Institutional Ownership and Return Variation

Master Thesis

Kacper Gorzelak
SNR: 2076293
ANR: u690232

Program: MSc Finance
Tilburg University
July 2025

Supervisor: Gianpaolo Parise
Second Reader: Kamil Korhan Nazliben
Number of words: 5943

Abstract

Using a comprehensive U.S. equity dataset spanning 1980-2023, created from quarterly 13F fillings and CRSP database, I construct quintile portfolios based on institutional ownership and evaluate performance of a long-short strategy that buys low-ownership and sells high-ownership stocks. The strategy earns up to 18 basis points in monthly alphas (translating to 2.16% alpha per year) under 5-factor Fama-French model. However, the raw excess return spread is marginal. The abnormal return persists and is robust across standard risk-adjusted models, including 3 and 5-factor Fama-French and Carhart's, suggesting that institutional ownership embeds pricing-relevant information. However, further analysis shows that these effects are concentrated specifically among small-cap stocks. Robustness tests, including double-sorting on size and institutional ownership, augmenting asset pricing models with custom liquidity factors, and combining these approaches, demonstrate that bid-ask spreads and trading volume account for much of the return differential. The results point to institutional ownership functioning as a proxy rather than a true pricing factor. Fama-MacBeth regressions confirm a robust negative relation between institutional ownership and returns, indicating that ownership structure itself may reflect other characteristics correlated with return variation. Overall, institutional ownership does not qualify as a distinct risk factor and offers limited value as a standalone signal for portfolio construction.

Contents

1 Introduction **3**

2 Literature Review **6**

3 Hypotheses Development **8**

4 Data and Methodology **10**

4.1 Data 10

4.2 Methodology 13

5 Results **15**

6 Conclusions **25**

7 Appendix: Use of AI tools **26**

1 Introduction

Traditional asset pricing models have long focused on firm-side characteristics as the source of cross-sectional variation in stock returns (Barillas and Shanken, 2018). The main objective of asset pricing models is to identify which risks are systemically rewarded in financial markets. At the core of this distinction is the difference between unsystematic risk, which is firm-specific and can be diversified away, and systematic risk, which stems from broader market forces and cannot be eliminated through diversification. In theory, only systematic risk should command a risk premium. Asset pricing models are designed, to explain how these risks are priced and account for the cross-sectional variation in expected returns. The Capital Asset Pricing Model (Sharpe, 1964) and its extensions by Fama and French (1993, 2015), incorporate new variables such as size, value, profitability, or investment to capture systematic risk. These supply-side frameworks are well established in the literature, but still face challenges in explaining certain return patterns even after accounting for standard risk factors.

Financial markets have evolved and so has the composition of their participants. Stambaugh (2014) shows how after World War II, household ownership of U.S. equities dropped from over 90% to approximately 20% by the 2010s. Institutional investors including mutual funds, hedge funds, pension funds and insurance companies have grown to become a dominant owner of equity in the U.S. Figure 1 illustrates this trend using my dataset,

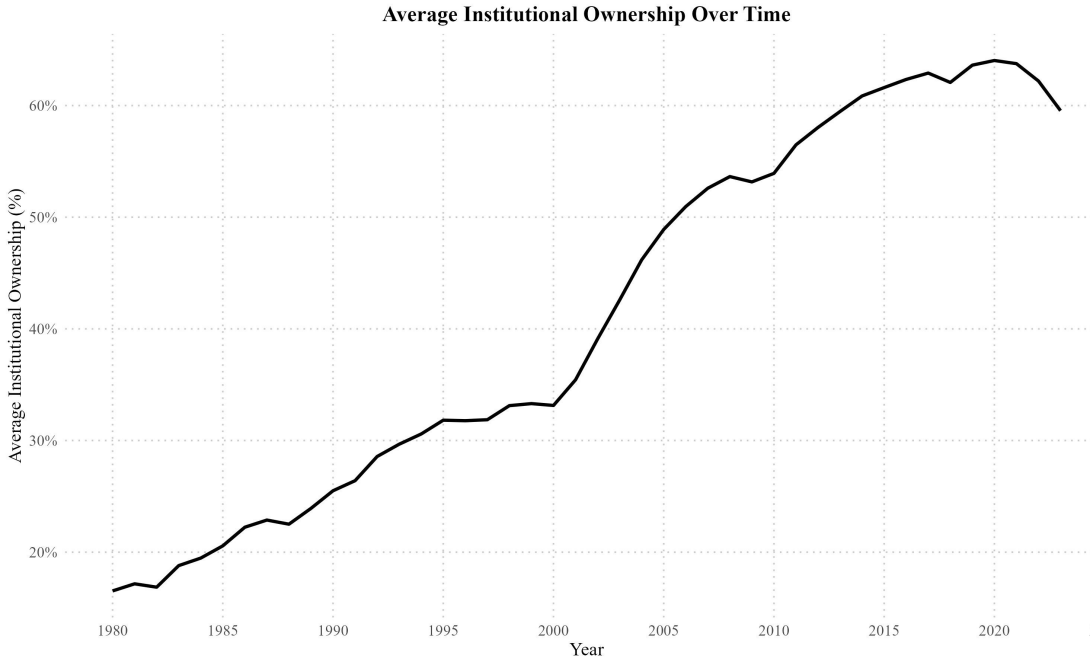

Figure 1: Average institutional ownership across U.S. equities, 1980–2023.
Source: My calculations based on 13F institutional ownership data from WRDS/Thomson Reuters.

which tracks the proportion of institutional holdings in U.S. stocks over time. The steady rise in institutional ownership underscores their growing influence in the market. The increasing presence of financial institutions in the market has not gone unnoticed in the research. One well-studied behavioral pattern is the tendency of institutional investors to buy (or sell) the same stocks around the same time. When institutions herd, they can exert significant pressure on prices, leading to short-term mispricing, excess volatility and liquidity imbalances. Wermers (1999) show that mutual fund herding has a significant impact on short-term momentum especially in small-cap stocks. Similarly, Grinblatt et al. (1995) demonstrate that institutional trading strategies can lead to return persistence, raising questions about informational advantages and market efficiency. Furthermore, Nofsinger and Sias (1999) find that changes in institutional ownership are strongly correlated across funds, and that stocks heavily bought by institutions tend to experience higher future returns. Empirical work has shown that institutional trading and ownership patterns can have predictive power for future returns, potentially due to superior information processing, herding behavior or feedback effects. While institutional investors clearly influence asset prices through their trading behavior, their ownership itself might carry additional underexplored information. High institutional ownership may signal confidence from informed investors who are better at processing information or even act on superior insights. In either case, the level of institutional ownership could proxy for mispricing or informational asymmetries, suggesting that it may be possible to earn returns that deviate from what standard asset pricing models predict. Despite this theoretical appeal, institutional ownership has not been examined as a standalone signal in portfolio construction. Therefore, this thesis aims to answer the following question:

Does a long-short strategy based on institutional ownership yield abnormal returns unexplained by standard risk factors?

To answer it, I sort stocks into portfolios based on their institutional ownership and evaluate the return spread between the highest and the lowest ownership groups. I assess the statistical significance of this spread by estimating alphas using standard asset pricing models, including 3 and 5-factor Fama-French and Carhart's 4. This study aims to bridge a gap in existing literature, by evaluating the role of institutional ownership as a core signal for cross-sectional return differences. The potential implications are twofold. Academically, finding persistent abnormal returns based on institutional ownership would challenge the notion that all publicly available information is fully reflected in prices, particularly when held by investors presumed to be more informed. From a practitioner's perspective, the results could offer a simple yet powerful screening variable for portfolio construction, enhancing strategy design without the need for complex, proprietary signals.

The findings suggest that, institutional ownership is negatively related to risk-adjusted returns. In value-weighted portfolios, the lowest institutional ownership quintile (Q1) earns

a statistically significant monthly alpha of 37 basis points under the Fama-French 5-factor model, while the highest quintile (Q5) yields only 19 basis points. The resulting Q1–Q5 return spread corresponds to a monthly alpha of 18 basis points, or 2.16% annually, and is statistically significant at the 1% level. Contrary to the notion that higher institutional ownership reflects informational advantage, these findings suggest that stocks with lower institutional ownership deliver superior risk-adjusted performance. Fama-MacBeth results show that institutional ownership remains a significant negative predictor of returns after accounting for firm-level controls. This motivates further analysis into the firm characteristics driving this spread and whether the return premium compensates for latent risks or reflects mispricing. To better understand the underlying drivers, I explore two dimensions, firm size and liquidity. Prior literature suggests that institutional investors exhibit persistent preferences for larger and more liquid stocks (Falkenstein, 1996), raising the possibility that institutional ownership may simply proxy for these traits. To test these hypotheses, I first implement a double-sorting procedure on institutional ownership and firm size to examine whether the return pattern persists within size buckets. The results show that the abnormal returns are concentrated exclusively in small-cap stocks. I then evaluate the role of liquidity by augmenting asset pricing models with two constructed liquidity risk factors based on turnover and bid-ask spread. These extended models reveal that while liquidity attenuates the return spread, it does not fully eliminate it. Finally, focusing on small-cap stocks alone, I find that under liquidity-augmented specifications, the return differences across institutional ownership portfolios become statistically weak. These results suggest that liquidity risk among small stocks is a plausible explanation for the anomaly.

The remainder of this thesis is structured as follows. Section 2 reviews the literature on institutional investors, with a focus on how their equity holdings influence asset prices, market efficiency, and return patterns. In Section 3, I develop testable hypotheses by synthesizing prior research on institutional ownership and its implications. Section 4 describes the data sources, variable construction and the empirical methodology. Section 5 presents the main results and proxy tests including adjustments for size and liquidity. Section 6 concludes with a summary of findings and directions for future research. In appendix, I transparently explain how AI tools were utilized during the thesis writing process.

2 Literature Review

Asset pricing models are designed to explain which risks are systemically rewarded in financial markets. The first formal approach is the CAPM model by Sharpe (1964) which proposes market beta as the sole driver of cross-sectional returns. However, CAPM struggled to explain persistent patterns in stock returns, leading to development of multi-factor models such as (Fama and French, 1993, 2015). They introduce size (SMB), value (HML) and later profitability (RMW) and investment (CMA) risk factors to capture persistent return patterns. They also evaluate bond market factors, specifically, default and term premiums, suggesting that priced risks may arise from macroeconomic conditions, not just firm-level characteristics. Furthermore, Carhart (1997) expanded the framework to include a momentum factor. New models further improved the fit but continued mispricing certain types of stocks, particularly those with high investment and low profitability. These residual anomalies suggest that important sources of systematic variation remain unmodeled. In this context, I investigate whether a demand driven characteristic, specifically institutional ownership, can explain cross-sectional return differences that remain unexplained by traditional firm-based models. By evaluating whether portfolios sorted on institutional ownership yield abnormal returns after adjusting for standard risk factors, I assess whether this variable captures systematic pricing effects not accounted for by fundamentals alone.

Koijen and Yogo (2019) provide a foundational shift in this direction by proposing a demand system asset pricing model, where investor holdings, such as institutional ownership, are treated as core pricing inputs. Empirically, they show that asset holdings data capture substantial variation in returns across assets, highlighting the role of investor demand in shaping return patterns. Their findings motivate the present thesis by highlighting institutional ownership as a potentially powerful proxy for non-fundamental demand effects. Basak and Pavlova (2013) present a dynamic general equilibrium model showing how institutional investors are driven by their performance relative to benchmarks. This benchmarking leads to predictable over-weighting of index constituents, distorting returns. Such behavior suggests that institutional ownership may influence prices in a way unrelated to firm fundamentals, raising the possibility that a long-short strategy based on institutional ownership could yield abnormal returns not captured by standard risk factors.

Da et al. (2015) provide empirical evidence that demand-driven shocks can cause temporary pricing distortions. Using Google search data to construct the FEARS index—a proxy for retail investor anxiety—they show that spikes in sentiment are followed by short-term return reversals, particularly among high-beta and high-volatility stocks. This highlights how shifts in investor demand, rather than fundamentals, can systematically

affect asset prices. Extending this idea to institutional behavior, Nofsinger and Sias (1999) and Wermers (1999) find that institutional herding and net buying are positively associated with future returns, reinforcing the view that capital flows can drive prices. Boehmer and Kelley (2009) add that stocks with high institutional ownership incorporate information more quickly, suggesting that institutions not only reflect demand but may also accelerate price adjustment. Together, these findings suggest that institutional ownership could capture persistent, non-fundamental return dynamics

A growing body of literature highlights the role of institutional investors in shaping return patterns. These investors manage a considerable share of assets under professional mandates, dominating trading activity and exhibiting persistent preferences. For instance, Falkenstein (1996) shows that institutions systematically avoid small and illiquid stocks, while Bennett et al. (2003) find that institutional preferences evolved over time, gradually expanding from large-cap to smaller, riskier firms. Furthermore, Gompers and Metrick (2001) show that institutional ownership is strongly correlated with firm size and that rising institutional demand has contributed to the disappearance of the small-stock premium. Such systematic preferences raise the question of whether institutional ownership is merely proxying for characteristics like size or liquidity, rather than representing a standalone priced risk factor.

Together, these studies challenge the assumption that firms' fundamentals alone determine asset prices. This reinforces the motivation for this thesis, which investigates whether institutional ownership explains systematic differences in stock returns. Despite extensive research on institutional trading behavior and demand-side effects, institutional ownership has not been formally examined as a portfolio sorting variable to assess whether it can generate abnormal returns.

3 Hypotheses Development

In previous section, I presented and discussed the empirical findings of asset pricing models and the role of institutional investors in asset pricing dynamics. In this section, I develop a set of testable hypotheses to examine the relevance of institutional ownership in asset pricing models.

According to asset pricing theory, only systematic risk should be compensated in expected returns Sharpe (1964). Multi factor asset pricing models such as Fama and French rely on firm level characteristics – size, value, profitability, and investment – to capture this priced risk. However, recent studies identify systematic returns patterns linked to investor demand dynamics. For instance, Nofsinger and Sias (1999) show strong positive relation between annual changes in institutional ownership and returns on average. Similarly, Wermers (1999) finds that mutual fund herding results in difference in returns between heavily bought and heavily sold stocks. These demand side effects are omitted in models based solely on firm characteristics. If institutional ownership reflects persistent investor demand shared across stocks, it may proxy for a systemic risk factor. Therefore, portfolios sorted by institutional ownership should exhibit differences in returns which are not fully captured by traditional factor models, consistent with institutional ownership being a priced source of systematic risk.

Hypothesis 1: Portfolios with different levels of institutional ownership earn systematically different expected returns.

A central goal of asset pricing models is to explain expected returns through exposure to systematic risk factors. The portion of returns left unexplained—captured by regression alphas—reflects model mispricing. In a correctly specified model, these alphas should be small in magnitude and statistically indistinct from zero. However, studies such as Fama and French (2015), show that even the five–factor model still leaves a significant portion of unexplained returns, especially among small, low–profitability, or high–investment firms. If institutional ownership reflects a priced source of risk omitted from these models, then portfolios sorted on this characteristic should exhibit systematic differences in abnormal returns that persist after controlling for risks. In this case, a long-short portfolio formed based on institutional ownership, should yield a statistically significant alpha, even after controlling for risk. This would imply that institutional ownership captures demand-side forces omitted from traditional models, in line with the findings of Koijen and Yogo (2019), who show that asset holdings can explain return differences beyond firm fundamentals. Similarly, Gompers and Metrick (2001) provide evidence that institutional ownership in U.S. equities helps forecast future returns.

Hypothesis 2: Portfolios sorted on institutional ownership exhibit significant abnormal returns after controlling for risk factors using standard asset pricing models.

Research suggests that institutional ownership may proxy for other risks. Mutual funds show aversion to small-cap firms (Falkenstein, 1996). The persistence of these preferences and the continued growth of financial institutions share of the market created a compositional shift in demand towards large-cap stocks. The increase of average extra return coming from those changes explains some part of the disappearance of the historical and well documented small stock premium (Gompers and Metrick, 2001). Consequently, Bennett et al. (2003) document a later migration of institutions into smaller, riskier firms in search of "greener pastures," a shift that helps explain the rising idiosyncratic volatility of small caps. The research and the data tie closely institutional ownership and size of companies, suggesting that institutional ownership might be just a proxy size.

Hypothesis 3: The return spread between high and low institutional ownership portfolios is explained by firm size.

Mutual funds show preference for liquid stocks, they are particularly drawn to stocks with low transaction costs and large market depth (Falkenstein, 1996). Liquidity, in turn, is closely linked to informational asymmetries and institutional trading behavior. Glosten and Milgrom (1985) find that that presence of asymmetric information between institutional and individual investors lead to positive bid-ask spread. Boehmer and Kelley (2009) provide empirical evidence, showing that institutional trading narrows spreads and improves liquidity, but that institutions also tend to concentrate in already liquid stocks. If institutional investors avoid illiquid stocks, then firms with low institutional ownership may simply be those with higher transaction costs and wider bid-ask spreads. In this case, the return premium observed in low ownership portfolios might reflect compensation for bearing liquidity risk.

Hypothesis 4: The return spread between high and low institutional ownership portfolios is explained by exposure to liquidity risk.

4 Data and Methodology

4.1 Data

To answer the research question and test the hypotheses, I collect institutional holdings of U.S. common stock from LSEG covering the period between the first quarter of 1980 and the last quarter of 2023. Institutional ownership is reported quarterly, and for a proper match with returns data, I expand each observation for three subsequent months following the report date. The total share of stocks held by all institutions for a company exceeding 100% is an issue within the dataset. There are different reasons for why the issue exists, including but not limited to, data errors due to double counting of fillings of institutions and incorrect shares outstanding in Refinitiv dataset. To address institutional ownership values exceeding 100% of shares outstanding, I drop the affected observations which accounts for approximately 2.5% of the sample. Figure 2 presents the distribution of average institutional ownership by firms in the sample. The distribution is skewed to the right with few firms being heavily owned by institutions and majority of U.S. common stock being held by individual investors.

Furthermore, monthly stock returns as well as other stock characteristics including price, shares outstanding, trading volume and bid-ask spread are downloaded from CRSP. Book-to market ratio data is downloaded from COMPUTSTAT. The sample includes U.S. common stocks listed on NYSE, NASDAQ, and AMEX, excluding financial and utility firms as in Fama and French (1993). Companies in those sectors may distort the results due to their unique capital structures and regulatory environments. I restrict the sample to common shares, identified by CRSP share codes 10 and 11. I decide to keep penny stocks and small cap companies, as I alleviate their effects using value-weighted returns for the portfolios creation, but decide to winsorize returns at 0.1% to deal with outliers. Furthermore, I exclude negative book values of equity and winsorize at 0.5% the book-to-market equity observations to treat extreme outliers. Since each of the datasets uses different stock identifiers, I download a linking table from WRDS containing matched PERMNO, CUSIP and GVKEY identifiers, along with corresponding validity periods. This allows me to match firms across datasets accurately over time. After completing the data preparation, and merging all datasets I retain dataset for 525 months, covering 17,457 unique firms and 1, 593, 810 observations. Lastly, I download the Fama-French risk factors for the time span of the study from Kenneth French's data library. I use these factors as benchmarks in time-series regressions to evaluate whether institutional ownership-based strategies generate abnormal returns unexplained by standard risk exposures. Table 1 presents the descriptive statistics of the finalized dataset, before creating mimicking portfolios for risk factors.

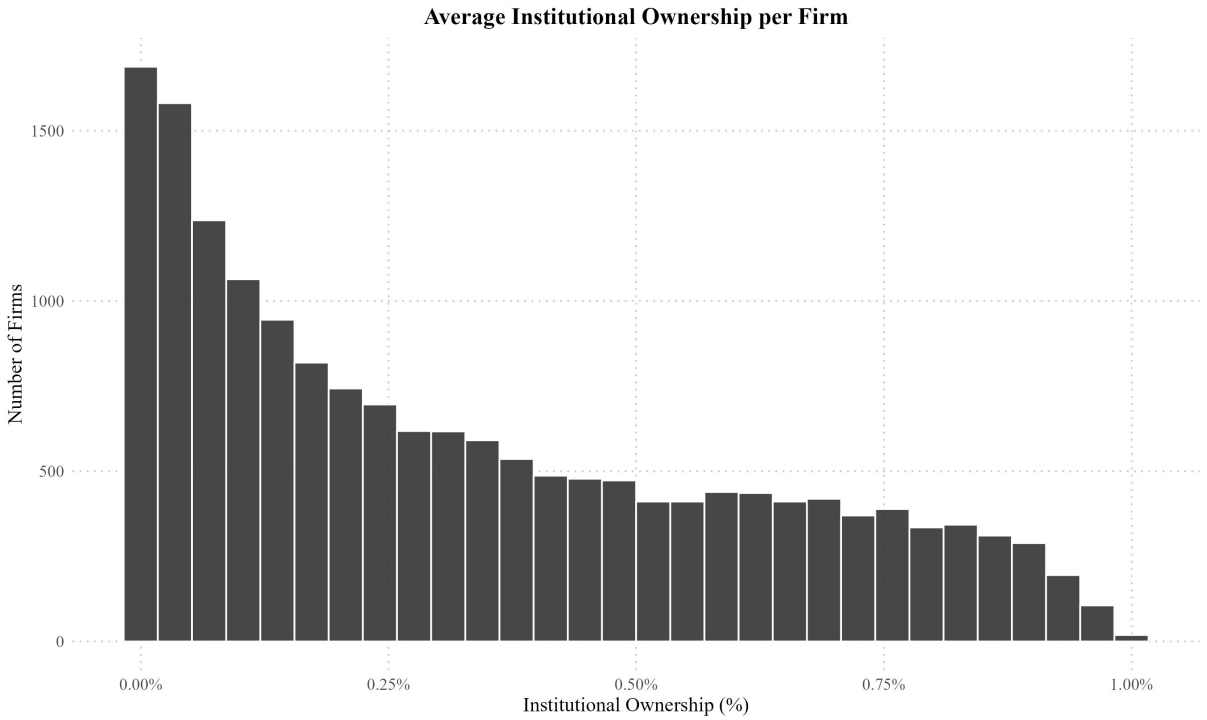

Figure 2: Distribution of average institutional ownership by firms in the sample.

Panel A provides a comprehensive overview of the institutional ownership variables. The average institutional ownership percentage stands at 41% with significant variation of 0.3, suggesting substantial differences across firms in the sample. The number of institutional investors per firm averages around 110, indicative of widespread interest from many institutions. The ownership concentration, measured by the Herfindahl-Hirschman Index (HHI) averages at 0.21. Ownership is dispersed among multiple institutions rather than dominated by few. The presence of institutional block holders, who own more than 5% of shares, averages about 1.6 per firm, further reinforcing the active and influential role these significant stakeholders play in governance and decision-making processes.

Panel B provides market and trading variables. The average stock price within the sample is \$54.46, with a median price of \$14.78, indicating a tendency towards lower-priced firms. Returns average 1%, with notable volatility of 16%. Market capitalization averages \$3.52 billion, spanning from small-cap to very large-cap firms, reflecting diversity in firm size. The book-to-market ratio averages 0.72, suggesting that firms are moderately valued relative to their book values, though the standard deviation of 0.65 indicates variability around this valuation. The average bid-ask spread stands at 0.24, with a median at 0.09, highlighting differences in liquidity and trading costs across the firms in the dataset.

Table 1: Descriptive statistics of the dataset

Panel A: Descriptive statistics of institutional–ownership variables

Variable	NAs	N	Min	Q1	Median	Mean	Q3	Max	SD
Largest 5 Institutional Ownership Size	0	1 593 810	1	655 784	2 943 180	17 873 096	11 233 461	4 313 880 061	75 478 955
Largest 10 Institutional Ownership Size	0	1 593 810	1	755 248	3 880 578	24 179 453	15 441 559	533 504 968	98 877 078
Number of >5% Institutional Block Ownerships	0	1 593 810	0	0	1.00	1.61	3.00	10.00	1.57
Total Ownership by Institutional BlockHolders	503 934	1 089 876	28 240	1 016 304	3 658 451	16 277 847	12 226 369	3 445 374 483	59 193 698
Number of Institutional Owners	0	1 593 810	1	11	37	110	118	4 813	222
Largest Institutional Ownership Size	0	1 593 810	1	278 415	1 064 900	6 224 608	3 899 468	3 445 374 483	28 815 726
Total Institutional Ownership	0	1 593 810	1	780 111	4 945 819	45 979 352	25 000 116	9 882 002 925	210 806 156
Institutional Ownership Concentration (HHI)	0	1 593 810	0.01	0.06	0.11	0.21	0.27	1.00	0.24
Institutional Ownership (%)	0	1 593 810	0.00	0.13	0.37	0.41	0.67	1.00	0.30

Panel B: Descriptive statistics of market- and trading-related variables

Variable	NAs	N	Min	Q1	Median	Mean	Q3	Max	SD
Price	0	1 593 810	0.01	6.38	14.78	53.46	28.75	546 725.00	3 005.54
Return	0	1 593 810	-0.65	-0.06	0.00	0.01	0.07	1.39	0.16
Excess Return	0	1 593 810	-0.65	-0.07	0.00	0.01	0.07	1.39	0.16
Shares Outstanding (in 1,000s)	0	1 593 810	77	5 704	14 979	72 266	42 617	17 102 540	333 889
Market Cap (in 1,000s)	0	1 593 810	44	44 344	180 136	3 521 755	886 065	3 070 174 000	277 559 839
Book-to-Market	39 979	1 553 831	0.02	0.31	0.57	0.72	0.92	5.02	0.65
Trading Volume	343 905	1 249 905	0.00	2 482	13 431	30 370	67 009	50 425 707	61 316
Bid-Ask Spread	472 601	1 121 209	-3.31	0.02	0.09	0.24	0.25	190.00	0.74

4.2 Methodology

In this section I outline the methodology I use throughout the thesis to answer the research question and test the hypotheses. Following standard asset pricing methodology (Fama and French, 1993; Carhart, 1997), I sort stocks into institutional ownership quintiles, form long-short portfolios, evaluate risk-adjusted returns, and predictive regressions (Fama and MacBeth, 1973). At the end of each calendar quarter from 1980 to 2023, I sort all NYSE, AMEX, and NASDAQ common stocks into quintiles based on institutional ownership, measured as the ratio of institutional holdings to shares outstanding. To ensure robustness, I apply NYSE breakpoints for sorting, which mitigates distortions caused by the prevalence of micro-cap firms on AMEX (Hou et al., 2015). Because institutional ownership is reported with a lag in quarterly 13F filings (U.S. Securities and Exchange Commission, 2023), I assign each ownership observation to the three months following its reporting quarter, starting one month after the filing date. For example, institutional ownership reported for Q1 is applied to portfolio formation in April, May, and June. This lag structure ensures that only publicly available data is used at the time of investment and helps avoid look-ahead bias. All portfolios are formed in calendar time and held for three months with quarterly re-balancing.

For each portfolio, I compute monthly excess returns using both equal-weighted and value-weighted approaches. The central object of analysis is the Institutional Ownership Spread Portfolio, constructed as a long-short strategy that goes long in the highest (Q5) quintile and short in the lowest institutional ownership quintile (Q1). This spread captures the performance difference between firms with high and low institutional ownership and serves as a direct test of the research question. By tracking the returns of this strategy over time, I assess whether institutional ownership contains pricing-relevant information beyond what is captured by standard risk factors. To evaluate the performance of the institutional ownership spread strategy, I estimate time-series regressions using standard asset pricing models. Specifically, I regress the monthly excess returns of each institutional ownership quintile as well as the (Q5 – Q1) spread portfolio on the factors from the CAPM, Fama-French three-factor and five-factor models, and the Carhart four-factor model. The alpha in each regression captures the strategy's abnormal return unexplained by common risk factors. This approach allows me to test whether the return differential across institutional ownership quintiles can be explained by existing systematic risk factors, or whether it reflects potential mispricing.

To examine whether institutional ownership proxies for a priced risk, I construct two liquidity risk factors following Fama and French (1993) triple-sort methodology. One factor is based on turnover, reflecting trading activity, and the other on relative bid-ask spread, capturing transaction costs. At the end of each June, I sort all stocks independently into two size groups (small and big), three book-to-market groups (low, medium, high), and

three liquidity groups (low, medium, high), using NYSE breakpoints for each characteristic. This results in 18 portfolios ($2 \times 3 \times 3$). Lastly, for each factor, I calculate the liquidity premium by taking the value-weighted average return of the six most liquid portfolios and subtracting the return of the six least liquid portfolios, based on the liquidity sort within each size and book-to-market cell:

$$\text{LIQS} = \frac{1}{6}\Big[(S/L/H + S/M/H + S/H/H + B/L/H + B/M/H + B/H/H) - (S/L/L + S/M/L + S/H/L + B/L/L + B/M/L + B/H/L)\Big] \quad (1)$$

$$\text{LIQT} = \frac{1}{6}\Big[(S/L/H + S/M/H + S/H/H + B/L/H + B/M/H + B/H/H) - (S/L/L + S/M/L + S/H/L + B/L/L + B/M/L + B/H/L)\Big] \quad (2)$$

The turnover-based factor captures liquidity through trading volume relative to shares outstanding, while the spread-based factor reflects price impact and transaction costs. Constructing these factors using the triple-sort approach ensures that the resulting liquidity premiums are not confounded by size or value effects and are representative across different segments of the market. Both liquidity factors are included in extended asset pricing regressions to test whether they explain the abnormal returns generated by the institutional ownership spread portfolio. Table 2 presents the correlation matrix between all Fama-French risk factors and constructed liquidity risk factors. The low correlation between LIQS and traditional Fama-French factors suggests that it may reflect a separate source of systematic variation in returns.

Table 2: Correlation Matrix of Risk Factors

Statistical significance is denoted by *** for 1% level, ** for 5% level, and * for 10% level.

	MKT-RF	SMB	HML	MOM	CMA	RMW	LIQT	LIQS	
MKT-RF	1								
SMB	0.22***	1							
HML	-0.21***	-0.049***	1						
MOM	-0.197***	-0.057***	-0.218***	1					
CMA	-0.365***	-0.059***	0.679***	0.003	1				
RMW	-0.246***	-0.42***	0.222***	0.088***	0.132***	1			
LIQT	0.637***	0.491***	-0.288***	-0.222***	-0.355***	-0.465***	0.087*	1	
LIQS	-0.042	0.112*	0.143**	-0.215***	0.122**	-0.019	0.061	-0.039	1

In addition to portfolio-level analysis, I implement Fama and MacBeth (1973) cross-sectional regressions to test whether institutional ownership is a significant predictor of

expected returns after controlling for other firm characteristics. In each month, I run a cross-sectional regression of individual stock returns on lagged institutional ownership and control variables such as size, book-to-market ratio, and turnover. I then average the estimated slope coefficients over time. This procedure provides an alternative test of the pricing relevance of institutional ownership and helps determine whether its return effect is distinct from known firm-level characteristics. To further investigate whether institutional ownership proxies for known firm characteristics or latent risks, I conduct two robustness tests. First, I implement a double-sorting procedure based on firm size and institutional ownership to examine whether the observed return differences persist within size buckets. This allows me to isolate the effect of institutional ownership among small- and large-cap stocks. Second, I augment the calendar-time regressions with liquidity controls by including the two constructed liquidity risk factors. These tests aim to determine whether the institutional ownership effect is driven by exposure to liquidity or size-related risks, or whether it constitutes a distinct return pattern unexplained by standard pricing models.

5 Results

This section presents the empirical findings of the thesis, organized to first evaluate the performance of portfolios sorted by institutional ownership, simultaneously assessing whether the return patterns can be explained by traditional risk factors. Following this, I shift focus to firm characteristics and estimate panel regressions to investigate what drives institutional ownership itself. This step helps contextualize whether institutional preferences are systematically linked to firms' traits. In the third stage, I implement Fama-MacBeth regressions to assess whether the return differentials observed earlier persist when controlling for broad set of stock-level variables. The final part of the section provides robustness tests to evaluate whether the excess returns linked to institutional ownership are explained by known characteristics. First, I use double sorted calendar-time portfolio technique to simply test whether institutional ownership simply captures size effect. Then I introduce two proxies for liquidity to reassess the alphas of the institutional ownership based portfolios.

Panel A of Table 3 presents value-weighted calendar-time portfolio returns. The average excess return difference between the Q1 and Q5 portfolios is negligible and statistically insignificant. However, risk-adjusted alphas are positive across all quintiles and decline systematically with higher institutional ownership. Under the Fama-French 5-factor model, Q1 earns an alpha of 0.37% per month, while Q5 earns 0.19%, resulting in a statistically significant Q5–Q1 spread of 18 basis points. These findings provide partial support for Hypothesis 1: while raw returns show little variation, risk-adjusted returns exhibit systematic differences by ownership level. The persistence of abnormal returns

across standard models supports Hypothesis 2. Panel B of Table 3 reports the results using equal-weighted portfolios. In contrast to the value-weighted results, the return spread is statistically insignificant across all specifications. This reflects the greater influence of small-cap stocks, that I do not exclude from the sample.

Table 3: Main Results – Calendar Time Portfolio Returns

This Table reports calendar-time portfolio returns (multiplied by 100). Stocks are sorted into 5 quintile portfolios based on institutional ownership. Stocks are held in portfolio for 3-months. Excess returns (return minus risk-free rate), Fama-French 3-factor alphas (market, size and value), Carhart's 4-factor alphas (market, size, value and momentum), and Fama-French 5-factor alphas (market, size, value, investment and profitability). Panel A reports value-weighted portfolio returns, and Panel B reports equally-weighted portfolio returns. T-statistics are reported below the coefficient estimates. Statistical significance is denoted by *** for 1% level, ** for 5% level, and * for 10% level.

Panel A: Value Weighted

	Institutional Ownership					
	Q1	Q2	Q3	Q4	Q5	Q5 – Q1
Excess Return	0.94***	1.05***	1.00***	1.00***	0.95***	0.01
	(4.28)	(5.08)	(4.93)	(4.76)	(4.49)	(0.93)
3-Factor Alpha	0.32***	0.36***	0.29***	0.23***	0.15***	-0.17*
	(3.64)	(5.59)	(5.89)	(4.49)	(3.42)	(-1.69)
4-Factor Alpha	0.28***	0.38***	0.26***	0.23***	0.14***	-0.14*
	(3.10)	(5.75)	(5.24)	(4.35)	(2.97)	(-1.75)
5-Factor Alpha	0.37***	0.37***	0.23***	0.22***	0.19***	-0.18***
	(4.02)	(5.56)	(4.66)	(3.68)	(2.61)	(-2.66)

Panel B: Equally Weighted

	Institutional Ownership					
	Q1	Q2	Q3	Q4	Q5	Q5 – Q1
Excess Return	0.82***	1.00***	1.00***	0.98***	0.93***	0.12
	(3.27)	(3.98)	(4.02)	(3.91)	(3.57)	(0.83)
3-Factor Alpha	0.09	0.16***	0.13***	0.09	0.02	-0.07
	(0.91)	(2.77)	(2.64)	(1.53)	(0.30)	(-0.53)
4-Factor Alpha	0.23**	0.29***	0.23***	0.21***	0.12*	-0.11
	(2.43)	(6.05)	(4.93)	(3.70)	(1.82)	(-0.85)
5-Factor Alpha	0.21**	0.18***	0.09*	0.05	-0.02	-0.23*
	(2.04)	(3.04)	(1.80)	(0.73)	(-0.28)	(-1.75)

Table 4: Characteristics of Institutional Ownership Quintile Portfolios

This table reports the average characteristics of stocks sorted into quintiles based on institutional ownership. For each month, firms are grouped into quintiles according to their institutional ownership levels. Within each quintile and month, characteristics are averaged across firms, and then averaged over time. Reported variables include Market Value of Equity (in $1,000), Book-to-Market ratio, Monthly Turnover, and Bid-Ask Spread.

	Q1	Q2	Q3	Q4	Q5
Market Value of Equity ($000s)	1,737,620	8,110,118	5,568,515	4,165,161	2,912,747
Book-to-Market	0.834	0.704	0.655	0.617	0.585
Monthly Turnover	1.32	1.38	1.51	1.61	1.82
Bid-Ask Spread	0.0516	0.0224	0.0165	0.0129	0.0119

To better understand the source of return differences observed in Table 3, Table 4 reports average firm characteristics for each institutional ownership quintile portfolio. There is not clear monotonic pattern of market capitalization across the quintiles. The firms in the first quintile are the smallest on average ($1.7bln), whereas second quintile contains largest on average firms ($8.1bln). Subsequent quintiles decline in size, ending at $2.9bln in Q5. Book-to-market ratios, by contrast, display a clear and declining trend. The average B/M falls from 0.83 in Q1 to 0.58 in Q5, indicating that institutions tend to prefer growth firms. The liquidity measures display a clear and consistent pattern. Turnover increases steadily from 1.32 in Q1 to 1.82 in Q5, and the relative bid-ask spread declines sharply from 5.2% to 1.2%. These results align closely with prior research showing that institutional investors tend to prefer liquid stocks with low transaction costs (Falkenstein, 1996; Boehmer and Kelley, 2009). The persistence of these preferences across quintiles supports the idea that institutional ownership may function as a proxy for liquidity.

Table 5 presents panel regressions results examining which firm characteristics help explain the level of institutional ownership. The results confirm that larger firms attract institutional investors. A 1-unit increase in the log of market capitalization is associated with a 10 percentage point increase in institutional ownership, robust across all models. Liquidity also matters, 1 p.p. increase in the relative bid-ask spread lowers institutional ownership by 1.69 p.p. in the second model specification. On the contrary to portfolio analysis previously, book-to-market ratio has a positive estimate, suggesting that institutions prefer value stocks. The effect is small, but more robust as here I control for other firm characteristics like size and liquidity. Lastly, recent past winners tend to have lower institutional ownership, possibly reflecting profit-taking or institutions' concerns about reversals.

Table 5: Determinants of Institutional Ownership

This table reports pooled panel regressions of institutional ownership percentage on firm characteristics. T-statistics (in parentheses) are based on standard errors clustered at the firm level. Statistical significance is denoted by *** for 1% level, ** for 5% level, and * for 10% level.

Dependent variable: Institutional Ownership (%)					
	(1)	(2)	(3)	(4)	(5)
Intercept	-0.837***	0.505***	-0.806***	-0.813***	-0.762***
	(-59.52)	(22.79)	(-40.33)	(-51.36)	(-34.42)
Log(Market Cap)	0.100***		0.100***	0.100***	0.098***
	(85.55)		(62.19)	(76.16)	(55.32)
Book-to-Market	0.029***		0.048***	0.020***	0.038***
	(15.36)		(21.19)	(9.69)	(14.91)
Turnover		0.0004	0.0002		0.0014***
		(1.24)	(1.58)		(4.60)
Relative Bid-Ask Spread		-1.688***	-0.221***		-0.310***
		(-58.43)	(-9.12)		(-10.72)
1-Month Momentum				-0.074***	-0.087***
				(-47.10)	(-50.59)
12-Month Momentum				-0.027***	-0.030***
				(-22.51)	(-22.74)
R^2	0.512	0.150	0.537	0.513	0.542
Adj. R^2	0.513	0.150	0.537	0.513	0.542
N	1,553,831	1,093,779	1,080,897	1,371,047	958,782

Table 6 presents the Fama-MacBeth regressions of monthly returns on different stocks' characteristics. The key result is that institutional ownership is negatively related to returns across all specifications. In the full model (Column 10), the coefficient on institutional ownership is -0.035 (t = -12.67), meaning that a 10 p.p. increase in institutional ownership is associated with a 35 basis point lower monthly return. This negative and significant estimate suggests that contrary to the notion of institutions as informed arbitrageurs, stocks more heavily owned by institutions under-perform. The coefficient on HHI is positive and significant, suggesting that concentrated institutional ownership is associated with higher returns. This can be associated with various sources like more effective monitoring by large block holders, faster decision-making due to less dispersed control, or intentional, informed positions by selective investors.

Table 6: Main Results – Fama-MacBeth regressions

This table reports the Fama–MacBeth cross-sectional regressions of monthly firm-level excess returns on various firm characteristics. Each column reports the time-series average of coefficients estimated from monthly cross-sectional regressions. T-statistics are reported below the coefficient estimates and are based on the time-series variation of the coefficients. Statistical significance is denoted by *** for 1% level, ** for 5% level, and * for 10% level. R^2 and Adjusted R^2 are the averages across months.

Dependent variable: Excess Return										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(Intercept)	-0.074***	-0.101***	-0.132***	-0.072***	-0.091***	-0.142***	-0.104***	-0.057***	-0.042***	-0.104***
	(-13.46)	(-18.61)	(-21.19)	(-14.75)	(-14.41)	(-19.03)	(-15.16)	(-8.58)	(-6.89)	(-15.16)
Log(Market Cap)	0.006***	0.010***	0.011***	0.005***	0.009***	0.012***	0.006***	0.004***	0.001***	0.007***
	(17.63)	(28.26)	(30.14)	(17.23)	(19.77)	(22.99)	(19.18)	(8.96)	(3.49)	(15.69)
Book-to-Market	0.012***	0.013***	0.014***	0.028***	0.020***	0.021***	0.028***	0.018***	0.031***	0.033***
	(13.35)	(14.80)	(14.97)	(34.27)	(22.71)	(23.27)	(33.97)	(19.98)	(36.82)	(37.64)
Institutional Ownership (%)		-0.042***	-0.034***	-0.030***	-0.059***	-0.042***	-0.024***			-0.035***
		(-19.84)	(-18.11)	(-15.75)	(-19.00)	(-14.43)	(-14.55)			(-12.67)
Institutional Ownership Concentration (HHI)			0.031***			0.049***	0.024***			0.040***
			(13.41)			(19.31)	(10.76)			(16.16)
Share Turnover					0.014***	0.014**		0.020***	0.018***	0.018***
					(6.17)	(6.05)		(6.80)	(6.34)	(6.33)
Relative Bid-Ask Spread					-0.250***	-0.289***		-0.008***	-0.007***	-0.007***
					(-11.44)	(-13.40)		(-5.28)	(-5.00)	(-5.05)
1-Month Momentum				-0.042***			-0.043***		0.008***	0.008***
				(-11.28)			(-11.64)		(3.52)	(3.45)
12-Month Momentum				0.102***			0.10***		0.012***	0.012***
				(68.84)			(68.69)		(5.27)	(5.33)
R^2	0.022	0.028	0.031	0.143	0.070	0.077	0.176	0.062	0.166	0.176
Adj. R^2	0.021	0.027	0.030	0.142	0.060	0.065	0.164	0.054	0.157	0.164
N	525	525	525	513	525	525	513	525	513	513

larger firms earn slightly higher returns when controlling for other variables. Book-to-market also enters positively. 12-month momentum has a clear positive coefficient, whereas 1-month momentum is negative. These patterns suggest that the institutional ownership effect appears alongside other firm characteristics, although the typical small-cap premium is not present in this specification.

Table 7 explores whether the return spread associated with institutional ownership persists after accounting for firm size, by conducting a double sort on size (small vs. big) and institutional ownership quintiles. The results show that the institutional ownership premium is concentrated entirely among small firms. In Panel A, the high-minus-low (Q5–Q1) portfolio among small stocks delivers a monthly excess return of 70 basis points. Under the Fama–French 3-factor model alpha is 57 basis points and remains statistically significant across all other model specifications, 73 under Carhart and 36 under FF5. The concentration of the return spread in small-cap stocks is consistent with *Hypothesis 3*, indicating that institutional ownership proxies for firm size. In contrast, Panel B (big firms) shows no significant Q5–Q1 alpha under any model, and even the raw excess return spread is economically small and statistically insignificant. This indicates that among large firms, return differences across institutional ownership levels are negligible, potentially due to more efficient pricing, better liquidity, or a broader investor base that absorbs institutional demand with less distortion. Taken together, these findings indicate that the institutional ownership anomaly is a small-cap phenomenon, and that size-adjusted tests are essential to isolate the effect.

Tables 8 and 9 assess whether the return differences across institutional ownership quintiles can be attributed to liquidity risk by augmenting traditional asset pricing models with proxies for liquidity, namely trading costs (relative spread), trading activity (turnover). In Table 8 (value-weighted), the institutional ownership premium, captured by the Q5–Q1 alpha, remains negative in all specifications but is only statistically significant in 5 out of 9 models, and just one reaches the 1% significance level, primarily under the Fama–French 5-factor framework. This suggests that controlling for liquidity attenuates but does not eliminate the return gradient. In Table 9 (equal-weighted), the effect weakens further: only 4 of 9 models produce significant Q5–Q1 spreads. Overall, these results imply that liquidity explains part of the institutional ownership return pattern, especially in less liquid or smaller stocks. Building on earlier results showing that the institutional ownership effect is concentrated among small firms, I now restrict the sample to the small-cap universe and re-estimate the calendar-time regressions using models augmented with liquidity controls

Table 7: Calendar-Time portfolios, double sorted on Size and Institutional Ownership

This table reports monthly value-weighted excess returns and alphas (multiplied by 100) for portfolios sorted by institutional ownership within two firm size groups. (Small and Big). Q1 to Q5 represent IO quintiles; Q5–Q1 is the high-minus-low strategy. Alphas are estimated from time-series regressions on the Fama–French 3-factor model, Carhart 4-factor model, and Fama–French 5-factor model. T-statistics are reported below the coefficient estimates. Statistical significance is denoted by *** for 1% level, ** for 5% level, and * for 10% level.

Panel A: Small Firms						
	Q1	Q2	Q3	Q4	Q5	Q5 - Q1
Excess Return	0.18	0.61	0.76*	0.80**	0.88**	0.70***
	(0.46)	(1.62)	(1.89)	(1.99)	(2.07)	(2.69)
3-Factor Alpha	-0.45**	-0.07	-0.01	0.04	0.12	0.57***
	(-2.32)	(-0.55)	(-0.11)	(0.50)	(1.12)	(2.59)
4-Factor Alpha	-0.44**	0.11	0.11	0.15*	0.29***	0.73***
	(-2.03)	(0.75)	(1.08)	(1.74)	(2.64)	(3.01)
5-Factor Alpha	-0.33	0.05	0.09	0.07	0.03	0.36*
	(-1.58)	(0.35)	(0.85)	(0.78)	(0.26)	(1.68)
Panel B: Big Firms						
	Q1	Q2	Q3	Q4	Q5	Q5 - Q1
Excess Return	0.46	0.17	0.29	0.34	0.41	-0.05
	(1.32)	(0.51)	(0.89)	(1.01)	(1.09)	(-0.19)
3-Factor Alpha	0.14	-0.14	-0.05	-0.02	-0.05	-0.19
	(-0.88)	(-1.35)	(-0.57)	(-0.23)	(-0.36)	(-0.91)
4-Factor Alpha	0.03	-0.04	-0.10	0.02	-0.13	-0.16
	(0.15)	(-0.42)	(-1.03)	(0.18)	(-0.93)	(-0.73)
5-Factor Alpha	0.17	-0.09	-0.06	-0.07	-0.16	-0.33
	(1.04)	(-0.89)	(-0.61)	(-0.65)	(-1.12)	(-1.52)

Table 8: Value-Weighted Alphas from Augmented Models

This table reports calendar-time portfolio alphas (multiplied by 100) across quintiles of institutional ownership. Each panel corresponds to a different asset pricing model augmented with liquidity factors. Three specifications are shown: models with relative bid-ask spread (LIQS), turnover (LIQT), and both combined. Alphas are estimated from time-series regressions of monthly excess returns on the respective factor models. T-statistics are reported below the coefficient estimates. Statistical significance is denoted by *** for 1% level, ** for 5% level, and * for 10% level.

	Q1	Q2	Q3	Q4	Q5	Q5 - Q1
Panel A: FF3 Models						
FF3 + LIQ_{Spread}	0.30***	0.33***	0.33***	0.26***	0.20***	-0.10
	(3.08)	(4.64)	(6.16)	(4.08)	(2.68)	(-1.32)
FF3 + $LIQ_{Turnover}$	0.40***	0.42***	0.30***	0.32***	0.19**	-0.21*
	(3.85)	(5.43)	(5.19)	(4.58)	(2.31)	(-1.92)
FF3 + LIQ_{Both}	0.38***	0.39***	0.34***	0.31***	0.16*	-0.22**
	(3.41)	(4.73)	(5.52)	(4.27)	(1.84)	(2.02)
Panel B: Carhart4 Models						
Carhart4 + LIQ_{Spread}	0.29***	0.34***	0.32***	0.27***	0.21***	-0.08
	(3.00)	(4.80)	(5.94)	(4.20)	(2.73)	(-1.63)
Carhart4 + $LIQ_{Turnover}$	0.39***	0.41***	0.28***	0.33***	0.20**	-0.19
	(3.70)	(5.22)	(4.98)	(4.63)	(2.45)	(-1.55)
Carhart4 + LIQ_{Both}	0.37***	0.38***	0.31***	0.30***	0.17**	-0.20**
	(3.28)	(4.52)	(5.26)	(4.33)	(2.01)	(-1.98)
Panel C: FF5 Models						
FF5 + LIQ_{Spread}	0.32***	0.35***	0.31***	0.25***	0.22***	-0.10
	(3.20)	(4.92)	(5.77)	(3.95)	(2.83)	(-1.52)
FF5 + $LIQ_{Turnover}$	0.41***	0.40***	0.27***	0.31***	0.18**	-0.23***
	(3.94)	(5.00)	(4.70)	(4.45)	(2.22)	(-2.78)
FF5 + LIQ_{Both}	0.35***	0.37***	0.29***	0.28**	0.15*	-0.20**
	(3.45)	(4.62)	(5.04)	(4.10)	(1.92)	(2.01)

Table 9: Equally-Weighted Alphas from Augmented Models

This table reports calendar-time portfolio alphas (multiplied by 100) across quintiles of institutional ownership. Each panel corresponds to a different asset pricing model augmented with liquidity factors. Three specifications are shown: models with relative bid-ask spread (LIQS), turnover (LIQT), and both combined. Alphas are estimated from time-series regressions of monthly excess returns on the respective factor models. T-statistics are reported below the coefficient estimates. Statistical significance is denoted by *** for 1% level, ** for 5% level, and * for 10% level.

	Q1	Q2	Q3	Q4	Q5	Q5 - Q1
Panel A: FF3 Models						
FF3 + LIQ_{Spread}	0.32***	0.29***	0.18***	0.16**	0.04	-0.28**
	(2.96)	(4.68)	(3.33)	(2.34)	(0.46)	(-2.01)
FF3 + $LIQ_{Turnover}$	-0.23*	0.07	0.08	0.00	-0.15*	-0.07
	(-1.94)	(0.99)	(1.28)	(0.01)	(-1.87)	(0.48)
FF3 + LIQ_{Both}	-0.01	0.19***	0.13**	0.06	-0.13	0.12
	(-0.06)	(2.70)	(1.98)	(0.80)	(-1.55)	(-0.79)
Panel B: Carhart4 Models						
Carhart4 + LIQ_{Spread}	0.38***	0.35***	0.23***	0.22***	0.09	-0.29**
	(3.74)	(6.80)	(4.63)	(3.53)	(1.21)	(-2.09)
Carhart4 + $LIQ_{Turnover}$	0.00	0.30***	0.24***	0.20***	0.01	0.01
	(-0.00)	(5.13)	(4.34)	(2.92)	(0.14)	(0.07)
Carhart4 + LIQ_{Both}	0.14	0.35***	0.24***	0.21***	-0.01	-0.15
	(1.16)	(5.80)	(4.21)	(2.88)	(-0.14)	(-0.90)
Panel C: FF5 Models						
FF5 + LIQ_{Spread}	0.43***	0.31***	0.14***	0.11	0.00	-0.43***
	(4.04)	(4.92)	(2.60)	(1.64)	(-0.04)	(-3.15)
FF5 + $LIQ_{Turnover}$	-0.07	0.08	-0.02	-0.12	-0.28***	-0.21
	(-0.58)	(1.16)	(-0.36)	(-1.58)	(-3.28)	(-1.29)
FF5 + LIQ_{Both}	0.14	0.21***	0.03	-0.06	-0.26***	-0.40**
	(1.14)	(2.77)	(0.43)	(-0.70)	(-2.88)	(-2.41)

Table 10 presents calendar-time alphas for institutional ownership sorted portfolios within the small-cap universe, estimated using asset pricing models augmented with liquidity controls. While previous results showed a strong and statistically significant return premium associated with low institutional ownership among small firms, this effect disappears once liquidity is considered. Across all specifications, namely Fama–French 3-factor, Carhart 4-factor, and Fama–French 5-factor, the $Q5$–$Q1$ alpha is economically small and statistically insignificant. These results suggest that the previously observed return pattern across institutional ownership quintiles is fully absorbed by liquidity risk within small stocks. In other words, institutional ownership does not represent an independent source of return variation in this segment of the market but rather serves as a proxy for trading frictions such as higher bid-ask spreads or lower turnover. The evidence supports *Hypothesis 4*, suggesting institutional ownership reflects latent liquidity risk. This provides convincing evidence that the institutional ownership premium is not a distinct anomaly, but a reflection of well-known market frictions that are already priced in.

Table 10: Calendar-Time Portfolios (Small Stocks Only), Models Augmented with Liquidity Factors

This table reports monthly, value-weighted alphas (multiplied by 100) from calendar-time regressions estimated on portfolios formed within the small-cap universe. Stocks are sorted into quintiles based on institutional ownership (Q1–Q5), with Q5–Q1 representing the high-minus-low strategy. Each row shows the intercept (alpha) from regressions of portfolio returns on traditional asset pricing models: Fama–French 3-factor, Carhart 4-factor, and Fama–French 5-factor models, each augmented with liquidity controls, namely relative bid-ask spread (LIQS) and turnover (LIQT). T-statistics are reported below the coefficient estimates. Statistical significance is denoted by *** for 1% level, ** for 5% level, and * for 10% level.

Small Firms						
	Q1	Q2	Q3	Q4	Q5	Q5 - Q1
Excess Return	0.18	0.61	0.76*	0.80**	0.88**	0.70***
	(0.46)	(1.62)	(1.89)	(1.99)	(2.07)	(2.69)
3-Factor Alpha	-0.19	0.14	0.15	0.09	-0.03	0.16
	(-0.88)	(0.94)	(1.37)	(1.04)	(-0.25)	(0.65)
4-Factor Alpha	-0.25	0.26*	0.22**	0.17*	0.13	0.38
	(-1.11)	(1.67)	(2.02)	(1.82)	(1.06)	(1.47)
5-Factor Alpha	-0.08	0.28*	0.26	0.13**	-0.11	-0.03
	(-0.35)	(1.76)	(2.38)	(1.33)	(-0.98)	(-0.13)

6 Conclusions

In this thesis, I investigate whether institutional ownership contains pricing-relevant information beyond what is captured by standard asset pricing models. Specifically, I sort stocks into quintiles based on institutional ownership and construct a long-short strategy to evaluate whether it yields abnormal returns. Furthermore, I assess whether these returns persist after adjusting for exposure to established risk factors. The analysis combines calendar-time portfolio regressions, Fama-MacBeth cross-sectional regressions, and the inclusion of custom liquidity risk factors to augment standard models.

The empirical evidence provides partial support for *Hypothesis 1*: while raw excess returns do not differ meaningfully across institutional ownership quintiles, risk-adjusted returns show that stocks in the lowest quintile of institutional ownership outperform those in the highest quintile, generating a statistically significant monthly alpha of approximately 18 basis points. This return differential persists after controlling for standard risk factors. Firm-level Fama-MacBeth regressions confirm a robust and highly significant negative relationship between institutional ownership and subsequent excess returns.

The findings also offer support for *Hypothesis 2*. Table 3 demonstrates that the abnormal returns associated with the long-short institutional ownership strategy persist under a range of standard asset pricing models. This suggests that institutional ownership captures return variation not fully accounted for by these models, at least before additional controls are introduced. These results underscore the potential importance of demand-side characteristics in explaining cross-sectional return differences.

Hypotheses 3 and *4* are likewise supported by the evidence. The double-sorting portfolio analysis reveals that the return premium is concentrated entirely among small-cap stocks, indicating that institutional ownership proxies for firm size. Furthermore, the inclusion of liquidity controls through factor-augmented regressions reduces the economic and statistical significance of the abnormal returns. In particular, among small-cap stocks where the return differential was most pronounced, the effect becomes statistically insignificant once bid-ask spreads and turnover are controlled for. These findings imply that institutional ownership does not represent an independently priced risk factor but rather reflects latent exposures to size and liquidity.

Overall, the results suggest that while institutional ownership is not a distinct source of priced risk, it may offer some informational value for portfolio construction, as it is associated with return differentials that, under certain conditions, can yield abnormal returns. While this thesis provides robust evidence on the relationship between institutional ownership and cross-sectional returns, one limitation warrants mention. The analysis relies on quarterly 13F filings to measure institutional ownership, which may not fully capture higher-frequency changes in institutional positions. This could introduce measurement

errors in portfolio formation and bias the results.

Future research could extend these findings in several directions. For instance, applying the analysis to international markets would help assess the generalizability of the results across different institutional structures and regulatory environments. Additionally, distinguishing between various types of institutional investors could provide more granular insights into the drivers of the observed return patterns. Further work could also incorporate alternative or more detailed liquidity measures to better understand which dimensions of liquidity institutional ownership is proxying for.

7 Appendix: Use of AI tools

In the preparation of this thesis, AI tool such as ChatGPT was used, in line with the MSc Finance AI policy guidelines. The nature of this usage is detailed below:

- Proofreading and language refinement: ChatGPT was used to improve grammar, sentence structure, and overall clarity in selected sections of the thesis.
- Idea generation and academic phrasing: AI was used to help rephrase and clarify academic expressions, particularly in the literature review section, based on original notes and outlines prepared by myself. This assistance was limited to language refinement and did not include argument development.
- Code explanation and debugging: AI support was used to understand error messages and resolve coding issues during the development of empirical tests in R. It was also used for formatting tables in Latex.

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