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The Impact of Institutional Backing on Initial Public Offering Valuation: A Comparative Analysis of Venture Capital and Private Equity

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Abstract

This thesis examines how institutional investor backing influences IPO valuations across 1,530 European listings from 2005 to 2024. PE-backed firms command 78% valuation premiums while VC-backed firms show 60% premiums. However, the PE premium concentrates in five exceptional deals, implying that observed effects may not be generalizable to the median firm. In contrast, the VC premium persists across the broader portfolio, suggesting a systematic certification effect. Hot market periods increase premiums by 31%, while industry effects prioritize transformation potential over R&D intensity. Still, existing evidence suggests that these premiums may not translate into long-term post-IPO outperformance.

Keywords

Certification hypothesis, Growth expectations, Valuation multiples, Institutional ownership

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1. Introduction

1.1. Background and Motivation

When a firm goes public, a crucial question arises: how much is it really worth? This question is especially complex because valuations must account not just current performance, but years of anticipated growth (Roosenboom 2012; Kim and Ritter 1999). These expectations are economically important because they provide managers with external signals regarding the firm's growth prospects. These signals, in turn, may influence subsequent investment and expansion decisions (Bhagat and Rangan 2004; Aggarwal et al. 2009). However, determining the valuation of an initial public offering (IPO) is challenging (Ritter and Welch 2002). As many firms going public have limited operating histories, volatile earnings or business models oriented toward future growth, the valuation relies more heavily on peer-based multiples, investor demand observed during the process, and forward-looking expectations (Kim and Ritter 1999; Roosenboom 2012). Therefore, IPO valuations reflect not only current fundamentals but more importantly the extent to which investors anticipate future growth (Andrews and Welbourne 2000; Dunbar and Foerster 2008).

IPO valuation outcomes vary substantially across firms. Prior research attributes these differences to institutional environments (Johan 2010), firm-specific characteristics (Aggarwal et al. 2009), ownership structure (Meoli et al. 2009), and the credibility and reputation of the management (Pollock and Gulati 2007). The involvement of institutional investors before the IPO is particularly important as they influence the way a firm operates and is perceived by public investors (Michala 2019; Cumming et al. 2023; Gompers and Lerner 2001).

1.2. Problem Statement

Growth expectations are a central component of IPO valuations. However, forming those expectations is particularly challenging, as firms going public often have limited financial histories and substantial uncertainty regarding their future performance (Kim and Ritter 1999;

Roosenboom 2012). Institutional investors may be able to shape these expectations as their involvement can affect public perception of firm quality and growth potential (Spence 1978; Leland and Pyle 1977). Prior research indicates that institutional backing can affect investor perceptions, whereas it remains unclear to what extent different investor types influence the level of growth anticipated into IPO valuations (Megginson and Weiss 1991; Merton 1981; Chemmanur and Loutskina 2006; Jensen and Meckling 1976). This gap limits our understanding of how much influence different investor types have on growth expectations embedded in IPO valuations. Addressing this is essential to understand whether firms with different pre-IPO backing enter the public market with systematically different growth expectations.

1.3. Research Objectives and Questions

The aim of this study is to examine how growth expectations differ in companies backed by different investor types pre-IPO. Doing so, the analysis compares valuation multiples at the time of the offering across firms backed by venture capital (VC), private equity (PE), and no institutional backing.

Central Research Question

To what extent does pre-IPO investor backing influence the growth expectations embedded in IPO valuations?

1.4. Theoretical Background

Understanding how institutional investors shape valuation outcomes at an IPO requires examining how information is communicated and how uncertainty is reduced during the offering process.

There is substantial information asymmetry at the time of an IPO, as insiders possess private knowledge about a firm going public, while public investors must form expectations based on limited observable signals (Miller and Rock 1985). In this environment, the identity

of investors backing a company prior to the offering can serve as an important signal of firm quality, as institutional investors commit capital, screening effort, and reputational resources prior to the offering (Spence 1978). In line with the certification theory, this commitment acts as a credible indicator of firm quality, reducing uncertainty for public market participants (Megginson and Weiss 1991).

Apart from reducing uncertainty, institutional investors also influence how firms are perceived by public market investors. VC backing expands the potential investor base by increasing analyst coverage and market visibility, thereby raising demand for shares at the offering. This effect is particularly important to younger firms whose valuations depend heavily on growth expectations (Merton 1981; Chemmanur and Loutskina 2006). In contrast, PE investors focus on operational oversight rather than market visibility (Bruton et al. 2010). They are actively involved in their portfolio firms, strengthening governance structures and reducing information asymmetries through board oversight and operational monitoring (Jensen and Meckling 1976; Bruton et al. 2010). This active oversight leads to valuations that depend more on operational performance and less on speculative growth expectations (Bruton et al. 2010).

Taken together, prior research suggests that institutional investors influence IPO valuations through three complementary mechanisms. First, certification that reduces information asymmetry. Second, attention that expands market visibility, and third, governance that mitigates agency conflicts.

1.5. Hypotheses Development

The theoretical discussion suggests several hypotheses about how different types of institutional backing may influence IPO valuations.

1.5.1. Main Effect of Institutional Backing

As institutional investors act as certifiers who conduct screening and due diligence before the offering (Spence 1978; Megginson and Weiss 1991), increase market visibility

(Merton 1981; Chemmanur and Loutskina 2006), and put higher emphasis on operational performance (Bruton et al. 2010; Jensen and Meckling 1976), their involvement may therefore be associated with more optimistic growth expectations at the time of listing.

H1: Initial public offerings backed by institutional investors (VC or PE) exhibit higher valuation-to-revenue multiples than offerings without institutional backing.

1.5.2. Venture Capital versus Private Equity Backing

VC investors typically invest in younger firms characterized by higher uncertainty but higher growth expectations. Their involvement often leads to increased investor attention and a strong reliance on forward-looking expectations (Merton 1981; Chemmanur and Loutskina 2006). In contrast, PE investors commonly back more mature firms with established revenue models and stronger operating performance. Therefore, valuations rely more on current fundamentals than future growth expectations (Bruton et al. 2010; Cumming et al. 2023).

Moreover, firms with strong growth before their IPO tend to receive valuations that embed growth expectations systematically higher than those subsequently realized (Bonaventura and Giudici 2017). Since VC-backed firms typically exhibit higher recent growth than PE-backed firms (Metrick and Yasuda 2011), their valuations should reflect stronger assumptions about future expansion.

H2: VC-backed initial public offerings exhibit higher valuation-to-revenue multiples than PE-backed initial public offerings.

1.5.3. Industry Context

Valuation outcomes also depend on industry-specific innovation intensity. Innovation intensive sectors such as Information Technology and Healthcare are characterized by high research and development (R&D) spending, rapid technological change, and less predictable growth trajectories, thus increasing the weight public investors place on forward-looking growth expectations when forming valuations. In contrast, mature industries such as Financial

Services and Energy exhibit more stable operating fundamentals, established business models, and predictable cash flows, making valuations more dependent on current operational performance (Guo et al. 2006; Galindo-Rueda and Verger 2016).

H3: Initial public offerings in innovation-intensive industries such as Information Technology and Healthcare exhibit systematically higher valuation-to-revenue multiples than offerings in low-innovation industries such as Financial Services and Energy.

1.5.4. Market Conditions

Valuation outcomes are also shaped by broader market sentiment at the time of listing. IPO activity fluctuates between hot, normal, and cold market periods, differentiated between varying levels of investor optimism and capital availability (Lowry and Schwert 2002). During hot market periods, investor confidence is heightened and abundant capital leads to more aggressive valuations, placing more weight on future growth potential relative to current fundamentals. Conversely, during cold market periods, investor caution and capital constraints lead to more conservative valuations based more heavily on demonstrated performance (Baker and Wurgler 2007).

H4: Initial pulic offerings listed during hot market periods exhibit higher valuation-to-revenue multiples than offerings during cold market periods.

2. Research Method

2.1. Research Design

This study employs a quantitative cross-sectional research design comparing IPO valuation multiples across three ownership groups: VC-backed, PE-backed, and non-backed firms. The analysis focuses on valuation multiples at the moment of listing to capture embedded growth expectations rather than post-IPO performance.

The primary analytical method is ordinary least squares (OLS) regression, which allows simultaneous control for firm characteristics, such as age, size, and profitability, industry

classification as well as market cycle classification. This isolates the effect of institutional backing on valuation multiples and reduces spurious correlations from confounding factors. Multiple outlier treatment strategies are employed and main findings are validated across alternative model specifications to ensure robustness. The large sample size (N=1,530) and extended time period (2005-2024) further enhance statistical power and support generalization across diverse market conditions.

2.2. Data and Sample

The empirical analysis uses data from PitchBook covering all IPOs of European firms between January 2005 and December 2024, capturing diverse market environments, including the financial crisis, the 2020-2021 IPO boom, and phases of low issuance activity. For each offering, the dataset provides firm characteristics, transaction attributes, and valuation measures.

Firms are classified into three mutually exclusive ownership groups based on their equity financing prior to the IPO: VC-backed, PE-backed, and non-backed. Offerings involving angel investors, accelerators, and debt-backed firms were excluded as they do not provide the institutional monitoring and certification effects central to this analysis. Moreover, offerings without post-money valuation or revenue data were excluded, as both measures are necessary for the construction of the dependent variable. Additionally, firms reporting negative revenue were removed, as they produce undefined valuation multiples. Further, duplicate listings of firms undergoing an IPO twice were eliminated by retaining only the first IPO per firm. Finally, observations with missing control variables and one extreme outlier (EBITDA margin exceeding 3,000%) were excluded. The final regression sample therefore comprises 1,530 initial public offerings.

However, data availability in private capital markets creates potential selection bias. Constructing valuation multiples required excluding observations with missing financial data:

80% of non-backed firms versus 43% of VC-backed and 31% of PE-backed firms. Non-backed firms reporting complete data likely represent a more professionalized subset than the broader population. While this limits generalizability of non-backed firms, it establishes a conservative comparison standard that strengthens conclusions regarding institutional backing effects.

2.3. Variables and Measurement

The dependent variable measures the valuation-to-revenue multiple at listing. This multiple is calculated as post-money valuation divided by the most recent reported revenue prior to the offering. As the multiple shows severe right-skewness, where a small number of firms command exceptionally high valuations relative to revenues, the natural logarithm of this multiple is used as the dependent variable. The log transformation normalizes the distribution and ensures that regression estimates are not driven by a handful of outliers. Higher values of the log-transformed ratio indicate that investors assign a higher valuation per unit of current revenue. This reflects stronger expectations about future growth embedded in the valuation (Kim and Ritter 1999; Roosenboom 2012; Cogliati et al. 2011).

The primary independent variables capture institutional investor backing prior to the offering through two dummy variables. VC_Backed equals 1 if the firm was backed by VC investors before listing, 0 otherwise. PE_Backed equals 1 if the firm was backed by PE investors before listing, 0 otherwise. Firms without VC or PE involvement serve as the reference category.

The analysis controls for observable firm characteristics that influence valuation multiples independent of ownership structure to isolate the contribution of institutional backing to valuation outcomes. First, Log_Age measures the natural logarithm of firm age at listing. It is defined as the number of years between founding date of the firm and the year of the IPO. Second, Log_Revenue measures the natural logarithm of the latest published revenue prior to listing. The log transformation accounts for the wide range of firm sizes in the sample and

potential nonlinearities in the relationship between size and valuation. Third, EBITDA_Margin is calculated as EBITDA divided by revenue in the most recent fiscal year and reflects operational profitability. Fourth, industry group controls for differences in valuation multiples across industries through dummy variables based on industry classification. Finally, market cycle effects account for the cycle in which the firm went public through classification in hot, normal, and cold cycle.

2.4. Empirical Models

To test the hypotheses, an OLS regression model was estimated with the log-transformed valuation-to-revenue multiple as the dependent variable. The model includes both VC- and PE backing as independent variables, in order to assess their respective effects relative to non-backed firms:

$$Log(Valuation\_Multiple) = \beta_0 + \beta_1(VC) + \beta_2(PE) + \beta_3(EBITDA\_Margin) + \beta_4(Log\_Age) + \beta_5(Log\_Revenue) + \beta_6(Industry) + \beta_7(Cycle) + \varepsilon$$

To assess the robustness of findings, three alternative specifications were estimated. The first specification employs the full sample with logarithmic transformation of the dependent variable. The second specification applies the interquartile range method to the natural multiple to remove extreme upper-tail outliers. The upper threshold was calculated as the third quartile plus 1.5 times the interquartile range, excluding 49 observations and reducing the sample from 1,530 to 1,481 cases. The third specification applies symmetric winsorization to the logarithmic transformation at the first and ninety-ninth percentiles, thus replacing values below the first percentile with the first percentile value and values above the ninety-ninth percentile with the ninety-ninth percentile value. This approach retains all observations while limiting the influence of outliers. Results from all three specifications are compared to assess if conclusions remain consistent across alternative approaches to addressing distributional concerns.

3. Results

3.1. Descriptive Statistics

Table A1 (see Appendix A) presents the descriptive statistics for the final regression sample of 1,530 IPOs, divided by ownership status pre-IPO, comprising 382 VC-backed, 474 PE-backed, and 674 non-backed offerings. Comparative analysis of these groups reveals significant structural heterogeneity, reflecting their distinct investment strategies.

The distribution of valuation-to-revenue multiples exhibits severe positive skewness, particularly within the non-backed subsample where the arithmetic mean of 12,546x is driven by extreme outliers. Therefore, the median serves better as the primary metric for robust comparison. The highest growth premiums are assigned to VC-backed firms, which list at a median multiple of 12.7x, significantly exceeding non-backed firms at 3.06x and PE-backed firms at 1.91x.

The groups differ substantially in firm size, maturity, and operational performance. PE-backed firms are the most mature, listing with a median age of 24.5 years and median revenue of $182 million. VC-backed firms enter public markets at an earlier stage, with a median age of 9 years and median revenue of $4.3 million. Operational performance metrics show that PE-backed firms exhibit a median EBITDA margin of 12.4%, while VC-backed firms report a median margin of -38.3%.

3.2. Model Specification and Diagnostics

The main empirical analysis employs an OLS regression to estimate the relationship between institutional backing and valuation multiple outcomes. The dependent variable is the natural logarithm of the valuation-to-revenue multiple, winsorized at the first and ninety-ninth percentiles to mitigate the influence of extreme outliers. The estimation is performed on the final regression sample of 1,530 observations following the data refinement procedures detailed in Section 2.2.

To verify model validity, diagnostic tests of OLS assumptions were conducted. Variance Inflation Factors assess potential multicollinearity. Here, all VIF values remain well below the conservative threshold of 5.0, with a maximum of 1.32 for the revenue variable, confirming that independent variables are sufficiently distinct. The distribution of error terms was examined through Quantile-Quantile plots, which confirm that residuals approximate a normal distribution. Residual-vs-fitted plots indicate mild heteroskedasticity, particularly within institutional backing subsamples. While this violates the constant variance assumption, coefficient estimates remain unbiased and consistent under OLS (Wooldridge 2010). Given the large sample size (N = 1,530), the Central Limit Theorem ensures that statistical inference remains valid despite minor deviations from normality assumptions.

3.3. Regression Analysis

Table A2 (see Appendix A) presents the results of the OLS regression analysis examining the determinants of valuation-to-revenue multiples at the time of an IPO. The main model was estimated using the final winsorized sample of 1,530 observations. It explains approximately 63.9% of the variation in valuation multiples ($R^2 = 0.639$), suggesting that the selected variables effectively capture the primary drivers of valuation growth expectations.

Regarding Hypothesis 1, which predicted that institutional backing is associated with higher valuation multiples compared to non-backed firms, the results provide strong empirical support. The coefficients for both VC- and PE backing are positive and highly significant ($p < .001$). Specifically, holding all other factors constant, VC backing is associated with a coefficient of 0.467, while PE backing exhibits a coefficient of 0.578 relative to the non-backed reference group. These findings confirm that substantial valuation premiums are assigned to firms that have undergone institutional backing prior to the IPO.

Hypothesis 2 anticipated that VC-backed firms would command higher valuation multiples than PE-backed firms. However, the empirical evidence contradicts this prediction

with the regression coefficient for PE backing (0.578) exceeding that for VC backing (0.467). This implies that PE-backed firms receive systematically higher valuation premiums relative to their revenue base. It suggests that public markets may value the operational maturity and governance structures associated with PE ownership more than the growth potential and market visibility associated with VC backing.

Regarding Hypothesis 3, which predicted higher valuation multiples for innovation-intensive sectors, the empirical evidence is mixed (see Figure 1). Consistent with expectations, Healthcare exhibits a strong positive valuation premium (coefficient = 0.824, $p < .001$) relative to the reference group (Business Products and Services). However, the highest valuation premium is observed in Energy (coefficient = 0.849, $p < .001$), contradicting the traditional classifications that categorize Energy as low R&D intensity. Similarly, Financial Services commands a significant premium (coefficient = 0.613, $p < .001$) despite being typically classified as low-innovation. Conversely, Information Technology shows no statistically significant difference from the reference group ($p = .260$), suggesting that IT firms do not command a systematic valuation advantage. Consequently, high valuation premiums are not exclusively aligned with traditional R&D intensity classifications.

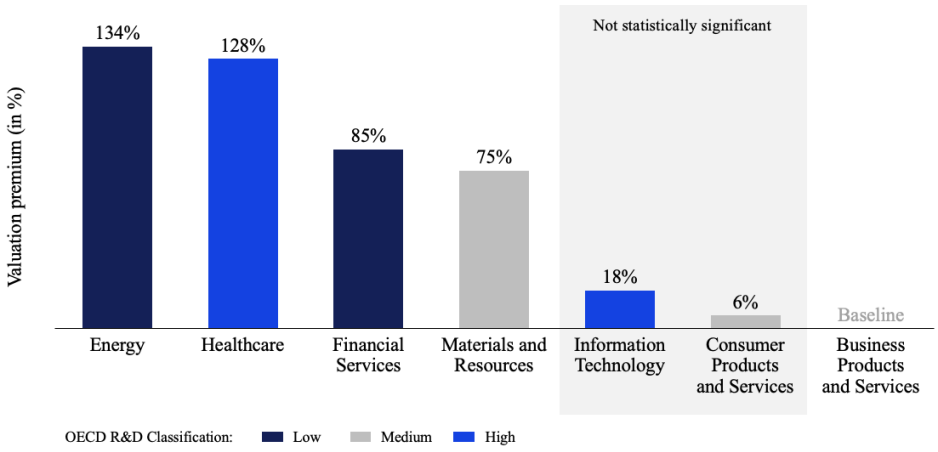

Figure 1: Industry valuation premiums relative to Business Products and Services[1]

[1] Since the dependent variable is log-transformed, percentage effects are calculated as $(e^{\beta} - 1) * 100$

Concerning market cycles (Hypothesis 4), the results demonstrate a significant valuation effect. Listings completed during hot market periods are associated with significantly higher multiples (coefficient = 0.269, p = .004) compared to cold periods, which confirms that investor sentiment and capital availability during a certain market cycle play a critical role in shaping growth expectations at listing.

Finally, the control variables provide additional insights into valuation determinants. Firm size (Log_Rev) shows a significant negative relationship with valuation multiples (coefficient = -0.461, $p < .001$), indicating that smaller firms command higher growth expectations. Firm age (Log_Age) is also negatively associated (coefficient = -0.137, $p < .001$), confirming that younger firms are valued more heavily on future expectations. The EBITDA margin coefficient is also slightly negative and significant (coefficient = -0.005, $p < .001$), reflecting the tendency for high-growth firms to operate with lower margins.

3.4. Robustness Checks

To assess the sensitivity of results from the main model to outlier treatment and model specification, two alternative regression models were estimated and compared against the main model. The first robustness check employs the full dataset (N = 1,530) without winsorization, whereas the second applies stricter outlier removal based on the Interquartile Range. The results are summarized in Table A3 (see Appendix A).

The core finding regarding institutional certification remains robust across all specifications. In both the “All Data” and “IQR” models, coefficients for VC- and PE backing remain positive and statistically significant ($p < .001$). This confirms that the premium attached to institutional backing is a fundamental effect to the valuation of growth expectations. Further, control variables maintain their significance levels and directional signs across all models.

While the certification effect is stable, the hierarchy between VC and PE shows sensitivity to the inclusion of extreme valuations (see Figure 2). In the “All Data” model, PE

backing (coefficient = 0.589) exhibits a stronger effect than VC backing (coefficient = 0.423), which is consistent with the main model backing. However, in the IQR model, this relationship inverts. The VC coefficient (0.521) exceeds that of PE (0.464). This discrepancy is driven by the disproportionate impact of outliers across groups. Applying the IQR filter caused the average raw valuation multiple of the non-backed reference group to drop by 99.8%, driven by the removal of 18 extreme outliers. The VC group required exclusion of 26 outliers, resulting in a valuation drop of 92.9%, confirming that the VC premium is resilient and extends to the broader portfolio. In contrast, the PE group required the removal of only 5 outliers, still experienced an 85.5% drop in average valuation, which indicates that the high PE premium observed in the main model relies heavily on a very small number of outliers.

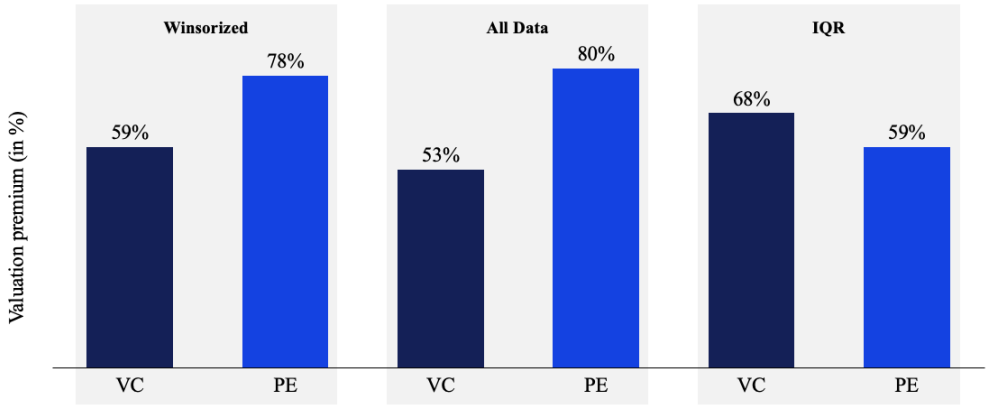

Figure 2: Sensitivity of institutional premiums to outlier treatment relative to non-backed firms

However, since high-growth outliers are an intrinsic component of the VC and PE return profile, the winsorized model used in the main analysis provides the most appropriate representation of market dynamics. This conclusion is supported by model fit statistics with the explanatory power (R^2) declining from 0.639 in the main specification to 0.573 in the IQR model. This substantial drop suggests that the excluded firms contain valid economic signals and removing them strips the model of critical information.

3.5. Summary of Hypothesis Testing

Table 1 summarizes the empirical tests. The analysis confirms institutional premiums (H1) and market timing effects (H4), while the predicted VC superiority (H2) proves sensitive to outlier treatment and traditional R&D classifications fail to predict valuation premiums (H3).

Table 1: Summary of Hypothesis Testing

Hypothesis	Prediction	Finding	Result	Key Driver
H1: Institutional Premium	Inst. Backing > No Backing	VC: +60% PE: +78%	Supported	Certification & Visibility
H2: VC vs. PE	VC > PE	PE > VC (main model) VC > PE (IQR robust)	Mixed	PE: Outlier concentration VC: Portfolio certification
H3: Industry Effects	High R&D > Low R&D	Energy: +134% IT: +18% (n.s.)	Rejected	Transformation potential > R&D intensity
H4: Market Timing	Hot > Cold	Hot: +31%	Supported	Investor Sentiment

4. Discussion

The empirical results establish which hypotheses received support and which were rejected. While the regression results establish which effects are statistically significant, they do not explain why PE and VC premiums follow fundamentally different distributional patterns, why Energy outperforms Information Technology and Healthcare despite lower R&D intensity, or how market sentiment interacts with institutional certification. This section provides theoretical interpretation of these mechanisms.

4.1. Potential Explanations

The findings reveal fundamental distinctions in how capital markets value institutional involvement, industry positioning, and market sentiment. This section synthesizes the empirical patterns into three theoretical interpretations that explain the observed valuation dynamics.

4.1.1. Divergent Value Creation Profiles

The robustness analysis reveals a critical distinction in how VC and PE generate valuation premiums. When extreme observations are removed, PE premiums decline from 78%

to 59% despite excluding only 1% of observations, while VC premiums increase from 60% to 68% despite excluding 7%. This reveals fundamentally different value creation models.

The PE premium indicates a concentration model. The premium's sensitivity to removing a small number of cases demonstrates that the aggregate PE advantage is heavily driven by a subset of exceptional deals. Theoretical literature attributes such deals to governance improvements and operational restructuring (Bruton et al. 2010). However, the data suggests these mechanisms do not yield systematic valuation premiums for the median firm. Instead, public markets price PE backing as an option on rare, idiosyncratic success. This may result from superior deal selection, operational transformation, favorable capital structuring, or other characteristics concentrated in outlier cases.

In contrast, the VC pattern suggests a broad-based certification model. Despite the inherent volatility of the asset class and the exclusion of significantly more outliers (7% vs 1%), the VC premium strengthens in the robust specification. This indicates that while VC returns follow a power law distribution in absolute terms, the certification signal itself provides a reliable valuation multiple floor for the broader portfolio, not just the top performers. The mechanisms driving this pattern likely include systematic screening processes and market visibility effects that reduce information asymmetry (Chemmanur and Loutskina 2006; Gompers and Lerner 2001). This robustness suggests that public markets view VC backing as a quality signal that operates consistently across the portfolio distribution, independent of the extreme tail outcomes that characterize the asset class's total returns.

4.1.2. Decoupling from R&D Intensity

The industry analysis reveals a structural disconnect between traditional innovation metrics and valuation multiple outcomes, contradicting the expectation that high-R&D sectors would command higher premiums. This pattern indicates public investors have shifted focus from technological intensity to other metrics.

The Energy premium likely reflects positioning within structural industry transitions rather than historical research expenditure. The European Union's climate policies and renewable energy targets have created substantial growth opportunities in clean energy infrastructure and sustainable technology (Polzin et al. 2015). Firms entering public markets during this transition benefit from policy support and regulatory tailwinds. Therefore, they can access expanding markets beyond traditional fossil fuel operations. This pattern suggests that public investors value transformation positioning and policy-driven growth narratives over conventional R&D metrics.

Similarly, the Financial Services premium appears to be driven by digital platform business models rather than traditional banking innovation. Fintech has emerged as a significant growth opportunity through technological advances and regulatory changes that enable new revenue streams (Haddad and Hornuf 2019). Platform-based financial services exhibit scale advantages and network effects where increased user adoption enhances value for all participants (Gomber et al. 2017). Firms entering public markets with digital payment infrastructure, online lending platforms, or technology-enabled services are positioned to benefit from these dynamics. Therefore, the observed premium suggests that public investors prioritize digital platform positioning over conventional banking fundamentals.

The Information Technology null finding indicates commoditization of digital capabilities. Technology has transitioned from a differentiator to a baseline requirement for competitiveness across all sectors (Brynjolfsson and McAfee 2014). Further, the broad IT classification combines high-growth cloud infrastructure with mature enterprise software, potentially offsetting within the sector. Institutional investors are well represented in IT offerings (29% VC-backed, 17% PE-backed), yet IT firms do not command higher valuations than other sectors. This implies that baseline expectations already incorporate digital premiums, eliminating their relative advantage at listing.

4.1.3. Asymmetric Sentiment and Certification Boundaries

The market timing analysis establishes empirical boundaries for institutional backing effects. Hot market periods generate a 31% premium independent of backing type, firm characteristics, and industry classification.

The effect operates asymmetrically, where hot markets produce significant premiums while cold markets show no corresponding discount relative to normal periods. This asymmetry aligns with behavioral theories where optimism temporarily inflates valuations above fundamentals but pessimism returns them to baseline rather than pushing below (Baker and Wurgler 2007; Shiller 2005). During periods of heightened investor optimism, investors project recent positive trends further into the future. Early successful offerings reinforce beliefs, creating feedback loops across subsequent deals (Lowry and Schwert 2002). Moreover, institutional pressure to participate in perceived opportunities generates herding behavior as investors avoid missing out. Such herding pushes valuations further beyond levels justified by fundamentals (Froot et al. 1992; Spyrou 2013). The clustering of IPOs during hot periods may partly reflect rational responses to genuine information about elevated growth opportunities during periods of technological innovation (Pástor and Veronesi 2005). However, historical evidence indicates hot market IPOs substantially underperform over subsequent years (Ritter 1991; Loughran and Ritter 2004). This pattern suggests initial valuations are driven by temporary sentiment rather than accurate valuation assessment.

4.2 Implications

4.2.1 Theoretical Implications

This study contributes to institutional backing literature by providing a direct comparison of VC and PE valuation multiple effects within the same sample at the time of listing. Prior research often studies these investor types separately, with VC literature emphasizing certification and visibility (Megginson and Weiss 1991; Chemmanur and

Loutskina 2006) and PE literature emphasizing governance (Bruton et al. 2010). By measuring both simultaneously, the analysis demonstrates that these mechanisms operate through fundamentally different models rather than representing uniform institutional effects.

The finding that PE premiums concentrate in exceptional cases while VC premiums provide systematic valuation multiple floors challenges frameworks treating institutional backing as an universal effect. This asymmetry suggests that certification theory requires refinement, because not all institutional investors reduce information asymmetry uniformly. PE backing functions as an option on idiosyncratic success, whereas VC backing functions as a broad quality signal. This distinction has implications for how scholars model institutional effects and suggests that future research should investigate variance structures rather than only average premiums.

The sectoral findings challenge innovation frameworks linking R&D intensity to growth expectations. The disconnect between traditional classifications and observed premiums demonstrates that public investors assess positioning within structural transformations rather than historical research expenditures. This shifts attention from static industry characteristics to dynamic business model transformation, suggesting that valuation models relying on backward-looking metrics may systematically misprice firms positioned at industry transformation.

Finally, the hot market premium establishes empirical boundaries for institutional mechanisms. The finding that hot market periods generate substantial premiums (31%) alongside investor-specific effects demonstrates that behavioral factors shape valuations during extreme phases, though institutional backing effects remain dominant. This finding reveals the limits of institutional certification. While institutional backing influences valuation multiples at listing, it cannot override the absolute valuation levels set by broader market sentiment. Future theoretical frameworks should incorporate both institutional mechanisms and market sentiment to accurately model valuation formation.

4.2.2 Practical Implications

For *PE sponsors*, these findings have several strategic implications. First, the concentration of premiums in exceptional cases highlights the importance of transformation oriented investments. Average operational improvements may not be enough. Therefore, sponsors should target portfolio companies where significant value creation through restructuring, strategic repositioning, or operational improvements is achievable. Second, the institutional premium serves as a competitive advantage in deal sourcing. PE backing signals governance quality and operational performance to public markets, translating into measurably higher valuation multiples at exit. This certification effect strengthens the value proposition when competing for acquisition targets. Third, sectoral patterns suggest shifting opportunity sets. PE sponsors may benefit from targeting transformation opportunities in Energy (134%), Healthcare (128%) or Financial Services (85%) rather than competing in crowded technology markets. Finally, the hot market premium underscores the importance of exit readiness. Sponsors should prepare portfolio companies for public listings before public markets get too optimistic, as timing can contribute an additional 31% to valuation multiples. Given that hot market IPOs tend to underperform subsequently (Ritter 1991; Loughran and Ritter 2004), complete exits during favorable periods allow sponsors to capture sentiment driven premiums before corrections occur.

For *VC investors*, market timing strategies should follow PE recommendations. Sectoral strategy, however, requires immediate attention. Information Technology represents 29% of VC-backed IPOs, yet generates no premium. Investors should actively reallocate capital toward Energy, Healthcare, and Financial Services, directly targeting disruption in these high premium industries. Most importantly, maintaining the VC premium demands rigorous screening. Unlike PE premiums that concentrate in exceptional deals, VC premiums apply broadly across portfolios through certification effects and market visibility. Therefore, every investment

decision directly reflects fund quality. Investors must uphold strict due diligence standards consistently, as market confidence in selection capabilities drives the entire premium structure.

For *founders and management teams*, the choice between VC and PE backing involves strategic trade-offs. PE offers the highest potential valuation premium (78%), but this advantage concentrates in exceptional cases. Founders of mature firms must assess whether their companies can achieve and credibly communicate such successful deals. VC provides a more consistent premium (60%) that applies broadly across portfolio companies, offering reliable certification for earlier stage firms. Beyond investor selection, positioning strategy matters substantially. Markets assign premiums based on transformation narratives rather than industry classification alone. Founders should emphasize operational change, strategic repositioning, or business model transformation rather than sector labels. Exit timing decisions depend on founder objectives. The 31% hot market premium creates opportunities for founders seeking liquidity, as heightened sentiment allows capturing higher valuation premiums at exit. However, founders prioritizing long term company success may benefit from listings during normal market conditions, where valuations better reflect sustainable fundamentals and post-IPO performance proves more resilient.

For *public market investors*, these findings reveal that valuation premiums may not translate into higher returns over full market cycles. While institutional backing commands substantial premiums, long-term evidence shows these firms perform only as well as or slightly better than peers during expansions (Brav and Gompers 1997; Cao and Lerner 2009) but significantly underperform during downturns. Trifts and Porter (2022) document PE-backed IPOs underperforming greatly during the great recession due to high leverage inherited from pre-IPO restructuring, potentially offsetting any expansion phase gains. Similarly, sectoral premiums in Energy (134%), Healthcare (128%), and Financial Services (85%) reflect growth expectations that may not materialize in the long-term, while hot market premiums (31%)

predict subsequent underperformance (Ritter 1991; Loughran and Ritter 2004). Unless investors can time markets perfectly or identify low-leverage PE-backed firms, rational buy-and-hold strategies should favor non-backed firms in normal or cold market conditions where valuations better reflect fundamental performance.

4.3 Limitations and Future Research

The interpretation of these findings requires consideration of several limitations. First, causal inference is constrained as institutional investors select firms based on unobservable quality characteristics. However, data availability introduces a conservative bias with only 20% of non-backed firms reporting complete financial data compared to over 60% of backed firms. Firms with stronger fundamentals have greater incentives to disclose information (Leuz and Wysocki 2016), implying the true valuation advantage of institutional backing likely exceeds estimated premiums. Future studies should employ quasi-experimental designs, such as propensity score matching or instrumental variables, to address selection bias and isolate causal effects of institutional backing. For instance, VC and PE fundraising timing could address selection concerns. When funds have just closed, high-quality firms may be unable to secure backing simply due to capital unavailability rather than firm quality, creating quasi-random variation in institutional backing.

Second, the analysis captures the net effect of backing but cannot isolate specific transmission mechanisms. Certification signaling, governance monitoring, network effects, and analyst attention operate simultaneously. While the theoretical framework links VC to visibility and PE to governance, the regression cannot decompose these channels. Collecting granular data on analyst coverage, board composition, and governance changes could disentangle certification, visibility, and monitoring mechanisms. For example, measuring how many analysts initiate coverage, whether institutional investors appoint board members, and how

governance structures evolve after listing would reveal which specific channels drive the observed premiums.

Third, the geographic scope is limited to European IPOs. Given that US VC markets perform better and are more mature (Hege et al. 2009), the valuation hierarchy observed here may be specific to the European context where retail investor risk aversion is higher (Bekhtiar et al. 2019), potentially reflecting broader cultural differences in risk-taking. Comparative studies across jurisdictions could test whether this "maturity premium" is a global or regional phenomenon.

Finally, measurement relies on revenue multiples and treats VC and PE as homogeneous categories, ignoring variations in business models and fund quality. Future research using multiple valuation metrics and investor reputation indices could refine these findings.

4.4. Conclusion

This study examined how institutional investor backing influences growth expectations embedded in IPO valuations. The analysis confirmed the general certification benefit of institutional investors (H1) and the impact of market timing (H4), while the observed hierarchy between investor types contradicted theoretical expectations (H2). PE backing generated higher valuation premiums than VC, yet robustness checks revealed this advantage to be fragile and driven by exceptional outliers. In contrast, VC certification provided a resilient valuation multiple premium across portfolios, suggesting systematic reduction of information asymmetry.

The prioritization of business model transformation over traditional R&D intensity in sectors like Energy and Financial Services (H3) indicates a shift in how public markets assess growth potential. However, for public market investors, these premiums may not translate into superior long-term returns. While institutional backed firms perform as well as or slightly better than peers during expansions, they significantly underperform during downturns due to high leverage, potentially offsetting gains over full market cycles. These findings highlight the

distinct nature of value creation across investor types and underscore the importance of distinguishing between valuation premiums at listing and sustained post-IPO performance. Future research should investigate why substantial valuation premiums persist despite limited evidence of superior post-IPO performance, examining whether specific firm characteristics or market conditions determine when premiums translate into realized value.

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6. Appendix A

Table A1

Descriptive statistics by investor type

Descriptives

	Classification	V/Revenue	EBITDA_Mar	Age	Revenue
N	No-Backing	674	674	674	674
	PE	474	474	474	474
	VC	382	382	382	382
Missing	No-Backing	0	0	0	0
	PE	0	0	0	0
	VC	0	0	0	0
Mean	No-Backing	12546	–2.24	20.7	449
	PE	137	–3.05	39.5	1243
	VC	721	–16.1	10.4	87.7
Median	No-Backing	3.06	0.118	12.0	19.6
	PE	1.91	0.124	24.5	182
	VC	12.7	–0.383	9.00	4.30
Standard deviation	No-Backing	243227	17.8	28.5	2646
	PE	1501	42.1	39.8	7081
	VC	6374	98.1	9.51	446
Minimum	No-Backing	0.0100	–262	0	0.0100
	PE	0.0100	–894	1	0.0100
	VC	0.410	–1302	1	0.0100
Maximum	No-Backing	6.17e+6	167	208	33099
	PE	27307	3.70	208	144978
	VC	91364	130	120	5054

Table A2

Regression results of the main model (winsorized)

Model Fit Measures

Model	R	R^2
1	0.800	0.639

Note. Models estimated using sample size of N=1530

Model Coefficients - ln_win

Predictor	Estimate	SE	t	p
Intercept[a]	2.72733	0.1414	19.295	<.001
VC	0.46651	0.0862	5.415	<.001
PE	0.57777	0.0823	7.019	<.001
EBITDA_Mar	-0.00498	5.97e-4	-8.349	<.001
Log_Age	-0.13724	0.0385	-3.565	<.001
Log_Rev	-0.46116	0.0140	-33.027	<.001
Industry:				
Consumer Products and Services (B2C) – Business Products and Services (B2B)	0.06190	0.0944	0.656	0.512
Energy – Business Products and Services (B2B)	0.84875	0.1604	5.291	<.001
Financial Services – Business Products and Services (B2B)	0.61337	0.1199	5.114	<.001
Healthcare – Business Products and Services (B2B)	0.82350	0.1181	6.976	<.001
Information Technology – Business Products and Services (B2B)	0.11106	0.0985	1.127	0.260
Materials and Resources – Business Products and Services (B2B)	0.56022	0.1565	3.580	<.001
Cycle:				
hot – cold	0.26905	0.0929	2.897	0.004
normal – cold	0.18389	0.1105	1.665	0.096

[a] Represents reference level

Table A3

Regression results comparison

Variable	(1) Main Model (Winsorized)	(2) All Data	(3) IQR Method
Constant	2.727	2.750	2.277
VC	0.467	0.423	0.521
PE	0.578	0.589	0.464
EBITDA Margin	-0.005	-0.006	-0.034
Log Age	-0.137	-0.131	-0.155
Log Revenue	-0.461	-0.479	-0.366
Hot Market Cycle	0.269	0.279	0.339
Industry Fixed Effects	*Yes*	*Yes*	*Yes*
Observations	1530	1530	1481
R^2	0.639	0.625	0.573

Note: All reported coefficients are statistically significant at the $p < 0.01$ level