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Determinants of Acquisition Premiums: A comparative Analysis across Sectors

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Abstract

This study examines M&A premiums using a global model and sector-specific regressions on over 3,000 transactions. Categorizing firm-level, macro-level, and deal-specific variables, the findings show that forward-looking metrics - growth prospects, bidder competition, ownership stakes - often outweigh traditional profitability measures. Interest rates and market concentration exhibit sector-driven impacts, highlighting the complexity of market power and regulatory constraints. Deal-specific factors such as stock-based offers consistently yield premium discounts, while cross-border status surprisingly lacks significance. Sector-specific models outperform the global baseline, emphasizing the need to account for industry nuances when valuing M&A transactions.

Keywords: Acquisition Premiums, Mergers and Acquisitions (M&A), Industry Comparison, Determinants and Drivers, Corporate Finance

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1. Introduction

Mergers and acquisitions (M&As) have long been a core element of corporate strategy, enabling firms to extend their geographic reach, achieve synergies, and fortify their competitive position in increasingly globalized markets. Over the past two decades, the volume of M&A transactions has risen steadily, driven by a dynamic economic environment and evolving regulatory frameworks. At the heart of these deals lies the takeover premium - the price paid above the target's market valuation to secure control - which encapsulates anticipated benefits from resource consolidation, economies of scale, and future growth potential.

While firm-level determinants of takeover premiums (e.g., profitability, leverage, and acquiror characteristics) have been thoroughly investigated (Martynova & Renneboog, 2008; Alexandridis et al., 2013), macroeconomic drivers and industry-specific considerations remain comparatively underexplored. Macroeconomic variables such as interest rates and economic cycles directly influence financing conditions and risk perceptions (Erel et al., 2012). Measures of market structure, including the Herfindahl-Hirschman Index (HHI), shed light on competitive intensity and regulatory constraints (Gugler et al., 2003). Despite growing acknowledgment that these factors shape M&A outcomes, most studies address them in isolation, overlooking the fact that sectoral contexts may critically mediate their impact.

This thesis aims to bridge this gap by systematically comparing a global regression model of takeover premiums with industry-specific models, focusing on eleven distinct TRBC (Thomson Reuters Business Classification) sectors. By doing so, it explores whether sectoral nuances such as capital intensity, innovation dynamics, and regulatory regimes influence both the significance and magnitude of premium determinants. Key questions include:

1. Do sector-specific models outperform a global model in explaining M&A premiums?

2. How do firm-, market-, and deal-level factors vary in their relevance and magnitude across different industries?

3. Do these sector-based findings confirm or challenge established M&A theories and valuation frameworks?

Methodologically, this research employs a two-stage regression approach over a two-decade dataset of global M&A transactions. In the first stage, a global model identifies baseline determinants of takeover premiums. The second stage applies separate regression models for each sector, highlighting how industry-specific attributes, such as technological intensity in the Technology sector or capital structure norms in Industrials, can fundamentally reshape the observed relationships. This sectoral analysis addresses calls for more context-sensitive scholarship (Bena & Li, 2014) by revealing patterns often obscured in aggregated studies.

By integrating firm-level, market-level and deal-specific variables within a sectoral framework, this thesis contributes a more granular perspective to M&A literature. The findings not only provide practical insights for corporate practitioners, who must weigh sectoral factors when negotiating acquisition prices, but also enrich academic debates on the contextual determinants of takeover premiums.

2. Literature Review and Theoretical Framework

The analysis of acquisition premiums in M&A remains a cornerstone of corporate finance research, illuminating how firms value and negotiate control rights in corporate transactions. Defined as the excess price paid above the target's market value, acquisition premiums capture the strategic rationale behind deals, spanning anticipated synergies, broader market conditions and managerial decision-making (Roll, 1986; Jensen & Meckling, 1976).

Theoretical perspectives on acquisition premiums generally cluster into three main categories. Synergy theory suggests that premiums are justified if projected gains from combining

operations such as cost savings, revenue enhancements, or efficient resource allocation exceed the added outlay (Bradley et al., 1988). This viewpoint tends to be especially relevant in capital-intensive industries with high fixed costs or complementary resources. Agency theory, conversely, highlights the misalignment between managerial incentives and shareholder interests, where managers might overpay for acquisitions to pursue empire-building or personal prestige at the expense of value creation (Jensen & Meckling, 1976). Finally, behavioral explanations, including the hubris hypothesis, focus on managerial overconfidence, which can lead to inflated takeover premiums, particularly in competitive bidding environments (Roll, 1986; Boone & Mulherin, 2007).

While these theoretical frameworks provide essential foundations, recent scholarship points to additional macroeconomic and industry-specific factors that shape acquisition premiums. For instance, changes in interest rates and credit conditions can markedly affect financing costs, while market concentration, commonly proxied by the HHI, gauges competitive intensity and potential regulatory pressures (Gugler et al., 2003).

Despite growing recognition of these sectoral effects, many existing studies concentrate on aggregate or region-specific analyses, overlooking the diverse conditions within and across industries. In response, this study places sectoral analysis at the forefront. By systematically comparing global and sector-specific models, it aims to shed light on how the determinants of M&A premiums vary across distinct industry contexts. Such an approach aligns with calls for integrative frameworks that merge firm-level, macroeconomic, and industry-specific dimensions, thereby advancing a more nuanced understanding of how acquisition premiums form in diverse sectors (Martynova & Renneboog 2008; Bena & Li 2014).

2.1 Firm-Level Metrics

Firm-level financial metrics are pivotal for explaining why some targets command higher acquisition premiums. Rooted in synergy theory, strong financial fundamentals indicate operational efficiencies, enhanced cash flows, and alignment with the acquiror's strategic aims, which are factors that facilitate a smoother post-acquisition integration (Bradley et al., 1988; Andrade et al., 2001). When a target's financial health and growth outlook coincides with the acquiror's objectives, it elevates the willingness to pay a premium above the standalone market value.

Profitability measures, growth rates, valuation multiples, and leverage ratios are the most frequently examined metrics. Indicators such as Return on Equity (ROE) and EBITDA Margin help reduce uncertainty about future returns, instilling confidence in the acquiror's potential to recoup its investment (Fuller et al., 2002; Alexandridis et al., 2010). Firms with consistently positive EBITDA or sustained profitability not only offer predictable cash flows but also mitigate integration risks like cultural mismatches or cost overruns (Eccles et al., 1999). In industries with high fixed costs, these signals can be particularly impactful for synergy realization.

Growth metrics, such as Net Sales 3-Year Growth Rate, support a target's appeal by highlighting expansion opportunities. High-growth firms allow acquirors to tap into emerging trends, enter new markets, or acquire novel technologies (Damodaran, 2005). Such targets hold special value in dynamic sectors where swift innovation and market responsiveness are crucial to sustaining competitive advantage (Moeller et al., 2004; Erel et al., 2012).

Valuation multiples, exemplified by EV/EBITDA, shape how acquisition premiums are priced. Lower multiples relative to industry peers can signal undervaluation, offering post-merger cost savings or strategic gains (Officer, 2003). In contrast, high-growth or tech-driven sectors may justify higher multiples, reflecting bets on scalability and future innovation rather than near-

term earnings stability (Alexandridis et al., 2013; Bena & Li, 2014). These sector-specific considerations underscore the interplay between firm-level metrics and broader competitive environments.

Leverage ratios and liquidity measures offer additional insight. Targets with excessive leverage may struggle under economic or operational pressures, diminishing their appeal (Duchin & Sosyura, 2013). Conversely, targets with balanced leverage aligned to industry norms indicate prudent financial management, enhancing acquisition attractiveness. Metrics like Target Net Cash from Operating Activities further signal resilience against external shocks, reassuring acquirors of stable cash flows post-merger (Harford, 2005).

In summary, firm-level metrics serve as vital indicators of quality, strategic fit and synergy potential. Profitability and growth measures highlight avenues for value creation, while valuation multiples and leverage ratios position these opportunities within a sector-sensitive risk-return framework. Combined, these signals form a robust foundation for understanding M&A premiums by clarifying the extent to which an acquiror may pay above the target's market valuation to secure enduring competitive benefits.

2.2 Market-Level and Macroeconomic Conditions

While firm-level metrics illuminate a target's intrinsic strengths and risks, the broader market setting significantly shapes how these attributes translate into acquisition premiums. Macroeconomic factors and industry-level structures define the environment in which deals are negotiated, influencing financing conditions, regulatory scrutiny, and competitive intensity. Understanding these forces helps explain why similar targets can command different premiums across time, regions, or sectors.

Interest rates fundamentally affect the cost of capital and thus the feasibility of M&A financing. Low interest rates reduce borrowing expenses, enabling acquirors to offer higher premiums

(Adams & Jiang, 2017). Conversely, tight credit conditions or rising rates constrain mark-ups over market prices. Regional variations in interest rates also prompt acquirors to seek targets where financing conditions and macroeconomic stability are more favorable (Erel et al., 2012).

Market structure, often proxied by the HHI, captures industry concentration (Gugler et al., 2003). In highly concentrated industries, acquirors may pay higher premiums, anticipating substantial market power and synergy gains post-merger. By contrast, fragmented markets present greater uncertainty about synergy realization, tempering premium offers. Sectoral nuances are especially relevant here, as capital-intensive industries might leverage scale benefits more readily than fragmented technology sectors focused on innovation.

These market-level conditions also interact with firm-specific metrics. A high-growth, profitable target becomes even more appealing in low-rate, moderately concentrated industries, where the cost of debt is manageable and synergy capture is more straightforward. In turbulent macroeconomic periods, however, even robust targets may not elicit high premiums if acquirors expect regulatory hurdles or shifting consumer demand (Harford, 2005).

Macroeconomic cycles and market sentiment add another dimension. During economic expansions, optimism often drives both deal volume and premium levels, while recessions or volatility induce caution, leading to more conservative valuations. Thus, the same firm-level indicators can yield different premiums, depending on the prevailing macro backdrop.

In sum, market-level and macroeconomic conditions provide the contextual framework in which firm-level attributes are evaluated. By revealing how interest rates, industry concentration, and economic cycles shape premium formation, this perspective complements firm-centric analysis and illustrates why M&A pricing varies not just across companies but also over time and across sectors.

2.3 Deal-Specific Characteristics

Beyond firm-level metrics and market-level conditions, the inherent features of each M&A transaction - deal structure, competitive bidding intensity, and cross-border dimensions - play a pivotal role in shaping acquisition premiums. These transaction-specific characteristics can amplify or dampen the influence of financial indicators and macroeconomic factors, offering insight into why supposedly similar deals often yield markedly different premiums.

The size of a transaction provides one of the most direct yet revealing deal-level signals. While larger deals can afford the acquiror greater bargaining power and sometimes lower premiums (Moeller et al., 2004), this relationship is not always linear. In competitive auctions, even sizable targets can command substantial mark-ups if multiple bidders perceive distinctive synergistic benefits or strategic imperatives (Boone & Mulherin, 2007). The Number of Bidders involved is particularly influential: contested auctions frequently escalate the final price, reflecting both the target's perceived scarcity and acquiror overconfidence (Renneboog & Vansteenkiste, 2019). Consequently, deal value and bidder rivalry frequently overlap, dictating whether synergy-based or behavioral factors dominate pricing outcomes.

The fraction of the target's equity pursued by the acquiror affects premium formation as well. Full-control acquisitions often feature higher premiums due to the "control premium" tied to decisive managerial authority (Barclay & Holderness, 1989). Partial acquisitions or incremental stake increases may command more moderate mark-ups, as the acquiror's negotiation leverage and strategic aims differ. The ownership structure thus reflects both deal intent and bargaining positions, shaping how firm-level fundamentals and market conditions convert into premium differentials.

The type of buyer - strategic vs. financial - exerts a significant impact on premiums. Strategic acquirors, typically operating within related industries, aim to realize synergies, expand market share, or acquire new technologies. Their long-term outlook and alignment with the target's

operations often lead to higher premiums (Weston, Mitchell, & Mulherin, 2004). Financial acquirors, such as private equity firms, prioritize standalone performance metrics and exit strategies. Consequently, they frequently offer lower premiums, emphasizing risk-adjusted returns over synergistic integration (Bruner, 2004). The acquiror type hence mirrors distinct motivations and valuation lenses.

How the deal is financed, whether via cash, stock, or a combination, also influences acquisition premiums. Cash-only deals tend to yield higher premiums, as they represent immediate, concrete compensation and signal the acquiror's financial confidence (Travlos, 1987). Stock-based transactions may reduce upfront capital requirements while distributing risk between acquiror and target shareholders, often resulting in comparatively lower premiums. Mixed consideration structures blend these effects, with prevailing interest rates, market sentiment, and risk tolerance shaping the final arrangement.

International transactions layer on additional complexity: regulatory hurdles, cultural differences, and currency volatility can either unlock expansion opportunities or introduce heightened uncertainties (Erel et al., 2012). Cross-border deals may promise access to new markets and unique resources yet entail increased due diligence and political risk, influencing premium valuations. Likewise, deal attitude - friendly vs. hostile - further modulates pricing. Hostile takeovers typically involve higher premiums to win over reluctant target shareholders, reflecting both strategic urgency and managerial entrenchment (Walkling & Edminister, 1985).

Taken together, these deal-specific characteristics illustrate how strategic objectives, negotiation mechanics, and structural arrangements intertact with firm-level and market-level factors. Even when a target exhibits strong financial health or operates in a favorable macroeconomic setting, the ultimate premium hinges on transaction nuances such as deal size, competitive bidding environment, acquiror type, payment method, cross-border focus, and the stance of each party.

Accounting for these elements refines our understanding of M&A pricing, demonstrating that multiple layers of influence converge to shape the final acquisition premium.

3. Methodology

This study investigates the determinants of acquisition premiums in M&A using a multivariate Ordinary Least Squares regression framework. The methodological approach encompasses data collection, sample construction, variable definition and calculation, econometric modeling, and robustness checks to ensure the reliability and validity of the findings.

3.1 Data Sources and Sample Construction

The empirical analysis is grounded in three primary datasets: M&A transactions, global interest rate data, and industry-level market structure measures. M&A data were sourced from Refinitiv's comprehensive deal database, encompassing 12,663 global transactions spanning the past two decades from October 2004 to October 2024. Each record includes detailed information on both acquiring and target firms, such as deal value, structure, and other relevant, robust and well-established characteristics, facilitating a thorough examination across various dimensions.

To contextualize these transactions within broader economic conditions, monthly interest rate data were obtained from Refinitiv's global economic monitor. These rates, representing key policy central bank rates of both target and acquiror nations, were aligned with each deal's announcement date to accurately reflect the prevailing financing conditions and economic sentiments at the time of each transaction. Market concentration was assessed using the HHI, calculated from Refinitiv data on the top 50 companies within each TRBC (Thomson Reuters Business Classification) sector by annual revenue. The HHI was computed both globally and regionally (per continent) within each sector to capture variations in competitive dynamics and regulatory environments. These market structure measures were then matched to each M&A transaction based on the target company's sector classification and continent it has it's headquarter in.

Data cleaning involved excluding transactions with missing values in examined variables, removing all deals from 2024 due to incomplete HHI data as this year has not fully passed, and trimming the top and bottom 5% of acquisition premiums to mitigate the influence of extreme outliers which are often driven by exceptional deal contexts and therefore not representative for typical M&A transactions, which is illustrated in Figure 1 and Figure 2. This process reduced the sample from 12,663 to 3,045 observations, ensuring a focus on the central distribution of premiums and enhancing the robustness of the analysis.

3.2 Variable Definitions and Categorization

The study employs a range of variables categorized into firm-level financial metrics, macroeconomic market-level indicators, and deal-specific characteristics to comprehensively analyze factors influencing takeover premiums. Summary statistics for all numerical variables are provided in the Appendix in Table 1, while categorial variables are illustrated in Table 2.

The dependent variable, "Premium Paid - 1 Day Prior to Announcement," measures the acquisition premium as the percentage difference between the transaction price and the target's share price one trading day before the deal announcement. This metric captures the immediate market reaction and the acquiror's valuation at the moment of strategic commitment. Time-series trends for the premium are summarized in Table 3, while Table 4 shows a geographical breakdown and Table 5 a sector-specific breakdown by the target company.

Independent variables encompass firm-level financial metrics such as the Net Sales 3 Year Growth Rate, Ratio of Total Debt to Shareholders' Equity, ROE over the last 12 months, Ratio of Enterprise Value to EBITDA (EV/EBITDA), EBITDA over the last 12 months, Target Net Cash from Operating Activities over the last 12 months, Capitalization including short-term debt long-term debt and shareholders' equity, and EBITDA Margin. These metrics provide insights into the target's financial health, performance, and valuation, highlighting potential value-creation opportunities and assessing financial sustainability. Total numbers like Deal Value and

EBITDA are denoted in million USD while relative measures (growth metrics, margins) are denoted in percent as a number between 0 and 100.

Market-level and macroeconomic indicators include the Interest Rates of both target and acquiror nations and the Global and Regional HHI measures. These indicators reflect the economic conditions and competitive environments influencing financing costs and strategic value, thereby contextualizing firm-level metrics within broader market dynamics.

Deal-specific characteristics cover both numerical and categorical attributes. Numerical variables include Deal Value, Number of Bidders, Percentage of Shares Acquiror is Seeking to Purchase, and Percentage of Shares Acquiror is Seeking to Own after Transaction. Categorical variables encompass Deal Attitude (friendly vs. hostile), Cross Border Deal Flag (domestic vs. cross-border), Acquiror Firm Type (strategic buyer vs. financial buyer), and Consideration Structure (cash, stock, or mixed). These attributes capture the strategic intent, negotiation dynamics, and transactional complexities that can significantly influence the premium.

3.3 Econometric Model and Procedures

Building on our theoretical framework, we estimate a multivariate OLS model where the dependent variable is the one-day acquisition premium and the independent variables are grouped into three main categories: (1) firm-level financial metrics, (2) macro-level indicators, and (3) deal-specific characteristics. The general functional form is given by:

$$(1) \quad Premium_i = \alpha + \sum_{k=1}^{K_1} \beta_k FirmLevel_{k,i} + \sum_{m=1}^{K_2} \gamma_m MacroLevel_{m,i} + \sum_{d=1}^{K_3} \delta_d DealSpecific_{d,i} + \varepsilon_i$$

where i indexes individual deals. This structure applies to both the global regression and sector-specific regressions, allowing for a direct comparison of coefficient significance and magnitude across different industry contexts.

To address multicollinearity, Variance Inflation Factors (VIF) were calculated, and variables with VIF values exceeding 10 were excluded to prevent inflated standard errors and unstable coefficient estimates. Subsequently, Backward elimination was adopted due to its ability to start with a full model, thereby accounting for potential interactions among variables before removing statistically insignificant predictors above a threshold of p=0.05. This process was applied to both global and sectoral regression models to enhance model parsimony and interpretability. To ensure the reliability of coefficient estimates and account for potential heteroscedasticity in the data, the analysis employs robust standard errors, which adjust for non-constant variance in the residuals and provide more accurate inference.

The regression analysis was conducted in two stages: a global regression to establish baseline patterns and sector-specific regressions for each of the 11 TRBC sectors to identify how dynamics vary across industries. This two-stage design captures both overall trends and finer industry-level patterns, which are often obscured when treating M&A markets as homogeneous.

3.4 Robustness and Diagnostic Tests

To validate the regression models, several diagnostic tests and robustness checks were performed. The Shapiro-Wilk and Kolmogorov-Smirnov tests assessed the normality of residuals, while the Breusch-Pagan test evaluated homoskedasticity to ensure constant variance of residuals. The Durbin-Watson test checked for autocorrelation in residuals, while the F-test evaluates whether the regression model is statistically significant by testing if the independent variables collectively explain the variance in the dependent variable. Additionally, excluding the top and bottom 5% of acquisition premiums minimized the influence of extreme values, and standardizing numerical variables facilitated coefficient interpretation and reduced scale-related distortions. Categorical variables were one-hot encoded to appropriately incorporate them into the regression models without imposing ordinal relationships.

3.5 Reproducibility and Documentation

Reproducibility is a cornerstone of this study. All data sources, processing steps, and analytical procedures have been meticulously documented. Python scripts used for data cleaning, transformation, regression analysis, and diagnostic testing are fully annotated, allowing other researchers to replicate the study using the same dataset and methodologies. Detailed descriptions of variable transformations, such as standardization and encoding, further enhance transparency and facilitate validation. This comprehensive documentation ensures that the study's findings are verifiable and can be independently confirmed, thereby strengthening the academic contribution of the research.

4. Results and Discussion

This section presents the results and discussion of the determinants of M&A premiums, beginning with a global baseline model before moving on to sector-specific analyses. By comparing how key variables differ in their significance and magnitude across industries, the study underscores the unique impact of sectoral contexts on acquisition premiums. Detailed regression outputs and diagnostic tests are provided in the appendix (Tabel 6a,b ; Table 7a-c), but key findings are highlighted below to demonstrate why sector-specific inquiry is crucial in understanding M&A valuations.

4.1 Global Analysis

The global regression draws on 3,045 transactions and attains an $R^2 \approx 0.12$ (adjusted $R^2 = 0.1199$, $p < 0.001$), suggesting a modest but statistically significant explanatory power at the aggregate level. Diagnostic checks reveal some heteroskedasticity (Breusch-Pagan statistic = 25.41, $p = 0.0026$) and borderline normality concerns (Shapiro-Wilk $W = 0.9902$, $p < 0.0001$); however, these issues are not uncommon in large M&A datasets and are partly mitigated by robust standard errors and sample trimming.

Number of Bidders exhibits the largest positive coefficient (β=107.13), underscoring the powerful role of competitive bidding in driving up premiums. This is consistent with auction theory (Boone & Mulherin, 2007), where rivalry among potential acquirors escalates the final purchase price. Cross-Border Flag (β=−5.87) stands out as a substantial negative driver on global level, reflecting the perceived complications of international deals - regulatory barriers, cultural integration, exchange rate risks - that make acquirors more cautious about paying high markups (Erel et al., 2012).

The Percentage of Shares the Acquiror is seeking to purchase in the Transaction (β=1.57) and Post-Transaction Ownership (β=2.95) both significantly elevate premiums, highlighting the importance of consolidating control. While these coefficients are not as large as the competitive bidding effect, they remain pivotal in explaining how acquirors value incremental governance rights and synergy realization (Jensen & Meckling, 1976).

Cash-only deals set the benchmark, whereas stock-only payments yield the largest negative impact (β=−12.77), suggesting that equity-based compensation carries heightened uncertainty and is less attractive to target shareholders (Travlos, 1987). Mixed offers (β=−3.91) also reduce premiums, albeit to a lesser extent.

The Acquiror Nation's Interest Rate (β=−1.65) exerts a consistently negative effect on premiums, implying that higher borrowing costs inhibit aggressive bidding. Though the effect size is moderate compared to variables like the Number of Bidders, it underscores that macroeconomic conditions can still shape acquisition premiums (Adams & Jiang, 2017).

Overall, the Number of Bidders (over +100 in coefficient terms) and Cross-Border Deal Flag (∼−6) emerge as the global model's heaviest contrasts, signifying the pivotal role of competitive dynamics versus international uncertainty. From a practical standpoint, the interplay between control motives (ownership percentages) and financing considerations (interest rates, stock-

based payments) demonstrates that M&A premiums at a global level hinge on both strategic impulses and structural deal constraints. It is noticeable, however, that apart from the interest rate (aquiror nation), all significant influences at the global level come from the area of deal-specific variables, which can be tied to the auction theory and the winner's curse phenomenon (Milgrom & Weber 1982; Boone & Mulherin 2007). Although the global model's R^2 is relatively modest, it offers a baseline against which sector-specific improvements can be gauged, setting the stage for deeper investigation into how these relationships may intensify or diminish across different industries.

The next subsections explore these nuances by breaking down the dataset into TRBC sectors, revealing that sectoral context—ranging from capital intensity to regulatory environments—can substantially alter the strength and direction of these determinants.

4.2 Sectoral Analysis

Moving beyond the global baseline, this sectoral analysis examines how firm-level, deal-specific, and market-level variables vary across TRBC industries. Overall, the sector-specific regressions demonstrate higher explanatory power than the global model's $R^2 \approx 0.12$, with adjusted R^2 values typically ranging between 0.10 and 0.19 (Table 7a-c). Diagnostic tests (detailed in the appendix) indicate only mild heteroskedasticity and normality concerns in certain sectors, suggesting that while these issues exist, they do not substantially undermine the findings.

As Academic & Educational Services come with a very low sample size of 14 and non-plausible results, this sector is excluded from the Results section and can be found in the Appendix. Coming to the intercept, the financial sector stands out as the only industry where the intercept fails to achieve statistical significance, highlighting the dominance of firm-, market- and deal-specific factors in explaining M&A premiums within this sector. This could be attributed to the highly standardized nature of financial transactions and the sector's reliance on well-defined

valuation metrics, leaving little room for baseline premiums driven by unobserved or sector-specific factors (Madura and Fox 2011).

4.2.1 Analysis of firm-level Variables

Four firm-level metrics - Ratio of Total Debt to Shareholders' Equity, ROE Last 12 Months, EBITDA Last 12 Months, and Target Net Cash from Operating Activities Last 12 Months - show no significant effect on M&A premiums in any sector. This observation aligns with studies by Roll (1986) and Bradley et al. (1988), indicating that acquirors generally emphasize synergy prospects and strategic fit over historical financial performance (see also Moeller et al., 2004).

Net Sales 3-Year Growth Rate proves significant only in Energy ($\beta=0.21$), suggesting that recent sales expansion strongly appeals to acquirors in capital-intensive, demand-sensitive industries. According to Damodaran (2005), growth-oriented metrics in such sectors often signal future cash flow potential and operational adaptability.

EV/EBITDA also stands out in the Energy sector ($\beta=7.05$), reflecting acquiror willingness to pay higher valuation multiples if they anticipate substantial long-term synergies or resource benefits. While Officer (2003) typically views low multiples as indicative of undervaluation, the positive relationship in Energy suggests confident expectations of post-merger gains.

EBITDA Margin shows a pronounced negative association with M&A premiums in Consumer Cyclicals ($\beta=-2.95$), Technology ($\beta=-4.14$), and Financials ($\beta=-1.82$), indicating that high-margin targets may be less attractive when acquirors seek opportunities to enhance operational efficiency or scalability. In Consumer Cyclicals, this pattern could reflect the perception that fully optimized firms leave limited room for synergy-based improvements (Fuller et al., 2002). In Technology, lower margins often signal untapped growth potential or innovative capacity, aligning with Alexandridis et al. (2013), who highlight the importance of strategic fit in high-growth sectors. Meanwhile, Financials may mirror this dynamic if high-margin institutions are

viewed as offering fewer avenues for cost-cutting or portfolio diversification, prompting acquirors to favor targets with more adaptable balance sheets or underexplored revenue streams.

Total Capitalization exhibits a statistically significant negative impact on M&A premiums in Energy ($\beta=-0.011$) and Healthcare ($\beta=-0.021$), suggesting a "size discount." Larger targets in these industries may be seen as more complex and harder to integrate, diminishing the perceived synergy upside (Alexandridis et al., 2013). By favoring relatively smaller firms, acquirors potentially maximize integration benefits and agility in post-merger operations.

Overall, these findings underscore how sector-specific contexts influence the appraisal of firm-level attributes. In particular, Energy acquirors appear more sensitive to growth rates and EV/EBITDA multiples, while Consumer Cyclicals and Technology targets with lower EBITDA margins resonate with buyers seeking potential for improvement or scalability. Meanwhile, Healthcare illustrates how larger target size can become a liability in heavily regulated or operationally intricate sectors.

4.2.2 Analysis of market-level Variables

Market-level indicators - most notably interest rates and market concentration (HHI) - exert prominent, sector-specific influences on M&A premiums. The Industrials sector ($\beta=-2.70$) stands out in its sensitivity to target-nation interest rates, reflecting the capital-intensive nature of industrial projects that depend on predictable financing conditions. This finding aligns with Erel et al. (2012), emphasizing the importance of local credit environments in major cross-border transactions. Conversely, no other sector exhibits a comparable negative effect for target-nation rates, suggesting that industries stronger driven by intellectual property or consumer trends are less tethered to local macroeconomic fluctuations.

Acquiror interest rates also shape premiums in Real Estate ($\beta=-1.64$) and Technology ($\beta=-1.99$), underlining how higher borrowing costs constrain an acquiror's capacity to offer

elevated markups in both debt-reliant and innovation-intensive sectors. In Real Estate, these results echo Adams & Jiang (2017), linking favorable lending conditions to heightened M&A activity. The Technology sector's reliance on accessible capital for R&D and scaling similarly confirms Erel et al. (2012), highlighting the vital role of low-cost financing in high-growth acquisitions.

Turning to market structure, the global HHI yields contrasting outcomes across sectors. Consumer Non-Cyclicals ($\beta=1.76$) sees higher premiums under increased global concentration, implying that dominant positions in stable, recession-resilient markets command a premium (Gugler et al., 2003). Industrials ($\beta=-1.52$), however, exhibits the opposite effect: advanced consolidation here may limit growth avenues or invite regulatory scrutiny, reducing willingness to pay (Alexandridis et al., 2010). In Financials ($\beta=-4.09$), higher global concentration similarly appears to erode premiums, perhaps reflecting tighter regulatory oversight or narrower synergy potential in consolidated financial markets.

Finally, Basic Materials reveal a positive coefficient for regional HHI ($\beta=0.10$), indicating that local market dominance can slightly increase valuations, particularly in resource-driven sectors where proximity shapes logistics and supply chains. This finding again aligns with Alexandridis et al. (2010), underscoring the importance of localized synergies and pricing power in industries where geographic distribution of resources is critical.

Collectively, these results underscore how macro-level forces intersect with each sector's operating environment, reinforcing the value of disaggregating M&A premium drivers. While Industrials and Real Estate hinge on capital accessibility, Consumer Non-Cyclicals leverage concentration-driven market power, Basic Materials capitalizes on localized synergies, and Financials sees diminishing premiums under higher global market concentration. Such sector-

specific insights extend beyond the global model's scope, offering a more nuanced understanding of how macroeconomic and competitive factors shape M&A valuations.

4.2.3 Deal-specific Characteristics

Deal-specific factors exhibit notable sectoral variations in both significance and magnitude, mirroring differences in strategic priorities, competitive intensity, and industry configurations. While many results align with established M&A theories, some sector-specific patterns deviate from conventional expectations, illustrating the complexity of takeover valuation.

Deal Value is positively associated with premiums in Energy (β=0.009) and Healthcare (β=0.01), aligning with Moeller et al. (2004), who note that larger transactions often signal access to critical resources or transformative technologies. Both coefficients, similar in magnitude, underscore that premiums investors place on potentially groundbreaking assets may be subject to regulatory approvals.

Number of Bidders exerts strong positive effects across multiple industries, from Basic Materials (β=142.03) to Consumer Non-Cyclicals (β=205.20), consistent with Boone & Mulherin (2007) and the global model. The substantial coefficient in Consumer Non-Cyclicals reflects the sector's inherent stability and recession resilience, provoking intense bidder competition. Industrials (β=170.36) similarly experience elevated premiums when multiple acquirors bid for supply chain or manufacturing synergies. Even though Basic Materials (β=142.03) and Consumer Cyclicals (β=126.75) display comparatively lower but still very high coefficients, they signal significant bidding pressure also in these resource- and trend-driven segments.

Percentage of Shares Sought has a clear positive impact in Basic Materials (β=2.20), Consumer Cyclicals (β=1.73), and Consumer Non-Cyclicals (β=2.15), aligning with Barclay & Holderness

(1989) on the premium that accompanies stronger control intentions. Resource-limited or defensively positioned sectors like Basic Materials and Consumer Non-Cyclicals emphasize full ownership to secure supply chains or fortify market position. Meanwhile, Financials also show a significant positive effect (β=2.98) for shares sought, underscoring that ownership consolidation retains strategic value in regulated industries looking to streamline governance and expand market influence.

Ownership Sought Post-Transaction similarly matters in Utilities (β=8.38), Industrials (β=5.22), Real Estate (β=4.88), Technology (β=4.43), and Healthcare (β=4.91). These findings also support Alexandridis et al. (2010), suggesting that full control fosters synergy realization and managerial autonomy, especially critical in heavily regulated or innovation-driven sectors.

Deal Attitude exhibits divergent effects: Neutral transactions lower premiums in Consumer Cyclicals (β=−15.50), signifying subdued competitive dynamics, whereas Hostile deals heighten premiums in Technology (β=36.71) and Industrials (β=26.08). Such behavior aligns with Walkling & Edminister (1985), reinforcing that hostility often inflates costs when acquirors chase high-value intellectual property or strategic assets in these sectors.

Acquiror Firm Type continues to differentiate premiums: Financial buyers pay lower markups in Healthcare (β=−8.87), Industrials (β=−4.53), and Technology (β=−4.27), echoing Renneboog & Vansteenkiste (2019) on the limited operational synergies and ROI constraints typical of private equity deals. Healthcare's pronounced negative coefficient suggests that strategic players have a comparative edge, especially for cutting-edge or research-intensive targets.

Consideration Structure demonstrates a consistent premium discount when deals deviate from all-cash. Healthcare (β=−11.46) and Real Estate (β=−11.23) show marked aversions to mixed structures, whereas stock-only offers produce the strongest discounts in Healthcare (β=−18.36) and Consumer Cyclicals (β=−14.93). Financials also register a significant negative effect for

stock-only transactions (β=−10), underscoring sector-wide caution about equity-based compensation (see Travlos, 1987). Such results imply that uncertainty surrounding stock valuation can erode perceived deal value, especially in markets where stability and predictable cash flows are paramount.

Lastly, the Cross Border Deal Flag remains insignificant across all sectors, diverging from Erel et al. (2012), who posit that cross-border deals often command premiums for market access or diversification. This outcome may reflect a more globalized corporate landscape in which geographic boundaries do not substantially alter synergy potential or risk profiles.

Together, these findings show that while some sector-specific patterns echo established theories and the global model, such as the role of bidder competition and ownership stakes, others, like the negligible impact of cross-border deals, diverge from conventional expectations. Such nuances affirm that deal-specific attributes, from competitive bidding to consideration structure, can substantially recalibrate M&A valuations across industries.

4.3 Key Findings and Sectoral Differences

The sectoral regressions reinforce the centrality of forward-looking considerations, such as growth potential, synergy prospects, and ownership stakes, over traditional profitability metrics. Despite its modest $R^2 \approx 0.12$ at the global level, the sector-specific approach demonstrates slight but clear improvements in explanatory power (adjusted R^2 often reaching 0.10–0.19) and a more nuanced view on variables providing sector insights, illustrating that a single aggregate model obscures crucial industry nuances. While the global model experiences significant impacts almost only from deal-specific characteristics, the sectoral regressions show that firm- and market-level variables have significant impact in certain sectors. These insights align with the overarching research aim of clarifying how sectoral contexts mediate M&A valuation.

Firm-Level observations: Net Sales 3-Year Growth Rate emerges as a distinguishing factor in Energy, while lower EBITDA margins draw acquiror interest in Consumer Cyclicals, Technology, and Financials. Such patterns underscore that historical profitability metrics, including ROE and EBITDA, remain largely insignificant, echoing Roll (1986) and Bradley et al. (1988) on the prevalence of synergy-based motives. Targets perceived as under-optimized or primed for future expansion appear more attractive than those already maximizing short-term returns.

Market-level insights: Sectoral disparities in interest rate sensitivity and market concentration further validate the value of disaggregated analysis. Industrials react strongly to target-nation rates (suggesting vulnerability to local financing conditions), while Real Estate and Technology respond to acquiror interest rates, reflecting divergent capital structures and innovation cycles. The global HHI yields contrasting outcomes: Consumer Non-Cyclicals thrives under consolidation, whereas Industrials and Financials exhibit declining premiums amid tighter market concentration. These contrary effects point to industry-specific trade-offs between market power and growth opportunities, resonating with Gugler et al. (2003) but also suggesting more nuanced theories are needed.

Deal-specific drivers: Variables like Number of Bidders and Percentage of Shares Sought consistently shape premiums across multiple sectors, affirming the importance of competitive bidding and control considerations. Ownership stakes matter most in regulated or resource-intensive domains (e.g. Basic Materials, Financials), while hostile attitudes disproportionately raise valuations in Technology and Industrials. Stock-based payments systematically discount premiums, particularly in Healthcare and Consumer Cyclicals, highlighting a robust aversion to valuation uncertainty (Travlos, 1987). The persistent insignificance of Cross-Border Flag across all sectors diverges from Erel et al. (2012), suggesting that global integration with a more

professionalized transaction process may have diminished the premium once associated with cross-border expansions.

4.4 Implications for practice and future research

Together, these findings provide a more granular understanding of how M&A premiums form within distinct sectoral landscapes, highlighting the context-sensitive nature of acquisition drivers. The repeated insignificance of traditional profitability metrics (e.g., ROE, EBITDA) questions their centrality in standard valuation models, while the sector-specific R^2 improvements confirm that disaggregating M&A data yields significant explanatory gains. Conversely, metrics such as Net Sales Growth, EV/EBITDA, and market concentration each exhibit highly sector-dependent effects, emphasizing the importance of tailoring M&A strategies to an industry's capital intensity, regulatory backdrop, and innovation cycles.

Market concentration on a global level stands out as a particularly nuanced factor: in sectors like Consumer Non-Cyclicals, heightened concentration boosts premiums, whereas in Industrials and Financials, it correlates negatively with valuation. Such opposing impacts suggest that "market power" or "over-consolidation" is sector-specific, shaped by growth avenues, regulatory concerns, and the perceived scope for post-merger synergies. This underscores the necessity for practitioners to align deal structure and target selection with both competitive intensity and projected sectoral trajectories.

From a research perspective, the negligible cross-border effect challenges models that presume strong geographic premiums, inviting further exploration into whether growing globalization or a more professionalized M&A process has dampened the anticipated premiums associated with cross-border acquisitions. Additionally, the consistent and highest importance of bidder competition points to an underexamined behavioral dimension in M&A negotiations, hinting that psychological and strategic elements can significantly inflate or discount takeover prices.

Regulatory, cultural, and economic integration also warrant deeper investigation, particularly in industries reliant on intellectual property, complex supply chains, or strict oversight.

In short, no single theoretical framework fully explains M&A valuations across all sectors. Future studies might look at interaction effects (e.g., between macro variables and deal-level factors) or broaden the temporal scope to gauge how these patterns hold in varying economic conditions and contexts. Such efforts would refine theoretical insights and offer practical guidance for acquirors who must balance synergy ambitions with the industry-specific constraints uncovered in this analysis.

4.5 Conclusion

In highlighting the multifaceted nature of M&A premiums, this study demonstrates that firm-level, market-level, and deal-specific variables each play context-dependent roles. While many results affirm established theories, such as the influence of bidder competition and ownership stakes, others diverge from conventional wisdom, most notably the minimal relevance of traditional profitability metrics and the negligible cross-border effect. By shedding light on these sector-specific nuances, the analysis provides actionable insights for both practitioners and academics, reinforcing that no single framework can uniformly capture M&A valuation dynamics across diverse industries. Future research can extend these findings by investigating interactions among multiple dimensions (e.g., synergy potential and macroeconomic cycles) or examining emerging sectors where innovation and regulation may significantly alter premium drivers.

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6. Appendix

Table 1

Summary statistics by numerical variable

#	Variable	Mean	Std. Dev.	Min	25th Percentile	Median	75th Percentile	Max
1	Premium Paid - 1 Day Prior to Announcement	40.71	766.16	-98.74	7.81	20.38	37.26	44470.73
2	Deal Value	2502.00	7106.56	25.03	127.89	450.02	1864.20	89794.16
3	Net Sales 3 Year Growth Rate	21.37	132.78	-70.55	1.19	8.06	19.13	4228.31
4	Ratio of Total Debt to Shareholders Equity	1.75	21.06	0.00	0.25	0.59	1.21	1134.02
5	Return on Equity Last 12 Months	17.38	89.84	0.03	5.87	10.27	16.79	4633.97
6	Ratio of Enterprise Value to EBITDA	20.85	130.23	0.01	7.74	11.29	17.24	4788.38
7	Number of Bidders	1.06	0.27	1.00	1.00	1.00	1.00	4.00
8	EBITDA Last 12 Months	365.52	2797.03	0.07	20.00	66.50	227.61	145880.37
9	Target Net Cash from Operating Activities Last 12 Months	249.14	1055.57	-9102.30	10.98	45.56	177.91	27234.00
10	Percentage of Shares Acquiror is Seeking to Purchase in Transaction	81.91	27.66	0.38	64.37	100.00	100.00	100.00
11	Percentage of Shares Acquiror is Seeking to Own after Transaction	95.46	12.94	5.00	100.00	100.00	100.00	100.00
12	Capitalization inc. STD plus Long Term Debt plus Shareholder's Equity	2530.65	13651.14	3.90	152.94	488.78	1685.02	585523.47
13	EBITDA Margin	0.31	3.76	0.00	0.10	0.16	0.31	212.42
14	Interest Rate (Target Nation)	4.71	17.14	-0.75	0.25	1.50	4.25	138.07
15	Interest Rate (Acquiror Nation)	5.02	18.44	-0.75	0.25	1.25	4.25	138.07
16	Global HHI	344.60	128.80	237.21	285.29	325.25	363.50	2720.95
17	Regional HHI	649.67	777.56	251.15	355.79	465.20	599.41	10000.00

Table 2

Distribution categorial varialbles

#	Variable	Category 1	Category 2	Category 3	Category 4
1	Deal attitude	Friendly	Neutral	Unsolicited	Hostile
	Portion	96.2%	1.9%	1.4%	0.5%
2	Cross Border Deal Flag	TRUE	FALSE		
	Portion	32.7%	67.3%		
3	Acquiror Firm Type	Corporate	Fianncial Buyer		
	Portion	76.5%	23.5%		
4	Consideration Structure	Cash only	Stock only	Stock and Cash Combination	
	Portion	70.3%	20.1%	9.7%	

Table 3

Time-series trends in Acquisition Premiums

#	Year Announced	Number of Deals	Share	Average Premium
1	2004	179	5.3%	21.03
2	2005	217	6.4%	19.52
3	2006	271	8.0%	19.87
4	2007	294	8.6%	35.52
5	2008	150	4.4%	29.79
6	2009	39	1.1%	34.96
7	2010	23	0.7%	50.65
8	2011	43	1.3%	38.72
9	2012	154	4.5%	43.30
10	2013	148	4.3%	18.60
11	2014	174	5.1%	22.44
12	2015	181	5.3%	23.76
13	2016	192	5.6%	29.20
14	2017	169	5.0%	20.92
15	2018	216	6.3%	18.24
16	2019	174	5.1%	26.81
17	2020	175	5.1%	44.36
18	2021	224	6.6%	26.19
19	2022	205	6.0%	35.91
20	2023	177	5.2%	281.12
	Total	**3405**	**100%**	

Table 4

Distribution by target geographical region

#	Region	Count		Mean Premium	Std. Dev.	Min Premium	Max Premium
1	Africa	45	1.3%	14.56	25.96	-98.74	66.04
2	Americas	1390	40.8%	62.30	1194.18	-88.09	44470.73
3	Asia	906	26.6%	19.43	48.46	-91.34	985.71
4	Europe	832	24.4%	31.82	124.73	-97.62	3429.47
5	Oceania	220	6.5%	31.30	32.78	-85.58	214.29
6	Unknown	12	0.4%	30.83	35.58	-43.29	80.90
	Total	**3405**	**100%**				

Table 5

Summary statistics by Target Sector

#	Target TRBC Economic Sector	Count	Share	Mean Premium	Std. Dev.	Min Premium	Max Premium
1	Academic & Educational Services	14	0.4%	24.15	28.95	-53.98	69.86
2	Basic Materials	296	8.7%	30.15	82.27	-88.09	985.71
3	Consumer Cyclicals	540	15.9%	23.57	33.76	-81.62	390.20
4	Consumer Non-Cyclicals	254	7.5%	26.75	31.78	-98.74	157.14
5	Energy	186	5.5%	277.08	3267.70	-85.58	44470.73
6	Financials	476	14.0%	22.97	30.10	-88.90	228.70
7	Healthcare	241	7.1%	33.36	30.52	-31.47	192.95
8	Industrials	586	17.2%	33.43	113.39	-97.62	2613.86
9	Real Estate	217	6.4%	15.18	30.58	-91.34	211.65
10	Technology	503	14.8%	27.92	41.59	-75.32	647.74
11	Utilities	92	2.7%	26.20	39.40	-54.83	303.67
	Total	**3405**	**100%**				

Table 6a

Global M&A Premium Analysis

	const	Number of Bidders	Percentage of Shares Acquiror is Seeking to Purchase in Transaction	Percentage of Shares Acquiror is Seeking to Own after Transaction	Deal Attitude: Neutral	Cross Border Deal Flag: True	Acquiror Firm Type: Financial Buyer	Consideration Structure: Cash and Stock Combination	Consideration Structure: Stock Only	Interest Rate (Acquiror Nation)
Coefficient	26.59	107.13	1.57	2.95	-5.87	1.45	-3.34	-3.91	-12.77	-1.65
P-Value	0.00	0.00	0.00	0.00	0.01	0.04	0.00	0.00	0.00	0.00

Table 6b

Global M&A Premium Analysis

	R^2	Adj. R^2	Sample Size	Breusch-Pagan Statistic	Shapiro-Wilk Statistic	Kolmogorov-Smirnov Statistic	Durbin-Watson Statistic
Coefficient	0.1225	0.1199	3045	25.41	0.99	0.04	1.91
P-Value	0.00	0.00		0.00	0.00	0.00	

Table 7a

Deal-specific variables by Sector

#	Target TRBC Economic Sector		const	Acquiror Firm Type: Financial Buyer	Consideration Structure: Cash and Stock Combination	Consideration Structure: Stock Only	Number of Bidders	Percentage of Shares Acquiror is Seeking to Purchase in Transaction	Percentage of Shares Acquiror is Seeking to Own after Transaction	Deal Value	Deal Attitude Neutral	Deal Attitude Hostile
1	Academic & Educational Services	Coefficient	36.73	-19.34	16.51	-35.50						
		P-Value										
2	Basic Materials	Coefficient	26.03			-11.77	142.03	2.20				
		P-Value	0.00			0.00	0.05	0.00				
3	Consumer Cyclicals	Coefficient	22.67			-14.93	126.75	1.73	3.31		-11.50	
		P-Value	0.00			0.00	0.03	0.00	0.01		0.02	
4	Consumer Non-Cyclicals	Coefficient	15.35			-8.01	205.21	2.15				
		P-Value	0.00			0.04	0.01	0.01				
5	Energy	Coefficient	24.87			-7.14				0.01		
		P-Value	0.00			0.01				0.01		
6	Financials	Coefficient	5.40			-10.00		2.98				
		P-Value	0.45			0.00		0.00				
7	Healthcare	Coefficient	32.34	-8.87	-11.46	-18.36			4.91	0.01		
		P-Value	0.00	0.00	0.02	0.00			0.02	0.01		
8	Industrials	Coefficient	24.93	-4.53		-10.79	170.35		5.22			26.08
		P-Value	0.00	0.01		0.00	0.00		0.00			0.03
9	Real Estate	Coefficient	21.06		-11.23	-13.26			4.88			
		P-Value	0.00		0.00	0.00			0.00			
10	Technology	Coefficient	24.60	-4.27		-14.81			4.43			36.71
		P-Value	0.00	0.02		0.00			0.00			0.03
11	Utilities	Coefficient	25.42			-11.20			8.38			
		P-Value	0.00			0.03			0.00			

Table 7b

Firm- and Market-level Variables by Sector

#	Target TRBC Economic Sector		const	EBITDA Margin	Net Sales 3 Year Growth Rate	Ratio of Enterprise Value to	Capitalization inc. STD plus Long Term Debt plus Shareholder's Equity	Interest Rate (Target Nation)	Interest Rate (Acquiror Nation)	Regional HHI	Global HHI
1	Academic & Educational Services	Coefficient	36.73						-3.24		
		P-Value									
2	Basic Materials	Coefficient	26.03							0.10	
		P-Value	0.00							0.03	
3	Consumer Cyclicals	Coefficient	22.67	-2.95							
		P-Value	0.00	0.02							
4	Consumer Non-Cyclicals	Coefficient	15.35								1.76
		P-Value	0.00								0.00
5	Energy	Coefficient	24.87		0.22	7.05	-0.01				
		P-Value	0.00		0.03	0.02	0.02				
6	Financials	Coefficient	5.40	-1.82							-4.09
		P-Value	0.45	0.04							0.00
7	Healthcare	Coefficient	32.34				-0.02				
		P-Value	0.00				0.04				
8	Industrials	Coefficient	24.93					-2.70			-1.53
		P-Value	0.00					0.00			0.00
9	Real Estate	Coefficient	21.06						-1.64		
		P-Value	0.00						0.03		
10	Technology	Coefficient	24.60	-4.14					-1.99		
		P-Value	0.00	0.00					0.03		
11	Utilities	Coefficient	25.42								
		P-Value	0.00								

Table 7c

Regression Statistics by Sector

#	Target TRBC Economic Sector		R^2	Adj. R^2	Sample Size	Breusch-Pagan Statistic	Shapiro-Wilk Statistic	Kolmogorov-Smirnov Statistic	Durbin-Watson Statistic
1	Academic & Educational Services	Coefficient	0.9599	0.9615	10	3.65	0.95	0.18	1.84
		P-Value	0.00	0.00		0.60	0.72	0.86	
2	Basic Materials	Coefficient	0.1620	0.1580	257	4.50	0.99	0.07	2.04
		P-Value	0.00	0.00		0.21	0.03	0.18	
3	Consumer Cyclicals	Coefficient	0.1392	0.1452	481	10.05	0.99	0.04	1.91
		P-Value				0.12	0.01	0.38	
4	Consumer Non-Cyclicals	Coefficient	0.1062	0.1098	229	6.64	0.97	0.08	2.19
		P-Value	0.00	0.00		0.16	0.00	0.08	
5	Energy	Coefficient	0.1421	0.1400	165	6.58	0.99	0.05	1.91
		P-Value	0.00	0.00		0.25	0.08	0.76	
6	Financials	Coefficient	0.1649	0.1332	440	6.88	0.98	0.06	2.00
		P-Value	0.00	0.00		0.08	0.00	0.08	
7	Healthcare	Coefficient	0.1653	0.1388	218	1.68	0.99	0.04	2.22
		P-Value	0.00	0.00		0.64	0.29	0.78	
8	Industrials	Coefficient	0.1403	0.1453	513	9.95	0.99	0.04	1.90
		P-Value	0.00	0.00		0.27	0.05	0.51	
9	Real Estate	Coefficient	0.1794	0.1900	190	5.86	0.96	0.07	1.84
		P-Value	0.00	0.00		0.21	0.00	0.24	
10	Technology	Coefficient	0.1354	0.1302	458	8.86	0.99	0.03	1.86
		P-Value	0.00	0.00		0.11	0.06	0.69	
11	Utilities	Coefficient	0.1547	0.1638	85	0.72	0.99	0.06	1.70
		P-Value	0.00	0.00		0.70	0.67	0.89	

Figure 1

Outlier Analysis: Premium Distribution before trimming Extremes

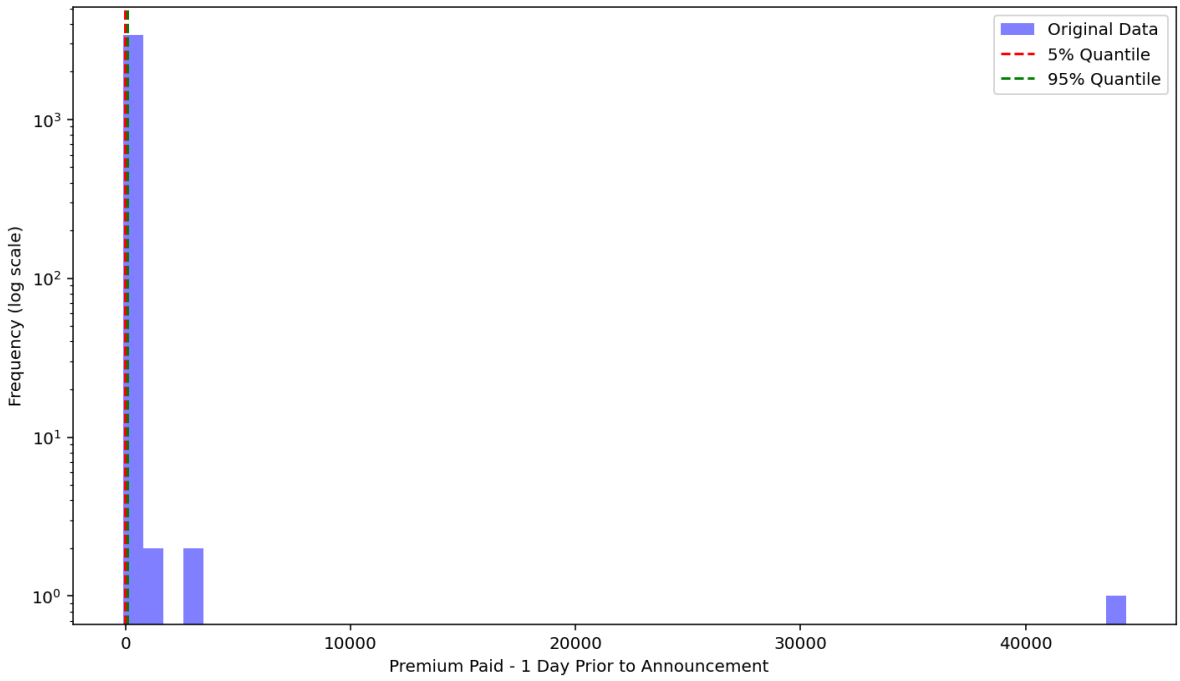

Figure 2

Distribution of Trimmed Premiums (5%-95% Quantile)