



The Relationship between Financial Risk and Earnings Management Before and After IPOs: Evidence from Thailand and Singapore

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Abstract

This study examines the relationship of financial risk and earnings management in firms undertaking initial public offerings (IPOs) in Thailand and Singapore between 2010 and 2019, a period spanning between the H1N1 and COVID-19 pandemics. Financial risk is categorized into three types: credit risk, liquidity risk, and operational risk. The analysis utilizes structural equation modeling, comprising 622 firm-year observations across four periods: one year before the IPO (T-1), the IPO year (T), one year after the IPO (T+1), and two years after the IPO (T+2). The findings indicate that IPOs have no direct effect on earnings management in any period for either country. However, an indirect effect is observed for Singapore at T-1, where IPOs are associated with increased accrual-based earnings management mediated by credit risk. No indirect effect is found for Thailand across the four periods.

Keywords

Financial Risk, Real and Accrual Earnings Management, Initial Public Offering

Introduction

Among the ten member states of the Association of Southeast Asian Nations (ASEAN), the market capitalization of Thai stocks ranked second only to that of the Singapore Exchange from 2010 to 2019. Notably, the last decade was straddled by two major global pandemics, beginning with H1N1 (swine flu) in 2010 and ending with COVID-19 in 2019. From 2014 to 2020, the Thai stock market led the ASEAN region in initial public offerings, raising a total of US\$ 16.426 billion, compared with US\$ 7.164 billion for the Singapore Exchange (Thurakit, 2020). In 2021, the Stock Exchange of Thailand (SET) and the Singapore Exchange (SGX) jointly launched the Thailand-Singapore Depositary Receipt (DR) Linkage project to expand investment opportunities by allowing investors to trade securities from both markets via DRs (Thurakit, 2021).

An initial public offering (IPO), or stock launch, is the process by which a privately owned company sells shares to the public for the first time, making them available for trading on a public stock exchange. An IPO enables the company to raise capital for purposes such as developing new products, repaying debt, or financing expansion (Caselli, 2010). It can also enhance the company's public image. In return, the company must comply with strict financial disclosure requirements and maintain transparent internal controls. A company must comply with strict financial disclosure and transparency in internal controls during an IPO to transition from private to public *accountability* and protect new shareholders. This also ensures that the company adheres to market regulations. Financial disclosure and transparency in internal controls ensures accurate financial reporting, reduces fraud risk, and builds investor confidence, which is critical for valuing the company and ensuring long-term success in public markets.

According to agency theory, an information asymmetry exists between internal stakeholders (e.g., executives and board members) and external stakeholders (e.g., investors) (Jensen & Meckling, 1976). This asymmetry can incentivize executives to engage in "earnings management." Earnings management is the deliberate use of accounting techniques, loopholes, and estimates to manipulate financial statements, presenting an overly positive or stable view of a company's financial health. While often complying with Generally Accepted Accounting Principles (GAAP), it misleads stakeholders to meet targets, secure bonuses, or smooth income fluctuations (Wankel, 2009). Prospect theory further explains that individuals, particularly in financial decision-making, tend to be more sensitive to potential losses than to equivalent gains, relative to a reference point (Tversky & Kahneman, 1992). As a result, executives may manage earnings to keep reported results above this reference point to meet investor expectations or deliberately recognize a large loss in one year to enable profit recognition in subsequent years. Such practices can materially influence a firm's financial risk profile.

Prior research indicates that the post-IPO decline in performance can be linked to earnings management behavior undertaken during the IPO process (Ahmad-Zaluki, 2009). Furthermore, publicly listed companies facing financial risk often engage in earnings management to obscure weak performance (Ahmad & Lim, 2005; Aprilia et al., 2016; Cuong & Ha, 2018). When offered during a crisis that is perceived to potentially affect a company's performance, the tendency toward such behavior may be especially strong.

As a result, this study examines the relationship between financial risk and earnings management among IPO companies in Thailand and Singapore from 2010 to 2019, covering four time periods: (i) one year before the IPO (T-1), (ii) the IPO year (T), (iii) one year after the IPO (T+1), and (iv) two years after the IPO (T+2). The decade under review was framed during periods free from two major global pandemics, ending with H1N1 in 2010 and beginning with COVID-19 in 2019. Financial risk is assessed quantitatively in three categories: credit risk (debt-to-equity ratio), liquidity risk (current ratio), and operational risk (cost-to-income ratio). The findings are expected to inform IPO investors participating in the capital markets of both nations, particularly within the framework of the Thailand-Singapore Depositary Receipt Linkage project.

The findings reveal that IPOs have no direct effect on earnings management, whether through accrual-based or real activity-based approaches, for both SET- and SGX-listed firms. However, for SGX-listed companies, IPOs exhibit a statistically significant positive indirect effect on accrual-based earnings management through credit risk in the year before the IPO (T-1). In contrast, for the SET-listed firms, IPOs show no statistically significant effect on earnings management via financial risk.

Our remaining paper is organized as follows. Section 2 reviews the literature and develops the hypotheses. Section 3 describes the research methodology. Section 4 presents the results and discussion, and section 5 offers conclusions and recommendations for future research.

Literature Review and Hypothesis Development

IPO and Earnings Management

Companies undertaking an IPO typically have no publicly available data for the year preceding their market entry, and they do not disclose historical information beyond that specified in the prospectus. Compared with already-listed stocks, investors have less information about IPO firms, leading to information asymmetry between the company and its investors (Chemmanur & Yan, 2009). As a result, executives have an incentive to engage in earnings management to make their securities more attractive to investors. This aligns with previous research showing that IPO companies often manage earnings through accrual-based methods and through real

activity-based methods (Chang et al., 2010; DuCharme et al., 2004; Fan, 2007; Friedlan, 1994; Gramlich & Sørensen, 2004; Morsfield & Tan, 2006; Teoh et al., 1998). Furthermore, investors establish performance benchmarks for a company based on publicly available information as well as analysts' assessments. This creates additional incentives for executives to manage earnings so that reported results remain above these benchmarks. In line with prospect theory, performance falling short of these benchmarks can adversely affect IPO pricing (Tversky & Kahneman, 1992). Prospect theory, developed by Daniel Kahneman and Amos Tversky, is a behavioral model explaining that people make decisions based on perceived gains or losses relative to a reference point, rather than absolute outcomes. It highlights that individuals are risk-averse regarding gains but risk-seeking to avoid losses, feeling the pain of losses more intensely than the pleasure of gains, known as loss aversion.

In the United States, IPO companies tend to exhibit higher levels of "discretionary accruals," accounting adjustments made at management's discretion, rather than by objective transactions, in the year of the IPO (Friedlan, 1994). This is consistent with Roosenboom et al. (2003), who reported earnings management during the IPO year among firms in the Netherlands but found no evidence of pre-IPO earnings manipulation. In contrast, Aharony et al. (1993) found that firms inflated earnings in the period prior to IPO. Similarly, Cormier & Magnan (1997) found that Canadian firms managed earnings to meet initial IPO forecasts by deferring profit recognition. However, Ball & Shivakumar (2008) reported that some IPO firms adopted conservative financial reporting practices to comply with regulatory requirements and avoid potential penalties for inaccurate reporting.

Overall, prior research shows that IPO firms often engage in real activity earnings management, such as reducing research and development expenditures to boost reported profits (Darrough & Rangan, 2005), and also manage earnings through accrual-based methods (Friedlan, 1994; Gramlich & Sørensen, 2004; Morsfield & Tan, 2006; Teoh et al., 1998). Evidence further suggests that IPO firms have incentives to manage earnings upward by the end of the IPO year to sustain high stock prices (Aharony et al., 1993; Friedlan, 1994; Roosenboom et al., 2003; Teoh et al., 1998). However, empirical research on the relationship between IPOs and earnings management through real operating activities remains limited (Roychowdhury, 2006).

Based on these studies, the present study proposes the following hypotheses and examines the relationship between IPOs and earnings management across four time periods: one year before the IPO (T-1), the IPO year (T), one year after the IPO (T+1), and two years after the IPO (T+2).

Hypothesis 1 (H1): IPOs are positively associated with earnings management.

H1a: IPOs are positively associated with accrual-based earnings management.

H1b: IPOs are positively associated with real activity-based earnings management.

Financial Risk and Earnings Management

Financial risk refers to the probability of incurring losses or achieving returns lower than expected and can be quantitatively categorized into three types: credit risk, liquidity risk, and operational risk (McNeil et al., 2010). According to agency theory (Jensen and Meckling, 1976), managers may assume higher credit risk to conceal poor investment decisions (Zimmerman, 2013). Aprilia et al. (2016) reported a positive relationship between credit risk and earnings management, suggesting that managers who take on excessive credit risk are motivated to manage earnings in order to obscure erroneous decisions (Eisenhardt, 1989). In this study, credit risk refers to the level of credit exposure a firm faces and its potential influence on earnings management, rather than the reverse relationship. Based on these prior studies, the following hypotheses are proposed:

Hypothesis 2 (H2): Credit risk is positively associated with earnings management.

H2a: Credit risk is positively associated with accrual-based earnings management.

H2b: Credit risk is positively associated with real activity-based earnings management.

Increased liquidity risk can constrain a firm's cash flow and necessitate external funding, thereby creating pressure to engage in earnings management. Prior research suggests that earnings management may help mitigate credit risk and improve reported performance, thereby facilitating debt financing (Winarso & Salim, 2017). Similar relationships between liquidity risk (measured by the current ratio and quick ratio) and earnings management have been documented (Cuong & Ha, 2018; Sadeghi & Zareie, 2015). Based on these findings, the following hypotheses are proposed:

Hypothesis 3 (H3): Liquidity risk is positively associated with earnings management.

H3a: Liquidity risk is positively associated with accrual-based earnings management.

H3b: Liquidity risk is positively associated with real activity-based earnings management.

Prior studies have documented a relationship between operational risk and earnings management. Post-IPO performance often deteriorates, suggesting that firms may engage in earnings management when confronted with operational risk (Ahmad & Lim, 2005; Balatbat et

al., 2004; Cai & Wei, 1997; Chan et al., 2004; Jain & Kini, 1994; Kutsuna et al., 2002; Mikkelsen et al., 1997; Pagano et al., 1998; Wang, 2005). Ahmad-Zaluki (2009) reported that IPO companies underperformed established firms during the three years following the IPO, with the steepest decline occurring in the first post-IPO year. The performance decline has been attributed to earnings management undertaken during the IPO process. Based on these findings, the following hypotheses are proposed:

Hypothesis 4 (H4): Operational risk is positively associated with earnings management

H4a: Operational risk is positively associated with accrual-based earnings management.

H4b: Operational risk is positively associated with real activity-based earnings management.

IPO and Financial Risk

Prior studies have documented a relationship between IPOs and various dimensions of financial risk, as reflected in changes to key financial ratios before and after IPO. Variations in the debt-to-equity ratio (credit risk) and the current ratio (liquidity risk) have been observed around the IPO period (Khan, 2020). Prior research has also identified an association between operational risk and earnings management (Ahmad & Lim, 2005; Balatbat et al., 2004; Cai & Wei, 1997; Chan et al., 2004; Jain & Kini, 1994; Kutsuna et al., 2002; Mikkelsen et al., 1997; Pagano et al., 1998; Wang, 2005). Based on these findings, the following hypotheses are proposed:

Hypothesis 5 (H5): IPOs are positively associated with financial risk

H5a: IPOs are positively associated with operational risk.

H5b: IPOs are positively associated with credit risk.

H5c: IPOs are positively associated with liquidity risk.

Collectively, these studies indicate a relationship between IPOs and earnings management through financial risk channels. Accordingly, the following hypotheses are proposed:

Hypothesis 6 (H6): Financial risk mediates the relationship between IPOs and earnings management.

H6a: IPOs are positively associated with accrual-based earnings management through credit risk.

H6b: IPOs are positively associated with real activity-based earnings management through credit risk.

H6c: IPOs are positively associated with accrual-based earnings management through liquidity risk.

H6d: IPOs are positively associated with real activity-based earnings management through liquidity risk.

H6e: IPOs are positively associated with accrual-based earnings management through operational risk.

H6f: IPOs are positively associated with real activity-based earnings management through operational risk.

Figure 1 illustrates the conceptual framework for this study, highlighting the key constructs and control variables.

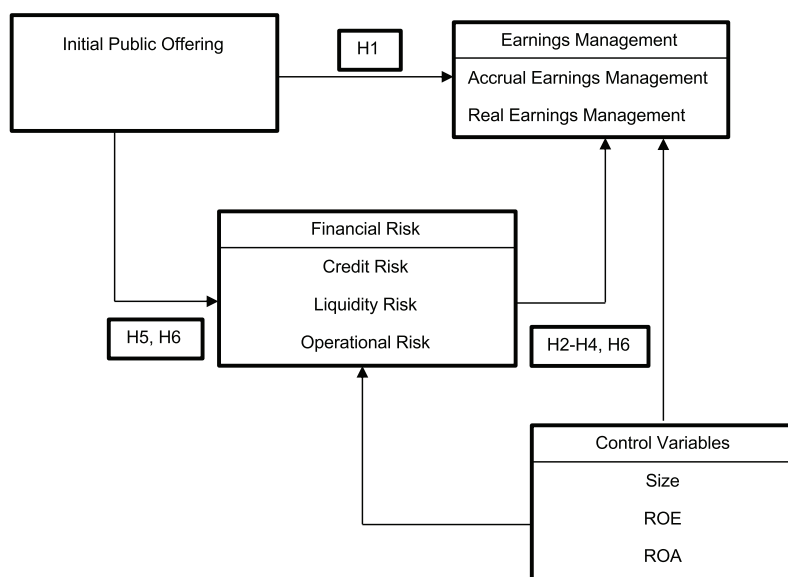


Figure 1 The Conceptual Framework for This Study.

Source: Authors

Research Methodology

This study uses structural equation modeling (SEM) to test the proposed hypotheses for both direct effects (DE) and indirect effects (IE). SEM is a multivariate statistical analysis technique that employs path diagrams to model complex relationships between observed and latent variables. The analysis covers companies that completed IPOs on the SET and the SGX between 2010 and 2019. The sample comprises 96 Thai companies (355 firm-year observations) and 75 Singaporean

companies (267 firm-year observations), totaling 622 observations. Secondary data were obtained from company prospectuses, financial statements, annual reports, and Form 56-1 filings, sourced from corporate websites and from the Securities and Exchange Commission of Thailand and Singapore.

Companies that completed an IPO in a given year are coded as 1, and 0 otherwise. Financial risk, treated as a mediating variable, comprises three components: credit risk, measured by the debt-to-equity ratio (debt/shareholders' equity: DE); liquidity risk, measured by the current ratio (current assets/current liabilities: Current); and operational risk, measured by the cost-to-income ratio (cost/income: CostIncome). The analysis considers two forms of earnings management: accrual-based earnings management (AEM) and real activity-based earnings management (REM).

AEM is estimated by first calculating non-discretionary accruals using the modified Jones model (Dechow et al., 1995). Discretionary accruals, which represent the portion of accruals influenced by managerial discretion, are then obtained by regressing the sample data to estimate the coefficients for total accruals (TA), as shown in Equation (1).

$$(TA_{i,t})/(A_{i,t-1}) = \alpha_0 + \alpha_1 (1/(A_{i,t-1})) + \alpha_2 ((\Delta REV_{i,t} - \Delta REC_{i,t})/(A_{i,t-1})) + \alpha_3 ((PPE_{i,t})/(A_{i,t-1})) \quad (1)$$

where:

$TA_{i,t}$ = Total accruals of firm i in year t , calculated by Equation (2).

$$TA_{i,t} = NI_{i,t} - CFO_{i,t} \quad (2)$$

where:

$NI_{i,t}$ = Net income based on the accrual basis of firm i in year t .

$CFO_{i,t}$ = Cash flow from operations of firm i in year t .

$A_{i,t-1}$ = Total assets of firm i in year $t-1$

$\Delta REV_{i,t}$ = Change in revenue of firm i in year $t-1$ and t

$\Delta REC_{i,t}$ = Change in accounts receivable of firm i in year $t-1$ and t

$PPE_{i,t}$ = Book value of property, plant, and equipment of firm i in year t

The calculated coefficients are substituted into the original equation to estimate the level of non-discretionary accruals (NDA), representing accruals not influenced by managerial discretion.

$$(NDA_{i,t})/(A_{i,t-1}) = \alpha_0 + \alpha_1 (1/(A_{i,t-1})) + \alpha_2 ((\Delta REV_{i,t} - \Delta REC_{i,t})/(A_{i,t-1})) + \alpha_3 ((PPE_{i,t})/(A_{i,t-1})) \quad (3)$$

where:

$NDA_{i,t}$ = Non-discretionary accruals of firm i in year t

$A_{i,t-1}$ = Total assets of firm i in year t-1

$\Delta REV_{i,t}$ = Change in revenue of firm i in year t-1 and t

$\Delta REC_{i,t}$ = Change in accounts receivable of firm i in year t-1 and t

$PPE_{i,t}$ = Book value of property, plan, and equipment of firm i in year t

The NDA values are used to calculate the level of AEM using Equation (4).

$$AEM_{i,t} = TA_{i,t} - NDA_{i,t} \quad (4)$$

where:

$AEM_{i,t}$ = Discretionary accruals of firm i in year t

$TA_{i,t}$ = Total accruals of firm i in year t

$NDA_{i,t}$ = Non-discretionary accruals of firm i in year t

Real activity earnings management (REM) is estimated using Zang's (2012) model. This involves regression analysis to estimate the coefficients for determining the expected values of production costs (PROD) and discretionary expenditures (DISX). The calculations are presented in Equations (5) and (6), respectively.

$$(PROD_{i,t})/(A_{i,t-1}) = \alpha_0 + \alpha_1 (1/(A_{i,t-1})) + \alpha_2 (S_{i,t}/(A_{i,t-1})) + \alpha_3 (\Delta S_{i,t}/(A_{i,t-1})) + \alpha_4 ((\Delta S_{i,t-1})/(A_{i,t-1})) + \epsilon_t \quad (5)$$

where:

$PROD_{i,t}$ = Production cost of firm i in year t

$A_{i,t-1}$ = Total asset sof firm i in year t-1

$S_{i,t}$ = Total sales of firm i in year t

$\Delta S_{i,t}$ = Change in total sales of firm i in year t-1 and t

$\Delta S_{i,t-1}$ = Change in total sales of firm i in year t-2 and t-1

$$(DISX_{i,t})/(A_{i,t-1}) = \alpha_0 + \alpha_1 (1/(A_{i,t-1})) + \alpha_2 ((S_{i,t-1})/(A_{i,t-1})) + \epsilon_t \quad (6)$$

where:

$DISX_{i,t}$ = Discretionary expenditures of firm i in year t

$A_{i,t-1}$ = Total assets of firm i in year t-1

$S_{i,t-1}$ = Total sales of firm i in year t-1

The calculated coefficients are applied to the original equations to estimate the expected business transactions of the company. Abnormal production cost (AbPC) and abnormal discretionary expenditures (AbDX) are then obtained by measuring the differences between actual values—actual production cost (APC) and actual discretionary expenditures (ADX)—and their corresponding expected values, as shown in Equations (7) and (8), respectively.

$$\text{AbPC}_{i,t} = \text{APC}_{i,t} - \text{PROD}_{i,t} \quad (7)$$

where:

$\text{AbPC}_{i,t}$ = Abnormal production cost of firm i in year t

$\text{APC}_{i,t}$ = Actual production cost of firm i in year t

$\text{PROD}_{i,t}$ = Production cost of firm i in year t

$$\text{AbDX}_{i,t} = \text{ADX}_{i,t} - \text{DISX}_{i,t} \quad (8)$$

where:

$\text{AbDX}_{i,t}$ = Abnormal discretionary expenditures of firm i in year t

$\text{ADX}_{i,t}$ = Actual discretionary expenditures of firm i in year t

$\text{DISX}_{i,t}$ = Discretionary expenditures of firm i in year t

The abnormal business transactions are aggregated, and the direction of earnings management is then examined. Real activity earnings management is calculated from these aggregated values using Equation (9).

$$\text{REM}_{i,t} = \text{AbPC}_{i,t} + \text{AbDX}_{i,t} \quad (9)$$

where:

$\text{REM}_{i,t}$ = Real activity-based earnings management of firm i in year t

$\text{AbPC}_{i,t}$ = Abnormal production cost of firm i in year t

$\text{AbDX}_{i,t}$ = Abnormal discretionary expenditures of firm i in year t

In this study, the control variables are firm size (Size), measured by total assets (Ali et al., 2018); return on equity (ROE), calculated as net income divided by shareholders' equity (Utomo et al., 2020); and return on assets (ROA), calculated as net income divided by total assets. ROA has been reported to influence earnings management (Rusdiyanto and Narsa, 2020).

Results and Discussion

Descriptive statistics

Table 1 provides an overview of the descriptive statistics for all variables included in the analysis. Financial risk is measured in three categories: credit risk (debt-to-equity ratio, DE), liquidity risk (current ratio, Current), and operational risk (cost-to-income ratio, Cost-Income [CostIncome]). For Thailand, the mean DE, Current and Cost-Income values are 0.8350, 3.0779, and 0.8750, respectively, while the corresponding values for Singapore are 1.0544, 2.2502, and 1.0482. Overall, the mean financial risk for Singapore is higher than for Thailand. Similarly, both AEM and REM are higher for Singapore than for Thailand.

Table 1 Descriptive data analysis

Country	Variables	N	Mean	Max	Min	S.D.
THAILAND	DE	355	.8350	11.19	.04	1.04844
	Current	355	3.0779	24.87	.32	3.58652
	CostIncome	355	.8750	1.75	.00	.17619
	AEM	355	-2,430	10,634,382	-7,030,142	1,503,084
	REM	355	-123,753	18,857,182	-14,577,658	2,916,824
	SIZE	355	22.4224	26.23	20.36	1.29121
	ROE	355	11.9145	108.06	-56.58	14.31185
	ROA	355	7.4000	48.62	-33.79	7.73158
SINGAPORE	DE	267	1.0544	7.16	-4.82	1.15674
	Current	267	2.2502	8.65	.00	1.51751
	CostIncome	267	1.0482	6.31	.13	.62475
	AEM	267	-714,358	7,808,326	-21,770,651	3,177,037
	REM	267	838,822	33,549,729	-35,174,308	5,834,529
	SIZE	267	22.0799	26.62	18.27	1.56684
	ROE	267	3.9508	168.42	-185.15	33.48089
	ROA	267	.1457	64.11	-192.78	22.70409

Source: Authors

Table 1 also presents the descriptive statistics for the control variables: firm size (Size), return on equity (ROE), and return on assets (ROA). For Thailand, the mean SIZE, ROE, and ROA values are 22.42, 11.91, and 7.4, respectively, while the corresponding values for Singapore

are 22.07, 3.95, and 0.15. The higher ROE and ROA for Thailand suggest that firms generate greater returns from shareholder investments and utilize assets more effectively to produce profits. However, a low or moderate ROA may indicate financial risk if it results from excessive leverage rather than strong operational performance.

Structural Equation Modeling Analysis

This study employs SEM to analyze data from Thailand and Singapore across four time periods: one year prior to the IPO (T-1), the year of the IPO (T), one-year post-IPO (T+1), and two-years post-IPO (T+2). The analysis results indicate a strong alignment between the hypothesized model and the empirical data, as shown in the model fit statistics in Table 2. Parameter values for each country and time period are estimated using the maximum likelihood estimate (MLE) method, with results tabulated in Table 3. MLE is a statistical technique that estimates the parameters of a probability distribution by identifying the values that maximize the likelihood of observing the given data under the specified model.

Table 2 The model fit statistics

Index*	Criteria	T-1		T		T+1		T+2	
		TH	SG	TH	SG	TH	SG	TH	SG
CMIN-p	>0.05	5.597	4.421	8.979	12.094	15.611	6.156	10.627	10.627
CMIN/df	<3	2.798	1.474	1.796	2.016	2.230	1.026	1.518	1.518
GFI	>0.90	0.996	.996	.994	.990	.987	.992	.986	.986
NFI	>0.90	0.994	.991	.986	.976	.956	.990	.961	.961
IFI	>0.90	0.996	.997	.994	.988	.975	1.000	.986	.986
CFI	>0.90	0.996	.997	.993	.987	.973	1.000	.985	.985
RMSEA	<0.08	0.072	.042	.047	.062	.069	.012	.056	.056

Notes: TH = Thailand, SG = Singapore. T-1 = 1 year before IPO, T = within the IPO year, T+1 = 1 year after IPO, and T+2 = 2 year after IPO. *CMIN-P=Chi-square Probability Level, CMIN/df=Relative Chi-square, GFI=Goodness of Fit index, NFI=Normed Fit Index, IFI=Incremental fit index, CFI=Comparative Fit Index, RMSEA=Root Mean Square Error of Approximation.

Source: Authors

Table 3 Standardized regression weights (β) from SEM for Thailand and Singapore across four periods.

Path		T-1		T		T+1		T+2	
		TH	SG	TH	SG	TH	SG	TH	SG
IPO	--->	.378***	.286***	-.044	-.072	-.021	-.025	-.718	.076
IPO	--->	-.239***	-.295***	.037	.101*	.009	-.020	-.027	-.030
IPO	--->	-.003	.066	-.002	.043	.002	-.006	-.142	.026
Size	--->	.223***	.117***	.266***	.236***	.230***	.190**	.076	.249**
Size	--->	-.158**	-.218***	-.207***	-.223***	-.219***	-.170**	.052	-.198**
Size	--->	-.150**	-.038	-.078*	-.055	-.042	-.089	-.076	.001
ROA	--->	-.749***	.218**	-.618***	.212***	-.038	.123	.016	.362**
ROA	--->	.162*	.262***	.170**	.306***	.065	.565***	.135	.674***
ROA	--->	-.453***	-.515***	-.508***	-.563***	-.504***	-.545***	-.333**	-.445***
ROE	--->	.671***	-.375***	.528***	-.406***	-.676***	-.404**	-.128*	-.537***
ROE	--->	-.145	-.069	-.119	-.020	-.018	-.269**	.303***	-.400**
ROE	--->	-.023	-.083	.037	-.140**	-.135**	-.055	-.003	-.209*
IPO	--->	-.056	-.027	.032	-.029	-.022	-.018	.114	-.036
IPO	--->	-.072	.033	.017	.018	-.045	-.026	-.061	-.020
DE	--->	.033	.138**	.043	.231***	.029	.177**	-.121	-.016
Current	--->	.048	-.005	.046	.026	.050	.030	.047	-.126
CostIncome	--->	.149**	.159**	.114*	.118*	-.014	.156**	-.070	.127
DE	--->	.082	.079	-.092	.110	-.201**	.130**	-.718***	-.106
Current	--->	-.031	-.004	-.084	.037	-.096	.057	.027**	.026
CostIncome	--->	.200***	.002	.221***	.014	.220**	.147*	.142**	.010
Size	--->	-.016	-.476***	-.035	-.587***	-.090	-.547***	.076	-.499***
Size	--->	-.072	.251***	-.009	.218***	.016	.188**	.052	.784***
ROE	--->	-.045	-.006	.005	.046	.017	-.054	-.076	.076
ROE	--->	.008	.010	-.062	-.005	-.037	-.003	.016	-.030
ROA	--->	.049	-.077	.061	-.094	.023	-.027	.135	.026
ROA	--->	.103	.131*	.014	.104	-.095	.106	-.333**	.249**

Notes: TH = Thailand, SG = Singapore. T-1 = 1 year before IPO, T = within the IPO year, T+1 = 1 year after IPO, and T+2 = 2 year after IPO. *p<0.1, **p<0.05, ***p<0.01.

Source: Authors

As shown in Table 3, the results indicate no direct relationship between IPOs and earnings management across any of the four periods for either Thailand or Singapore. However, a relationship is observed between IPOs and financial risk. Specifically, in the year prior to the IPO (T-1), firms exhibited increased credit risk (DE = 0.378 for Thailand; and 0.286 for Singapore) and liquidity risk (Current = -0.239 for Thailand and -0.295 for Singapore). For Singapore, liquidity risk improved during the IPO year (Current = 0.101), whereas for Thailand, credit risk declined two years after the IPO (DE = -0.718).

The findings also reveal a direct relationship between financial risk and earnings management in both countries. Liquidity risk, however, does not influence earnings management through business operations in any time period. Overall, financial risk significantly increases earnings management in most periods for both countries, except at T+2.

Table 4 summarizes the SEM-based direct effects (DE), indirect effects (IE), and total effects (TE) across the four periods for both countries. The results show that only the SGX exhibits a statistically significant indirect effect of 0.51 ($p < 0.1$) on earnings management through AEM in the year prior to the IPO (T-1). Table 5 presents the hypothesis testing outcomes based on the SEM analysis.

Table 4 Effect of IPO on earnings management in Thailand and Singapore across four periods

	Effect	T-1		T		T+1		T+2	
		TH	SG	TH	SG	TH	SG	TH	SG
AEM	DE	-.056	-.027	.032	-.029	-.022	-.018	.076	-.036
	IE	.000	.051*	.000	-.009	.000	-.006	.004	.006
	TE	-.056	.024	.031	-.038	-.022	-.024	.080	-.030
REM	DE	-.072	.033	.017	0.18	-.045	-.026	.052	-.020
	IE	.038	.024	.001	-.004	.004	-.005	.006	-.009
	TE	-.035	.057	.017	.015	-.041	-.031	.058	-.029

Notes: TH = Thailand, SG = Singapore. T-1 = 1 year before IPO, T = within the IPO year, T+1 = 1 year after IPO, and T+2 = 2 year after IPO. * $p < 0.1$.

Source: Authors

Table 5 Hypothesis testing results

H:	Statement	TH				SG				Results
		T-1	T	T+1	T+2	T-1	T	T+1	T+2	
H1a	IPO>AEM (+)									Reject
H1b	IPO>REM (+)									Reject
H2a	CR>AEM (+)					+	+	+		Accept
H2b	CR>REM (+)			-	-			+		Accept
H3a	LR>AEM (+)									Reject
H3b	LR>REM (+)				+					Accept
H4a	OR>AEM (+)	+	+			+	+	+		Accept
H4b	OR>REM (+)	+	+	+	+			+		Accept
H5a	IPO>OR (+)									Reject
H5b	IPO>CR (+)	+				+				Accept
H5c	IPO>LR (-)	+				+	-			Accept
H6a	IPO>CR>AEM (+)					+				Accept
H6b	IPO>CR>REM (+)									Reject
H6c	IPO>LR>AEM (+/-)									Reject
H6d	IPO>LR>REM (+/-)									Reject
H6e	IPO>OR>AEM (+)									Reject
H6f	IPO>OR>REM (+)									Reject

Notes: TH = Thailand, SG = Singapore. T-1 = 1 year before IPO, T = within the IPO year, T+1 = 1 year after IPO, and T+2 = 2 year after IPO. + = positive effect, - = negative effect.

Source: Authors

The study rejects hypotheses H1a, H1b, H3a, H5a, and H6b-H6f due to the absence of statistically significant relationships involving the stock exchanges (SET and SGX) across the four periods (T-1, T, T+1, T+2). These findings contrast with prior studies that reported a positive association between IPOs and earnings management through accrual-based activities (e.g., Aharony et al., 1993; Alhadab et al., 2015, 2016; Cormier & Magnan, 1997; Cuong & Ha, 2018; Darrough & Rangan, 2005; Fan, 2007; Friedlan, 1994; Gramlich & Sørensen, 2004; Morsfield & Tan, 2006; Roosenboom et al., 2003; Sadeghi & Zareie, 2015; Teoh et al., 1998; Winarso & Salim, 2017).

The study supports H2a for the SGX in three periods: T-1, T, and T+1. Similarly, H2b is supported for Singapore one year after the IPO (T+1). The results indicate that credit risk had a positive effect on earnings management through discretionary accruals, consistent with Aprilia et al. (2016).

H3b is supported for the SET two years after the IPO (T+2), indicating that liquidity risk is associated with increased earnings management through operational transactions. This finding is consistent with Winarso and Salim (2017), Cuong and Ha (2018), and Sadeghi and Zareie (2015).

H4a is supported for the SET in two periods (T-1 and T) and for Singapore in three periods (T-1, T, and T+1). H4b is supported across all four periods for the SET and one year after the IPO (T+1) for Singapore. These findings are consistent with prior studies, including Jain and Kini (1994), Cai and Wei (1997), Mikkelsen et al. (1997), Pagano et al. (1998), Kutsuna et al. (2002), Chan et al. (2004), Balatbat et al. (2004), Ahmad and Lim (2005), Wang (2005), and Ahmad-Zaluki (2009).

H5b is supported for both the SET and the SGX one year prior to the IPO (T-1), while H5c is supported for the SGX during the IPO year (T), consistent with Khan (2020). H6a is supported for the SGX one year before the IPO (T-1), indicating a relationship between IPOs and credit risk, also in line with Khan (2020). The observed relationship between credit risk and earnings management through accruals is consistent with Aprilia et al. (2016).

Conclusions and Recommendations

This study finds that IPOs have no direct effect on earnings management through either accrual-based or real activity-based methods for the SET and the SGX. However, when considering indirect effects via financial risk, IPOs influence accrual-based earnings management in Singapore during the year prior to the IPO (T-1). Specifically, IPOs have a statistically significant indirect effect on accrual-based earnings management in the SGX, mediated by credit risk.

The findings are expected to benefit IPO investors and regulators by identifying risks that may not be immediately apparent and by revealing a company's true growth potential. Both accrual-based and real activity-based earnings management practices distort reported financial information and can mislead financial decision-makers. Accrual-based management achieves this distortion by utilizing accounting discretion to shift the timing of revenue and expense recognition across different reporting periods. The results provide insights that can help investors make more informed decisions by monitoring for significant deviations between a firm's reported net income and its actual cash flow from operations, as large, unexplained accruals often signal accounting manipulation and highlight the importance of avoiding firms with excessive credit risk because such firms' executives may be motivated to manage earnings to conceal weak performance. The motivation to engage in these practices is highest under circumstances of high credit risk, where executives face intense pressure to conceal weak financial performance from potential IPO

investors. During these periods of financial distress, managers are more likely to use accrual-based methods to artificially inflate earnings to meet debt covenants or to secure a higher valuation during the offering. By systematically analyzing these discrepancies, investors can better distinguish between a firm's true economic health and the managed performance designed to mask underlying credit vulnerabilities.

This study has several limitations. First, it focuses exclusively on firms undertaking IPOs between 2010 and 2019, a period spanning between the H1N1 and COVID-19 pandemics. This study isolates a specific market regime of recovery and growth, free from the extreme exogenous volatility of an active global emergency. However, this focus may limit the generalizability of our findings to other time frames characterized by high economic instability or different regulatory environments. Second, due to limited data availability for calculating earnings management estimates for the SGX, firms could not be segregated by industry. As a result, the analysis was conducted using aggregated market data, which may introduce some bias. Future research should extend the observation period to provide a more comprehensive understanding of the relationship between IPOs and earnings management. Moreover, comparative analyses in other capital markets, such as the United States and China, could enhance understanding of earnings management behaviors in the context of IPOs.

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