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Is Growth Enough?

The Value Relevance of Sales Growth and Profitability in Swedish Public Firms (2014-2022)

Ellen Nilsson (25696) and Philip Wallin Remmer (25634)

Abstract

This thesis investigates whether high sales growth contributes to or erodes firm value and profitability, and whether profitability mediates the relationship between growth and value. Using firm-level panel data from 410 Swedish publicly listed firms between 2014 and 2022, we run OLS regressions with firm fixed effects and robust standard errors. Market Value Added (MVA), deflated by the book value of equity, is used to capture firm value beyond accounting capital, while profitability is measured by Return on Equity (ROE), and decomposed into Return on Assets (ROA) and leverage. Our results show that moderate growth is associated with a valuation premium, while very high growth receives less favourable valuation once financial leverage is accounted for. We find a small but significant positive relationship between sales growth and ROE, which contradicts the hypothesis that growth is negatively correlated with profitability. Formal mediation analysis shows no indirect effect of profitability on the growth-value relationship, but interaction models indicate that high growth is only rewarded when paired with strong profitability. These findings suggest that the market differentiates between sustainable and riskier forms of growth, and that profitability acts as a moderator rather than a mediator.

Keywords: *Growth, Firm Value, Profitability, Value Relevance*
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1. Introduction

In the pursuit of growth, many companies believe rapid expansion equals success. High sales growth is often seen as a positive signal to investors, conveying potential for increased market share, long-term competitiveness, and greater shareholder value (Lee et al., 2000). This assumption, while intuitively appealing, is not always reflected in how financial markets value companies. In recent years, where intangible assets and conservative accounting have become increasingly important, the relationship between growth and value has become more complex and context-dependent (Barth et al., 2023). Growth is not always rewarded and may even be discounted if not supported by solid financial performance. Thus, the primary objective of this thesis is to investigate whether growth can negatively impact company valuation.

The starting point for this question is the concept of value relevance, described as the extent to which financial statement data helps explain market valuations. Traditionally, profitability measures, such as earnings and Return on Equity (ROE), have been the most emphasised and widely used measures for explaining firm value (Barth et al., 2023). However, as modern firms shift towards emphasising intangible investments and rapid reinvestment cycles to a larger extent, traditional accounting measures may not fully reflect the economic realities of high-growth firms and, thus, may have a declining effect in terms of value relevance (Lev & Zarowin, 1999; Barth et al., 2023). This discrepancy gives rise to what is known as Permanent Measurement Bias (PMB). PMB refers to systematic understatements of book values, primarily caused by conservative accounting practices, like the expensing of intangibles or historical cost accounting. As a result, high-growth firms may appear less profitable or more leveraged in financial statements than they are, skewing the relationship between reported performance and market valuation (Runsten, 1998).

In the context of the Swedish market, the increase of high-growth firms across sectors such as technology, renewable energy, and services makes this issue particularly relevant. While previous research has explored the value relevance of accounting information and the relationship between profitability and growth in broader contexts, limited attention has been given to whether sales growth can destroy value, particularly within the Swedish market. Furthermore, even fewer studies have considered the mediating role of profitability in this relationship. Thus, we explore whether the market discounts firms that expand the top line rapidly, especially when such growth is not accompanied by profitability. Furthermore, we

examine whether profitability can explain, or influence (i.e., mediate or moderate), the relationship between sales growth and firm value. Against this background, our thesis seeks to answer the following research question:

"Do firms with high sales growth have lower Market Value Added, and is this relationship mediated by profitability?"

To test this question, we employ a quantitative approach using firm-level OLS regressions on an unbalanced panel dataset of publicly listed Swedish firms from 2014 to 2022, using firm fixed effects. The dependent variable is Market Value Added (MVA), defined as the difference between market capitalization and book equity, deflated by book equity. This relative valuation measure makes comparison between firms of different sizes possible. It is further relevant in the context of PMB, where book values may consistently understate true firm value due to conservative accounting practices. Furthermore, the use of MVA as our dependent variable is in line with previous value relevance literature (Ramezani et al., 2002).

Our key independent variable is sales growth, which we analyse both continuously and by using categorical dummies for sales growth quartiles to account for potential non-linear and threshold effects. Profitability is measured primarily through ROE. However, due to the initial interpretation of how ROE affects MVA, we further decompose ROE into Return on Assets (ROA) and a leverage proxy (Asset/Debt). This decomposition allows us to assess whether firm value is driven more by operational efficiency or financial structure.

The results for our first hypothesis show a significant and positive effect on valuation for both the continuous sales growth variable and across all growth quartiles. When distinguishing between ROA and leverage, firms with moderate growth (Q2 and Q3) are consistently valued more highly by the market, but the relationship between high growth (Q4) and firm value becomes more ambiguous. In the model that includes leverage, firms in the highest sales growth quartile (Q4) still show a positive and statistically significant association with MVA, but the effect is notably weaker than for firms with moderate growth. These findings suggest that high growth is not always valued higher than moderate growth, as the market may interpret it as less sustainable. Contrary to our expectations for the second hypothesis, we find that sales growth is not negatively correlated with profitability. Instead, there is a weak but statistically significant positive relationship, particularly for firms in the highest growth quartile. However, the effect is modest in size. To evaluate our third hypothesis, we perform a formal mediation analysis

using a bootstrap test. The mediation analysis provides results showing no significant indirect effect of profitability on the relationship between sales growth and firm value. We then introduce interaction terms to examine whether profitability influences how growth affects valuation. The results indicate that profitability significantly moderates this relationship, meaning that high-growth firms are valued higher when they are also profitable, while those lacking profitability do not experience the same market recognition.

These findings contribute to the literature in several ways. We extend the value relevance literature to a new setting, the Swedish market, which, to the best of our knowledge, has not been done previously. Additionally, we conduct this study on a sample during a period of extraordinarily low interest rates, where access to cheap capital may impact how markets perceive growth and risk. Furthermore, we consider both linear and non-linear effects of growth. Our models include firm fixed effects to control for firm-specific characteristics, and we conduct robustness checks based on growth persistence to ensure the stability of our estimates. When decomposing ROE into operating profitability and leverage, we find that ROA is not consistently significant, while financial leverage is positively associated with firm value. This suggests that the market may reward growth financed by debt if it is perceived as sustainable, which somewhat contradicts the findings by Spitsin et al. (2022).

Finally, our results highlight how PMB impacts the valuation of high-growth firms. Because conservative accounting tends to expense intangible investments and delay recognition of gains, reported earnings may not fully reflect a firm's true value, which is especially important for growth firms. While our fixed effects help reduce these biases within firms, the positive effect on valuation of leveraged growth suggests that investors may reward firms that finance expansion through debt, if the growth appears sustainable. Overall, this thesis contributes to a better understanding of when growth is rewarded and emphasizes the importance of growth being supported by profitability.

The remainder of this thesis is structured as follows. Chapter 2 presents the relevant literature on value relevance, growth, and profitability, and introduces the theoretical concepts underlying our hypotheses. Chapter 3 outlines the methodology and data used in the empirical analysis. Chapter 4 presents the main regression results and robustness checks, while Chapter 5 discusses the findings concerning the research question, and Chapter 6 concludes with implications and suggestions for future research.

2. Literature Review

This section outlines the theoretical and empirical background of our study by reviewing previous value relevance literature. Initially, we define the concept of value relevance and summarize key findings from early studies that established its importance in accounting research. Before reviewing more recent contributions, we define the concept of Permanent Measurement Bias (PMB) and investigate the relevant literature. Although previous studies cover the impact of a wide range of performance metrics, we review the body of literature that particularly examines how sales growth and profitability affect firm value. We begin with analysing the literature on profitability in isolation, then discuss how growth affects valuation and interacts with profitability. Although multiple studies address how profitability may influence future growth, this reverse relationship is not relevant to the scope of our thesis and will therefore not be included.

2.1 Value Relevance

The concept of value relevance of accounting information refers to the extent to which financial statement variables are associated with stock market values or returns. There are multiple definitions of value relevance. An applicable definition is that the market is affected by financial statement information, by considering a firm's intrinsic value, which implies that value relevance corresponds to the profit generated from implementing accounting-based trading rules (Harris & Ohlson, 1990). In other studies, value relevance is defined by the impact on share values that financial information statements can capture and summarize (Francis & Schipper, 1999). Early value relevance studies evaluate the effect of earnings on stock prices and primarily find that earnings information is expected and reflects stock prices before new earnings statements are released (Ball & Brown, 1968). Profitability, being essentially an accounting summary of value creation during a period, is highly value relevant. Ohlson (1995) extends value relevance research by developing a model that demonstrates the impact of accounting information on equity valuation and a key contribution of this study is the inclusion of non-accounting information, such as growth opportunities and market expectations, which influence future earnings and, consequently, firm valuation (Ohlson, 1995).

When studying the usefulness of financial statements on the American market over 20 years, Lev and Zarowin (1999) conclude that the relevance of traditional metrics such as earnings,

cash flows, and book value of equity has systematically declined. This raises concerns that financial statements may no longer provide information useful for investors' decision-making. In response, Collins et al. (1997) challenge this interpretation by showing that traditional accounting information continues to influence stock prices. However, they also acknowledge that these measures often fail to capture growth opportunities and intangible assets, especially in technology and service-based industries where such factors play a larger role in value creation.

Barth et al. (2023) evaluate accounting items individually to determine their causal relationship with firm valuation. Their findings indicate no decline in the value relevance of accounting information, contradicting prior claims that financial statements have lost their usefulness. Instead, the study finds that the primary drivers of value relevance are the growing emphasis on intangible assets, growth opportunities, and alternative performance measures beyond traditional earnings. The conceptual framework for financial reporting identifies two key aspects of value relevance. First, relevant financial information should influence how users make decisions based on accounting information. Second, for accounting data to be useful, it must not only be relevant but also faithfully represent economic reality. While previous research has established that accounting does not fully capture intangible assets and growth opportunities, the rise in joint value relevance is interpreted as an increase in the importance of these measures rather than fundamental changes in how they are accounted for. When evaluating individual accounting items over time, the study finds a shift from a primary focus on earnings in the 1960s to a broader set of impactful measures, particularly those related to intangible assets, growth opportunities, and alternative performance metrics. This shift reflects the evolving nature of financial reporting and investment decision-making. Ultimately, it is concluded that accounting items continue to play an important role in firm valuation, reinforcing the existing relationship between growth and firm value (Barth et al., 2023). This evolution paves the way for a new perspective on value relevance studies, not solely focused on earnings' impact on firm value.

2.2 Permanent Measurement Bias

Under circumstances where firm value is defined using accounting-based measures, it is important to recognize systematic deviations that may originate from the accounting system itself. These systematic differences between accounting values and the underlying economic values they aim to represent are referred to as PMB. This bias does not stem from random errors but rather from structured and persistent limitations within accounting practices. Runsten (1998) investigates the extent to which accounting measures explain stock price variation in Sweden between 1966 and 1993. To assess whether a firm's value is accurately reflected in its accounting data, he develops a model that adjusts for such accounting biases. PMB may result from several factors, including conservative recognition principles, historical cost accounting, and the expensing of intangible investments. By applying his PMB-adjusted model, Runsten shows that while accounting figures are useful for explaining stock price changes, adjusting for PMB significantly increases the explanatory power of accounting-based valuation.

Beaver and Ryan (2000) examine how bias and lag in book values affect the book-to-market ratio's ability to predict Return on Equity (ROE). Their decomposition distinguishes between *permanent bias*, driven by conservative accounting practices that understate book values, and *lags*, which reflect delayed recognition of economic events. While the effects of lags are temporary, permanent bias persists and is especially pronounced in high-growth firms, where ongoing reinvestment amplifies the understatement of economic returns. As a result, traditional accounting figures may systematically misrepresent a firm's financial position, particularly in firms with large intangible investments. When such biases are ignored, valuation models may underestimate both performance and growth potential. Adjusting for lag and bias, therefore, can improve the accuracy and relevance of firm valuation (Beaver & Ryan, 2000; Runsten, 1998).

2.3 Profitability and Firm Value

Firms that consistently generate high returns on assets or equity are generally considered more valuable because it indicates efficient management and a strong competitive position (Cho & Pucik, 2005). Accounting profitability measures, such as ROE, remain widely used by investors and analysts as indicators of firm performance and inputs into valuation models (Barth et al., 2023). Empirical research supports a positive link between profitability and firm value. For instance, high ROE and Economic Value Added (EVA) have been shown to enhance valuation

when achieved alongside sustainable growth strategies (Cho & Pucik, 2005; Ramezani et al., 2002). This supports the view that profitability, particularly when balanced with moderate and disciplined growth, plays a central role in driving shareholder value. High profitability not only boosts firm value directly but also indirectly by lowering the firm's cost of capital and enabling reinvestment. A profitable firm generates internal cash flows, reducing its reliance on external financing and thereby retaining more value for equity holders. It also signals lower risk as companies with strong profits often obtain external capital on better terms, further supporting their valuation (Davidsson et al., 2009).

In general, there is agreement in the previous literature that profitability is a driver of firm value. Investors consistently reward firms with strong earnings, as it signals both efficient operations and lower financial risk. However, the relationship between profitability and growth is more nuanced and warrants deeper investigation, which is the focus of the following section.

2.4 The Effect of Growth on Profitability and Firm Value

Prior research shows conflicting findings regarding the impact of growth on valuation. Some studies conclude that growth is important to reach improved profitability, and further, positively affects firm value. For instance, a firm may benefit from high growth by achieving a first mover advantage on the market or by the ability to achieve economies of scale that later might lead to increased profitability (Lee et al., 2000). Furthermore, small and young firms tend to struggle to survive in the market, for example, due to issues in obtaining resources, while growing into a larger firm drastically increases the likelihood of survival (Aldrich & Auster, 1986). On the contrary, some studies conclude that there are significant issues associated with managing high growth. Firms that manage the first phase as a young and small business and develop into a larger firm may face severe challenges when scaling rapidly through high growth. Rapid expansion may overwhelm management capacity, slowing decision-making and reducing operational efficiency. Hence, it is essential to ensure that a firm's structure evolves as the company grows (Hambrick & Crozier, 1985). Overall, previous literature suggests no universal positive correlation between growth and profitability, but rather outcomes vary by context and growth strategy. Markman & Gartner (2002) study whether extraordinary sales or employment growth is associated with higher profitability for Inc. 500 companies, the fastest growing companies in the US. They find that none of sales growth nor employment growth is significantly correlated with profitability, which implies that no conclusions can be drawn

regarding whether high-growth firms are more profitable than those with moderate growth (Markman & Gartner, 2002).

Moreover, high growth and profitability affect a firm's capital structure. Spitsin et al. (2022) explore the impact on capital structure in Russian high-tech industries, testing both the impact of growth and profitability separately, and whether profitability mitigates the impact of growth on capital structure. The test on profitability's effect on capital structure results in a negative and significant relationship between profitability and leverage, indicating that profitable firms rely less on debt and have greater financial stability. However, both asset growth and sales growth show a positive and significant correlation with leverage. This means that firms in growth phases likely worsen their financial stability and take on risk, as firms with rapid growth rely on increased debt. Finally, it can be concluded that while profitability mitigates the impact of asset growth on leverage, the effect is insignificant for sales growth. Thus, research shows that sales growth leads to increased debt, even for profitable companies (Spitsin et al., 2022).

Cho & Pucik (2005) studied the impact a company's innovativeness and quality have on its growth, profitability, and consequently its market value, by introducing the Innovativeness-Quality-Performance model. They find that innovation is a driver of growth and quality of profitability. Profitability has a strong and direct impact on firm value and acts as a mediating variable between growth and firm value. Growth positively affects market value as well, although the effect is partly explained by increased growth improving profitability. Generally, investors emphasize profitability to a larger extent than growth. Thus, growth without profitability may not be sufficient in influencing the firm value (Cho & Pucik, 2005). Lev & Srivastava (2022) further highlight that high-growth firms investing heavily in intangibles may appear overvalued or underperforming due to conservative accounting practices, which deflate reported earnings and book values. This misrepresentation can distort investor perceptions and mislead traditional value metrics.

The link between growth and profitability has been widely examined in the context of how sales and earnings growth relate to corporate financial performance, and whether maximizing profitability metrics ultimately leads to higher firm valuation. Prior research finds that growth in sales and earnings generally contributes to improved profitability, but with certain limitations. Ramezani et al. (2002) show that while moderate growth is positively associated with profitability, firms in the top 25% of the growth distribution destroy value, as measured by metrics such as EVA, ROE, and ROI. This suggests that investors reward growth when it

translates into stronger financial performance but disapprove of excessive or unsustainable expansion. Furthermore, high growth can negatively affect firm valuation due to increased volatility and greater operational risk. As a result, firms that combine moderate growth with strong profitability tend to achieve the most favourable valuation outcomes (Ramezani et al., 2002). The literature approaches this issue by examining how growth impacts profitability, concluding that growth alone does not guarantee improved firm value unless it is accompanied by solid financial performance. While some studies also explore the reverse relationship, how profitability influences subsequent growth, such as Davidsson et al. (2009), this thesis focuses specifically on the direction from growth to profitability and further to valuation. By isolating this pathway, we aim to better understand whether growing sales can sustainably support financial performance and, ultimately, enhance firm value, or whether it deteriorates value due to the risks it brings.

2.5 Conclusion of Previous Literature

The reviewed literature highlights the evolving complexity of the relationship between sales growth, profitability, and firm value. While early value relevance research emphasized the explanatory power of earnings and book value, more recent studies recognize that these traditional metrics often fall short in capturing the economic realities of modern, growth-oriented firms, particularly those heavily invested in intangibles. Profitability remains central to firm valuation, as it signals operational efficiency and financial health. However, the role of growth is more nuanced. Moderate growth tends to enhance profitability and is generally rewarded by the market, while excessively high growth may introduce operational inefficiencies, strategic overreach, and heightened financial risk. Moreover, multiple studies suggest that rapid growth, especially when driven by intangible investment, can suppress reported earnings due to conservative accounting treatments, leading to a disconnect between actual performance and reported profitability. The concept of PMB further underscores that unadjusted accounting figures may systematically understate firm value, particularly in high-growth firms where intangible investments are expensed rather than capitalized. These findings point to the need for a more integrated understanding of how growth and profitability interact in shaping firm valuation. This thesis addresses this gap by examining whether high sales growth negatively affects firm value, whether it erodes profitability, and whether profitability

mediates the growth-value relationship. These questions form the basis for the hypotheses developed in the next section.

3. Method

3.1 Hypotheses

Prior research has produced varying perspectives on the relationship between sales growth and firm value. Recent findings by Barth et al. (2023) suggest that the growing importance of intangible assets and forward-looking performance indicators has increased the value relevance of certain non-traditional accounting metrics, including growth opportunities. In this context, sales growth may serve as a meaningful signal of future potential, particularly in innovation-intensive sectors. At the same time, high sales growth often demands substantial investment and can strain financial and operational resources (Ramezani et al., 2002). Accordingly, we test whether rapid sales growth enhances or erodes firm value.

H1: *High sales growth is negatively correlated with firm value.*

Additionally, a large body of literature suggests that while growth can open new opportunities, it often entails increased costs, coordination difficulties, and operational inefficiencies (Hambrick & Crozier, 1985; Ramezani et al., 2002). These challenges can erode profitability even in growing firms. Therefore, we also test whether sales growth is associated with lower profitability.

H2: *High sales growth is negatively correlated with profitability.*

Finally, drawing on the agreement that profitability is a primary driver of firm valuation (Cho & Pucik, 2005; Ramezani et al., 2002), we propose that the negative effects of high sales growth on firm value may be transmitted through its impact on profitability. If growth leads to declining profitability, and profitability in turn affects valuation, it is reasonable to expect a mediating relationship. Thus, we test whether profitability mediates the effect of sales growth on firm value.

H3: *Profitability mediates the relationship between growth and firm value.*

3.2 Data and Sample Selection

We sourced our data from FinBas to obtain financial information for all listed equity instruments on the Swedish market. The initial download contained 627 equity instruments.

When cleaning our data set, we began by removing all duplicates to ensure one unique equity representation per firm. These duplicates were primarily share class duplicates, e.g., A- and B-shares. The shares maintained in our sample were the largest share class in terms of total equity. This step was necessary to ensure only one instrument per company, to avoid double-counting and distortion in firm-level variables. Subsequently, we applied two additional filters to refine the sample to include only relevant Swedish companies. First, we excluded firms that were not registered as Swedish limited liability companies (Aktiebolag, AB), removing entities with incompatible corporate forms, such as economic associations. Second, we excluded companies that were not registered in Sweden during our research period, resulting in a remaining sample of 444 firms.

To ensure a meaningful longitudinal analysis, we removed firms with fewer than three years of data between 2014 and 2022. This eliminated 12 additional companies, resulting in a sample of 432 firms with sufficient time-series coverage for panel regression and trend analysis. Note that the dataset is an unbalanced panel due to variations in time coverage across firms, but only companies with at least three years of observations were retained to ensure minimum consistency in firm-level trends.

We also downloaded firm-level accounting data from Serrano, a database containing all Swedish public and private firms since 1996. We filtered this data to retain only our predefined list of public companies. FinBas provides company identifiers using ISIN and company names, while Serrano uses corporate registration numbers (ORGNR). Following this inconsistency, a manual mapping between these identifiers was necessary. We constructed a list of unique identifiers by manually matching ISINs and company names from FinBas with ORGNRs sourced from “Bolagsverket”, the Swedish Companies Registration Office. This step enabled a reliable merge across the two datasets. A few firms remained unmatched or had incomplete data and were therefore excluded, yielding a final sample of 410 firms.

Furthermore, we filtered out consolidated (group-level) accounts, retaining only individual company financials. This step did not reduce the number of companies but ensured that financial measures, such as revenue, earnings, and book value, referred solely to the parent company and not group level accounts. See a summary of the data cleaning in Figure 1.

Figure 1. Sample size (Number of firms)

Sample	Listed equity instruments in sample
Data sourced from FinBas	627
Excluded duplicates, foreign-registered companies, incompatible corporate forms	-183
Excluded firms with < 3 years of data between 2014 and 2022	-12
Excluded firms unmatched with Serrano or with incomplete data	-22
Final sample	410

3.3 Variables

The primary objective of our research is to examine the relationship between sales growth and firm value, measured by Market Value Added (MVA). In addition, we assess the effect of sales growth on profitability, and the potential mediating or moderating role of profitability, where profitability is measured as ROE.

Our dependent variable, firm value, is proxied by MVA, following Ramezani et al. (2002). MVA is calculated as the difference between the firm's market capitalization and its book value of equity, divided by the book value of equity. This ratio captures the market's valuation of the firm more than its recorded capital and serves as a measure of value creation beyond invested capital. To ensure that market capitalization reflects timely updates from published financials, MVA is measured using market values observed during the first quarter of each fiscal year. This timing aligns with when investors typically revise their expectations based on newly released financial statements (Chambers & Penman, 1984). The use of MVA is particularly relevant because it captures the portion of firm value that exceeds book equity, reflecting both market expectations about future growth and profitability, as well as distortions caused by conservative accounting. As outlined by Runsten (1998), Permanent Measurement Bias (PMB) leads to systematic understatements of book value, especially in firms with high intangible

investment. As a result, MVA includes both the market's forward-looking valuation and the structural gap introduced by PMB.

To address these concerns, all regression models are estimated using firm fixed effects, which absorb time-invariant firm characteristics including business models, accounting policies, and industry norms. This approach allows us to isolate the within-firm variation in growth and value over time and provides a cleaner estimate of how sales growth affects firm valuation. In this sense, fixed effects help control for unobserved heterogeneity and partially mitigate the effects of PMB across firms.

The main explanatory variables include each firm's annual sales growth and a set of dummy variables representing growth quartiles. Firms are sorted into four quartiles based on their annual sales growth relative to other firms in the same year. These quartiles are converted into indicator variables (Q2–Q4), with Q1, the lowest growth group, serving as the reference category following Ramezani et al. (2002). This dual specification allows us to test both the continuous and non-linear effects of growth, and to evaluate how moderate versus very high growth is treated by the market. Accordingly, each regression analysis is run twice, once using the continuous sales growth variable and once using the quartile dummies. Results are reported in separate panels labelled Panel A (Continuous) and Panel B (Quartiles).

We further created four quartiles based on earnings growth enabling an equivalent comparison across levels of profitability. This allowed for a more nuanced analysis (seen in the robustness tests) of whether firms with high profitability benefit more from growth, or whether low-profit firms are more exposed to value erosion (Ramezani et al., 2002).

Control variables include R&D intensity (R&D divided by sales), the natural logarithm of total assets as a proxy for firm size, and ROE to capture financial performance. ROE is calculated using average equity, defined as net income divided by the mean of beginning and ending equity. This specification, based on Beaver and Ryan (2000), accounts for changes in capital structure and reflects a more economically meaningful measure of profitability. In additional models, we replace ROE with Return on assets (ROA) and a leverage proxy (assets over debt), to separately identify the roles of operational profitability and financial structure. This is particularly important, as prior research suggests that ROE alone may not capture the full picture, especially for firms with high growth or high leverage (Beaver & Ryan, 2000).

Figure 2 summarises the firm-year variables used in the empirical analysis, derived from the cleaned and merged dataset. These variables reflect the operationalization of growth, valuation, and profitability in line with the study's hypotheses. Together, they form the basis for testing whether high sales growth contributes to or erodes firm value and profitability, and whether profitability mediates or moderates this relationship.

Figure 2. Variable construction

Variable	Variable Specification	Construction
Dependent variable	Market Value Added	(Market Capitalization – Book value of equity) / Book value of equity
Independent variable	Sales growth	(Sales growth $_{t}$ – Sales growth $_{t-1}$) / Sales growth $_{t-1}$
Dummy variables	Q2-Q4	Quartiles based on sales growth within each year
Control variable (H1 & H2), Mediating variable (H3) and moderating variable	ROE	Net Income / ½ (Equity $_{t}$ + Equity $_{t-1}$)
Control variable	Logarithm of Assets	log (Total Assets)
Control variable	Research & Development over Sales	R&D / Sales
Control variable	ROA	EBIT / ½ (Total Assets $_{t}$ + Total Assets $_{t-1}$)
Control variable	Proxy for Financial Leverage	Total Assets / Total Debt
Constant	Q1	Lowest sales growth quartile serving as the omitted reference category

3.4 Data Analysis

To test our hypotheses, we employed firm-level ordinary least squares (OLS) regressions with firm fixed effects on an unbalanced panel of publicly listed Swedish firms from 2014 to 2022. This approach allowed us to control for time-invariant, firm-specific characteristics such as accounting conservatism and industry norms, thereby improving the internal validity of the estimates. All regressions were estimated with robust standard errors to address potential heteroskedasticity and autocorrelation within firms. This model design enabled us to capture the within-firm variation over time and assess how changes in sales growth relate to firm value and profitability, while accounting for structural differences across companies.

First, we tested Hypothesis 1 to assess if sales growth is negatively correlated with MVA. We performed this test through two separate regressions, distinguishing between continuous sales growth and the sales growth quartiles.

$$MVA_{i,t} = \beta_0 + \beta_1 SalesGrowth_{i,t} + \beta_2 ROE_{i,t} + \beta_3 LogAssets_{i,t} + \beta_4 \frac{RD_{i,t}}{Sales_{i,t}} + \varepsilon_{i,t} \quad (1)$$

$$MVA_{i,t} = \beta_0 + \beta_1 Q2_{i,t} + \beta_2 Q3_{i,t} + \beta_3 Q4_{i,t} + \beta_4 ROE_{i,t} + \beta_5 LogAssets_{i,t} + \beta_6 \frac{RD_{i,t}}{Sales_{i,t}} + \varepsilon_{i,t} \quad (2)$$

To isolate the effect of operational profitability and financial leverage, we performed a second test including ROA and Asset/Debt as control variables instead of ROE.

$$MVA_{i,t} = \beta_0 + \beta_1 SalesGrowth_{i,t} + \beta_2 ROA_{i,t} + \beta_3 \frac{Asset_{i,t}}{Debt_{i,t}} + \beta_4 LogAssets_{i,t} + \beta_5 \frac{RD_{i,t}}{Sales_{i,t}} + \varepsilon_{i,t} \quad (3)$$

$$MVA_{i,t} = \beta_0 + \beta_1 Q2_{i,t} + \beta_2 Q3_{i,t} + \beta_3 Q4_{i,t} + \beta_4 ROA_{i,t} + \beta_5 \frac{Asset_{i,t}}{Debt_{i,t}} + \beta_6 LogAssets_{i,t} + \beta_7 \frac{RD_{i,t}}{Sales_{i,t}} + \varepsilon_{i,t} \quad (4)$$

We tested Hypothesis 2 by regressing the effect of sales growth on ROE, again by separate regressions for continuous sales growth and the sales growth quartiles.

$$ROE_{i,t} = \beta_0 + \beta_1 SalesGrowth_{i,t} + \beta_2 LogAssets_{i,t} + \beta_3 \frac{RD_{i,t}}{Sales_{i,t}} + \varepsilon_{i,t} \quad (5)$$

$$ROE_{i,t} = \beta_0 + \beta_1 Q2_{i,t} + \beta_2 Q3_{i,t} + \beta_3 Q4_{i,t} + \beta_4 LogAssets_{i,t} + \beta_5 \frac{RD_{i,t}}{Sales_{i,t}} + \varepsilon_{i,t} \quad (6)$$

To assess the robustness of the results and address potential concerns about transitory growth effects, two alternative subsamples were constructed based on growth persistence (Ramezani et al., 2002). The first subset includes firms that remained in the same sales growth quartile for at least four consecutive years. The second, more restrictive, subset includes firms that stayed in the same quartile for both sales and earnings growth for a minimum of two consecutive years. The subsamples helped isolate firms with more stable growth profiles and examine whether long-term high growth is associated with different valuation effects than shorter growth spikes (Ramezani et al., 2002).

Our Hypothesis 3 was addressed by performing regressions for both the linear and non-linear effects of sales growth on MVA without ROE as a control variable and comparing this relationship to the results from the regressions run for Hypothesis 1, which included ROE. By comparing these results, we could assess the potential mediating effect.

$$MVA_{i,t} = \beta_0 + \beta_1 SalesGrowth_{i,t} + \beta_2 LogAssets_{i,t} + \beta_3 \frac{RD_{i,t}}{Sales_{i,t}} + \varepsilon_{i,t} \quad (7)$$

$$MVA_{i,t} = \beta_0 + \beta_1 Q2_{i,t} + \beta_2 Q3_{i,t} + \beta_3 Q4_{i,t} + \beta_4 LogAssets_{i,t} + \beta_5 \frac{RD_{i,t}}{Sales_{i,t}} + \varepsilon_{i,t} \quad (8)$$

Furthermore, we performed a Bootstrap test as a formal test for mediation. This test estimated the indirect effect of sales growth on MVA through profitability (ROE) while controlling for firm fixed effects, thereby allowing for the mediation path to be evaluated net of persistent firm characteristics. The estimation was based on 1,000 replications and yielded no statistically significant mediation effect. Given the result of the tests for mediation, we further explored whether the relationship between sales growth and MVA could instead be influenced by profitability as a moderating variable. To test this, we interacted both continuous and categorical growth measures with ROE and estimated the resulting moderation models using

firm fixed effects, allowing us to isolate within-firm variation in how profitability conditions the effect of growth on valuation.

$$MVA_{i,t} = \beta_0 + \beta_1 SalesGrowth_{i,t} + \beta_2 ROE_{i,t} + \beta_3 (SalesGrowth_{i,t} * ROE_{i,t}) + \beta_4 LogAssets_{i,t} + \beta_5 \frac{RD_{i,t}}{Sales_{i,t}} + \varepsilon_{i,t} \quad (9)$$

$$MVA_{i,t} = \beta_0 + \beta_1 Q2_{i,t} + \beta_2 Q3_{i,t} + \beta_3 Q4_{i,t} + \beta_4 ROE_{i,t} + \beta_5 (Q2_{i,t} * ROE_{i,t}) + \beta_6 (Q3_{i,t} * ROE_{i,t}) + \beta_7 (Q4_{i,t} * ROE_{i,t}) + \beta_8 LogAssets_{i,t} + \beta_9 \frac{RD_{i,t}}{Sales_{i,t}} + \varepsilon_{i,t} \quad (10)$$

3.5 Diagnostic Testing

To ensure the validity of our regression results, we conducted a series of diagnostic tests addressing key assumptions of OLS and panel data models. These checks applied to all models estimated under Hypotheses 1 through 3.

We began by testing for heteroskedasticity using the Breusch–Pagan test (See Appendix 1). In both cases, the null hypothesis of homoskedasticity was strongly rejected ($p < 0.001$), indicating the presence of non-constant variance across observations. To address this, all regressions were estimated using robust standard errors, and for panel models, standard errors were clustered at the firm level to account for potential within-firm correlation over time. Panel structure is specified using firm and year identifiers, and fixed effects were applied where relevant.

To assess multicollinearity, we calculated variance inflation factors (VIF). All variables reported VIF values well below the threshold of 5 (mean VIF = 1.27, see Appendix 2), suggesting that multicollinearity was not a concern in our data. While the residuals did exhibit some skewness, the large sample size, our use of firm fixed effects, and use of robust standard errors mitigated concerns about non-normality.

In conclusion, these diagnostics suggest that the assumptions underlying our regression models are appropriately addressed, and that the results presented across all three hypotheses are robust and reliable.

4. Results

4.1 Descriptive Statistics

Table 1. Descriptive Statistics

Descriptive Statistics

	N	Mean	SD	Min	p1	p25	median	p75	p99	Max
MVA	4304	8.7	361.685	-.98	-.829	.447	1.83	4.626	188.11	444.35
Sales Growth	4304	.177	0.795	-1	-.967	-.062	.066	.223	3.667	9.547
ROE	4304	.057	0.308	-2.007	-1.13	-.007	.064	.195	.677	.774
ROA	4296	-.008	0.146	-1.486	-.621	-.019	-.004	.015	.351	.707
Asset Debt	4304	11.995	46.838	1	1.055	1.676	2.329	4.896	234.068	684.345
Log Assets	4304	21.184	2.003	13.188	16.505	19.805	21.101	22.437	26.095	26.996
R&D/Sales	2003	-1.632	19.581	-388.48	-7.342	-.075	0	0	0	.047

Table 1 presents descriptive statistics for the final sample, summarizing the distribution of the core variables used in the analysis. These include measures of firm value (MVA), sales growth, profitability (ROE and ROA), capital structure (Asset/Debt), firm size (log total assets), and R&D intensity (R&D/Sales). The unbalanced panel structure stems from variation in data coverage across firms and years. Most variables report over 4,000 firm-year observations, while R&D intensity is more sparsely populated (N = 2,003), reflecting the limited reporting of R&D in many firms' accounts. Nevertheless, this variable is retained due to its relevance for high-growth and innovation-intensive firms.

As expected, several variables display skewness and dispersion. MVA is particularly skewed, with a mean of 8.7 and a median of just 1.83. Despite having removed the extreme outliers, the maximum still exceeds 400, underscoring the presence of highly valued firms within the sample. This distribution suggests that a few firms with extraordinarily high valuations exert a disproportionate influence on the mean and highlights the need for robust estimation techniques. MVA is in the deflated form, calculated as the difference between the market value and book value of equity, deflated by the book value of equity, which facilitates interpretation as a relative valuation measure across firms.

Sales growth shows substantial variation, with values ranging from –1.0 to 9.5, a mean of 0.18, and a median of 0.07. The positive skew, combined with a low median, suggests that while most firms grow modestly, a smaller subset experiences high growth. This reflects the diverse nature of the sample, which spans both mature incumbents and high-growth firms pursuing aggressive scaling strategies.

Profitability, measured by ROE and ROA, is generally centered around zero, with relatively tight interquartile ranges indicating limited dispersion across most firms. ROE averages 5.7% with a median of 6.4%, while ROA has a slightly negative mean of –0.8% and a median of –0.4%. While both metrics follow a similar distribution, ROE exhibits greater variation due to its sensitivity to firms with small or volatile equity bases, where even modest earnings can produce disproportionately high returns. This reinforces the importance of separating operating efficiency from capital structure effects, motivating the decomposition of ROE into ROA and financial leverage. By distinguishing between profitability and financial structure, the analysis more accurately isolates operational performance.

Leverage, measured as the asset-to-debt ratio, exhibits substantial right-skew due to the presence of firms with extremely low debt levels. While the median ratio is 2.33, indicating moderate leverage, the mean is inflated by a minority of firms with exceptionally conservative capital structures, as reflected by a maximum value above 680 even after dropping the 1st and 99th percentiles. This dispersion highlights the heterogeneity in financing strategies across Swedish listed firms, ranging from debt-averse firms to those with more balanced capital structures. Given this variation and the relationship between leverage and valuation documented in prior research, we include leverage as a separate control in our regression models. In contrast, log-transformed total assets, used to proxy for firm size, display a more symmetrical distribution and serve to control for scale effects without being distorted by extreme values.

Finally, R&D intensity, defined as capitalized R&D expenditure relative to sales, has a mean of –1.63%. The negative average arises because the underlying R&D variable is reported with a negative sign in the dataset, reflecting its treatment as a capitalized cost or outflow in the accounting system. Additionally, a substantial share of observations reports zero R&D, contributing to the sparsity and heavy skew of the distribution. Despite these characteristics, the variable is included in the empirical models due to its theoretical relevance for capturing the role of innovation in high growth firms. Moreover, its inclusion does not materially affect the direction or statistical significance of other explanatory variables.

In conclusion, the descriptive statistics reflect a relatively high degree of heterogeneity across firms in terms of value creation, growth dynamics, profitability, and capital structure. Pairwise correlations between the main explanatory variables are generally low (see Appendix 3), suggesting that multicollinearity is unlikely to distort the regression estimates. This is further confirmed by the VIF test in Appendix 2. To mitigate the influence of extreme values, we

adjusted the continuous variables by dropping the 1st and 99th percentiles before analysis, to remove extreme outliers. Robust standard errors as well as firm fixed effects were applied throughout to account for heteroskedasticity. This approach ensures that the models remain resilient to outlier-driven distortions, while still capturing the broad variation characteristic of Swedish listed firms during the studied period.

4.2 Results of tests for Hypothesis 1

To test Hypothesis 1, which predicts a negative relationship between high sales growth and firm value, we estimate a series of OLS regressions using MVA as the dependent variable. Table 2 presents the results from our main regressions, where sales growth is first included as a continuous variable and then as quartile dummies (Q2–Q4, with Q1 as the omitted reference category). The model controls for R&D intensity, log-transformed total assets, and ROE, with firm-fixed effects applied to account for unobservable time-invariant heterogeneity. In a second step, we further develop the model by decomposing ROE into ROA and a leverage proxy, defined as total assets divided by total debt. This allows for a more detailed assessment of the role played by profitability and capital structure in shaping firm valuation.

Table 2. Effect of Sales Growth on MVA - Profitability

Panel A - Linear regression with firm fixed effects

MVA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Sales Growth	4.247	1.762	2.41	.016	.791	7.703	**
ROE	-98.491	35.508	-2.77	.006	-168.131	-28.851	***
Log Assets	9.114	3.912	2.33	.02	1.443	16.786	**
R&D/Sales	.011	.023	0.49	.622	-.034	.056	
Constant	-178.645	84.124	-2.12	.034	-343.634	-13.657	**

Mean dependent var	13.878	SD dependent var	113.209
R-squared (Adjusted)	0.638	Number of obs	2003
F-test	2.176	Prob > F	0.069

*** p<.01, ** p<.05, * p<.1

Panel B - Non-linear regression with firm fixed effects

MVA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Q2	15.894	7.567	2.10	.036	1.052	30.735	**
Q3	12.925	4.7	2.75	.006	3.707	22.143	***
Q4	13.559	5.216	2.60	.009	3.329	23.789	***
ROE	-98.526	35.321	-2.79	.005	-167.799	-29.253	***
Log Assets	7.329	3.693	1.98	.047	.086	14.571	**
R&D/Sales	.023	.025	0.94	.348	-.026	.072	
Constant	-149.914	80.79	-1.86	.064	-308.363	8.535	*

Mean dependent var	13.878	SD dependent var	113.209
R-squared (Adjusted)	0.64	Number of obs	2003
F-test	1.991	Prob > F	0.064

**** p<.01, ** p<.05, * p<.1*

Panel A of Table 2 shows that the continuous sales growth variable is statistically significant and positively associated with firm value, indicating that the market rewards firms with higher topline expansion when controlling for profitability, size, and firm-specific heterogeneity. One possible explanation for this pattern is that ROE, as an accounting-based measure, may be distorted by financial leverage. Firms with high debt levels can report elevated ROE figures due to reduced equity bases, even if their underlying operational performance is weak. Additionally, ROE is sensitive to conservative accounting treatments and may not fully capture the economic value generated by firms with large intangible investments or reinvestment strategies. As a result, a high ROE in this context may signal financial risk or earnings volatility rather than sustained profitability, leading investors to assign lower valuations. The log-transformed asset variable is significant and positive, suggesting that larger firms are perceived as more valuable. Furthermore, R&D intensity is not significantly related to firm value. Finally, the R-squared is 64%, which is relatively high. This is driven by the application of firm fixed effects, which reduces the overall variance by isolating the firm-specific characteristics.

Panel B shifts the specification to quartile-based dummies for sales growth. The results show a consistent positive valuation effect across all three quartiles. The Q2 and Q3 dummies are statistically significant and positive, while Q4 also shows a significant positive effect. This pattern indicates that higher sales growth, across all levels, is associated with increased firm value. At the same time, the ROE coefficient continues to be negative and significant, reinforcing the interpretation that the market may discount firms with high reported accounting profitability when other performance dimensions are controlled for. These results do not support Hypothesis 1, as high growth does not appear to be discounted by the market. Instead, growth seems to be consistently rewarded. To further understand the negative coefficient for

ROE and to investigate how leverage affects the growth-value relationship, we decompose ROE into ROA and Leverage in Table 3.

Table 3. Effect of Sales Growth on MVA - Operational Profitability and Leverage

Panel A - Linear regression with firm fixed effects

MVA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Sales Growth	.247	.381	0.65	.518	-.501	.995	
ROA	1.34	9.136	0.15	.883	-16.578	19.258	
Asset/Debt	-.044	.021	-2.09	.037	-.085	-.003	**
Log Assets	-3.528	3.188	-1.11	.269	-9.78	2.724	
R&D/Sales	-.002	.009	-0.19	.846	-.02	.016	
Constant	89.48	70.265	1.27	.203	-48.326	227.287	

Mean dependent var	12.236	SD dependent var	104.788
R-squared (Adjusted)	0.578	Number of obs	2000
F-test	2.046	Prob > F	0.070
Akaike crit. (AIC)	22434.636	Bayesian crit. (BIC)	22468.242

*** p<.01, ** p<.05, * p<.1

Panel B - Non-linear regression with firm fixed effects

MVA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Q2	14.947	7.622	1.96	.05	-.002	29.897	*
Q3	9.08	4.596	1.98	.048	.065	18.095	**
Q4	6.633	3.922	1.69	.091	-1.059	14.325	*
ROA	.108	9.916	0.01	.991	-19.34	19.556	
Asset/Debt	-.057	.02	-2.92	.003	-.096	-.019	***
Log Assets	-4.991	3.368	-1.48	.139	-11.597	1.615	
R&D/Sales	-.023	.014	-1.62	.105	-.05	.005	
Constant	113.31	73.376	1.54	.123	-30.6	257.219	

Mean dependent var	12.236	SD dependent var	104.788
R-squared (Adjusted)	0.579	Number of obs	2000
F-test	2.367	Prob > F	0.021

*** p<.01, ** p<.05, * p<.1

Table 3 presents a decomposition of ROE to separate the effects of operational profitability and financial structure on firm value. In Panel A, where ROA and the asset-to-debt ratio are included instead of ROE, the continuous sales growth variable becomes statistically insignificant. ROA does not show a significant association with MVA, while the leverage proxy is statistically significant and negatively related to firm value. However, since this proxy is defined as assets divided by debt, a lower ratio implies higher leverage, meaning that the negative coefficient reflects a positive market response to increased leverage. These findings underscore the importance of separating operational efficiency from financing effects when interpreting profitability metrics. Log-transformed assets and R&D intensity remain statistically insignificant in this specification.

Panel B reintroduces the sales growth quartiles while controlling for ROA and leverage. The Q2 and Q3 dummies remain positive and statistically significant, indicating that moderate growth is associated with higher firm value. The Q4 dummy decreases in magnitude but remains positive and significant, suggesting that the most aggressively growing firms are discounted relative to their moderately growing peers, once profitability and capital structure are accounted for. This supports the notion that very high growth, in the absence of strong operating returns or stable leverage, may be perceived by the market as riskier or less sustainable. Leverage continues to show a positive association with firm value, once again reflecting the inverse interpretation of the asset-to-debt proxy, while ROA remains statistically insignificant.

To assess the stability of these findings, we conduct two key robustness checks using subsample restrictions. The first subset, in Table 4, includes firms that remained in the same sales or earnings growth quartile for at least four consecutive years. This criterion helps ensure that growth classifications reflect persistent performance patterns rather than short-term volatility.

Table 4. Robustness test 1 – Steady Growth

Panel A - Linear regression with firm fixed effects

MVA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Sales Growth	-2.578	2.258	-1.14	.254	-7.014	1.857	
ROE	-48.386	39.002	-1.24	.215	-125	28.228	
Log Assets	8.798	7.428	1.18	.237	-5.794	23.39	
R&D/Sales	.136	.174	0.78	.438	-.207	.478	
Constant	-174.089	158.145	-1.10	.271	-484.747	136.569	

Mean dependent var	13.117	SD dependent var	100.238
R-squared (Adjusted)	0.9294	Number of obs	644
F-test	1.632	Prob > F	0.165

*** p<.01, ** p<.05, * p<.1*

Panel B - Non-linear regression with firm fixed effects

MVA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Q2	-26.727	18.443	-1.45	.148	-62.956	9.501	
Q3	-12.534	9.381	-1.34	.182	-30.962	5.893	
Q4	-4.442	4.841	-0.92	.359	-13.951	5.067	
ROE	-50.904	38.358	-1.33	.185	-126.255	24.447	
Log Assets	16.835	12.27	1.37	.171	-7.268	40.937	
R&D/Sales	-.08	.046	-1.74	.082	-.17	.01	*
Constant	-335.854	254.312	-1.32	.187	-835.425	163.716	

Mean dependent var	13.117	SD dependent var	100.238
R-squared (Adjusted)	0.932	Number of obs	644
F-test	0.911	Prob > F	0.486

*** p<.01, ** p<.05, * p<.1*

In this regression output, none of the growth quartile dummies are statistically significant, and their coefficients are all negative. This contrasts with the main results in Table 2, where sales

growth was consistently rewarded by the market. The absence of significance is likely due to the smaller sample size (N = 644), which reduces statistical power. ROE remains insignificant, and the model explains a large share of within-firm variation (adjusted $R^2 > 0.90$), due to the use of firm fixed effects on a quite homogeneous panel. This exceptionally high explanatory power suggests that most variation in firm value is already captured by firm-level characteristics, leaving little scope for time-varying predictors like growth to explain within-firm changes, a limitation of the sample size in the subset.

The second robustness test (Table 5) applies a stricter filter by requiring firms to remain in the same growth quartile for both sales and earnings growth for at least two consecutive years. This subset targets firms with consistent and aligned performance across both dimensions.

Table 5. Robustness test 2 – Steady Growth and Earnings

Panel A - Linear regression with firm fixed effects

MVA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Sales Growth	-4.045	3.961	-1.02	.309	-11.86	3.77	
ROE	-1.646	6.584	-0.25	.803	-14.634	11.341	
Log Assets	-2.08	1.082	-1.92	.056	-4.215	.055	*
R&D/Sales	.046	.023	1.96	.052	0	.091	*
Constant	51.388	24.582	2.09	.038	2.894	99.882	**

Mean dependent var	4.892	SD dependent var	13.601
R-squared (Adjusted)	0.981	Number of obs	192
F-test	2.052	Prob > F	0.089

*** p<.01, ** p<.05, * p<.1

Panel B - Non-linear regression with firm fixed effects

MVA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Q2	-1.212	1.094	-1.11	.271	-3.389	.965	
Q3	-.982	.657	-1.50	.139	-2.288	.324	
Q4	-.775	.895	-0.87	.389	-2.556	1.006	
ROE	1.829	2.753	0.66	.508	-3.648	7.306	
Log Assets	2.314	2.252	1.03	.307	-2.167	6.796	
R&D/Sales	-3.011	1.899	-1.59	.117	-6.789	.766	
Constant	-52.576	52.24	-1.01	.317	-156.516	51.364	

Mean dependent var	4.764	SD dependent var	13.521
R-squared (Adjusted)	0.981	Number of obs	192
F-test	0.717	Prob > F	0.637

*** p<.01, ** p<.05, * p<.1

In this second robustness test, all growth-related coefficients, along with ROE and R&D intensity, are statistically insignificant. The results closely mirror those from the first robustness check. Given the limited sample size of 192 observations and the strict requirement for stability in both sales and earnings growth, the lack of significance is likely driven by low within-firm variation. The very high adjusted R^2 further reflects this, suggesting that most of the explanatory

power comes from firm-fixed effects, leaving little room for time-varying variables to explain additional variance in valuation.

Overall, these findings reject Hypothesis 1. Across most specifications, sales growth is either positively associated with firm value or statistically insignificant, and high-growth firms are not consistently penalized. However, when profitability and financial leverage are accounted for separately, firms in the highest sales growth quartile (Q4) exhibit a valuation discount compared to the other quartiles, suggesting that the market may be sceptical of very high growth in some capital structure and profitability cases. In contrast, moderate growth, particularly in the second quartile, is consistently associated with higher valuations, indicating that the market favours firms pursuing steady and potentially more sustainable expansion. The decomposition of ROE further supports this interpretation, as the leverage proxy is consistently negatively signed, implying a positive valuation effect of higher leverage, while operational profitability (ROA) remains statistically insignificant across specifications. This suggests that investors may view debt-financed growth more favourably than growth unsupported by financing or efficiency gains. With an R^2 of around 60%, the explanatory power of the model is substantial, and the recurring patterns across multiple specifications and robustness checks lend credibility to a cautious but consistent interpretation of the results.

4.3 Results of tests for Hypothesis 2

To test Hypothesis 2, which predicts a negative relationship between sales growth and profitability, we estimate a set of OLS regressions with ROE as the dependent variable. The first specification includes sales growth as a continuous variable, while the second uses sales growth quartiles (Q2–Q4), with the lowest quartile (Q1) as the reference group. Both models control for firm size (log of total assets) and R&D intensity, and include firm fixed effects.

Table 6. Effect of Sales Growth on ROE

Panel A - Linear regression with firm fixed effects

ROE	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Sales Growth	.038	.009	4.02	0.000	.019	.056	***
Log Assets	.115	.025	4.55	0.000	.065	.165	***
R&D/Sales	0	0	0.89	.376	0	.001	
Constant	-2.445	.553	-4.42	0.000	-3.529	-1.361	***

Mean dependent var	0.070	SD dependent var	0.295
R-squared (Adjusted)	0.475	Number of obs	2003
F-test	26.528	Prob > F	0.000

*** p<.01, ** p<.05, * p<.1

Panel B - Non-linear regression with firm fixed effects

ROE	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Q2	.013	.018	0.74	.458	-.022	.049	
Q3	.02	.017	1.21	.226	-.012	.053	
Q4	.067	.018	3.77	0.000	.032	.102	***
Log Assets	.111	.025	4.37	0.000	.061	.16	***
R&D/Sales	0	0	2.78	.006	0	.001	***
Constant	-2.367	.554	-4.27	0.000	-3.452	-1.281	***

Mean dependent var	0.070	SD dependent var	0.295
R-squared (Adjusted)	0.476	Number of obs	2003
F-test	13.218	Prob > F	0.000

*** p<.01, ** p<.05, * p<.1

In the first model (Table 6, Panel A), the coefficient on the continuous sales growth variable is positive and statistically significant, indicating that higher sales growth is linked to slightly higher ROE. This finding challenges the claim that growth undermines profitability, but the effect size is small. Although statistically significant, the relationship appears economically modest, suggesting that firms with higher top-line growth tend to achieve only marginal improvements in ROE.

In the second specification (Table 6, Panel B), we assess the relationship between profitability and growth level using the sales growth quartile dummies. The results show that only the highest growth group (Q4) is significantly associated with increased ROE relative to the lowest growth group. While the coefficients for Q2 and Q3 are positive, they are not statistically significant, suggesting that moderate growth levels do not have a reliable effect on profitability. Like the results when including the continuous sales growth variable, the effect size for Q4, is relatively modest in magnitude but significant. This reinforces the view that while higher sales growth is positively linked to ROE, the impact remains limited. The control variables act consistently across both models. The coefficient on log total assets remains positive and

significant, showing that firm size contributes to profitability. R&D intensity becomes significant in the quartile-based model, although the effect size is minimal.

Overall, the results reject Hypothesis 2. Instead of a negative association, the findings show a positive and statistically significant relationship between sales growth and profitability, both when growth is treated continuously and when comparing the sales growth quartiles. However, the effect sizes are relatively small in magnitude, indicating that while higher growth is associated with improved ROE, the practical or economic impact may be limited. These findings suggest that, within the observed sample, higher growth is not detrimental to profitability. On the contrary, it even results in a modest positive effect. This is in line with the positive effect on MVA, thus testing for mediation is reasonable.

4.4 Results of tests for Hypothesis 3

To evaluate Hypothesis 3, which states that profitability mediates the relationship between sales growth and firm value, we estimate two regressions, one excluding ROE and one including it as a mediator. Both models include firm fixed effects to account for time-invariant firm-specific characteristics and improve robustness.

Table 7. Main Regression without ROE

Panel A - Linear regression with firm fixed effects

MVA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Sales Growth	.525	.335	1.57	.118	-.133	1.183	
Log Assets	-2.218	3.476	-0.64	.523	-9.034	4.598	
R&D/Sales	-.006	.01	-0.59	.556	-.027	.014	
Constant	62.147	76.681	0.81	.418	-88.243	212.536	

Mean dependent var	13.878	SD dependent var	113.209
R-squared (Adjusted)	0.62	Number of obs	2003
F-test	0.912	Prob > F	0.434

*** p<.01, ** p<.05, * p<.1

Panel B - Non-linear regression with firm fixed effects

MVA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Q2	14.564	7.828	1.86	.063	-.789	29.918	*
Q3	10.948	4.537	2.41	.016	2.05	19.845	**
Q4	6.929	3.744	1.85	.064	-.415	14.273	*
Log Assets	-3.582	3.771	-0.95	.342	-10.978	3.815	
R&D/Sales	-.025	.015	-1.63	.104	-.055	.005	
Constant	83.252	82.196	1.01	.311	-77.954	244.458	

Mean dependent var	13.878	SD dependent var	113.209
R-squared (Adjusted)	0.625	Number of obs	2003
F-test	2.058	Prob > F	0.068

**** p<.01, ** p<.05, * p<.1*

In the model without ROE (Table 7), the continuous sales growth variable is positive but statistically insignificant, suggesting that, on average, growth is not reliably associated with firm value. The dummy variables for the second (Q2), third (Q3), and fourth (Q4) sales growth quartiles are all positive and statistically significant, however, the magnitude decreases from Q2 to Q4. These findings suggest a consistently positive association between growth and firm value across the quartiles, but with the effect on valuation gradually declining at higher growth levels, which reflects the diminishing returns to growth we find in Hypotheses 1 when accounting for leverage and ROA.

When ROE is introduced into the regression (Table 2), it enters with a large and statistically significant negative coefficient (coef. = –98.49, p = 0.006), while the continuous sales growth variable becomes positive and statistically significant (coef. = 4.25, p = 0.016). In the quartile-based model, all three growth quartiles (Q2–Q4) remain statistically significant and positively associated with firm value (Q2: coef. = 15.89, p = 0.036; Q3: coef. = 12.93, p = 0.006; Q4: coef. = 13.56, p = 0.009). If ROE was a mediator, we would expect the positive effect of sales growth on MVA to weaken or become insignificant once ROE is added, as part of sales growth's impact would operate through improved profitability. However, the opposite occurs. In Table 2, Panel A, the continuous sales growth coefficient becomes statistically significant as ROE is introduced (coef. = 4.25, p = 0.016), suggesting that controlling for ROE strengthens the observed relationship between growth and firm value. Similarly, in the non-linear specification (Panel B), the coefficients on the Q2–Q4 growth dummies all increase in size and significance once ROE is included. This pattern contradicts the expectations of a mediating effect and instead suggests that ROE may suppress or obscure the valuation effects of growth rather than transmit them. Therefore, the results do not support Hypothesis 3 and instead point toward a ROE as a moderator as the effect increases when controlled for.

To confirm the rejection of Hypothesis 3, we conduct a bootstrap test of the indirect effect (Appendix 4). The result shows a negative and statistically insignificant effect (ab = –1.27, p = 0.488), with a wide confidence interval (–4.85 to 2.32). This means there is no clear evidence that ROE acts as a mediator in this relationship. Combined with the earlier regression results, which show that the effect of sales growth on firm value becomes stronger when ROE is included, these findings suggest that ROE does not help explain how growth leads to higher valuation.

Given the non-significant result from the bootstrap test, we proceed to investigate whether profitability instead moderates the relationship between growth and firm value. In other words, we ask whether the effect of sales growth on valuation varies depending on the level of profitability. To assess this, we estimate regressions including interaction terms between sales growth variables and ROE. In a linear model with an interaction between continuous sales growth and ROE, the interaction term is positive and statistically significant (coef. = 22.34, p = 0.011), suggesting that growth is rewarded when paired with strong profitability, and discounted when profitability is low (Appendix 5).

To better understand whether this moderating effect varies across different growth intensities, we estimate an additional model using interaction terms between the sales growth quartiles and ROE. The interaction term for the highest growth quartile (Q4) is especially notable, entering with a strong and statistically significant coefficient (coef. = 77.75, p = 0.005). This suggests that firms with very high growth are evaluated much more positively by the market when they are simultaneously profitable. Conversely, Q4 firms without profitability may continue to face a discount. Meanwhile, the interaction terms for Q2 and Q3 are positive but not statistically significant, indicating that the profitability-conditioning effect is concentrated in the upper end of the growth distribution.

In conclusion, these findings conclude that profitability plays a more important role as a moderator rather than a mediator. While the mediation pathway is not supported by formal testing, the significant and substantial interaction terms suggest that profitability alters the valuation impact of growth. High growth, particularly in the Q4 range, is not inherently value-enhancing or value-destroying, but becomes valuable when accompanied by strong financial performance. These results provide further nuance to our understanding of growth and valuation dynamics, reinforcing the idea that markets reward growth strategies that are sustainable and rooted in profitability.

5. Discussion

5.1 The Effect of Growth on Firm Value

In Hypothesis 1, we test if sales growth is negatively correlated with firm value. Despite its intuitive appeal, the idea that higher sales growth leads to higher firm value is not consistently supported by empirical evidence. However, in our study, we find a positive association between growth and value. Sales growth is positively correlated with MVA for all significant regression results, suggesting that investors generally reward topline expansion. Thus, these results reject Hypothesis 1, which predicts a valuation discount for high-growth firms. Instead, our results indicate that all growth quartiles are positively associated with firm value, with the strongest effects in Q2 and Q3. Firms in the highest growth quartile (Q4) show a statistically significant positive relationship with MVA, similar in size to Q2 and Q3 when using ROE as a control. This contrasts the findings of Ramezani et al. (2002), who find that high growth (Q4) can be value-destroying, particularly when it leads to poor investment decisions and diminished profitability. However, once we account for financial leverage and operational profitability, we find partial support for their argument. In the decomposed model, the Q4 dummy is significantly lower than those of Q2 and Q3, indicating that high growth that is not accompanied by profitability or a sustainable capital structure is viewed less favourably by the market, especially when the growth is financed through debt.

This pattern is particularly interesting given the macroeconomic context in which the analysis was conducted. The sample period, 2014–2022, coincides with a period of exceptionally low and even negative policy interest rates in Sweden. During this time, borrowing costs were unusually low, which may have made high growth strategies appear less risky and more attractive. Firms could access cheap capital to fund expansion, and investors may have been more forgiving toward delayed profitability if future earnings seemed attainable. In such an environment, the market may have placed a premium on growth as a signal of long-term potential. The positive coefficient on leverage in Table 3 may reflect this context, as higher debt levels could have been interpreted as a rational response to favourable financing conditions rather than a sign of financial fragility. In this context, the lack of declining valuation effects for high-growth firms in Table 2 contradicts the findings of Ramezani et al. (2002) This may partly reflect the economic environment of the period, where debt-financed expansion was viewed as a viable strategy for creating value.

From an empirical perspective, this finding aligns with prior research emphasizing how the role of financial structure shapes the relationship between growth and firm value. Spitsin et al. (2022) argue that high-growth firms often rely more on debt, increasing their financial risk exposure. Our results follow similar reasoning: while growth is generally viewed positively, the way it is financed matters. The positive coefficient on leverage observed in Table 3, interpreted through our asset-to-debt proxy, suggests that during periods of low interest rates, higher debt levels may not have been discounted by the market. Instead, they might have been seen as an efficient use of cheap capital. Cho and Pucik (2005) similarly highlight that for growth to translate into long-term value, it must be supported by underlying profitability. While ROA is not consistently significant, the market's sensitivity to capital structure suggests that some aspects of profitability may be indirectly captured.

To interpret these findings, focusing on a broader theoretical context, we use the concept of PMB. As discussed in the literature review, PMB stems from conservative accounting practices, such as expensing intangible investments and using historical cost valuation, which tend to understate book values relative to a firm's true economic position. This bias is especially relevant for high-growth firms, where value creation often relies heavily on intangible assets and reinvestment. In such cases, traditional profitability metrics may fail to reflect the full extent of firm performance. This approach is in line with arguments by Runsten (1998) and Beaver and Ryan (2000), who stress that ignoring PMB can lead to misleading conclusions, particularly when evaluating growth-oriented firms. Since MVA is calculated as (Market Value – Book Value) / Book Value, it directly captures both the market's expectations of a firm, and its conservative accounting figures. Thus, applying firm fixed effects allows us to control for firm-specific accounting biases, offering a more precise view of how growth correlates with value across firms. Given this, our use of MVA helps isolate the portion of firm value that exceeds what is reported in the financial statements and stems from market expectations.

This means that the observed relationship between sales growth and MVA can be more confidently interpreted as reflecting how the market perceives and values growth, rather than effects caused by distortions in reported book values. Thus, our results provide insight into the market's valuation of expected future performance, independent of PMB. The fact that sales growth for firms across Q2 to Q4 leads to a positive and statistically significant impact on valuation, even after accounting for firm fixed effects, suggests that investors attribute value to sales growth as an indicator of future potential, despite it not being fully reflected in traditional accounting metrics. At the same time, the declining positive effect when controlling for

leverage implies that investors are attentive not only to growth itself, but also to the financial context in which it occurs. Growth supported by a strong capital structure may be perceived as more sustainable, whereas highly leveraged growth could signal elevated risk.

The robustness tests add nuance to our interpretation of the main results. In Table 4, we restrict the sample to firms that remained in the same sales or earnings growth quartile for at least four consecutive years. None of the growth dummies are statistically significant in this model, although all coefficients turn negative. The lack of significance is likely driven by the smaller sample size, which reduces statistical power and increases the likelihood of imprecise estimates. A similar pattern appears in Table 5, where the criteria are further tightened to include only firms that maintained consistent sales and earnings growth over time. Again, none of the quartile coefficients are significant, and Q4 remains statistically indistinguishable from zero. Rather than contradicting the main findings, these results likely reflect limitations in sample size and variation, which make it harder to detect meaningful relationships. The absence of a valuation premium for consistent growth may suggest that stability is already priced in by the market, or that additional factors, such as timing, sectoral trends, or firm-specific dynamics, play a more decisive role in shaping how growth translates into value.

Overall, the results indicate that Hypothesis 1 is not supported. High sales growth is not discounted by the market per se. On the contrary, it is positively associated with firm value in all significant specifications. However, once the source of profitability and capital structure is considered, we find that firms in the highest growth quartile (Q4) are viewed with more scepticism, as firms here receive a lower valuation than in the other quartiles. This suggests that investors value growth but are cautious of whether it is accompanied by financial prudence. Our findings are consistent with a nuanced view of value relevance, where growth, profitability, and risk are jointly evaluated. While low interest rates may have made growth appear more attractive during the sample period, the positive valuation of leveraged firms in our results may reflect the market's increased tolerance for debt-fuelled expansion in such an environment. These findings highlight the importance of accounting for how macroeconomic conditions, financial structure, and accounting proxies interact in shaping investor perceptions and firm valuation.

5.2 The Effect of Growth on Profitability

Hypothesis 2 investigates whether high sales growth is negatively correlated with profitability. Contrary to expectations, the regression results indicate a positive and statistically significant relationship between sales growth and ROE. In our first regression, including sales growth as a continuous variable, the coefficient is positive and highly significant. Although the effect size is relatively small, the result suggests that, on average, firms with higher sales growth report slightly higher profitability. This finding challenges the assumption that rapid expansion strains resources and aligns with Cho and Pucik (2005), who argue that growth can enhance profitability when coupled with innovation and quality execution. Similarly, Lee et al. (2000) highlight how rapidly growing firms may benefit from economies of scale or early-mover advantages, which could explain the positive correlation observed in our results.

To further explore whether the relationship between growth and profitability varies across the distribution of growth rates, we estimate a second specification using the sales growth quartile dummies. The results show that only firms in the highest growth quartile (Q4) exhibit a statistically significant increase in ROE relative to the lowest-growth group (Q1), while firms in the second and third quartiles (Q2 and Q3) show no significant difference. This pattern suggests that only the quickest growing firms enjoy a measurable profitability advantage. However, the modest effect size reinforces the idea that growth alone is not a sufficient driver of strong financial performance. Despite our significant results, this indicates resemblance to Markman and Gartner's (2002) study of high-growth firms in the U.S., that finds no significant relationship between extraordinary sales or employment growth and profitability. Similarly, this finding highlights the importance of how growth is managed rather than its pace alone.

One potential explanation for the limited magnitude of these effects lies in the accounting treatment of intangible investments. Firms that grow quickly often invest heavily in R&D, branding, or platform development. These expenditures are typically expensed rather than capitalized under prevailing accounting standards. As highlighted by Lev and Srivastava (2022), this leads to a systematic understatement of reported earnings, particularly in innovation-intensive firms. While our results show a positive relationship between growth and ROE, the true profitability of high-growth firms may be even stronger than reported, especially for those investing heavily in future-oriented capabilities.

Furthermore, the statistically significant result for the Q4 dummy suggests that only the fastest-growing firms show a clear profitability advantage. However, the lack of a similar pattern in Q2 and Q3 points to variation within the growth distribution. Although our use of firm fixed effects accounts for persistent firm-level characteristics, it does not capture time-varying decisions or shifts in market conditions. High-growth firms may follow different strategies, some achieve profitability through scale and efficiency, while others invest heavily in long-term initiatives that take longer to pay off. This variation highlights that the link between growth and profitability is not uniform and depends on factors like investment strategy, and industry conditions. As Spitsin et al. (2022) note, even profitable high-growth firms often take on more debt to finance expansion, which can affect short-term earnings and make growth paths harder to compare directly.

In summary, the results do not support Hypothesis 2. Rather than finding a negative relationship, the results show a small but statistically significant positive link between sales growth and profitability. High growth is associated with higher ROE, though the economic impact is modest. The most notable profitability gains appear concentrated among firms in the highest growth quartile, suggesting that growth can support profitability, provided it is well-managed. Ultimately, the strength of this relationship seems to depend on how growth is pursued and financed.

5.3 Profitability as a Mediator of the Effect of Growth on Valuation

Hypothesis 3 proposes that profitability mediates the relationship between sales growth and firm value. While sales growth is positively associated with firm value in several specifications, the formal mediation test finds no significant indirect effect through profitability. As a result, we find no evidence to support Hypothesis 3, thus, we conclude that profitability does not function as a mediator in this relationship.

While our regression results show a consistent positive association between sales growth and firm value, they do not support the idea that this relationship is mediated by profitability. The valuation premium observed across Q2–Q4 suggests that growth is valued, rather than through its effect on ROE. This diverges from the mediation model proposed by Cho and Pucik (2005), where profitability is the mechanism through which growth enhances firm value. Our formal test of the indirect effect confirms this: the estimated mediation pathway is not statistically

significant. This suggests that markets may price growth based on future potential rather than current financial performance.

Our extended analysis points to profitability acting as a moderator. When we include interaction terms between growth and ROE, the findings show that profitability amplifies the positive valuation effects of growth. Specifically, high-growth firms experience a valuation premium only when their growth is accompanied by high profitability. The interaction between ROE and the Q4 dummy is large and statistically significant (coef. = 77.75, p = 0.005), while the corresponding interaction terms for Q2 and Q3 are positive but not statistically significant. This indicates that the market rewards firms where high growth is accompanied by profitability, particularly in the highest growth segment.

This interpretation is consistent with Cho and Pucik's (2005) argument that profitability, rather than growth alone, is the key driver of firm value. Their findings suggest that investors prioritize earnings quality and operational performance over topline expansion, an idea our results reinforce. Similarly, Ramezani et al. (2002) emphasize that growth can destroy value when it is poorly managed or detached from a firm's financial fundamentals, highlighting risks such as overinvestment or managerial overreach. The limited market response to high-growth firms lacking profitability in our study echoes these concerns, particularly in cases where expansion may rely on intangible assets or inflated expectations of future earnings. Lee et al. (2000) add that while early-stage growth may temporarily suppress profitability in innovation-driven industries, long-term value creation still depends on eventual financial performance.

Overall, our findings lead us to reject Hypothesis 3, which states that profitability mediates the relationship between growth and firm value. Instead, the evidence suggests that profitability acts as a moderator. The positive interaction between ROE and growth, particularly in the highest growth segment, indicates that the market rewards firms where growth is accompanied by strong financial performance. Growth appears to be positively associated with firm value, but the effect is significantly stronger when accompanied by high profitability. This suggests that while growth is rewarded, it is profitable growth that earns the highest valuation premiums. For high-growth firms, this highlights the added importance of financial discipline, and for investors, the need to assess both the pace and quality of growth.

6. Conclusion

This thesis explores how high sales growth affects firm value and profitability, using a sample of Swedish publicly listed firms from 2014 to 2022. Specifically, we examine whether rapid growth is associated with lower valuations, whether it undermines profitability, and whether profitability mediates the relationship between growth and value. The study contributes to existing literature by analysing these dynamics in the Swedish context during a period of exceptionally low interest rates, and by applying both linear and non-linear growth models, firm-fixed effects, and extensive robustness checks across multiple subsamples.

The results show that continuous sales growth has an insignificant impact on MVA. However, we find a non-linear relationship when categorizing firms into sales growth quartiles. Firms with moderate growth (Q2 and Q3) are valued significantly higher than the reference group (Q1), while firms with the highest sales growth (Q4) are also positively and significantly associated with firm value in the main specification. However, this effect weakens when accounting for profitability and leverage. These findings point to an inverted U-shaped pattern, where high growth is not penalized outright but is discounted compared to the other quartiles, unless supported by solid financial fundamentals. Further, we find that continuous sales growth is positively and significantly correlated with ROE, although the effect is modest in size. The sales growth quartiles show that only Q4 achieves significantly higher profitability, while Q2 and Q3 are positive but not statistically significant. These results suggest that while growth can enhance profitability, the relationship is not linear and depends on how growth is managed. Finally, although we find no evidence that profitability mediates the effect of growth on firm value, interaction models show that profitability significantly moderates this relationship. Specifically, firms with strong profitability are more likely to be rewarded for high growth, while unprofitable high-growth firms may face a valuation discount.

This study contributes to the existing literature by applying established valuation and growth theories to the Swedish context during a period of historically low interest rates. To our knowledge, no prior research has examined this specific market using a similar framework. The inclusion of both linear and non-linear growth specifications, firm-fixed effects, and multiple robustness checks strengthens the empirical design and enhances the validity of the findings. By focusing on the role of profitability as both a mediator and moderator, the study also helps clarify the conditions under which growth is rewarded or discounted by the market.

However, several limitations should be acknowledged. First, the analysis is limited to Swedish publicly listed firms, which may reduce the generalizability of the findings to other national contexts, private companies, or time periods with different macroeconomic conditions. Second, the data exhibit substantial dispersion and firm-level heterogeneity in key variables such as profitability, leverage, and valuation. While this variation is central to the study's objectives, it also raises the concern that the results could be influenced by remaining outliers, even after excluding extreme values and applying firm fixed effects. As such, the findings should be interpreted with caution, especially when generalizing across other geographies and time periods. Third, the study relies on accounting-based measures of profitability, which may understate the true performance of high-growth firms due to conservative treatment of intangible investments. These limitations suggest that our findings should be interpreted with caution, particularly for innovation-driven firms.

Future research could address these limitations by studying other markets, private firms, and by employing alternative proxies for intangible assets. Additionally, further studies could explore the interconnections between growth and profitability over longer time horizons to better understand how firms transition between different growth phases and their impact on valuation. The indication that profitability moderates the relationship between sales growth and firm value, but does not significantly mediate it, suggests a complex interaction that warrants further investigation.

In conclusion, our findings suggest that sales growth is generally associated with higher firm value, but the strength of this relationship varies depending on the level of growth and the presence of profitability. Firms with moderate growth tend to receive the highest valuation premiums, while high-growth firms are only rewarded when they also exhibit strong financial performance. Profitability does not mediate the growth–value relationship but plays a clear moderating role, enhancing the market's response to growth when present. These results highlight the importance of financial discipline in sustaining value during periods of rapid expansion.

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8. Appendix

Appendix 1 – Test for Heteroscedasticity

For Continuous Sales Growth:
Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
Assumption: i.i.d. error terms
Variable: Fitted values of **MVA**

H0: Constant variance

chi2(**1**) = **119.60**
Prob > chi2 = **0.0000**

For Quartiles:
Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
Assumption: i.i.d. error terms
Variable: Fitted values of mva

H0: Constant variance

chi2(**1**) = **126.14**
Prob > chi2 = **0.0000**

Appendix 2 – Variance Inflation Factor Test

Variance inflation factor – with ROE

	VIF	1/VIF
Q3	1.67	.599
Q2	1.643	.609
Q4	1.538	.65
Log Assets	1.048	.955
ROE	1.031	.97
Sales Growth	1.025	.975
R&D/Sales	1.017	.984
Mean VIF	1.282	.

Variance inflation factor – with ROA and Leverage

	VIF	1/VIF
Q3	1.707	.586
Q2	1.649	.606
Q4	1.542	.648
ROE	1.158	.864
R&D/Sales	1.089	.918
Log Assets	1.065	.939
Sales Growth	1.026	.974
Asset/Debt	1.007	.993
Mean VIF	1.28	.

Appendix 3 – Correlation Matrix

Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) MVA	1.000									
(2) Sales Growth	-0.005	1.000								
	(0.737)									
(3) Q2	0.006	-0.042	1.000							
	(0.648)	(0.005)								
(4) Q3	-0.026	-0.038	-0.273	1.000						
	(0.059)	(0.012)	(0.000)							
(5) Q4	-0.039	0.140	-0.255	-0.271	1.000					
	(0.004)	(0.000)	(0.000)	(0.000)						
(6) ROE	-0.089	-0.006	0.021	0.023	-0.010	1.000				
	(0.000)	(0.719)	(0.134)	(0.110)	(0.482)					
(7) ROA	0.024	-0.048	0.070	0.103	-0.047	0.602	1.000			
	(0.090)	(0.002)	(0.000)	(0.000)	(0.001)	(0.000)				
(8) Asset/Debt	0.007	-0.010	-0.069	-0.061	-0.013	0.005	0.029	1.000		
	(0.587)	(0.496)	(0.000)	(0.000)	(0.344)	(0.744)	(0.043)			
(9) Log Assets	-0.293	0.028	-0.019	0.082	-0.044	0.061	0.176	-0.029	1.000	
	(0.000)	(0.067)	(0.168)	(0.000)	(0.001)	(0.000)	(0.000)	(0.036)		
(10) R&D/Sales	0.017	0.007	0.052	0.050	0.008	0.060	0.176	-0.019	0.085	1.000
	(0.451)	(0.762)	(0.018)	(0.022)	(0.709)	(0.008)	(0.000)	(0.375)	(0.000)	

The numbers within parentheses are the significance levels for each correlation.

Appendix 4 – Mediation test

Bootstrap results

Number of obs = 2,003
Replications = 1,000

Command: **fe_mediation**
ab: **r(ab)**

	Observed Coefficient	**Bootstrap std. err.**	**z**	**P > |z|**	**Confidence interval 95%**	
ab	-1.268075	1.829496	-0.69	0.488	-4.85382	2.317671

Appendix 5 – Moderation test

Linear regression, absorbing indicators

MVA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Sales Growth	2.694	1.419	1.90	.058	-.089	5.478	*
ROE	-103.312	36.722	-2.81	.005	-175.333	-31.292	***
Interaction	22.344	8.77	2.55	.011	5.144	39.545	**
Log Assets	9.75	3.908	2.49	.013	2.085	17.415	**
R&D/Sales	.142	.068	2.09	.037	.009	.275	**
Constant	-191.955	83.789	-2.29	.022	-356.285	-27.624	**

Mean dependent var	13.878	SD dependent var	113.209
R-squared (Adjusted)	0.626	Number of obs	2003
F-test	1.815	Prob > F	0.107

*** p<.01, ** p<.05, * p<.1*

Linear regression, absorbing indicators

MVA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Q2	21.894	9.17	2.39	.017	3.909	39.879	**
Q3	4.725	4.507	1.05	.295	-4.114	13.563	
Q4	10.899	4.316	2.53	.012	2.434	19.364	**
ROE	-116.843	35.803	-3.26	.001	-187.062	-46.624	***
ROE_Q2	-50.919	59.308	-0.86	.391	-167.236	65.398	
ROE_Q3	83.872	32.987	2.54	.011	19.175	148.568	**
ROE_Q4	77.754	27.631	2.81	.005	23.563	131.946	***
Log Assets	10.534	3.701	2.85	.004	3.275	17.794	***
R&D/Sales	.105	.046	2.26	.024	.014	.196	**
Constant	-219.023	80.867	-2.71	.007	-377.623	-60.423	***

Mean dependent var	13.878	SD dependent var	113.209
R-squared (Adjusted)	0.642	Number of obs	2003
F-test	2.617	Prob > F	0.005

*** p<.01, ** p<.05, * p<.1*

Appendix 6 – Use of Artificial Intelligence

In writing this thesis we have use AI sporadically. The main use has been when writing the code and when learning how to use STATA generally. However, it has also been used for summarizing articles in the initial stage of finding relevant papers to read for the Literature review, as well as for spell and grammar checking. The programs that have been used are Chat GPT and Grammarly.