

From Optimism to Reality: Behavioral Biases and IPO Long-Term Performance in Emerging Market

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ABSTRACT

While traditional theories attribute initial public offerings (IPO) anomalies to information asymmetry and risk, behavioral finance research emphasizes the role of behavioral bias in explaining both IPO underpricing and long-term reversals. This study investigates the long-term performance of IPOs in an emerging market, focusing on investor behavioral bias. Given that emerging markets are typically characterized by higher volatility and limited information transparency, Thailand provides an ideal context to examine how irrational behavior shapes post-IPO outcomes. Using 243 IPOs issues between 2010 and 2016, this study evaluates IPO long-term performance over one-, three- and five-year horizon using cumulative abnormal returns (CAR), buy-and-hold abnormal return (BHAR) and risk-adjusted models based on the CAPM and Fama-French Five factor model. The results consistently reveal significant long-term underperformance with negative abnormal returns that intensify as the investment horizon lengthens—particularly 36- and 60- month horizons. These findings are robust across firm size and offer size subsamples, confirming that both small and large IPOs experience persistent post-listing declines. Even after controlling systematic risk factors, the negative abnormal return remains statistically significant, indicating that these patterns cannot be explained by rational risk compensation alone. The findings support behavioral bias in emerging markets. Based on representativeness bias, investors are over-optimism and overconfidence on newly issued IPOs. This drive initial overvaluation and subsequent price corrections. This study contributes to behavioral asset pricing by showing that IPO mispricing is not purely risk-based but also driven by psychological factors, highlighting the need for improved investor education and greater transparency in emerging markets.

Keywords: IPO performance, Optimism bias, Representativeness bias, Behavioral finance, Emerging markets.

Contribution/Originality: This study advances IPO literature by integrating behavioral finance theory with multi-method empirical analysis in an emerging-market context. By demonstrating that long-term IPO underperformance in Thailand persists after risk adjustment and is driven by investor biases, the research provides new insights into how behavior biases shape post-issuance valuation dynamics.

INTRODUCTION

In recent years, the popularity of initial public offerings (IPOs) has increased significantly in emerging markets, reflecting the growing role of capital markets in financing corporate expansion and economic development (WFE Statistics Team, 2024). Emerging market plays crucial role in the global economy, accounting for approximately one-third of the world's GDP, although they still represent a relatively small portion of global equity capitalization

due to incomplete financial integration and underdeveloped market institutions. Emerging markets progress toward more market-based systems, the number of firms seeking equity financing through IPOs has risen rapidly. However, emerging markets have characteristics that distinguish them from developed markets, such as higher volatility, information asymmetry, and the prevalence of irrational investor behavior (Bekaert & Harvey, 2003; 2014). Consequently, the performance of IPOs in emerging markets remains ambiguous and continues to be one of the most debated topics in financial literature.

Extensive studies in developed markets consistently document the phenomenon of IPO underpricing—in which initial trading price of a newly issued stock is higher than its offer price (Zhou et al., 2022; Boulton, 2022; Zhang & Neupane, 2024). Nevertheless, IPOs tend to underperform the market over the long-term period, generating negative abnormal returns when compared to matched firms or market benchmarks (Ritter, 1991; Loughran & Ritter, 1995; Jaskiewicz et al. 2005; Lin et al., 2021;). This phenomenon can be explained by information asymmetry, agency problems, and also behavioral biases. From behavioral standpoint, investors can be over-optimism and overconfidence believing that they can identify outperforming IPOs (Teoh et al, 1998; Ljungqvist et al., 2006). These psychological tendencies lead investors to overvalue firms that resemble previously successful companies, especially during speculative market periods (Parveen et al. 2020; Aljifri, 2023). As a result, excessive demand drives the stock price upward on the first trading day, generating high initial returns that reflect short-term overreaction rather than true fundamental value. When post-IPO information eventually reveals the firm's true fundamentals, prices adjust downward, leading to long-term underperformance to correct the earlier excesses. Thus, IPO underpricing can be viewed not merely as a function of information asymmetry or market structure but as a behavioral outcome of optimism, imitation, and collective sentiment.

Most of the existing evidence, however, is drawn from developed markets, such as the United States, the United Kingdom, and Western Europe, where capital markets are more efficient, regulatory frameworks are mature, and institutional investors play a dominant role. In contrast, emerging markets are characterized by higher market volatility, less transparent information environments, and a greater proportion of retail investors (Bekaert & Harvey, 2014). These structural and behavioral differences may influence both the pricing and long-term performance of IPOs, suggesting that findings from developed markets cannot be generalized directly to emerging market economies.

Given these distinctions, there remains a clear need to investigate behavioral biases underlying IPO performance in emerging markets, where market structures and investor profiles differ substantially from those in developed economies. This study focuses on IPOs in Thai market as a case study, as Thailand represents a typical emerging market characterized by high retail investor participation, limited information transparency, and periods of speculative enthusiasm—all conditions that amplify sentiment-driven mispricing. By analyzing IPOs between 2010 and 2019, this study explores long-term performance of IPOs as well as its behavioral biases. Subsequently, this study contributes to literature in two main ways. First, it extends behavioral finance evidence to an emerging-market context, demonstrating how psychological biases shape IPO valuation and long-run performance in less efficient financial systems. Second, it employs a multi-method empirical design—combining BHAR, CAR, and risk-adjusted models—to provide robust and comprehensive evidence on whether underperformance persists beyond risk premium factors. The remainder of this paper is organized as follows. Section 2 reviews the related literature and theoretical background. Section 3 describes the data and methodology. Section 4 presents empirical results and discussion. Section 5 concludes with implications and directions for future research.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Behavioral Biases

Behavioral biases are systematic deviations from the rational decision-making predicted by traditional finance theories (Shefrin, 2002). Unlike the assumption of perfect rationality in the Efficient Market Hypothesis (EMH), behavioral finance demonstrates that investors frequently deviate from rationality due to cognitive biases—systematic errors in perception and judgement that arise from emotional and heuristic decision making (Kahneman & Tversky, 1974; Barberis & Thaler, 2003). These psychological factors often result in market anomalies such as overreaction, mispricing, and return reversals (Ritter, 1991; Loughran & Ritter, 1995).

The Initial Public Offering (IPO) market is particularly prone to these effects. IPOs involve high uncertainty, limited historical data, and intense media attention—conditions that amplify psychological distortions. Consequently, empirical evidence suggests that IPOs commonly exhibit short-term underpricing followed by long-term underperformance (for example, Wu and Kwok, 2007; Lin et al., 2021). Behavioral explanations attribute this pattern to investors' biased beliefs and aggregate market sentiment, which temporarily drive prices away from fundamental value (Jaskiewicz et al., 2005; Bekaert & Harvey, 2014). Several behavioral biases are particularly

relevant to IPO markets, where uncertainty is high and investor sentiment plays a dominant role in price formation. The most significant biases include representative bias, overconfidence and over-optimism, attention bias and herding behavior.

Representativeness Bias

One of the most influential behavioral heuristics is representativeness bias, introduced by Kahneman & Tversky (1974), which refers to the tendency of investors to evaluate new information by comparing it with existing stereotypes or familiar patterns. Investors often assume that newly listed firms will perform similarly to previously successful ones with comparable characteristics, such as belonging to high-growth sectors or exhibiting rapid expansion. Such expectations lead to short-term overreaction, resulting in initial overpricing followed by long-term underperformance as prices revert to their fundamental values. Barberis et al. (1998) formalized this mechanism in their model of investor sentiment, showing how representativeness can generate predictable reversals in stock returns once actual outcomes correct investors' over-optimistic beliefs.

Overconfidence and Over-optimism

The concept of overconfidence is closely related to representativeness bias, referring to investors' tendency to overestimate the precision of their knowledge, private information, or forecasting ability (Odean, 1998; Daniel et al., 2002). Overconfident investors trade excessively, underestimate risk, and place undue weight on their own judgments while discounting contradictory evidence. In IPO markets, this behavioral tendency manifests as over-optimism—a market-level expression of overconfidence that leads investors to overvalue new issues, expecting sustained post-listing success even when firm fundamentals remain uncertain (Paleari & Vismara, 2007).

Empirical studies show that markets characterized by elevated investor optimism tend to experience greater IPO underpricing and subsequent long-term underperformance, suggesting that initial enthusiasm inflates prices beyond their intrinsic values (Derrien, 2005; Baker & Wurgler, 2007). Overconfidence may also extend to issuers and underwriters, who deliberately schedule offerings during periods of heightened investor sentiment, thereby intensifying IPO mispricing (Purnanandam & Swaminathan, 2004). Similarly, over-optimism bias—the systematic expectation that outcomes will be more favorable than objectively warranted—reinforces this effect by causing investors to underestimate downside risk and overestimate their ability to identify outperforming IPOs. As a result, IPOs often attract excessive initial demand and short-term abnormal returns driven by collective overconfidence and over-optimism. However, as new information emerges and firm performance fails to meet inflated expectations, prices gradually revert toward fundamental values.

Attention Bias and Herding Behavior

Attention bias arises when investors allocate disproportionate focus to salient or widely publicized stocks (Barber and Odean, 2008). IPOs naturally attract media coverage, analyst commentary, and public attention, all of which can temporarily inflate demand regardless of intrinsic value. This heightened visibility contributes to short-term overvaluation, especially in markets with a high proportion of retail investors who rely on limited information sources (Peng & Xiong, 2006).

Such attention-driven trading is often accompanied by herding behavior, where investors imitate the actions of others rather than forming independent judgments (Banerjee, 1992). In IPO markets, herding may occur when investors interpret strong subscription levels or early trading gains as signals of quality, prompting further buying pressure. However, as the initial excitement fades and firm-specific information accumulates, the market gradually corrects these sentiment-induced mispricing, leading to long-term underperformance (Loughran & Ritter, 1995). Empirical research confirms that herding and attention jointly drive initial mispricing, particularly in emerging markets where investor sophistication and disclosure standards remain limited (Ahmad & Wu, 2022; Loang, 2025).

Nevertheless, the impact of attention bias is not uniform across firms. It interacts closely with firm size and offer size. Smaller firms, characterized by lower analyst coverage and greater information asymmetry, often rely more heavily on media visibility and investor sentiment to attract demand during the offering process (Goergen et al., 2007; Belghitar & Dixon, 2012; Gao et al., 2015). As a result, smaller or low-offer IPOs—typically providing limited information to the market—become prime targets for speculative attention as investors extrapolate limited signals into overly optimistic expectations. In contrast, larger firms and high-offer IPOs, supported by stronger reputations, institutional participation, and greater transparency, tend to receive more balanced assessments and are less affected by short-term sentiment swings. Consequently, firm size and offer size moderate the extent of attention-driven mispricing, with smaller and lower-offer IPOs exhibiting greater short-term overvaluation and more pronounced long-term underperformance once initial enthusiasm dissipates.

Collectively, these biases explain why IPOs often exhibit short-term overperformance followed by long-term underperformance—a stylized fact observed globally (Ritter, 1991; Loughran & Ritter, 1995). In the early post-listing phase, cognitive biases such as overoptimism, representativeness, and attention effects drive temporary

mispricing as investors overreact to limited information. As more fundamental data (e.g., earnings, growth sustainability) become available, these biases are corrected, resulting in price reversals toward intrinsic values. This behavioral correction mechanism offers a psychologically grounded explanation that complements and extends traditional market efficiency theory.

Behavioral Biases and IPO Performance: Empirical Evidence

A classical study by Ritter (1991) documents that U.S. IPOs underperform the market by approximately 30% over three years, challenging the notion of Efficient Market Hypothesis (EMH). He attributes this anomaly to investor over-optimism and market timing. Loughran & Ritter (1995, 2002) extend this argument, showing that issuers exploit periods of optimism to raise capital cheaply, while investors later revise expectations downward, leading to underperformance.

However, Gompers & Lerner (2003), examining U.S. IPOs following the formation of NASDAQ, find no evidence of underperformance when using cumulative abnormal return and calendar-time analyses. They argue that behavioral factors such as optimism, investor sentiment, and overreaction explain the observed IPO anomalies. Derrien (2005) investigates French IPOs and reveals that pricing during hot market conditions is driven not only by fundamentals but also by investor sentiment. High demand in such periods leads to overpricing and large initial returns, followed by subsequent underperformance, consistent with investor optimism (Loughran & Ritter, 1995).

Jaskiewicz et al. (2005) examine the long-term performance of German and Spanish IPOs using buy-and-hold abnormal returns (BHAR) and report three-year returns of -32.8% and -36.7%, respectively. They also find that returns are positively related to company size. Similarly, Goergen et al. (2007) study U.K. IPOs and find that firms tend to underperform in the long run, particularly when investor sentiment is elevated during issuance. The authors emphasize that excessive optimism and speculative participation amplify the divergence between initial and long-term valuations. Wu & Kwok (2007) also report that U.S. IPOs underperform over a three-year horizon, and global IPOs exhibit similar patterns consistent with over-optimistic bias.

Killins & Egly (2018) examine the long-term performance of U.S. IPOs using BHAR and calendar-time portfolio regressions, finding negative BHAR over three to five years—supporting information asymmetry and investor optimism explanations. Likewise, Ibragim & Benli (2022) suggest that U.S. IPO underpricing can be attributed to investor overreaction. Zhang & Neupane (2024) analyze 6,113 IPOs across 32 countries between 2015 and 2021 and find that average underpricing increased by 17% during the COVID-19 pandemic, driven by investor risk aversion and sentiment-induced demand.

Studies from emerging markets also provide strong evidence of long-term underperformance and behaviorally driven mispricing. Durukan (2002) investigates IPOs in the Istanbul Stock Market between 1990 and 1997 and finds no evidence of long-run underperformance. In contrast, Corhay et al. (2002) show that Malaysian IPOs were underpriced but underperformed over a five-year period, attributing this to investor overconfidence. Their findings are consistent with Ahmad-Zaluki et al. (2007), who report that Malaysian IPOs underperform due to investor sentiment cycles and earnings management. Lin & Chung (2008) study Taiwanese IPOs and find significant post-listing underperformance attributable to herding behavior and overconfidence trading.

Bansal & Khanna (2012) report a 23% underperformance of Indian IPOs over three years, reinforcing the view that irrational investors drive short-term overvaluation. Neneh & Smit (2014) analyze 313 IPOs on the Johannesburg Stock Exchange (JSE) using BHAR and CAR, concluding that IPO performance depends on both period and methodology. Krishnan & He (2022) compare U.S. and Chinese IPOs, finding that Chinese IPOs generate higher short-term abnormal returns but negative long-term returns, similar to the U.S. market. Conversely, Kundnani et al. (2024) document positive abnormal returns for Indian IPOs from 2014–2023, though these decline over longer horizons. Indonesian IPOs also exhibit severe underpricing and long-term underperformance, largely reflecting investor overreaction rather than firm fundamentals (Fuadi & Pasaribu, 2024).

To summarize, both developed and emerging markets exhibit a broadly consistent pattern of short-run underpricing followed by long-term underperformance. These outcomes are frequently attributed to behavioral biases such as investor sentiment, overconfidence, optimism, and herding, which distorts initial valuations and create temporary mispricing. Nevertheless, the magnitude, persistence, and explanatory power of these behavioral effects vary across markets and studies. While most empirical evidence supports behavioral interpretations, most research relies heavily on data from developed markets, where institutional quality and information efficiency are relatively strong. Evidence from emerging markets remains limited and fragmented, with some contradictory findings.

Moreover, most IPO performance studies employ Buy-and-Hold Abnormal Returns (BHAR) or Cumulative Abnormal Returns (CAR) as the principal long-term performance measures. Although these approaches are informative, they often fail to incorporate firm-specific risk premia. Consequently, reported anomalies may partly reflect unadjusted exposure to systematic risk rather than genuine behavioral inefficiencies. Given these gaps, the

present study examines the long-term performance of Thai IPOs—an emerging market context—using both traditional approaches (BHAR and CAR) and risk-adjusted models (CAPM and Fama-French factor models). This dual approach enables a more robust assessment of whether long-run IPO underperformance in Thailand arises from behavioral mispricing or risk-related compensation, thereby contributing to a more comprehensive understanding of IPO anomalies in emerging financial markets.

DATA AND SAMPLE SELECTION

This study examines how behavioral biases contribute to the long-term performance of initial public offerings (IPOs) within the context of an emerging market. Thailand provides an ideal setting as its capital market exhibits characteristics commonly associated with sentiment-driven trading—namely, high retail investor participation, limited analyst coverage, and periods of pronounced market optimism. The dataset comprises IPOs listed on the Stock Exchange of Thailand (SET) between 2010–2019. IPO data were obtained from Refinitive Eikon. The initial sample includes all firms conducting IPOs during the sample period. Right offers, closed-end funds, real estate investment trusts (REITs), and cross-listed firms were excluded due to differences in regulatory and valuation frameworks. After applying these filters, the final sample consists of 242 IPOs. Table 1 presents the annual distribution of IPOs listed on the Stock Exchange of Thailand (SET) over the period 2010–2019 along with the average offer size and average initial returns. A total of 242 IPOs were issued during the decade, with an average offer size of 1,677.10 million baht. The average initial returns during this period were 48.26% indicating substantial underpricing in the Thai IPOs market. IPO activity fluctuated considerably throughout the sample period. Number of newly listed IPO ranged from 10 IPOs in 2011 to a peak of 38 IPOs in 2017 suggesting cyclical issuance patterns with market conditions (Loughran & Ritter, 1995). The average offer size trended upward, increasing from approximately 610 million baht in 2010 to over 3800 million baht in 2019 reflecting the market growth in later years. Initial returns also presented a significant variation, reaching really high levels—83.23% in 2014 and 83.32% in 2012—before decline to 2.47% in 2019. This suggests that speculative behavior and market optimism played a major role in short-term performance. Overall, the data reveal that IPO underpricing remains pronounced in Thailand but fluctuates with macroeconomic cycles and sentiment driven market conditions.

Table 1. Number of IPOs, Offer Size, and Returns by calendar year 2010–2019.

Year	Number of IPOs	Average Offer Size (in million THB)	Average Initial Returns
2010	11	610.60	42.25%
2011	10	525.77	66.59%
2012	18	1,092.45	82.32%
2013	28	1,589.99	57.55%
2014	36	1,718.09	83.23%
2015	33	1,608.13	51.66%
2016	23	1,438.65	57.95%
2017	37	2,187.87	27.67%
2018	18	1,618.80	11.15%
2019	28	3,806.67	2.47%
2010–2019	242	1,677.10	48.26%

EMPIRICAL RESULTS AND DISCUSSION

This study employs three measures to evaluate the long-term performance of IPOs—Buy-and-Hold Abnormal Return (BHAR), the Cumulative Abnormal Return (CAR), and the risk-adjusted performance models estimated using the calendar-time portfolio approach.

Buy-and-Hold Abnormal Return (BHAR)

The Buy-and-Hold Abnormal Return (BHAR) measures the long-term performance of IPOs by calculating the compounded return that an investor would earn by holding for a specified period in excess to a benchmark or matching firm (Ritter, 1991). Therefore, this measure represents the actual investor wealth changes over the investment horizon. The BHAR is computed as:

$$BHAR_i = \prod_{t=1}^T (1 + R_{i,t}) - \prod_{t=1}^T (1 + R_{b,t}) \quad (1)$$

Where $R_{i,t}$ is the monthly return for IPO i in month t and $R_{b,t}$ is the corresponding benchmark return. Subsequently, the positive (negative) BHAR values represent that the IPO outperformed (underperformed) the benchmark over T period. This study employs monthly return of SET index as the benchmark return.

Table 2 presents average BHAR returns of IPOs over 12-, 36-, and 60-month holding periods. The results reveal that IPOs initially yield slightly positive abnormal returns of 1.02% in the first year. Nevertheless, it gradually declines -5.76% after three years and -13.50% after five years. In addition, there is an increasing dispersion of returns, as shown by the rising standard deviation from 0.7384 to 1.1307, which indicates growing variability in post-listing performance as the holding period lengthens. Notably, the five-year mean BHAR is statistically different from zero at the 10% significance level, suggesting that IPOs exhibit long-term underperformance relative to the market benchmark. From a behavioral perspective, this pattern is consistent with the investor behavioral bias. In the short run, investors display over-optimism and overconfidence. They overvalue newly issues IPOs. As time passes, firm-specific information becomes more available, leading to price corrections toward fundamental values. Nonetheless, the high dispersion of BHAR indicates heterogeneity in investor expectations and differing levels of speculative enthusiasm across IPOs (Loughran & Ritter, 1995; Ljungqvist et al. 2006).

Table 2. Average BHAR of IPOs over Different Holding Periods.

Holding Period	Mean BHAR	S.D.	Min	Max	t-stat
12 Months	0.0102	0.7384	-3.9821	6.6874	0.2152
36 Months	-0.0576	0.9254	-4.3698	4.6476	-0.9674
60 Months	-0.1350*	1.1307	-1.4794	8.9826	-1.1858

Note: ***, **, * denotes significant at the 1%, 5% and the 10% level, respectively.

Table 3 further explores whether post-IPO performance varies according to firm characteristics—specifically firm size and offer size—over 12-, 36-, and 60-month horizons. Firm size is measured by the market capitalization at the end of IPO date. Offer size, on the other hand, is measured by the total proceeds raised during the offering, which equals the offer price multiplied by the number of shares issued to the public. Both firm size and offer size are then divided into two categories based on their respective sample medians.

The expected relationship between these firm characteristics and post-IPO performance is grounded in both information asymmetry and behavioral finance theories. From an informational perspective, larger firms and larger offerings are expected to exhibit lower underpricing and more stable long-term performance because they are generally more established, better known to investors, and subject to greater analyst and media coverage. Conversely, smaller firms and smaller offerings tend to be riskier and less transparent. As a result, small IPOs are expected to experience greater initial overvaluation and subsequently stronger long-term underperformance once prices adjust toward fundamentals.

The results presented in Table 3 are largely consistent with these expectations. During the short-term 12-month period, IPOs of large firms and high-offer issues generate slightly positive but statistically insignificant BHAR (6.76% and 7.47%, respectively), while small and low-offer IPOs show modest negative values (-4.72% and -5.43%). This pattern suggests that investor enthusiasm initially concentrates on larger and more visible offerings. However, as the investment horizon extends, all groups exhibit declining performance, with the effect being most severe among smaller and lower-offer IPOs. After five years, small firms record a mean BHAR of -24.43% ($t = -3.857$) and low-offer IPOs -25.65% ($t = -4.033$), both statistically significant at the 1% level.

Table 3. Average BHAR of IPOs by Firm Size and Offer Size.

	Mean	t-stat	N
Panel A: 12-Month Holding Period			
Small Firms	-0.0472	0.6023	121
Large Firms	0.0676	1.2662	121
Low Offer	-0.0543	-0.6927	121
High Offer	0.0747	1.3998	121
Panel B: 36-Month Holding Period			
Small Firms	-0.0699	-0.7827	121
Large Firms	-0.0452	-0.5725	121
Low Offer	-0.0782	-0.8732	121
High Offer	-0.0369	-0.4693	121
Panel C: 60-Month Holding Period			
Small Firms	-0.2443***	-3.857	121
Large Firms	-0.0257	-0.1974	121
Low Offer	-0.2565***	-4.0331	121
High Offer	-0.0136	-0.1045	121

Note: ***, **, * denotes significant at the 1%, 5% and the 10% level, respectively.

Cumulative Abnormal Return (CAR)

While the Buy-and-Hold Abnormal Return (BHAR) method provides a direct measure of investors' realized wealth from holding IPO shares over time, one major concern with BHAR is it can overstate long-term returns due to compounding effects and overlapping time windows that cause cross-sectional dependence (Fama, 1998).

To address these concerns, this study also employs the Cumulative Abnormal Return (CAR) method, which offers an alternative yet complementary way to assess abnormal performance over specific event-time windows.

CAR calculation is based on the aggregation of short-term deviations from expected returns. Instead of compounding returns over the entire holding period, CAR sums abnormal returns for each period relative to a benchmark index. This approach allows researchers to examine the evolution of abnormal performance while reducing the influence of extreme values. The CAR framework is especially useful for detecting the persistence and direction of performance adjustments following an IPO, as it captures whether price corrections occur gradually or immediately after listing (Loughran & Ritter, 1995).

The abnormal return for firm i on time t is calculated as:

$$AR_{i,t} = R_{i,t} - R_{b,t} \quad (2)$$

Where $R_{i,t}$ represents the return of IPO i at time t , and $R_{b,t}$ denotes the benchmark return. Subsequently, the cumulative abnormal return for IPO i over the event window $[t_1, t_2]$ is then computed as:

$$CAR_{i,(t_1,t_2)} = \sum_{t=t_1}^{t_2} AR_{i,t} \quad (3)$$

In equation (3), $CAR_{i,(t_1,t_2)}$ measures the total deviation of an IPO's performance from the benchmark over a defined period. A positive CAR implies that the IPO outperforms the benchmark, whereas a negative CAR indicates long-term underperformance.

By focusing on cumulative deviations, the CAR measure provides a more statistically stable view of long-term performance. The results of average CAR over the 12-, 36-, and 60-month holding period are reported in Table 4. It confirms the existence of long-term IPO underperformance across all holding periods. The average CAR are -6.22% , -10.85% , and -22.07% for 12-, 36-, and 60-month horizons, respectively, with increasing statistical significance over time. These findings indicate that IPOs tend to experience persistent value erosion relative to the market benchmark. The magnitude of the decline and the strengthening of statistical significance from one to five years suggest that underperformance intensifies as the investment horizon extends.

Table 4. Average CAR of IPOs over Different Holding Periods.

Holding Period	Mean CAR	S.D	Min	Max	t-stat
12 Months	-0.0622*	0.542644	-1.36074	2.015026	-1.7827
36 Months	-0.1085**	0.791328	-1.9326	2.028389	-2.1333
60 Months	-0.2207***	0.89151	-3.77064	2.529955	-3.8519

Note: ***, **, * denotes significant at the 1%, 5% and the 10% level, respectively.

Table 5. Average CARs of IPOs by Firm Size and Offer Size.

	Mean	t-stat	N
Panel A: 12-Month Holding Period			
Small Firms	-0.0965*	-1.9872	121
Large Firms	-0.0278	-0.5558	121
Low Offer	-0.1005**	-2.079	121
High Offer	-0.0238	-0.4743	121
Panel B: 36-Month Holding Period			
Small Firms	-0.0399	-0.5505	121
Large Firms	-0.1771**	-2.4918	121
Low Offer	-0.0558	-0.7589	121
High Offer	-0.1612**	-2.2949	121
Panel C: 60-Month Holding Period			
Small Firms	-0.1541**	-2.1598	121
Large Firms	-0.2874***	-3.2078	121
Low Offer	-0.1822**	-2.5022	121
High Offer	-0.2593***	-2.9238	121

Note: ***, **, * denotes significant at the 1%, 5% and the 10% level, respectively.

Table 5 provides additional insights into how firm characteristics moderate long-term IPO performance. In the short term (Panel A), both small firms and low-offer IPOs show modest but statistically significant negative CAR (-9.65% and -10.05%), while large and high-offer firms exhibit smaller, insignificant declines. As the holding period extends to 36 and 60 months, the underperformance becomes more pronounced across all categories, yet it remains stronger for large and high-offer IPOs. Specifically, after 60 months, large firms record a mean CAR of -28.7% and high-offer IPOs -25.9% , both statistically significant at 1% levels.

This pattern contrasts slightly with the BHAR results, where smaller firms tended to show stronger underperformance. The divergence highlights a key methodological distinction. While BHAR captures the investor's compounding experience and may overweight small, volatile firms, while CAR, by summing returns, gives proportionally greater weight to larger and more stable firms. Overall, the CAR results corroborate the long-

term underperformance documented by the BHAR analysis while providing a more stable and statistically reliable view of the magnitude and persistence of the effect. Both measures together suggest that IPO markets are prone to behavioral inefficiencies, where cognitive biases and misjudged optimism temporarily distort prices at issuance.

Risk-Adjusted Performance: CAPM and Fama–French Five-Factor Model

BHAR and CAR methods evaluate IPO long-term performance using event-time measures without taking account for systematic risk associated with IPO firms. To ensure that the observed abnormal returns are not merely compensation for risk exposure, this study examines IPO performance using risk-adjusted models, specifically the Capital Asset Pricing Model (CAPM) and the Fama-French Five-Factor model (FF5). These models provide a time-series framework that Isolates abnormal performance after controlling for market and firm-specific risk factors.

Both models are estimated using the calendar-time portfolio approach. In this approach, all IPOs that remain listed at a given month t are grouped into a single equally weighted portfolio. The average portfolio return is then regressed against the relevant risk factors to produce time-series estimates of risk-adjusted performance. Subsequently, the calendar-time portfolio approach mitigates the cross-sectional dependence problem commonly found in event-time studies, where IPOs from the same issuance period share overlapping post-listing windows (Fama, 1998). It also provides a consistent framework for testing whether IPO returns deviate from what would be expected under standard asset pricing models, making it a more statistically robust measure of performance persistence.

The CAPM is a linear relation between portfolio's excess return and the market risk premium which expressed as:

$$R_{p,t} - R_{f,t} = \alpha + \beta(R_{M,t} - R_{f,t}) + \varepsilon_t \quad (4)$$

where $R_{p,t}$ denotes the IPO portfolio return at time t , $R_{f,t}$ is the risk-free rate proxied by the 1-Year Treasury bills, and $R_{M,t}$ is the market return measured by return of SET index.

To capture additional dimensions of systematic risk, this study extends the CAPM to the Fama–French Five-Factor Model (Fama & French, 2015) as shown in equation (5)

$$R_{p,t} - R_{f,t} = \alpha + \beta_M(R_{M,t} - R_{f,t}) + \beta_S SMB_t + \beta_H HML_t + \beta_R RMW_t + \beta_C CMA_t + \varepsilon_t \quad (5)$$

In this model, the additional factors including SMB_t represent the size factor capturing the excess return of small market capitalization over large market capitalization firms. HML_t is the value factor capturing the excess return of value stock relative to growth stocks. RMW_t captures the profitability effect by comparing small versus weak operating profitability. CMA_t represents the investment factor, differentiating firms based on their asset growth or investment intensity. The intercept (α) in both models measures the risk-adjusted abnormal return, representing the portion of performance unexplained by systematic market risk. A significantly negative (positive) α indicates that IPOs underperform (outperform) relative to their risk-adjusted expectations.

Table 6. CAPM and Fama-French 5 Factor Model of IPOs.

	Coefficient	t-Stat	Coefficient	t-Stat
Panel A: 12-Month Holding Period				
Intercept	-0.0070	-1.61	-0.0082**	-2.06
$R_m - R_f$	1.2842***	14.6	1.3046***	14.9
SMB			0.7974***	6.75
HML			0.0533	0.35
RMW			0.1040	0.52
CMA			-0.0081	-0.06
Panel B: 36-Month Holding Period				
Intercept	-0.0054	-1.48	-0.0075***	-2.63
$R_m - R_f$	1.2283***	15.75	1.2206***	18.72
SMB			0.9344***	11.02
HML			0.1107	1.03
RMW			0.0904	0.63
CMA			-0.1260	-1.23
Panel C: 60-Month Holding Period				
Intercept	-0.0077***	-2.44	-0.0085***	-3.52
$R_m - R_f$	1.2336***	17.69	1.2199***	21.46
SMB			0.8910***	12.2
HML			0.0756	0.81
RMW			-0.0098	-0.08
CMA			-0.0756	-0.85

Note: ***, **, * denotes significant at the 1%, 5% and the 10% level, respectively.

The regression results in Table 6 reveal that IPOs consistently generate negative risk-adjusted abnormal returns across all holding periods under both models. In the 12-month period, the intercepts are -0.0070 under CAPM and -0.0082 under the FF5 model, the latter significant at the 5% level. This suggests that even after accounting for market risk and firm characteristics, IPOs yield lower returns than expected, implying that their early performance cannot be justified by conventional risk factors. Over the 36- and 60-month periods, this pattern strengthens: under the FF5 model, intercept values remain negative (-0.0075 and -0.0085) and highly significant, with t -statistics of -2.63 and -3.52 , respectively. These findings indicate that the long-term underperformance of IPOs cannot be fully attributed to systematic risk factors. The negative and significant intercept values imply that the anomaly persists even after adjusting for known sources of risk, providing robust evidence that behavioral drives post-IPO returns rather than rational risk compensation.

The results further show that the market risk premium ($R_M - R_f$) is strongly positive and statistically significant across all periods, with coefficients between 1.2206 and 1.3046, indicating that IPOs exhibit high market sensitivity and volatility relative to the broader market. The SMB coefficients are consistently positive and significant (0.7974–0.9344), confirming that IPO portfolios behave like small-cap stocks. However, the remaining factors—HML, RMW, and CMA—are statistically insignificant, suggesting that traditional risk proxies such as value, profitability, or investment do not explain IPO performance. This implies that the risk factors commonly found to affect returns in developed markets as documented in the literature do not appear to influence in Thai IPO market.

Collectively, Table 2–5 present a consistent and integrated pattern of long-term IPO underperformance, indicating that the negative post-listing returns observed across different measurement approaches—BHAR, CAR, and risk-adjusted models—are not coincidental but reflect a persistent phenomenon in the IPO market. The convergence of these findings across multiple analytical frameworks reinforces the robustness of the evidence and underscores that IPOs systematically underperform relative to market benchmarks over extended horizons. This consistent pattern suggests that market inefficiencies surrounding IPOs are not driven by firm-specific risk factors alone but are results from investor behavior—representativeness, overconfidence/over-optimism, attention and herding—combine into sentiment, inflate prices at issuance, and systematically loosen over multi-year horizons. The consistency of the negative long-run BHARs and CARs, alongside their cross-sectional patterns by size and offer size, reinforces the view that long-term IPO underperformance in emerging markets is not compensation for risk alone but reflects predictable corrections of sentiment-driven mispricing documented widely in empirical literature.

The findings of this study align closely with those reported in developed markets. Ritter (1991) and Loughran & Ritter (1995) documented significant long-term underperformance of IPOs in the United States, attributing it partly to investor overreaction and market timing by issuers. Similarly, Ljungqvist et al. (2006) found that hot-issue markets—periods of elevated investor sentiment—are characterized by excessive initial valuations followed by poor long-term returns. The present evidence from the Thai market supports and extends these findings to an emerging-market context. In particular, the pronounced underperformance of small and low-offer IPOs in Table 3 highlights the role of information asymmetry and retail-driven sentiment, while the significantly negative CARs for large and high-offer IPOs in Table 5 demonstrate that even well-established firms are not immune to collective optimism during hot periods. Thus, the evidence across all models confirms that IPO mispricing is a behavioral phenomenon that transcends firm characteristics and market maturity, driven by recurring cycles of investor sentiment, overreaction, and eventual correction.

CONCLUSIONS AND IMPLICATIONS

The increasing integration of behavioral perspectives into finance has reshaped the traditional understanding of market efficiency. Contrary to the classical Efficient Market Hypothesis (EMH), behavioral finance emphasizes that investors often deviate from rational decision-making due to cognitive biases and emotional influences. These biases—such as overconfidence, representativeness, herding, and over-optimism—can cause systematic mispricing and anomalies that persist even in well-functioning markets. One of the most prominent settings in which such irrational behavior demonstrates is the initial public offering (IPO) market, where information asymmetry, uncertainty, and investor sentiment converge.

IPOs play a vital role in capital markets by providing firms with access to equity financing and offering investors opportunities for diversification and growth. Nonetheless, the IPO market in emerging economies is often characterized by greater volatility, limited information disclosure, and higher participation of retail investors than in developed markets. Subsequently, these conditions create an opportunity for behavioral biases to influence pricing and performance outcomes.

Within this context, this study investigates the long-term performance of IPOs in Thailand, as a representative case of an emerging market. The analysis covers 242 IPOs issued between 2010 and 2019, using three well-established methodologies to evaluate post-listing performance: the Buy-and-Hold Abnormal Return (BHAR), the Cumulative Abnormal Return (CAR), and risk-adjusted regressions based on the CAPM and Fama–French Five-Factor model estimated through the calendar-time approach. The results consistently reveal significant long-term underperformance of Thai IPOs relative to market benchmarks across all methods. The average BHARs and CARs decline progressively over 12-, 36-, and 60-month periods, while the negative and statistically significant alpha values from the risk-adjusted models confirm that this anomaly persists even after controlling systematic risk factors. These findings support the behavioral interpretation of IPO performance. In the Thai market, investors appear to overvalue new issues due to overconfidence, representativeness bias, and sentiment-driven enthusiasm, particularly during hot-issue periods. Such optimism leads to short-term overpricing that eventually corrects as firm-specific information becomes available, producing the sustained underperformance documented in this study. Furthermore, the stronger negative returns observed among smaller and low-offer IPOs underscore the interaction between information asymmetry and investor psychology, where limited transparency magnifies the impact of sentiment and attention biases. These results are consistent with previous evidence from both developed markets (Ritter, 1991; Loughran & Ritter, 1995) and emerging economies such as Malaysia, Taiwan, and India (Ahmad-Zaluki et al., 2007; Lin & Chung, 2008; Bansal & Khanna, 2012), where investor overconfidence, optimism, and herding have been identified as key drivers of post-IPO anomalies. However, they contrast with studies such as Gompers & Lerner (2003), who found no significant long-term underperformance in U.S. IPOs when alternative evaluation methods were used, and with recent evidence from Kundnani et al. (2024) documenting positive abnormal returns in certain Indian IPOs. These differences suggest that while behavioral biases are pervasive, their magnitude and persistence may vary depending on institutional quality, market maturity, and investor composition.

The implications of these findings are twofold. From a theoretical perspective, the results contribute to the growing body of literature on behavioral finance by providing empirical evidence from an emerging market context. They demonstrate that IPO anomalies are not confined to developed economies but are universal manifestations of cognitive biases and market sentiment. The robustness of the underperformance across multiple methods reinforces the argument that behavioral forces, rather than rational risk premiums, explain long-term IPO returns. From a practical standpoint, the findings carry important lessons for investors, issuers, and regulators. Investors should exercise caution in interpreting early IPO price movements and avoid extrapolating short-term success into long-term expectations. Issuers and underwriters, meanwhile, can use these insights to better time offerings and manage pricing strategies to reduce post-listing reversals. Regulators and policymakers may also consider improving disclosure standards and investor education programs to mitigate the influence of sentiment and speculative behavior in capital markets. Additionally, enhancing investor protection frameworks and promoting financial literacy initiatives could mitigate the impact of cognitive biases on pricing efficiency.

In summary, this study provides comprehensive evidence that IPOs in Thailand, as a representative emerging market, experience long-term underperformance driven by behavioral factors. These results highlight the enduring relevance of behavioral finance in explaining real-world market phenomena and suggest that even as emerging markets mature, irrational investor behavior remains a fundamental force shaping IPO outcomes.

Future research could extend these findings by incorporating broader risk-adjustment frameworks—such as liquidity, momentum, and profitability factors—to examine whether IPO underperformance persists beyond traditional models. Moreover, integrating market-based sentiment indicators, media coverage, or text-based measures could help identify the behavioral channels driving mispricing. Comparative analyses across ASEAN or other emerging markets, as well as post-COVID samples, would provide further insight into how macroeconomic uncertainty, investor structure, and policy environments moderate behavioral influences on IPO performance.

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