

World uncertainty and IPO underpricing: Evidence from Indonesia in the post-COVID-19 period

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ABSTRACT

This study investigates the effect of global uncertainty on IPO underpricing in the Indonesian capital market during the post-COVID-19 period. Drawing on information asymmetry theory and signaling theory, we argue that elevated global uncertainty amplifies adverse selection risk and widens the informational gap between issuers and investors, thereby increasing the degree of underpricing. Using a sample of 145 IPOs listed on the Indonesia Stock Exchange (IDX) between 2023 and 2025 and employing ordinary least squares (OLS) regression, we find that the World Uncertainty Index (WUI) is positively and significantly associated with IPO underpricing, consistent with the prediction that heightened macro-level uncertainty intensifies investor risk perception and compels underwriters to set deeper offer price discounts. Additionally, underwriter reputation is negatively and significantly related to underpricing, indicating that reputable underwriters serve as credible quality signals that mitigate information asymmetry and improve pricing efficiency. Firm-level variables, including return on assets, firm size, firm age, and number of shares offered, do not exert significant effects on underpricing, suggesting that macro-level uncertainty dominates firm-specific fundamentals as the primary pricing force during this period. These findings contribute to the emerging literature on global uncertainty and IPO markets by providing the first empirical evidence from Indonesia using a globally aggregated uncertainty measure, and offer practical implications for issuers, investors, underwriters, and market regulators.

Keywords: World Uncertainty Index; IPO underpricing; information asymmetry; underwriter reputation

JEL Classification: G32; G24

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1. Introduction

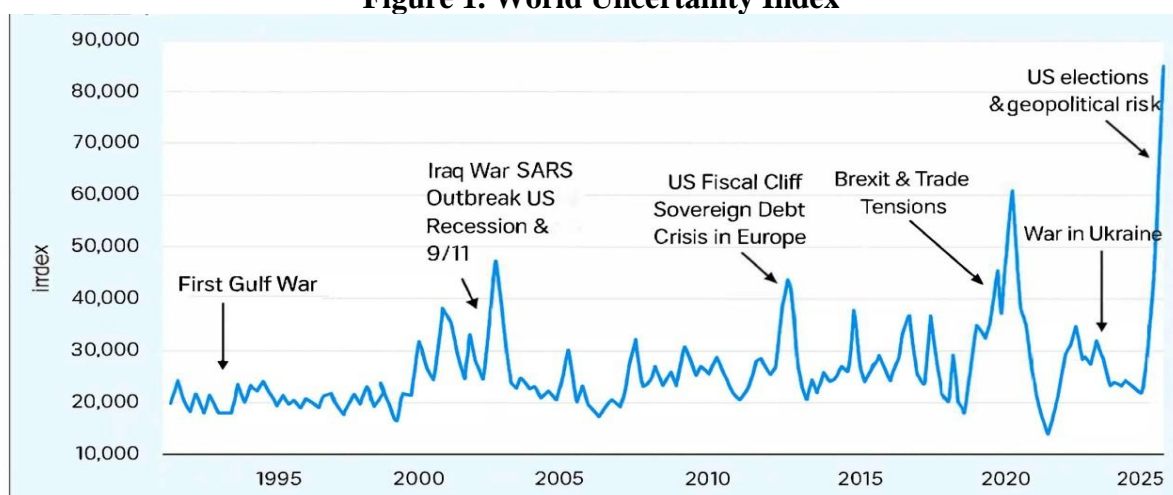
The capital market has evolved into one of the main pillars of the global financial system. According to data from the World Federation of Exchanges (2026), global stock market capitalization has now surpassed USD 151.94 trillion, representing an increase of approximately 18.5% compared to the previous period. This figure reflects strong investor confidence despite various external pressures, ranging from the residual impacts of the pandemic and supply chain disruptions to shifts in monetary policies among advanced economies.

However, recent empirical evidence suggests that market outcomes are increasingly shaped by different dimensions of uncertainty. For example, Rumokoy et al. (2019) document that network centrality within China's underwriting syndicate significantly enhances IPO performance, particularly through higher institutional participation and stronger long-run returns. More recently, Rumokoy et al. (2025) show that heightened geopolitical risk (GPR) increases IPO underpricing in China, with firms offering deeper discounts under

greater uncertainty, although the effect varies across pre-IPO timing, market segments, and policy environments. Extending this line of evidence, this study focuses on how global uncertainty influences IPO underpricing in Indonesia in the post-COVID-19 period, thereby contributing to the growing literature on how different forms of uncertainty and market structure jointly shape IPO outcomes.

Despite this optimism, global economic uncertainty remains an important factor for investors to consider. The World Uncertainty Index (WUI) indicates that rising uncertainty encourages investors to become more selective in allocating funds, particularly to high-risk instruments such as stocks (IMF, 2026). This condition has a greater impact on emerging markets, including Indonesia, where market index movements are highly influenced by global sentiment, foreign capital flows, and the direction of monetary policy, especially interest rate decisions in advanced economies. Figure 1 depicts the volatility of WUI over the past few decades.

Figure 1. World Uncertainty Index



Source: <https://worlduncertaintyindex.com/>

One of the most evident manifestations of these dynamics can be observed in Initial Public Offering (IPO) activities. Underpricing – the phenomenon whereby the IPO offering price is set lower than the stock's closing price on its first trading day in the secondary market remains a consistent pattern on the Indonesia Stock Exchange. According to Wenehen et al. (2025), the occurrence of the underpricing phenomenon is driven by information asymmetry and conflicts of interest among issuers, underwriters, and investors in the capital market.

The magnitude of this underpricing is not solely determined by macroeconomic factors. Internal characteristics of issuers also heavily shape investors' perceptions of risk, most notably underwriter reputation. According to Syofian and Sebrina (2021), underwriters, as issue guarantors, play a significant role in determining the offering price of shares together with the issuer.

Firm size is also a relevant determinant of underpricing. According to Safitri (2013), larger firms are better known to the public, making information about the company's prospects easier for investors to obtain compared to smaller firms; large firms also generally face lower levels of uncertainty because they tend not to be influenced by the market but instead influence overall market conditions, resulting in lower long-term investment risk.

Profitability is another factor associated with underpricing. According to Devano (2025), companies with high profitability tend to send positive signals to the market, thereby reducing uncertainty and the level of underpricing.

Al-Mu'azzay et al. (2025) argue that when a large number of shares are offered to the public, market uncertainty increases due to greater external influence on share prices. This condition is perceived as a negative signal by prospective investors

investors, potentially driving underpricing as compensation for the risks they bear.

Taken together, the literature reviewed above demonstrates that uncertainty, whether measured through policy-specific or geopolitical indicators, plays a significant role in shaping IPO outcomes, while studies on Indonesian IPO underpricing have primarily emphasized firm-level determinants such as underwriter reputation, profitability, firm age and number of shares. However, none of these studies has examined uncertainty through a globally aggregated measure such as the World Uncertainty Index (WUI), which captures uncertainty arising from multiple sources and countries rather than a single policy or geopolitical event. This leaves an unexplored gap regarding whether broader, globally-sourced uncertainty exerts an influence on underpricing in the Indonesian capital market, particularly in the post-COVID-19 period when IPO recovery patterns have differed markedly from the pre-pandemic era. This study fills this gap by integrating the WUI as a global uncertainty measure into the analysis of IPO underpricing in Indonesia, an approach that has not been applied in prior Indonesian-context studies. In doing so, this paper extends the existing literature, which has largely relied on country-specific or issue-specific uncertainty proxies, by offering empirical evidence on how global uncertainty dynamics interact with the Indonesian IPO market in the years following the pandemic.

2. Literature review

Theoretical foundations

The theory of information asymmetry was first introduced by George Akerlof (1970) in his seminal paper, "*The Market for Lemons*," and was later further developed by Spence and Stiglitz. The three economists were awarded the Nobel Prize in Economic Sciences in 2001 for their contributions to this field. In the

context of capital markets, information asymmetry theory explains that companies (issuers) possess more complete information about their internal conditions than public investors. This information imbalance encourages the occurrence of underpricing during IPOs, as issuers and underwriters tend to set offering prices below intrinsic value as compensation for the uncertainty perceived by investors (Rock, 1986).

Signaling theory, proposed by Spence (1973), explains that parties with superior information (informed parties) actively transmit credible signals to parties with less information (uninformed parties) in order to reduce information asymmetry between them. By interpreting these signals, the receiving party can make more informed and accurate decisions. In the context of IPOs, signals such as strong financial performance, reputable underwriters, larger firm size, and longer operating history can help reduce investor uncertainty and influence the market's valuation of newly listed companies.

Hypothesis development

Building on information asymmetry theory, IPO markets are characterized by a fundamental imbalance in information between issuers and outside investors, where firms possess superior knowledge about their true value and risk profile. In such an environment, uncertainty at the market level amplifies the degree of information asymmetry perceived by investors, as it becomes more difficult to infer firm value under volatile and less predictable global conditions. Following Rock (1986), this heightened uncertainty increases the risk of adverse selection in IPO pricing, leading underwriters to set lower offer prices to ensure successful subscription and compensate uninformed investors for bearing greater informational risk. Consequently, when world uncertainty rises, IPO underpricing is expected to increase as a rational response

to intensified information frictions in capital markets.

World uncertainty intensifies this winner's curse problem by widening the information gap between informed and uninformed investors. When uncertainty at the global level rises, as captured by the World Uncertainty Index (WUI), firm value becomes more difficult to infer under volatile and less predictable conditions, increasing the valuation gap between investors with superior analytical capacity and those without. This heightened informational disadvantage increases the adverse selection risk faced by uninformed investors, compelling underwriters to set lower offer prices to ensure successful subscription and to compensate uninformed investors for bearing greater informational risk under conditions of elevated global uncertainty. Consequently, when world uncertainty rises, IPO underpricing is expected to increase as a rational response to the intensified winner's curse problem in capital markets.

From a signaling theory perspective, issuers and underwriters attempt to mitigate investor uncertainty by conveying credible signals of firm quality, such as underwriter reputation, firm fundamentals, and historical performance. However, during periods of elevated global uncertainty, the effectiveness of these signals is weakened because investors place greater weight on external risk factors that are beyond firm control. As a result, even strong signaling mechanisms may not fully offset the negative effects of heightened uncertainty on valuation. In this context, firms may strategically set lower offer prices to reinforce market confidence and reduce the likelihood of IPO failure. Therefore, we hypothesize that:

H1: World uncertainty is positively associated with IPO underpricing.

IPO underpricing

Ritter (1998), in *Initial Public Offerings*, notes that underpricing is characterized by large initial returns, which are measured by the price change from the initial offering price to the market price on the first day of trading

In the Indonesian context, Isyuardhana and Febryan (2022) provide empirical evidence from the Indonesia Stock Exchange (IDX) demonstrating that underpricing is a persistent pattern shaped jointly by prevailing market conditions and the individual characteristics of issuing firms.

Investigating this pattern further at the firm level, Alam and Witono (2025) report that variation in underpricing severity across firms is largely explained by characteristics unique to each issuer, precisely because such characteristics govern how much private information investors are unable to observe before subscribing.

One issuer-specific signal that has drawn particular scrutiny is the underwriter engaged to manage the offering. Firmansyah and Yulianti (2026) find a dual effect: reputation shapes investor trust in the issuer's stated valuation on its own, and it simultaneously alters how strongly other firm attributes translate into pricing outcomes. A related transactional feature, the volume of shares released to the public, has likewise been tied to how easily those shares trade once listed.

A separate body of work locates the source of underpricing in the issuer's underlying business profile. Mulyani and Maulidya (2021) and, more recently, Kartika et al. (2023) trace underpricing severity to indicators of operating maturity, namely return on assets, company size, and the number of years a firm has operated, with firms posting stronger earnings over a longer track record tending to leave investors with

fewer open questions about where the business is headed.

World uncertainty

Colombo and Magri (2017) emphasize that when expectations about the future weaken, decision-making processes tend to become more cautious and defensive. From a capital market perspective, this condition has the potential to increase investors' risk perceptions, particularly toward newly listed securities such as IPO stocks.

To capture this dimension of uncertainty empirically, the World Uncertainty Index (WUI) has been developed as a globally aggregated measure constructed from the frequency of the word "uncertainty" and its variants in country reports across more than one hundred countries. According to IMF (2026) data, elevated WUI levels are associated with more selective capital allocation by investors, particularly toward higher-risk instruments such as equities, with disproportionately stronger effects observed in emerging markets.

Looking at underwriting syndicates in China, Rumokoy et al. (2019) trace stronger IPO performance back to a single structural feature: how centrally positioned a lead underwriter sits within its syndicate network, with more central positioning drawing in institutional demand and translating into better long-run returns for the issue. A subsequent study by the same authors shifted attention to a different source of risk. Rumokoy et al. (2025) report that Chinese issuers respond to mounting geopolitical tension by widening their offer discounts, though by how much depends on pre-IPO timing, market segment, and the policy backdrop at the time.

3. Research method

Research design, population, and data

This study uses a quantitative approach to examine the cause-and-effect relationships among variables. The main focus is to analyze the effect of global uncertainty on IPO stock underpricing with a sample size of 145 companies that conducted IPOs during the 2023–2025 period. This approach was chosen because it can test hypotheses systematically using numerical data, ensuring that the results are objective and measurable (Sugiyono, 2023).

This study uses the Multiple Linear Regression (OLS) data analysis technique using Stata software. Multiple Linear Regression (OLS) is used because this study is based on cross-sectional data in the post-COVID-19 pandemic period.

Variable definition and model specification

The variables in this study are defined as follows. The dependent variable (Y) is the underpricing level of company i , which is measured using the following formula:

$$UP_i = (\text{First-Day Closing Price} - \text{IPO Price}) / \text{IPO Price}$$

The independent variable is WU_i (World Uncertainty), namely the value of the annual/monthly global economic uncertainty index according to the research period. The control variables include: UR_i (Underwriter Reputation), measured by Total Underwriter Proceeds divided by Total Market Proceeds; NS_i (Number of Shares), namely the total number of shares offered during the IPO; ROA_{it-1} (Return on Assets), calculated as Net Income divided by Total Assets; FS_{it-1} (Firm Size), measured through free-float market capitalization obtained from the IPO Price

multiplied by the number of shares offered to the public during the IPO; and FA_i (Firm Age), namely the length of time the company operated before conducting an IPO, calculated as the IPO Year minus the Establishment Year. All variables are measured on a ratio scale. The following is the equation model used in this study:

$$UP_i = \alpha + \beta_1 WU_i + \beta_2 UR_i + \beta_3 NS_i + \beta_4 ROA_{it-1} + \beta_5 FS_{it-1} + \beta_6 FA_i + \varepsilon_i$$

4. Result and discussion

Descriptive statistics

Table 1 presents the descriptive statistics of all research variables. Underpricing records a mean of 0.166 with a standard deviation of 0.17, with values ranging from -0.35 to 0.35 , reflecting substantial IPO stock price volatility and indicating the presence of issuers that experienced overpricing on the first trading day. WUI has an average value of 31.682 (SD = 24.782) with a range from 15.097 to 106.862, indicating very high fluctuations in global uncertainty throughout the observation period. Underwriter reputation records an average close to zero (0.019; SD = 0.048), confirming the dominance of low-reputation underwriters in the sample. ROA exhibits the greatest fundamental heterogeneity, with a mean of 9.435 (SD = 10.915) and a range from -40.52 to 73.29, reflecting a broad spectrum of profitability ranging from loss-making issuers to highly profitable ones. Number of shares and firm size show more moderate variation, with mean values of 21.876 (SD = 1.197) and 27.1 (SD = 1.528), respectively. Firm age has an average of 2.587 (SD = 0.694), indicating diversity in the operational maturity of issuers within the sample.

Table 1. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
WUI	145	31.682	24.782	15.097	106.862
Underpricing	145	0.166	0.17	-0.35	0.35
UW_Reputation	145	0.019	0.048	0	0.353
Numberofshares	145	21.876	1.197	18.95	25.62
ROA	145	9.435	10.915	-40.52	73.29
Fim_Size	145	27.1	1.528	24.442	32.434
Firm_Age	145	2.587	0.694	0.69	4.01

Classical Assumption Tests

All classical assumption tests were satisfied, confirming that the model meets the Best Linear Unbiased Estimator (BLUE) criteria. The Kolmogorov-Smirnov test yields a combined K-S statistic of 0.1017 with $p = 0.100$ (>0.05), indicating normally distributed residuals. Multicollinearity assessment shows all VIF values below 3.863 (Mean VIF = 1.968), well below the threshold of 10, with tolerance values ($1/\text{VIF}$) exceeding 0.1 for all variables. White's Test yields Chi-square (27) = 22.8 with $p = 0.7127$ (>0.05), confirming homoscedasticity. The Runs Test yields $z = -1.08$ with $p = 0.28$ (>0.05), confirming the absence of autocorrelation. These results indicate that the reported coefficients are reliable under standard OLS assumptions.

Multiple linear regression results

Table 2 presents the regression output, yielding the following structural equation:

$$Y = UP_i = 0,167 + 0,001WU_i - 0,681UR_i + 0,022NS_i - 0,001ROA_{i-1} - 0,02FS_{i-1} + 0,02FA_i + \varepsilon_i$$

The World Uncertainty Index (WUI) variable has a coefficient of 0.001 with a significance level of 0.019. This value indicates a positive and significant effect at the 5% significance level. Thus, an increase in global uncertainty tends to be followed by an increase in the level of underpricing, which reflects the market's response to uncertain conditions (Colak et al., 2021). This confirms that world

uncertainty has a positive and significant effect on the level of IPO underpricing in Indonesia during the 2023–2025 period. The positive direction of the coefficient indicates that the higher the level of global economic uncertainty, the greater the price discount set during the initial offering, as compensation for the increased perception of risk among investors toward IPO stocks in emerging markets, supporting H1 (Boulton, 2022).

The control variable Underwriter Reputation shows a negative coefficient of -0.681 with a significance value of 0.001. This result means that underwriter reputation has a negative and significant effect at the 1% significance level on underpricing. Practically, this can be understood as indicating that underwriters with better reputations tend to be more capable of determining stock prices more accurately, thereby reducing the price difference at the time of the IPO.

This finding suggests that firm-level financial instruments do not always exert a consistent influence on underpricing once macro-level uncertainty is taken into account. In other words, the explanatory power commonly attributed to issuer-specific characteristics in prior studies appears to diminish, or even disappear, when broader market-wide uncertainty is incorporated into the model. This indicates that investors' pricing decisions during the IPO process may be driven less by issuers' internal financial profiles and more by external credibility signals, such as the reputation of the underwriting institution,

particularly under conditions of heightened global uncertainty.

Underpricing is influenced by various factors beyond conventional predictor variables including investor sentiment,

book-building dynamics, and oversubscription behavior which are difficult to quantify systematically (Ritter, 1998; Rock, 1986)

Table 2. Multiple linear regression results

Underpricing	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
WUI	0.001	0.001	2.37	0.019	0	0.002	**
UW_Reputation	-0.681	0.192	-3.55	0.001	-1.061	-0.302	***
Numberofshares	0.022	0.019	1.15	0.253	-0.016	0.06	
ROA	-0.001	0.002	-0.85	0.396	-0.004	0.002	
Firm_Size	-0.02	0.014	-1.49	0.139	-0.047	0.007	
Firm_Age	0.02	0.021	0.93	0.352	-0.022	0.062	
Constant	0.167	0.235	0.71	0.479	-0.298	0.631	
Mean dependent var		0.166	SD dependent var			0.170	
R-squared		0.088	Number of obs			145	
F-test		3.635	Prob > F			0.002	
Akaike crit. (AIC)		-102.425	Bayesian crit. (BIC)			-81.588	

*** $p < .01$, ** $p < .05$, * $p < .1$

5. Conclusion

The world uncertainty variable is proven to have a positive and significant effect on the level of underpricing. Increasing global uncertainty amplifies information asymmetry between issuers and investors, prompting companies to set lower stock prices as a risk compensation mechanism to attract investor interest. This finding extends Rock's (1986) model by demonstrating that macro-level uncertainty functions as a demand-side amplifier of information asymmetry beyond what classical firm-level models capture (Boulton, 2022; Rumokoy et al., 2025).

Underwriter reputation has a negative and significant effect on the level of underpricing, indicating that reputable underwriters serve as credible quality signals that reduce informational gaps between issuers and investors, enabling more accurate pricing consistent with signaling theory (Spence, 1973).

The control variables including number of shares, ROA, firm size, and firm age do not show a significant effect on the level of underpricing. These findings suggest that firm-level fundamentals are systematically overshadowed by macro-level uncertainty as the primary pricing force in the Indonesian IPO market during 2023–2025

From a theoretical standpoint, this study contributes by showing that global uncertainty intensifies investor risk perception beyond what firm-specific signals can mitigate, leaving underwriter reputation as the primary credible signal available to market participants. From a practical standpoint, issuers are advised to consider IPO timing during periods of lower global uncertainty to reduce underpricing. Investors may use the WUI as an indicator for anticipating underpricing levels, while underwriters should maintain pricing accuracy during volatile conditions. Regulators and IDX

are encouraged to strengthen disclosure frameworks so that firm-level fundamentals can play a more effective role in IPO pricing mechanisms.

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