive impact on IPO underpricing because overseas enterprises can provide several strategies for their own business, which is a good signal for investors. Also, the results of this study provide support for the signaling theory that high-quality firms can offer underpriced IPO shares to compensate uninformed investors. The IPOs international firms have underpricing level greater than IPOs domestic firms.

5.2.2 Effect of Internationalization on IPO Underpricing

In order to investigate whether internationalization affects IPO underpricing, which is the second objective, hypothesis 1 'the degree of internationalization affects IPO underpricing'. The analysis was utilized to select 165 observations based on 80 international enterprises and 85 domestic firms. When using the internationalization dummy (INT) as a proxy for internationalization, the preliminary regression analysis revealed that INT had a statistically insignificant impact on IPO underpricing. In addition, constructing the continuous variable, degree of internationalization (DOI) as a proxy for internationalization, the re-testing revealed that DOI had a statistically insignificant impact on IPO underpricing. Thus, hypothesis 1 was not supported.

The findings revealed that DOI had no significant influence on IPO underpricing. In contrast, previous studies found that the effect of DOI on underpricing was contradictory, with both positive and negative effects. For example, Al-Shammari, Ross O'Brien, and Hamed AlBusaidi (2013) encountered that the effect of DOI on IPO underpricing was positive. They proposed that foreign revenue provides investors with an expectation of future growth of IPO firms; thus, internationalization of firms allow for diversification which provides several strategic benefits and reduces business risk. As a result, investors benefit from higher first-day returns on IPOs. Thus, the DOI has a positive effect on the first-day trading price. Additionally, according to Peng et al. (2021), who studied on the effect of DOI on underpricing IPOs in China, DOI can reduce IPO underpricing. The finding revealed that DOI can reduce IPO underpricing. They proposed that internationalization is a positive signal for investors and ensures the IPO, which is regarded as a quality investment due to lower information asymmetry. In contrast, the research of Ozdemir and Upneja (2016) found that international firms have lower IPO underpricing than domestic firms, confirming the negative relationship between DOI and IPO underpricing.

Two possible reasons why DOI had no significant influence on IPO underpricing may be because a straight-line relationship between DOI and underpricing was not found, but the relationship between them is quite complicated. Such as, in line with study of Capar and Kotabe (2003) who studied other nonlinear relationships between DOI and various outcomes. There are more complex forms of relationship ranging from a linear relationship. Second, the effect of DOI on underpricing may depend on the moderator variable. It support the study of A., W., and Yousuf (2013) who found that CEO and blockholder ownership moderated the relationship between DOI and IPO underpricing.

5.2.3 The Moderating Effect of Institutional Investors on the Effect of Internationalization on IPO Underpricing

In response to the third objective, the institutional investors as a moderator variable in the effect of DOI on IPO underpricing was examined, and hypothesis 2 ‘institutional investors moderate the degree of internationalization on IPO underpricing, such that the effect is stronger in firms with high proportion of institutional investors than

firms with low proportion of institutional investors after controlling for firm characteristics and IPO characteristics. This study was to examine the institutional investors as a moderator variable in the effect of DOI on IPO underpricing. The results indicated that the effect of DOI and institutional investors on IPO underpricing was negatively insignificant at a level of . 10. Hence, institutional investors cannot significantly alter the effect of DOI on IPO underpricing. Another meaning is that the effect of the DOI on IPO underpricing does not depend on institutional investors. Therefore, hypothesis 2 was not supported.

Focusing, main effect analysis of institutional investors factor affecting underpricing found that the relationship was insignificant. The findings of the study differ from previous studies of Ljungqvist and Wilhelm Jr (2002) , who suggested that institutional investors could reduce underpricing of IPO. Similarly, Boonchuaymetta and Chuanrommanee (2013) found that IPO allocation to institutional investors had a negative significant relationship with underpricing. May be because this study found that the institutional investors did not affect IPO underpricing since it only focused on specific international IPO firms. The institutional investors may affect IPO underpricing both in domestic firms and international firms.

However, institutional investors did not affect underpricing of Thai international IPO firms. Institutional investors play a role in monitoring because they have access to information and a better ability to analyze fundamentals more than uninformed investors. Thus, allocating an IPO to institutional investors is a good signal of the IPO, which could reduce underpricing following signaling theory and principal-agent theory.

5.2.4 The Moderating Effects of Institutional Investors and Founder Status on the Effect of Internationalization on IPO Underpricing

In response to Objective 4, to investigate the moderating effects of institutional investors and founder status on the effect of internationalization on IPO underpricing. It is possible that founder CEO can lead to different levels of institutional investors in the effect of DOI on IPO underpricing. Thus, hypothesis 3 ‘founder status moderates the two-way interaction effect of the degree of internationalization and institutional investors on IPO underpricing’. Specifically, the effect of DOI on IPO underpricing is more negative in firms with low proportion of institutional investors and have non- founder CEO than

the firms with low proportion of institutional investors and have founder CEO. This study discovered that non-founder CEOs with low- and moderate-level institutional investors had negative effects on IPO underpricing, whereas founder CEOs with low- and moderate-level institutional investors had positive effects on IPO underpricing. However, in three-way interaction analysis, the high portion of institutional investors did not moderate the effect of DOI on IPO underpricing. Thus, hypothesis 3 was partially supported.

Significantly, certain important changes in the findings were moderated the DOI's effect on underpricing by using founder status instead of institutional investors. This is because the interaction effect of DOI and institutional investors on IPO underpricing became statistically insignificant. Whereas the interaction effect of DOI and founder status had a significant effect on IPO underpricing with both positive and negative implications. Thus, DOI's effect on underpricing could be driven by founder status. The effect of the DOI on IPO underpricing was stronger and more positive when the firm had the founder CEO. In contrast, the effect of the DOI on IPO underpricing was stronger and more negative when the firm had the non-founder CEO. The finding shows that the DOI's effect on IPO underpricing depends on both of founder CEO and non-founder CEO of the firm.

In founder CEO context, the results show that the effect of the DOI on IPO underpricing was stronger and more positive when founder was the CEO of the firm. Thus, the high degree of DOI increases IPO underpricing since company founder provides the structure and culture of the organization of firm. Even though newly listed companies are not well known, the reputation of their founder can attract investors (Basu, Dimitrova, & Paeglis, 2009). Moreover, the high degree of DOI increases IPO underpricing which attracts investors who invest in international IPO firms and expect the future growth from expansion of business overseas. Thus, DOI can increase underpricing. Similarly, Al-Shammari et al. (2013) also stated that IPO's initial return in firms with high DOI would be positive and higher than firms with low DOI. A firm with a founder CEO and high DOI can attract investors who favor in short-term return which influences high positive initial return on the first-day trading or underpricing to occur. Furthermore, this finding is similar to that of Hsieh, Chen, and Tsai (2017)'s study who

found that family-controlled businesses mitigate higher risks from information asymmetry and conflict of interest problems. As a result, if the founder is the CEO, the monitoring process is poor, resulting in significant underpricing. In firms with a founder CEO, internationalization increases IPO underpricing.

In non-founder CEO context, the results show that the effect of DOI on IPO underpricing was stronger and more negative when founder was not the CEO of the firm. Thus, IPO underpricing of a firm with non-founder CEO and high degree of DOI decreases since the founder has lower role in management while the CEO is an external person. The company welcomes benefits to compensate for his skills and experience. International firms must rely on CEOs with greater commercial capacity from international trade than CEOs in family-controlled or founder-led businesses. Interestingly, a signal of good corporate governance leads can reduce information asymmetry. The corporate governance literature argues that the power of founder CEO does not reduce agency problem because the problem is a result of weak monitor and control (Gao & Jain, 2011). Thus, non-founder CEO can also reduce underpricing. When DOI is taken into consideration, the potential IPO investors should perceive intrinsic IPO price which reflects the diminishing information asymmetry. According to Ozdemir and Upneja (2016), underpricing of international firm is lower than domestic firm because foreign activities are considered as a good signal which is in line with signaling theory. Therefore, the internationalization decreases IPO underpricing when firms have a non-founder CEO.

In conclusion, the results of two-way interaction effect analysis indicated that founder status statistically significant moderated the effect of DOI on IPO underpricing. Whereas institutional investors statistically insignificant moderated the effect of DOI on IPO underpricing. Interestingly, when institutional investor was as primary moderator and founder role was as secondary moderator, the findings that the three-way interaction was strong and statically significant with 6.96% increase in interaction effects. Thus, founder status is the moderator of the two-way interaction effect of DOI and institutional investors on underpricing. Although institutional investors cannot alone moderate the effect of DOI on IPO underpricing, founder status can significantly enhance institutional investors' power to moderate the effect of DOI on IPO underpricing. In line with the

adverse selection theory, institutional investors are informed investors who have the ability to identify high- or low quality of firm (Aggarwal, Prabhala, & Puri, 2002). The issuers use the allocation IPO to institutional investors as an image and make the demand from individual investors. While certain studies reported that institutional investors reduce underpricing if the institutional investors become potential investors. The institutional investors' investment indicated the quality stock that selected in their portfolio. Thus, institutional investors can reduce asymmetry information, as well as underpricing (Arthurs, Hoskisson, Busenitz, & Johnson, 2008; Haniffa & Hudaib, 2006; Katti, Phani, & Finance, 2016; Ljungqvist & Wilhelm Jr, 2002). The overall findings of this research show that the low and moderate proportions of institutional investors mitigated the impact of internationalization on underpricing. This is because the signal of internationalization and founder status are internal factors indicating the quality of the firm that attracts potential investors to invest in their IPOs. If the firms have strong internal quality, the allocation of IPOs to institutional investors is not high but low and moderate.

Conclusively, the study significantly shows that DOI alone did not affect underpricing, but the effects of DOI on underpricing when low or moderate proportion of institutional investors were 1) more negative in firms had non-founder CEO, 2) more positive in firms had founder CEO.

5.3 Contributions of the Study

5.3.1 Theoretical Contributions

This study had investigated of the internationalization and the moderators on IPO underpricing in the linear relationship. The results indicated that the effect of internationalization on IPO underpricing was insignificant, but that there were significant moderating roles for founder status and institutional investors in the three-way interaction. When examined as an isolated moderator, the findings show that founder status has a significant moderating role, but institutional investors have an insignificant moderating role.

This study contributes theoretical implications to the present literature in four meaningful ways.

First, scholars have pointed the importance of the effect of internationalization can reduce IPO underpricing but less is known about investigating when will the effect of internationalization reduce IPO underpricing. Filling this gap, this study empirically conducted a moderated- moderation analysis, considering two conditional effects, institutional investors (low, moderate and high) and founder status (founder CEO vs. non-founder CEO), as potential moderators. The findings supported the three-way interaction model and contributed to its incremental validity.

Second, as an empirical study shows, internationalization certifies that the IPO is a quality investment due to lower information asymmetry. In the main effect, internationalization did not affect the IPO underpricing, but the two-way interactions effect was found to have a different effect when moderated by founder status. Specifically, internationalization and founder CEO has an increasing IPO underpricing, but internationalization and non-founder CEO has a decreasing IPO underpricing. A non-founder CEO can reduce the conflict of interest between the founder and the management and reduce asymmetry information between issuer and investors. Besides internationalization, a non-founder CEO can enhance corporate governance, which reduces both agency problems and IPO underpricing.

Third, institutional investors enhance the image of newly listed company by strongly moderating the two-way interaction effect of internationalization on IPO underpricing depend on founder status. Conditional, the low or moderate level of institutional investors can be as a moderator that drive its effect of internationalization on IPO underpricing differ whether founder CEO or not. In the case of non-founder CEO and low- and moderate- institutional investors, non-founder CEO and institutional investors can significantly moderate the effect of internationalization on IPO underpricing to decrease. On the other hand, the case of founder CEO and low- and moderate-institutional investors, founder CEO and institutional investors can significantly moderate the effect of internationalization on IPO underpricing to increase. Therefore, the explanation of the three-way interactions found that the internationalization, institutional investors, and founder status pave a strong for IPO underpricing to rise or fall.

Finally, this study sheds light on the effect of internationalization on IPO underpricing issues by examining the moderating role of institutional investors and founder status. Initial, to investigate the effect of internationalization on IPO underpricing, and the result failed to support the first hypothesis. In addition, to examine the moderating effect of institutional investors on the effect of internationalization on IPO underpricing, and the result failed to support the second hypothesis on the two-ways interaction. Interestingly, the findings seem plausible that founder status can significantly moderate the effect of internationalization on IPO underpricing and moderate the moderation of institutional investors on the effect of internationalization on IPO underpricing, and the result support the third hypothesis on the three-ways interaction. Thus, founder status contributes to internationalization and the IPO context, and can contribute the interaction effects of institutional investors and internationalization on IPO underpricing.

5.3.2 Practical Contributions

The results of this study provide the practical contributions for stakeholders to the IPO as follows.

Firstly, internationalization and non-founder CEO bring benefits to IPO firms and reduce asymmetric information, which is key to lower IPO underpricing. Thus, it would be helpful for newly listed firms to enhance internationalization and hire a professional CEO to replace the founder CEO, thus leaving less money on the table. The firm which high degree of internationalization and a non-founder CEO can reduce IPO underpricing because an external person with professional ability is selected to be the CEO. It reflects good corporate governance which can reduce conflict of interests between monitoring role and CEO role. Asymmetry information is reduced. Hiring professional CEO, can increase their wealth and provide returns to long-term investors and stakeholders. Hence, it is obvious that the founder status is an important factor that helps the newly listed company save money left on the table and increase capital from issuing IPO. Furthermore, distribution of IPO shares to institutional investors is still required to maintain credibility in order to attract individual investors. However, the appropriate level of institutional investors should not too much.

Secondly, risk-loving individual investors who use an aggressive investment strategy and focus on initial returns on the first trading day of their short-term investments in IPO stocks should focus on IPO shares of issuing firms with a high degree of internationalization, a founder CEO, and allocate IPO shares to institutional investors at a moderate level to a low level. This type of firm creates high underpricing, resulting in high initial returns. However, there is a high risk in this short-term investment. Conversely, for risk-averse individual investors who use a conservative investment strategy and intend to invest in IPO shares as a long-term investment, it is best to invest in non-founder CEO firms with a high level of internationalization and allocate IPO shares to institutional investors at a moderate level to a low level.

Finally, an underwriter who underwrites potential IPOs can use issuers' advantages such as internationalization and non-founder CEO to create good images and attract investors to their IPO events. Underwriters can value the IPO price nearly intrinsically to maintain their reputation. Because their stocks are in high demand in the market, it is less necessary for high underpriced IPOs and avoid excessive money left on the table. Underwriters can save the issuing company indirect costs associated by sending signals of the benefits of internationalization and professional CEO of newly listed firms to the public.

5.4 Limitation and Future Research

This study still has some limitations that will necessitate further investigation.

5.4.1 Limitations

First, due to the limited number of non-founder CEOs in internationalized IPO firms in Thailand, the sample size for this research is rather small. The relatively small number of samples may have influenced the result. However, the minimum sample size for regression models is defined by variance, not by the effect size or model.

Second, some firms fully disclose data on internationalization, while others do not. However, most firms disclose foreign revenues which is the perspective of production and sales. As a result, this study analysis focuses only on export revenues for internationalization measurement. A linear model is used to analyze the data in this study.

Third, this study limited analysis of the impact of internationalization on short-term IPO performance which may not cover long-term performance. In addition, a set of control variables that impact IPO performance such as firm characteristics and IPO characteristics which may not cover all aspects of post IPO performance.

Finally, this study attempts to identify the boundary conditions of the IPO underpricing relevant to corporate governance since corporate governance of the board and ownership of firms because the firm powerfully enhances the investors' confidence to invest in IPOs. This study was confined to investigating the moderating role of founder status and institutional investors which may not cover other corporate governance variables.

5.4.2 Future Research

Firstly, the extant research may in-depth interviews should be conducted in the future to confirm and generalize the findings of this current study. The qualitative analysis may be used by future research to better confirm and generalize how non-founder CEO impact reducing IPO underpricing.

Secondly, future research can expand on this internationalization measurement more aspects of the international environment, such as direct investment, production, employment, and technological knowledge. In addition, can extant investigate the internationalization on the long-term IPO performance which predicts the IPO survival. Furthermore, future research can evaluate more complex forms of relationship between internationalization and IPO performance such as non-linear relationships including U-shaped and S-shaped

Thirdly, future research can look into and use other factors that may also be effect on IPO survival such as innovation because the firms can enhance productive results in developing innovations. They do not limit themselves only to available limited internal resources but using the strategy of open innovation, firms become accept the knowledge by external participants. Thus, the information and knowledge sharing from external sources of the organization have become the key resources for the development and adoption of innovation in services and manufacturing. As a results innovation may impact post IPO performance. In addition some factors such as financial leverage and profitability which are interesting to analyze in future research.

Finally, future research may investigate the interaction effects among the other moderators to explain the mechanism of the effect of internationalization on IPO underpricing such as reputation of underwriter. Because the underwriter' s role is particularly important in increasing the support for the success of the IPO. The underwriter's certification helps reduce relevant about asymmetric information problems between firms issuing and investors. Thus, the underwriter reputation may be moderate the effect of internationalization on IPO underpricing.

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