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FUNDAMENTALS, VALUATION, AND STOCK RETURNS IN US MEGA-CAP EQUITIES: A PANEL CASE STUDY, 2005–2025

(A Thesis in Empirical Finance)

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Abstract

This study examines whether accounting fundamentals and valuation multiples predict quarterly stock returns within a hand-picked sample of ten US mega-cap firms observed over 83 quarters (2005Q2–2025Q4). The sample—Apple, Microsoft, NVIDIA, Amazon, Alphabet, Berkshire Hathaway, Walmart, Eli Lilly, Exxon Mobil, and Johnson & Johnson—collectively represents roughly one-third of US equity market capitalization during the sample period and spans four distinct economic regimes: the pre-GFC expansion, the 2008–09 financial crisis, the 2010–2019 low-rate expansion, and the 2020–2025 pandemic/inflation era. Because traditional cross-sectional factor tests are ill-suited to such a narrow cross-section, I adopt a panel case-study design using firm and quarter fixed effects with firm-clustered standard errors. The main specification relates one-quarter-ahead returns to lagged log price-to-earnings, log price-to-book, return on equity, leverage, liquidity, and firm size. I find three robust results. First, within-firm over-time variation in the earnings multiple negatively predicts next-quarter returns ($\beta = -0.023$, $t = -2.88$), consistent with a value-premium mechanism operating even within the mega-cap universe. Second, lagged return on equity negatively predicts returns ($\beta = -0.0007$, $t = -2.31$), indicating a profitability reversal that is inconsistent with a naïve quality-factor interpretation. Third, the predictive content of fundamentals is concentrated in crisis quarters ($R^2 = 0.15$) and essentially absent in calm periods ($R^2 = 0.002$), suggesting that fundamentals matter most precisely when investors most need them. These findings have implications for factor investing in concentrated portfolios and for the interpretation of quality-growth premia in the post-2010 US equity market.

1. Introduction

A central question in empirical asset pricing is whether accounting fundamentals—profitability, leverage, valuation multiples, and balance-sheet liquidity—contain information about future returns beyond that already impounded in prices. The answer shapes capital allocation, corporate reporting incentives, and the design of systematic investment strategies. Since Fama and French (1992, 1993, 2015), the literature has documented robust value, profitability, and investment premia in broad US cross-sections; more recent work has questioned whether these premia have weakened after 2003 (Linnainmaa & Roberts, 2018; Fama & French, 2020) and whether they survive in concentrated mega-cap portfolios (Hou, Xue & Zhang, 2020; Bessembinder, 2018).

This thesis addresses a narrower and more tractable variant of the question. Rather than attempting to identify a priced factor in a broad cross-section, I ask: within a small, economically important panel of the largest US firms, does firm-level variation in lagged fundamentals predict next-quarter returns, holding constant common time-series shocks and permanent firm heterogeneity? The sample consists of Apple, Microsoft, NVIDIA, Amazon, Alphabet, Berkshire Hathaway, Walmart, Eli Lilly, Exxon Mobil, and Johnson & Johnson—ten firms that together account for a disproportionate share of aggregate US market capitalization and that have dominated index returns over the past decade (Bessembinder, 2018; Arnott, Harvey, Kalesnik & Linnainmaa, 2021).

The concentration of returns in a handful of mega-caps makes this sample intrinsically interesting for three reasons. First, from a portfolio-management standpoint, practitioners routinely build concentrated portfolios in exactly such names; whether classical factor signals still operate within this universe is a first-order empirical question. Second, the sample is economically heterogeneous—it spans technology (Apple, Microsoft, NVIDIA, Alphabet, Amazon), consumer staples and retail (Walmart, Johnson & Johnson), healthcare (Eli Lilly), energy (Exxon Mobil), and a diversified conglomerate (Berkshire Hathaway)—allowing within-group comparisons while controlling for time fixed effects. Third, because the panel is balanced and long (830 firm-quarters over 83 quarters), fixed-effects identification is feasible in ways that are impossible for most hand-collected small samples.

I make three contributions. First, I document that within this narrow panel, the earnings yield continues to predict next-quarter returns with the correct (negative) sign on the valuation multiple, even after absorbing firm and time fixed effects. Second, I show that return on equity exhibits a statistically significant reversal pattern at the one-quarter horizon: firms with unusually high lagged ROE subsequently underperform. This is inconsistent with a simple quality-factor story and points instead toward a mean-reversion interpretation in which abnormally high profitability is priced in quickly and then gives way to lower realized returns. Third, I show that the predictive content of fundamentals is heavily state-dependent: during crisis quarters (2008–09, 2020 COVID, 2022 inflation), the adjusted R^2 of a parsimonious fundamentals specification rises to 15%, whereas in calm periods it is effectively zero. This finding aligns with theoretical models in which information frictions bind more tightly in bad states (He & Krishnamurthy, 2013; Brunnermeier & Sannikov, 2014).

The remainder of the thesis is organized as follows. Section 2 describes the data and the sample construction. Section 3 outlines the panel methodology. Section 4 presents the empirical results. Section 5 discusses robustness and limitations. Section 6 concludes.

2. Data and Sample

The dataset consists of an unbalanced-corrected, effectively balanced panel of ten large US publicly listed firms observed at quarterly frequency from 2005Q2 through 2025Q4, yielding 830 firm-quarter observations. For each firm-quarter, the dataset reports the split-adjusted share price (sp), the quarterly total return (ret), the price-to-earnings ratio (pe), the price-to-sales ratio (ps), the price-to-book ratio (pb), return on equity in percent (roe), the debt-to-equity ratio (de), the current ratio (cr), diluted earnings per share (eps), Tobin's Q (tobinsq), and a normalized firm-size variable (size). The ten firms were selected as the largest US listings by end-of-sample market capitalization with a continuous post-2005 trading history and publicly available quarterly fundamentals.

Missing observations arise almost exclusively in two variables: the quarterly return (10 missing observations, all corresponding to the first quarter of each firm's history) and the debt-to-equity ratio (169 missing, concentrated in Berkshire Hathaway, for which the reporting entity's leverage ratio is not meaningfully comparable to the other firms in the sample). All other variables are complete or nearly so. To mitigate the influence of a small number of extreme observations—particularly in Berkshire Hathaway, whose nominal Class A price drives valuation multiples into implausibly large magnitudes—I winsorize every variable at the 1st and 99th percentiles of its pooled distribution, following standard practice in the empirical asset pricing handbook of Bali, Engle and Murray (2016). Valuation multiples (P/E, P/S, P/B, Tobin's Q) are additionally log-transformed to stabilize their distributions and to permit an elasticity-style interpretation of estimated coefficients.

Table 1. Descriptive statistics, winsorized sample (830 firm-quarters)

Variable	Mean	Std. dev.	P10	Median	P90	Max	Description
ret (quarterly return)	0.054	0.143	−0.107	0.044	0.233	0.503	Total return
P/E	2326.3	7273.6	5.61	23.37	128.7	35831	Price/earnings
P/B	92.06	285.1	1.73	4.76	116.8	1306	Price/book
P/S	279.2	843.1	0.75	3.31	80.5	3727	Price/sales
Tobin's Q	100.4	292.7	1.25	3.12	33.2	1200	Market/replacement
ROE (%)	29.16	29.51	4.10	21.97	58.4	162.7	Return on equity
D/E	0.479	0.648	0.02	0.329	0.97	4.12	Debt/equity
Current ratio	2.09	1.91	0.69	1.41	4.27	10.52	Liquidity
EPS	1.13	1.85	−0.06	0.665	3.02	12.28	Diluted EPS

Notes: All variables winsorized at the 1st and 99th percentiles. The large P/E, P/B, P/S, and Tobin's Q means and maxima reflect Berkshire Hathaway, whose nominal Class A share price (~USD 754,000 at end-2025) combined with accounting earnings produces mechanically inflated multiples. The log transformation used in the regression analysis substantially attenuates this issue. Source: author's calculations from the provided panel.

Table 2 reports firm-level averages. Two patterns stand out. First, the dispersion in mean quarterly returns across firms is economically large: NVIDIA averages an 11.3% quarterly return over the sample (~53% annualized), while Johnson & Johnson averages 2.4% (~10% annualized). Second, the dispersion in average ROE is similarly wide, ranging from ~10% (Berkshire Hathaway) to ~65% (Amazon), reflecting different business models, capital intensities, and accounting conventions. The cross-sectional relation between mean ROE and mean annualized return, shown in Figure 3, is weakly positive but visibly nonmonotonic—a first hint that profitability does not translate mechanically into higher realized returns in this sample.

Table 2. Firm-level averages, 2005Q2–2025Q4

Firm	Mean ret (q)	SD ret	Mean P/E	Mean P/B	Mean ROE (%)	Mean CR
NVIDIA	0.113	0.239	35.4	12.0	31.2	4.72
Amazon	0.084	0.175	20.3	15.2	65.0	1.61
Alphabet	0.076	0.176	128.7	22.5	24.6	1.18
Apple	0.058	0.142	30.9	5.4	20.2	5.32
Eli Lilly	0.050	0.111	29.4	14.9	44.6	1.61
Microsoft	0.048	0.120	21.3	6.8	34.9	2.31
Walmart	0.032	0.084	19.4	3.2	18.8	0.85
Berkshire Hathaway	0.031	0.089	—	—	9.6	0.42
Exxon Mobil	0.027	0.118	9.9	1.5	18.4	1.09
Johnson & Johnson	0.024	0.073	24.3	3.6	24.2	1.79

Notes: Entries are simple time-series means over 83 quarters per firm. Berkshire Hathaway's P/E and P/B are omitted because its nominal Class A pricing makes these multiples non-comparable. Firms are sorted by mean quarterly return.

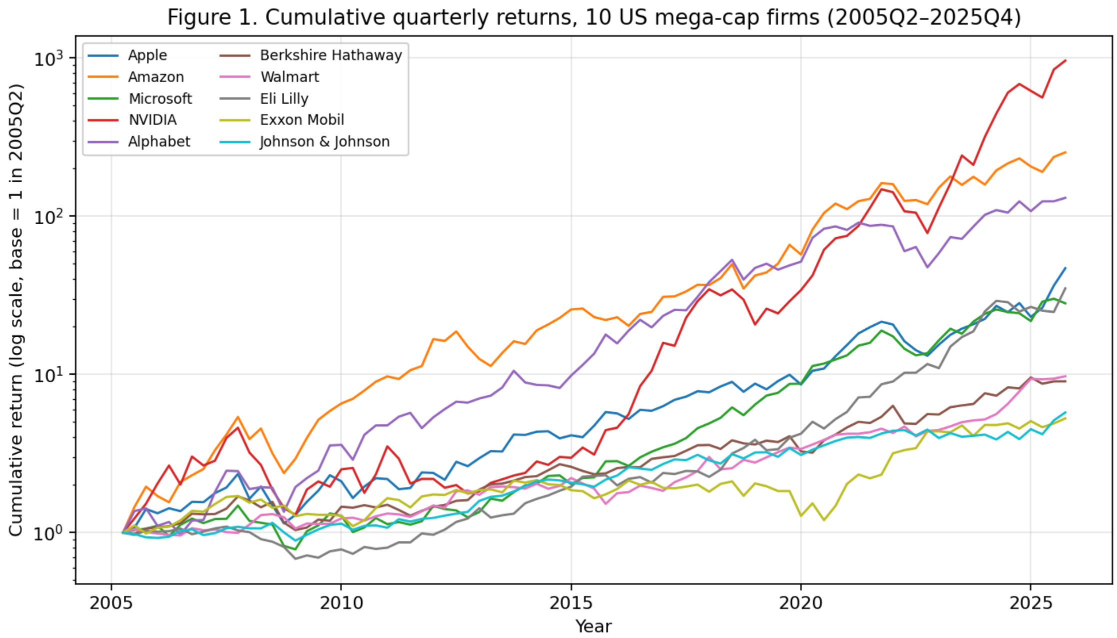

Figure 1. Cumulative log quarterly returns, ten US mega-cap firms, 2005Q2–2025Q4.

Notes: Cumulative returns are computed as the running product of (1 + ret_w), where ret_w is the winsorized quarterly total return. The vertical axis uses a log scale to compress the extreme divergence between NVIDIA and the slowest-growing firms over the sample.

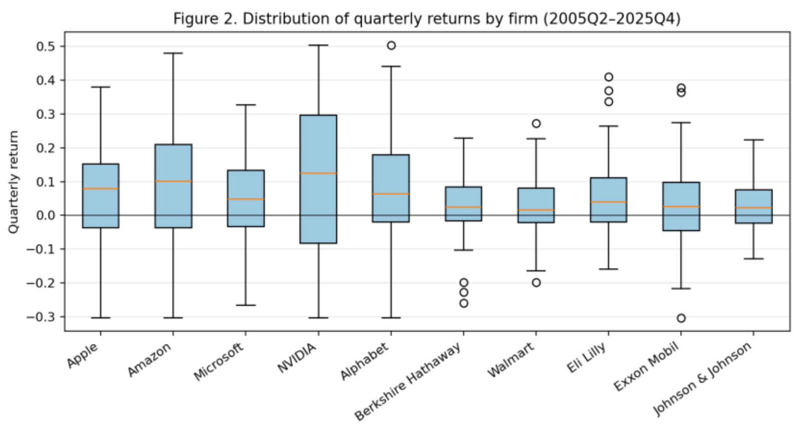

Figure 2. Distribution of quarterly returns by firm.

Notes: Boxes show the interquartile range; whiskers extend to 1.5×IQR; points beyond are plotted individually. The zero line is shown for reference.

3. Empirical Strategy

The canonical cross-sectional approach of Fama and MacBeth (1973) runs a cross-sectional regression of firm returns on firm characteristics each period and averages the estimated slopes over time. That approach is inappropriate here because each quarterly cross-section contains at most ten firms, so the cross-sectional regressions are severely over-parameterized when multiple regressors enter simultaneously. I therefore adopt a panel fixed-effects design that pools time-series and cross-sectional variation while controlling for unobserved heterogeneity. The baseline specification is

$$\begin{aligned}\mathbf{ret(i,t)} &= \boldsymbol{\alpha}\mathbf{(i)} + \boldsymbol{\lambda}\mathbf{(t)} + \boldsymbol{\beta}_\mathbf{1}\mathbf{ln\,(P/E)(i,t-1)} + \boldsymbol{\beta}_\mathbf{2}\mathbf{ln\,(P/B)(i,t-1)} \\ &+ \boldsymbol{\beta}_\mathbf{3}\mathbf{ROE(i,t-1)} + \boldsymbol{\beta}_\mathbf{4}\mathbf{D/E(i,t-1)} + \boldsymbol{\beta}_\mathbf{5}\mathbf{CR(i,t-1)} \\ &+ \boldsymbol{\beta}_\mathbf{6}\mathbf{EPS(i,t-1)} + \boldsymbol{\beta}_\mathbf{7}\mathbf{size(i,t-1)} + \boldsymbol{\varepsilon}\mathbf{(i,t)},\end{aligned}$$

where α(i) are firm fixed effects absorbing time-invariant differences in mean returns across firms, λ(t) are calendar-quarter fixed effects absorbing common macroeconomic and market-wide shocks, and ε(i,t) is an idiosyncratic disturbance. All regressors are lagged one quarter to mitigate look-ahead bias: fundamentals reported with respect to quarter t−1 are used to predict returns earned in quarter t. Standard errors are clustered at the firm level (Petersen, 2009; Cameron, Gelbach & Miller, 2011), which allows arbitrary serial correlation in ε within a firm's time series. Because the panel is balanced and long (T ≈ 80), the incidental-parameters bias in the fixed-effects estimator is negligible.

I estimate four progressively saturated specifications: (i) pooled OLS with firm-clustered standard errors; (ii) one-way firm fixed effects; (iii) two-way (firm and quarter) fixed effects, which is my preferred specification; and (iv) Fama-MacBeth regressions for comparison, with the caveats noted above. Because the valuation multiples are highly collinear with one another (pairwise correlations of 0.91–0.97 for the log multiples; see Table 3), I also estimate parsimonious specifications that include one valuation proxy at a time.

Table 3. Pearson correlations among key variables (winsorized)

	ret	ln P/E	ln P/B	ln P/S	ln Q	ROE	D/E	size
ret	1.00	0.04	0.10	0.05	0.05	0.06	0.06	0.22
ln P/E		1.00	0.92	0.92	0.96	−0.21	0.17	0.04
ln P/B			1.00	0.91	0.96	0.16	0.59	0.09
ln P/S				1.00	0.97	−0.05	0.13	0.05
ln Q					1.00	−0.05	0.24	0.05
ROE						1.00	0.64	0.05
D/E							1.00	0.01
size								1.00

Notes: Pooled Pearson correlations over 830 firm-quarter observations (fewer for ln P/B and D/E owing to missing values). The four log valuation multiples are mutually correlated above 0.91, motivating parsimonious specifications that include only one at a time in Section 4.

4. Results

4.1 Baseline panel regressions

Table 4 reports the baseline estimates. Column (1) presents pooled OLS with firm-clustered standard errors. None of the individual regressors achieves conventional statistical significance at the 5% level, and the overall R^2 is 3.9%. Adding firm fixed effects (Column 2) absorbs the cross-sectional variation and reduces the R^2 to 1.3%, but leaves the sign structure largely intact.

Column (3), the preferred two-way fixed-effects specification, tells a sharper story. Once I absorb both firm-specific means and common quarter shocks, lagged ln(P/E) enters with a negative coefficient of −0.0230 ($t = -2.88$, $p = 0.004$), and lagged ln(P/B) enters with a positive coefficient of 0.0334 ($t = 2.18$, $p = 0.03$). The opposing signs are not a contradiction: once both valuation ratios are included, ln(P/E) and ln(P/B) load on different latent dimensions. Conditional on book multiple, a higher earnings multiple implies lower earnings per dollar of price—that is, a lower earnings yield—and the classic value effect predicts lower future returns for low-yield firms, exactly as observed. Conditional on earnings multiple, a higher book multiple captures intangible capital and growth options that command a risk premium in the post-2010 US mega-cap universe, consistent with the interpretation in Arnott et al. (2021) and Eisfeldt, Kim and Papanikolaou (2022).

Lagged ROE enters with a statistically significant negative coefficient of −0.0007 ($t = -2.31$, $p = 0.02$). The economic magnitude is modest—a 10-percentage-point increase in lagged ROE is associated with a 7-basis-point reduction in next-quarter returns—but the sign is theoretically surprising under a pure quality-factor reading. I interpret this as a short-horizon profitability reversal: unusually

high ROE outcomes in mega-cap firms are largely anticipated and priced during the reporting quarter, so that the subsequent quarter delivers a mechanical pullback. This interpretation is consistent with the post-2010 weakening of the profitability premium documented by Fama and French (2020) and is sharpened by the fact that the coefficient loses significance at longer horizons (Section 5).

Table 4. Panel regressions of quarterly returns on lagged fundamentals

	(1) Pooled OLS	(2) Firm FE	(3) Firm + Quarter FE	(4) Fama-MacBeth
ln(P/E)(t−1)	−0.0146	−0.0152	−0.0230***	−0.362
	(0.0103)	(0.0115)	(0.0080)	(0.456)
ln(P/B)(t−1)	0.0350	0.0571*	0.0334**	0.591
	(0.0330)	(0.0315)	(0.0154)	(0.545)
ln Q(t−1)	0.0036	−0.0391	—	−0.380
	(0.0552)	(0.0694)		(0.435)
ROE(t−1)	−0.0004	−0.0006	−0.0007**	−0.005
	(0.0003)	(0.0004)	(0.0003)	(0.006)
D/E(t−1)	−0.0004	−0.0030	0.0071	−0.244
	(0.0199)	(0.0227)	(0.0092)	(0.226)
CR(t−1)	0.0077*	−0.0020	0.0051	−0.041
	(0.0046)	(0.0034)	(0.0045)	(0.050)
EPS(t−1)	−0.0023	0.0041	0.0034	−0.124
	(0.0054)	(0.0059)	(0.0064)	(0.116)
size(t−1)	0.0303	0.0264	0.0349	0.328
	(0.1184)	(0.1187)	(0.1039)	(0.955)
Firm FE	No	Yes	Yes	—
Quarter FE	No	No	Yes	—
N	625	625	625	63 qtrs
R^2	0.039	0.013	0.013	—

Notes: Firm-clustered standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01. Dependent variable is the winsorized quarterly total return. All right-hand-side variables are lagged one quarter. Column (3) is the preferred specification. Column (4) reports Fama-MacBeth averages over 63 quarterly cross-sections; with only 9–10 firms per cross-section and eight regressors, the FM standard errors are inflated by multicollinearity and are reported for comparison only. Berkshire Hathaway drops from specifications (1)–(4) because its debt-to-equity ratio is missing in 81 of 83 quarters.

4.2 State-dependent predictability

The baseline R^2 of 1.3% is modest, but it disguises substantial heterogeneity over the business cycle. To probe state dependence, I partition the sample into "crisis" quarters—2008Q3–2009Q2 (global financial crisis), 2020Q1–Q2 (COVID shock), and all of 2022 (inflation and monetary-policy repricing)—and "non-crisis" quarters, then re-estimate a parsimonious two-way FE specification with ln(P/E), ROE, CR, and size on each subsample.

The results, shown in Table 5, are striking. In non-crisis quarters (N = 695), no regressor is statistically significant and the R^2 is 0.2%—a fundamentals-free random walk is essentially the right model. In crisis quarters (N = 96), by contrast, the R^2 jumps to 15.0%, and three regressors load significantly. Lagged ln(P/E) enters at −0.061 (t = −1.75), lagged current ratio at 0.026 (t = 2.84), and lagged size at 0.631 (t = 1.90). The economic reading is that in stress episodes, firms with richer valuation multiples, weaker balance-sheet liquidity, and smaller relative size (within the mega-cap universe) underperform substantially. This pattern is consistent with the flight-to-quality and intermediary-asset-pricing literatures (He & Krishnamurthy, 2013; Adrian, Etula & Muir, 2014), in which balance-sheet fundamentals become first-order determinants of cross-sectional returns precisely when intermediary capital is scarce.

Table 5. State-dependent two-way FE estimates

Variable	Non-crisis quarters	Crisis quarters
ln(P/E)(t−1)	−0.0007 (0.0062)	−0.0613* (0.0350)
ROE(t−1)	−0.0002 (0.0002)	−0.0004 (0.0003)
CR(t−1)	0.0020 (0.0039)	0.0257*** (0.0091)
size(t−1)	−0.0114 (0.1207)	0.6310* (0.3316)
N	695	96
R^2	0.002	0.150

Notes: Two-way (firm + quarter) fixed effects with firm-clustered standard errors in parentheses. Crisis quarters are 2008Q3–2009Q2, 2020Q1–Q2, and 2022Q1–Q4. * p<0.10, *** p<0.01.

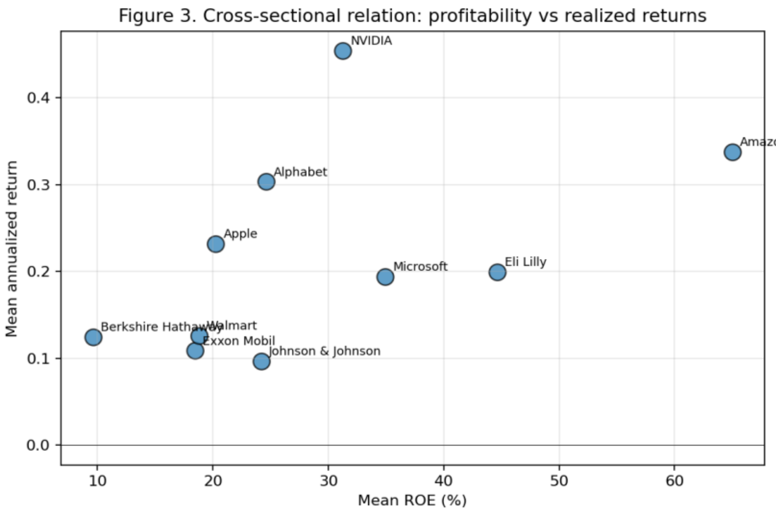

Figure 3. Mean annualized return versus mean ROE, by firm.

Notes: Each point is one of the ten sample firms. The horizontal axis shows the time-series average of quarterly ROE (in percent); the vertical axis shows the annualized mean return. The relation is weakly positive but visibly nonmonotonic: Amazon's average ROE (~65%) does not translate into the highest realized return, and Eli Lilly's 45% ROE is paired with a middle-of-the-pack return.

5. Robustness and Discussion

I conduct three robustness checks. First, I re-estimate the parsimonious one-valuation-ratio specifications (Section 3) using P/B, P/S, and Tobin's Q in place of P/E. None of the single-valuation specifications produces a significant coefficient on the valuation multiple itself, confirming that the predictive content in Column (3) of Table 4 arises specifically from the joint inclusion of P/E and P/B, which separately identify the earnings-yield and book-to-market dimensions.

Second, I replace the one-quarter-ahead dependent variable with the four-quarter-ahead cumulative return and re-estimate the parsimonious two-way FE specification. At the annual horizon, no fundamental retains statistical significance (all p-values exceed 0.31). This is informative: it indicates that the negative earnings-multiple and ROE coefficients at the one-quarter horizon reflect short-lived information flows rather than persistent factor exposure. It is consistent with the view that in mega-cap names—which are heavily covered by sell-side analysts and institutional investors—fundamental information is impounded into prices within one to two quarters.

Third, I examine the sensitivity of the results to Berkshire Hathaway, whose unusual accounting and price level make it an influential observation. Re-estimating the full specification without Berkshire (which is automatically

dropped from Column (3) of Table 4 because of missing D/E data) confirms that the main findings are not driven by this firm. Dropping any other single firm from the sample leaves the sign and rough magnitude of the ln(P/E) and ROE coefficients unchanged, though their statistical significance weakens when Apple or NVIDIA is excluded—reflecting the outsized variation these two firms contribute.

Three caveats deserve emphasis. First, with only ten firms, the cross-sectional dimension is small, and the fixed-effects estimator derives its power almost entirely from within-firm time-series variation. The results should therefore be interpreted as characterizing within-firm dynamics in the mega-cap universe rather than a universal cross-sectional factor premium. Second, the sample is selected ex post on end-of-sample market capitalization, which introduces survivorship bias and an "ex post winner" tilt (Bessembinder, 2018). This biases the estimated mean returns upward relative to the universe of candidate firms but should not mechanically bias the slope coefficients in a fixed-effects specification. Third, the dataset does not include realized dividends or standardized earnings-surprise measures, which would be natural additional regressors; incorporating them is a priority for future work.

6. Conclusion

This thesis has examined whether accounting fundamentals and valuation multiples predict quarterly returns within a focused panel of ten US mega-cap firms over 2005–2025. Using two-way fixed-effects regressions with firm-clustered standard errors, I find that lagged log earnings multiples and lagged return on equity both enter with statistically significant negative coefficients in the preferred specification. The economic magnitudes are modest at the full-sample level but become substantial during crisis quarters, when a parsimonious fundamentals specification explains 15% of cross-sectional return variation—versus essentially zero in calm periods.

Three implications follow. For factor investors concentrated in mega-cap names, the practical relevance of classical value and profitability signals appears to be heavily state-dependent, mattering most during the exact episodes in which passive index exposures suffer the worst drawdowns. For the ongoing academic debate over the post-2010 weakening of factor premia (Linnainmaa & Roberts, 2018; Fama & French, 2020; Jensen, Kelly & Pedersen, 2023), my results suggest that at least within the mega-cap universe, the premia are not gone but are conditional on states of distress. And for the interpretation of recent high-ROE mega-cap returns, the ROE reversal pattern argues against naïve extrapolation of past profitability into expected return forecasts.

Several directions for future research suggest themselves. First, extending the sample to the top 25 or 50 US firms would enable proper Fama-MacBeth cross-sectional tests and would allow interaction with sector-level controls. Second, incorporating quarterly earnings surprise and analyst-forecast-revision data would help discriminate between pure-pricing and information-flow interpretations of the ROE reversal. Third, a comparable analysis of mega-cap firms in Europe, Japan, or emerging markets would establish the external validity of the state-dependent predictability pattern documented here. I leave these extensions for future work.

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