

Abdullah, Saeed Md.; Zaby, Simon

## Article

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Article

# Seasoned Equity Offerings and Differences in Share-Price Impact by Firm Categories

Saeed Md. Abdullah <sup>1</sup> and Simon Zaby <sup>2,\*</sup> 

<sup>1</sup> Toulouse School of Management, 31080 Toulouse, France; saeedabdullah@rocketmail.com

<sup>2</sup> College of Management, Mahidol University, Bangkok 10400, Thailand

\* Correspondence: simon.zab@mahidol.ac.th

**Abstract:** The seasoned equity offering (SEO) market plays a significant role in the economic development of a country by providing liquidity for ongoing commercialization and innovation. This study is a comprehensive analysis of 149 SEOs and their effect on share prices in Thailand between 2009 and 2019. SEOs are categorized based on their time categories (early, mid, and grown) and volume categories (small, medium, big, and super). Using the event study methodology (multi-factor model), we find that most SEOs under both categories have a negative cumulative abnormal return (CAR) in the window period. Ranking the types of SEOs reveals that grown SEOs have the highest proportion of negative CAR under the time categories. Under the volume categories, medium SEOs show the largest share. The results were validated by regression assumption tests provided by Gnu Regression, Econometrics and Time-series Library, and correspond to established theories. The paper also contains an extensive literature review of studies examining the link between SEOs and share-price development. Our findings have important implications for corporations, investors, and regulatory bodies and can thus help in increasing market confidence for sustainable corporate funding.



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**Keywords:** SEO; seasoned equity offering; asset pricing; corporate finance; sustainable finance

## 1. Introduction

Financial markets make it possible for corporations to raise funds through equity offerings and bank loans or by issuing bonds and commercial papers. For corporations that had already initially offered public equity, second rounds of offerings (seasoned equity offerings, SEOs) are a common way to build up a sustainable capital structure through equity funding rather than by increasing debt levels. Moreover, both good and bad performances of companies are reflected in their share prices, which help investors identify corporations whose corporate strategy involves sustainable practice.

SEOs, in the sense of sustainable funding, also help corporations avoid bankruptcy risk caused by indebtedness, maintain healthy credit ratings, and reduce restrictions on the long-term use of their funds. Availability and best-practice usage of financial resources are essential for sustainable development, especially in emerging economies (Ahn et al. 2018; Li et al. 2018).

Constant availability of resources for a society is a prerequisite for sustainability (Adger and Winkels 2014). With an SEO, a firm with well-performing corporate social responsibility increases the spread of financial resources in society. Our study on SEOs offers corporations and investors an insight into the effect of this funding method on share prices. Therefore, it helps increase market confidence for sustainable corporate funding.

The latter is especially important in developing countries such as Thailand. Thailand is recognized globally for its sufficiency economy philosophy that also emphasizes stability in finance. The crucial role of sustainable finance was further outlined by the United Nations' adoption of finance as part of its global Sustainable Development Goals (SDGs) of 2012 (Sachs 2012; Zaby 2019). SDG 1 incorporates the availability of financial products

and services, while SDG 17 defines the access to financial resources as fundamental for sustainable development (United Nations 2021).

The purpose of this study is to analyze the effects of SEOs in Thailand on the share price during the 2009–2019 period. SEOs were categorized, and categories were identified that potentially cause a negative return and, therefore, might negatively affect the development of a corporation and its future funding attempts. This will help determine the categorized effects of SEOs rather than generalizing them.

The first main category is “time”, which allows the examination of the potentially different impacts on stock market reactions. If the SEO was issued within 5 years of the company’s initial public offering (IPO), it was allocated to the subcategory “early”; if issued 5 to 10 years after the IPO, it was considered to form the “mid” SEO cluster; if issued more than 10 years after the IPO, it was viewed as a “grown” SEO. As the second main category, the volume of the SEO was determined based on four subcategories. If the SEO volume was up to 50% of the firm’s IPO amount, it fell under the “small” subcategory; if the volume was from 50 to 100% or 100 to 200%, it was defined as the “medium” or “big” SEO group, respectively; if the volume was more than 200%, it was defined as a “super” SEO.

Insights into the consequences of corporate financing depending on timing and volume of SEOs are the foundation for creating sustainable funding markets. Based on the results, adequate safeguards can be implemented before and during the issuance of certain SEOs in the future. The expansion of businesses is particularly important for developing and growing established economies and even more so for developing countries such as Thailand. SEOs potentially play a more vital role in that context.

The remainder of this paper is organized as follows. Section 2 supplies a review of various SEO research areas that examine the link between SEOs and share-price development. Section 3 presents the empirical results, and Section 4 provides a discussion by highlighting the study’s novelty and linking its findings to previous research. Section 5 (Conclusions) summarizes the findings, outlines the practical implications, and emphasizes limitations.

## 2. Materials and Methods

### 2.1. Literature Review

When adequate business opportunities are available, companies may seek to increase financing by listed equity. While IPOs lead to positive stock market returns (Gupta and Suri 2017), SEOs are often perceived negatively by the stock markets, as they might lead to negative stock returns and underpricing after their issuance. There is a relatively huge portfolio of scholarship investigating SEOs and the difficulties companies face after their issuance and announcement. However, only a few studies have examined a link between the effect of SEOs on stock prices and specific firm categories. For example, Asquith and Mullins (1986) analyzed the size of the equity offering itself, defined by the percentage of planned proceeds of the offering compared to the pre-announcement equity value. The quality of corporate governance systems (Becker-Blease and Irani 2008; see also Chen 2017); the book-to-market ratios of firms (Brav et al. 2000); and a firm’s liquidity (Intintoli and Kahle 2010) have been used as firm categories. The timing and volume of an SEO in relation to its IPO—as applied in the current study—have not been considered to categorize firms before. Further research is required to not only categorize the difficulties faced by firms after the issuance of SEOs but also develop effective and sustainable solutions to tackle them.

Extensive literature on the *general link between an SEO and the stock prices* of companies around its announcement and issuance found SEOs to be an unwelcome sign among investors. Adverse post-announcement and post-issuance outcomes of SEOs have been identified as the central theme by several scholars. Asquith and Mullins (1986) found that stock prices reduce significantly after an SEO announcement. It was also revealed that it is common for a share price to fall after the announcement of an SEO (Bond and Zhong 2016). That effect was confirmed in the context of acquisition financing by SEOs (Golubov et al. 2015). Other studies have concluded that companies face abnormally low

stock returns after the issuance of SEOs, specifically for common stocks (Baker and Xuan 2016; Brisker et al. 2014; Hull et al. 2009; Masulis and Korwar 1986). Regarding the stock return after the announcement of an SEO, Eckbo et al. (2007) identified a negative effect for US firms. Gerard and Nanda (1993) found that stock price falls after an actual SEO in the United States. Research on the Chinese market detected stock price decreases after the announcement and execution of an SEO (Huang et al. 2016), confirming the results of an investigation of the Thai stock market (Lerskullawat 2011) and the Indian stock market (Naveen Kumar et al. 2018). Becker-Blease and Irani (2008) found that sound corporate governance systems such as board independence, size of the audit committee, and director ownership mitigate the negative effect of equity offering announcements on the share price (see also Chen 2017). Fewer negative reactions around SEO announcements in the Chinese stock market have been linked to a regulation enacted in China that indicates a minimum return of equity as an SEO prerequisite (Chen and Wang 2007).

Another group of SEO scholars examined and analyzed the *reasons for stock price and firm performance reactions around an SEO*. For instance, an SEO-financed acquisition and a subsequent negative stock return might occur due to the specific financing choice, but not because of the investment decision itself (Golubov et al. 2015). Other research examined the initial day returns after controlling the dilution effect from an SEO discount and found that initial day returns are inconsistently positive, integrating determinants of SEO offer-day returns, such as lockup length, discount reversal, prior operating performance, and underwriter reputation (Cline et al. 2012). As a reason for the reduction of stock prices around an SEO announcement, Asquith and Mullins (1986) mentioned a negative relation to the general size of the equity offering. A study with 385 samples of issuances at the Taiwan Stock Exchange revealed that the fixed-price flotation method of SEOs negatively affects stock market return, while the book building flotation method shows a positive return (Wang et al. 2008).

Further investigating negative stock returns, D'Mello et al. (2003) identified them to be lower in case of relatively late SEO announcements due to the less adverse selection cost (see also Coakley et al. 2021). Gerard and Nanda (1993) found that the stock price decline after the issuance of SEOs might occur due to the selling of shares prior to SEO by traders. By increasing the number of shares in the market, they aim to decrease the price first. A study in China identified an effective regulatory mechanism to tackle negative stock price reactions (Huang et al. 2016). If the regulatory authority does not permit the immediate execution of SEOs after the announcement, stock prices can recover before the execution of the SEO. Masulis and Korwar (1986) linked a decrease in management shareholdings to larger negative announcement effects. Rangan (1998) suggested that earnings management can explain the poor performance of stock prices after SEOs. Markets appear to extrapolate earnings growth and overvalue issuing firms. Subsequent to the offering, when discretionary accruals cause earnings to decline, the market would correct the valuation (Rangan 1998). Moreover, management turnover can weaken the relation between equity issues and stock market performance (Baker and Xuan 2016).

Harmful effects of the issuance of SEOs could also be caused by *offer price discounts or SEO underpricing* (Han et al. 2021; Autore and Gehy 2013; Huang and Levich 2003; Liu and Chung 2013; Su and Fleisher 1999). A study of SEOs for real estate investment trusts concluded that SEO offer prices are discounted significantly (Goodwin 2013; see also Lorenz 2020; Ghosh et al. 2000; Ong et al. 2011). Intintoli and Kahle (2010) described SEO underpricing by exploring two links: First, higher insider ownership reduces float and, thereby, increases price pressure and SEO underpricing. This effect is more significant in firms with low liquidity. Second, the greater the percentage of secondary shares offered, the lower the underpricing, suggesting that the managers pressure the bank to reduce underpricing when their personal wealth is at stake (Intintoli and Kahle 2010). Kim and Park (2005) observed that SEO firms making opportunistic and aggressive accounting decisions make offerings at inflated prices. Furthermore, issuance costs (Goodwin 2013); changing regulations regarding short selling (Autore and Gehy 2013); and asymmetric

information among underwriters, issuers, and investors (Liu and Chung 2013) have been identified as reasons behind SEO underpricing. An examination of SEOs on the US stock market finds a higher probability of greater SEO underpricing for firms with outside large shareholders (Ngo et al. 2020).

Another unfavorable consequence determined in the literature is the *underperformance of firms regarding the long-term post-SEO performance* (Da Cunha and Seetharam 2018; Hsu et al. 2016; Wadhwa and Syamala 2018; Yang et al. 2013). Dasilas and Leventis (2013) stated that firms that announce an SEO will underperform for two years following the announcement. Scholars have also examined and identified some rationales behind company underperformance in the SEO post-issuance period. Referring to Brav et al. (2000), the underperformance of SEO issuing firms is characterized by a small firm size and low book-to-market ratios. Spiess and Affleck-Graves (1995) found firms that issue SEOs to be underperforming compared with other firms of similar size in the same industry. In their study, Hsu et al. (2016) showed that the lottery-like characteristics with which firms issue SEOs are negatively related to its long-term performance (see also Chang and Lin 2018). Limpaphayom and Ngamwutikul (2004) and Dasilas and Leventis (2013) concluded that corporate governance structure, dividend status, and ownership structure affect the long-term operating firm performance after an SEO. It was further explained that high concentration of ownership, low information asymmetry, and owners' involvement in management show positive return of SEOs (Dasilas and Leventis 2013). Brisker et al. (2014) identified companies providing high equity-based compensation to their top executives to face abnormal low stock returns and unfavorable changes in operating performances. Yang et al. (2013) detected that aggressive earnings management is responsible for the poor long-term performance after the occurrence of the SEO (see also Beyer et al. 2018; Deng and Ong 2018; Shivakumar 2000; Teoh et al. 1998). In a study of the Indian market, long-term negative performance of firms after the issuance of SEOs was linked to market timing issues (Wadhwa and Syamala 2018).

## 2.2. Methodology

We applied the event study methodology, which is broadly accepted in the relevant literature (Becker-Blease and Irani 2008; Byoun 2004; Golubov et al. 2015). Previous related studies show a variety of sample sizes. For instance, 62 SEOs were examined by Limpaphayom and Ngamwutikul (2004) and 173 SEOs by Shahid et al. (2010). We selected 149 SEOs from 2009 to 2019 from the SETSMART online information service provided by the Stock Exchange of Thailand.

To conduct the event study, first, an event must be set to assess the effect on the share price. Previous investigations mostly used either announcements or the effective date as the event date (Bruner 2002). However, using the announcement day might not be a perfect choice as there can be different announcement days. Announcement and issue days have different effects on share price, and between these two days, some critical information may be released from the company to investors. The negative effect on share price until the actual date of share issuance increases when the time gap between the announcement and actual date of share issue increases (Korajczyk et al. 2015). Barclay and Litzenberger (1988) revealed that on the announcement day, the share price drops, but on the issue day, the share price recovers. Gerard and Nanda (1993) found that manipulation of share price occurs around the equity offering date. We chose to take the effective date as the event day. Information content on that day is higher than on the announcement date. This methodology aligns with previous research (Anderson and Born 1989; Daly et al. 2017; Feng et al. 2018; Kvamvold and Lindset 2018; Langetieg 1978; Nanda and Ross 2012; Pandow and Butt 2019).

As the next step, we defined our estimation period. SEO literature uses different estimation periods, such as 60 days (Becker-Blease and Irani 2008), 160 days (Golubov et al. 2015), and 200 days (Byoun 2004). As per our observation, an estimation period longer



than six months may overlap with other significant events. Therefore, we chose 180 days as the estimation period.

Regarding the event window, literature on SEOs uses “−2,0,+2” (Becker-Blease and Irani 2008; Byoun 2004) or “−60,0,+20” (Salamudin et al. 1999). A meta-research study found no specific rules for the length of the window period (EventStudyTools 2021). We used an event window of one month before and after the event day to observe the comprehensive effect of the SEO. Any significant abnormal return prior to these 30 days is not considered to be related. Moreover, relevant information was absorbed in the market price within 30 days after the event.

To conduct the event study, it was necessary to identify the normal or expected return. We used multi-factor models (in line with Campbell et al. 1997) where log-returns of the SET Index and SET Industry Indices were considered the independent variables. Log return of the particular firm was the dependent variable:

$$\text{Expected Return (y)} = \alpha + \beta_1 \times \text{SET Return} + \beta_2 \times \text{SET Industry Indices}$$

The abnormal return can be computed as the difference between the actual return and expected (normal) return (Campbell et al. 1997). The parametric test of the t-statistic was used to test for significance. Significance tests were run for each day in the event window for each firm (H0: expected return = actual return; H1: expected return  $\neq$  actual return). If the t-statistic fell outside the critical value, the null hypothesis was rejected, or it was noted that the abnormal return was significant. To validate the results, regression assumption tests provided by Gnu Regression, Econometrics and Time-series Library were conducted (DeFusco et al. 2007).

### 3. Results

This section presents the study results in three parts: results of all SEOs (total sample), results of SEOs in the time categories, results of SEOs in the volume categories.

In an overall view (Table 1), most SEOs showed a negative CAR. This was the case in 56.38% of the total sample, or in 84 out of the observed 149 SEOs.

**Table 1.** Effects of seasoned equity offerings (SEOs) on share price (uncategorized) for the total sample.

| Number of SEOs | Number and Percentage of SEOs with Positive CAR | Number and Percentage of SEOs with Negative CAR |
|----------------|---|---|
| 149            | 65<br>43.62%                                    | 84<br>56.38%                                    |

Source: own calculations. CAR: cumulative abnormal return.

Regarding the time categories (Table 2), none of the three subcategories reveal a majority of SEOs with positive influence on the stock price development. Out of the 149 observed SEOs, 36 were early SEOs, and a slight majority (52.78%) of those showed a negative CAR. Moreover, in the group of mid SEOs, only a little more than half (20 of 38; 52.63%) experienced a negative CAR. Viewing the three timing categories, the highest proportion of SEOs with a negative CAR was prevalent among grown SEOs. Only 30 out of 75 SEOs in this cluster had cumulated positive stock price reactions in the window period. Grown SEOs had the largest negative effects on stock price development (45 of 75; 60% of all grown SEOs).

**Table 2.** Effects of seasoned equity offerings (SEOs) on share price (time categories).

| Time Category | Number of SEOs | SEOs with Positive CAR | SEOs with Negative CAR |
|---------------|----------------|------------------------|------------------------|
| Early SEO     | 36             | 17<br>47.22%           | 19<br>52.78%           |
| Mid SEO       | 38             | 18<br>47.37%           | 20<br>52.63%           |
| Grown SEO     | 75             | 30<br>40.00%           | 45<br>60.00%           |

Source: own calculations. CAR: cumulative abnormal return.

Analogous to the time categories, all volume categories reveal a higher number of SEOs with negative CAR (Table 3). Out of the total 149 samples, 26 SEOs were super, 17 big, 19 medium, and 87 small.

**Table 3.** Effects of seasoned equity offerings (SEOs) on share price (volume categories).

| Amount Category | Number of SEOs | SEOs with Positive CAR | SEOs with Negative CAR |
|-----------------|----------------|------------------------|------------------------|
| Super SEO       | 26             | 11<br>42.30%           | 15<br>57.70%           |
| Big SEO         | 17             | 8<br>47.06%            | 9<br>52.94%            |
| Medium SEO      | 19             | 5<br>26.32%            | 14<br>73.68%           |
| Small SEO       | 87             | 41<br>47.13%           | 46<br>52.87%           |

Source: own calculations. CAR: cumulative abnormal return.

Small SEOs have the least negative effect on the stock price of firms that offer seasoned equity. Negative CARs occurred in 46 small SEOs (52.87%), whereas 41 SEOs (47.13%) generated positive CARs. These findings are quite similar for the category of big SEOs, where cases with negative CAR (9 or 52.94%) outweigh those with positive CAR (8 or 47.06%) only marginally. A slightly higher proportion with negative effects on the stock price development around an SEO can be identified for super SEOs. This category comprises 15 SEOs with negative CAR (57.70%) and 11 SEOs with a positive CAR (42.30%). Remarkably, the most negative effects of SEOs are revealed in the medium category. The share of negative CARs amounts to almost three quarters (73.68%; 14 out of 19). Hence, only 26.32% of all medium SEOs (5 out of 19) in the sample had a positive CAR in the window period.

#### 4. Discussion

Prior to this study, the effect of SEOs on share prices in Thailand has been investigated only once, in a dissertation (Lerskullawat 2011). The sample for that study covers SEOs between 1999 and 2006—a period preceding the financial crisis of 2007–08. The current study uses Thai stock market data for the post-crisis period between 2009 and 2019. Few previous SEO studies considered specific firm categories, such as sound firm corporate governance (Becker-Blease and Irani 2008), firm book-to-market value (Brav et al. 2000), and firm liquidity (Intintoli and Kahle 2010). The current study is the first of its kind in SEO literature to apply a categorization based on the timing (early, mid, and grown) and volume (small, medium, big, and super) of SEOs in relation to the IPO. Thus, this study attempts to provide a benchmark for the assessment of future SEO research trajectories.

In terms of the effect of SEOs on stock prices, our study confirms a broad spectrum of SEO scholarship. Similar to previous studies of SEOs, we find negative effects of SEOs on the development of firms' stock prices. Asquith and Mullins (1986) investigated 531 registered SEO samples listed at the American Stock Exchange and New York Stock Exchange and found that SEO announcements reduce stock price significantly. Eckbo

[et al. \(2007\)](#) confirmed this effect for the US market (see also [Golubov et al. 2015](#)). The general negative link of SEOs was also found by, for example, [Gerard and Nanda \(1993\)](#) for the US; [Huang et al. \(2016\)](#) for China; and [Naveen Kumar et al. \(2018\)](#) for India (see also [Baker and Xuan 2016](#); [Bond and Zhong 2016](#); [Brisker et al. 2014](#); [Hull et al. 2009](#); [Masulis and Korwar 1986](#)).

## 5. Conclusions

### 5.1. Summary of Findings

The objective of this study was to analyze the categorized effects of 149 SEOs in Thailand on the share price between 2009 and 2019. We revealed significant effects of SEOs on the share price. All categories of SEOs had a greater number of SEOs with a negative effect on the share price—measured by the CARs in the window period. Accordingly, the CAR was negative for most SEOs in our sample.

Ranking the SEOs based on the time category shows the largest negative effect on the share-price development among grown SEOs, whereas mid and early SEOs come after a considerable gap—with a nearly identical proportion. These results correspond to the business life cycle theory. Companies experience the highest increase in sales during their early and growth stages. Higher growth is supposed to lead to a higher value of assets. Our analysis of the volume categories reveals a remarkably high proportion of SEOs with a negative CAR in the group of medium SEOs, followed by super, big, and small SEOs. The volume of a project influences a firm's growth through its reinvestment rate. Again, higher growth results in higher valuation. Our results are largely in line with this relation.

### 5.2. Practical Implications

Our study provides further evidence and knowledge on SEOs in Thailand as an example for an emerging market and the linkage between SEOs and stock prices in general. The insights can help corporations choose the right type of SEOs by identifying and avoiding those with the lowest CAR. Firm managers can better identify the factors influencing stock price reactions triggered by an SEO. Our categorization can help them better select the timing and amount of their equity issuance. Investors will be able to analyze a firms' performance along the event window and according to the time and volume categories of the SEOs. This helps them in their investment decision-making process by identifying SEO placing firms in which it is worth investing. The specific focus on the event window period can also help financial analysts use our findings to make recommendations for share transactions to their clients.

For academics and researchers, our results can serve as a basis on which to build further qualitative research on this topic or for additional studies on SEOs in specific industries and on specific types of SEOs. Further research can also validate our findings for Thailand or other emerging countries, as the large body of SEO scholarship focuses on developed markets. National regulatory bodies can increase the monitoring of the time and volume categories of SEOs that are lower in ranking, as they have the highest negative CAR. Equity issuers can be aware of the time and volume categories of SEOs and probably related effects on share price due to secondary equity issuance. Existing shareholders can decide on retaining or selling shares based on the time and volume categories of the SEOs offered by the equity-issuing company.

To conclude, proper timing and volume management of SEOs is fundamental for knowledge and trust in markets for corporate financing, which is a prerequisite for sustainable finance and sustainability in business development.

### 5.3. Limitations

This study is subject to certain limitations. While (cumulative) abnormal returns were identified, their specific magnitudes were not examined. Furthermore, the reasons behind the revealed phenomena were not explored; this may be an interesting extension



for subsequent studies. Further research can also use alternative event windows such as “−2,0,+2” or “0,+1” to account for the significance of CARs.

Based on our findings, future studies can aim to identify why different types of SEOs have different effects on the share price in each category. Additionally, any categorization must draw category borders, which are always discretionary to a certain extent. As this is the first study to use a timing and volume categorization to examine SEOs and their effect on share prices, future research can build on and reassess these initial benchmarks.

The effect of SEOs on share price has rarely been examined for the Thai market (only once in the form of a dissertation dating back to 2011; [Lerskullawat 2011](#)), and such a timing and volume categorization has never been applied. Hence, the possibilities for discussion are still restricted.

This study examines the post-crisis period between 2009 and 2019 and does not cover any influence of the COVID-19 pandemic on the SEO market. Research in the coming years can validate our results with the stock market data observed during and after the pandemic.

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