CAPITAL STRUCTURE DECISION: ASYMMETRIC INFORMATION IN TOTAL ASSETS AND GROWTH OPPORTUNITIES

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Abstract: This research is motivated by the role of equity issues in financing policy to leverage growth opportunities and the assets in place of firms in Indonesia post-COVID-19. The objective of this article is to analyze the differences in asymmetric information embedded in total assets and growth opportunities based on the firm's life cycle. The data collected consist of 126 firm observations from companies issuing equity for financing from 2020 to 2023. Firms issued more equity in 2021 (34.1%) and 2022 (34.1%) than 2020 (11.9%) and 2023 (19.8% of the 126 observations). The data were analyzed using three regression models: for all firms, for firms in the growth stage, and for firms in the maturity stage. This article presents varied results. The first and third models demonstrate that increases in total assets and growth opportunities reduce asymmetric information, which in turn leads to higher average funds raised through equity issuance. However, in the second model, an increase in the total assets of firms in the growth stage decreases asymmetric information, prompting firms to prefer equity issuance. In contrast, growth opportunities do not represent market-sensitive information and thus do not impact equity issuance. Notably, the mature stage model aligns more closely with the pecking order theory than the growth stage model.

Keywords: asymmetric information, capital structure decisions, pecking order theory.

JEL Classification: G10, G32.

1 Introduction

The wave of the COVID-19 pandemic in Indonesia, starting in 2020, disrupted corporate economic activities, although emergency support from the government helped mitigate their adverse effects. Many companies struggled to adapt to business models incompatible with social distancing. In this situation, liquidity and solvency challenges prompted companies to turn to record levels of equity issuance (Aspris, et al., 2024). Given the substantial capital requirements and the lower information disclosure requirements, equity issuance became more preferable than risky debt.

According to the traditional pecking order theory (POT) proposed by Myers (1984) and Myers and Majluf (1984), firms do not have an optimal capital structure. The presence of asymmetric information has resulted in a financing hierarchy, with retained earnings being the preferred option, followed by debt and finally equity issuance. Notably, the pecking order theory (POT) of capital structure financing is more applicable to larger firms than smaller ones (Frank and Goyal, 2003). Mature-stage firms, particularly those of larger size, have the capability to provide better information, resulting in reduced asymmetric information and a preference for adhering to the POT hierarchy. Conversely, smaller firms in the mature stage with growth opportunities are more concerned about their debt capacity. The presence of asymmetric information leads them to worry about asset mispricing, prompting a preference for equity financing over debt when faced with growth opportunities (Lemmon and Zender, 2010). Hence, the presence of maturity in the firm life cycle leads to differences in financing. Previous research has utilized various proxies for life-cycle stages; for example, the study by Bulan

and Yan (2012) has classified companies based on age and examined its impact on size, profitability, tangible assets, and retained earnings in determining life-cycle stages. Cash flow patterns, including cash flows from operations, investing, and financing, have also been utilized (Dickinson, 2011). In the context of dividend policies, capital structure decisions are determined by the proxied life cycle, typically represented by the ratio of retained earnings to total assets (RE/TA) and to total equity (RE/TE) (DeAngelo, et al., 2006).

The life-cycle classification proposed by Bulan and Yan (2012) and DeAngelo and DeAngelo (2007) is based on firm age and elucidates the changes from growth to mature stages, resulting in reduced asymmetric information in both asset in place and growth opportunities. Consequently, adverse selection problems are mitigated, and there is no occurrence of equity mispricing in the market due to enhanced information transparency (Frank and Goyal, 2003; Fulghieri, et al., 2020). This article investigates firm life-cycle stages based on firm age in equity issuance decisions. We extend the study by Dickinson (2011) by incorporating not only cash flow patterns but also firm age-based classification. Our study focuses on the differences in cash flow patterns in financing decisions during the growth and mature stages since the COVID-19 pandemic. It documents that firms in the growth stage exhibit positive cash flow from financing activities, whereas firms in the mature stage show negative cash flow. Stability and innovation efforts by firms in the mature stage lead to more financing outflows than inflows. Consequently, the presence of asymmetric information in growth opportunities and total assets results in increased reliance on internal funding by firms in the mature stage. This research is motivated by changes in the firm life cycle influenced by growth opportunities emerging post-COVID-19, along with the recognition that equity issues play a pivotal role in financing within Indonesia, enabling firms to capitalize on these opportunities, such as scaling production, expanding the workforce, or entering new markets.

2 Literature Review

2.1 Pecking Order Theory and Asymmetric Information

Since the seminal work of Modigliani and Miller (1963) elucidating capital structure theory, debates revolving around asymmetric information have flourished more than tax-driven theories. They demonstrated that in perfect market conditions, equity value is irrelevant to capital structure. Conversely, relevance is found in how capital structure is determined by market frictions, including asymmetric information. Without considering bankruptcy costs in asymmetric information scenarios, firms tend to issue risky debt initially, followed by equity issuance rather than riskier debt. Asymmetric information has been elucidated in the used-car market by Akerlof (1970), resulting in three conditions (Bloch, 2017). The assumptions in the used-car market propose two qualities: "plum" denotes high quality and "lemon" signifies low quality. The first condition entails symmetric and perfect information between buyers and sellers. If buyers can differentiate between plums and lemons and value cars of all qualities more than sellers and market prices, then the market is efficient. Sellers gain utility because market prices exceed their value, and the market prices do not exceed buyers' value.

The second condition emerges when both buyers and sellers are indifferent between plums and lemons due to the inability to observe product quality (imperfect information and symmetric information). Sellers are unknown of the quality of used cars offered, and buyers cannot observe the quality of used cars. Thus, both buyers and sellers expect all used cars traded to be homogeneous (in average). Consequently, the market shifts from inefficient to efficient. The third condition arises when the presence of asymmetric information leads to adverse selection problems. Sellers are more informed than buyers who are willing to pay according to their average expectations. Buyers are only willing to pay for plum used cars sold according to their average expectations, resulting in only lemon sellers offering to the market. The presence of asymmetric information results in adverse selection problems in equity issuance for new investments. Firms with fewer growth opportunities may issue equity equal to those with more growth opportunities. Consequently, equity

issuance by firms with fewer growth opportunities experiences overpricing, and underpricing occurs in firms with more growth opportunities (Myers and Majluf, 1984). As explained in their model, managers acting in the interest of old shareholders, with more information, may refrain from issuing equity for new investments when not adequately valued by the market. It has been suggested that this underinvestment problem may diminish when financing follows the POT hierarchy, starting with internal funding (riskless debt), risky debt, and eventually preferring equity (Klein, et al., 2002; Sisodia and Maheshwari, 2022).

Bloch (2017) have elaborated on the Akerlof (1970) model, which demonstrates how sellers of "lemons" dominate the used-car market under the assumption of asymmetric information. Akerlof's (1970) article rigorously analyzed this paradox by modeling the nominal value of cars offered in the used-car market. A persistent question remains: Is purchasing a used car inherently a bad decision because it often involves inheriting someone else's problems? However, if the quality of used cars is comparable to new cars—only slightly older—why is buying a used car perceived as riskier than buying a new one?

The asymmetric information model is based on the following premises: there are two types of new car quality available at dealerships—plums (high-quality cars) and lemons (low-quality cars prone to frequent breakdowns). The proportion of lemons in a dealership's inventory is denoted by λ. Dealers do not openly disclose information that differentiates plums from lemons; instead, they sell all cars at a uniform sticker price, regardless of quality. Buyers cannot distinguish between plums and lemons but are aware that the fraction λ of lemons lies between 0 and 1, that is, λ∈[0,1]. After owning the car for a certain period, buyers eventually learn whether they have purchased a lemon or plum.

Assume that the value of a high-quality car (a plum) is denoted as G, a new car as N, and the buyer's willingness to pay (value) as B. The buyer's willingness to pay for a high-quality new car is $B_N^G = 20.000$, while the value for a lemon is $B_N^L = 10{,}000$. For simplicity (and generally), assume that the quality of the car does not deteriorate while unsold and that buyers are risk neutral.

Let P denote the price. The equilibrium price for a new car (PN) is determined as follows (1):

$$P_N = (1-\lambda) * 20{,}000 + \lambda * 10{,}000 \quad (1)$$

Dealers sell both qualities of new cars at the same price, meaning buyers are only willing to pay based on their expected value, calculated according to the fraction of each quality. Now, consider the used-car market and assume that used cars are offered by sellers at 20% below their new car value for each quality type (assuming buyers perceive no quality difference between used and new cars). Consequently, used plums and lemons are sold at prices of 16,000 and 8,000, respectively (2).

$$S_U^G = 16{,}000;\ S_U^L = 8{,}000 \quad (2)$$

The value offered by sellers (S) for used cars (U) of high quality (G) is 16,000, while for lemons, it is 8,000. Since used cars do not deteriorate and are perceived to have the same quality as new cars, buyers of high-quality used cars (plums) are willing to pay the same value as for new cars: $B_N^G = 20{,}000$. Similarly, buyers value lemons at $B_N^L = 10{,}000$.

Thus, sellers offer plums at a price of 16,000, while buyers perceive their value to be 20,000 (as they are indistinguishable from new cars). Similarly, sellers offer lemons at 8,000, while buyers value them at 10,000.

If the value buyers are willing to pay for a plum is 20,000, and sellers offer it at a price of 16,000, then the seller gains a surplus of 4,000. For lemons, the seller achieves a surplus of 2,000. The distribution of surplus depends on the bargaining power of the actors involved. The sale of either plums or lemons has the potential to enhance Pareto efficiency (e.g., 20% of used-car sales, whether lemons or plums, could drive 80% of subsequent sales). This equation appears inconsistent because sellers would only release high-quality plums if buyers are willing to pay more than 16,000 and more than 8,000 for lemons (3).

$$P_U = E(SU) = (1-\lambda) * 16{,}000 + \lambda * 8{,}000 \quad (3)$$

Let P_U represents the equilibrium price for used cars. Recall that buyers cannot distinguish between the quality of plums and lemons, while used-car owners or sellers have better information and can differentiate between the two qualities. Sellers are only willing to sell their cars if the offered price is greater than

or equal to their reservation price. The reservation prices for sellers are $S_U^G = 16{,}000$ for plums and $S_U^L = 8{,}000$ for lemons.

When PU = 8,000, lemon owners will gladly sell their cars, while plum sellers will refrain from participating in the market. Similarly, if PU < 16,000, plum owners prefer to keep their cars rather than sell. Plum sellers will only enter the market if PU ≥16,000. Thus, the fraction of plums or lemons available in the market depends on the market price for used cars, leading to the following equation (4):

$$Pr(Lemon|Pu) = \begin{cases} 1, \text{if } Pu < 16{,}000 \\ \lambda, \text{if Pu} \geq 16{,}000 \end{cases} \quad (4)$$

If the equilibrium price Pu is less than 16,000, the probability that cars offered in the used-car market are all lemons is 1. Conversely, if Pu is greater than or equal to 16,000, the market will be flooded with both high-quality cars (plums) and low-quality cars (lemons), making lemons only a fraction of the total cars available in the market. This implies that quality is endogenous to price, meaning the quality of cars offered in the market depends on the prevailing market price. More specifically, we can state that the reservation price expected by sellers reflects the quality of cars available for sale (5):

$$E(Su|Pu) = \begin{cases} 8{,}000, \text{if } Pu < 16{,}000 \\ 8{,}000.\lambda + (1-\lambda)16{,}000, \text{if Pu} \geq 16{,}000 \end{cases} \quad (5)$$

Thus, the supply expectations for used cars are determined by the market price for used cars. If the market price is less than 16,000, only cars priced at 8,000 (lemons) will be willing to be offered in the market. Conversely, if the market price is greater than 16,000, sellers of both quality types of cars will be willing to offer their cars in the market according to the respective fractions.

Remember that there is no quality difference between lemons and plums in used cars versus new cars. The demand side demonstrates the value or price that buyers are willing to pay, which is sold as a function of the price, as follows (6):

$$Bu[E(Su|Pu)] = \begin{cases} 10{,}000, \text{if } Pu < 16{,}000 \\ 10{,}000.\lambda + (1-\lambda)20{,}000, \text{if Pu} \geq 16{,}000 \end{cases} \quad (6)$$

The willingness of buyers to pay for used cars depends on the market price. If the market price is less than 16,000, buyers expect that only sellers of lemons will offer cars in the market at a price of 10,000, while plum sellers will not participate. If the market price is greater than 16,000, buyers expect both lemon sellers to offer cars at 10,000 and plum sellers at 20,000, meaning two qualities of cars will be available in the market. For trade to occur in equilibrium, the willingness of buyers to pay must satisfy the following inequality: $Bu[E(Su|Pu)] \geq$ Pu. At the realized transaction price Pu, the quality of the cars available for sale as reflected in $E(Su|Pu)$ must be at least as valuable to the buyer as the price.

First, consider the case where the fraction of lemons, λ=0.4. Consider the price Pu=16,000. At this price, the expected value (by the buyer) of a randomly selected used car, assuming that both plums and lemons are sold, is (7):

$$Bu = (Pu = 16{,}000;\ \lambda = 0.4) = 0.4 * 10{,}000 + (1 - 0.4) * 20{,}000 = 16{,}000 \quad (7)$$

If the fraction of lemons is 0.4, then in the presence of asymmetric information, buyers expect the price of a used car without knowing its quality to be 16,000 (assuming the condition B $Bu[E(Su|Pu)] \geq$ Pu)). If the prevailing market price is $16,000, then only lemon sellers will offer cars in the market.

What happens if buyers expect the fraction of lemons, λ=0.5? In this case, buyers would expect the price they are willing to pay to be 15,000. This expectation leads to an increase in the number of lemons offered in the market. At a price of Pu=16,000, the expected value of a randomly selected car would be lower than 16,000, reinforcing buyers' expectations and potentially reducing the presence of high-quality cars in the market

$$Bu = (Pu = 16{,}000;\ \lambda = 0.5) = 0.5 * 10{,}000 + (1 - 0.5) * 20{,}000 = 15{,}000 \quad (8)$$

Therefore, Bu (E [SuPu]) < Pu; if the market price is 16,000, then both lemons and plums are traded in the market. However, the maximum price that buyers are willing to pay (expected value) is 15,000, which is lower than the market price of 16,000. As a result, only lemon sellers will offer their cars in the market.

This occurs despite the fact that plums are more valuable to buyers than lemons, compared to what sellers expect.

Now, consider the case where λ=0.6. At a price of Pu=16,000, the expected value of a randomly selected used car is as follows (9):

$$Bu = (Pu = 16{,}000;\ \lambda = 0.6) = 0.6 * 10{,}000 + (1 - 0.6) * 20{,}000 = 14{,}000 \quad (9)$$

If buyers expect that 0.6 of the used cars sold are lemons, then the price buyers are willing to pay is 14,000, while the market price is 16,000. What can be concluded from this expectation? In general, if λ > 0.4, then good used cars (plums) will not be sold because the price offered for lemons is between 8,000 and 10,000.

2.2 Life-Cycle Theory

The life-cycle theory explains the increasing use of external capital based on life cycle. Firms in the mature stage tend to increase the proportion of retained earnings to total assets or total equity, thus leaning toward self-financing. In contrast, firms in the infusion or growth stage often have insufficient profits, leading to a lower proportion of retained earnings, and consequently, an increase in external capital. Previous research has documented four approaches in the firm life-cycle literature. First, DeAngelo and DeAngelo (2007) employed the ratio of retained earnings to total assets (RE/TA) and to total equity (RE/TE). Second, RE/TA and RE/TE were used to categorize firms into young, mature, and old categories (Owen and Yawson, 2010). Third, Dickinson (2011) established five stages of the life cycle: innovation demands are produced in the first stage, followed by rapid growth in the second stage, maturity in the third stage, shake-out in the fourth stage, and decline in the fifth stage. Fourth, Bulan and Yan (2012) utilized the age in years after an IPO to categorize firms into mature and growth stages.

The article focuses on the two classifications by Bulan and Yan (2012): the growth and mature stages. The focus is on financing, measured by comparing cash flows between owners, investors, and debtholders. In the growth stage, operating activities become positive, while investment activities turn negative, still requiring financing but to a lesser extent than in the introduction stage. Firms tend to prefer obtaining external financing through equity and debt issuance rather than internal funding due to the reduction in asymmetric information. As a result, the financing cash flow is positive. Firms in the mature stage typically do not require external financing as their operating activities are positive and their investment activities are negative.

In contrast, research on capital structure and asymmetric information suggests that older firms tend to issue equity rather than debt or internal financing. This research is based on the reputation that older firms have less asymmetric information. An inductive classification (Rocca, et al., 2011) categorized firms into less than 5 years, 10 years, and 15 years. The POT, initiated by Ross (1973), suggests that when firms cannot convey the true value of assets to external investors, they may be forced to abandon projects with positive NPV. Consequently, they prefer using internal funds that are less sensitive to information. Asymmetric information also pertains to growth opportunities; the older the firm, the less information it possesses. However, information varies over time, as described by Korajczyk, et al. (1992), with only a few managers having private information signals after relevant information is disclosed, leading to a reduction in adverse selection. Most managers, however, experience increased adverse selection. As a result, equity issuance varies across different firm age classifications. Thus, the companies' characteristic variables and information asymmetry variables from the pecking order theory are applied to the representative of macroeconomic variables are included.

Two approaches to measure the life cycle based on asymmetric information are employed. The cashflow approach illustrates that firms in the start-up stage are the most opaque in terms of information, making it difficult to obtain external financing (Berger and Udell, 1998). The presence of asymmetric information hinders investors in distinguishing between high-quality and low-quality firms. First, young firms have higher levels of asymmetric information than subsequent stages, leading lenders to hedge against the possibility of high default rates, making financing more costly. Consequently, small firms face obstacles when using external financing. Additionally, young and small

firms typically cannot generate positive cash flows in the initial stages. Carey and Hrycray (1999) elucidate that young firms tend to be financed by insiders and venture capital, and equity, which serves as an indicator of investment health, still requires monitoring.

Firms must await long-term investment returns. In this regard, smaller firms tend to issue equity first before debt. Bank loans are typically offered when they possess tangible assets for collateral. The use of debt increases over time and becomes highly important in the maturity stage. As firms progress through their life cycle and mature, they become less opaque in terms of information, leading to a change in capital structure preferences, with improved access to market funding. This ultimately results in inconsistency with the pecking order theory. Second, the reputation effect argues in favor of comfortable debt usage only in the maturity stage. Young firms without a history and track record tend to have lower debt capacities. Conversely, firms that have consolidated their businesses with a track record and past credibility have unlimited access to credit markets and obtain financing. Firms that are still relatively small and have a limited track record lack reliable external financing sources. Therefore, internal funding is a priority, and when this is exhausted, venture capital becomes the primary choice. As they age, they gain credibility in the market, and firms acquire reputations, thus making it easier to obtain external financing, including debt. When firms reach maturity, they have a better track record, and their creditworthiness increases over time. The firm's reputation typically reduces asymmetric information and increases external financing (Diamond, 1994). Thus, over time, firms will gain reputations resulting in reduced moral hazard. Therefore, the increased use of external funds will increase during the transition from the early stage to the maturity stage. As firms age, young firms are constrained in accessing debt financing, thus preferring to issue equity first, followed by venture capital. As they mature, they have better access to debt financing. As research has advanced, the academic literature has focused on the importance of asymmetric information as a relevant dimension for analyzing firm age (Trong and Nguyen, 2020; Taglialatela and Mina, 2023). The pecking order theory (POT) has explained how the presence of asymmetric information produces a financing hierarchy. Since this topic has not resulted in a consensus, we focus on the impact of COVID-19 on financing policies for companies in Indonesia.

2.3 Total Assets and Growth Opportunity Based on Firm Age in Life Cycle

In the Cash Flow Model, Dickinson (2011) explains the differences in cash flow at each stage of the life cycle. Firms in the growth stage exhibit greater cash flow from financing than those in the mature stage. The presence of asymmetric information, coupled with the greater need for financing in the growth stage, leads these firms to prefer issuing equity over firms in the mature stage. Lang, et al. (1996) elucidate how differences in the life cycle generate growth opportunities that contain asymmetric information. Our hypothesis is that companies in the mature stage possess less asymmetric information than those in the growth stage. Consequently, with greater financing needs, firms in the growth stage are more inclined to issue equity than those in the mature stage.

Furthermore, Klein, et al. (2002) describe the pecking order theory (POT) in financing for new investments. They explain that total assets contain asymmetric information, which leads to information discrepancies between firms and external parties, resulting in the mispricing of securities. As a result, companies tend to avoid equity issuance, which is more sensitive than risky debt. In contrast, articles by Bulan and Yan (2012) and Abuhommous (2023) discuss how firm age incorporates asymmetric information. Our hypothesis posits that firms in the mature stage possess less asymmetric information than those in the growth stage. As the need for financing increases, firms in the growth stage are less likely to issue equity.

3 Research Method

The firm life cycle documents the differences in company characteristics based on the level of asymmetric information, which in turn determines the firm's decisions regarding equity issuance. We utilize the firm life cycle based on firm age, adopting the two life-cycle stages of growth and maturity as defined by Bulan and Yan (2012). They define the growth stage as the initial six-year period following a company's initial public offering (IPO). While this definition may not be

universally applicable to all companies, an IPO represents a crucial financing decision stage for firms. They define IPO as a phase of new growth. We determined the two stages based on the median of firm age, with less than the median representing the growth stage and more than the median representing the mature stage.

The data cover companies conducting rights offerings on the Indonesia Stock Exchange from 2020 to 2023, as shown in Table 1. We began collecting data in 2020, assuming that the COVID-19 pandemic had impacted the fulfillment of external funding, with the most recent available annual data being for 2023. The average amount of funds raised, measured in billion rupiah per year, is as follows: 1,127.4 billion in 2020; 4,453.5 billion in 2021; 1,899.6 billion in 2022; and 1,941.1 billion in 2023. The total average raised is 2,687.5 billion, issued by 126 observations. The cumulative impact of COVID-19 on equity issuance was most pronounced in 2021, exceeding that of other years. Furthermore, the financial sector had the highest total number of equity issuance observations compared to other sectors.

Table 1. Sector, equity issues, and fund raised in billion IDR
(*Source*: IDX Statistics, 2020–2023, analyzed)

Sectors	Total sectors	Average of outstanding in billion IDR
Basic materials	10	3,307.6
Consumer cyclicals	9	976.5
Consumer non-cyclicals	9	2,303.3
Energy	4	1,245.2
Financials	66	3,286.6
Healthcare	3	1,344.4
Industrials	2	1,815.6
Infrastructures	8	2,950.7
Properties and real estate	5	1,644.0
Technology	2	76.8
Transportation and logistic	8	1,810.7
Grand total	**126**	**2,687.5**

Proxies for growth opportunities are profitability (Matias and Serrasqueiro, 2017), and asset in place was represented by total assets. Mean and median were utilized for robustness analysis (Satorra, 2000). The regression model is described as follows (10):

$$\text{Model 1} \quad Y_{i,t} = a_1 + b_1X_1 + b_2X_2$$

$$\text{Model 2} \quad Y_{i,t} = a_1 + b_1X_1 + b_2X_2 \qquad (10)$$

$$\text{Model 3} \quad Y_{i,t} = a_1 + b_1X_1 + b_2X_2$$

where Y represents funds raised (in billion IDR), X1 denotes total assets (in million IDR), and X2 represents profitability (in million IDR). The analysis was conducted using three regression models: Model 1 includes all firms, Model 2 focuses on growth firms, and Model 3 is dedicated to mature firms.

4 Results and Discussion

The data on growth opportunity is not robust as the mean experiences fluctuations and the median shows variability. Funds raised by rights issues by firms in the mature stage exceed those raised by firms in the growth stage. As profitability decreases and total assets increase from the growth to the mature stage, firms increase the funds raised from rights issues. Robust results indicate an increase in funds raised from growth to mature stages. Mature firms show a preference for issuing equity over debt.

Similarly, the total assets of firms from the growth stage to the mature stage have increased, and the rise in asset ownership has led to a decrease in bankruptcy risk, prompting firms to issue more debt. An intriguing

finding is that when total assets increase, there is an increase in the amount of funds raised by equity. This occurs because the increase in total assets signifies firm reputation.

The data distribution across all firms showed no significant difference from the data in each quartile, with the mean exceeding the median. The total funds raised for the entire dataset were more than 50%, indicating that more than 50% of firms raised funds above the median and less than 50% below the median. In other words, more firms obtained funding above the median.

Table 2. Descriptive statistic
(*Source*: Annual report 2020–2023, analyzed)

		N-Obs	Min	Q1	Mean	Median	Q3	Std. dev
Fund raised								
	Growth	63	16.50	247.44	1,848.16	956.84	1,677.64	2,727.43
	Mature	63	20.84	247.44	3,526.77	1,160.00	2,456.07	12,139.46
Total asset								
	Growth	63	0.13	1,106.00	16,686.32	5,316.00	12,857.00	42,448.83
	Mature	63	6.37	4,042.50	53,217.70	16,357.00	25,912.00	187,914.00
Profitability								
	Growth	63	-101.10	-4.81	950.32	13.00	69.50	7,122.92
	Mature	63	-189.00	-22.00	230.20	21.00	111.00	1,784.98

Table 2 shows that a trade-off is observed, with the average funds raised increasing from Q1 to Q3 and decreasing from Q3 to Q4. As firms age, they tend to increase funding through rights issues. Consistent with DeAngelo and DeAngelo (2007), this article highlights that the life cycle determines how firms choose between self-financing and external capital. Up to the infusion (growth) stage, the proportion of retained earnings relative to total assets and total equity is higher than the mature stage. In the mature stage, firms tend to have ample cumulative profits, leading to a greater reliance on self-financing. This contradicts previous hypotheses regarding asymmetric information as the increase in firm age has led to a reduction in asymmetric information, prompting firms to prefer increasing equity financing.

Table 3. Regression analysis
(*Source*: IDX statistics and annual report 2020–2023, analyzed)

	All firms	Growth	Maturity
	Variables		< 14.24 years
N-Obs	126	63	63
Const	561.47	1404.85	406.65
Total asset	0.06*	0.02*	0.05*
Profitability	0.12*	0.17	0.85*
R square	0.87	0.32	0.92
F test	426.59	14.34	368.19
Sig	0.00	0.00	0.00

* = sig 5%

Table 3 explains the first model for all firms indicates that companies in both the growth and mature stages possess less asymmetric information regarding total assets and profitability. As a result, they are more inclined to issue equity. The model proposed by Klein, et al. (2002) and Myers (1984) elucidates the phenomenon of underinvestment under asymmetric information in new investments. When a firm possesses superior information regarding asset in place and profitability compared to external investors, it may opt to pass up projects with positive net present value (NPV) if funded by undervalued equity (underinvestment). In such scenarios, old shareholders incur losses compared to new shareholders as they must relinquish a portion of the proceeds of positive NPV and asset in place to new shareholders.

The second model explains that according to Dickinson (2011), firms in the growth stage have more financing than those in the mature stage. Companies in the growth stage exhibit asymmetric information regarding total assets, which in turn increases equity issuance. There are two relational outcomes regarding capital structure and asymmetric information (Chaigneau, 2023). First, the valuation of total assets is sensitive to information; in fact, total assets have a low level of asymmetric information. As a result, there is no information disparity regarding assets in place between firms that release equity and external investors who receive it, leading firms to prefer issuing equity over risky debt. Second, information about growth opportunities is not sensitive to external investors, and thus, it does not significantly impact equity issuance. The third model based on cash flow patterns (Dickinson, 2011) explains that information regarding total assets and growth opportunities is sensitive and contains asymmetric information. Instead of issuing risky debt, firms in the mature stage prefer to issue equity, even though they have less cash flow from financing than those in the growth stage.

The initial model applied during the growth stage estimates that the transition from the mature to growth stage, coupled with the absence of total assets and profitability, leads to a decline in the mean of funds raised by equity (constant) from the growth stage (1404.85) to the mature stage (406.65). When information symmetry exists between equity issued and the market, it aligns with the pecking order theory (POT), where firms prefer issuing debt over equity. Firms in the growth stage lack sufficient assets as collateral, and this collateral increases during the mature stage. Consequently, in the growth stage, they prefer equity, whereas they prefer debt in the mature stage. It is documented by Kochen (2022) that younger firms borrow more, pay higher interest rates, and are more likely to receive more equity injections from shareholders than older firms.

The increase in the average raised funds through equity issuance is determined by total assets rather than profitability. Asymmetric information in the growth stage diminishes with higher total assets, reducing adverse selection problems, thereby prompting equity issuance. Expanding on the model proposed by Dickinson (2011), firms in the growth stage have positive cash flows from operations (profits) greater than financing to investment; therefore, equity issuance decisions in financing are not determined by profitability. The second model applies during the mature stage. The article by Kochen (2022) has documented various previous research findings. Profitability evolves stochastically between a persistent income and a transitory component. This friction introduces uncertainty for firms and investors, which diminishes as the firm ages, transitioning from the growth to mature stage. This model explains that firms and investors have symmetric information, where both parties possess perfect information about the probability of the firm's future. For every one billion rupiahs increase, there is a corresponding increase of 0.85 billion in funds raised.

Consistent with the estimations provided by Lang, et al. (1996) and Myers (1984), the transition from the growth to mature stage has resulted in a reduction in asymmetric information due to the presence of more assets in place. Therefore, the increase in asset ownership has led to a rise in funds raised by equity. The transition from the growth to mature stage has also impacted the increased influence of total assets (from 0.02 to 0.05) and profitability (from 0.17 to 0.85) on equity-fund raised. Bulan and Yan (2012) elucidated that the growth stage represents "new growth" since being listed in the capital market. Based on cash flow patterns, firms in the growth stage have negative net investing cash flow (Dickinson, 2011). They face uncertainties in growth opportunities, which affect unpredictable profitability, while profitability predictions by firms in the mature stage are more accurate. Hence, asymmetric information is reduced, resulting in

an increase in the mean of funds raised by equity. In contrast, total assets are easier to assess in value than profitability. The presence of disclosure of information by public companies to the market makes total assets more readily known to the market than profitability. The level of asymmetric information decreases from the growth to mature stage, leading to an increase in funds raised.

5 Conclusion

The growth stage has produced asymmetric information regarding total assets, as previously hypothesized. The increase in firm age from the introduction stage to the growth and mature stages has led to a reduction in asymmetric information, resulting in a greater preference for equity issuance over debt. The rise in the valuation of assets in place has contributed to an increase in equity issuance by firms due to decreased market mispricing. Firms strive to maintain their reputation in the growth and mature stages through information disclosure. Companies with more total assets during the COVID-19 pandemic have exhibited this behavior. In contrast, in the growth stage, information about growth opportunities is not sensitive to the market, leading to no impact on mispricing; consequently, equity issuance is not driven by asymmetric information. However, in the mature stage, an increase in information regarding growth opportunities results in a decrease in asymmetric information, thereby enhancing equity issuance for funding. Our findings support the traditional pecking order theory (POT) regarding financing hierarchy, rather than assumptions based on reputation. Thus, changes in information about growth opportunities are dynamic during the COVID-19 period. Changes in information regarding growth opportunities are insensitive in the growth stage and become sensitive in the mature stage. As a result, the greater the growth opportunities during the COVID-19 era, the more reduced the asymmetric information becomes, which in turn increases equity issuance. This study has potential limitations: findings may not be generalizable to all emerging capital markets that may not be representative of the sample group of Indonesia Stock Exchange. This study suggests future research that compares stock exchange around the world to enable broader generalization.

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7 Disclosure statement

No potential conflict of interest was reported by the author(s).

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