Controlling Ownership and Long-term Post-IPO Performance: The Moderating Role of Firm Size in Indonesia (2021–2024)

THESIS

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We hereby declare that this Thesis is from student's own work, has been read and presented to Institut IPMI Board of Examiners, and has been accepted as part of the requirements needed to obtain a Bachelor of Business Administration Degree and has been found to be satisfactory.

Jakarta, August 2026

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NON-PLAGIARISM DECLARATION FORM

This Thesis is a presentation of my original research work. Wherever contribution of others is involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions.

Also, this work is being submitted in partial fulfilment of the requirements for the Bachelor of Business Administration degree and has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Jakarta, August 2026



Alvaro Putra Ramadhan

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Abstract

This study examines the effect of controlling ownership on one-year post-IPO returns and the moderating role of firm size of 206 firms listed on the Indonesia Stock Exchange during 2021–2024. During said period, the Indonesian IPO market is characterized by a rapid expansion of retail investor participation and an average one-year IPO return of 49.22 percent substantially exceeding the IHSG benchmark of 5.14 percent, yet the governance determinants of post-listing performance remain underexplored. The study employs a cross-sectional OLS moderated regression framework with HC1 robust standard errors as a robustness check.

The results support both research hypotheses. Controlling ownership has a significant negative effect on one-year returns ($\beta = -10.461$, $p = 0.018$), consistent with the entrenchment hypothesis under agency theory. The interaction between controlling ownership and firm size is positive and significant ($\beta = 0.875$, $p = 0.017$), indicating that the entrenchment effect weakens as firm size increases due to stronger external monitoring in larger firms, though it does not fully disappear even at the largest firm sizes. Initial return is also a significant predictor across all specifications ($\beta = 1.347$, $p = 0.003$), reflecting the sustained momentum of IPO under-pricing in Indonesia's retail-driven market.

The findings demonstrate that the governance effect of controlling ownership is conditional on firm size rather than uniform, with entrenchment most pronounced in smaller firms and partially constrained in larger ones. These results contribute to the emerging market IPO literature and carry practical implications for retail investors, OJK, and future research on IPO governance in East Asian markets.

Keywords: controlling ownership, post-IPO performance, firm size, moderation, agency theory, Indonesia Stock Exchange, IPO under-pricing, initial return

Chapter 1
Introduction

1.1 Background

1.1.1 Initial Public Offerings (IPOS)

Initial public offerings (IPOs) represent a key mechanism through which firms raise capital from public investors while transitioning from private to publicly listed entities, enabling investors to participate in corporate growth This mechanism sits at the heart of capital market development, and nowhere more visibly than in emerging markets such as Indonesia. The numbers trace the arc clearly: IPO activity on the Indonesia Stock Exchange increased from 53 offerings in 2021 to a peak of 76 in 2023, before easing to 40 in 2024 (Indonesia Stock Exchange, various years). Behind these figures lies a broader shift. The steady rise in listed firms and investor participation reflects the expanding role of equity markets in fuelling economic growth and deepening the financial system.

1.1.2 IPO Under-pricing, Ownership Structure, and Post-IPO Performance

Two puzzles define the IPO market. The first is short-term under-pricing; the second is the uncertainty of long-run performance. IPOs frequently deliver positive returns on their opening day, yet what happens afterward is far less predictable, and the mixed evidence raises a pointed question: are IPO investments grounded in firm fundamentals, or driven by fleeting speculation? Loughran and Ritter (2004) tie IPO pricing and post-listing performance to investor sentiment and market conditions, arguing that returns may drift away from intrinsic value, especially when optimism runs high. Sembel (1996) offers a complementary explanation, attributing IPO anomalies to heterogeneous investor information and temporary excess demand in the aftermarket forces that inflate early returns before prices gradually settle toward intrinsic value. The implication is sobering. Strong early performance need not endure, particularly in markets shaped by information asymmetry and speculative trading.

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2.is IPO good for longterm investments is it only good for speculation? Or good for long-term investments.

A substantial body of work explains under-pricing through information asymmetry and signalling. Leland and Pyle (1977) argue that when insiders retain ownership, they send a credible signal of quality, staking their own exposure on the firm's future. Yet one thread has been left comparatively loose: the role of controlling ownership in shaping post-IPO performance, especially in emerging markets where ownership is tightly concentrated. Indonesia is a case in point. Its firms are typically dominated by shareholders who retain significant control even after listing, and still, most local IPO studies fixate on short-term under-pricing or general firm characteristics rather than governance. The consequence is a gap. How-controlling ownership actually shapes post-listing performance remains underexplored. Agency theory sharpens the concern Shleifer and Vishny (1997) note that concentrated ownership can breed conflict between controlling and minority shareholders, while Claessens, Djankov, Fan, and Lang (2002) show such structures can produce both improved monitoring and entrenchment, leaving their net effect on firm performance genuinely ambiguous.

In the IPO setting, these dynamics cut both ways. Controlling ownership may function as a signal of firm quality and, at the same time, as a wellspring of agency conflict. Its impact may also hinge on firm characteristics size in particular. Larger firms attract greater scrutiny and are held to stronger governance standards; smaller firms contend with higher information asymmetry and thinner monitoring. Read alongside the IPO anomaly literature, this suggests that post-listing performance reflects more than fundamentals alone. It also reflects investor perception, governance quality, and the efficiency of the market itself. On these grounds, this study examines the role of controlling ownership in explaining one-year post-IPO performance and asks whether firm size moderates that relationship with particular attention to an emerging market such as Indonesia, where ownership concentration is common and investor protection is still maturing.

1.1.3 IPO Returns: Short-Term Gains and Long-Term Uncertainty

IPO stocks draw a crowd. Investors and academics alike are captivated by their distinctive return profile, and above all by the prospect of unusually large

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Focus on why ipo stocks why interesting (cuan sangat tinggi) avg 2021-2024 for the return. Bandingi ihsg add underpircing.

2.Also why one year return? Compare to previous studies) because annual report/financial report, second indonesia's market efficiency as a emerging market market.

Based on data 2021-2024 ipo avg return is 50.08% while ihsg 2021-2024 is 5.14%

short-term gains. The most familiar of these is under-pricing the offer price set below the first-day trading price, handing investors an immediate positive return. But the story does not end at listing day. Post-listing performance often diverges sharply from the broader market, and that divergence is striking in the Indonesian data. Drawing on figures processed from Investing.com and the Indonesia Stock Exchange, IPO firms listed between 2021 and 2024 delivered an average one-year return of roughly 50.08% dwarfing the 5.14% posted by the Indonesia Composite Index (IHSG) over the same span. Such returns are seductive. Yet they may not last, and they may owe more to short-term market dynamics than to durable firm performance, which raises the central question: are these returns a product of fundamentals, of market inefficiency, or of speculation?

The long-run evidence complicates the picture. Ritter (1991) finds that IPO firms in developed markets tend to underperform over time, hinting that initial valuations run too optimistic. Emerging markets, though, tell a less uniform story, where post-IPO performance bends to institutional factors, ownership structures, and investor behaviour. Indonesia illustrates the imbalance. Research there has leaned heavily toward short-term under-pricing, leaving performance beyond the initial trading period comparatively neglected. That neglect matters. Emerging markets often exhibit lower efficiency and heavier retail participation conditions ripe for pricing deviations and short-term return anomalies.

This study fixes its attention on one-year returns, chosen for two reasons. First, a year gives firms time to release at least one annual report, allowing the market to reappraise value against realized performance rather than initial hope. Second, in an emerging market like Indonesia, where efficiency may be limited, price adjustments rarely arrive all at once on listing day; they unfold. Examining one-year returns therefore yields a more meaningful read on IPO performance than under-pricing alone can offer. With that foundation, the study investigates whether governance structures controlling ownership foremost among them shape post-IPO performance, while holding firm characteristics and market conditions in view.

1.1.4 Pandemic Investing Boom

The COVID-19 pandemic reshaped financial markets worldwide, and Indonesia was no exception. Investor behaviour shifted, and it shifted fast.

Movement restrictions, more hours spent at home, and the swift embrace of digital platforms combined to send retail participation surging. In Indonesia, this coincided with a marked jump in individual investors younger demographics above all drawn to equities as a fresh avenue for income and wealth accumulation (Indonesia Stock Exchange, 2022).

Accessibility poured fuel on the fire. Online trading platforms lowered the barrier to entry, and financial information spread rapidly across social media, accelerating the trend. Retail investors traded more actively, lifting both liquidity and volatility in their wake. Their appetite reached newly listed stocks as well, IPOs included, as they hunted for short-term gains and longer-term positions alike. The upshot is that IPO pricing and post-listing performance may have been reshaped by the changing composition and behaviour of investors during this period.

There is a further implication. A wave of less experienced investors can amplify sentiment-driven trading and mispricing a risk especially acute in IPO markets, where information asymmetry already looms large. This altered landscape makes a strong case for revisiting IPO performance in the post-pandemic era, since the traditional explanations may no longer capture the full weight of retail activity on returns.

1.1.5 Growth of Investors and Capital Market Performance in Indonesia

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(support with data increase of investors and increase of ipos, and avg daily trading volume)

The pandemic did not merely disturb Indonesia's market; it transformed who participated in it. As behaviour shifted, the investor base swelled. Individual investors grew from roughly 1.6 million in 2018 to more than 7.4 million by 2021 a dramatic widening of market participation (Indonesia Stock Exchange, KSEI). The change was not marginal. It was structural.

Activity intensified, and the average daily trading volume climbed from around 10,567 million shares in 2018 to over 20,633 million shares in 2021, a sharp rise in both turnover and liquidity. IPO activity held firm too, with 54 offerings recorded in 2021 evidence of robust appetite for new listings even amid global uncertainty. Taken together, these trends signal a market that, by 2021, had moved past the initial pandemic shock into a phase of heightened participation and activity, propelled by retail investors and easier access alike.

This is why 2021 serves as the appropriate starting point for the study, rather than the earlier pandemic years. Where 2020 captures the shock and disorientation of the crisis, 2021 marks something steadier and structurally different a market defined by broader participation, deeper liquidity, and sustained IPO activity. For an analysis of IPO performance, that distinction is decisive. Shifts in investor composition and trading behaviour can reshape pricing dynamics and post-listing returns, and the growing dominance of retail investors may heighten sentiment-driven trading and the potential for mispricing. All of which reinforces the case for examining IPO performance through the lens of the post-pandemic Indonesian market.

1.2 Problem Statement

The number of initial public offerings (IPOs) in Indonesia is increasing, however despite that the determinants of post-IPO stock performance remain insufficiently understood, particularly in the context of long-run outcomes. While prior studies in Indonesia have largely focused on short-term under-pricing, limited attention has been given to post-listing performance beyond the initial trading period. This creates a gap in understanding whether IPO firms generate abnormal returns after listing and what factors drive such performance.

Furthermore, it is necessary to re-examine IPO performance using available and reliable firm-level indicators. Existing evidence from global markets suggests that IPO performance is influenced by firm characteristics, governance structure, and investor behaviour, however in emerging markets like Indonesia there is a different dynamic between institutional environments and market dynamics, not to add the lack of comprehensive data particularly for variables such as oversubscription ratio in earlier years constrains the scope of empirical analysis.

It is essential to identify the firm-level and governance-related factors that influence post-IPO performance due to the increasing participation of investors in IPOs. Therefore, this study seeks to address the lack of empirical evidence on one-year returns of IPO firms in Indonesia by examining how firm characteristics, governance structure, and issuance-related factors contribute to variations in post-listing stock performance.

1.3 Research Questions

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Main question: How does controlling ownership influence one-year post-IPO returns, and does firm size moderate this relationship among firms listed on the Indonesia Stock Exchange during the 2021–2024 period?

1. How does controlling ownership influence one-year post-IPO returns?
2. How does firm size affect one-year post-IPO returns?

1.4 Research Objectives

This study aims to examine the effect of controlling ownership on one-year post-IPO returns of the firms listed on the Indonesia Stock Exchange during the 2021–2024 period. Specifically, the study seeks to determine whether ownership concentration influences post-listing stock performance.

Furthermore, this study investigates the moderating role of firm size in the relationship between controlling ownership and post-IPO performance, in order to assess whether the impact of ownership concentration differs between smaller and larger firms.

In addition, the analysis controls for firm characteristics and market conditions, which includes valuation ratios (PER and PBV), IPO proceeds utilization, and IHSG returns, to isolate the effect of controlling ownership. Ultimately, this study aims to provide empirical evidence on the role of ownership structure in explaining post-IPO performance in an emerging market context characterized by high ownership concentration, and to evaluate whether IPO performance reflects governance mechanisms rather than purely market-driven factors.

1.5 Research Benefits

Investors: IPO decisions are rarely made with full information. This study narrows that gap. By examining how controlling ownership shapes one-year post-IPO performance, and how firm size conditions that relationship, it gives both institutional and retail investors a clearer lens for weighing the risks hidden beneath a listing's early enthusiasm. The practical contribution of the study is helping

investors interpret substantial ownership retention by controlling shareholders, distinguishing genuine confidence from the risk of entrenchment, and enabling them to weigh this signal in IPO and portfolio decisions rather than depending on first-day momentum alone.

Academic: Most IPO research in emerging markets stops at the first day of trading. This study looks further out. It contributes to the comparatively thin literature on post-IPO performance by centring governance specifically the principal–principal conflict that defines concentrated ownership environments rather than the short-term under-pricing or generic firm characteristics that dominate prior work. Drawing agency theory, signalling theory, and market efficiency into a single empirical frame, it offers fresh evidence from Indonesia over the 2021–2024 period and lays groundwork that future researchers can build on in comparable markets.

Regulators and policymakers: For regulators and capital market authorities, this study provides insights into how ownership concentration affects post-listing performance and market behaviour. Understanding the dual role of controlling ownership as both a monitoring mechanism and a potential source of minority shareholder risk can help inform policies aimed at strengthening investor protection and improving transparency. In addition, the findings may support regulatory efforts to enhance the quality of IPOs and ensure that ownership structures promote fair and efficient capital market development in Indonesia.

1.6 Scope and Limitations

1.6.1 Scope

This study focuses on firms conducting initial public offerings (IPOs) on the Indonesia Stock Exchange during the 2021–2024 period. The analysis is limited to IPO firms that remain listed and have sufficient data to calculate one-year returns following their listing, additionally annual IHSG return is included as a control variable to account for overall market conditions affecting stock performance.

1.6.2 Limitations

Several limitations should be acknowledged. First, the analysis adopts a one-year post-IPO horizon; this captures medium-term performance but says nothing about how firms fare over three or five years. Second, the sample is confined to 2021–2024, a constraint imposed by data availability, since IPOs conducted in 2025 have not yet completed a full one-year observation window. Third, several variables commonly used in IPO research the oversubscription ratio chief among them are excluded because the underlying data are incomplete in earlier years, which may limit direct comparison with prior studies. Fourth, the model concentrates on firm-level and governance factors and deliberately stops short of incorporating a wider set of macroeconomic controls beyond the IHSG return. Finally, the cross-sectional design cannot fully rule out endogeneity: controlling ownership may be jointly determined with expectations of future performance, and first-day market capitalization partly reflects listing-day sentiment that could also influence one-year returns. As a result, the findings capture association rather than strict causation, an issue examined further in Section 5.2 and revisited as a direction for future research in Section 5.3. These constraints do not undermine the findings, but they do frame them: the results should be read within the specific institutional context of the Indonesian capital market and the boundaries described above.

1.7 Structure of Thesis

Chapter 1 acts as the introduction for this thesis, It introduces the research background, problem statement, research questions, objectives, benefits, and the scope and limitations that shape the study.

Chapter 2 reviews the relevant literature and theoretical foundations underlying the study, including agency theory, signalling theory, and market efficiency theory. This chapter also develops the conceptual framework and formulates the research hypotheses.

Chapter 3 describes the research methodology, detailing the research design, the data collection process, the definition and measurement of each variable, and the econometric model built to test the relationship between IPO characteristics and post-IPO performance.

Chapter 4 presents the regression results, interprets them against the hypotheses, and situates the findings within the existing literature and the realities of the Indonesian capital market.

Chapter 5 concludes the study by summarizing the key findings, outlining the study's contributions, discussing its limitations, and providing recommendations for investors, policymakers, and future research.

Chapter 2

Literature Review

2.1 Previous Study

2.1.1 Ownership Concentration and Firm Performance

The study by Arora and Singh (2023) aims to examine the relationship between board characteristics, ownership concentration, and IPO under-pricing in small and medium-sized enterprises (SMEs). The research focuses on understanding how governance mechanisms influence IPO pricing, particularly in environments where ownership is highly concentrated. Grounded in agency theory, the study highlights that ownership concentration can serve as an effective monitoring mechanism that reduces information asymmetry and aligns the interests of controlling shareholders with external investors.

The study adopts a quantitative empirical approach using panel data from SME IPOs and applies advanced econometric techniques to address potential endogeneity issues. Ownership concentration and board characteristics are used as key explanatory variables, while IPO under-pricing serves as the primary measure of performance. The methodology allows the authors to capture both direct and interaction effects between governance mechanisms and IPO outcomes (Arora & Singh, 2023).

The findings indicate that ownership concentration significantly reduces IPO under-pricing, suggesting that concentrated ownership improves monitoring and enhances investor confidence. However, the effect is also influenced by board characteristics, implying that governance mechanisms operate jointly rather than independently. These results support the argument that ownership concentration plays a critical role in shaping IPO outcomes, particularly in emerging market settings where agency conflicts are more pronounced (Arora & Singh, 2023).

2.1.2 Controlling Ownership and IPO Performance

The study by Larrain, Roosenboom, Sertsios, and Urzúa (2024) examines the relationship between ownership concentration and firm value in the context of

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initial public offerings (IPOs). The primary objective is to analyse how changes in ownership stakes at the time of IPO influence firm valuation and post-listing performance. Drawing on agency theory, the study emphasizes that ownership retention by controlling shareholders serves as a mechanism to align incentives and reduce conflicts between insiders and external investors.

The research employs a quantitative methodology using a large international sample of IPO firms and applies an instrumental variable approach to address endogeneity concerns. Specifically, pre-IPO market conditions are used as instruments to capture exogenous variation in ownership concentration. The study focuses on the impact of ownership retention on firm value and long-term performance, providing a robust empirical framework for analysing governance effects in IPO settings (Larrain et al., 2024).

The results show that firms with higher ownership retention by controlling shareholders tend to exhibit stronger post-listing performance and higher firm valuation. Conversely, a reduction in ownership concentration at the time of IPO is associated with weaker outcomes, suggesting that controlling ownership plays a significant role in enhancing monitoring and reducing agency conflicts. These findings reinforce the importance of ownership structure as a key determinant of post-IPO performance (Larrain et al., 2024).

2.1.3 Ownership Concentration and Firm Performance in Emerging Markets

The study by Boshnak (2023) investigates the impact of ownership concentration and managerial ownership on firm performance in Saudi listed firms. The primary objective is to examine how ownership structure characteristics, specifically the degree of concentrated ownership and insider shareholding by senior management, influence both accounting-based and market-based corporate performance outcomes. The study is grounded in agency theory, which argues that concentrated ownership may align shareholder and managerial interests, thereby improve monitoring and reduce agency costs between principals and agents.

The research employs a Fixed Effects (FE) regression model and a Two-Stage Least Squares (2SLS) regression to examine 70 Saudi non-financial listed firms across six industries over the period 2016–2021, yielding 420 firm-year

observations. The Fixed Effects approach is used to correct for heteroscedasticity and serial correlation, while the 2SLS regression addresses potential endogeneity issues in the ownership-performance relationship. Firm performance is measured using both accounting-based indicators, namely return on assets (ROA) and return on equity (ROE), and market-based indicators, namely Tobin's Q and the market-to-book ratio (MBR), allowing for a comprehensive assessment of the ownership-performance dynamic from both historical and prospective perspectives (Boshnak, 2023).

The findings indicate that ownership concentration positively and significantly affects firm performance across both accounting-based and market-based measures, supporting the agency theory argument that higher ownership concentration enhances monitoring capacity and reduces managerial opportunism in the context of Saudi listed firms. The study also finds that managerial ownership has a significant positive relationship with performance, consistent with the alignment effects argument. These results are particularly relevant to emerging market settings where institutional environments differ substantially from developed economies and where minority shareholder protection may be weaker. The findings of Boshnak (2023) reflect the monitoring benefit of ownership concentration and stand in contrast to the entrenchment effects documented in the Indonesian IPO context in the present study, highlighting that the ownership-performance relationship is not universal but is shaped by the specific institutional environment and nature of controlling shareholders in each market.

2.1.4 Ownership Concentration and Firm Performance: Meta-Analytic Evidence from Emerging Markets

The study by Wang and Shailer (2015) aims to resolve the long-standing inconsistency in the empirical literature on the relationship between ownership concentration and firm performance in emerging markets. Recognising that individual primary studies report conflicting positive, negative, and insignificant relationships both within and between countries, the authors set out to identify the underlying ownership–performance relation through quantitative synthesis and to determine which study characteristics drive the observed heterogeneity in reported

results. The study is grounded in the competing theoretical positions of agency theory, contrasting the monitoring and interest-alignment benefits of concentrated ownership against the controlling-shareholder agency problem, the cost-of-capital hypothesis, and the adverse effect of concentrated ownership on other governance mechanisms.

The research employs meta-analytical techniques, integrating 419 correlations collected from 42 primary studies covering listed corporations in 18 emerging markets over the data years 1989–2008. The authors compute partial correlation coefficients as scale-free effect sizes and apply a Hedges–Vevea random-effects meta-analysis model, supplemented by Huber–White OLS, bootstrapped standard errors, and fixed-, random-, and mixed-effects specifications. Heterogeneity is assessed using Cochran's Q test and the I^2 index, while funnel-plot and FAT–PET meta-regression procedures test for selective reporting bias. Meta-regression analysis is then used to examine how population differences, sampling choices, modelling decisions, and estimation methods contribute to variation in reported effect sizes (Wang & Shailer, 2015).

The findings indicate that only a small proportion, no more than eleven percent, of the variation in reported ownership–performance relations can be attributed to sampling error, confirming that genuine heterogeneity dominates the literature. While the unadjusted mean effect is marginally positive, the authors demonstrate that once "best practice" corrections for omitted-variable bias and endogeneity are applied, the underlying relationship between ownership concentration and firm performance becomes substantially and robustly negative across countries, regardless of their institutional settings. The negative relation is stronger in countries with medium and high ownership concentration, and the results support theoretical positions predicting a negative effect, namely the controlling-shareholder agency problem and the associated expropriation of minority shareholders (Wang & Shailer, 2015). These findings provide broad cross-country support for the entrenchment interpretation adopted in the present study and reinforce the argument that concentrated ownership tends to depress firm performance in emerging-market environments such as Indonesia.

2.1.5 Controlling Ownership and Firm Risk in the Indonesian Market

The study by Dwitanto, Manurung, Machdar, and Hidayat (2026) examines how controlling ownership and landbank intensity jointly relate to firms' exposure to extreme downside risk among listed property development firms in Indonesia. The primary objective is to determine whether ownership concentration influences tail-risk exposure, and whether strategic asset allocation in the form of landbank serves as a mechanism linking governance structure to risk outcomes. The study is grounded in agency theory, which holds that concentrated ownership can mitigate conflicts between managers and shareholders by strengthening monitoring and aligning strategic decisions with long-term firm stability, particularly in emerging markets where external oversight and institutional safeguards are comparatively weaker.

The research employs a quantitative explanatory design using panel data from publicly listed property development firms on the Indonesia Stock Exchange. A purposive sampling method yielded 19 firms and 209 firm-year observations over the 2013–2023 period, forming a balanced panel spanning expansion, regulatory tightening, and the COVID-19 downturn. Extreme downside risk is measured using Expected Shortfall at the 5 percent tail level (ES5), calculated as the average of daily stock returns falling below the 5th percentile Value-at-Risk threshold. Controlling ownership is measured as the percentage shareholding of the largest shareholder at year-end, while landbank intensity is measured as the ratio of land-related assets to total assets. Panel regression models with robust standard errors are estimated alongside mediation analysis following Baron and Kenny (1986), with the significance of the indirect effect assessed using the Sobel, Aroian, and Goodman tests. Firm profitability, liquidity, leverage, and exchange rate movements are included as control variables (Dwitanto et al., 2026).

With respect to the first hypothesis, the findings show that controlling ownership is negatively and significantly associated with extreme downside risk ($\beta = -0.02$, $p < 0.05$), indicating that firms with more concentrated ownership structures exhibit lower exposure to severe adverse outcomes. This relationship remains negative and significant after landbank intensity is introduced into the model ($\beta = -0.03$, $p < 0.01$), confirming that the governance effect operates through

multiple channels rather than being fully transmitted through asset allocation decisions. The authors interpret this result as evidence that controlling shareholders possess both the incentive and the capacity to monitor managerial decisions and constrain risk-taking behaviour, particularly because such shareholders typically hold large and relatively undiversified stakes that heighten their sensitivity to downside outcomes. This finding reflects the monitoring and alignment benefits of ownership concentration within the Indonesian market and stands in contrast to the entrenchment effect documented in the present study. The divergence is instructive: whereas Dwitanto et al. (2026) examine established firms across a full property market cycle using a risk-based outcome measure, the present study examines newly listed IPO firms using a return-based measure over a one-year post-listing horizon. Taken together, these results suggest that the effect of controlling ownership in Indonesia is conditional on firm maturity, listing status, and the performance dimension under examination, reinforcing the central argument of this study that the governance effect of ownership concentration is contextual rather than uniform.

2.2 Theoretical Foundations

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1. assumptions
2. content
3. implications
4. what does the previous study say? Confirm under-pricing?

2.2.1 Under-pricing Theory

IPO under-pricing theory is primarily grounded in the assumption of information asymmetry between different groups of investors. Rock (1986) develops a model in which investors are divided into informed and uninformed groups, where informed investors possess superior information regarding the true value of newly issued shares, while uninformed investors do not. In this setting, IPO allocation is subject to rationing, meaning that shares are not distributed evenly across investors. As a result, uninformed investors face a disadvantage, as they are more likely to receive shares in overpriced offerings and less likely to receive shares in underpriced ones. This creates what is commonly referred to as the “winner’s curse” problem, where uninformed investors are systematically exposed to adverse selection.

Building on these assumptions, IPO under-pricing theory explains that firms must intentionally price shares below their expected market value in order to attract

uninformed investors. According to Rock (1986), if shares were priced at their fair value, uninformed investors would withdraw from the market due to the risk of adverse selection, leading to insufficient demand. Therefore, issuers offer shares at a discount as compensation for this risk. Similarly, Beatty and Ritter (1986) argue that the degree of under-pricing is positively related to ex ante uncertainty, meaning that IPOs with higher uncertainty require greater under-pricing to attract investors. Their study also emphasizes the role of investment bankers in maintaining this equilibrium, as underwriters rely on their reputation to ensure that IPO pricing remains credible and acceptable to both issuers and investors.

In addition to information asymmetry, IPO under-pricing has also been linked to heterogeneous investor expectations and speculative demand in the aftermarket. Sembel (1996) argues that IPO anomalies may arise because investors possess differing information and valuation perspectives regarding newly listed firms. In periods of strong market optimism, excess demand for IPO shares may temporarily push prices above intrinsic value, generating unusually high initial returns. However, as additional information becomes available after listing, prices may gradually adjust toward their fundamental values, causing long-run performance to weaken. This perspective suggests that IPO under-pricing may not solely reflect compensation for information asymmetry, but also speculative behaviour and temporary market inefficiencies.

The implications of IPO under-pricing theory are significant for understanding IPO market behaviour. First, under-pricing is not considered a market inefficiency, but rather an equilibrium outcome that compensates uninformed investors for information disadvantages. Second, the theory suggests that IPO returns are influenced by factors such as uncertainty, information asymmetry, and allocation mechanisms. Third, it implies that governance-related factors, including ownership structure, may serve as signals that reduce uncertainty and potentially affect the level of under-pricing and subsequent performance. In this context, variables such as controlling ownership may influence investor perception by signalling firm quality or commitment, thereby interacting with the mechanisms described in under-pricing theory.

Empirical evidence consistently supports the existence of IPO under-pricing across different markets and periods. Rock (1986) demonstrates that under-pricing is necessary to sustain participation from uninformed investors, while Beatty and Ritter (1986) provide evidence that IPOs with higher uncertainty tend to exhibit greater under-pricing. Similarly, Sembel (1996) finds that IPO anomalies may persist due to heterogeneous information and speculative demand dynamics in the aftermarket. Collectively, these studies reinforce the view that under-pricing is a persistent and systematic feature of IPO markets rather than an isolated phenomenon.

2.2.2 Agency Theory

Agency theory is built on the assumption that firms operate under conditions of delegated authority, divergent interests, and information asymmetry between principals (shareholders) and agents (managers). Early conceptual work by Mitnick (1975, 1976) describes agency relationships as arrangements in which one party makes decisions on behalf of another under imperfect information. This creates the potential for opportunistic behaviour, as agents may pursue personal benefits rather than maximizing shareholder value. Jensen and Meckling (1976) formalize this framework by introducing agency costs, which include monitoring costs, bonding costs, and residual losses arising from conflicts of interest. Within this framework, ownership structure becomes a key mechanism for aligning incentives and reducing agency problems.

In the context of IPOs, agency problems become more complex due to the transition from private to public ownership and the introduction of external investors. Bruton, Filatotchev, Chahine, and Wright (2010) extend agency theory by introducing a multiple-agency perspective, highlighting that conflicts may arise not only between managers and shareholders, but also among different groups of shareholders. In IPO firms, governance mechanisms such as ownership structure and the utilization of IPO proceeds play an important role in shaping managerial behaviour. Inefficient allocation of IPO funds, for example, may lead to agency problems such as overinvestment or value destruction, particularly when monitoring is weak.

Agency theory has been further extended to reflect ownership structures commonly observed in emerging markets, where ownership is often highly concentrated. In this setting, the traditional principal–agent conflict shifts toward principal–principal conflict, particularly between controlling shareholders and minority investors. Andrei Shleifer and Robert Vishny (1997) argue that controlling shareholders can both improve and destroy firm value. On one hand, concentrated ownership enhances monitoring and reduces managerial opportunism, leading to better decision-making and long-term strategic alignment. On the other hand, controlling shareholders may become entrenched and extract private benefits of control through mechanisms such as tunnelling, related-party transactions, and resource diversion, which can reduce firm value and harm minority shareholders. This dual effect highlights that the impact of controlling ownership is inherently ambiguous and context-dependent.

Similarly, Stijn Claessens, Simeon Djankov, Joseph P. H. Fan, and Larry H. P. Lang (2002) provide empirical evidence from Asian markets showing that ownership concentration is associated with both incentive alignment and expropriation effects. Their findings suggest that controlling shareholders may collude with management to extract private benefits at the expense of minority investors, particularly in environments with weak legal protection. This collusion may take the form of preferential transactions, earnings manipulation, or strategic decisions that benefit controlling parties rather than maximizing firm value. As a result, higher ownership concentration may weaken minority shareholder protection and negatively affect firm valuation despite improved monitoring.

In the IPO context, these governance dynamics are particularly important, as newly listed firms often retain high levels of controlling ownership after going public. While concentrated ownership may reduce traditional agency conflicts by strengthening oversight, it may simultaneously increase the risk of minority shareholder expropriation. Therefore, controlling ownership represents a critical governance factor in explaining post-IPO performance, especially in emerging markets such as Indonesia, where ownership concentration is prevalent and investor protection mechanisms may be less developed. Accordingly, agency theory

provides the foundational framework for this study in explaining how ownership structure influences firm value and one-year post-IPO returns.

2.2.3 Signalling Theory

Signalling theory was formally introduced by Spence (1973), who developed a framework explaining how informed agents can convey private information to less informed parties through costly and observable signals. In environments characterized by information asymmetry, high-quality agents distinguish themselves by undertaking actions that are more costly for lower-quality agents to imitate. The credibility of a signal depends on this cost differential, as only firms with superior underlying quality are willing to bear such costs. As a result, observable characteristics can influence investor beliefs about unobservable firm value and reduce uncertainty in decision-making.

In the context of corporate finance and IPO markets, Leland and Pyle (1977) argue that firm insiders can signal quality through decisions that involve financial commitment and risk exposure. In IPO settings, where external investors face significant uncertainty regarding firm prospects, observable firm characteristics and issuance decisions serve as important signals to the market. One key signal is firm valuation at the time of IPO, as reflected in pricing multiples such as price-to-earnings ratio (PER) and price-to-book value (PBV). These valuation measures embed market expectations about future growth and performance, and may reflect how firms position themselves in terms of perceived quality and prospects. In addition, ownership structure, particularly the retention of significant ownership by controlling shareholders, may signal confidence in the firm's future performance, as it indicates continued exposure to post-listing risk.

Furthermore, the intended use of IPO proceeds may also convey information regarding firm quality and strategic direction. Firms that allocate proceeds toward productive investments, such as expansion or operational improvement, may signal stronger growth prospects, whereas unclear or less productive uses of funds may increase uncertainty among investors. In emerging markets, where information

asymmetry is typically higher, such signals become increasingly important in shaping investor perception and reducing adverse selection.

Bruton, Filatotchev, Chahine, and Wright (2010) emphasize that in emerging markets, signalling mechanisms play a crucial role in influencing investor confidence and IPO valuation outcomes. Observable firm characteristics and strategic decisions can serve as credible signals that help investors assess firm quality despite limited information availability. Accordingly, signalling theory complements agency theory by explaining how IPO-related signals influence investor expectations and contribute to variations in post-IPO performance, as measured by one-year returns

2.2.4 Efficient Market Hypothesis

The Efficient Market Hypothesis (EMH), developed by Eugene Fama (1970, 1991), posits that stock prices fully reflect all available information, implying that investors cannot consistently earn abnormal returns using publicly available data. In particular, the semi-strong form of market efficiency suggests that publicly disclosed information, including financial reports and IPO prospectuses, is rapidly incorporated into stock prices. Under this framework, post-IPO abnormal returns, should not systematically exist unless they represent compensation for risk rather than mispricing.

However, extensive empirical evidence in IPO markets challenges the predictions of EMH. Numerous studies document persistent IPO anomalies, including under-pricing and deviations in long-run performance, suggesting that stock prices at the time of listing may not fully reflect intrinsic value. Jay R. Ritter and Tim Loughran (2004) argue that IPO pricing and post-listing performance are closely related to investor sentiment and market conditions, indicating that temporary optimism and speculative demand may influence IPO valuations. Similarly, Sembel (1996) explains that heterogeneous investor information and excess aftermarket demand may cause IPO prices to temporarily deviate from fundamental value before gradually adjusting as more information becomes available. These findings suggest that IPO markets may exhibit temporary inefficiencies, particularly during periods of heightened investor enthusiasm.

The limitations of EMH may be more pronounced in emerging markets, where information asymmetry, lower market maturity, and greater retail investor participation can delay the incorporation of information into stock prices. In such markets, governance structures and ownership characteristics may influence how efficiently information is reflected in prices. Southam, Jiang, Todd, and Tonkin (2024) emphasize the importance of distinguishing whether post-IPO performance reflects mispricing or compensation for risk, highlighting the ongoing debate regarding the applicability of EMH in explaining long-run IPO returns.

Accordingly, EMH serves as a theoretical benchmark for this study in interpreting post-IPO performance. Deviations in one-year return may indicate that IPO pricing does not fully incorporate firm-specific information at the time of listing. In this context, governance factors such as controlling ownership, along with firm characteristics like size, may influence how information is incorporated into prices and how quickly markets adjust. Therefore, while EMH provides a useful baseline for understanding stock price behaviour, this study complements the theory with agency and signalling perspectives to explain variations in post-IPO performance in Indonesia.

2.3 IPO Long Run Performance

Long-run performance of initial public offerings (IPOs) has been extensively examined in the finance literature, particularly following the seminal work of Jay Ritter (1991), who documents that IPO firms in the United States tend to underperform relative to comparable firms over a multi-year horizon. This phenomenon, often referred to as the “new issues puzzle,” suggests that IPO prices may initially reflect overly optimistic expectations that subsequently adjust in the post-listing period. Subsequent studies, including Ritter and Welch (2002), further confirm that IPO markets exhibit systematic patterns such as under-pricing in the short run and underperformance in the long run, highlighting persistent deviations from market efficiency.

While evidence from developed markets generally supports the existence of long-run underperformance, findings in emerging markets are less consistent. In some cases, IPOs in emerging economies exhibit neutral or even positive long-run performance, reflecting differences in institutional environments, investor

composition, and market maturity. Factors such as ownership structure, regulatory frameworks, and the level of information asymmetry may influence how IPO firms perform after listing. As a result, the generalizability of the "new issues puzzle" remains debated across different market contexts.

In Indonesia, empirical studies on IPO performance have predominantly focused on short-term under-pricing, with relatively limited attention given to long-run post-listing outcomes. Existing evidence on long-run performance remains fragmented and inconclusive, particularly in more recent periods characterized by increased market participation and evolving governance structures. Given the growth of IPO activity in Indonesia and the changing dynamics of its capital market, there is a need to re-examine whether IPO firms exhibit abnormal performance after listing and to identify the factors that may explain cross-sectional differences in such performance.

Accordingly, this study focuses on one-year returns as a measure of post-IPO performance in the Indonesian market during the 2021–2024 period. By examining firm-level and governance-related determinants of return, this research seeks to contribute to the limited body of literature on long-run IPO performance in Indonesia and provide updated empirical evidence in the context of a rapidly developing capital market.

2.4 Determinants of IPO Performance

Determinants of IPO performance have been widely examined in both developed and emerging markets, with a focus on how firm-specific characteristics, governance structures, and market conditions influence post-listing returns. Prior literature suggests that variations in IPO performance are not random but can be explained by differences in information asymmetry, investor perception, and corporate governance mechanisms at the time of listing (Ritter, 1991; Ritter & Welch, 2002). In particular, IPO anomalies such as under-pricing and long-run performance deviations highlight the importance of firm-level and governance-related factors in shaping return outcomes.

Firm characteristics, particularly firm size and valuation, are among the most frequently examined determinants of IPO performance. Firm size is

commonly used as a proxy for information asymmetry, where larger firms tend to exhibit greater transparency, more stable operations, and lower uncertainty, leading to more accurate pricing and more stable post-listing performance. In contrast, smaller firms are typically associated with higher uncertainty and a greater likelihood of mispricing. Valuation measures such as price-to-earnings ratio (PER) and price-to-book value (PBV) reflect market expectations regarding future growth and may indicate potential overvaluation at the time of IPO. Firms with higher valuation multiples are more likely to experience subsequent price corrections if expectations are not realized, resulting in weaker long-run performance (Ritter & Welch, 2002). Evidence from Indonesia also suggests that firm-level characteristics contribute to IPO return variation, although the strength of these relationships may differ across market conditions.

In addition to firm characteristics, governance-related factors play a critical role in shaping post-IPO performance. Controlling ownership, defined as the concentration of shares held by dominant shareholders, represents a key governance mechanism in emerging markets. Within the framework of agency theory, Jensen and Meckling (1976) argue that ownership concentration can reduce classical agency conflicts by strengthening monitoring and aligning managerial incentives with shareholder interests. However, high ownership concentration may also give rise to entrenchment effects, where controlling shareholders gain sufficient power to influence decisions in their own interest. This creates the risk of expropriation of minority shareholders, particularly through mechanisms such as tunnelling or related-party transactions. The extent of these effects may differ across firm size. In larger firms, stronger governance mechanisms, higher transparency, and greater market scrutiny may constrain expropriation and enhance the monitoring benefits of controlling ownership. In contrast, smaller firms often face weaker oversight and higher information asymmetry, increasing the likelihood that controlling shareholders may collude with management and extract private benefits at the expense of minority investors. Therefore, ownership concentration can both enhance and destroy firm value, depending on the balance between monitoring benefits and entrenchment risks.

Other governance and issuance-related factors may also influence IPO performance. Free float, which represents the proportion of shares available for public trading, reflects the trade-off between ownership concentration and market liquidity. A higher free float may improve liquidity and price discovery, while lower free float may increase ownership concentration and reduce market participation (Indonesia Stock Exchange, 2022; Michel et al., 2014). In addition, the utilization of IPO proceeds represents an important post-listing managerial decision. Efficient allocation of funds can support firm growth and enhance value, while inefficient use may lead to agency problems and value destruction (Southam et al., 2024).

Furthermore, broader market conditions also play a role in shaping IPO performance. Market return, commonly proxied by the Indonesia Composite Index (IHSG), reflects overall investor sentiment and macroeconomic conditions that influence stock price movements. Favourable market conditions may amplify IPO performance, while adverse conditions may limit post-listing returns. Therefore, controlling for market performance is important in isolating firm-level and governance effects.

Overall, the literature suggests that IPO performance is influenced by a combination of firm characteristics, governance mechanisms, and market conditions. However, empirical findings remain mixed, particularly in emerging markets where institutional environments differ from developed economies. This underscores the importance of re-examining the role of controlling ownership and its interaction with firm size in explaining post-IPO performance in Indonesia.

2.5 Hypothesis Development

2.5.1 Controlling Ownership

Controlling ownership refers to the proportion of shares held by dominant shareholders who possess significant control over corporate decision-making. Within the framework of agency theory, ownership concentration plays a central role in shaping governance mechanisms and firm behaviour. Jensen and Meckling (1976) argue that higher ownership concentration can align the interests of owners and managers by strengthening monitoring and reducing managerial opportunism.

In this sense, controlling ownership may enhance firm performance by improving oversight and long-term decision-making.

However, in the context of IPO firms, ownership concentration introduces an additional dimension of agency conflict, particularly in the form of principal–principal conflicts between controlling shareholders and minority investors. Andrei Shleifer and Robert Vishny (1997) highlight that controlling shareholders may have both the incentive and the ability to extract private benefits at the expense of minority shareholders. Similarly, Stijn Claessens, Simeon Djankov, Joseph P. H. Fan, and Larry H. P. Lang (2002) provide evidence that concentrated ownership in emerging markets is associated with both incentive alignment and entrenchment effects. While controlling shareholders can improve monitoring and strategic decision-making, they may also engage in expropriation through tunnelling, related-party transactions, or preferential allocation of resources.

In IPO settings, where firms transition from private to public ownership, these governance dynamics become particularly relevant. Retention of ownership by controlling shareholders may serve as a signal of firm quality, as it reflects continued exposure to future performance risk (Leland & Pyle, 1977). At the same time, high ownership concentration may reduce transparency and weaken minority shareholder protection, especially in emerging markets where regulatory enforcement may be less stringent. As a result, the effect of controlling ownership on post-IPO performance is theoretically ambiguous, as it reflects a trade-off between improved monitoring and potential expropriation.

Importantly, the impact of controlling ownership may depend on firm characteristics, particularly firm size. Larger firms are generally subject to greater scrutiny, stronger governance mechanisms, and higher levels of disclosure, which may limit the ability of controlling shareholders to engage in opportunistic behaviour. In contrast, smaller firms tend to exhibit higher information asymmetry and weaker monitoring, increasing the likelihood that ownership concentration leads to entrenchment and value destruction. Therefore, firm size is expected to condition the relationship between controlling ownership and post-IPO performance.

Based on the theoretical and empirical arguments, controlling ownership is expected to influence one-year return of IPO firms.

H1: Controlling ownership has a significant effect on one-year returns.

2.5.2 Firm Size

Firm size is widely recognized in IPO literature as a proxy for ex-ante uncertainty and information asymmetry. Larger firms typically possess longer operating histories, more established business models, and greater availability of public information, which reduces uncertainty faced by investors at the time of listing. As a result, larger firms are generally associated with more accurate pricing and lower levels of mispricing, reflecting higher transparency and stronger fundamentals.

While early IPO studies primarily focus on short-run under-pricing, the implications of firm size extend to post-IPO performance. Smaller firms are generally characterized by higher uncertainty regarding future cash flows, which increases the likelihood of mispricing and subsequent price adjustments after listing. Empirical evidence supports this argument, as smaller firms tend to exhibit greater return volatility and more pronounced long-term performance deviations compared to larger firms (Rossovski et al., 2025). These findings suggest that firm size plays an important role in shaping post-IPO return dynamics, particularly in environments with higher uncertainty.

In the Indonesian context, Isynuwardhana and Febryan (2022) find that firm size is negatively associated with IPO under-pricing, indicating that larger firms experience lower levels of initial mispricing due to better information transparency and investor confidence. Extending this argument to post-IPO performance, firms with lower uncertainty at the time of listing are expected to exhibit more stable returns, as prices are less likely to undergo significant corrections. Furthermore, from a governance perspective, firm size may interact with ownership structure, as larger firms are subject to stronger monitoring, higher disclosure standards, and

greater market scrutiny. Therefore, firm size is expected to moderate the relationship between controlling ownership and one-year returns.

H2: Firm size moderates the relationship between controlling ownership and one-year returns.

2.6 Research Framework

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2.firm size as moderating

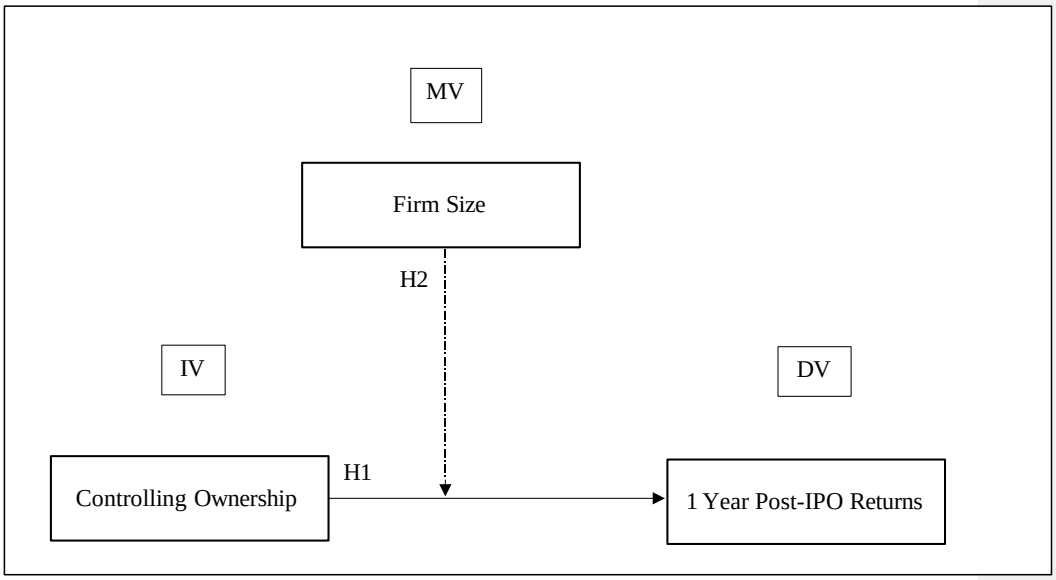
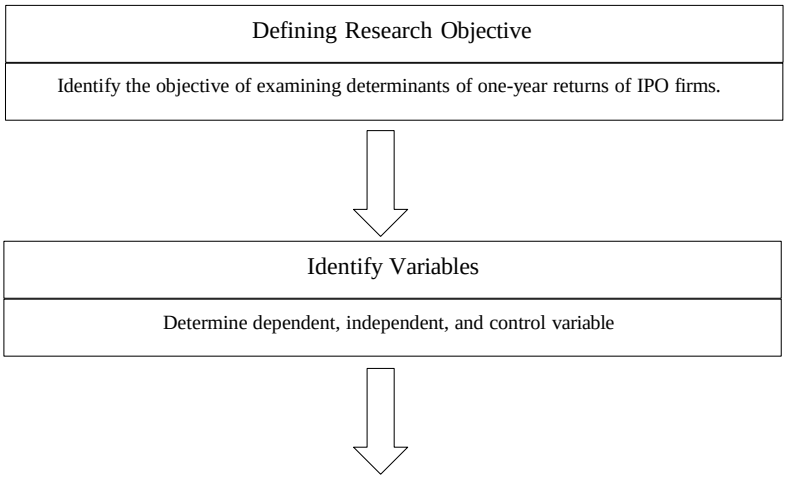


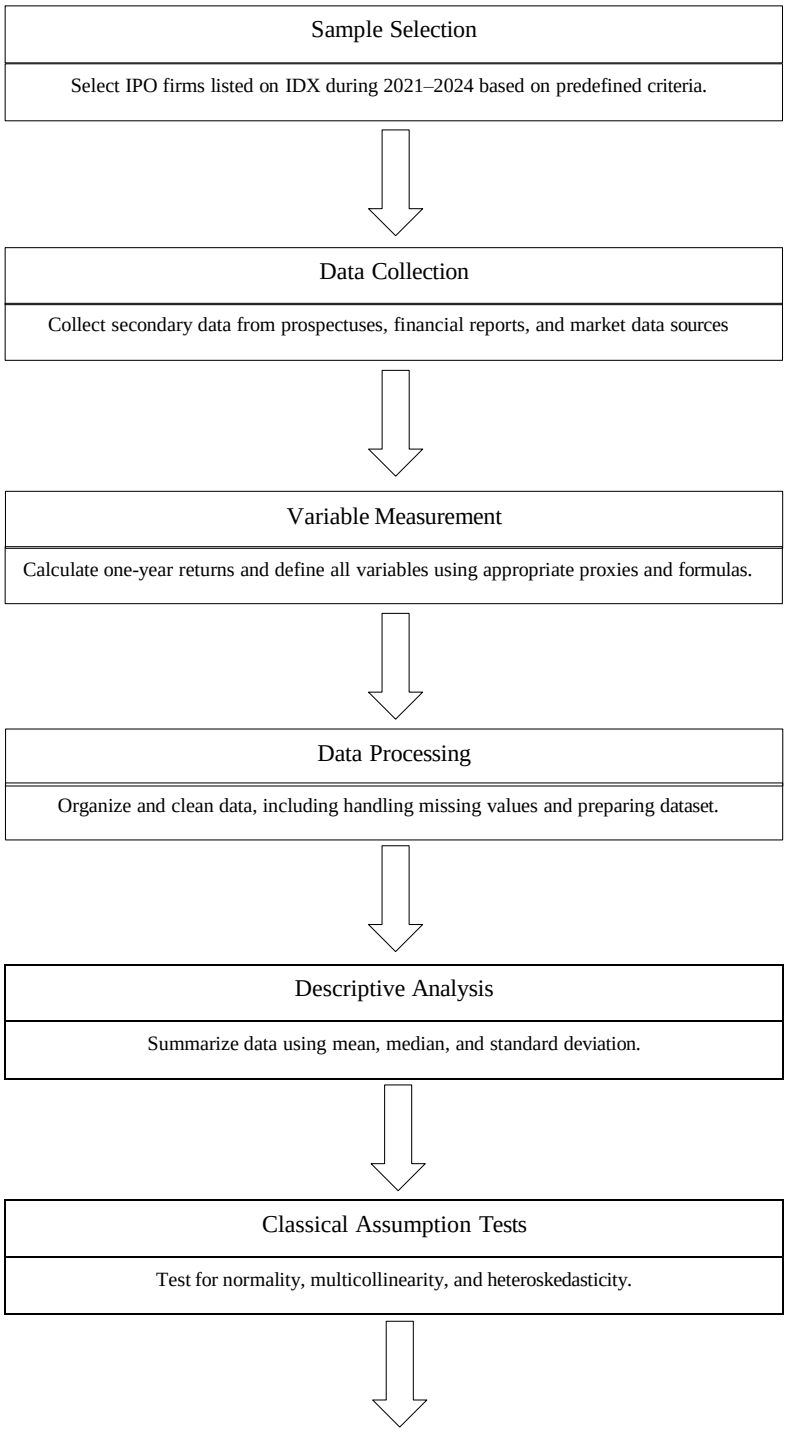
Figure 1.1 Research Framework

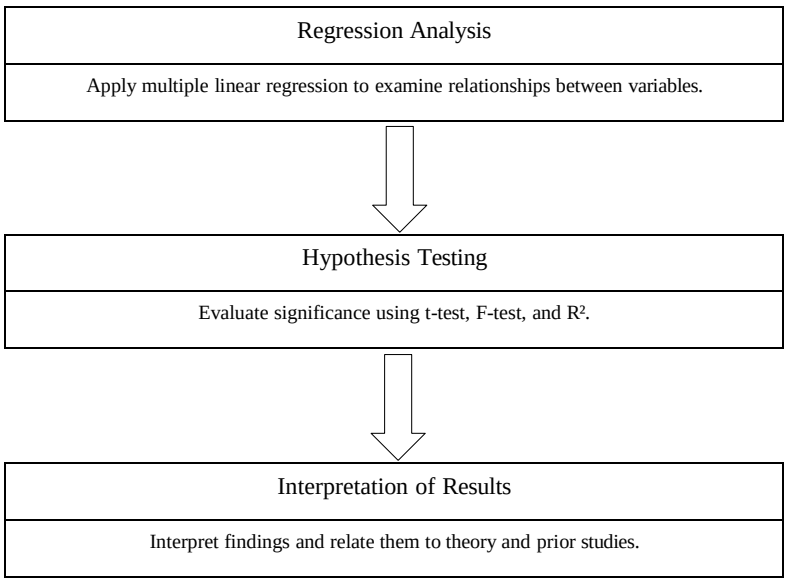
Chapter 3
Methodology

3.1 Research Design

This study adopts a quantitative and explanatory research design to examine the determinants of one-year returns of IPO firms listed on the Indonesia Stock Exchange during the 2021–2024 period. The data used in this study are cross-sectional in nature, consisting of IPO firms listed between 2021 and 2024, where each firm is observed over a one-year post-listing period. The research follows a structured empirical approach consistent with econometric analysis frameworks, involving model specification, data collection, and estimation of relationships between variables (Wooldridge, 2016). The study begins with the identification of relevant variables, including firm-level characteristics, governance factors, and market conditions. Secondary data are collected from IPO prospectuses, financial reports, and market databases. The variables are then operationalized and measured, followed by data processing and cleaning to ensure consistency and completeness. The analysis proceeds with descriptive statistics and classical assumption tests before applying multiple linear regression to evaluate the relationships between the independent variables and one-year return. Finally, hypothesis testing is conducted to determine the statistical significance of each variable, and the results are interpreted in the context of existing theories and prior empirical findings.




Sample Selection
Select IPO firms listed on IDX during 2021–2024 based on predefined criteria.
Data Collection
Collect secondary data from prospectuses, financial reports, and market data sources
Variable Measurement
Calculate one-year returns and define all variables using appropriate proxies and formulas.
Data Processing
Organize and clean data, including handling missing values and preparing dataset.
Descriptive Analysis
Summarize data using mean, median, and standard deviation.
Classical Assumption Tests
Test for normality, multicollinearity, and heteroskedasticity.



3.2 Population and Sample Selection

3.2.1 Population

This study adopts a quantitative and explanatory research design to examine the determinants of one-year returns of IPO firms listed on the Indonesia Stock Exchange during the 2021–2024 period. The research follows a structured empirical approach consistent with econometric analysis frameworks, involving model specification, data collection, and estimation of relationships between variables (Wooldridge, 2016). The study begins with the identification of relevant variables, including firm-level characteristics, governance factors, and market conditions. Secondary data are collected from IPO prospectuses, financial reports, and market databases. The variables are then operationalized and measured using appropriate financial proxies, followed by data processing and cleaning to ensure consistency and completeness. The analysis proceeds with descriptive statistics and classical assumption tests before applying multiple linear regression to evaluate the

relationships between the independent variables and return. Finally, hypothesis testing is conducted to determine the statistical significance of each variable, and the results are interpreted in the context of existing theories and prior empirical findings.

3.2.2 Sampling Criteria

This study employs a purposive sampling method, in which samples are selected based on specific criteria relevant to the research objectives. The sample is restricted to firms with sufficient data availability and a complete observation period to ensure consistency in the analysis of one-year returns. The sample selection criteria are as follows:

1. Firms that conducted an initial public offering (IPO) and were listed on the Indonesia Stock Exchange (IDX) during the 2021–2024 period.
2. Firms that remain listed on the IDX as of the end of the observation period, ensuring availability of complete post-IPO price data.
3. Firms with at least one-year of stock price data following the IPO date to enable the calculation of one-year return.
4. Firms that never experienced trading suspension within their first year of listing.
5. Firms with complete data on required variables, including market capitalization, valuation ratios (PER/PBV), controlling ownership, initial return, and IPO proceeds usage.
6. Firms with accessible IPO prospectuses and financial reports required for data extraction.

Firms that do not meet the above criteria are excluded from the sample to maintain data consistency and reliability of the empirical analysis.

3.3 Data Type and Sources

3.3.1 Data Type

This study utilizes secondary data, which are obtained from publicly available sources rather than collected directly by the researcher. The data consist of quantitative financial and market information related to IPO firms listed on the Indonesia Stock Exchange during the 2021–2024 period. These include stock price data, financial statement data, and IPO-related information required for the measurement of research variables. The use of secondary data is appropriate for this study as it allows for objective, consistent, and efficient analysis of post-IPO performance across multiple firms.

3.3.2 Data Sources

The data used in this study are obtained from multiple reliable and publicly accessible sources to ensure accuracy and consistency. IPO-related information, including listing dates, offering details, and prospectuses, as well as financial reports, are collected from the official website of the Indonesia Stock Exchange. Stock price data and market index data, including individual stock returns and the Indonesia Composite Index (IHSG), are obtained from Investing.com. Institutional ownership data are sourced from the Bloomberg Terminal, which provides comprehensive and reliable ownership information. Additional data such as valuation ratios, free float, and IPO proceeds usage are extracted from IPO prospectuses and company disclosures. The combination of these sources ensures that all variables are measured using consistent, verifiable, and high-quality data.

Table 2.1 Data Collection Summary

Data Type	Variable	Source
Financial Data	Market Cap	IDX, IPO Prospectus, Financial Reports
Valuation Data	PER, PBV (pre-IPO)	IDX, IPO Prospectus
Ownership Data	Controlling Ownership	Bloomberg Terminal

IPO Proceeds	Proceeds Usage (%)	IDX, Financial Report
Market Data	Stock Prices (Returns)	Investing.com
Market Benchmark	IHSG Return	Investing.com

Table 2.2 Variable Notation

Variable	Symbol
Controlling Ownership	CO
Firm Size	LOGMCAP
Market Return	IHSG
PER	PER
PBV	PBV
Initial Return	IR
IPO Proceeds Usage	PROCEEDS

3.4 Variable Definition and Measurement

3.4.1 Dependent Variable

The dependent variable in this study is the one-year return, which is used to measure the long-run performance of IPO firms after listing. The return captures the cumulative return at IPO until a specified period. This measure is used in IPO literature to evaluate post-listing performance over a longer investment horizon. The one-year return for firm *i* over a one-year period is calculated as follows:

$$ONEYEAR_i = \frac{P_{i,t+252} - P_{i,t0}}{P_{i,t0}} \qquad (3.1)$$

where:

- $P_{i,t0}$= first day closing price of IPO firm *i*
- $P_{i,t+252}$= closing price of IPO firm *i* exactly one year after listing date.

Stock returns are calculated using daily closing prices. The use of one-year return allows this study to capture the cumulative effect of stock performance

relative to the market benchmark, providing a comprehensive measure of long-run returns.

3.4.2 Independent Variables

Controlling ownership refers to the proportion of shares held by dominant shareholders who possess significant control over corporate decision-making. These shareholders typically have the ability to influence strategic decisions, management policies, and the overall direction of the firm. In the context of IPO firms, controlling ownership reflects the level of ownership concentration retained by major shareholders after the company goes public. In this study, controlling ownership is measured as the percentage of shares held by controlling or majority shareholders at the time of IPO, as disclosed in the IPO prospectus or company reports. The measurement is expressed as follows:

$$CONTROL_i = \frac{Shares\ held\ by\ controlling\ shareholders_i}{Total\ shares\ Outstanding_i} \quad (3.2)$$

where:

- $CONTROL_i$= Controlling ownership of firm i
- Shares held by controlling shareholders = Total shares owned by major or dominant shareholders
- Total shares outstanding = Total number of shares issued by the firm

Controlling ownership is expected to influence post-IPO performance due to its impact on corporate governance. Higher ownership concentration may enhance monitoring and reduce managerial opportunism, but it may also increase the risk of minority shareholder expropriation. As a result, the effect of controlling ownership on one-year returns may be either positive or negative.

3.4.3 Control Variable

This study includes market return as a control variable to account for overall market conditions that may influence stock performance independently of firm-specific characteristics. Market return reflects the general movement of the stock market and captures macroeconomic factors, investor sentiment, and broader financial conditions that may affect post-IPO returns. In this study, market return is proxied by the annual return of the Indonesia Composite Index (IHSG), which represents the overall performance of the Indonesian stock market. The IHSG return is calculated using daily index data over a one-year period following the IPO. The measurement is expressed as follows:

$$IHSG_i = \frac{IHSG_{t+252} - IHSG_{t0}}{IHSG_{t0}} \quad (3.3)$$

where:

- $IHSG_i$= Market returns corresponding to firm *i*
- $IHSG_{to}$= IHSG closing value on the same date as the first day of listing IPO firm *i*
- $IHSG_{t+252}$= IHSG closing value on the same date as the one-year price of IPO firm *i*'s listing.

The inclusion of IHSG return as a control variable allows the study to isolate the effect of firm-specific and governance-related factors on returns, ensuring that the estimated relationships are not driven by overall market movements.

Price-to-earnings ratio (PER) is a valuation measure that reflects the market's expectations of a firm's future earnings relative to its current profitability. In the context of IPOs, PER indicates how much investors are willing to pay for each unit of earnings at the time of listing. A higher PER may suggest strong growth expectations but may also indicate potential overvaluation if such expectations are not realized. In this study, PER is measured at the time of IPO using the offer price and earnings per share (EPS). The ratio is calculated as follows:

$$PER_i = \frac{IPO\ Price_i}{Earnings\ Per\ Share_i} \quad (3.4)$$

where:

- PER_i= Price-to-earnings ratio of firm *i* at IPO
- IPO Price$_i$ = Offer price per share at the time of IPO
- Earnings Per Share$_i$ = Earnings per share prior to IPO

Price-to-book value (PBV) is a valuation measure that compares a firm's market value to its book value, reflecting how the market values the firm relative to its net assets. In the context of IPOs, PBV indicates the extent to which investors are willing to pay above the firm's accounting value, which may capture expectations of future growth, intangible assets, and overall firm potential. In this study, PBV is measured at the time of IPO using the offer price and book value per share (BVPS). The ratio is calculated as follows:

$$PBV_i = \frac{IPO\ Price_i}{Book\ Value\ Per\ Share_i} \quad (3.5)$$

where:

- PBV_i= Price-to-book value of firm *i* at IPO
- IPO Price$_i$ = price per share at the time of IPO
- Book Value Per share$_i$ = Total equity divided by the number of shares outstanding

Initial return is included as a control variable to capture the degree of first-day under-pricing at the time of IPO listing. Prior literature, including Sembel (1996) and Rock (1986), documents that IPO anomalies may arise from heterogeneous investor information and speculative aftermarket demand, which can generate first-day returns that deviate from intrinsic value and subsequently influence post-listing price dynamics. Including initial return as a control variable ensures that the observed relationship between controlling ownership and one-year returns reflects governance-related factors rather than the mechanical persistence of first-day under-pricing momentum. Initial return is measured as the percentage difference between the first-day closing price and the IPO offer price, calculated as follows:

$$IR_i = \frac{Pcloset_0 - Poffer}{Poffer} \qquad (3.6)$$

where:

- IR_i= initial return of IPO firm i
- $Pcloset_0$= first-day closing price of IPO firm i
- $Poffer$ = IPO offer price of firm i

A positive value indicates that the first-day closing price exceeded the offer price, reflecting under-pricing at listing. A negative value indicates overpricing relative to the market's opening assessment. Initial return data are collected from the IDX and Investing.com.

IPO proceeds usage refers to the proportion of funds raised during the initial public offering that are utilized by the firm within a specified period after listing. This variable reflects how effectively management allocates newly raised capital toward operational, investment, or financial activities. In this study, IPO proceeds usage is measured as the percentage of IPO funds that are utilized within one-year after the listing date, based on disclosures in company reports or prospectuses. The measurement is expressed as follows:

$$PROCEEDS_i = \frac{IPO\ funds\ utilized\ within\ one\ year_i}{Total\ IPO\ proceeds_i} \qquad (3.7)$$

where:

- $PROCEEDS_i$= IPO proceeds usage of firm *i*
- IPO funds utilized within one-year = Amount of funds used by the firm within one-year after IPO
- Total IPO proceeds = Total funds raised during the IPO

The utilization of IPO proceeds is included as a control variable to account for differences in post-listing capital allocation decisions. Firms that allocate IPO funds toward productive activities, such as business expansion, debt repayment, or operational improvements, are more likely to enhance firm value and performance.

In contrast, inefficient or unclear use of proceeds may reflect agency problems, including overinvestment or misallocation of resources, which can negatively affect post-IPO outcomes. Therefore, IPO proceeds usage is expected to influence one-year returns by capturing variation in managerial efficiency and post-listing investment decisions.

3.4.4 Moderating Variable

This study includes a moderating variable to examine whether the relationship between controlling ownership and post-IPO performance is influenced by firm size. Specifically, firm size is hypothesized to moderate the effect of controlling ownership on one-year returns.

Firm size is used as a proxy for the scale and informational transparency of a company at the time of its initial public offering (IPO). Larger firms generally have more established operations, greater asset bases, and more publicly available information, which may reduce information asymmetry and valuation uncertainty. In this study, firm size is measured using the natural logarithm of market capitalization at the first day of trading. Market capitalization is calculated as the product of the first-day closing price and the total number of shares outstanding at the time of listing. The use of first-day market capitalization, rather than the IPO offer price, captures the market-assessed value of the firm as established in the secondary market on listing day, which is more reflective of actual investor-determined firm scale. The logarithmic transformation (LOGMCAP) is applied to normalize the data distribution and reduce the effect of extreme values arising from the wide variation in firm size across the sample.

The measurement of firm size is expressed as follows:

$$Firm\ size_i = Market\ Capitalization_i$$

$$Market\ Capitalization_i = First\ day\ closing\ price_i \times Total\ shares\ outstanding_i \quad (3.8)$$

$$LOGMCAp_i = Ln(Market\ Capitalization_i)$$

where:

- $LOGMCAp_i$= natural logarithm of first-day market capitalization of firm i
- $First\ day\ closing\ price_i$= market closing price of firm i on the first day of trading

Firm size is included as a moderating variable to capture how firm characteristics influence the relationship between controlling ownership and post-IPO performance. Larger firms typically exhibit lower levels of information asymmetry, higher transparency, and stronger governance mechanisms, which may limit the ability of controlling shareholders to engage in opportunistic behaviour. In contrast, smaller firms tend to face higher uncertainty and weaker monitoring, increasing the likelihood that concentrated ownership leads to entrenchment and minority shareholder expropriation. Therefore, firm size is expected to condition the impact of controlling ownership on one-year return, such that the effect of ownership concentration varies across firms of different sizes.

To capture this moderating effect, an interaction term between controlling ownership and firm size is constructed. The interaction variable is defined as follows:

$$INTERACTION_i = CO_i \times LOGMCAP_i \quad (3.9)$$

where:

- $INTERACTION_i$= Interaction term for firm *i*
- CO_i= Controlling ownership
- $SIZE_i$= Firm size (log of market capitalization)

The inclusion of this interaction term allows the model to test whether the impact of controlling ownership on one-year return varies depending on firm size. A significant interaction coefficient indicates the presence of a moderating effect.

3.5 Research Model

This study employs multiple linear regression analysis to examine the relationship between firm-specific characteristics, governance factors, and one-year returns of IPO firms. Multiple linear regression is a statistical method used to examine the relationship between one dependent variable and multiple independent variables simultaneously. This technique allows researchers to estimate the individual effect of each independent variable on the dependent variable while controlling for the influence of other variables in the model. In empirical financial research, multiple regression is commonly applied to identify determinants of firm performance and to assess the significance and direction of relationships between variables (Wooldridge, 2016). The regression model is specified as follows:

$$ONEYR_i = \beta_0 + \beta_1 CO_i + \beta_2 LOGMCAP_i + \beta_3 PER_i + \beta_4 PBV_i + \beta_5 IR_i + \beta_6 PROCEEDS_i + \beta_7 IHSG_i + \beta_8 (CO_i \times LOGMCAP_i) + \varepsilon_i \quad (3.10)$$

where**:**

- $ONEYR_i$= One-year return of firm i
- CO_i= Controlling ownership
- $LOGMCAP_i$= Natural logarithm of first-day market capitalization of firm i
- PER_i= Price-to-earnings ratio at IPO
- PBV_i= Price-to-book value at IPO
- IR_i= Initial return (first-day under-pricing) of firm i
- $PROCEEDS_i$= IPO proceeds usage
- $IHSG_i$= Market return (control variable)
- β_0= Intercept
- $\beta_1 - \beta_8$= Coefficients
- $(CO \times SIZE)_i$ = Moderating variable
- ε_i= Error term

The model is designed to examine how firm size, valuation ratios, governance structure, and capital allocation decisions influence post-IPO performance, while controlling for overall market conditions. Each coefficient represents the marginal effect of the corresponding variable on one-year return, holding other variables constant. Free float (FLOAT) is excluded from the final model following the multicollinearity diagnosis in Section 3.6.2, which revealed that its inclusion caused the VIF of LOGMCAP to reach 15.90, exceeding the acceptable threshold of 10. Free float is reported in descriptive statistics in Chapter 4 but is not included in the regression specification. Initial return (IR) is included as a control variable to account for the mechanical persistence of first-day under-pricing in subsequent one-year performance, consistent with Sembel (1996).

3.6 Data Analysis Method

3.6.1 Descriptive Statistics

Descriptive statistics are used to provide an overview of the characteristics of the variables used in this study. This analysis summarizes the distribution and central tendency of the data, allowing for a better understanding of the sample before conducting further statistical tests. Descriptive statistical analysis is an essential step in empirical research, as it presents key features of the dataset prior to model estimation (Wooldridge, 2016).

The descriptive statistics in this study include the mean, median, maximum value, minimum value, and standard deviation for each variable, including returns, firm size (LOGMCAP), price-to-earnings ratio (PER), price-to-book value (PBV), controlling ownership (CO), initial return (IR), IPO proceeds usage (PROCEEDS), and market return (IHSG).

Mean (Average)

$$\bar{X} = \frac{1}{n}\sum_{i=1}^{n} X_i \quad 3.11$$

where:

- $\bar{X}$ = Mean value
- X_i= Observation i
- n= Number of observations

The median is the middle value of the dataset when observations are arranged in ascending order. If the number of observations is even, the median is the average of the two middle values.

The maximum and minimum values represent the highest and lowest observations in the dataset, respectively. These measures provide information about the range of the data and help identify the spread between extreme values. The maximum value indicates the upper bound of the variable, while the minimum value represents the lower bound. Together, they are useful for detecting potential outliers and understanding the variability of the dataset.

Standard Deviation

$$\sigma = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n} (X_i - \bar{X})^2} \qquad (3.12)$$

where:

- σ= Standard deviation
- X_i= Observation i
- $\bar{X}$= Mean
- n= Number of observations

3.6.2 Classical Assumption Tests

The multicollinearity test is used to examine whether there is a high correlation among independent variables. High multicollinearity can distort the estimation of regression coefficients and reduce the reliability of the model, as it becomes

difficult to isolate the individual effect of each variable. In multiple regression analysis, multicollinearity does not bias the estimates but may increase standard errors and reduce statistical significance (Wooldridge, 2016). This study uses the Variance Inflation Factor (VIF) to detect multicollinearity. VIF measures how much the variance of a regression coefficient is inflated due to multicollinearity. The VIF is calculated as follows:

$$VIF_j = \frac{1}{1-R_j^2} \qquad (3.13)$$

where:

- VIF_j= Variance Inflation Factor for variable j
- R_j^2= Coefficient of determination from regressing variable j on all other independent variables

A VIF value greater than 10 indicates the presence of high multicollinearity, while values below 10 suggest that multicollinearity is not a serious concern. Particular attention is given to the potential correlation between PER and PBV in this study.

The heteroskedasticity test is conducted to assess whether the variance of the residuals is constant across observations. In the classical linear regression model, the assumption of homoskedasticity requires that the variance of the error term remains constant. Violation of this assumption may lead to inefficient estimates and biased standard errors, which can affect the validity of hypothesis testing (Wooldridge, 2016). This study employs the Breusch–Pagan-Godfrey test to detect the presence of heteroskedasticity. The hypotheses for the test are formulated as follows:

- **H_0 (null hypothesis):** The residuals are homoscedastic (constant variance).
- **H_a (alternative hypothesis):** The residuals are heteroskedastic (non-constant variance).

The decision rule is based on the probability (p-value) obtained from the test. If the p-value is greater than 0.05, the null hypothesis cannot be rejected, indicating that the model does not suffer from heteroskedasticity. Conversely, if the p-value is

less than 0.05, the null hypothesis is rejected, suggesting the presence of heteroskedasticity.

3.6.3 Normality Test

The normality test is conducted to examine whether the regression residuals follow a normal distribution. The theoretical justification for the normality assumption in OLS regression is the Central Limit Theorem, which holds that the sum of a large number of independent and identically distributed random variables tends toward a normal distribution as the number of variables increases (Gujarati, 2004; Wooldridge, 2016). However, both Gujarati (2004) and Wooldridge (2016) establish that the normality assumption can be relaxed when the sample size is sufficiently large. Specifically, Wooldridge's (2016) Theorem 5.2 demonstrates that under the Gauss–Markov assumptions, OLS coefficient estimators are asymptotically normally distributed even without the normality assumption, and that the t-test and F-test procedures remain approximately valid in large samples. This study applies the Jarque–Bera test to detect departures from normality, with hypotheses formulated as follows:

- **H_0 (null hypothesis):** Residuals are normally distributed
- **H_a (alternative hypothesis)**: Residuals are not normally distributed

If the p-value exceeds 0.05, the null hypothesis cannot be rejected and the normality assumption is considered satisfied. If the p-value is below 0.05, normality is rejected; however, inference remains valid provided the sample size is sufficiently large, in accordance with the asymptotic justification established by Gujarati (2004) and Wooldridge (2016).

3.6.4 Regression Analysis and Hypothesis Testing

This study employs multiple linear regression analysis to examine the relationship between independent variables and the dependent variable, one-year returns. Hypothesis testing is conducted to evaluate the significance of the regression model

and the individual variables. The tests include the t-test, F-test, and coefficient of determination (R^2) (Wooldridge, 2016).

- **t-Test (Partial Test)**

The t-test is used to examine the significance of each independent variable individually in explaining the dependent variable.

The hypotheses are formulated as follows:

- **H_0:** $\beta_j = 0$(the independent variable has no effect on one-year returns)
- **H_a:** $\beta_j \neq 0$(the independent variable has a significant effect on one-year returns)

The t-statistic is calculated as:

$$t = \frac{\beta_j}{SE(\beta_j)} \quad (3.14)$$

where:

- β_j= Estimated coefficient of variable j
- $SE(\beta_j)$= Standard error of the coefficient

If the p-value is less than 0.05, the null hypothesis is rejected, indicating that the variable has a significant effect on one-year return.

- **F-Test**

The F-test is used to examine whether all independent variables jointly have a significant effect on the dependent variable.

The hypotheses are formulated as follows:

- **H_0:** $\beta_1 = \beta_2 = \cdots = \beta_k = 0$
- **H_a:** At least one $\beta_j \neq 0$

The F-statistic is calculated as:

$$F = \frac{(SSR/k)}{(SSE/(n-k-1))} \quad (3.15)$$

where:

- SSR= Regression sums of squares
- SSE= Error sum of squares
- k= Number of independent variables
- n= Number of observations

If the p-value is less than 0.05, the null hypothesis is rejected, indicating that the model is jointly significant.

- **Coefficient of Determination (R^2)**

The coefficient of determination (R^2) measures the proportion of variation in the dependent variable that can be explained by the independent variables in the model.

The R^2 is calculated as:

$$R^2 = \frac{SSR}{SST} \quad (3.16)$$

where:

- SSR= Regression sums of squares
- SST= Total sum of squares

The value of R^2 ranges from 0 to 1. A higher R^2 indicates that the model explains a greater proportion of the variation in one-year return. However, a high R^2 does not necessarily imply that the model is well specified, as it does not account for omitted variable bias or model assumptions.

Chapter 4
Findings and Discussions

4.1 Descriptive Statistics

Table 4.1 presents descriptive statistics for all variables based on 206 observations. Values are presented in raw form prior to any transformation. ONEYR and PER are reported before winsorization; MCAP is reported before log transformation.

Winsorization is applied to ONEYR and PER in the regression analysis according to the following formula:

$$X_i^w = p_1 \ \text{if} \ X_i < p_1 \ | \ X_i \ \text{if} \ p_1 \leq X_i \leq p_{99} \ | \ p_{99} \ \text{if} \ X_i > p_{99} \qquad (4.1)$$

where p_1 and p_{99} are the 1st and 99th percentile values respectively. For firm size, the natural logarithm of MCAP (LOGMCAP) is used in the regression to reduce skewness and improve scale comparability for the interaction term.

Table 4.1 Descriptive Statistics

Variable	Mean	Median	Maximum	Minimum	Std. Dev.
ONEYR (%)	49.22	-14.15	1,997.09	-90.00	244.94
CO (%)	48.83	61.37	97.40	0.00	33.15
MCAP (IDR Bn)	3,970	395	122,000	53	14,600
FF (%)	20.20	20.00	39.76	2.28	6.08
IR (%)	23.63	19.39	82.00	-71.25	35.14
PER (x)	42.55	15.28	3,046.90	2.88	217.81
PBV (x)	2.99	2.10	19.49	0.92	2.59
PROCEEDS (%)	41.80	26.05	100.00	0.00	44.03
IHSGR (%)	5.17	5.41	30.91	-13.36	7.76

Note: Values are raw (pre-transformation). ONEYR and PER are winsorized at the 1st and 99th percentiles in regression. MCAP is log-transformed (LOGMCAP) in regression. MCAP in IDR Billion. FF removed from regression due to multicollinearity. Percentage variables in percent (%).

4.1.1 One-year Post IPO Return (ONEYR)

ONEYR has a mean of 49.22 percent and a median of −14.15 percent. The median is negative and much closer to the minimum of −90.00 percent than to the maximum of 1,997.09 percent, indicating that the majority of firms experienced negative or near-zero one-year returns. The high mean is driven by a small number of extreme positive outliers, suggesting that the probability of incurring a loss is greater than the mean alone implies for a typical investor in this sample.

4.1.2 Controlling Ownership (CO)

CO has a mean of 48.83 percent and a median of 61.37 percent. The median exceeds the mean and is substantially closer to the maximum of 97.40 percent than to the minimum of 0.00 percent, indicating that the majority of IPO firms retain more than half of total shares under controlling shareholders, reflecting the highly concentrated ownership structure characteristic of the Indonesian listed market.

4.1.3 Market Capitalization (MCAP)

MCAP has a mean of IDR 3,970 billion and a median of IDR 395 billion. The mean is approximately ten times the median and far closer to the minimum of IDR 53 billion than to the maximum of IDR 122,000 billion, indicating that the majority of IPO firms are small to mid-sized while a few very large firms pull the mean upward. Due to extreme skewness and scale, the natural logarithm transformation (LOGMCAP) is applied in the regression.

4.1.4 Free Float (FF)

FF has a mean of 20.20 percent and a median of 20.00 percent, positioned near the midpoint between the minimum of 2.28 percent and maximum of 39.76 percent, indicating a relatively symmetric distribution across the sample. FF is reported here for descriptive purposes and is excluded from the regression model following the multicollinearity diagnosis in Section 4.3.1.

4.1.5 Initial Return (IR)

IR has a mean of 23.63 percent and a median of 19.39 percent. Both values are positive and above the midpoint of the full range, indicating that the majority of IPO firms generated positive first-day returns relative to the offer price. This is consistent with the widespread IPO under-pricing phenomenon in Indonesia during the sample period.

4.1.6 Price-to-Earnings Ratio (PER)

PER has a mean of 42.55 and a median of 15.28. The mean is considerably higher than the median and pulled toward the extreme maximum of 3,046.90, reflects a mechanical property of the price-to-earnings ratio rather than genuine valuation extremes. Because PER is computed as offer price divided by earnings per share, firms that list with earnings per share close to zero produce arithmetically inflated ratios even when the offer price is ordinary; the denominator, not the numerator, drives the outlier, as EPS approaching zero pushes PER toward infinity regardless of how modestly the shares are priced. The prospectus evidence confirms this directly. The maximum observation, PT Newport Marine Services (BOAT), listed at an offer price of only IDR 100 yet recorded audited net profit of just USD 65,582 for the 2023 financial year, translating to earnings per share of roughly IDR 9 and a resulting multiple of 3,046.9x despite an unremarkable price. These firms, listing at a pre-earnings or marginal-profitability stage while still commanding multiples in the hundreds or thousands, offer a revealing window into how retail-driven demand during the sample period priced growth expectations far ahead of realized fundamentals. The median of 15.28 therefore provides a far more representative measure of typical IPO valuation than the mean, and PER is winsorized at the 1st and 99th percentiles in the regression to prevent these mechanically inflated observations from distorting coefficient estimates.

4.1.7 Price-to-Book Value (PBV)

PBV has a mean of 2.99 and a median of 2.10. Both values are closer to the minimum of 0.92 than to the maximum of 19.49, indicating that most IPO firms are valued at a moderate book-value premium while a small number command

significantly elevated the valuations. All observations exceed 1.0, confirming that IPO firms were consistently priced above accounting book value at listing.

4.1.8 IPO Proceeds Utilization (PROCEEDS)

PROCEEDS has a mean of 41.80 percent and a median of 26.05 percent. Both values fall below the midpoint of 50.00 percent and closer to the minimum of 0.00 percent, indicating that the majority of firms utilized less than half of their total proceeds within the first year, suggesting that capital deployment following IPO is generally gradual.

4.1.9 Market Return (IHSGR)

IHSGR has a mean of 5.17 percent and a median of 5.41 percent. Both values are positive and positioned near the midpoint of the range from −13.36 to 30.91 percent, reflecting generally positive but modest overall market conditions during 2021–2024. The proximity of the mean and median indicates a relatively symmetric distribution, making IHSGR a stable control variable for capturing market-wide conditions across different listing cohorts.

4.1.10 Correlation Matrix

Prior to examining the Variance Inflation Factors, a correlation analysis was conducted among controlling ownership (CO), firm size (LOGMCAP), and free float (FF) to identify the source of potential multicollinearity in the model.

Table 4.2 Correlation Matrix

	ONEYR	CO	LOGMCAP	FF	PER	PBV	PROC	IR	IHSGR
ONEYR	1.000								
CO	0.056	1.000							
LOGMCAP	0.168	0.256	**1.000**						
FF	-0.011	-0.154	**-0.544**	**1.000**					
PER	0.015	-0.035	-0.017	0.013	1.000				
PBV	-0.028	0.054	0.190	-0.047	0.319	1.000			
PROCEEDS	0.036	0.319	0.090	-0.055	-0.039	0.059	1.000		
IR	0.234	0.120	0.216	-0.023	0.022	-0.148	0.071	1.000	
IHSGR	0.031	-0.053	0.044	0.058	0.093	0.150	-0.015	0.101	1.000

Table 4.3 Pairwise Correlation

Variable Pair	**Correlation**	**Strength**
FF ↔ Firm Size (LOGMCAP)	-0.544	Moderate
FF ↔ Controlling Ownership (CO)	-0.154	Very weak
Controlling Ownership ↔ Firm Size	0.256	Weak

The correlation results reveal the specific source of the multicollinearity subsequently detected in the Variance Inflation Factor analysis. Free float is only very weakly correlated with controlling ownership ($r = -0.154$), indicating that these two variables move largely independently of one another and that free float does not simply mirror the controlling ownership stake, while in contrast free float exhibits a moderate negative correlation with firm size ($r = -0.544$). This negative relationship reflects the structure of the Indonesian IPO market during the sample period, in which larger listings predominantly conglomerate-affiliated firms tend to float only a small proportion of shares to the public while the controlling group retains the majority, whereas smaller firms tend to offer proportionally larger public floats to raise the capital they require. Controlling ownership and firm size

themselves exhibit only a weak positive correlation (r = 0.2
these two core variables function as largely independent pr
introduce problematic collinearity, and that the inclusion of f
Variance Inflation Factor of firm size rather than that of co
Because free float shares
including both variables
LOGMCAP coefficient, as
directly motivates the remo
firm size is a variable of
moderating variable while

4.2 Classical Assumpti

4.2.1 Multicollinearity Test

The Variance Inflation Fac ether independent
variables are highly correla ceeding 10 indicates
the presence of serious mul ficient estimates and
esults from the initial
variable, while Table
at.

Table 4.4a Variance Inflation Factors Model with Fr e Float

Variable	Coefficient Variance	VIF
CO	0.250004	3.752295
LOGMCAP	**26.01040**	**15.90474**
PER	0.061798	1.371598
PBV	42.22995	2.846288
FF	**5.231327**	**10.04122**
PROCEEDS	0.134448	2.133407

IHSGR	4.065488	1.520020
IR	0.204483	1.577490

Note: VIF values are reported for the model including free float. LOGMCAP and FF both exceed or approach the threshold of 10, indicating serious multicollinearity.

The inclusion of FF produces a VIF of 15.90 for LOGMCAP and 10.04 for FF, both exceeding the threshold. This reflects the structural correlation between free float and firm size, as larger firms tend to offer a greater proportion of publicly tradable shares. Additionally, free float is mechanically related to controlling ownership since together they sum to total shares outstanding, providing no independent information beyond CO and SIZE. FF is therefore removed from the model.

Table 4.4b Variance Inflation Factors Model without Free Float

Variable	**Coefficient Variance**	**VIF**
CO	0.246085	3.701108
LOGMCAP	9.187333	5.629447
PER	0.061579	1.369574
PBV	42.01960	2.837966
PROCEEDS	0.134138	2.132878
IHSGR	4.037976	1.512855
IR	0.203784	1.575348

Note: VIF values are reported for the final model specification without free float. All values are below the threshold of 10.

Following removal of FF, all VIF values fall within acceptable limits, ranging from 1.37 for PER_WINS to 5.63 for LOGMCAP. The dramatic reduction in LOGMCAP's VIF confirms that the multicollinearity was driven specifically by

its correlation with FF. The absence of serious multicollinearity in the final model supports reliable coefficient estimation.

4.2.2 Heteroskedasticity Test

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The Breusch-Pagan-Godfrey test examines whether residual variance is constant across observations. Table 4.5 presents the test results.

Table 4.5 Breusch-Pagan-Godfrey Heteroskedasticity Test

Statistic	Value	p-value
F-statistic	1.094866	0.3683
Obs*R-squared	8.769189	0.3621
Scaled explained SS	95.39821	0.0000

*Note: H0: Residuals are homoscedastic. Decision rule: reject H0 if Obs*R-squared p-value < 0.05.*

The Obs*R-squared e 0.05 significance level, indicating that the null hypot nnot be rejected and OLS estimation remains valid. The p = 0.0000; however, this nown to over-reject when Obs*R-squared statistic eteroskedasticity. Despite sistent standard errors are results as a precautionary

4.2.3 Normality Test

The normality of residuals wa e-Bera test and histogram al moderation model.

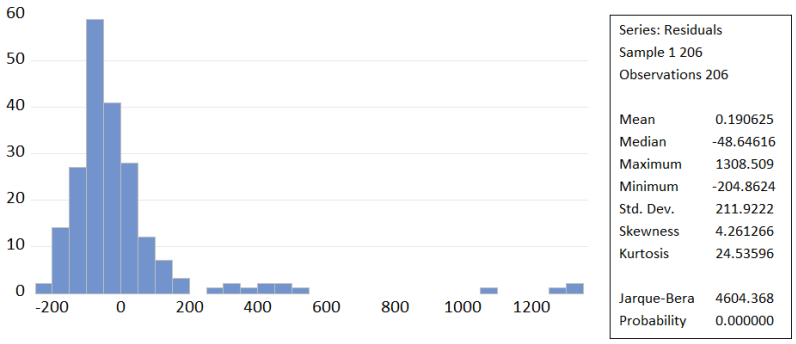

Figure 4.1 Histogram and Normality Test of Residuals

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Residuals exhibit positive skewness of 4.26 and excess kurtosis of 24.54, with a Jarque-Bera statistic of 4604.37 ($p = 0.000$), rejecting the null hypothesis of normality. The histogram confirms a concentration of residuals near zero alongside a long right tail, consistent with the highly skewed nature of IPO return distributions in emerging markets. With 206 observations, the Central Limit Theorem provides justification for proceeding with OLS inference, as the sampling distribution of coefficients converges toward normality at this sample size regardless of individual residual distribution. Residual non-normality is acknowledged as a limitation and further motivates the reporting of HC1 robust standard errors.

4.3 Regression Results

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Use hc1 for baseline and moderation

4.3.1 Baseline Regression

The baseline model examines the direct effects of all independent and control variables on one-year post-IPO returns, without the interaction term between controlling ownership and firm size. Table 4.6 presents the results

Table 4.6 Baseline Regression Results (Dependent Variable: ONEYR_WINS)

		t-Statistic	
Variable	**Coefficient**	**OLS**	**HC1**
CO	0.0925	0.186	0.190
LOGMCAP	0.5036	0.166	0.212
PER_WINS	0.0486	0.196	0.431
PBV	-1.031	-0.159	-0.186
PROCEEDS	0.1203	0.329	0.291
IHSGR	0.0159	0.008	0.009
IR	1.4104	3.124***	2.383**
R-squared	0.0567		
Adjusted R-squared	0.0282		
N	206		

*Note: *** p < 0.01; ** p < 0.05; * p < 0.10. Significance based on HC1 t-statistics. Dependent variable winsorized at 1st and 99th percentile. Coefficients are identical between OLS and HC1 specifications.*

I In the baseline model, only the initial return variable (IR) is statistically significant. Under OLS, IR has a t-statistic of 3.124 ($p < 0.01$); under HC1 robust standard errors, the t-statistic is 2.383 ($p < 0.05$), remaining significant. The coefficient of 1.410 indicates that a one percentage point increase in first-day initial return is associated with a 1.41 percentage point increase in one-year post-IPO returns, holding other variables constant.

Controlling ownership (CO) is not significant in the baseline model under either specification (OLS t = 0.186; HC1 t = 0.190), nor is firm size (LOGMCAP). The remaining control variables are also insignificant. The adjusted R-squared of 0.028 reflects the low explanatory power of the model without the interaction term, motivating the inclusion of the moderation variable in the full model.

4.3.2 Full Moderation Model

The full moderation model adds the interaction term CO*LOGMCAP to examine whether the effect of controlling ownership on post-IPO returns differs across firms of different sizes. Table 4.7 presents the results.

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Table 4.7 Full Moderation Regression Results (Dependent Variable: ONEYR_WINS)

		t-Statistic	
Variable	**Coefficient**	**OLS**	**HC1**
CO	-10.461	-2.383**	-1.887*
LOGMCAP	0.785	0.262	0.340
PER_WINS	0.078	0.316	0.799
PBV	-1.533	-0.239	-0.295
PROCEEDS	0.132	0.365	0.318
IHSGR	-0.169	-0.085	-0.093
IR	1.347	3.014***	2.336**
CO*LOGMCAP	0.875	2.419**	1.897*
R-squared	0.0837		
Adjusted R-squared	0.0513		
N	206		

*Note: *** p < 0.01; ** p < 0.05; * p < 0.10. Significance based on HC1 t-statistics. LOGMCAP is mean-centred prior to constructing the interaction term. Coefficients are identical between OLS and HC1 specifications.*

The full moderation model yields an adjusted R-squared of 0.051, an improvement over the baseline. Three variables achieve statistical significance.

Controlling ownership (CO) has a coefficient of -10.461. Under OLS, the t-statistic is -2.383 ($p < 0.05$); under HC1, the t-statistic is -1.887 ($p < 0.10$). This indicates that at mean firm size, a one percentage point increase in controlling ownership is associated with a 10.46 percentage point decrease in one-year post-IPO returns. The negative relationship is consistent with the entrenchment hypothesis under agency theory, suggesting that higher ownership concentration may lead to minority shareholder expropriation and weaker post-listing performance. It should be noted that this relationship reflects an association rather than a strictly causal effect, as controlling ownership may be jointly determined with firm performance expectations; this endogeneity concern is discussed further in Section 5.2.

Initial return (IR) has a coefficient of 1.347. Under OLS, $t = 3.014$ ($p < 0.01$); under HC1, $t = 2.336$ ($p < 0.05$). Higher first-day under-pricing is therefore positively associated with one-year post-IPO returns across both specifications.

The interaction term CO*LOGMCAP has a coefficient of 0.875. Under OLS, $t = 2.419$ ($p < 0.05$); under HC1, $t = 1.897$ ($p < 0.10$). The positive sign indicates that as firm size increases, the negative effect of controlling ownership on one-year returns becomes weaker. This supports the theoretical argument that larger firms possess stronger governance mechanisms, transparency, and market scrutiny that partially offset the entrenchment risk of concentrated ownership.

The control variables PER_WINS, PBV, PROCEEDS, IHSGR, and LOGMCAP as a main effect are all statistically insignificant. The insignificance of LOGMCAP as a standalone main effect is expected in moderated regression, where the coefficient on SIZE represents the effect at mean CO rather than the unconditional effect.

4.3.3 Model Comparison and Hypothesis Testing Results

Table 4.8 presents a direct comparison of the baseline model (without moderation) and the full moderation model, both using HC1 robust standard errors. This comparison highlights how the introduction of the interaction term changes the

coefficient and significance of controlling ownership. Hypothesis testing results are reported at the bottom of the table.

Table 4.8 Model Comparison and Hypothesis Testing Results (HC1 Standard Errors)

Variable	Model 1: Without Moderation (HC1)		Model 2: With Moderation (HC1)	
	Coefficient	**t-Statistic**	**Coefficient**	**t-Statistic**
CO	0.0925	0.190	-10.461	-1.887*
LOGMCAP	0.5036	0.212	0.785	0.340
PER	0.0486	0.431	0.078	0.799
PBV	-1.031	-0.186	-1.533	-0.295
PROCEEDS	0.1203	0.291	0.132	0.318
IHSGR	0.0159	0.009	-0.169	-0.093
IR	1.4104	2.383**	1.347	2.336**
CO*LOGMCAP	—	—	0.875	1.897*
R-squared	0.0567		0.0837	
Adj. R-squared	0.0282		0.0513	
N	206		206	
H1: CO → ONEYR	Not supported		Supported (10%)	
H2: CO×SIZE → ONEYR	—		Supported (10%)	

*Note: *** p < 0.01; ** p < 0.05; * p < 0.10 based on HC1 t-statistics. Model 1 excludes the interaction term (CO*LOGMCAP). Model 2 includes the interaction term. H1 and H2 results are assessed based on Model 2.*

The comparison in Table 4.7 reveals a critical finding regarding the conditional nature of controlling ownership's effect on post-IPO returns. In Model

1 (without moderation), CO has a coefficient of 0.0925 with a HC1 t-statistic of 0.190, indicating that controlling ownership has no significant direct effect on one-year returns when firm size is not conditioned. However, in Model 2 (with moderation), the coefficient on CO shifts to -10.461 with a HC1 t-statistic of -1.887, becoming statistically significant at the 10 percent level. This substantial change in the coefficient and its significance demonstrates that the effect of controlling ownership is masked in a simple main-effects specification and only surfaces when firm size is explicitly incorporated as a moderating variable through the interaction term.

This finding carries an important theoretical implication: the influence of controlling ownership on post-IPO performance is not uniform across all firms but depends on the governance environment associated with firm size. The interaction term CO*LOGMCAP (coefficient = 0.875, HC1 t = 1.897) confirms that as firm size increases, the negative entrenchment effect of concentrated ownership weakens, suggesting that larger firms benefit from stronger external monitoring mechanisms that constrain controlling shareholder opportunism.

Based on these results, both research hypotheses are evaluated. H1, which states that controlling ownership has a significant effect on one-year post-IPO returns, is supported by the significant negative coefficient on CO in Model 2 ($p < 0.10$ under HC1). H2, which states that firm size moderates the relationship between controlling ownership and post-IPO returns, is supported by the significant positive interaction term CO*LOGMCAP in Model 2 ($p < 0.10$ under HC1). Both hypotheses are supported at the 10 percent significance level under HC1 robust standard errors and at the 5 percent level under standard OLS.

4.4 Discussion

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4.4.1 Agency Theory and the Entrenchment Effect of Controlling Ownership

The finding that controlling ownership negatively affects one-year post-IPO returns is consistent with the entrenchment perspective of agency theory. Jensen and Meckling (1976) argue that ownership structure shapes agency costs between principals and agents, while Shleifer and Vishny (1997) extend this to the principal–

principal conflict in which controlling shareholders exploit their dominant position to extract private benefits at the expense of minority investors. Claessens, Djankov, Fan, and Lang (2002) provide supporting evidence from Asian markets, showing that when control rights exceed cash flow rights, firm value tends to decline due to expropriation risk. In this study, the regression coefficient on controlling ownership of −10.461 indicates that at average firm size, each one percentage point increase in controlling ownership is associated with a 10.46 percentage point decrease in one-year post-IPO returns, a result significant at the 5 percent level under standard OLS.

This negative direction is consistent with the broader emerging-market evidence once methodological differences across studies are accounted for. Wang and Shailer (2015), synthesising 419 correlations from 42 primary studies across 18 emerging markets, demonstrate that although raw reported effects are mixed and only a small proportion of the variation across studies can be attributed to sampling error, the underlying ownership–performance relation becomes substantially and robustly negative once corrections for omitted-variable bias and endogeneity are applied. Their finding that the negative relation is stronger in countries with higher levels of ownership concentration is particularly relevant to the Indonesian setting, where the sample mean controlling ownership of 48.83 percent and median of 61.37 percent place the market firmly in the high-concentration category. The present result therefore does not represent an isolated country-specific anomaly but aligns with the corrected cross-country consensus that concentrated ownership tends to depress firm performance in emerging markets.

Agency theory also provides the theoretical lens for understanding why firm size moderates this entrenchment effect. A central insight of agency theory is that monitoring intensity determines the degree to which controlling shareholders can deviate from minority shareholders' interests without consequence. External monitoring mechanisms, including mandatory OJK disclosure requirements, analyst coverage, and institutional investor scrutiny, serve as substitutes for internal governance in constraining principal–principal conflicts. Firm size is directly related to the availability of these mechanisms: larger IPO firms attract greater regulatory attention, more analyst reports, and higher institutional investor

participation, all of which reduce the latitude for controlling shareholder opportunism. The significant positive interaction term CO×LOGMCAP ($\beta = 0.875$, $p = 0.017$) is therefore interpreted through this agency theory mechanism as evidence that external monitoring capacity, proxied by firm size, moderates the intensity of the entrenchment effect.

Interpreting the interaction coefficient numerically, the total marginal effect of controlling ownership on one-year returns at any given firm size is expressed as $\partial ONEYR/\partial CO = -10.461 + 0.875 \times LOGMCAP_centered$. Applying this formula across the actual range of firm sizes in the sample produces informative contrasts. At the smallest firms, with a first-day market capitalization of approximately IDR 53 billion, the estimated CO effect is −11.284 percentage points per one percentage point of controlling ownership. At the largest firms, with a market capitalization of approximately IDR 122 trillion, the estimated effect is −8.422 percentage points. The difference between the largest and smallest firms therefore amounts to approximately 2.9 percentage points per one percentage point of CO, or approximately 29 percentage points for a 10-percentage point increase in controlling ownership. These figures confirm that firm size produces a meaningful but partial moderation: the negative entrenchment effect persists across all firm size levels, but it is substantially stronger in smaller firms than in larger ones.

In the Indonesian market context, this size-conditioned agency conflict maps onto a meaningful distinction between two broadly different types of IPO controlling shareholders. At the smaller end of the sample, comprising firms with market capitalizations below the median of approximately IDR 395 billion, controlling shareholders often represent newly wealthy entrepreneurs or emerging family businesses conducting their first public listing. These shareholders may lack the established governance structures, independent board compositions, and institutional investor relationships that characterise more established groups. With limited external scrutiny and weaker minority shareholder protection, the agency cost of concentrated ownership is higher, and the entrenchment effect on post-IPO returns is consequently stronger, reflected in an estimated CO effect of approximately −11.28 percentage points per percentage point of ownership. At the larger end of the sample, comprising firms associated with established

conglomerate groups whose subsidiaries attract analyst coverage, institutional investors, and stronger OJK monitoring, the magnitude of the effect is reduced to approximately −8.42 percentage points. These external governance mechanisms impose a partial but meaningful constraint on minority shareholder expropriation in larger, more visible firms. Importantly, the negative effect does not reverse even at the largest firm sizes, suggesting that concentrated ownership remains a governance risk factor even in well-monitored Indonesian IPO firms. This is consistent with the argument that the structural incentives for principal–principal conflict in concentrated ownership environments cannot be fully eliminated by firm size or external monitoring alone.

At the same time, the entrenchment interpretation advanced here should not be read as a claim that controlling ownership is uniformly value-destroying in the Indonesian market. Dwitanto, Manurung, Machdar, and Hidayat (2026), examining listed Indonesian property development firms over the 2013–2023 period, find that controlling ownership is negatively and significantly associated with extreme downside risk as measured by Expected Shortfall at the 5 percent tail level, a result they interpret as evidence that controlling shareholders enforce financial discipline and constrain excessive risk-taking. Their finding reflects the monitoring and alignment benefits of ownership concentration and appears, on its face, to contradict the entrenchment effect documented here.

Three differences reconcile these results and clarify the boundary conditions of the present study's contribution. First, the outcome variables differ in kind: Dwitanto et al. (2026) measure tail-risk exposure, whereas this study measures realised returns. Controlling shareholders may plausibly reduce a firm's vulnerability to catastrophic loss while simultaneously suppressing the returns available to minority shareholders, since risk reduction and value creation are distinct outcomes and conservative capital allocation can achieve the former at the expense of the latter. Second, the samples differ in listing maturity. Their sample comprises seasoned firms with a minimum of ten years of continuous listing, by which point governance structures, disclosure practices, and analyst relationships have stabilised. The present sample comprises newly listed firms observed in their first year of public trading, precisely the window in which information asymmetry

between controlling shareholders and incoming minority investors is at its maximum and in which the incentives for extracting private benefits from newly raised public capital are strongest. Third, the observation horizons differ substantially, with their eleven-year panel capturing a full property market cycle while the present study captures a single post-listing year.

Taken together, these comparisons reinforce rather than undermine the interpretation offered here. The evidence suggests that the effect of controlling ownership in Indonesia is neither uniformly positive nor uniformly negative, but is conditional on firm size, listing maturity, and the specific performance dimension under examination. The contribution of this study is to identify the conditions under which the entrenchment effect dominates, namely in newly listed firms with limited external monitoring, and to demonstrate empirically that firm size systematically attenuates, without eliminating, that effect.

4.4.2 Conglomerate-Controlled IPOs and the Counter-Under-pricing Dynamic

A distinct characteristic of the Indonesian IPO market relevant to this study is the prevalence of conglomerate-backed listings. In the Indonesian market, conglomerate groups often list subsidiaries or affiliate companies as part of broader corporate restructuring, asset monetization, or capital access strategies. These listings tend to attract strong retail investor interest on the basis of the conglomerate group's established brand reputation, generating high first-day initial returns driven primarily by demand rather than fundamental valuation.

This creates what may be described as a counter-under-pricing dynamic specific to concentrated ownership environments. Classical under-pricing theory, as formulated by Rock (1986) and Beatty and Ritter (1986), attributes IPO under-pricing to information asymmetry between informed and uninformed investors, with under-pricing serving as a necessary compensation to attract uninformed participation. In the context of conglomerate-backed IPOs, however, under-pricing may be driven not by information asymmetry resolution but by speculative retail demand for the conglomerate brand. The high initial return thus reflects a sentiment premium rather than a fundamental discount, and as these premium fades over the

post-listing period, the underlying governance quality becomes more visible in stock price performance.

4.4.3 Does the Evidence Support Signalling Theory? Reconsidering the Conglomerate Parameter

Signalling theory, as developed by Spence (1973) and applied to IPO markets by Leland and Pyle (1977), predicts that ownership retention by controlling shareholders serves as a credible quality signal because insiders would not retain large stakes in firms with poor future prospects. Under this framework, higher controlling ownership should be associated with better post-IPO performance as the market comes to recognize the quality conveyed by the signal.

The results of this study do not support this prediction. The regression coefficient on controlling ownership is −10.461, meaning that at average firm size, a 10-percentage point increase in controlling ownership is associated with a 104.6 percentage point decrease in one-year post-IPO returns. This magnitude is approximately 2.3 times the sample mean one-year return of 49.22 percent, indicating that the negative effect is not merely statistically significant but economically large. If signalling theory held in this context, one would expect the coefficient to be positive and of comparable magnitude, meaning a 10-percentage point increase in controlling ownership would be associated with an approximately equivalent improvement in returns. The empirical result is the opposite in sign and consistent in magnitude, challenging the direct applicability of the Leland-Pyle signalling framework to the Indonesian IPO market.

A critical moderating factor not explicitly captured in the signalling model is whether the controlling shareholder is a founding entrepreneur or an established conglomerate group. In the founding entrepreneur context, ownership retention is genuinely costly because the entrepreneur foregoes diversification, making the signal credible and theoretically effective. In the conglomerate context, however, ownership retention carries a different meaning. A conglomerate group retaining a large stake in a newly listed subsidiary does not necessarily bear the same opportunity cost, as the retained stake forms part of a diversified group portfolio rather than an undiversified personal investment. The signal therefore loses its

credibility as a quality indicator and instead becomes a mechanism for maintaining control over the subsidiary and its cash flows.

This interpretation suggests that the applicability of signalling theory to Indonesian IPOs is conditional on the type of controlling shareholder. In cases where the controlling shareholder is an individual founder retaining stakes out of genuine confidence in future performance, signalling theory may remain relevant. However, in the more prevalent case of conglomerate-controlled listings in Indonesia, agency theory and the entrenchment framework provide a stronger and more empirically consistent explanation of post-IPO return behaviour. Future research incorporating controlling shareholder type as an explicit variable would help to directly test this conditional signalling hypothesis.

4.4.4 The Moderating Role of Firm Size

The significant positive interaction between controlling ownership and firm size (CO×LOGMCAP, $\beta = 0.875$, $p = 0.017$) supports the theoretical argument that the governance environment conditions how ownership concentration translates into post-IPO performance. To interpret this coefficient, the total marginal effect of controlling ownership on one-year returns at a given firm size is expressed as: $\partial ONEYR/\partial CO = -10.461 + 0.875 \times LOGMCAP_centered$, where LOGMCAP_centered is the mean-centred log of first-day market capitalization. This means that for each one standard deviation increase in firm size above the sample mean equivalent to moving from approximately IDR 395 billion to IDR 1,517 billion in market capitalization the negative effect of controlling ownership on one-year returns is reduced by 0.578 percentage points per one percentage point of controlling ownership, or approximately 5.8 percentage points for every 10-percentage point increase in controlling ownership. Larger firms are subject to stronger regulatory monitoring, greater analyst coverage, higher OJK disclosure requirements, and increased scrutiny from institutional investors, all of which collectively constrain the ability of controlling shareholders, including conglomerate groups, to engage in extractive behaviour at the expense of public shareholders.

For smaller firms, the absence of these external governance mechanisms creates an environment where concentrated ownership is more likely to manifest as entrenchment rather than improved monitoring. At the smallest firms in the sample, with a first-day market capitalization of approximately IDR 53 billion, the estimated marginal effect of controlling ownership on one-year returns is −11.284 percentage points per one percentage point of controlling ownership. For a 10-percentage point increase in controlling ownership, this translates to a predicted decrease of approximately 112.8 percentage points in one-year returns. Smaller IPO firms typically attract lower institutional investor attention, fewer analyst reports, and may operate in sectors with less regulatory oversight, leaving retail investors as the primary market participants with limited ability to identify and discipline governance problems. The interaction term therefore captures an important conditioning effect: the same level of controlling ownership produces systematically different outcomes depending on the governance environment associated with firm size.

Comparing across the full range of firm sizes in the sample illustrates the economic significance of the moderation. At the largest firms, with a first-day market capitalization of approximately IDR 122 trillion, the estimated marginal effect of controlling ownership is −8.422 percentage points per one percentage point of controlling ownership a reduction of 2.86 percentage points compared to the smallest firms. For a 10-percentage point increase in controlling ownership, the largest firms experience a predicted return decrease of approximately 84.2 percentage points, compared to 112.8 percentage points for the smallest firms, a difference of approximately 28.6 percentage points. Expressed as a proportion, firm size moderates approximately 25 percent of the entrenchment penalty when comparing the largest to the smallest firms in the sample. Crucially, however, the negative effect of controlling ownership does not reverse at any observed firm size level. Even at the largest and most externally monitored firms, the CO effect remains negative and economically substantial, confirming that concentrated ownership continues to impose a governance cost on post-IPO returns throughout the sample regardless of firm size.

This result extends the existing Indonesian IPO literature by demonstrating that firm size functions not only as a proxy for information asymmetry and under-pricing magnitude, as documented by Isynuwardhana and Febryan (2022), but also as a governance moderator that shapes the ownership-performance relationship. By quantifying the degree to which firm size conditions, the entrenchment effect reducing but not eliminating the governance cost of concentrated ownership this study contributes a governance-oriented and empirically grounded perspective to the understanding of post-IPO dynamics in concentrated ownership environments. The finding that even the largest firms retain a significant negative CO effect also has practical implications for investors and regulators, suggesting that governance risks in concentrated ownership structures cannot be fully offset by firm size or market visibility alone.

4.4.5 The Positive Initial Return Effect and Indonesian Market Conditions

The consistent positive and significant coefficient on initial return (IR) across all model specifications presents a finding that diverges from the prediction of Sembel (1996), whose WIPO model documents a negative relationship between initial returns and long-term performance. In Sembel's framework, high initial returns reflect speculative excess demand that temporarily pushes IPO prices above intrinsic value before gradual downward adjustment as more information enters the market.

The IR coefficient of 1.347 indicates that each one percentage point increase in first-day initial return is associated with a 1.347 percentage point increase in one-year post-IPO returns. To interpret this economically, consider that the sample mean IR is 23.63 percent. At this average level, the initial return variable alone contributes approximately 31.83 percentage points to the predicted one-year return, holding all other variables constant. Furthermore, a firm at the high end of the IR distribution with a first-day return of 82 percent compared to the low end of −71.25 percent would be expected to generate approximately 206 percentage points more in one-year returns purely based on the initial return difference. This is a strikingly large spread and reflects the wide heterogeneity in both IPO under-pricing and subsequent performance across the Indonesian sample during the retail investor

boom period. Critically, if Sembel's (1996) prediction held, the coefficient on IR would be negative, meaning firms with higher first-day returns would systematically underperform over one year. The estimated coefficient of +1.347 is not only positive but statistically significant at the 1 percent level under standard OLS and the 5 percent level under HC1 robust standard errors, confirming that the directional reversal from Sembel's prediction is robust.

Several explanations specific to the Indonesian market context may account for this divergence. First, the 2021–2024 period represents an unprecedented expansion of retail investor participation in Indonesia, with the investor base growing from approximately 1.6 million in 2018 to over 7.4 million by 2021. This large and growing retail investor base may have sustained positive momentum in high-initial-return IPO stocks well beyond the listing date, supporting continued price appreciation rather than the mean reversion that Sembel's model predicts. In the Indonesian market during this period, high initial returns may have functioned as a positive momentum signal rather than a speculative premium to be corrected.

Second, the one-year observation window may be too short to capture the full price correction cycle. Sembel (1996) acknowledges that the WIPO model explains long-run underperformance only until approximately one to three years after the offering date, suggesting the negative IR-return relationship may emerge more clearly in a two- or three-year horizon study. The positive relationship observed within the one-year window may therefore represent the momentum phase preceding the eventual correction, which would be consistent with Sembel's broader framework applied over a longer period.

4.4.6 Implications

The findings of this study carry several practical implications for investors, regulators, and market participants in the Indonesian capital market.

For retail investors, who constitute the majority of IPO participants during the sample period, the results provide a cautionary signal regarding the governance dimension of IPO investment decisions. The widespread retail practice of participating in IPOs based on first-day return expectations or conglomerate brand recognition does not necessarily translate into positive long-run performance. Retail

investors should pay attention to the controlling ownership structure of IPO firms, particularly in smaller companies where governance risk is higher and external monitoring is weaker. A high controlling ownership stake by a conglomerate group in a small firm should be treated as a potential governance risk factor rather than a quality signal.

For the Indonesia Financial Services Authority (OJK) and Indonesia Stock Exchange (IDX), the results support the case for enhanced post-IPO governance disclosure requirements, particularly for smaller IPO firms with highly concentrated ownership. Current regulations primarily focus on prospectus disclosure at the time of listing, but the evidence suggests that the governance implications of concentrated ownership manifest in post-listing performance over the one-year horizon. Requiring more granular and ongoing disclosure of related-party transactions, controlling shareholder activities, and proceeds utilization for small-cap IPO firms with concentrated ownership could help retail investors make more informed post-listing decisions.

More broadly, the findings suggest that the Indonesian IPO market during 2021–2024 exhibits a governance-performance gap: the high average initial returns driven by retail enthusiasm are not reliably followed by positive long-run performance, and governance structure, specifically controlling ownership is a significant factor in explaining which firms underperform. As the Indonesian capital market continues to grow and mature, improving the governance transparency of IPO issuers and reducing the information asymmetry between controlling shareholders and retail investors will be essential to sustaining investor confidence and supporting the long-term development of the market.

Chapter 5
Conclusion

5.1 Conclusion

This study examines the effect of controlling ownership on one-year post-IPO returns and the moderating role of firm size among firms listed on the Indonesia Stock Exchange during the 2021–2024 period. Using a cross-sectional OLS regression framework with 206 IPO firms, the study addresses two research questions: first, whether controlling ownership significantly influences one-year post-IPO returns; and second, whether firm size moderates this relationship. The findings provide empirical answers to both questions and contribute governance-oriented evidence to the Indonesian IPO literature.

The first research question asks how controlling ownership influences one-year post-IPO returns among firms listed on the Indonesia Stock Exchange during the 2021–2024 period. The empirical results support Hypothesis 1, showing that controlling ownership has a significant negative effect on one-year post-IPO returns ($\beta = -10.461$, $p = 0.018$ under OLS; $p = 0.061$ under HC1 robust standard errors). This finding indicates that at average firm size, a one percentage point increase in controlling ownership is associated with a 10.46 percentage point decrease in one-year post-IPO returns. The negative direction is consistent with the entrenchment hypothesis under agency theory, suggesting that in the Indonesian IPO market during this period, controlling shareholders many of whom represent established business conglomerates tend to extract private benefits at the expense of minority shareholders rather than providing governance monitoring that enhances post-listing performance.

This result challenges the prediction of signalling theory, which holds that ownership retention by controlling shareholders signals quality and should be associated with better post-IPO performance. The evidence suggests that when the controlling shareholder is a conglomerate entity rather than an individual founder, the signalling interpretation breaks down, as conglomerate ownership retention does not carry the same personal opportunity cost that makes the Leland–Pyle signal credible. Agency theory and the principal–principal conflict framework therefore

provide a stronger and more empirically consistent explanation for post-IPO return behaviour in the Indonesian context.

The second research question asks whether firm size moderates the relationship between controlling ownership and one-year post-IPO returns. The empirical results support Hypothesis 2, showing that the interaction term between controlling ownership and log firm size (CO×LOGMCAP) is positive and statistically significant ($\beta = 0.875$, $p = 0.017$ under OLS; $p = 0.059$ under HC1 robust standard errors).

The positive interaction coefficient indicates that as firm size increases, the negative effect of controlling ownership on post-IPO returns diminishes. This is consistent with the theoretical argument that larger firms are subject to stronger regulatory monitoring, greater analyst coverage, higher OJK disclosure standards, and greater institutional investor scrutiny all of which collectively constrain the ability of controlling shareholders to engage in extractive behaviour. In contrast, smaller IPO firms face weaker external governance mechanisms, higher information asymmetry, and lower market visibility, making concentrated ownership more likely to manifest as entrenchment in these firms.

Taken together, the two findings suggest that the effect of controlling ownership on post-IPO performance is not uniform across all firms but is conditional on the governance environment associated with firm size. The overall governance-performance dynamic in the Indonesian IPO market during 2021–2024 is characterized by a negative entrenchment effect that is partially mitigated in larger, more transparent firms. Additionally, initial return (IR) is found to be a significant and consistent predictor of one-year returns across all model specifications, suggesting that first-day under-pricing momentum plays an important role in shaping post-listing performance during the sample period, in a manner that contrasts with the long-run mean reversion predicted by Sembel (1996) for the one-to-three-year horizon.

5.2 Limitations

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This study acknowledges several limitations that should be considered when interpreting its findings.

First, the findings are limited to the Indonesian capital market and may not be directly generalizable to other markets. Indonesia has specific institutional characteristics, including its rapidly growing retail investor base, highly concentrated family and corporate ownership structures, and a regulatory environment that is still developing relative to more mature markets. These characteristics collectively shape the governance dynamics studied in this thesis, and their absence or presence in other contexts may produce different ownership–performance relationships.

Second, the sample period of 2021–2024 represents an atypical market environment characterized by strong post-pandemic recovery, extraordinary retail investor expansion, and unusually high average IPO return. This period reflects conditions that may not be representative of the Indonesian IPO market under normal macroeconomic circumstances. In particular, the sustained retail investor momentum and liquidity during this period may have masked or amplified the governance effects of controlling ownership in ways that would not be observed in a more typical market cycle.

Third, the study uses a one-year observation window, which may be insufficient to fully capture the long-run effects of governance structure on post-IPO performance. Prior literature, including Sembel (1996) and Ritter (1991), suggests that governance-related performance adjustments may require two to five years to fully materialize. The relationships identified in this study therefore reflect medium-term dynamics that may evolve further over a longer horizon.

Fourth, market capitalization at the time of IPO is used as the proxy for firm size, which may introduce endogeneity because the IPO offer price partially reflects investor sentiment at listing. While log transformation and mean-centring were applied to mitigate scale-related issues, the possibility that size is partly endogenous to the same market conditions driving post-IPO returns cannot be fully ruled out. Additionally, the study measures IPO proceeds utilization by quantity rather than quality, which may not fully capture the economic productivity of capital allocation decisions.

Fifth, the study cannot identify or control for affiliated trading activity by parties connected to controlling shareholders during the post-listing period. In the

Indonesian IPO market, coordinated trading by related parties including entities affiliated with controlling shareholders may influence short-term stock price dynamics, particularly in smaller IPO firms with lower market surveillance. If controlling shareholders or their affiliates provide informal price support in the immediate post-listing period before gradually unwinding their positions, the observed negative one-year return pattern attributed to ownership entrenchment may partly reflect the reversal of artificial price support rather than purely a governance-driven performance decline. The inability to distinguish between these two mechanisms represents a data and observational limitation, as affiliated trading activity is not systematically disclosed in publicly available Indonesian IPO data. Future research with access to transaction-level trading data could help disentangle these competing explanations. Finally, the cross-sectional research design captures associations rather than causal relationships, meaning the governance effects identified cannot be attributed with certainty to controlling ownership structure alone in the absence of an exogenous source of variation.

A further limitation concerns the potential endogeneity of the ownership and firm size variables. Controlling ownership may be jointly determined with expected performance, as controlling shareholders could adjust their retained stake based on private expectations of the firm's future prospects, while first-day market capitalization partly reflects listing-day sentiment that may also influence one-year returns. The cross-sectional ordinary least squares design employed in this study captures associations rather than causal relationships and cannot fully account for this endogeneity. Boshnak (2023) demonstrates that a two-stage least squares (2SLS) instrumental variable approach can correct for endogeneity in the ownership-performance relationship, but the application of such a method requires suitable instruments that are unavailable within the cross-sectional scope of this study. The findings should therefore be interpreted as associational rather than strictly causal.

5.3 Recommendation for Future Research

Based on the findings and limitations of this study, several directions for future research are recommended.

First, future studies should extend the sample period to include the pre-pandemic era, covering IPO listings from approximately 2015 to 2019. Comparing the governance–performance relationship across pre-pandemic, pandemic, and post-pandemic periods would allow researchers to disentangle structural governance effects from the extraordinary market conditions of 2021–2024 and provide a more complete understanding of how ownership concentration influences post-IPO returns across different macroeconomic cycles in Indonesia.

Second, the research framework of this study should be applied to other East Asian markets with similar ownership concentration characteristics, such as Malaysia, Thailand, the Philippines, and South Korea. Claessens, Djankov, Fan, and Lang (2002) provide foundational evidence on the dual effects of ownership concentration across eight East Asian economies, but their study focuses primarily on firm value measures rather than post-IPO return performance. A comparative multi-country study using the governance-moderated IPO performance framework developed in this thesis would extend their findings to the post-listing context and test whether the entrenchment effect and the moderating role of firm size are specific to Indonesia or common across concentrated ownership markets in the region.

Third, future research should incorporate a longer observation window of three to five years to capture the full long-run adjustment of IPO prices following listing. The one-year window in this study reflects medium-term dynamics that may not fully represent the governance-related performance trajectory described in the long-run IPO literature. A longer horizon would also allow researchers to test whether the positive initial return effect observed in this study reverses over time, consistent with the prediction of Sembel's (1996) WIPO model for the one-to-three-year post-IPO period.

Fourth, future studies should explicitly distinguish between types of controlling shareholders specifically, founder-entrepreneur ownership versus conglomerate group ownership as a key variable in the governance framework. The discussion in this study suggests that the type of controlling shareholder may critically determine whether ownership retention operates as a quality signal under signalling theory or as an entrenchment mechanism under agency theory.

Incorporating shareholder type as an explicit categorical variable would allow future research to directly test this conditional signalling hypothesis and provide more granular governance insights for investors, regulators, and IPO issuers in Indonesia and other emerging markets.

Future research could address the potential endogeneity of ownership structure and firm size by employing a two-stage least squares (2SLS) instrumental variable approach, as applied by Boshnak (2023) in the context of ownership concentration and firm performance in Saudi listed firms. By instrumenting for controlling ownership and firm size using variables correlated with ownership structure but exogenous to post-IPO returns, such an approach would allow future studies to move beyond the associational findings of this study toward stronger causal inference regarding the effect of controlling ownership on post-listing performance.

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APPENDIX

Appendix 1 List of Observed IPOs

Kode	Nama	Tanggal Pencatatan	Industry
DGNS	PT Diagnos Laboratorium Utama Tbk	15/01/21	Healthcare
UFOE	PT Damai Sejahtera Abadi Tbk	01/02/21	Consumer Cyclicals
BANK	PT Bank Aladin Syariah Tbk	01/02/21	Financials
WMUU	PT Widodo Makmur Unggas Tbk	02/02/21	Consumer Non-Cyclical
EDGE	PT Indointernet Tbk	08/02/21	Technology
UNIQ	PT Ulima Nitra Tbk	08/03/21	Energy
SNLK	PT Sunter Lakeside Hotel Tbk	29/03/21	Consumer Cyclicals
ZYRX	PT Zyrexindo Mandiri Buana Tbk	30/03/21	Technology
LFLO	PT Imago Mulia Persada Tbk	07/04/21	Consumer Cyclicals
TAPG	PT Triputra Agro Persada Tbk	12/04/21	Consumer Non-Cyclical
NPGF	PT Nusa Palapa Gemilang Tbk	14/04/21	Basic Materials
LUCY	PT Lima Dua Lima Tiga Tbk	05/05/21	Consumer Cyclicals
HOPE	PT Harapan Duta Pertiwi Tbk	24/05/21	Industrials
MGLV	PT Panca Anugrah Wisesa Tbk	08/06/21	Consumer Cyclicals
TRUE	PT Triniti Dinamik Tbk	10/06/21	Properties & Real Estate
LABA	PT Ladangbaja Murni Tbk	10/06/21	Industrials
ARCI	PT Archi Indonesia Tbk	28/06/21	Basic Materials
IPAC	PT Era Graharealty Tbk	30/06/21	Properties & Real Estate
MASB	PT Bank Multiarta Sentosa Tbk	30/06/21	Financials
BMHS	PT Bundamedik Tbk	06/07/21	Healthcare
FLMC	PT Falmaco Nonwoven Industri Tbk	08/07/21	Consumer Non-Cyclical
NICL	PT PAM Mineral Tbk	09/07/21	Basic Materials
UVCR	PT Trimegah Karya Pratama Tbk	27/07/21	Technology
HAIS	PT Hasnur Internasional Shipping Tbk	01/09/21	Transportation & Logistics
OILS	PT Indo Oil Perkasa Tbk	06/09/21	Consumer Non-Cyclical
GPSO	PT Geoprima Solusi Tbk	06/09/21	Industrials
MCOL	PT Prima Andalan Mandiri Tbk	07/09/21	Energy
RUNS	PT Global Sukses Solusi Tbk	08/09/21	Technology
SBMA	PT Surya Biru Murni Acetylene Tbk	08/09/21	Basic Materials

CMNT	PT Cemindo Gemilang Tbk	08/09/21	Basic Materials
GTSI	PT GTS Internasional Tbk	08/09/21	Energy
IDEA	PT Idea Indonesia Akademi Tbk	09/09/21	Consumer Cyclicals
KUAS	PT Ace Oldfields Tbk	25/10/21	Industrials
BOBA	PT Formosa Ingredient Factory Tbk	01/11/21	Consumer Non-Cyclical
MTEL	PT Dayamitra Telekomunikasi Tbk	22/11/21	Infrastructure
DEPO	PT Centurkasa Indo Pratama Tbk	25/11/21	Consumer Cyclicals
BINO	PT Perma Plasindo Tbk	25/11/21	Industrials
CMRY	PT Cisarua Mountain Dairy Tbk	06/12/21	Consumer Non-Cyclical
WGSH	PT Wira Global Solusi Tbk	06/12/21	Technology
TAYS	PT Jaya Swasara Agung Tbk	06/12/21	Consumer Non-Cyclical
RMKE	PT RMK Energy Tbk	07/12/21	Energy
OBMD	PT OBM Drilchem Tbk	08/12/21	Basic Materials
AVIA	PT Asia Avia Tbk	08/12/21	Basic Materials
NASI	PT Wahana Inti Makmur Tbk	13/12/21	Consumer Non-Cyclical
BSML	PT Bintang Samudera Mandiri Lines Tbk	16/12/21	Energy
DRMA	PT Dharma Polimetal Tbk	20/12/21	Consumer Cyclicals
ADMR	PT Alamtri Minerals Indonesia Tbk	03/01/22	Energy
SEMA	PT Semacom Integrated Tbk	10/01/22	Energy
ASLC	PT Autopedia Sukses Lestari Tbk	25/01/22	Consumer Cyclicals
NETV	PT MDTV Media Technologies Tbk	26/01/22	Consumer Cyclicals
ENAK	PT Champ Resto Indonesia Tbk	08/02/22	Consumer Cyclicals
NTBK	PT Nusatama Berkah Tbk	09/02/22	Industrials
SMKM	PT Sumber Mas Konstruksi Tbk	09/03/22	Infrastructure
STAA	PT Sumber Tani Agung Resources Tbk	10/03/22	Consumer Non-Cyclical
NANO	PT Nanotech Indonesia Global Tbk	10/03/22	Consumer Non-Cyclical
BIKE	PT Sepeda Bersama Indonesia Tbk	21/03/22	Consumer Cyclicals
WIRG	PT WIR ASIA Tbk	04/04/22	Technology
SICO	PT Sigma Energy Compressindo Tbk	08/04/22	Energy
TLDN	PT Teladan Prima Agro Tbk	12/04/22	Consumer Non-Cyclical
MTMH	PT Murni Sadar Tbk	20/04/22	Healthcare

IBOS	PT Indo Boga Sukses Tbk	25/04/22	Consumer Non-Cyclical
OLIV	PT Oscar Mitra Sukses Sejahtera Tbk	17/05/22	Consumer Cyclicals
ASHA	PT Cilacap Samudera Fishing Industry Tbk	27/05/22	Consumer Non-Cyclical
SWID	PT Saraswanti Indoland Development Tbk	07/07/22	Consumer Cyclicals
TRGU	PT Cerestar Indonesia Tbk	08/07/22	Consumer Non-Cyclical
CHEM	PT Chemstar Indonesia Tbk	08/07/22	Basic Materials
DEWI	PT Dewi Shri Farmindo Tbk	18/07/22	Consumer Non-Cyclical
AXIO	PT Tera Data Indonusa Tbk	20/07/22	Technology
KRYA	PT Bangun Karya Perkasa Jaya Tbk	25/07/22	Infrastructure
HATM	PT Habco Trans Maritima Tbk	26/07/22	Transportation & Logistics
RCCC	PT Utama Radar Cahaya Tbk	02/08/22	Transportation & Logistics
GULA	PT Aman Agrindo Tbk	03/08/22	Consumer Non-Cyclical
JARR	PT Jhonlin Agro Raya Tbk	04/08/22	Consumer Non-Cyclical
AMMS	PT Agung Menjangan Mas Tbk	04/08/22	Consumer Non-Cyclical
ELPI	PT Pelayaran Nasional Ekalya Purnamasari Tbk	08/08/22	Transportation & Logistics
KLIN	PT Klinko Karya Imaji Tbk	09/08/22	Consumer Cyclicals
TOOL	PT Rohartindo Nusantara Luas Tbk	09/08/22	Consumer Cyclicals
BUAH	PT Segar Kumala Indonesia Tbk	09/08/22	Consumer Non-Cyclical
CRAB	PT Toba Surimi Industries Tbk	10/08/22	Consumer Non-Cyclical
MEDS	PT Hetzer Medical Indonesia Tbk	10/08/22	Healthcare
COAL	PT Black Diamond Resources Tbk	07/09/22	Energy
PRAY	PT Famon Awal Bros Sedaya Tbk	08/11/22	Healthcare
CBUT	PT Citra Borneo Utama Tbk	08/11/22	Consumer Non-Cyclical
MKTR	PT Menthobi Karyatama Raya Tbk	08/11/22	Consumer Non-Cyclical
OMED	PT Jayamas Medica Industri Tbk	08/11/22	Healthcare
BSBK	PT Wulandari Bangun Laksana Tbk	08/11/22	Properties & Real Estate
PDPP	PT Primadaya Plastisindo Tbk	09/11/22	Basic Materials
KDTN	PT Puri Sentul Permai Tbk	09/11/22	Consumer Cyclicals
ZATA	PT Bersama Zatta Jaya Tbk	10/11/22	Consumer Cyclicals

KETR	PT Ketrosden Triasmitra Tbk	10/11/22	Infrastructure
NINE	PT Techno9 Indonesia Tbk	05/12/22	Technology
MMIX	PT Multi Medika Internasional Tbk	06/12/22	Healthcare
PADA	PT Personel Alih Daya Tbk	08/12/22	Industrials
ISAP	PT Isra Presisi Indonesia Tbk	09/12/22	Consumer Cyclicals
VTNY	PT Venteny Fortuna International Tbk	15/12/22	Financials
SOUL	PT Mitra Tirta Buwana Tbk	06/01/23	Consumer Non-Cyclical
ELIT	PT Data Sinergitama Jaya Tbk	06/01/23	Technology
BEER	PT Jobubu Jarum Minahasa Tbk	06/01/23	Consumer Non-Cyclical
CBPE	PT Citra Buana Prasida Tbk	06/01/23	Properties & Real Estate
SUNI	PT Sunindo Pratama Tbk	09/01/23	Energy
CBRE	PT Cakra Buana Resources Energi Tbk	09/01/23	Energy
WINE	PT Hatten Bali Tbk	10/01/23	Consumer Non-Cyclical
BMBL	PT Lavender Bina Cendikia Tbk	11/01/23	Consumer Cyclicals
PEVE	PT Penta Valent Tbk	24/01/23	Healthcare
LAJU	PT Jasa Berdikari Logistics Tbk	27/01/23	Transportation & Logistics
FWCT	PT Wijaya Cahaya Timber Tbk	01/02/23	Basic Materials
NAYZ	PT Hassana Boga Sejahtera Tbk	06/02/23	Consumer Non-Cyclical
IRSX	PT Folago Global Nusantara Tbk	07/02/23	Technology
PACK	PT Abadi Nusantara Hijau Investama Tbk	08/02/23	Basic Materials
VAST	PT Vastland Indonesia Tbk	08/02/23	Properties & Real Estate
CHIP	PT Pelita Teknologi Global Tbk	08/02/23	Technology
HALO	PT Haloni Jane Tbk	08/02/23	Healthcare
KING	PT Hoffmen Cleanindo Tbk	16/02/23	Industrials
PGEO	PT Pertamina Geothermal Energy Tbk	24/02/23	Infrastructure
FUTR	PT Futura Energi Global Tbk	27/02/23	Consumer Cyclicals
BDKR	PT Berdikari Pondasi Perkasa Tbk.	03/03/23	Infrastructure
PTMP	PT Mitra Pack Tbk.	06/03/23	Industrials
TRON	PT Teknologi Karya Digital Nusa Tbk.	08/03/23	Technology
NSSS	PT Nusantara Sawit Sejahtera Tbk	10/03/23	Consumer Non-Cyclical
GTRA	PT Grahaprima Suksesmandiri Tbk	30/03/23	Transportation & Logistics
HAJJ	PT Arsy Buana Travelindo Tbk	05/04/23	Consumer Cyclicals
PIPA	PT Multi Makmur Lemindo Tbk.	10/04/23	Industrials

NCKL	PT Trimegah Bangun Persada Tbk.	12/04/23	Basic Materials
AWA N	PT Era Digital Media Tbk	18/04/23	Technology
RAA M	PT Tripar Multivision Plus Tbk.	08/05/23	Consumer Cyclicals
DOO H	PT Era Media Sejahtera Tbk	08/05/23	Consumer Cyclicals
JATI	PT Informasi Teknologi Indonesia Tbk.	08/05/23	Technology
TYRE	PT King Tire Indonesia Tbk.	08/05/23	Consumer Cyclicals
MPXL	PT MPX Logistics International Tbk	09/05/23	Transportation & Logistics
SMIL	PT Sarana Mitra Luas Tbk	12/05/23	Industrials
KLAS	PT Pelayaran Kurnia Lautan Semesta Tbk	12/06/23	Transportation & Logistics
MAXI	PT Maxindo Karya Anugerah Tbk	12/06/23	Consumer Non-Cyclical
VKTR	PT VKTR Teknologi Mobilitas Tbk	19/06/23	Consumer Cyclicals
RELF	PT Graha Mitra Asia Tbk.	22/06/23	Properties & Real Estate
AMM N	PT Amman Mineral Internasional Tbk.	07/07/23	Basic Materials
CRSN	PT Carsurin Tbk	10/07/23	Industrials
GRP M	PT Graha Prima Mentari Tbk.	10/07/23	Consumer Non-Cyclical
WIDI	PT Widiant Jaya Krenindo Tbk.	10/07/23	Industrials
MAH A	PT Mandiri Herindo Adiperkasa Tbk	25/07/23	Energy
RMK O	PT Royaltama Mulia Kontraktorindo Tbk.	31/07/23	Energy
CNM A	PT Nusantara Sejahtera Raya Tbk	02/08/23	Consumer Cyclicals
FOLK	PT Multi Garam Utama Tbk.	07/08/23	Industrials
HBAT	PT Minahasa Membangun Hebat Tbk	07/08/23	Properties & Real Estate
GRIA	PT Ingria Pratama Capitalindo Tbk	08/08/23	Properties & Real Estate
PPRI	PT Paperocks Indonesia Tbk.	08/08/23	Basic Materials
ERAL	PT Sinar Eka Selaras Tbk	08/08/23	Consumer Cyclicals
CYBR	PT ITSEC Asia Tbk.	08/08/23	Technology
MUT U	PT Mutuagung Lestari Tbk	09/08/23	Industrials
LMAX	PT Lupromax Pelumas Indonesia Tbk.	09/08/23	Consumer Cyclicals
HUMI	PT Humpuss Maritim Internasional Tbk	09/08/23	Energy
MSIE	PT Multisarana Intan Eduka Tbk	10/08/23	Properties & Real Estate

RSCH	PT Charlie Hospital Semarang Tbk.	28/08/23	Healthcare
BABY	PT Multitrend Indo Tbk.	07/09/23	Consumer Cyclicals
AEGS	PT Anugerah Spareparts Sejahtera Tbk.	11/09/23	Consumer Cyclicals
IOTF	PT Sumber Sinergi Makmur Tbk	06/10/23	Technology
KOCI	PT Kokoh Exa Nusantara	07/10/23	Properties & Real Estate
PTPS	PT Pulau Subur Tbk.	09/10/23	Consumer Non-Cyclical
BREN	PT Barito Renewables Energy Tbk.	09/10/23	Infrastructure
STRK	PT Lovina Beach Brewery Tbk.	10/10/23	Consumer Non-Cyclical
KOKA	PT Koka Indonesia Tbk.	11/10/23	Infrastructure
LOPI	PT Logisticsplus International Tbk	11/10/23	Transportation & Logistics
UDNG	PT Agro Bahari Nusantara Tbk	31/10/23	Consumer Non-Cyclical
RGAS	PT Kian Santang Muliatama Tbk.	08/11/23	Energy
MSTI	PT Mastersystem Infotama Tbk.	08/11/23	Technology
IKPM	PT Ikapharmindo Putramas Tbk.	08/11/23	Healthcare
AYAM	PT Janu Putra Sejahtera Tbk.	30/11/23	Consumer Non-Cyclical
SURI	PT Maja Agung Latexindo Tbk.	07/12/23	Healthcare
ASLI	PT Asri Karya Lestari Tbk.	05/01/24	Infrastructure
CGAS	PT Citra Nusantara Gemilang Tbk.	08/01/24	Energy
NICE	PT Adhi Kartiko Pratama Tbk	09/01/24	Basic Materials
MSJA	PT Multi Spunindo Jaya Tbk.	10/01/24	Consumer Non-Cyclical
SMLE	PT Sinergi Multi Lestarindo Tbk	10/01/24	Basic Materials
ACRO	PT Samcro Hyosung Adilestari Tbk.	11/01/24	Consumer Cyclicals
MANG	PT Manggung Polahraya Tbk	11/01/24	Infrastructure
GRPH	PT Griptha Putra Persada Tbk.	18/01/24	Consumer Cyclicals
SMGA	PT Sumber Mineral Global Abadi Tbk	30/01/24	Basic Materials
UNTD	PT Terang Dunia Internusa Tbk.	07/02/24	Consumer Cyclicals
TOSK	PT Topindo Solusi Komunika Tbk.	07/02/24	Technology
MPIX	PT Mitra Pedagang Indonesia Tbk.	07/02/24	Technology
ALII	PT Ancara Logistics Indonesia Tbk	07/02/24	Energy
MKAP	PT Multikarya Asia Pasifik Raya Tbk	12/02/24	Energy
MEJA	PT Harta Djaya Karya Tbk	12/02/24	Consumer Cyclicals
LIVE	PT Homeco Victoria Makmur Tbk	12/02/24	Consumer Cyclicals
HYGN	PT Ecocare Indo Pasifik Tbk.	13/02/24	Industrials
BAIK	PT Bersama Mencapai Puncak Tbk.	15/02/24	Consumer Cyclicals
VISI	PT Satu Visi Putra Tbk.	27/02/24	Industrials
AREA	PT Dunia Virtual Online Tbk	01/04/24	Technology

MHKI	PT Multi Hanna Kreasindo Tbk	16/04/24	Industrials
ATLA	PT Atlantis Subsea Indonesia Tbk	16/04/24	Energy
DATA	PT Remala Abadi Tbk	07/05/24	Infrastructure
SOLA	PT Xolare RCR Energy Tbk	08/05/24	Basic Materials
BATR	PT Benteng Api Technic Tbk	10/06/24	Basic Materials
SPRE	PT Soraya Berjaya Indonesia Tbk	03/07/24	Consumer Cyclicals
PART	PT Cipta Perdana Lancar Tbk	05/07/24	Consumer Cyclicals
GOLF	PT Intra GolfLink Resorts Tbk	08/07/24	Consumer Cyclicals
ISEA	PT Indo American Seafoods Tbk	08/07/24	Consumer Non-Cyclical
BLES	PT Superior Prima Sukses Tbk	08/07/24	Basic Materials
GUNA	PT Gunanusa Eramandiri Tbk	09/07/24	Consumer Non-Cyclical
LABS	PT UBC Medical Indonesia Tbk	10/07/24	Healthcare
DOSS	PT Global Sukses Digital Tbk	07/08/24	Consumer Cyclicals
NEST	PT Esta Indonesia Tbk	08/08/24	Consumer Non-Cyclical
VERN	PT Verona Indah Pictures Tbk	08/10/24	Consumer Cyclicals
BOAT	PT Newport Marine Services Tbk	12/11/24	Energy
NAIK	PT Adiwarna Anugerah Abadi Tbk	13/11/24	Industrials
AADI	PT Adaro Andalan Indonesia Tbk	05/12/24	Energy
MDIY	PT Daya Intiguna Yasa Tbk	19/12/24	Consumer Cyclicals

Appendix 2 EViews Data

	ONEYR	LOGFDMCAP	CO	IHSGR	IR	PER_WINS	PBV	PROCEEDS
1	230.0000	11.62325	39.22000	5.540000	68.00000	27.0000	4.600000	100.0000
2	1172.280	11.62181	91.22000	11.90000	81.19000	43.7000	1.430000	0.000000
3	1997.090	12.38782	54.77000	11.90000	81.55000	22.6400	2.070000	5.600000
4	-22.78000	12.59198	76.50000	13.08000	67.78000	189.5000	10.20000	100.0000
5	-39.93000	11.93277	66.60000	9.640000	-71.25000	23.3000	8.460000	95.20000
6	-31.36000	11.78682	78.66000	11.91000	65.25000	14.4000	1.650000	100.0000
7	236.6700	11.05461	34.40000	15.92000	68.00000	71.4000	1.600000	30.80000
8	128.0000	11.71600	75.00000	17.01000	56.00000	13.9000	2.600000	0.000000
9	-2.000000	11.19673	0.000000	20.31000	21.00000	16.7000	1.900000	0.000000
10	300.0000	12.82416	62.06000	21.02000	68.00000	9.5000	1.400000	100.0000
11	13.00000	11.77065	80.00000	20.26000	82.00000	11.1000	1.700000	100.0000
12	14.00000	11.06416	46.05000	14.47000	12.00000	20.8000	2.100000	0.000000
13	27.12000	11.65862	59.37000	24.81000	81.36000	14.3000	1.600000	0.000000
14	33.33000	11.48827	78.74000	17.41000	20.00000	19.3000	1.900000	0.000000
15	-36.00000	12.13916	78.57000	14.58000	82.00000	20.0000	1.800000	0.000000
16	18.40000	11.35411	29.00000	14.58000	80.80000	14.4000	1.800000	0.000000
17	-58.67000	13.26135	89.76000	13.18000	-2.000000	11.9000	3.200000	100.0000
18	-12.50000	11.13903	10.48000	10.95000	20.83000	18.0000	2.000000	0.000000
19	1.490000	12.68099	76.02000	10.95000	16.37000	12.7000	1.600000	0.000000
20	67.65000	12.65895	62.88000	11.39000	55.88000	21.0000	2.400000	0.000000
21	-60.50000	11.27661	25.23000	13.65000	21.00000	22.0000	2.000000	0.000000
22	-10.00000	12.24516	72.05000	14.03000	82.00000	20.0000	1.600000	100.0000
23	55.00000	11.38382	55.06000	16.23000	21.00000	22.0000	2.100000	95.10000
24	-14.00000	11.96092	40.80000	19.10000	16.00000	14.0000	1.700000	30.30000
25	-18.52000	11.28031	47.85000	19.24000	55.56000	19.0000	1.800000	100.0000
26	-31.67000	11.18940	0.000000	19.24000	28.89000	24.0000	2.200000	100.0000
27	415.8500	12.76839	92.36000	17.28000	16.20000	10.7000	2.400000	100.0000
28	-32.28000	11.47567	17.68000	19.41000	19.69000	47.9000	4.300000	0.000000
29	15.56000	11.44774	62.91000	19.41000	67.78000	18.4000	2.000000	0.000000
30	30.88000	13.16814	89.96000	19.41000	26.47000	17.4000	1.900000	98.40000
31	-39.00000	12.13870	90.32000	19.41000	-13.00000	14.9000	1.600000	75.00000
32	-50.71000	11.25419	55.66000	18.60000	20.71000	27.4000	2.500000	75.60000
33	-65.13000	11.50939	51.26000	5.890000	28.21000	18.1000	2.200000	0.000000
34	-30.71000	11.60444	50.25000	7.890000	24.29000	21.2000	2.300000	0.000000
35	-7.500000	13.81107	86.04000	5.320000	-3.130000	13.1000	2.300000	2.000000
36	0.410000	12.62426	6.620000	4.300000	28.63000	10.7000	1.600000	0.000000
37	-5.070000	11.53336	22.18000	4.300000	13.77000	13.5000	1.700000	0.000000
38	43.83000	13.42845	5.670000	3.890000	9.740000	22.3000	5.700000	0.000000
39	2.140000	11.24596	1.820000	3.890000	20.71000	34.1000	2.600000	0.000000
40	68.06000	11.55684	0.000000	3.890000	-8.890000	19.4000	2.100000	66.10000
41	368.4500	11.93544	76.80000	2.260000	-4.370000	12.5000	2.300000	100.0000
42	7.780000	11.06041	0.000000	3.160000	-12.78000	16.1000	1.900000	45.00000
43	-28.49000	13.71375	51.16000	3.160000	-10.22000	22.7000	8.600000	36.90000
44	-20.00000	11.29448	0.000000	2.370000	57.42000	16.4600	3.100000	0.000000
45	185.4700	11.45192	0.000000	3.650000	30.77000	501.9744	3.940000	39.80000
46	15.00000	12.35207	0.810000	4.630000	-4.400000	11.1800	2.340000	0.000000
47	1585.000	12.87161	70.41000	-0.640000	82.00000	51.5500	6.160000	46.30000
48	-25.56000	11.56394	66.80000	1.140000	51.11000	16.4500	2.640000	0.000000
49	-57.03000	12.57960	79.92000	4.910000	16.41000	26.3200	3.150000	0.000000
50	102.0400	12.88872	20.25000	4.710000	68.37000	26.3100	1.770000	0.000000
51	42.35000	12.24695	65.92000	1.840000	-4.120000	13.0300	3.560000	93.30000
52	-50.00000	11.53173	51.85000	0.890000	26.00000	14.3700	2.080000	100.0000
53	225.7600	11.43240	56.11000	-3.240000	-18.18000	10.3300	1.660000	0.000000
54	65.00000	13.00837	65.60000	-4.270000	55.83000	13.1800	2.490000	6.500000
55	-76.00000	11.71474	59.50000	-4.270000	21.00000	14.2000	2.130000	97.00000
56	27.06000	11.56503	74.97000	-2.800000	67.06000	13.4400	3.210000	77.00000
57	-20.83000	12.52649	40.05000	-4.460000	67.86000	26.7900	4.130000	61.50000
58	-46.96000	11.33562	63.29000	-5.390000	3.480000	13.3800	2.740000	0.000000
59	-17.24000	12.89030	63.75000	-3.730000	3.450000	12.9700	2.410000	29.40000
60	6.250000	12.54483	32.56000	-6.080000	32.42000	17.3900	2.650000	94.80000
61	158.0000	11.95430	79.14000	-5.600000	12.00000	21.3300	2.360000	84.60000
62	-78.00000	11.27875	78.94000	1.530000	0.000000	13.5300	2.070000	0.000000
63	-5.000000	11.95904	60.00000	-5.800000	82.00000	13.4400	1.760000	0.000000

	ONEYR	LOGFDMCAP	CO	IHSGR	IR	PER_WINS	PBV	PROCEEDS
64	-59.00000	12.03654	63.52000	3.180000	1.000000	48.6600	2.340000	23.00000
65	1.900000	12.41333	81.12000	2.090000	55.24000	9.0500	2.100000	100.0000
66	-26.67000	11.39182	68.47000	2.090000	-3.330000	12.9300	2.000000	0.000000
67	-32.00000	11.56110	0.650000	4.090000	82.00000	15.8700	2.000000	0.000000
68	7.140000	12.14663	80.14000	-0.290000	71.43000	9.9300	2.100000	0.000000
69	-48.80000	11.24828	48.08000	0.410000	-12.80000	14.7100	2.000000	0.000000
70	42.50000	12.08814	64.26000	-0.040000	9.380000	13.3300	2.000000	100.0000
71	2.300000	10.95079	77.92000	-1.050000	-11.81000	13.1100	2.000000	0.000000
72	44.00000	11.40611	60.06000	-2.070000	-4.800000	13.3700	2.100000	57.00000
73	-39.33000	12.57148	73.42000	-2.800000	55.33000	13.7000	2.100000	84.10000
74	-65.00000	11.07482	77.54000	-2.800000	-1.000000	6.9900	2.500000	0.000000
75	15.00000	12.39627	82.36000	-2.400000	68.00000	6.3200	2.200000	0.000000
76	-53.00000	11.02493	81.26000	-2.550000	-19.00000	19.1800	2.000000	100.0000
77	-51.18000	11.51587	80.00000	-2.550000	25.98000	11.8000	2.100000	0.000000
78	88.14000	11.37658	5.590000	-2.550000	-38.66000	9.4900	2.300000	0.000000
79	58.67000	11.62045	80.71000	-2.640000	42.67000	9.5700	2.000000	0.000000
80	-40.00000	11.46333	80.00000	-2.640000	48.80000	9.4100	2.100000	100.0000
81	-49.00000	12.05595	80.00000	-2.440000	82.00000	8.9000	2.200000	0.000000
82	-22.78000	13.07172	97.40000	-2.030000	-6.110000	25.6000	2.300000	0.000000
83	191.3000	12.46333	80.16000	-2.030000	34.78000	5.3000	2.400000	0.000000
84	10.83000	12.18298	76.41000	-2.030000	5.830000	27.6000	2.000000	100.0000
85	0.980000	12.83371	83.81000	-2.030000	23.53000	12.0500	2.200000	5.800000
86	-50.00000	12.65960	0.000000	-2.030000	82.00000	66.7000	2.000000	0.000000
87	40.46000	11.71136	37.00000	-0.930000	2.900000	8.8100	2.100000	0.000000
88	-31.33000	11.34242	80.00000	-0.930000	17.33000	30.8000	2.520000	93.30000
89	-50.00000	12.18929	72.93000	0.610000	82.00000	291.0100	12.32000	100.0000
90	-11.33000	11.92773	83.46000	0.610000	-0.670000	8.3000	2.630000	100.0000
91	-88.00000	11.13319	79.97000	2.870000	-16.00000	496.6900	7.010000	0.000000
92	-54.47000	11.45939	59.99000	4.750000	-36.84000	49.2200	18.41000	26.90000
93	-50.00000	11.51534	59.86000	6.370000	4.000000	45.0500	7.000000	7.600000
94	-89.58000	11.50185	62.05000	7.780000	-17.71000	23.4700	4.020000	99.60000
95	-41.67000	12.37443	58.59000	8.470000	5.000000	251.7500	13.47000	6.900000
96	-71.82000	10.98867	73.49000	8.130000	-18.18000	11.2800	2.010000	0.000000
97	-25.00000	11.48678	69.93000	8.130000	25.83000	19.0200	3.970000	99.60000
98	21.82000	12.02036	87.02000	8.130000	19.09000	25.0000	4.320000	85.40000
99	-16.67000	11.30260	73.15000	8.130000	-1.330000	12.6100	1.640000	52.90000
100	25.33000	11.86034	0.000000	7.320000	-3.330000	17.7300	2.440000	0.000000
101	-53.70000	11.94690	76.20000	7.320000	80.56000	16.4900	1.580000	36.30000
102	222.4800	11.80219	50.49000	7.770000	81.40000	18.1700	4.030000	87.40000
103	-89.89000	11.19753	53.50000	8.700000	-18.62000	35.9500	6.840000	97.10000
104	14.09000	11.63429	56.00000	6.370000	63.76000	13.6500	2.290000	100.0000
105	-41.00000	11.47542	60.69000	6.330000	39.00000	25.7700	4.960000	46.90000
106	-31.00000	11.44326	54.77000	7.090000	48.00000	4.4420	1.160000	100.0000
107	-79.00000	11.31503	39.22000	5.970000	-19.00000	40.3200	9.770000	55.60000
108	-50.50000	11.70329	64.54000	5.050000	0.000000	20.0000	7.970000	0.000000
109	-79.63000	11.30740	1.000000	5.600000	-18.52000	19.2900	6.180000	89.90000
110	-38.89000	11.46738	5.030000	5.600000	-11.11000	4.4420	1.810000	0.000000
111	1337.500	11.19189	19.06000	5.600000	20.63000	6.6200	1.760000	100.0000
112	-50.00000	11.82393	0.000000	5.600000	18.00000	24.2700	6.300000	0.000000
113	14.62000	11.44028	76.84000	6.940000	-18.46000	89.6600	12.26000	44.40000
114	35.43000	13.53604	90.06000	7.000000	-5.140000	19.9000	1.240000	4.100000
115	-50.00000	11.88829	52.52000	6.950000	21.00000	102.0400	12.50000	100.0000
116	157.5000	12.06369	84.68000	8.100000	23.00000	14.4100	1.650000	0.000000
117	30.00000	11.64708	72.51000	7.390000	16.67000	22.9500	4.980000	100.0000
118	31.11000	11.90439	74.39000	6.330000	51.11000	15.0600	1.860000	100.0000
119	57.48000	12.48357	10.52000	5.940000	0.790000	13.3000	1.550000	0.000000
120	-13.33000	11.67887	80.00000	5.090000	68.00000	13.9400	1.710000	100.0000
121	-14.29000	11.58782	64.96000	4.620000	20.71000	13.8700	1.600000	100.0000
122	-64.76000	11.81341	0.000000	5.200000	80.95000	13.9200	1.580000	0.000000
123	-23.60000	13.92874	90.45000	4.420000	7.600000	19.8700	5.130000	78.90000
124	208.0000	11.79600	92.10000	7.260000	82.00000	24.4500	2.310000	77.80000
125	150.0000	12.35309	0.730000	2.970000	55.56000	33.5600	3.210000	71.60000

	ONEYR	LOGFDMCAP	CO	IHSGR	IR	PER_WINS	PBV	PROCEEDS
126	-47.00000	11.90979	79.68000	2.970000	5.000000	18.2800	2.120000	86.90000
127	-50.00000	11.77362	80.00000	2.970000	82.00000	16.3200	2.050000	67.70000
128	0.720000	11.77938	31.60000	2.970000	25.36000	21.1700	2.440000	0.000000
129	-3.700000	11.47129	14.00000	3.780000	37.04000	15.1700	1.930000	100.0000
130	64.00000	12.20208	0.000000	3.980000	82.00000	12.4200	1.710000	0.000000
131	-46.70000	11.33459	0.000000	7.420000	-31.64000	13.6100	1.630000	0.000000
132	-46.00000	11.84605	72.32000	7.420000	-27.00000	17.7300	2.070000	50.40000
133	32.00000	12.68630	78.66000	9.190000	11.00000	136.9900	3.040000	20.40000
134	-83.33000	11.79141	66.13000	8.600000	20.00000	13.3900	1.690000	100.0000
135	603.5400	14.09986	75.85000	8.510000	3.240000	29.1000	3.620000	98.50000
136	-21.60000	11.54756	0.000000	8.290000	-2.400000	18.8300	2.370000	0.000000
137	-56.67000	11.18015	0.000000	8.290000	-18.33000	15.1400	2.020000	0.000000
138	-90.00000	11.28691	0.000000	8.290000	21.00000	23.3600	2.780000	0.000000
139	53.39000	12.55225	34.50000	5.490000	81.36000	15.2900	2.110000	0.000000
140	-45.33000	11.82119	80.84000	7.220000	17.78000	15.2700	2.340000	0.000000
141	-18.52000	13.41781	91.86000	9.910000	16.30000	19.6300	3.850000	51.90000
142	-44.00000	11.58316	63.71000	9.550000	-3.000000	21.2300	2.590000	100.0000
143	-74.07000	10.96673	0.000000	9.550000	-17.59000	19.9300	2.110000	0.000000
144	66.67000	11.95059	0.000000	10.74000	0.830000	32.7000	3.280000	0.000000
145	-16.43000	11.04001	0.000000	10.74000	-27.14000	11.8500	1.730000	0.000000
146	-32.82000	12.28316	84.65000	10.74000	-5.130000	28.9100	5.760000	4.000000
147	198.0000	12.06960	0.000000	10.74000	82.00000	18.4700	3.090000	0.000000
148	-25.00000	11.66168	70.00000	10.51000	35.19000	20.3400	2.480000	15.70000
149	-84.50000	11.16316	0.000000	10.51000	12.00000	18.8200	2.270000	0.000000
150	-41.00000	12.26071	84.92000	10.51000	1.000000	12.3300	1.550000	99.10000
151	-83.00000	11.07284	0.000000	11.11000	-19.00000	16.7800	1.720000	0.000000
152	186.9600	11.56937	79.43000	12.66000	21.74000	26.0800	2.630000	100.0000
153	-21.80000	11.85765	91.37000	11.30000	1.500000	45.9400	4.870000	67.30000
154	-66.00000	10.93710	0.000000	10.53000	-14.00000	16.1800	2.030000	0.000000
155	150.0000	11.73547	79.01000	13.05000	3.000000	27.2500	2.490000	0.000000
156	-57.50000	11.47750	78.94000	8.290000	-43.33000	20.4000	2.250000	91.00000
157	-60.61000	11.35299	0.000000	11.97000	-47.47000	18.9700	1.910000	0.000000
158	758.9700	14.21099	88.29000	11.97000	55.77000	50.0000	7.210000	83.90000
159	-50.00000	12.29034	0.000000	11.16000	82.00000	20.4500	2.140000	56.70000
160	-54.69000	11.60886	24.75000	10.14000	10.94000	13.7100	1.850000	100.0000
161	-83.00000	10.94988	0.000000	10.14000	-19.00000	16.8900	1.920000	0.000000
162	-54.00000	11.26834	0.000000	6.060000	6.000000	10.6000	1.700000	0.000000
163	-11.67000	11.15089	19.27000	7.500000	-19.17000	14.4100	2.020000	100.0000
164	16.61000	12.63349	3.930000	7.500000	1.110000	18.9300	4.520000	100.0000
165	58.79000	11.45696	86.31000	7.500000	3.030000	18.5600	2.100000	25.20000
166	48.00000	11.62737	0.000000	0.380000	6.000000	17.6300	1.840000	0.000000
167	-68.24000	12.03215	0.000000	-1.370000	0.000000	21.5000	2.110000	0.000000
168	-49.00000	11.57403	10.40000	-3.770000	-40.00000	26.1000	1.450000	100.0000
169	-70.71000	11.88179	73.95000	-2.390000	27.22000	14.3000	2.200000	100.0000
170	-19.18000	12.55856	80.12000	-2.360000	35.84000	11.4000	2.100000	0.000000
171	0.670000	12.40099	66.40000	-2.130000	42.67000	14.4000	2.300000	69.40000
172	-32.00000	11.83535	77.42000	-2.130000	68.00000	14.5000	2.000000	100.0000
173	-34.26000	11.63013	0.000000	-2.710000	13.89000	13.7000	1.900000	0.000000
174	0.000000	11.48969	0.000000	-2.710000	-19.00000	14.7000	1.800000	0.000000
175	-51.46000	11.03342	79.60000	-8.370000	4.850000	12.8000	1.900000	88.30000
176	-49.52000	12.05260	72.00000	-6.150000	22.86000	13.8000	2.000000	100.0000
177	-63.75000	12.12494	0.000000	-11.81000	-16.67000	12.1000	2.100000	0.000000
178	-60.00000	11.69406	2.990000	-11.81000	-9.600000	13.3000	1.900000	52.80000
179	-73.13000	11.59522	70.40000	-11.81000	-5.970000	13.3000	2.200000	0.000000
180	38.24000	12.80143	75.47000	-11.81000	47.06000	11.8000	2.100000	94.30000
181	134.7800	11.82995	76.00000	-10.50000	80.87000	13.2000	1.800000	100.0000
182	280.5800	11.30392	64.01000	-10.50000	1.940000	12.8000	2.100000	39.60000
183	95.95000	11.87694	79.40000	-10.50000	10.81000	13.4000	1.900000	100.0000
184	514.2900	11.55148	1.990000	-8.210000	-2.760000	13.1000	1.800000	81.30000
185	-65.11000	11.24981	78.84000	-9.140000	-43.17000	13.1000	2.000000	0.000000
186	40.00000	11.58476	0.000000	-13.36000	4.170000	12.9000	1.900000	0.000000
187	380.9200	11.43819	38.06000	-6.330000	-17.56000	12.8000	2.000000	0.000000

	ONEYR	LOGFDMCAP	CO	IHSGR	IR	PER_WINS	PBV	PROCEEDS
188	-26.25000	12.00540	78.60000	-3.330000	68.75000	12.8000	1.900000	31.10000
189	-50.00000	12.05243	0.000000	-3.330000	82.00000	13.5000	2.000000	0.000000
190	626.0600	11.63523	0.000000	-1.110000	67.02000	21.3800	2.730000	0.000000
191	40.91000	11.67741	75.08000	-0.280000	31.82000	13.1000	2.000000	100.0000
192	-28.18000	11.52994	0.000000	-0.810000	1.820000	12.0000	2.100000	0.000000
193	-28.80000	11.07918	17.50000	4.820000	20.00000	13.6000	1.900000	98.20000
194	20.91000	11.47596	53.22000	5.030000	0.000000	12.8000	2.000000	0.000000
195	6.000000	12.72431	89.99000	4.120000	36.00000	12.7000	2.400000	100.0000
196	-63.20000	11.64816	69.24000	4.120000	28.00000	13.2000	2.200000	100.0000
197	-8.200000	12.43463	47.88000	4.120000	67.21000	13.5000	2.100000	91.20000
198	73.33000	11.79934	0.780000	2.950000	68.00000	12.6000	2.000000	100.0000
199	24.51000	11.86141	72.41000	3.440000	80.39000	12.7000	1.900000	0.000000
200	5.930000	11.62418	62.97000	7.260000	80.74000	13.4000	2.200000	28.90000
201	31.00000	12.04867	0.000000	8.430000	36.00000	12.7000	2.300000	56.90000
202	-38.97000	11.96591	0.000000	8.030000	-0.510000	13.4000	2.100000	0.000000
203	102.0000	11.70264	0.000000	17.90000	44.00000	501.9744	0.920000	0.000000
204	18.69000	11.79969	54.53000	19.18000	81.31000	14.3900	3.360000	0.000000
205	27.03000	13.79309	16.95000	19.62000	43.69000	13.5000	2.200000	41.90000
206	-39.39000	13.63168	0.660000	30.91000	3.030000	38.8600	19.49000	0.000000