



Impact of Geopolitical Tensions on Valuation Multiples in M&A Transactions

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Abstract

Geopolitical tensions have become increasingly important in recent years. However, the relevance for M&A transactions remains comparatively underexplored in the literature. Nevertheless, the implications of this potential association are relevant for several market participants. Therefore, this paper examines whether geopolitical tensions have a provable impact on valuation multiples in M&A transactions and whether this impact varies between technology and non-technology companies. For this purpose, using transaction data linked to lagged values of the Geopolitical Risk Index, the analysis applies regression models focusing on the valuation multiples EV/EBITDA and EV/Sales. The results show predominantly negative coefficients for geopolitical tensions, with the strongest and most consistent evidence observed for EV/Sales, particularly for longer time lags, which could indicate potential valuation discounts. The evidence for EV/EBITDA is weaker but indicates a similar trend. The sectoral analysis suggests that technology companies may react more sensitive to geopolitical tensions, although the effect is not consistently robust across all analyzed specifications. Overall, the study shows that geopolitical tensions can be a relevant factor in the valuation of M&A transactions.

Keywords: *Geopolitical Risk, Mergers and Acquisitions, Valuation Multiples, Technology Companies*

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Resumo

As tensões geopolíticas têm vindo a ganhar cada vez mais importância nos últimos anos. No entanto, a sua relevância para as transações de fusões e aquisições continua a ser relativamente pouco explorada na literatura. Ainda assim, as implicações desta potencial associação são relevantes para vários intervenientes no mercado. Por conseguinte, este artigo analisa se as tensões geopolíticas têm um impacto comprovável nos múltiplos de avaliação nas transações de fusões e aquisições e se esse impacto varia entre empresas do setor tecnológico e as que não pertencem a esse setor. Para o efeito, utilizando dados de transações associados a valores defasados do Índice de Risco Geopolítico, a análise aplica modelos de regressão centrados nos múltiplos de avaliação EV/EBITDA e EV/Vendas. Os resultados revelam coeficientes predominantemente negativos para as tensões geopolíticas, com a evidência mais forte e consistente observada para o EV/Vendas, particularmente para defasagens temporais mais longas, o que poderá indicar potenciais descontos de avaliação. A evidência para o EV/EBITDA é mais fraca, mas aponta para uma tendência semelhante. A análise setorial sugere que as empresas de tecnologia podem reagir de forma mais sensível às tensões geopolíticas, embora o efeito não seja consistentemente robusto em todas as especificações analisadas. Em geral, o estudo mostra que as tensões geopolíticas podem ser um fator relevante na avaliação de transações de fusões e aquisições.

Palavras-chave: *Risco geopolítico, Fusões e aquisições, Múltiplos de avaliação, Empresas tecnológicas*

Título: *Impacto das tensões geopolíticas nos múltiplos de avaliação em transações de fusões e aquisições*

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1. Introduction

Over the past two decades, geopolitical tensions have increasingly become a significant source of economic and financial uncertainty. Recent shocks have repeatedly influenced global markets, shaped strategic decisions of companies and affected cross-border investments. Contemporary geopolitical developments have increased concerns about economic consequences of geopolitical risks for corporate investments and valuations, since uncertainties can alter investors' expectations, influence financing terms and enhance risk perceptions regarding future cash flows. These channels are particularly relevant in the context of M&A transactions, as prices depend substantially on expectations regarding future earnings, synergies, financing costs and general market conditions.

The significance of this relationship becomes evident in the cyclical trends of the M&A market. While approximately 224,000 deals with a total value of around 17.78 trillion USD have been completed over the past five years (IMAA Institute, n.d.), fluctuations in these statistics illustrate that the market can react sensitively to changes in uncertainty and conditions, as M&A transactions represent investment decisions with long-term implications. In periods of increased uncertainty, the question arises not only whether transactions will take place, but also at which valuation level transactions are completed. An increase in geopolitical risk influences the initial assumptions regarding the valuation of the target company, potentially causing changed conditions to be reflected in valuation multiples immediately or with a delay.

Previous research has already shown that geopolitical risk negatively impacts macroeconomic outcomes and corporate investment (Caldara & Iacoviello, 2022) and is associated with a reduction in employment and an increase in required risk premiums, which has an impact on transaction activities and pricing (Baker, Bloom & Davis, 2016; Pastor & Veronesi, 2013). More recent work has begun to examine pricing effects on M&A transactions. Li et al. (2025) points out in their research that an increase in geopolitical risk reduces the M&A premium, while other research still primarily focuses on deal activity, such as deal frequency or size (Bonaime et al., 2018; Rao et al., 2023). However, there is limited information about how geopolitical risk is reflected in valuation of M&A transactions, which constitutes the central research gap addressed in this dissertation.

Building on this gap, this study aims to clarify to what extent geopolitical tensions affect valuation multiples in M&A transactions. In particular, the analysis examines whether higher geopolitical risk is associated with lower valuation multiples and whether this effect differs

between technology and non-technology companies. This sectoral differentiation is economically relevant, as technology company valuations often depend on substantial growth forecasts, making them potentially more vulnerable and sensitive to geopolitical uncertainties compared to other industries, causing buyers to pay a smaller premium for target companies.

All in all, the results of the analyses conducted suggest that geopolitical risk tends to be negatively correlated with valuation multiples. The results point to a generally negative relationship between geopolitical risk and valuation multiples, particularly for certain specifications. However, the evidence is insufficient to support a uniform effect across all models. While indications of delayed effects can be examined, the evidence is not consistently robust overall. Additional robustness analyses, using alternative measures such as the Economic Policy Uncertainty Index and the VIX, serve to examine the stability of the results.

The remainder of the study is structured as follows: Chapter 2 provides the theoretical foundation and reviews relevant literature on M&A valuation, valuation multiples, uncertainty and geopolitical risk. Building on this, Chapter 3 outlines the data set, the variables examined and the methodological approach, followed by Chapter 4, which presents the key empirical findings and conducts extended robustness analyses. Finally, Chapter 5 discusses the limitations of this study, prior to the conclusion in Chapter 6.

2. Literature Review

This chapter contextualizes this dissertation within the literature on M&A valuations, uncertainty and geopolitical risk. To accomplish this, an initial review is provided of why valuation multiples are a suitable approach for analyzing M&A transaction valuations. Subsequently, uncertainty will be classified as a relevant determining factor for M&A activity and geopolitical risk is distinguished as a specific source of uncertainty. Building on this, the central channels of influence on valuation multiples as well as potential differences across industries are derived. The chapter concludes by identifying the research gap.

2.1. M&A Valuation and Valuation Multiples

Company valuation is a central element of transactions, given that it provides the basis for purchase price negotiations and the assessment of the target's attractiveness, although it is not solely determined by fundamental characteristics. Transaction-specific value drivers and fundamental valuation effects are also considered (Damodaran, 2002), which is why valuation multiples can compare transaction values relative to operating parameters.

Other approaches to calculate the value are the cost, market and income approach. The income approach traditionally includes the Discounted Cash Flow (DCF). Damodaran (2011) attempts to provide a practical understanding of business valuation and explains how different valuation approaches can be used to calculate company's value. While DCF models derive enterprise value from expected future cash flows and a risk-adjusted discount rate, valuation multiples are widely used because they serve as a market-oriented valuation based on comparable companies or transactions (Bhojraj and Lee, 2002). However, approaches like the DCF have their limitations. Valuation results are highly dependent on several input assumptions (Mauboussin and Callahan, 2020). As a result, changes in input variables can significantly affect resulting multiples and derived values. This indicates that these models may have difficulty capturing the complexity of geopolitical tensions, resulting in potential mispricing. This is supported by recent research arguing that traditional valuation models often overlook risks that would distort pricing in M&A transactions, as in their analysis acquisition premiums collapse once geopolitical risk exceeds a critical level (Li et al., 2025).

On the other hand, valuation multiples also entail limitations (Eaton et al., 2022). Their reliability depends largely on how comparable other companies or transactions are. Furthermore, multiples can be influenced by market cycles, macroeconomic conditions and sectoral expectations. Therefore, the paid multiples may reflect more than just company-specific fundamentals. At the same time, Shaffer (2023) demonstrates that valuation multiples are widely used in practice, but their specific application varies considerably. Advisors rely more on accounting-based metrics and tend to use trading more frequently than transaction comparables. These findings illustrate that valuation is characterized by methodological diversity and that multiples should not be interpreted independently. From a theoretical perspective, Damodaran (2006) notes that company values are primarily determined by expected cash flows, growth and associated risks prior to acquisition, which is consistent with Bhojraj and Lee (2002), presenting that multiples are systematically related to company-specific characteristics and cannot be explained solely by sector classification or company size. Consequently, differences in these value drivers influence multiples, preventing companies from different industries from being evaluated using identical multiples. Furthermore, Liu et al. (2002) indicate that the choice of the underlying valuation metric is crucial for the accuracy of the valuation, with multiples based on expected future earnings allowing for more precise valuations than multiples based on historical accounting metrics.

Valuation multiples enable empirical measurement and comparability of valuation levels in completed M&A transactions, although they are not only determined by company-specific fundamentals, but also by market and uncertainty environment at the time of the transaction. Therefore, the following section reviews the literature on uncertainty and M&A activity to evaluate how unpredictable conditions can influence transactions.

2.2. Uncertainty and M&A Activity

Building on these findings, substantial amount of empirical literature discusses different sources of uncertainty and how these affect the quantity and terms of M&A transactions.

Uncertainty arises when it is not possible to form accurate expectations about future conditions. In macroeconomic and financial literature, uncertainty is therefore generally understood as unpredictable volatility (Jurado et al., 2015), which may reduce economic outcomes. The literature identifies several different sources of uncertainty affecting companies and financial markets.

Bloom (2014) provides an overview of economic uncertainty, which arises from various factors, including macroeconomic shocks and financial crises. Bloom's framework is relevant, as it emphasizes that economic developments represent an important category of uncertainty, which influences expectations of companies, consumers and investors regarding the future economic situation. As a result, these shocks lead to a rapid decline in total output and employment, followed by a subsequent recovery (Baker, 2009), as increased uncertainty causes companies to temporarily suspend investment and hiring. Therefore, uncertainty shocks lead to short, sharp recessions and recoveries.

Besides that, political uncertainty acts as a significant barrier to M&A transactions by negatively affecting the aggregate and company levels (Bonaime et al., 2018). The authors argue that an increase in political uncertainty is associated with lower transaction value, fewer transactions and a lower probability of takeover announcements, suggesting that increased uncertainty tends to deter companies from pursuing mergers than merely delaying them. In support of this, political uncertainty reduces the incentive for companies to make acquisitions, increases the time taken to complete deals and motivates buyers to pay lower premiums, use shares and therefore achieving higher shareholder value on average (Nguyen and Phan, 2017). Furthermore, at the company level exposure to political risk varies considerably, as every company is affected differently. Companies exposed to higher political risk reduce their investment and hiring (Hassan et al., 2019). Additionally, the authors explored that these

companies start to increase their political engagement with active lobbying or donations to politicians, highlighting heterogeneous firm-level exposure to political risk. As a result, political risks may have an indirect effect on company valuations and valuation multiples, if companies adjust their political activities in response to increased uncertainty. This directly suggests that uncertain environments can influence not only whether deals are made, but also how they are valued and structured.

In addition, technological uncertainties are important, as they refer to unexpected changes in productivity that affect how efficiently capital and labor are converted into output (Ramey, 2016). The literature typically distinguishes between neutral and investment-related technology shocks, which improve efficiency. Both types can influence business cycles, while future technological improvements can impact current economic decisions. Since technology shocks can change productivity and expected profitability, it can have an impact on financing and valuation, resulting in a reevaluation of companies or investments. Given this context, uncertainty can be understood as a key factor influencing M&A activity, since transactions represent long-term investment commitments.

Research demonstrates that M&A activity can contribute to the whole economy, having an impact on productivity and growth rates of companies (Xu, 2017) and the number of transactions almost doubling during periods of growth (Maksimovic and Phillips, 2001). Especially after positive demand shocks in the industry, assets and business units are more likely to be sold, if they are underperforming, non-core or inefficiently managed business segments (Maksimovic and Phillips, 2001). On the other side, they find that larger and more efficient companies are more likely to acquire assets, which is consistent with an efficiency-based reallocation of resources. Transactions facilitate industry consolidation through resource reallocation, since they enable technology exchange, knowledge transfers and innovation. At the same time, they also increase the market power of the acquiring companies and can thereby create competition risks (Wei et al., 2025). However, the consolidation of an industry often does not happen continuously, but rather in waves. These effects on the market give M&A waves macroeconomic significance. Research shows that merger waves require both economic shocks and sufficient capital liquidity, emphasizing the sensitivity of M&A markets to macro financial conditions (Harford, 2005). Parallel literature on valuation waves shows that merger activity is strongly influenced by short-term mispricing (Rhodes-Kropf et al., 2005). They present that companies can take advantage of periods of temporarily high valuations for acquisitions, particularly stock acquirers. High-valued companies can use temporary price errors to acquire

lower-valued target companies. As a result, the study emphasizes the significance of capital markets and valuation dynamics, since valuation differences represent an explanatory factor for cyclical M&A waves.

Nevertheless, M&A waves cannot precisely identify the factors that complicate individual transactions. Therefore, it is necessary to consider transaction-specific frictions, because they increase if a significant amount of time elapses between announcement and completion of the deal. Due to a possible change of company valuation, the risk of renegotiation or termination of the deal increases. Evidence from public companies show that increased market volatility reduces subsequent M&A activity when there is a longer interim period (Bhagwat et al., 2016). They provide evidence that this effect is most pronounced in times of high volatility for larger companies and longer transaction periods as companies attempt to shorten the transaction phase. This mechanism is relevant for valuation multiples, as pricing in public transactions must consider the risk that company's value may change before the transaction is completed and may differ between domestic and cross-border transactions.

Analyzing emerging economies shows that geopolitical risk leads to more, but smaller M&A deals (Rao et al., 2023). While the number of, especially domestic, deals increase, the size decreases, indicating economic inefficiencies and deadweight costs. The strength of this effect depends on the institutional quality of the country. In comparison for cross-border transactions, military alliances between two countries are a significant indicator of geopolitical risk and increase cross-border acquisition flows (Cao et al., 2023). This effect is particularly strong for defense alliances and countries with weak government or legal institutions. They benefit even more, as these alliances help to mitigate geopolitical risk for buyers. Overall, the results suggest that military alliances facilitate international M&A activity by reducing geopolitical risk. These findings are supported by Hao et al. (2025), who argue that the negative impact of geopolitical risk on investments and the overall M&A activity is derived from samples of domestic acquisitions. However, by focusing on cross-border transactions they demonstrate that the geopolitical risk distance between countries of the acquiring and target companies involved has a significant positive effect on acquisition investments. This suggests that geopolitical tensions can alter the direction and composition of M&A activity rather than uniformly reducing it. As a result, companies in countries with a high geopolitical risk prefer to acquire companies in countries with low geopolitical risk, which serves as a risk management tool for hedging purposes.

Within this broader uncertainty framework, geopolitical risk represents a specific source of uncertainty that can influence decisions and financial results of companies.

2.3. Geopolitical Risk as a Specific Uncertainty Source

The increasing importance of geopolitical risk for financial markets and corporate investment decisions has led to the development of systematic measurement frameworks for geopolitical uncertainties.

An increasing amount of research investigates how geopolitical risk affects financial markets and individual company decisions. A well-known paper discussing geopolitical risk (GPR) comes from Caldara and Iacoviello (2022), who define “geopolitical risk as the threat, realization, and escalation of adverse events associated with wars, terrorism, and any tensions among states and political actors that affect the peaceful course of international relations” (Caldara & Iacoviello, 2022, P.1195). Through this definition of geopolitical risk, it can be observed that these events create uncertainty regarding future economic conditions, global trade and political stability, thereby significantly influencing economic expectations and company’s decisions and must be distinguished from economic uncertainty and general financial market volatility.

From an economic perspective, geopolitical risk represents an uncertainty that could have direct impacts on companies and business models. International conflicts and political tensions can disrupt the global trade and supply chains, consequently changing and complicating business operations for companies. Examples of direct influence of geopolitical tensions could be changing energy prices, investment activity and the volatility of financial markets. Besides that, it can lead to regulatory responses such as sanctions, which can significantly impact investments, financing and liquidity decisions of companies to mitigate potential risks. Therefore, due to fewer synergy effects, which may arise because of more challenging conditions, multiples in transactions can be negatively affected.

Simultaneously, GPR must be distinguished from other measures of uncertainty. While the GPR measures geopolitical tensions, the Economic Policy Uncertainty (EPU) Index, developed by Baker, Bloom and Davis (2016), captures uncertainty about economic policy decisions, such as fiscal, monetary and regulatory policy. These variations imply that uncertainty in economic and geopolitical policies might affect company values and transaction activities. Both indices are used as indicators and references in other studies and consistently show negative effects on

investments, employment and capital market activity due to increased volatility in stock prices, measured through the Chicago Board Options Exchange Volatility Index (VIX).

This macro financial relevance is further shown as increased financial volatility widens government bond spreads and raises risk premiums across all asset classes (IMF Global Financial Stability Report, 2025). The IMF report presents higher probability of large market corrections in the future, due to geopolitical risk shocks, affecting stock markets through higher discount rates and increased tail risks.

Following the classification of geopolitical risk as a specific source of uncertainty, it is necessary to consider the economic channels through which it may affect corporate valuations and M&A multiples.

2.4. Channels from Geopolitical Risk to Valuation

To understand how geopolitical risk can affect M&A valuation metrics, it is crucial to relate uncertainty to asset pricing theory and corporate finance with its fundamental valuation drivers.

2.4.1. Risk Premia and Discount Rates

One way in which geopolitical tensions could affect valuation is through higher risk premia and discount rates. Uncertainty increases the required risk premium, which is greater in weaker economic conditions and diminishes the perceived implicit downside protection provided by governments to financial markets (Pastor and Veronesi, 2013). This increases stock market volatility and cross-asset correlations, as investors demand higher compensation for policy-related risks affecting future cash flows. In addition to that, an increase in macroeconomic volatility is accompanied by a rise in discount rates and a decline in consumption (Bansal et al., 2014).

Furthermore, the IMF report (2025) documents that systemic geopolitical shocks could threaten macro financial stability and discusses the transmission to equity markets via discount rate and tail risk channels. This impact varies considerably depending on the shock, the affected asset class and country specific characteristics. Particularly international military conflicts typically lead to falling stock market prices and rising risk premiums for government bonds, with financially weaker countries being more vulnerable. These findings result in lower present values for given cash flows, which may lead to a multiple contraction in transactions.

2.4.2. Real Options Theory

The real options framework offers an additional important theoretical approach. According to theory, companies have the “options embedded in investment opportunities such as the option to delay, expand, switch, suspend, contract or abandon an investment” (Lambrecht, 2017, P.166). This framework is useful in volatile environments as it can capture and price unexpected developments.

Building on that, Julio and Yook (2012, 2016) present that companies reduce their national and foreign direct investment (FDI) expenditures in election years. Investments increase as soon as the uncertainty has been resolved, suggesting that political uncertainty inhibits investment and could therefore have an impact on company valuations. This effect is more pronounced in competitive elections and is mitigated by the quality of institutions, with countries with stronger institutions experiencing less electoral volatility.

The findings are supported by Gulen and Ion (2015), using the EPU index of Baker et al. (2013). However, the results further indicate a significantly stronger effect for companies with a higher degree of investment irreversibility and which are more dependent on government spending.

On the other hand, international expansion can reduce the risk of loss by creating cross-border operational flexibility, although these effects are limited by increasing coordination costs and cultural distance, resulting in a curvilinear relationship (Tong and Reuer, 2007).

2.4.3. Information Uncertainty and Target Valuation

In addition, the effect of information uncertainty can also have a negative impact on the valuation of the target. Buyers may demand a discount, as higher information uncertainty results in lower valuation of the target in transactions (Li and Tong, 2018), which is consistent with the view that higher uncertainty and higher discount rates depress valuation multiples. Interestingly, the findings further indicate that such deals can be attractive to buyers if the uncertainty is properly assessed, thereby generating potential for value creation.

Relatedly, insider buyouts offer an additional perspective. Hammer et al. (2023) found that management buyouts were more likely in times of high economic policy uncertainty. This is associated with insiders exploiting private information and market timing opportunities. Such transactions tend to be completed at lower prices and are associated with stronger post-buyout improvements compared to institutional buyouts. This suggests that uncertainty may widen the information gap between insiders and external investors.

2.4.4. Cash Flow and Liquidity Management

Another channel through which geopolitical risk may affect corporate valuations is caused by cash flow and liquidity management, which is supported by empirical evidence.

Fazzari et al. (1988) argue, that investments are particularly sensitive to internal cash flows, if external financing is limited. Gupta (2023) applies a similar logic by demonstrating that higher GPR increases the sensitivity of investment to cash flows. This provides a channel through which GPR may influence valuation multiples, as constrained investment and more conservative liquidity management can reduce expected growth and future cash flows. Moreover, GPR raises borrowing costs and restricts credit availability, thereby increasing financing frictions and companies' dependence on internal cash flows.

On the other hand, uncertainty affects liquidity management of companies. James et al. (2024) present that cash flow sensitivity of cash decreases during periods of political uncertainty and companies do not necessarily use excess cash flows to build up cash reserves. However, the effect differs between companies with positive and negative cash flows, suggesting that political risk influences liquidity management depending on a company's financial position. This discussion of political risk may lead to a contraction in valuations, through an increased cost of capital. An asymmetric allocation of cash flows results in a reduction in internal financing capacity and may increase agency costs for retaining liquidity.

Overall, this literature shows that uncertainties can influence companies through cash flow and liquidity management. This is particularly relevant, because changes in financing aspects have a direct impact on valuation and multiples in M&A transactions.

2.5. Why Geopolitical Risk Effects May Differ by Sector

A central premise of this paper is sectoral heterogeneity. The literature provides theoretical foundations on why technology companies may respond differently to geopolitical tensions, since relevant value drivers and benchmarks vary systematically from one industry to another.

Key factors for their valuation include growth expectations, intangible assets and investments in innovation, making their value particularly dependent on assumptions about future cash flows, financing options and market opportunities. This valuation difficulty is supported by Damodaran (2009), who points out that particularly young companies in the information sector are generally more difficult to value and only about 25% of the companies survive a period of seven years. This corresponds to the worst average of all analyzed industries and suggests that

technology companies may be more heavily influenced by uncertainty and other conditions than companies in other industries.

Furthermore, technology companies may respond differently to variations in operational, regulatory and strategic characteristics. Research shows that growth companies correlate more strongly with the discount rate than value companies, which correlate more strongly with cash flows (Lettau and Wachter, 2007). Besides that, while reinvestments in traditional industrial companies often focus on additional production capacity, technology companies typically include expenditures on R&D, patents and human capital (Damodaran, 2009). These investments lead to immediate cash outflows and can cause negative cash flows, which must be financed with additional capital. As a result, technology companies may react particularly sensitively to geopolitical shocks.

The literature on valuation of intangible assets also supports a distinction, as intangible capital is associated with higher risk profiles and lower collateral value (Moro Visconti, 2019). Hall, Jaffe and Trajtenberg (2005) note that investments in intangible assets are correlated with a company's market value and their relevance is likely to vary across industries. Their analysis reveals a positive valuation premium relative to low-tech industries, particularly in the computer and communications sector. Furthermore, the patent yield effect in this industry is almost twice as high as the average. This is attributed to the fact that products are often based on multiple technologies and patents from different companies. Patents are therefore valuable not only because of their individual quality but also as a strategic foundation.

At the same time, with rising geopolitical tensions, information asymmetries may increase. In response, buyers could demand higher risk premiums, resulting in lower valuations and transaction multiples, aligning with Li and Tong (2018). Building on this, Baldwin and Freeman (2022) show that global supply chain risks can vary significantly depending on company-specific and market-related characteristics. They state that the exposure to international disruptions may be higher than direct indicators initially suggest, due to limited transparency regarding indirect supplier structures, which can lead to systematic underestimation of actual supply chain exposures. These effects are unlikely to be uniform across industries and may be particularly relevant for companies relying more heavily on international supply chains.

These studies illustrate that there may be sectoral differences in company valuation that do not necessarily reflect geopolitical risk. Consequently, a comprehensive analysis of these differences would be beneficial.

2.6. Literature Gap

While there is literature on how uncertainty affects M&A transactions, most studies focus on transaction mechanisms, rather than examining geopolitical uncertainties and the changing impact on valuation multiples.

Valuation multiples in transactions represent a crucial pricing mechanism and directly reflect expectations regarding future profitability, growth and risk. An understanding of how geopolitical uncertainty can influence these variables is therefore essential for managers and investors to be able to make dynamic pricing adjustments in transactions.

In addition to this contribution, this dissertation will address sectoral heterogeneity. Valuation multiples of technology companies should normally be significantly more affected by geopolitical uncertainty, than companies in other industries. Since existing research has not sufficiently examined differences, this research aims to identify a difference.

All in all, this paper aims to highlight the relevance of geopolitical risk to valuation multiples, with the intention of encouraging more consideration of these risks in future M&A transactions.

3. Data and Methodology

The purpose of this thesis is to examine whether fluctuations in geopolitical tensions result in systematically changing valuation multiples and whether a difference can be identified across technology and non-technology companies.

The empirical analysis is focused on completed M&A transactions in the U.S. and Europe between 1st of January 1990 until 31st of December 2024.

3.1. Data Sources and Sample Construction

To empirically examine this relationship the analysis is based on several data sources to construct a comprehensive dataset and to capture major geopolitical events.

The core data on M&A transactions will be obtained from Refinitiv (LSEG Workspace). This source provides data on completed M&A deals for the U.S. and Europe in EUR currency. Each deal in the dataset was selected according to the following criteria: a.) The transaction had a positive transaction value, b.) involved the acquisition of at least 50% of the shares in the target company, c.) was classified as completed or unconditional, d.) involved target companies based in the U.S. or Europe, which is classified as member or EFTA states and e.) was categorized as a privatization, stake purchase or acquisition of remaining interest. The sample is restricted to specific deal types to ensure comparability across transactions. In particular, leveraged buyouts

were excluded as they are characterized by substantially higher leverage than standard acquisitions. This difference in capital structure can directly influence valuation multiples and may bias the empirical results. Considering all these factors, the final dataset is based on 3,602 deals over the observed period.

Each deal in the sample will be classified as technology or non-technology based on the target company's primary industry classification after TRBC.

3.2. Variable Construction

This section is intended to briefly explain the different variables before they are incorporated into the model and analyzed in detail in the subsequent chapter.

3.2.1 Main Independent Variable: Geopolitical Risk

The Geopolitical Risk Index developed by Caldara and Iacoviello (2022), to quantify geopolitical tensions, represents the main independent variable. Geopolitical uncertainty is measured based on the share of newspaper articles mentioning geopolitical tensions and serves as a proxy for the geopolitical risk environment at the time of the respective M&A transaction. Higher index values correspond to a higher level of geopolitical uncertainty. To ensure accuracy, the data of the index is obtained directly from the author's website and this study employs monthly frequencies to maintain consistency with the broader empirical framework. The index has been validated and is used in studies analyzing the impact of geopolitical tensions (Alonso-Alvarez et al., 2025).

3.2.2. Dependent Variables

The dependent variables consist of valuation multiples derived from the transaction dataset. The analysis mainly focuses on the EV/EBITDA and EV/Sales multiples, as they are particularly common in M&A valuation and reflect different valuation approaches. EV/EBITDA is meaningful for stable and profitable businesses, as it reflects operating profitability, whereas EV/Sales is a better valuation tool for growth companies, if earnings measures are less meaningful (Damodaran, 2009).

All regression specifications are additionally performed for other valuation multiples EV/EBIT, EV/Net Assets and EV/Net Income. These additional multiples are primarily considered in the context of robustness analyses, as they capture different aspects of corporate valuation and may be more strongly influenced by differences in balance sheet items, capital intensity or earnings

volatility. To ensure transparency of the empirical results, the complete regression results for all valuation multiples examined are reported in the Appendix.

3.2.3. Control Variables

To isolate the effect of geopolitical risk on valuation multiples, the model includes a comprehensive set of control variables capturing company and transaction characteristics of the target company, as well as macroeconomic variables.

At the transaction level, a cross-border dummy variable is used to distinguish between domestic and international transactions. Cross-border transactions may involve additional complexity, regulatory barriers and information asymmetries (Shimizu et. al, 2004), which could either increase the valuation through diversification and synergy effects or decrease it due to increased uncertainty.

Besides that, the analysis examines whether sectoral differences appear. For this reason, additional analyses incorporate dummy variables to account for sectoral classification of transactions. The technology dummy distinguishes between technology and non-technology companies, as valuation drivers differ across industries resulting in different valuation multiples (Hall et. al, 2005), due to higher growth opportunities, a larger share of intangible assets and greater sensitivity to geopolitical changes and tensions. Moreover, a private dummy variable is included, as private targets receive an acquisition discount relative to listed companies (Officer, 2007), due to liquidity inflexibility, lower transparency and limited availability of public financial information.

At the company level, the analysis assesses profitability, leverage and liquidity. Profitability is measured as the ratio of net income to total assets and serves as an indicator of operational efficiency. More profitable companies may have more stable and higher cash flows and therefore could command higher valuation multiples. The leverage ratio considers differences in capital structure and financial risk and is calculated as the ratio of total debt to total assets, as higher debt could increase perceived risk and thus could have a negative impact on valuation. The last implemented company characteristic liquidity serves as a measure of current solvency and financial flexibility. Liquidity is calculated as the ratio of current assets to current liabilities, as companies with higher liquidity could have greater financial flexibility and may be better able to meet short-term obligations.

For isolating the effects of geopolitical tensions from other macroeconomic factors the dissertation will implement world development indicators as control variables from the World Bank databank for the specified period. To further consider the general macroeconomic

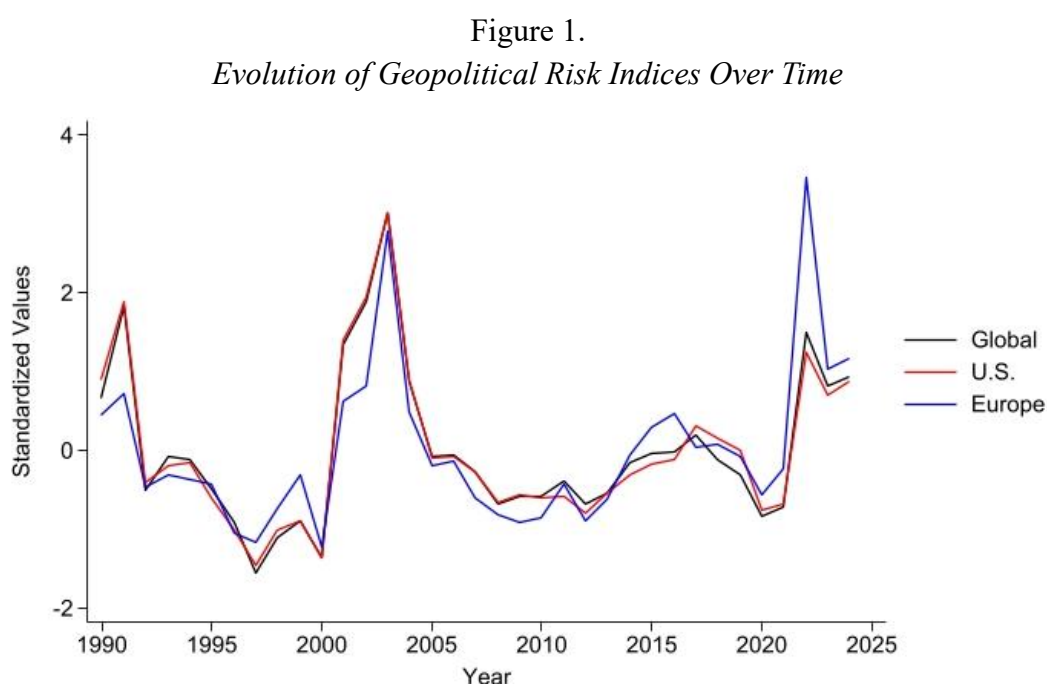
environment and conditions in the financial markets, the respective interest rate levels and market uncertainty are added from the Federal Reserve Bank of St. Louis. Specifically, interest rates are measured using the yield on 10-year U.S. government bonds for U.S. transactions, whilst for European transactions the yield on 10-year government bonds from the eurozone is used. Since interest rates have a direct impact on discount rates, it is important to implement them. Besides that, the study considers macroeconomic factors, such as GDP growth and inflation. Economic growth serves as an indicator of the economic situation of the country and directly influences future earnings expectations of the target company, whereas inflation is included as a measure of macroeconomic stability and uncertainty with a mutual effect on interest rates.

3.3. Descriptive Statistics and Transformations

Before introducing the regression model, the described variables are initially examined descriptively in terms of data structure and distribution to identify anomalies in the sample. This serves as basis for the subsequent interpretation of the empirical results.

3.3.1. Independent Variable: Descriptive Statistics

First, an initial overview of the development of the GPR across different regions is presented to get an understanding about the evolution over time to assess its potential impact on valuation multiples. To ensure comparability within a single time series, all indices are standardized.



Note: Standardized comparison of geopolitical risk indices for the U.S., Europe and the world.

Overall, the figure shows that geopolitical risk is strongly influenced by a few specific events. This highlights the importance of considering temporal dynamics in empirical analysis. Particularly in the early 1990s, 2000s and 2020s an increase in geopolitical risk, compared to the overall data sample, is clear and evident. The early 2000 surge in geopolitical risk can likely be attributed to the terrorist attacks of September 11, 2001, whereas the peak around 2022 can be linked to the Russia-Ukraine conflict. Although the general trends are closely aligned, some regional differences can be observed. In particular, the European index has shown stronger fluctuations in recent years, suggesting a more pronounced sensitivity to region-specific events. Nevertheless, it is noticeable that the indices follow a very synchronous pattern and therefore it is necessary to examine the correlation between the regions. Further insights are important, as a high degree of correlation raises concerns about multicollinearity, meaning that the indices should not be included in the same regression model simultaneously.

Table 1.
Correlation Matrix of Geopolitical Risk Indices

	GPR Global	GPR Europe	GPR U.S.
GPR Global	1.000	0.894***	0.995***
GPR Europe		1.000	0.879***
GPR U.S.			1.000

*Note: This table shows correlation coefficients between the geopolitical risk indices for the U.S, Europe and the global measure. Statistical significance is indicated by *, ** and *** at the 10%, 5% and 1% levels respectively.*

The correlation matrix shows a strong positive relationship between all geopolitical risk indices. The global index tracks the U.S. index almost identically but also exhibits a disproportionately high correlation with the European index, suggesting that global geopolitical risk largely reflects developments in these regions. The correlation between the U.S. and European indices is also very high, suggesting a significant convergence across regions. All coefficients are statistically significant at the 1% level, confirming that these relationships are robust.

However, it should be noted that the GPR is based on newspapers from the U.S., UK and Canada, which is why a high correlation should be expected. As a result, the index could reflect a Western media perspective and may only imperfectly capture regional differences in geopolitical risk exposure.

3.3.2. Dependent Variables: Descriptive Statistics

After obtaining an initial overview of the GPR, the dataset was systematically reviewed for inconsistencies and outliers in the dependent variables. Based on this assessment, the objective

was to determine whether multiples require an adjustment, like winsorization or logarithmic transformation, to mitigate the impact of skewness and outliers.

The raw multiples from the dataset are presented, to get a better understanding of the distributional properties.

Table 2.
Valuation Multiples: Raw, Winsorized and Log-Transformed

Panel A: Valuation Multiples (raw)

	count	mean	sd	min	max
EV/EBITDA	295	44.59199	137.0326	.024	1577.269
EV/EBIT	345	237.4688	2512.283	.009	43350.66
EV/Net Assets	474	292.8838	3004.031	.081	49309.93
EV/Net Income	409	657.9217	7234.481	.004	129955.5
EV/Sales	702	34.07437	287.9398	.015	5777.778

Note: This panel reports summary statistics for the raw valuation multiples, highlighting their substantial dispersion and the presence of extreme values.

The summary statistics reveal substantial dispersion in the valuation multiples, which is reflected in the high standard deviations and presence of substantial dispersion between minimum and maximum values. This indicates that the distributions are highly skewed and influenced by a limited number of extreme transactions. To mitigate the impact of these outliers, the data is winsorized at the 1st and 99th percentiles. Under this procedure, observations exceeding the 99th percentile are set to the respective threshold, while values below the 1st percentile are adjusted accordingly. This approach retains all observations but limits the influence of extreme values, thereby improving the robustness of the subsequent empirical analysis.

Panel B: Valuation Multiples (winsorized)

	count	mean	sd	min	max
EV/EBITDA	295	39.98225	98.0453	.628	645.932
EV/EBIT	345	63.443	149.4999	.653	904.809
EV/Net Assets	474	111.8551	787.7304	.141	7475.165
EV/Net Income	409	128.7913	414.0942	1.082	3216.39
EV/Sales	702	18.47118	94.34553	.05	821.962

Note: This panel reports summary statistics for the winsorized valuation multiples, highlighting their substantial dispersion and the presence of extreme values.

Despite this adjustment, the multiples remain characterized by considerable dispersion and do not approximate a normal distribution. Certain multiples continue to exhibit high volatility, suggesting that they are driven by a small number of transactions.

As a result, the remaining valuation multiples are transformed using a logarithmic transformation. Logarithmic transformation compresses large outliers, adjusting skewed distributions more symmetrically. Extreme values lose their disproportionate influence, whilst

the relative structure of the data is maintained. This contributes significantly to improving the comparability and represents a prerequisite for robust and economically meaningful empirical analyses.

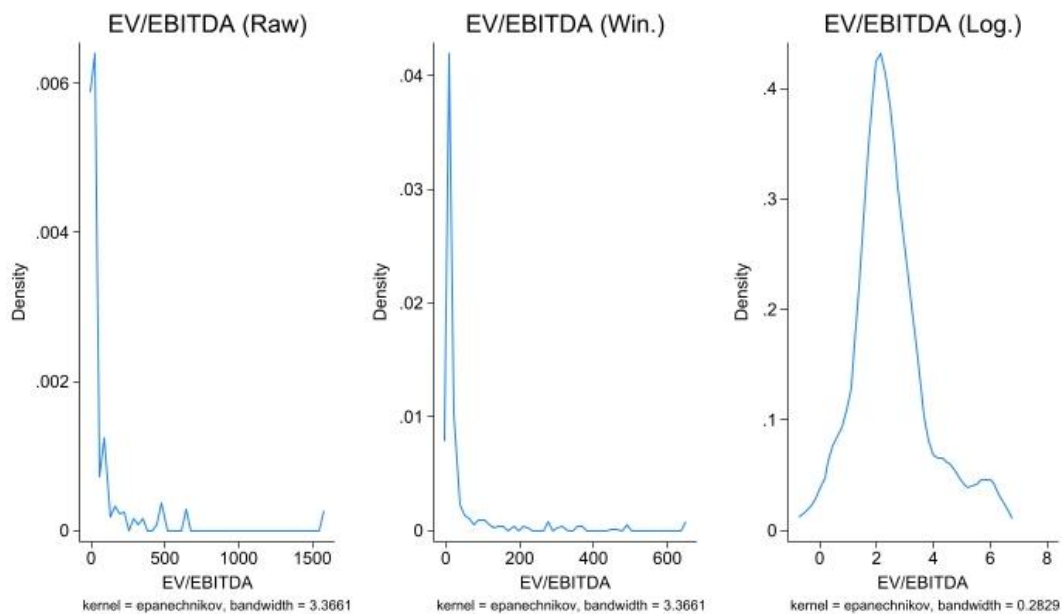
Table 2. (continued)
Panel C: Valuation Multiples (log.)

	count	mean	sd	min	max
EV/EBITDA	295	2.525327	1.318834	-.4652151	6.470694
EV/EBIT	345	2.899758	1.438458	-.4261782	6.807724
EV/Net Assets	474	1.449825	1.703763	-1.958995	8.919341
EV/Net Income	409	3.356015	1.505285	.0788112	8.076015
EV/Sales	702	.5672815	1.763749	-2.995732	6.711694

Note: This panel reports summary statistics for the log-transformed valuation multiples, showing a more balanced distribution compared to the raw data.

The results for the logarithmic variables demonstrate a significant stabilization of the previously skewed distributions. Following the transformation, the means of the variables are located within a moderate range, while the standard deviations are significantly lower. Furthermore, the values are distributed within a more compact range, effectively compressing extreme outliers, as logarithmic transformation reduces the influence of extreme values, reducing the pronounced skewness. Consequently, individual extreme transactions lose their dominant influence and the data becomes more symmetrical and comparable overall. Occasional negative values are not problematic, as they are a direct consequence of original multiples being less than one.

Figure 2.
Distribution of EV/EBITDA Multiples (Raw, Winsorized and Log-Transformed)



Note: Kernel density distributions of EV/EBITDA multiple in raw, winsorized and log-transformed form.

Figure 2 illustrates the distribution of EV/EBITDA multiples throughout the transformation process. The raw multiples exhibit a strong right-skewness, with a high concentration of values in the lower range and a long tail of outliers. Despite implementing winsorization the distribution remains skewed. After applying the logarithmic transformation, the distribution becomes significantly more symmetrical and concentrated, indicating improved statistical properties. Overall, the transformation reduces the influence of outliers and it is evident that the transformation significantly improves the properties of the data and thus provides a suitable basis for subsequent analysis.

3.3.3. Control Variables: Descriptive Statistics

Lastly, the distribution statistics for the included control variables are summarized, providing an initial indication of the usefulness without modification. Otherwise, the variables would require a winsorization or log-transformation prior to implementation into the model.

Table 3.
Descriptive Statistics of Control Variables

Panel A: Summary Statistics

	Obs.	Mean	Std. Dev.	p50
Profitability	340	0.074	0.138	0.039
Leverage	387	0.305	0.296	0.226
Liquidity	445	2.804	12.211	1.220
Cross-Border	3602	0.406	0.491	0.000
GDP Growth	3599	2.116	3.357	2.546
Inflation	3601	14.059	86.315	2.581
Interest Rate	3602	5.373	2.632	4.995
Tech	3602	0.064	0.245	0.000
Private	3602	0.093	0.290	0.000

Note: Panel A presents descriptive statistics for the sample, focusing on the control variables used in the empirical analysis.

Panel A introduces the descriptive statistics for the control variables. The results show considerable variation in some cases, which indicates heterogeneity in the sample. Some variables exhibit relatively high volatility, while others are distributed more stable. Furthermore, differences between the mean and median for selected variables suggest potential skewness in the distributions. Overall, the descriptive statistics show that the sample exhibits a wide range of variation at company and macroeconomic levels.

Table 3. (continued)
Panel B: Distribution Measures

	p25	p75	Min.	Max.	Skewness	Kurtosis
Profitability	0.013	0.084	0.000	1.853	7.475	85.128
Leverage	0.069	0.447	0.000	1.851	1.489	5.939
Liquidity	0.833	1.933	0.000	185.733	12.197	164.285
Cross-Border	0.000	1.000	0.000	1.000	0.383	1.147
GDP Growth	1.234	3.907	-14.630	24.624	-1.517	9.090
Inflation	1.738	4.592	-1.312	1058.374	11.494	137.935
Interest Rate	3.762	7.361	-0.092	11.136	0.310	2.405
Tech	0.000	0.000	0.000	1.000	3.558	13.662
Private	0.000	0.000	0.000	1.000	2.808	8.887

Note: Panel B contains additional information about the distribution, including percentiles, skewness and kurtosis.

Panel B provides additional and more detailed measures of the distributions, indicating skewness and the presence of outliers. High values for skewness and kurtosis indicate that individual distributions deviate significantly from the normal distribution and may be influenced by outliers (Hair et al., 2010). These characteristics are particularly evident for variables at company level such as profitability, leverage and liquidity, implying an asymmetrical distribution. Pronounced skewness is supported by empirical M&A data, as transactions vary greatly in size and individual large transactions can dominate the distribution (Moeller et al., 2005). To counteract these distortions and improve the robustness of the analysis, the specific company variables will be logarithmically transformed. Macroeconomic variables such as GDP growth, inflation and interest rates are used without adjustment, as these variables can have negative or zero values and are directly interpretable in their absolute terms.

Panel C: Summary Statistics (log.)

	Obs.	Mean	Std. Dev.	p50
Profitability	340	-3.497	1.533	-3.239
Leverage	387	-2.040	1.952	-1.488
Liquidity	445	0.136	1.228	0.199
Cross-Border	3602	0.406	0.491	0.000
GDP Growth	3599	2.116	3.357	2.546
Inflation	3601	14.059	86.315	2.581
Interest Rate	3602	5.373	2.632	4.995
Tech	3602	0.064	0.245	0.000
Private	3602	0.093	0.290	0.000

Note: Panel C presents descriptive statistics of the control variables after the log-transformation of profitability, leverage and liquidity.

Panel C outlines the descriptive statistics after logarithmic transformation of profitability, leverage and liquidity. This transformation smooths out the fluctuations in the distribution of variables at company level and ensures a closer alignment between mean and median. At the same time some heterogeneity remains within the sample, but it suggests that the logarithmic transformation contributes to more stable distribution properties.

Table 3. (continued)
Panel D: Distribution Measures (log.)

	p25	p75	Min.	Max.	Skewness	Kurtosis
Profitability	-4.347	-2.478	-12.098	0.617	-0.950	5.579
Leverage	-2.680	-0.806	-14.733	0.616	-2.286	10.919
Liquidity	-0.183	0.659	-8.865	5.224	-1.500	13.877
Cross-Border	0.000	1.000	0.000	1.000	0.383	1.147
GDP Growth	1.234	3.907	-14.630	24.624	-1.517	9.090
Inflation	1.738	4.592	-1.312	1058.374	11.494	137.935
Interest Rate	3.762	7.361	-0.092	11.136	0.310	2.405
Tech	0.000	0.000	0.000	1.000	3.558	13.662
Private	0.000	0.000	0.000	1.000	2.808	8.887

Note: Panel D exhibits information on the remaining summary statistics following the log-transformation of profitability, leverage and liquidity.

Panel D presents additional distribution statistics for the transformed control variables. Compared to the original variables, the table demonstrates reduced skewness and kurtosis, indicating an improvement in distributional characteristics. Noticeably, the logarithmic transformation of leverage leads to an increase in kurtosis, suggesting that the distribution remains leptokurtic, due to concentration of observations around the center of the distribution. Overall, the results confirm that deviations from the normal distribution persists for some variables, as the logarithmic transformation improves distributional structures but does not fully normalize them.

3.4. Methodology

This chapter provides a detailed explanation of the empirical methodology to examine the impact of geopolitical risk on valuation multiples in M&A transactions, based on linear regression models.

This effect is captured through transactional, company-specific and macroeconomic control variables to isolate the impact of geopolitical risk on valuation multiples. As the analysis progresses, industry-specific dummy variables, as well as year fixed effects and robust standard errors are incorporated into the model.

3.4.1. Lag Structure

A key methodological challenge in analyzing the impact of geopolitical risk is timing. Valuation multiples are negotiated before a transaction is publicly announced and therefore may not be influenced by geopolitical conditions at the time of the announcement. To address this issue and mitigate concerns about reverse causality, the study measures geopolitical risk ex ante using information available prior to the announcement of the transaction to get a more valid approximation.

The baseline specification uses the GPR index with a one-month lag to reflect the potential relevance of geopolitical risks to valuations prior to the announcement of a transaction.

$$(1) GPR_{deal} = GPR_{t-1}$$

This approach attempts to smooth out short-term fluctuations in the index and should reflect more precisely the geopolitical environment that companies may face during negotiations. To further support the results, the lagged effects of three, six and twelve months on valuation multiples are examined to determine consistency throughout the results. Geopolitical risk at deal level will be calculated as the average value of the GPR index prior to the announcement of the transaction. For instance, in the case of a three-month lag:

$$(2) GPR_{deal} = \frac{1}{3}(GPR_{t-1} + GPR_{t-2} + GPR_{t-3})$$

The use of pre-transaction values for the GPR is intended to prevent endogeneity.

Further note for the lagged framework: Although the transaction sample starts in 1990, the GPR data are included from 1989 onwards, to ensure data availability for the earliest transactions in the sample. This results in a stable number of observations across all different lag specifications.

3.4.2. Baseline Model

The baseline model attempts to demonstrate a general relationship between geopolitical risk and the log-transformed valuation multiple. This model includes dummy variables for technology companies, cross-border transactions and private target companies.

$$(3) \log(Multiple_i) = \alpha + \beta_1 GPR_{i,t-1}^{deal} + \beta_2 Tech_i + \beta_3 Cross - Border_i + \beta_4 Private_i + \delta_t + \varepsilon_i$$

$Tech_i$ is a dummy variable equal to one for transactions in the technology sector and zero otherwise. In addition, $Cross - Border_i$ was constructed as dummy variable, taking the value of one for cross-border transactions and zero otherwise. To identify private target companies the dummy variable $Private_i$ takes the value one if the target is classified as private and zero for all other target statuses. The term δ_t denotes time fixed effects, which control for unobserved time-specific factors affecting all observations equally, including macroeconomic trends, market shocks and global economic conditions. The error term ε_i represents the idiosyncratic component of the model, capturing all unobserved factors influencing the dependent variables that are not explicitly included in the regression.

Building on the baseline model, the GPR is gradually replaced with different lagged values to capture potential time-lagged effects of geopolitical risks, presented in (4) with the letter ‘x’. This allows to examine whether the influence of geopolitical uncertainty is reflected in valuation multiples immediately or with a time lag. The remaining control variables remain unchanged across all models, so that the results of the individual specifications are directly comparable with one another.

$$(4) \log(Multiple_i) = \alpha + \beta_1 GPR_{i,t-x}^{deal} + \beta_2 Tech_i + \beta_3 Cross - Border_i + \beta_4 Private_i + \delta_t + \varepsilon_i$$

3.4.3. Baseline Model: Specification

Building on the presented methodology, the baseline model is extended by further specifications that additionally incorporate company-specific and macroeconomic control variables. These include profitability, leverage and liquidity at the company level, as well as macroeconomic factors such as GDP growth, inflation and interest rates.

This inclusion is necessary as valuation multiples are not influenced exclusively by geopolitical tensions but also depend on financials of companies and the macroeconomic environment.

$$(5) \log(Multiple_i) = \alpha + \beta_1 GPR_{i,t-1}^{deal} + \beta_2 X_i + \delta_t + \varepsilon_i$$

The model includes a vector of control variables (X_i), comprising deal characteristics and macroeconomic indicators. By controlling for these factors, the isolated effect of the GPR can be identified more precisely.

3.4.4. Sectoral Specification

The final part of the methodological analysis examines sectoral effects. In this context, the technology dummy variable is included in the model to capture differences between technology and non-technology companies.

$$(6) \log(Multiple_i) = \alpha + \beta_1 GPR_{i,t-1}^{deal} + \beta_2 Tech_i + \beta_3 (GPR_{i,t-1}^{deal} \times Tech_i) + \beta_4 X_i + \delta_t + \varepsilon_i$$

The interaction term between $Tech_i$ and GPR captures whether geopolitical tensions have a different impact on valuation multiples in the technology sector. This distinction is particularly important, given the fact that companies in different industries may deviate significantly in terms of structure. Technology companies can be evaluated with a stronger orientation towards growth (Damodaran, 2009) with valuations driven by future expectations, compared to

companies in other industries, which may be more influenced by current cash flows. As a result, technology companies could react more sensitively to changes in macroeconomic or other uncertainties arising from geopolitical tensions. Including a corresponding technology dummy variable thus makes it possible to systematically capture differences in this sensitivity.

4. Results and Robustness

Based on the presented methodology, this section presents and explains the results of the empirical analysis to explore the impact of geopolitical tensions on valuation multiples.

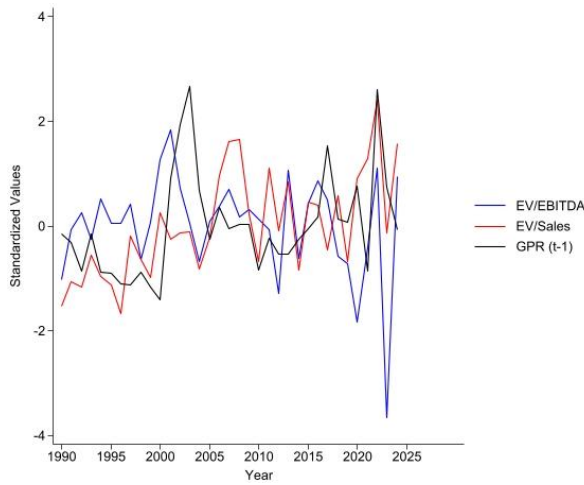
Before presenting the empirical results, a key point to consider is limited availability of financial data, particularly for private target companies. Therefore, the analysis is based on a reduced subsample, meaning the results should be interpreted with caution regarding their generalizability.

4.1. Preliminary Evidence: Valuation Multiples and Geopolitical Risk

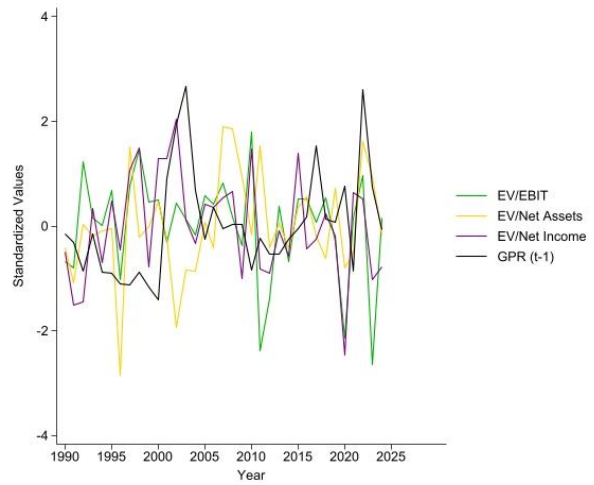
For the first indicative analysis, valuation multiples are examined in comparison with the GPR over the covered period from 1990 to 2024 to provide a first, descriptive overview of potential temporal correlations. Since all series have different scales a standardization was performed to ensure comparability.

The aim is to gain initial insights into the relationship and potential indications of the regression coefficients (β). Theoretically, the coefficient of geopolitical risk is expected to be negative, ideally statistically significant. An increase in geopolitical risk should influence the market environment for transactions by increasing uncertainty, causing investors to act more risk sensitively. This typically leads to adjustments in purchase prices and a willingness to pay lower valuation multiples. Consequently, a rise in geopolitical risk should be accompanied by a decline in the valuation multiples paid, which would be reflected in a negative β coefficient. Statistical significance of this relationship would be required to draw conclusions that changes in the multiples are indeed explained by geopolitical risk.

Figure 3.
Comparison of Valuation Multiples and Geopolitical Risk



Note: Time series of geopolitical risk (t-1) compared to the main analyzed valuation multiples.



Note: Time series of geopolitical risk (t-1) compared to valuation multiples for further robustness analysis.

Although the valuation multiples exhibit noticeable volatility over the observation period, they generally fluctuate within a range like the geopolitical risk index, apart from a few significant drawdowns. A visual examination suggests that periods of heightened geopolitical risk are often accompanied by increased volatility in valuation multiples, even if this relationship is not consistent over time. In particular, the sharp decline in the EV/EBITDA and EV/EBIT ratio in the early 2020s, as well as a few other drawdowns, reflects the sensitivity of valuation multiples to extreme market conditions. Overall, the graphical evidence points to possible correlations but does not prove a clear and visible causal relationship, thereby making the subsequent regression analysis even more important.

4.2. Baseline Results

First, the baseline regressions examine the fundamental relationship between geopolitical tensions and valuation multiples. The model will be built stepwise, including control variables successively into the regression. This procedure allows to determine the influence of the variables on the valuation multiples EV/EBITDA and EV/Sales and whether the effects change with the inclusion of further control variables. The starting point builds a baseline model where the logarithm of the valuation multiple is regressed on the lagged GPR index to obtain an initial indication of the isolated influence and significance. Subsequently, the most important control variables are added step by step to the model. This approach enables to test the robustness of the results and to identify which variables contribute significantly to changes in the estimation results and to the reduction in the number of available observations.

The summary table presents the GPR coefficients with their respective time lags and impact on the EV/EBITDA multiple. The detailed tables, containing all regression results, can be found in the Appendix A.1.1.

Table 4.
Baseline Results

Panel A: EV/EBITDA

	(1) EV/EBITDA	(2) EV/EBITDA	(3) EV/EBITDA	(4) EV/EBITDA	(5) EV/EBITDA
GPR (t-1)	-0.079 (0.066)	-0.064 (0.065)	-0.062 (0.067)	-0.061 (0.068)	-0.112 (0.084)
R-squared	0.002	0.008	0.008	0.008	0.150
Adj. R-squared	-0.001	0.001	-0.002	-0.006	0.027
GPR (t-3)	-0.087 (0.063)	-0.073 (0.062)	-0.071 (0.064)	-0.070 (0.064)	-0.124 (0.081)
R-squared	0.003	0.009	0.009	0.009	0.151
Adj. R-squared	-0.000	0.002	-0.002	-0.005	0.028
GPR (t-6)	-0.081 (0.064)	-0.065 (0.063)	-0.063 (0.065)	-0.062 (0.065)	-0.136* (0.081)
R-squared	0.003	0.008	0.008	0.008	0.151
Adj. R-squared	-0.001	0.001	-0.002	-0.005	0.029
GPR (t-12)	-0.105 (0.068)	-0.083 (0.069)	-0.081 (0.071)	-0.080 (0.072)	-0.156* (0.086)
R-squared	0.004	0.009	0.009	0.009	0.152
Adj. R-squared	0.001	0.002	-0.001	-0.005	0.030
Year FE	No	No	No	No	Yes
Observations	295	295	295	295	295

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Note: This table shows the regression results for the multiple EV/EBITDA across all lagged months, with a stepwise expansion of the model.

Furthermore, the presented results of the baseline coefficients of GPR for the EV/EBITDA valuation multiple reveal a negative, but no statistically significant relationship, across all models, between geopolitical tensions and valuation multiples. The negative coefficient suggests that rising geopolitical uncertainty tends to be associated with lower valuation multiples.

In most specifications, this relationship is not statistically significant. An exception are the specifications with six and twelve-period lags, which are represented in Table A3 and A4 in Appendix A.1.1. A negative and statistically significant effect can be observed at the 10% level, including year fixed effects, which control for general yearly valuation conditions. As a result, the influence of geopolitical tensions may not be reflected immediately in valuations for transactions, but rather with a time lag. This could be explained by the fact that geopolitical

uncertainty only gradually affects transaction valuations through changes in expectations, financing terms and negotiating positions. However, since year fixed effects absorb a substantial part of macroeconomic variation and the significance is only observed at the 10% level, this result should be interpreted with caution and understood more as an indication of a delayed negative relationship.

After examining EV/EBITDA, the analysis shifts to EV/Sales, which complements the previous results.

Table 4. (continued)
Panel B: EV/Sales

	(1) EV/Sales	(2) EV/Sales	(3) EV/Sales	(4) EV/Sales	(5) EV/Sales
GPR (t-1)	-0.091 (0.056)	-0.092 (0.057)	-0.086 (0.057)	-0.083 (0.057)	-0.070 (0.057)
R-squared	0.002	0.003	0.003	0.005	0.124
Adj. R-squared	0.001	-0.000	-0.001	-0.001	0.073
GPR (t-3)	-0.110* (0.065)	-0.111* (0.065)	-0.105 (0.065)	-0.102 (0.065)	-0.080 (0.071)
R-squared	0.003	0.003	0.004	0.006	0.124
Adj. R-squared	0.002	0.001	-0.000	-0.000	0.074
GPR (t-6)	-0.133* (0.070)	-0.135* (0.070)	-0.129* (0.071)	-0.127* (0.071)	-0.099 (0.078)
R-squared	0.004	0.004	0.005	0.006	0.124
Adj. R-squared	0.002	0.001	0.001	0.001	0.074
GPR (t-12)	-0.153** (0.076)	-0.157** (0.077)	-0.150* (0.078)	-0.148* (0.078)	-0.116 (0.086)
R-squared	0.004	0.005	0.005	0.007	0.124
Adj. R-squared	0.003	0.002	0.001	0.001	0.074
Year FE	No	No	No	No	Yes
Observations	702	702	702	702	702

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Note: This table shows the regression coefficients for the multiple EV/Sales across all lagged months, with a stepwise expansion of the model.

The results for the EV/Sales multiple, in this table and in Appendix A.1.2., show a similar pattern compared to the EV/EBITDA results. The coefficient of the GPR is consistently negative across all specifications, suggesting that rising geopolitical uncertainty tends to be associated with lower sales multiples.

In contrast to the results for EV/EBITDA, EV/Sales presents a statistical significance in more individual specifications. Only the one-month time lag specification does not indicate a negative and statistically significant relationship over all observations. The results for GPR for six and twelve months are particularly noteworthy. In the baseline specifications (1) and (2), a negative and statistically significant relationship at the 10% level for t-6 and 5% level for t-12

is observed. In the extended specifications (3) and (4), the effect remains negative and statistically significant, although the significance level appears at the 10% level for both time-lags. Only when year fixed effects are included in specification (5) the coefficient does lose its statistical significance completely.

This pattern supports the previously established hypothesis that geopolitical risk is better reflected in valuations when a time lag is factored in. Particularly for EV/Sales geopolitical uncertainty appears to have a lasting impact, as buyers may assess future revenue potential with greater caution. This can be reflected in lower multiples, as assumptions may be questioned more critically.

However, the loss of significance following the inclusion of year fixed effects suggests that part of this effect could be explained by general time-dependent macroeconomic developments. Since geopolitical risks often occur alongside other macroeconomic factors such as interest rate changes, inflation or economic recessions, it is empirically difficult to clearly identify their isolated influence. The control variables in the regression of EV/Sales do not show consistently significant effects, as in the EV/EBITDA regressions. The results imply that, geopolitical uncertainty should be considered with caution in sales-based valuations and it may be advisable to use scenario analyses, more conservative sales forecasts, higher risk discounts or flexible deal structures.

Overall, the results show that geopolitical tensions may have a delayed negative effect on valuation multiples. Compared to EV/EBITDA, this effect appears to be stronger for EV/Sales, but its robustness remains limited and should therefore be interpreted with caution and in context of broader macroeconomic developments.

For management and M&A advisors, both findings imply that geopolitical risk should not merely be considered as a general macroeconomic background factor, but should be actively incorporated into valuation models, scenario analyses and negotiations. Particularly for transactions during uncertain market phases, sensitivity analyses, risk-adjusted multiples, earn-out structures or purchase price adjustment mechanisms can be useful for better capturing valuation uncertainty.

4.3. Baseline Model: Specification Results

Following a closer examination of the baseline results, the subsequent section will examine the specification results, in which the additional control variables have been incorporated into the model.

While the results for each specification of the EV/EBITDA multiple are consistently negative, shown in Appendix A.2.1., the coefficients of the GPR are never statistically significant. Therefore, no conclusions can be drawn regarding the GPR's influence on the multiple. Besides that, examining the EV/Sales multiple the results appear different and with a much more significant relationship than presented before.

Table 5.
Specification Regression Results: EV/Sales

	(1) EV/Sales	(2) EV/Sales	(3) EV/Sales	(4) EV/Sales	(5) EV/Sales	(6) EV/Sales
GPR (t-1)	-0.091 (0.056)	-0.083 (0.057)	-0.124** (0.057)	-0.119** (0.056)	-0.175** (0.080)	-0.182* (0.105)
R-squared	0.002	0.005	0.019	0.050	0.117	0.256
Adj. R-squared	0.001	-0.001	0.003	0.025	0.065	0.032
GPR (t-3)	-0.110* (0.065)	-0.102 (0.065)	-0.153** (0.060)	-0.147** (0.059)	-0.165** (0.076)	-0.180* (0.100)
R-squared	0.003	0.006	0.021	0.053	0.117	0.257
Adj. R-squared	0.002	-0.000	0.005	0.028	0.065	0.033
GPR (t-6)	-0.133* (0.070)	-0.127* (0.071)	-0.181** (0.073)	-0.191*** (0.071)	-0.177** (0.082)	-0.204* (0.111)
R-squared	0.004	0.006	0.021	0.055	0.118	0.257
Adj. R-squared	0.002	0.001	0.006	0.031	0.065	0.033
GPR (t-12)	-0.153** (0.076)	-0.148* (0.078)	-0.208** (0.088)	-0.238*** (0.083)	-0.220** (0.090)	-0.250* (0.130)
R-squared	0.004	0.007	0.022	0.059	0.121	0.260
Adj. R-squared	0.003	0.001	0.007	0.034	0.069	0.037
Year FE	No	No	No	No	No	Yes
Observations	702	702	323	235	178	178

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Note: This table presents the coefficients of the multiple EV/Sales across all lagged months, with a stepwise expansion of the model and the inclusion of additional control variables.

The results for EV/Sales, full tables in Appendix A.2.2., show a much more consistent pattern and remarkably, their significance in the overall appearance is clearly more pronounced than before. Across all lag structures, the GPR coefficient is negative, suggesting that higher geopolitical uncertainty is associated with lower EV/Sales multiples.

For the one-month lag, the effect is consistently negative but only becomes statistically significant after including control variables. This implies that the relationship between GPR and EV/Sales may have been affected by omitted variable bias, as the effect is initially obscured by other deal and company characteristics. For longer lags, particularly six and twelve months, the negative effect becomes stronger and remains statistically significant across all specifications. This may indicate that geopolitical risk is not priced into transaction valuations immediately,

but rather with a time lag. In all complete specifications (6), including year fixed effects as well, the coefficient is negative and significant at the 10% level. This suggests that part of the relationship is explained by general trends over time, but the negative relationship between geopolitical risk and EV/sales multiples does not disappear entirely.

Nevertheless, the increasing significance of the GPR coefficient, after incorporating profitability and leverage into (3) and (4) respectively, is notable compared to the baseline model. This could indicate that the relationship was previously overlapped by these company-specific valuation characteristics, as they are key determinants in a transaction process and could lead to a distortion of the GPR effect.

The results suggest that EV/sales multiples are more sensitive to geopolitical uncertainty than EV/EBITDA multiples. However, this should be interpreted with caution, as the sample size has decreased significantly due to the increase in the number of control variables. In terms of M&A transactions, this highlights that geopolitical tensions should be incorporated into valuation assumptions. Particularly when using revenue multiples, a high level of geopolitical risk may require a more conservative assessment of business plans and exit multiples. On the one hand, this increases the pressure for targets to demonstrate the resilience of revenue projections and the business model's ability to resist geopolitical tensions. On the other hand, the findings provide empirical justification for buyer to apply lower EV/Sales multiples or stronger risk discounts in the valuation for rising geopolitical tensions.

4.4. Sectoral Effects

The final aspect of the research question is sectoral effects. The objective is to examine whether geopolitical tensions have a different impact on valuation multiples for technology, than for non-technology companies.

To analyze this effect, a dummy variable is included in the model to account for structural differences. In this case, an interaction term between the lagged GPR and the technology dummy variable is included as well.

The results, which are presented in detail in Appendix B.1. and B.2., provide only limited evidence of systematic differences between technology and non-technology companies. For EV/EBITDA, neither the direct GPR effect nor the interaction term is consistently significant. This suggests that this specification does not reveal a stable industry-specific effect of geopolitical tensions. The technology dummy variable is not itself significant, meaning no clear valuation differential can be found.

Conversely, regarding EV/Sales the results could provide evidence of an industry-specific difference. The coefficient of the interaction term between GPR and technology companies is negative in the baseline and extended specifications across all lag structures. This means that the relationship between geopolitical tensions and EV/Sales multiples could be more negative for technology companies.

In the baseline specifications, the interaction term between GPR and Technology is statistically significant at a 5% level for t-1, t-3 and t-6 lags without year fixed effects. This suggests that geopolitical risk may be more strongly associated with lower EV/Sales multiples for technology companies. At the same time, the GPR effect remains significant across multiple lag structures in the extended EV/Sales specification, except for the t-1 and t-12 specifications. However, the significance of the interaction term disappears as soon as year fixed effects are included, suggesting that the effect is not fully robust controlling for these influences. One possible explanation could be that a part of the difference between technology and non-technology companies could be explained by general valuation conditions in certain years or other macroeconomic developments.

Overall, these findings are relevant to M&A stakeholders, as technology companies often rely on future growth expectations, scalability and intangible value drivers. Geopolitical uncertainty increases the uncertainty associated with these future assumptions and can therefore lead to higher risk premiums. For this reason, assumptions made under geopolitical stress scenarios should be scrutinized particularly closely.

After presenting and discussing the main results, the following section focuses on the supplementary robustness analyses.

4.5. Robustness Checks

After assessing the empirical findings, the robustness analysis serves to verify the stability and reliability of the presented results. This section employs additional specifications to test the sensitivity of the results to different model inputs.

Specifically, other valuation metrics such as EV/EBIT, EV/Net Assets and EV/Net Income are considered. The aim is to examine whether the observed relationships persist or differ using alternative multiples. Furthermore, the analysis is expanded to alternative measures of uncertainty. While the GPR specifically reflects geopolitical tensions, the VIX primarily reflects volatility in financial markets and therefore short-term risk perception of investors. On the other hand, the Economic Policy Uncertainty (EPU) Index measures uncertainty related to economic

policy decisions and regulatory frameworks. The inclusion of these alternative indicators, capturing different dimensions of uncertainty, enables the verification of the results and whether these effects are attributable to geopolitical risk or reflect broader uncertainty.

Overall, the robustness analysis helps to strengthen the validity of the empirical results and reduce potential biases arising from the model or variable selection.

4.5.1. EV/EBIT Multiple

The EV/EBIT multiple is the first to be evaluated for robustness.

Table 6.
Baseline Results: EV/EBIT

	(1) EV/EBIT	(2) EV/EBIT	(3) EV/EBIT	(4) EV/EBIT	(5) EV/EBIT
GPR (t-1)	-0.101** (0.042)	-0.094** (0.045)	-0.092** (0.046)	-0.098** (0.045)	-0.128** (0.052)
R-squared	0.005	0.010	0.010	0.015	0.168
Adj. R-squared	0.002	0.004	0.002	0.003	0.064
GPR (t-3)	-0.106** (0.054)	-0.097* (0.056)	-0.094 (0.057)	-0.102* (0.057)	-0.136** (0.065)
R-squared	0.005	0.010	0.010	0.014	0.167
Adj. R-squared	0.002	0.004	0.001	0.003	0.064
GPR (t-6)	-0.095 (0.065)	-0.083 (0.066)	-0.079 (0.067)	-0.088 (0.067)	-0.136* (0.079)
R-squared	0.003	0.008	0.008	0.013	0.166
Adj. R-squared	0.000	0.002	-0.001	0.001	0.062
GPR (t-12)	-0.100 (0.068)	-0.080 (0.072)	-0.075 (0.073)	-0.085 (0.073)	-0.135 (0.085)
R-squared	0.003	0.007	0.008	0.012	0.165
Adj. R-squared	-0.000	0.002	-0.001	0.001	0.061
Year FE	No	No	No	No	Yes
Observations	345	345	345	345	345

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Note: This table shows the regression coefficients for the EV/EBIT multiple across all different lagged months.

Overall, the coefficients for EV/EBIT are consistently negative across all lag structures and model specifications. This suggests that higher geopolitical risk tends to be associated with lower EV/EBIT multiples. The effect is particularly pronounced for the short-term lag (t-1), as the coefficient is negative in all specifications and statistically significant at the 5% level. For the specification t-3 the relationship remains significant in several models, although the significance is weaker compared to the one-month lag. For longer time lags, the robustness of the effect decreases almost completely, besides a statistically significant specification with year fixed effects at t-6.

Compared to the valuation multiples examined earlier, EV/EBIT exhibits a different pattern. While EV/EBITDA and EV/Sales tend to show stronger and more significant correlations with longer lags of the GPR, for EV/EBIT the results are observed with shorter lags. This suggests that EV/EBIT may react more quickly to geopolitical uncertainty than the other multiples. A reason for that could be that the multiple is more dependent on short-term operational profitability. EBIT takes depreciation and amortization into account and thus provides a more accurate indication of a company's capital intensity and operating profitability.

From the perspective of an M&A investor, an increase in geopolitical tensions could therefore lead to a reassessment of expected profitability and cost structures in the short-term. In contrast, EV/EBITDA and EV/Sales appear to be more strongly influenced by longer-term factors.

4.5.2. EV/Net Assets and EV/Net Income Multiple

The results for the alternative valuation multiples EV/Net Assets and EV/Net Income generally present a consistent picture regarding the impact of geopolitical tensions, although statistical significance remains limited across various specifications.

For EV/Net Assets, the GPR yields a predominantly negative coefficient across the different lag structures, suggesting that rising geopolitical uncertainty tends to be associated with lower valuation multiples. However, this relationship is not statistically significant and loses further significance, particularly when fixed effects are considered.

A similar pattern emerges for EV/Net Income. In this context the coefficients of the GPR are predominantly negative, although weak significance is observed in individual specifications, particularly for lags t-3, t-6 and t-12 when controlling for year fixed effects. This suggests that the influence of geopolitical risks may be reflected in valuations with a time lag.

The control variables show largely stable effects across both multiples. While there tend to be no significant differences for technology companies, cross-border transactions consistently exhibit positive, but non-significant, coefficients. The private-sector dummy variable also shows no consistent or significant effects.

Overall, the results suggest that while the influence of geopolitical tensions on these valuation multiples tends to be negative, it appears less robust. The results should therefore be interpreted primarily as supplementary evidence and will not be discussed in the same level of detail.

4.5.3. Implementing Market Volatility (VIX)

Furthermore, the model is stress-tested using the Chicago Board Options Exchange Volatility Index (VIX) as an alternative measure of uncertainty to determine whether the results reflect general financial market uncertainty rather than geopolitical risk. The data for the VIX is sourced from the ‘Federal Reserve Economic Data’ (FRED) database and is assigned to each deal, based on the announcement date, to reflect the prevailing conditions at the time of the transaction.

The following table will focus solely on the direct impact of the VIX on the respective multiple, whereas the complete tables are included in the Appendix C.1.

Table 7.
Summary Robustness Regression Results: VIX

	(1) EV/EBITDA	(2) EV/Sales	(3) EV/EBIT	(4) EV/Net Assets	(5) EV/Net Income
VIX	0.005 (0.013)	0.022* (0.012)	0.004 (0.013)	0.045*** (0.015)	0.011 (0.014)
Year FE	No	No	No	No	No
Observations	295	702	345	474	409
R-squared	0.001	0.009	0.000	0.042	0.003
Adj. R-squared	-0.003	0.008	-0.002	0.040	0.000

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Based on these simplified specifications, it becomes evident that only two multiples exhibit statistically significant results. Surprisingly, all multiples are positively influenced. One reason for this may be, as market volatility increases, riskier transactions are postponed and the deals completed are therefore of greater quality and may justify higher multiples.

However, including all control variables and year fixed effects, the VIX coefficients lose all significance and turn into a negative relationship. Given the economic context, it is expected that increased volatility should be accompanied by higher risk premiums in transactions with lower valuations. However, since these results are not significant, they cannot provide robust evidence of VIX’s influence on multiples.

4.5.4. Implementing Economic Policy Uncertainty (EPU)

Further stress-tests for economic policy uncertainty using the EPU developed by Baker, Bloom and Davis (2016) are considered. The EPU captures uncertainties related to fiscal, regulatory and monetary policy and is obtained from the author’s official website.

Capturing a different source of uncertainty compared to the GPR, the EPU is especially noteworthy as additional robustness check. The objective is to determine whether valuation multiples generally reflect sensitivity to political and economic uncertainty or specific implications for geopolitical tensions can be identified. The detailed results are presented in the Appendix C.2.

Table 8.
Summary Robustness Regression Results: EPU

	(1) EV/EBITDA	(2) EV/Sales	(3) EV/EBIT	(4) EV/Net Assets	(5) EV/Net Income
EPU (t-1)	-0.004** (0.001)	0.004*** (0.001)	-0.004*** (0.001)	0.003* (0.002)	-0.003** (0.001)
R-squared	0.023	0.014	0.026	0.011	0.011
Adj. R-squared	0.020	0.013	0.023	0.009	0.009
EPU (t-3)	-0.003** (0.002)	0.004*** (0.001)	-0.005*** (0.002)	0.003 (0.002)	-0.003** (0.001)
R-squared	0.016	0.014	0.027	0.007	0.015
Adj. R-squared	0.012	0.013	0.024	0.004	0.012
EPU (t-6)	-0.004** (0.002)	0.004*** (0.001)	-0.005*** (0.002)	0.001 (0.002)	-0.004*** (0.001)
R-squared	0.019	0.014	0.033	0.002	0.017
Adj. R-squared	0.015	0.013	0.030	-0.000	0.015
EPU (t-12)	-0.004*** (0.002)	0.005*** (0.002)	-0.006*** (0.002)	0.000 (0.001)	-0.005*** (0.002)
R-squared	0.025	0.015	0.038	0.000	0.023
Adj. R-squared	0.022	0.013	0.036	-0.002	0.020
Year FE	No	No	No	No	No
Observations	295	702	345	474	409

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

The robustness results initially show statistically significant coefficients across all specifications, except for EV/Net Assets. However, including additional control variables and year fixed effects, the coefficients lose their statistical significance. The EPU is closely linked to general macroeconomic conditions and may therefore reflect not only economic policy uncertainty but also other factors that occur simultaneously with uncertainty, such as changes in the interest rate environment or inflation. This suggests that the initially significant relationship should not be interpreted as an independent EPU effect but rather may be driven by general macroeconomic and temporally specific factors. As a result, the results cannot provide robust evidence that economic policy uncertainty exerts an independent influence on valuation multiples.

5. Limitations

Some methodological and data related limitations apply to the results described, which must be considered when interpreting these findings. Despite accounting for different lag structures in the GPR, the utilization of various control variables and robustness analyses, certain limitations cannot be entirely avoided. These limitations include the availability of financial data, the measurement of geopolitical risk, heterogeneity across companies and the empirical distinction between geopolitical risks and other macroeconomic developments.

The first key limitation of this analysis arises from limited availability of data. A significant portion of the transactions examined involve unlisted target companies for which no complete data on financial information were available. This significantly reduces the number of usable observations in the regression models. Consequently, the empirical analysis is based on a significantly restricted sample, which limits the generalizability of the results.

Furthermore, another limitation is the application of the GPR index as a proxy for geopolitical risk. Since the index is based on newspapers from the U.S., UK and Canada, it primarily reflects geopolitical risk from a Western media perspective. As a result, regional differences in the perception of geopolitical risks can only be captured to a limited extent. This is particularly relevant because the impact of an identical geopolitical event can be different depending on the country, industry or company. Depending on the type of shock, market participants may exhibit heterogeneous responses, which can only be partially captured in the model, as the index serves as an approximation of the actual risk exposure of individual transactions.

An additional challenge for measuring the effect of geopolitical risk arises from a simultaneous occurrence of macroeconomic shocks. Periods of heightened uncertainty are often associated with changes in inflation, interest rates, energy prices or market volatility. Consequently, it is empirically difficult to fully isolate the effect from other concurrent shocks.

Furthermore, the application of a linear relationship between geopolitical risk and valuation multiples limits the ability to capture potential nonlinear or thresholds effects. While robust standard errors improve inference in the presence of heteroscedastic error terms, they do not address potential model specification errors or unobserved exogenous factors.

Finally, because of the limitations mentioned, the results cannot be directly applied to other contexts or markets and should be interpreted as statistical correlations rather than as clear causal effects.

6. Conclusion

The objective of this study was to examine whether geopolitical risk empirically influences valuation multiples in M&A transactions, with a particular focus on whether higher GPR values are associated with lower multiples and whether this relationship differs between technology and non-technology companies. For this purpose, lagged GPR values of one, three, six and twelve months were used to account for potential time-lagged effects prior to the announcement of the transaction.

Overall, the results indicate a predominantly negative relationship between geopolitical risk and valuation multiples. This relationship is particularly pronounced for EV/Sales, as the GPR coefficients are negative across multiple lag structures and are statistically significant in various specifications. This suggests that sales multiples are particularly sensitive to geopolitical uncertainty, as they depend more heavily on future growth expectations. For EV/EBITDA, the evidence is less conclusive. While the coefficients are predominantly negative as well, the statistical significance is generally less pronounced.

The analysis of sectoral effects also suggests that technology companies may be more sensitive to geopolitical risk. Furthermore, robustness analyses show that uncertainty can generally be linked to valuation multiples, but the effects do not remain consistently significant across all specifications. This emphasizes that geopolitical risk is closely linked to other macroeconomic factors and can empirically only be isolated to a limited extent.

From a practical perspective, the results suggest that geopolitical risks may be considered more carefully in M&A valuations. At the same time, the results must be interpreted in context of limited data availability and the GPR represents merely a proxy variable that cannot fully capture specific regional, sectoral or transactional differences. However, the study demonstrates that geopolitical risk can potentially have a relevant influence on valuation multiples in M&A transactions.

Declaration on the Use of AI

I hereby declare that, in the process of creating this dissertation, I used AI tools to improve spelling, grammar and linguistic refinement, thereby ensuring a smoother reading experience for the reader.

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Appendix

Appendix A: Additional Baseline Regression Results

A.1. Baseline Regressions by Valuation Multiple

A.1.1. Baseline Results: EV/EBITDA

Table A1: EV/EBITDA

	(1) EV/EBITDA	(2) EV/EBITDA	(3) EV/EBITDA	(4) EV/EBITDA	(5) EV/EBITDA
GPR (t-1)	-0.079 (0.066)	-0.064 (0.065)	-0.062 (0.067)	-0.061 (0.068)	-0.112 (0.084)
Tech		-0.382 (0.234)	-0.388 (0.240)	-0.387 (0.240)	-0.224 (0.221)
Cross-Border			0.024 (0.159)	0.024 (0.160)	0.014 (0.156)
Private				0.022 (0.270)	0.224 (0.275)
Constant	2.559*** (0.087)	2.581*** (0.090)	2.570*** (0.119)	2.567*** (0.122)	2.056*** (0.463)
Year FE	No	No	No	No	Yes
Observations	295	295	295	295	295
R-squared	0.002	0.008	0.008	0.008	0.150
Adj. R-squared	-0.001	0.001	-0.002	-0.006	0.027

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A2: EV/EBITDA

	(1) EV/EBITDA	(2) EV/EBITDA	(3) EV/EBITDA	(4) EV/EBITDA	(5) EV/EBITDA
GPR (t-3)	-0.087 (0.063)	-0.073 (0.062)	-0.071 (0.064)	-0.070 (0.064)	-0.124 (0.081)
Tech		-0.379 (0.234)	-0.384 (0.240)	-0.383 (0.240)	-0.220 (0.221)
Cross-Border			0.020 (0.160)	0.021 (0.160)	0.009 (0.156)
Private				0.020 (0.270)	0.223 (0.275)
Constant	2.562*** (0.087)	2.585*** (0.089)	2.575*** (0.119)	2.573*** (0.122)	2.052*** (0.465)
Year FE	No	No	No	No	Yes
Observations	295	295	295	295	295
R-squared	0.003	0.009	0.009	0.009	0.151
Adj. R-squared	-0.000	0.002	-0.002	-0.005	0.028

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A3: EV/EBITDA

	(1) EV/EBITDA	(2) EV/EBITDA	(3) EV/EBITDA	(4) EV/EBITDA	(5) EV/EBITDA
GPR (t-6)	-0.081 (0.064)	-0.065 (0.063)	-0.063 (0.065)	-0.062 (0.065)	-0.136* (0.081)
Tech		-0.380 (0.234)	-0.385 (0.241)	-0.384 (0.241)	-0.207 (0.222)
Cross-Border			0.023 (0.159)	0.023 (0.160)	0.005 (0.156)
Private				0.022 (0.270)	0.223 (0.275)
Constant	2.560***	2.581***	2.571***	2.568***	2.049***

	(0.087)	(0.089)	(0.118)	(0.122)	(0.465)
Year FE	No	No	No	No	Yes
Observations	295	295	295	295	295
R-squared	0.003	0.008	0.008	0.008	0.151
Adj. R-squared	-0.001	0.001	-0.002	-0.005	0.029

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A4: EV/EBITDA

	(1) EV/EBITDA	(2) EV/EBITDA	(3) EV/EBITDA	(4) EV/EBITDA	(5) EV/EBITDA
GPR (t-12)	-0.105 (0.068)	-0.083 (0.069)	-0.081 (0.071)	-0.080 (0.072)	-0.156* (0.086)
Tech		-0.360 (0.239)	-0.365 (0.246)	-0.364 (0.246)	-0.177 (0.226)
Cross-Border			0.020 (0.159)	0.020 (0.159)	0.005 (0.156)
Private				0.018 (0.270)	0.222 (0.275)
Constant	2.570*** (0.088)	2.587*** (0.090)	2.578*** (0.119)	2.576*** (0.122)	2.050*** (0.464)
Year FE	No	No	No	No	Yes
Observations	295	295	295	295	295
R-squared	0.004	0.009	0.009	0.009	0.152
Adj. R-squared	0.001	0.002	-0.001	-0.005	0.030

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

A.1.2. Baseline Results: EV/Sales

Table A5: EV/Sales

	(1) EV/Sales	(2) EV/Sales	(3) EV/Sales	(4) EV/Sales	(5) EV/Sales
GPR (t-1)	-0.091 (0.056)	-0.092 (0.057)	-0.086 (0.057)	-0.083 (0.057)	-0.070 (0.057)
Tech		0.133 (0.239)	0.124 (0.239)	0.122 (0.238)	-0.044 (0.253)
Cross-Border			0.099 (0.136)	0.103 (0.136)	0.040 (0.136)
Private				0.227 (0.219)	0.072 (0.222)
Constant	0.606*** (0.073)	0.595*** (0.075)	0.551*** (0.098)	0.527*** (0.101)	-0.277 (0.279)
Year FE	No	No	No	No	Yes
Observations	702	702	702	702	702
R-squared	0.002	0.003	0.003	0.005	0.124
Adj. R-squared	0.001	-0.000	-0.001	-0.001	0.073

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A6: EV/Sales

	(1) EV/Sales	(2) EV/Sales	(3) EV/Sales	(4) EV/Sales	(5) EV/Sales
GPR (t-3)	-0.110* (0.065)	-0.111* (0.065)	-0.105 (0.065)	-0.102 (0.065)	-0.080 (0.071)
Tech		0.136 (0.239)	0.126 (0.239)	0.124 (0.237)	-0.041 (0.253)
Cross-Border			0.096 (0.136)	0.100 (0.136)	0.040 (0.136)
Private				0.224 (0.219)	0.072 (0.222)

Constant	0.615*** (0.074)	0.604*** (0.076)	0.560*** (0.099)	0.536*** (0.102)	-0.272 (0.279)
Year FE	No	No	No	No	Yes
Observations	702	702	702	702	702
R-squared	0.003	0.003	0.004	0.006	0.124
Adj. R-squared	0.002	0.001	-0.000	-0.000	0.074

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A7: EV/Sales

	(1) EV/Sales	(2) EV/Sales	(3) EV/Sales	(4) EV/Sales	(5) EV/Sales
GPR (t-6)	-0.133* (0.070)	-0.135* (0.070)	-0.129* (0.071)	-0.127* (0.071)	-0.099 (0.078)
Tech		0.141 (0.239)	0.132 (0.239)	0.130 (0.237)	-0.037 (0.253)
Cross-Border			0.094 (0.136)	0.097 (0.136)	0.039 (0.136)
Private				0.228 (0.218)	0.076 (0.222)
Constant	0.624*** (0.075)	0.612*** (0.077)	0.570*** (0.100)	0.546*** (0.102)	-0.266 (0.278)
Year FE	No	No	No	No	Yes
Observations	702	702	702	702	702
R-squared	0.004	0.004	0.005	0.006	0.124
Adj. R-squared	0.002	0.001	0.001	0.001	0.074

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A8: EV/Sales

	(1) EV/Sales	(2) EV/Sales	(3) EV/Sales	(4) EV/Sales	(5) EV/Sales
GPR (t-12)	-0.153** (0.076)	-0.157** (0.077)	-0.150* (0.078)	-0.148* (0.078)	-0.116 (0.086)
Tech		0.154 (0.239)	0.144 (0.239)	0.142 (0.238)	-0.027 (0.254)
Cross-Border			0.092 (0.136)	0.096 (0.136)	0.038 (0.136)
Private				0.227 (0.218)	0.076 (0.223)
Constant	0.631*** (0.076)	0.619*** (0.077)	0.577*** (0.100)	0.554*** (0.103)	-0.258 (0.277)
Year FE	No	No	No	No	Yes
Observations	702	702	702	702	702
R-squared	0.004	0.005	0.005	0.007	0.124
Adj. R-squared	0.003	0.002	0.001	0.001	0.074

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

A.1.3. Baseline Results: EV/EBIT

Table A9: EV/EBIT

	(1) EV/EBIT	(2) EV/EBIT	(3) EV/EBIT	(4) EV/EBIT	(5) EV/EBIT
GPR (t-1)	-0.101** (0.042)	-0.094** (0.045)	-0.092** (0.046)	-0.098** (0.045)	-0.128** (0.052)
Tech		-0.411 (0.280)	-0.419 (0.284)	-0.420 (0.285)	-0.370 (0.271)
Cross-Border			0.041 (0.161)	0.038 (0.161)	0.059 (0.155)
Private				-0.333	-0.051

Constant	2.945*** (0.084)	2.969*** (0.086)	2.952*** (0.109)	(0.283) 2.988*** (0.109)	(0.305) 2.527*** (0.432)
Year FE	No	No	No	No	Yes
Observations	345	345	345	345	345
R-squared	0.005	0.010	0.010	0.015	0.168
Adj. R-squared	0.002	0.004	0.002	0.003	0.064

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A10: EV/EBIT

	(1) EV/EBIT	(2) EV/EBIT	(3) EV/EBIT	(4) EV/EBIT	(5) EV/EBIT
GPR (t-3)	-0.106** (0.054)	-0.097* (0.056)	-0.094 (0.057)	-0.102* (0.057)	-0.136** (0.065)
Tech		-0.409 (0.280)	-0.417 (0.285)	-0.417 (0.286)	-0.370 (0.271)
Cross-Border			0.041 (0.161)	0.038 (0.161)	0.057 (0.156)
Private				-0.332 (0.283)	-0.049 (0.305)
Constant	2.946*** (0.086)	2.969*** (0.088)	2.952*** (0.110)	2.988*** (0.111)	2.522*** (0.432)
Year FE	No	No	No	No	Yes
Observations	345	345	345	345	345
R-squared	0.005	0.010	0.010	0.014	0.167
Adj. R-squared	0.002	0.004	0.001	0.003	0.064

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A11: EV/EBIT

	(1) EV/EBIT	(2) EV/EBIT	(3) EV/EBIT	(4) EV/EBIT	(5) EV/EBIT
GPR (t-6)	-0.095 (0.065)	-0.083 (0.066)	-0.079 (0.067)	-0.088 (0.067)	-0.136* (0.079)
Tech		-0.410 (0.282)	-0.419 (0.286)	-0.419 (0.287)	-0.369 (0.273)
Cross-Border			0.046 (0.161)	0.043 (0.161)	0.061 (0.156)
Private				-0.328 (0.283)	-0.046 (0.306)
Constant	2.939*** (0.087)	2.962*** (0.088)	2.942*** (0.111)	2.978*** (0.111)	2.514*** (0.431)
Year FE	No	No	No	No	Yes
Observations	345	345	345	345	345
R-squared	0.003	0.008	0.008	0.013	0.166
Adj. R-squared	0.000	0.002	-0.001	0.001	0.062

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A12: EV/EBIT

	(1) EV/EBIT	(2) EV/EBIT	(3) EV/EBIT	(4) EV/EBIT	(5) EV/EBIT
GPR (t-12)	-0.100 (0.068)	-0.080 (0.072)	-0.075 (0.073)	-0.085 (0.073)	-0.135 (0.085)
Tech		-0.399 (0.287)	-0.409 (0.292)	-0.407 (0.293)	-0.347 (0.276)
Cross-Border			0.050 (0.161)	0.047 (0.161)	0.066 (0.156)
Private				-0.327 (0.283)	-0.043 (0.306)

Constant	2.941*** (0.088)	2.959*** (0.089)	2.938*** (0.111)	2.974*** (0.112)	2.508*** (0.431)
Year FE	No	No	No	No	Yes
Observations	345	345	345	345	345
R-squared	0.003	0.007	0.008	0.012	0.165
Adj. R-squared	-0.000	0.002	-0.001	0.001	0.061

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

A.1.4. Baseline Results: EV/Net Assets

Table A13: EV/Net Assets

	(1) EV/Net Assets b/se	(2) EV/Net Assets b/se	(3) EV/Net Assets b/se	(4) EV/Net Assets b/se	(5) EV/Net Assets b/se
GPR (t-1)	-0.054 (0.052)	-0.056 (0.053)	-0.047 (0.053)	-0.042 (0.053)	-0.041 (0.061)
Tech		0.308 (0.390)	0.285 (0.390)	0.271 (0.389)	0.197 (0.343)
Cross-Border			0.150 (0.162)	0.152 (0.162)	0.082 (0.173)
Private				0.314 (0.218)	0.372 (0.229)
Constant	1.474*** (0.083)	1.450*** (0.082)	1.386*** (0.103)	1.354*** (0.107)	1.123*** (0.398)
Year FE	No	No	No	No	Yes
Observations	474	474	474	474	474
R-squared	0.001	0.004	0.005	0.008	0.115
Adj. R-squared	-0.001	-0.001	-0.001	-0.000	0.038

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A14: EV/Net Assets

	(1) EV/Net Assets b/se	(2) EV/Net Assets b/se	(3) EV/Net Assets b/se	(4) EV/Net Assets b/se	(5) EV/Net Assets b/se
GPR (t-3)	-0.075 (0.068)	-0.078 (0.069)	-0.066 (0.069)	-0.060 (0.070)	-0.056 (0.077)
Tech		0.312 (0.390)	0.289 (0.390)	0.275 (0.390)	0.200 (0.343)
Cross-Border			0.145 (0.162)	0.148 (0.162)	0.080 (0.173)
Private				0.311 (0.218)	0.372 (0.229)
Constant	1.482*** (0.084)	1.458*** (0.084)	1.394*** (0.104)	1.363*** (0.109)	1.130*** (0.397)
Year FE	No	No	No	No	Yes
Observations	474	474	474	474	474
R-squared	0.002	0.004	0.006	0.009	0.115
Adj. R-squared	-0.000	-0.000	-0.001	0.000	0.038

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A15: EV/Net Assets

	(1) EV/Net Assets b/se	(2) EV/Net Assets b/se	(3) EV/Net Assets b/se	(4) EV/Net Assets b/se	(5) EV/Net Assets b/se
GPR (t-6)	-0.075 (0.093)	-0.081 (0.093)	-0.066 (0.094)	-0.058 (0.094)	-0.047 (0.102)
Tech		0.316 (0.391)	0.291 (0.391)	0.276 (0.391)	0.201 (0.344)
Cross-Border			0.148	0.152	0.084

			(0.161)	(0.161)	(0.173)
Private				0.313	0.375
				(0.218)	(0.229)
Constant	1.480***	1.457***	1.391***	1.358***	1.122***
	(0.086)	(0.085)	(0.106)	(0.110)	(0.398)
Year FE	No	No	No	No	Yes
Observations	474	474	474	474	474
R-squared	0.001	0.004	0.005	0.008	0.115
Adj. R-squared	-0.001	-0.001	-0.001	-0.000	0.037

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A16: EV/Net Assets

	(1)	(2)	(3)	(4)	(5)
	EV/Net Assets	EV/Net Assets	EV/Net Assets	EV/Net Assets	EV/Net Assets
	b/se	b/se	b/se	b/se	b/se
GPR (t-12)	-0.086	-0.097	-0.080	-0.070	-0.054
	(0.101)	(0.104)	(0.104)	(0.104)	(0.112)
Tech		0.323	0.298	0.282	0.205
		(0.393)	(0.393)	(0.393)	(0.346)
Cross-Border			0.147	0.151	0.084
			(0.161)	(0.161)	(0.173)
Private				0.311	0.375
				(0.219)	(0.229)
Constant	1.483***	1.461***	1.396***	1.363***	1.123***
	(0.088)	(0.086)	(0.106)	(0.110)	(0.398)
Year FE	No	No	No	No	Yes
Observations	474	474	474	474	474
R-squared	0.001	0.004	0.006	0.008	0.115
Adj. R-squared	-0.001	-0.000	-0.001	-0.000	0.037

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

A.1.5. Baseline Results: EV/Net Income

Table A17: EV/Net Income

	(1)	(2)	(3)	(4)	(5)
	EV/Net	EV/Net	EV/Net	EV/Net	EV/Net
	Income	Income	Income	Income	Income
	b/se	b/se	b/se	b/se	b/se
GPR (t-1)	-0.043	-0.041	-0.033	-0.031	-0.082
	(0.049)	(0.049)	(0.050)	(0.050)	(0.059)
Tech		-0.216	-0.234	-0.231	-0.074
		(0.300)	(0.303)	(0.303)	(0.309)
Cross-Border			0.142	0.145	0.112
			(0.154)	(0.154)	(0.153)
Private				0.143	0.322
				(0.269)	(0.275)
Constant	3.375***	3.391***	3.332***	3.318***	3.266***
	(0.081)	(0.083)	(0.106)	(0.108)	(0.492)
Year FE	No	No	No	No	Yes
Observations	409	409	409	409	409
R-squared	0.001	0.002	0.004	0.005	0.092
Adj. R-squared	-0.002	-0.003	-0.003	-0.005	-0.001

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A18: EV/Net Income

	(1)	(2)	(3)	(4)	(5)
	EV/Net	EV/Net	EV/Net	EV/Net	EV/Net
	Income	Income	Income	Income	Income
	b/se	b/se	b/se	b/se	b/se

GPR (t-3)	-0.068 (0.052)	-0.066 (0.052)	-0.057 (0.053)	-0.056 (0.053)	-0.111* (0.061)
Tech		-0.213 (0.301)	-0.230 (0.304)	-0.227 (0.304)	-0.072 (0.309)
Cross-Border			0.136 (0.154)	0.140 (0.154)	0.108 (0.153)
Private				0.141 (0.269)	0.325 (0.274)
Constant	3.385*** (0.082)	3.401*** (0.083)	3.344*** (0.107)	3.330*** (0.108)	3.270*** (0.491)
Year FE	No	No	No	No	Yes
Observations	409	409	409	409	409
R-squared	0.002	0.003	0.005	0.006	0.093
Adj. R-squared	-0.001	-0.002	-0.002	-0.004	-0.000

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A19: EV/Net Income

	(1) EV/Net Income b/se	(2) EV/Net Income b/se	(3) EV/Net Income b/se	(4) EV/Net Income b/se	(5) EV/Net Income b/se
GPR (t-6)	-0.086 (0.057)	-0.083 (0.057)	-0.074 (0.059)	-0.074 (0.059)	-0.142** (0.063)
Tech		-0.209 (0.302)	-0.226 (0.304)	-0.223 (0.305)	-0.064 (0.309)
Cross-Border			0.136 (0.153)	0.139 (0.153)	0.110 (0.152)
Private				0.145 (0.268)	0.338 (0.274)
Constant	3.392*** (0.083)	3.407*** (0.084)	3.351*** (0.107)	3.336*** (0.108)	3.269*** (0.491)
Year FE	No	No	No	No	Yes
Observations	409	409	409	409	409
R-squared	0.002	0.004	0.006	0.006	0.094
Adj. R-squared	-0.000	-0.001	-0.002	-0.003	0.001

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A20: EV/Net Income

	(1) EV/Net Income b/se	(2) EV/Net Income b/se	(3) EV/Net Income b/se	(4) EV/Net Income b/se	(5) EV/Net Income b/se
GPR (t-12)	-0.098 (0.066)	-0.091 (0.068)	-0.083 (0.069)	-0.082 (0.070)	-0.150** (0.074)
Tech		-0.197 (0.304)	-0.216 (0.307)	-0.213 (0.307)	-0.044 (0.310)
Cross-Border			0.137 (0.153)	0.140 (0.153)	0.115 (0.152)
Private				0.144 (0.268)	0.338 (0.274)
Constant	3.396*** (0.084)	3.409*** (0.085)	3.352*** (0.108)	3.338*** (0.109)	3.264*** (0.491)
Year FE	No	No	No	No	Yes
Observations	409	409	409	409	409
R-squared	0.003	0.004	0.006	0.006	0.094
Adj. R-squared	0.000	-0.001	-0.002	-0.003	0.001

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

A.2. Extended Baseline Specification

A.2.1. Extended Results: EV/EBITDA

Table A21: EV/EBITDA

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/EBITDA	EV/EBITDA	EV/EBITDA	EV/EBITDA	EV/EBITDA	EV/EBITDA
GPR (t-1)	-0.079 (0.066)	-0.061 (0.068)	-0.061 (0.076)	-0.080 (0.085)	-0.009 (0.069)	-0.068 (0.084)
Tech		-0.387 (0.240)	0.004 (0.283)	-0.110 (0.347)	-0.031 (0.292)	-0.408 (0.266)
Cross-Border		0.024 (0.160)	0.133 (0.153)	0.180 (0.168)	0.295* (0.158)	0.275 (0.170)
Private		0.022 (0.270)	0.226 (0.273)	0.024 (0.360)	-0.250 (0.322)	-0.170 (0.389)
Profitability			-0.422*** (0.061)	-0.468*** (0.066)	-0.086 (0.061)	-0.055 (0.074)
Leverage				0.044 (0.068)	-0.035 (0.066)	0.001 (0.062)
Liquidity					0.135 (0.194)	0.164 (0.195)
GDP Growth					0.003 (0.033)	0.021 (0.057)
Inflation					-0.006 (0.026)	-0.015 (0.036)
Interest Rate					-0.028 (0.031)	0.255* (0.145)
Constant	2.559*** (0.087)	2.567*** (0.122)	0.924*** (0.228)	0.844*** (0.287)	1.772*** (0.306)	-0.728 (1.696)
Year FE	No	No	No	No	No	Yes
Observations	295	295	242	193	151	151
R-squared	0.002	0.008	0.212	0.275	0.056	0.291
Adj. R-squared	-0.001	-0.006	0.195	0.251	-0.011	0.024

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A22: EV/EBITDA

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/EBITDA	EV/EBITDA	EV/EBITDA	EV/EBITDA	EV/EBITDA	EV/EBITDA
GPR (t-3)	-0.087 (0.063)	-0.070 (0.064)	-0.056 (0.073)	-0.073 (0.082)	-0.011 (0.066)	-0.071 (0.082)
Tech		-0.383 (0.240)	0.001 (0.284)	-0.115 (0.349)	-0.031 (0.292)	-0.409 (0.265)
Cross-Border		0.021 (0.160)	0.133 (0.153)	0.180 (0.168)	0.295* (0.158)	0.272 (0.169)
Private		0.020 (0.270)	0.227 (0.273)	0.025 (0.360)	-0.251 (0.322)	-0.171 (0.389)
Profitability			-0.422*** (0.061)	-0.467*** (0.066)	-0.086 (0.061)	-0.054 (0.073)
Leverage				0.044 (0.068)	-0.035 (0.066)	0.001 (0.062)
Liquidity					0.136 (0.194)	0.164 (0.195)
GDP Growth					0.003 (0.033)	0.020 (0.057)
Inflation					-0.007 (0.026)	-0.014 (0.036)
Interest Rate					-0.028 (0.031)	0.249* (0.145)
Constant	2.562***	2.573***	0.922***	0.842***	1.773***	-0.662

	(0.087)	(0.122)	(0.228)	(0.287)	(0.306)	(1.692)
Year FE	No	No	No	No	No	Yes
Observations	295	295	242	193	151	151
R-squared	0.003	0.009	0.212	0.274	0.056	0.291
Adj. R-squared	-0.000	-0.005	0.195	0.251	-0.011	0.025

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A23: EV/EBITDA

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/EBITDA	EV/EBITDA	EV/EBITDA	EV/EBITDA	EV/EBITDA	EV/EBITDA
GPR (t-6)	-0.081 (0.064)	-0.062 (0.065)	-0.041 (0.077)	-0.070 (0.088)	-0.005 (0.070)	-0.083 (0.085)
Tech		-0.384 (0.241)	-0.004 (0.286)	-0.115 (0.351)	-0.034 (0.293)	-0.397 (0.264)
Cross-Border		0.023 (0.160)	0.138 (0.153)	0.182 (0.168)	0.297* (0.159)	0.267 (0.169)
Private		0.022 (0.270)	0.230 (0.273)	0.026 (0.360)	-0.249 (0.322)	-0.174 (0.388)
Profitability			-0.422*** (0.061)	-0.467*** (0.066)	-0.085 (0.061)	-0.054 (0.073)
Leverage				0.045 (0.069)	-0.035 (0.066)	0.002 (0.062)
Liquidity					0.134 (0.193)	0.168 (0.196)
GDP Growth					0.003 (0.033)	0.020 (0.056)
Inflation					-0.006 (0.026)	-0.014 (0.036)
Interest Rate					-0.028 (0.031)	0.250* (0.143)
Constant	2.560*** (0.087)	2.568*** (0.122)	0.913*** (0.229)	0.843*** (0.290)	1.770*** (0.308)	-0.673 (1.684)
Year FE	No	No	No	No	No	Yes
Observations	295	295	242	193	151	151
R-squared	0.003	0.008	0.211	0.274	0.056	0.292
Adj. R-squared	-0.001	-0.005	0.194	0.251	-0.011	0.026

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A24: EV/EBITDA

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/EBITDA	EV/EBITDA	EV/EBITDA	EV/EBITDA	EV/EBITDA	EV/EBITDA
GPR (t-12)	-0.105 (0.068)	-0.080 (0.072)	-0.072 (0.083)	-0.116 (0.094)	-0.032 (0.076)	-0.110 (0.091)
Tech		-0.364 (0.246)	0.025 (0.288)	-0.061 (0.357)	-0.010 (0.303)	-0.355 (0.267)
Cross-Border		0.020 (0.159)	0.131 (0.153)	0.174 (0.168)	0.289* (0.158)	0.266 (0.167)
Private		0.018 (0.270)	0.223 (0.273)	0.012 (0.360)	-0.258 (0.323)	-0.181 (0.385)
Profitability			-0.421*** (0.061)	-0.464*** (0.066)	-0.086 (0.061)	-0.055 (0.073)
Leverage				0.048 (0.069)	-0.033 (0.066)	0.005 (0.063)
Liquidity					0.140 (0.193)	0.176 (0.196)
GDP Growth					0.003 (0.033)	0.020 (0.056)
Inflation					-0.007 (0.026)	-0.014 (0.036)
Interest Rate					-0.028 (0.031)	0.248* (0.143)

Constant	2.570*** (0.088)	2.576*** (0.122)	0.929*** (0.228)	0.880*** (0.291)	(0.031) 1.790*** (0.309)	(0.143) -0.647 (1.683)
Year FE	No	No	No	No	No	Yes
Observations	295	295	242	193	151	151
R-squared	0.004	0.009	0.212	0.277	0.057	0.294
Adj. R-squared	0.001	-0.005	0.196	0.254	-0.010	0.029

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

A.2.2. Extended Results: EV/Sales

Table A25: EV/Sales

	(1) EV/Sales	(2) EV/Sales	(3) EV/Sales	(4) EV/Sales	(5) EV/Sales	(6) EV/Sales
GPR (t-1)	-0.091 (0.056)	-0.083 (0.057)	-0.124** (0.057)	-0.119** (0.056)	-0.175** (0.080)	-0.182* (0.105)
Tech		0.122 (0.238)	0.068 (0.364)	0.058 (0.211)	0.247 (0.238)	0.235 (0.372)
Cross-Border		0.103 (0.136)	0.089 (0.178)	0.246 (0.187)	0.371* (0.205)	0.272 (0.252)
Private		0.227 (0.219)	0.420 (0.301)	0.217 (0.302)	-0.130 (0.325)	-0.011 (0.379)
Profitability			-0.066 (0.067)	-0.135* (0.069)	0.040 (0.103)	0.023 (0.116)
Leverage				0.058 (0.062)	0.052 (0.082)	0.067 (0.086)
Liquidity					0.105 (0.159)	0.039 (0.177)
GDP Growth					-0.014 (0.042)	-0.012 (0.073)
Inflation					0.032 (0.036)	0.000 (0.051)
Interest Rate					-0.151*** (0.038)	-0.073 (0.180)
Constant	0.606*** (0.073)	0.527*** (0.101)	0.527* (0.288)	0.358 (0.367)	1.270** (0.537)	1.014 (1.977)
Year FE	No	No	No	No	No	Yes
Observations	702	702	323	235	178	178
R-squared	0.002	0.005	0.019	0.050	0.117	0.256
Adj. R-squared	0.001	-0.001	0.003	0.025	0.065	0.032

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A26: EV/Sales

	(1) EV/Sales	(2) EV/Sales	(3) EV/Sales	(4) EV/Sales	(5) EV/Sales	(6) EV/Sales
GPR (t-3)	-0.110* (0.065)	-0.102 (0.065)	-0.153** (0.060)	-0.147** (0.059)	-0.165** (0.076)	-0.180* (0.100)
Tech		0.124 (0.237)	0.077 (0.364)	0.074 (0.207)	0.240 (0.239)	0.230 (0.371)
Cross-Border		0.100 (0.136)	0.081 (0.178)	0.236 (0.188)	0.371* (0.205)	0.268 (0.253)
Private		0.224 (0.219)	0.416 (0.302)	0.213 (0.303)	-0.128 (0.327)	-0.007 (0.380)
Profitability			-0.063 (0.067)	-0.131* (0.069)	0.042 (0.103)	0.025 (0.116)
Leverage				0.059 (0.062)	0.051 (0.082)	0.067 (0.086)
Liquidity					0.102 (0.158)	0.038 (0.176)
GDP Growth					-0.014	-0.012

					(0.042)	(0.072)
Inflation					0.032	0.001
					(0.036)	(0.051)
Interest Rate					-0.151***	-0.087
					(0.037)	(0.182)
Constant	0.615***	0.536***	0.551*	0.389	1.270**	1.146
	(0.074)	(0.102)	(0.290)	(0.368)	(0.538)	(1.998)
Year FE	No	No	No	No	No	Yes
Observations	702	702	323	235	178	178
R-squared	0.003	0.006	0.021	0.053	0.117	0.257
Adj. R-squared	0.002	-0.000	0.005	0.028	0.065	0.033

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A27: EV/Sales

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/Sales	EV/Sales	EV/Sales	EV/Sales	EV/Sales	EV/Sales
GPR (t-6)	-0.133*	-0.127*	-0.181**	-0.191***	-0.177**	-0.204*
	(0.070)	(0.071)	(0.073)	(0.071)	(0.082)	(0.111)
Tech		0.130	0.089	0.106	0.253	0.259
		(0.237)	(0.365)	(0.202)	(0.238)	(0.370)
Cross-Border		0.097	0.077	0.230	0.373*	0.260
		(0.136)	(0.179)	(0.188)	(0.205)	(0.252)
Private		0.228	0.411	0.204	-0.134	-0.015
		(0.218)	(0.302)	(0.304)	(0.327)	(0.379)
Profitability			-0.061	-0.125*	0.046	0.025
			(0.067)	(0.069)	(0.103)	(0.116)
Leverage				0.063	0.054	0.070
				(0.063)	(0.082)	(0.087)
Liquidity					0.101	0.044
					(0.158)	(0.177)
GDP Growth					-0.014	-0.013
					(0.043)	(0.072)
Inflation					0.030	0.001
					(0.036)	(0.051)
Interest Rate					-0.150***	-0.083
					(0.037)	(0.181)
Constant	0.624***	0.546***	0.571*	0.438	1.293**	1.116
	(0.075)	(0.102)	(0.293)	(0.373)	(0.543)	(1.988)
Year FE	No	No	No	No	No	Yes
Observations	702	702	323	235	178	178
R-squared	0.004	0.006	0.021	0.055	0.118	0.257
Adj. R-squared	0.002	0.001	0.006	0.031	0.065	0.033

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A28: EV/Sales

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/Sales	EV/Sales	EV/Sales	EV/Sales	EV/Sales	EV/Sales
GPR (t-12)	-0.153**	-0.148*	-0.208**	-0.238***	-0.220**	-0.250*
	(0.076)	(0.078)	(0.088)	(0.083)	(0.090)	(0.130)
Tech		0.142	0.128	0.189	0.333	0.344
		(0.238)	(0.372)	(0.202)	(0.240)	(0.381)
Cross-Border		0.096	0.078	0.227	0.369*	0.265
		(0.136)	(0.178)	(0.187)	(0.204)	(0.251)
Private		0.227	0.409	0.191	-0.147	-0.029
		(0.218)	(0.303)	(0.304)	(0.328)	(0.377)
Profitability			-0.060	-0.121*	0.042	0.023
			(0.067)	(0.069)	(0.102)	(0.116)
Leverage				0.066	0.059	0.077
				(0.063)	(0.083)	(0.088)

Liquidity					0.111 (0.158)	0.057 (0.178)
GDP Growth					-0.015 (0.043)	-0.012 (0.072)
Inflation					0.028 (0.036)	0.002 (0.051)
Interest Rate					-0.150*** (0.037)	-0.085 (0.181)
Constant	0.631*** (0.076)	0.554*** (0.103)	0.580** (0.294)	0.474 (0.377)	1.311** (0.543)	1.134 (1.989)
Year FE	No	No	No	No	No	Yes
Observations	702	702	323	235	178	178
R-squared	0.004	0.007	0.022	0.059	0.121	0.260
Adj. R-squared	0.003	0.001	0.007	0.034	0.069	0.037

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

A.2.3. Extended Results: EV/EBIT

Table A29: EV/EBIT

	(1) EV/EBIT	(2) EV/EBIT	(3) EV/EBIT	(4) EV/EBIT	(5) EV/EBIT	(6) EV/EBIT
GPR (t-1)	-0.101** (0.042)	-0.098** (0.045)	-0.144** (0.064)	-0.164** (0.064)	-0.069 (0.077)	-0.047 (0.098)
Tech		-0.420 (0.285)	-0.029 (0.305)	0.180 (0.329)	0.240 (0.361)	0.332 (0.331)
Cross-Border		0.038 (0.161)	0.029 (0.154)	0.155 (0.176)	0.218 (0.188)	0.259 (0.213)
Private		-0.333 (0.283)	0.178 (0.247)	0.093 (0.338)	-0.148 (0.344)	-0.005 (0.499)
Profitability			-0.504*** (0.058)	-0.540*** (0.066)	-0.306*** (0.095)	-0.301*** (0.106)
Leverage				0.001 (0.066)	-0.062 (0.078)	-0.060 (0.081)
Liquidity					0.257 (0.193)	0.209 (0.224)
GDP Growth					0.040 (0.034)	-0.054 (0.055)
Inflation					0.015 (0.041)	0.011 (0.063)
Interest Rate					-0.037 (0.037)	0.082 (0.164)
Constant	2.945*** (0.084)	2.988*** (0.109)	1.209*** (0.235)	1.073*** (0.295)	1.485*** (0.348)	-0.031 (1.876)
Year FE	No	No	No	No	No	Yes
Observations	345	345	278	211	156	156
R-squared	0.005	0.015	0.266	0.301	0.129	0.295
Adj. R-squared	0.002	0.003	0.253	0.281	0.069	0.050

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A30: EV/EBIT

	(1) EV/EBIT	(2) EV/EBIT	(3) EV/EBIT	(4) EV/EBIT	(5) EV/EBIT	(6) EV/EBIT
GPR (t-3)	-0.106** (0.054)	-0.102* (0.057)	-0.142* (0.082)	-0.169* (0.086)	-0.078 (0.073)	-0.061 (0.093)
Tech		-0.417 (0.286)	-0.031 (0.308)	0.183 (0.334)	0.246 (0.360)	0.337 (0.329)
Cross-Border		0.038 (0.161)	0.030 (0.154)	0.154 (0.177)	0.213 (0.188)	0.253 (0.213)
Private		-0.332	0.180	0.094	-0.151	-0.005

		(0.283)	(0.247)	(0.339)	(0.344)	(0.498)
Profitability			-0.500***	-0.535***	-0.305***	-0.301***
			(0.058)	(0.067)	(0.095)	(0.106)
Leverage				0.004	-0.061	-0.059
				(0.066)	(0.078)	(0.082)
Liquidity					0.259	0.215
					(0.193)	(0.224)
GDP Growth					0.040	-0.054
					(0.034)	(0.055)
Inflation					0.014	0.012
					(0.041)	(0.063)
Interest Rate					-0.036	0.074
					(0.037)	(0.163)
Constant	2.946***	2.988***	1.216***	1.098***	1.495***	0.049
	(0.086)	(0.111)	(0.240)	(0.304)	(0.347)	(1.866)
Year FE	No	No	No	No	No	Yes
Observations	345	345	278	211	156	156
R-squared	0.005	0.014	0.263	0.298	0.130	0.296
Adj. R-squared	0.002	0.003	0.250	0.277	0.070	0.051

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A31: EV/EBIT

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/EBIT	EV/EBIT	EV/EBIT	EV/EBIT	EV/EBIT	EV/EBIT
GPR (t-6)	-0.095	-0.088	-0.114	-0.156	-0.069	-0.066
	(0.065)	(0.067)	(0.090)	(0.103)	(0.080)	(0.095)
Tech		-0.419	-0.041	0.179	0.242	0.344
		(0.287)	(0.311)	(0.341)	(0.363)	(0.331)
Cross-Border		0.043	0.041	0.165	0.218	0.251
		(0.161)	(0.154)	(0.177)	(0.188)	(0.214)
Private		-0.328	0.186	0.095	-0.150	-0.007
		(0.283)	(0.247)	(0.339)	(0.344)	(0.497)
Profitability			-0.498***	-0.530***	-0.304***	-0.300***
			(0.059)	(0.069)	(0.095)	(0.106)
Leverage				0.009	-0.061	-0.058
				(0.067)	(0.078)	(0.082)
Liquidity					0.255	0.217
					(0.192)	(0.225)
GDP Growth					0.040	-0.055
					(0.034)	(0.055)
Inflation					0.014	0.012
					(0.041)	(0.063)
Interest Rate					-0.036	0.077
					(0.037)	(0.161)
Constant	2.939***	2.978***	1.204***	1.113***	1.495***	0.027
	(0.087)	(0.111)	(0.246)	(0.319)	(0.350)	(1.850)
Year FE	No	No	No	No	No	Yes
Observations	345	345	278	211	156	156
R-squared	0.003	0.013	0.259	0.292	0.129	0.296
Adj. R-squared	0.000	0.001	0.245	0.271	0.069	0.051

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A32: EV/EBIT

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/EBIT	EV/EBIT	EV/EBIT	EV/EBIT	EV/EBIT	EV/EBIT
GPR (t-12)	-0.100	-0.085	-0.110	-0.171*	-0.101	-0.095
	(0.068)	(0.073)	(0.084)	(0.099)	(0.085)	(0.103)
Tech		-0.407	-0.023	0.231	0.291	0.383
		(0.293)	(0.319)	(0.353)	(0.378)	(0.339)

Cross-Border		0.047 (0.161)	0.047 (0.154)	0.170 (0.177)	0.211 (0.188)	0.248 (0.211)
Private		-0.327 (0.283)	0.187 (0.247)	0.089 (0.339)	-0.160 (0.345)	-0.013 (0.496)
Profitability			-0.499*** (0.060)	-0.528*** (0.069)	-0.305*** (0.095)	-0.301*** (0.106)
Leverage				0.012 (0.067)	-0.058 (0.078)	-0.054 (0.083)
Liquidity					0.263 (0.192)	0.226 (0.226)
GDP Growth					0.040 (0.034)	-0.055 (0.055)
Inflation					0.013 (0.041)	0.012 (0.064)
Interest Rate					-0.036 (0.037)	0.073 (0.159)
Constant	2.941*** (0.088)	2.974*** (0.112)	1.197*** (0.244)	1.125*** (0.322)	1.515*** (0.350)	0.067 (1.828)
Year FE	No	No	No	No	No	Yes
Observations	345	345	278	211	156	156
R-squared	0.003	0.012	0.258	0.292	0.132	0.297
Adj. R-squared	-0.000	0.001	0.244	0.271	0.072	0.052

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

A.2.4. Extended Results: EV/Net Assets

Table A33: EV/Net Assets

	(1) EV/Net Assets	(2) EV/Net Assets	(3) EV/Net Assets	(4) EV/Net Assets	(5) EV/Net Assets	(6) EV/Net Assets
GPR (t-1)	-0.054 (0.052)	-0.042 (0.053)	-0.079 (0.066)	-0.050 (0.065)	0.068 (0.116)	0.015 (0.130)
Tech		0.271 (0.389)	0.290 (0.442)	-0.132 (0.384)	-0.036 (0.417)	0.305 (0.434)
Cross-Border		0.152 (0.162)	0.044 (0.165)	0.126 (0.175)	0.313 (0.199)	0.180 (0.241)
Private		0.314 (0.218)	0.409 (0.258)	0.274 (0.333)	0.222 (0.336)	0.281 (0.422)
Profitability			-0.129* (0.066)	-0.158** (0.065)	0.033 (0.088)	0.042 (0.095)
Leverage				0.164*** (0.062)	0.112 (0.084)	0.123 (0.075)
Liquidity					-0.181 (0.128)	-0.156 (0.157)
GDP Growth					-0.033 (0.040)	-0.028 (0.061)
Inflation					0.011 (0.025)	0.009 (0.042)
Interest Rate					-0.070** (0.034)	-0.354 (0.224)
Constant	1.474*** (0.083)	1.354*** (0.107)	0.890*** (0.252)	1.115*** (0.302)	1.736*** (0.394)	5.190** (2.550)
Year FE	No	No	No	No	No	Yes
Observations	474	474	321	235	176	176
R-squared	0.001	0.008	0.028	0.101	0.076	0.308
Adj. R-squared	-0.001	-0.000	0.012	0.077	0.020	0.097

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A34: EV/Net Assets

	(1) EV/Net Assets	(2) EV/Net Assets	(3) EV/Net Assets	(4) EV/Net Assets	(5) EV/Net Assets	(6) EV/Net Assets
GPR (t-3)	-0.075 (0.068)	-0.060 (0.070)	-0.061 (0.089)	-0.026 (0.086)	0.075 (0.116)	0.017 (0.129)
Tech		0.275 (0.390)	0.287 (0.444)	-0.144 (0.385)	-0.041 (0.417)	0.305 (0.433)
Cross-Border		0.148 (0.162)	0.050 (0.165)	0.135 (0.174)	0.318 (0.198)	0.181 (0.241)
Private		0.311 (0.218)	0.414 (0.258)	0.279 (0.332)	0.223 (0.335)	0.281 (0.422)
Profitability			-0.128* (0.066)	-0.156** (0.065)	0.033 (0.088)	0.041 (0.095)
Leverage				0.166*** (0.062)	0.113 (0.084)	0.123 (0.075)
Liquidity					-0.182 (0.128)	-0.157 (0.156)
GDP Growth					-0.033 (0.040)	-0.028 (0.060)
Inflation					0.011 (0.025)	0.009 (0.042)
Interest Rate					-0.070** (0.034)	-0.352 (0.222)
Constant	1.482*** (0.084)	1.363*** (0.109)	0.883*** (0.254)	1.106*** (0.300)	1.730*** (0.393)	5.170** (2.535)
Year FE	No	No	No	No	No	Yes
Observations	474	474	321	235	176	176
R-squared	0.002	0.009	0.026	0.099	0.077	0.308
Adj. R-squared	-0.000	0.000	0.011	0.076	0.021	0.097

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A35: EV/Net Assets

	(1) EV/Net Assets	(2) EV/Net Assets	(3) EV/Net Assets	(4) EV/Net Assets	(5) EV/Net Assets	(6) EV/Net Assets
GPR (t-6)	-0.075 (0.093)	-0.058 (0.094)	-0.048 (0.123)	0.001 (0.121)	0.113 (0.146)	0.046 (0.152)
Tech		0.276 (0.391)	0.285 (0.447)	-0.159 (0.388)	-0.062 (0.421)	0.292 (0.434)
Cross-Border		0.152 (0.161)	0.056 (0.164)	0.146 (0.173)	0.327* (0.196)	0.187 (0.239)
Private		0.313 (0.218)	0.418 (0.258)	0.283 (0.331)	0.226 (0.333)	0.281 (0.420)
Profitability			-0.127* (0.066)	-0.157** (0.065)	0.034 (0.088)	0.042 (0.094)
Leverage				0.167*** (0.062)	0.111 (0.084)	0.121 (0.075)
Liquidity					-0.186 (0.129)	-0.163 (0.157)
GDP Growth					-0.034 (0.040)	-0.029 (0.060)
Inflation					0.012 (0.026)	0.009 (0.042)
Interest Rate					-0.070** (0.034)	-0.344 (0.217)
Constant	1.480*** (0.086)	1.358*** (0.110)	0.874*** (0.256)	1.090*** (0.297)	1.714*** (0.390)	5.080** (2.484)
Year FE	No	No	No	No	No	Yes
Observations	474	474	321	235	176	176
R-squared	0.001	0.008	0.025	0.099	0.079	0.309

Adj. R-squared	-0.001	-0.000	0.010	0.075	0.023	0.097
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Standard errors in parentheses
* p < 0.10, ** p < 0.05, *** p < 0.01

Table A36: EV/Net Assets

	(1) EV/Net Assets	(2) EV/Net Assets	(3) EV/Net Assets	(4) EV/Net Assets	(5) EV/Net Assets	(6) EV/Net Assets
GPR (t-12)	-0.086 (0.101)	-0.070 (0.104)	-0.049 (0.133)	0.009 (0.129)	0.112 (0.147)	0.046 (0.156)
Tech		0.282 (0.393)	0.289 (0.453)	-0.164 (0.394)	-0.076 (0.431)	0.286 (0.441)
Cross-Border		0.151 (0.161)	0.057 (0.165)	0.148 (0.174)	0.324 (0.197)	0.186 (0.239)
Private		0.311 (0.219)	0.418 (0.258)	0.284 (0.331)	0.227 (0.334)	0.283 (0.421)
Profitability			-0.127* (0.066)	-0.157** (0.065)	0.035 (0.088)	0.043 (0.094)
Leverage				0.167*** (0.062)	0.111 (0.084)	0.121 (0.075)
Liquidity					-0.184 (0.129)	-0.162 (0.158)
GDP Growth					-0.033 (0.040)	-0.029 (0.060)
Inflation					0.012 (0.026)	0.008 (0.042)
Interest Rate					-0.071** (0.034)	-0.347 (0.218)
Constant	1.483*** (0.088)	1.363*** (0.110)	0.873*** (0.258)	1.085*** (0.294)	1.718*** (0.390)	5.106** (2.494)
Year FE	No	No	No	No	No	Yes
Observations	474	474	321	235	176	176
R-squared	0.001	0.008	0.025	0.099	0.078	0.309
Adj. R-squared	-0.001	-0.000	0.010	0.075	0.022	0.097

Standard errors in parentheses
* p < 0.10, ** p < 0.05, *** p < 0.01

A.2.5. Extended Results: EV/Net Income

Table A37: EV/Net Income

	(1) EV/Net Income	(2) EV/Net Income	(3) EV/Net Income	(4) EV/Net Income	(5) EV/Net Income	(6) EV/Net Income
GPR (t-1)	-0.043 (0.049)	-0.031 (0.050)	-0.049 (0.039)	-0.041 (0.040)	-0.004 (0.054)	-0.013 (0.066)
Tech		-0.231 (0.303)	0.461 (0.341)	0.247 (0.311)	0.246 (0.322)	0.534** (0.259)
Cross-Border		0.145 (0.154)	0.114 (0.126)	0.269** (0.129)	0.373** (0.146)	0.330** (0.162)
Private		0.143 (0.269)	0.501*** (0.185)	0.376** (0.171)	0.376* (0.208)	0.511* (0.267)
Profitability			-0.654*** (0.045)	-0.704*** (0.045)	-0.727*** (0.061)	-0.726*** (0.062)
Leverage				0.063 (0.046)	0.042 (0.065)	0.023 (0.060)
Liquidity					-0.036 (0.108)	-0.126 (0.127)
GDP Growth					0.009 (0.024)	-0.019 (0.044)
Inflation					-0.001 (0.023)	-0.000 (0.034)
Interest Rate					-0.022 (0.020)	-0.155 (0.117)
Constant	3.375***	3.318***	1.073***	0.978***	0.840***	2.246

	(0.081)	(0.108)	(0.189)	(0.204)	(0.250)	(1.374)
Year FE	No	No	No	No	No	Yes
Observations	409	409	340	242	183	183
R-squared	0.001	0.005	0.454	0.564	0.508	0.610
Adj. R-squared	-0.002	-0.005	0.446	0.553	0.479	0.492

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A38: EV/Net Income

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/Net Income	EV/Net Income	EV/Net Income	EV/Net Income	EV/Net Income	EV/Net Income
GPR (t-3)	-0.068	-0.056	-0.048	-0.038	-0.010	-0.025
	(0.052)	(0.053)	(0.047)	(0.046)	(0.050)	(0.062)
Tech		-0.227	0.461	0.244	0.249	0.539**
		(0.304)	(0.341)	(0.312)	(0.321)	(0.258)
Cross-Border		0.140	0.115	0.271**	0.371**	0.327**
		(0.154)	(0.127)	(0.129)	(0.146)	(0.162)
Private		0.141	0.502***	0.378**	0.375*	0.510*
		(0.269)	(0.185)	(0.171)	(0.208)	(0.268)
Profitability			-0.653***	-0.703***	-0.727***	-0.726***
			(0.045)	(0.045)	(0.061)	(0.062)
Leverage				0.063	0.042	0.024
				(0.046)	(0.065)	(0.060)
Liquidity					-0.035	-0.123
					(0.107)	(0.127)
GDP Growth					0.009	-0.018
					(0.024)	(0.044)
Inflation					-0.001	0.000
					(0.023)	(0.034)
Interest Rate					-0.022	-0.160
					(0.020)	(0.118)
Constant	3.385***	3.330***	1.074***	0.980***	0.844***	2.301*
	(0.082)	(0.108)	(0.190)	(0.204)	(0.250)	(1.385)
Year FE	No	No	No	No	No	Yes
Observations	409	409	340	242	183	183
R-squared	0.002	0.006	0.454	0.564	0.508	0.610
Adj. R-squared	-0.001	-0.004	0.446	0.553	0.479	0.493

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A39: EV/Net Income

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/Net Income	EV/Net Income	EV/Net Income	EV/Net Income	EV/Net Income	EV/Net Income
GPR (t-6)	-0.086	-0.074	-0.031	-0.023	0.004	-0.015
	(0.057)	(0.059)	(0.061)	(0.059)	(0.061)	(0.072)
Tech		-0.223	0.457	0.236	0.242	0.536**
		(0.305)	(0.344)	(0.317)	(0.324)	(0.260)
Cross-Border		0.139	0.121	0.278**	0.376**	0.329**
		(0.153)	(0.127)	(0.129)	(0.146)	(0.162)
Private		0.145	0.507***	0.381**	0.378*	0.511*
		(0.268)	(0.185)	(0.171)	(0.208)	(0.267)
Profitability			-0.653***	-0.703***	-0.727***	-0.726***
			(0.045)	(0.045)	(0.061)	(0.062)
Leverage				0.064	0.041	0.023
				(0.046)	(0.065)	(0.060)
Liquidity					-0.037	-0.125
					(0.107)	(0.127)
GDP Growth					0.009	-0.019
					(0.024)	(0.044)
Inflation					-0.001	-0.000
					(0.023)	(0.034)
Interest Rate					-0.022	-0.156

Constant	3.392*** (0.083)	3.336*** (0.108)	1.064*** (0.193)	0.972*** (0.204)	(0.020) 0.835*** (0.251)	(0.117) 2.255 (1.381)
Year FE	No	No	No	No	No	Yes
Observations	409	409	340	242	183	183
R-squared	0.002	0.006	0.453	0.563	0.508	0.610
Adj. R-squared	-0.000	-0.003	0.445	0.552	0.479	0.492

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A40: EV/Net Income

	(1) EV/Net Income	(2) EV/Net Income	(3) EV/Net Income	(4) EV/Net Income	(5) EV/Net Income	(6) EV/Net Income
GPR (t-12)	-0.098 (0.066)	-0.082 (0.070)	-0.029 (0.070)	-0.024 (0.068)	-0.015 (0.069)	-0.032 (0.082)
Tech		-0.213 (0.307)	0.461 (0.351)	0.242 (0.329)	0.256 (0.334)	0.552** (0.266)
Cross-Border		0.140 (0.153)	0.122 (0.127)	0.278** (0.129)	0.370** (0.147)	0.326** (0.162)
Private		0.144 (0.268)	0.507*** (0.186)	0.380** (0.171)	0.374* (0.209)	0.508* (0.267)
Profitability			-0.653*** (0.046)	-0.703*** (0.045)	-0.727*** (0.061)	-0.726*** (0.062)
Leverage				0.064 (0.046)	0.042 (0.065)	0.025 (0.060)
Liquidity					-0.034 (0.107)	-0.121 (0.127)
GDP Growth					0.009 (0.024)	-0.018 (0.044)
Inflation					-0.002 (0.023)	0.000 (0.034)
Interest Rate					-0.022 (0.020)	-0.160 (0.118)
Constant	3.396*** (0.084)	3.338*** (0.109)	1.062*** (0.194)	0.973*** (0.203)	0.848*** (0.253)	2.293* (1.384)
Year FE	No	No	No	No	No	Yes
Observations	409	409	340	242	183	183
R-squared	0.003	0.006	0.453	0.563	0.508	0.610
Adj. R-squared	0.000	-0.003	0.445	0.552	0.479	0.493

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Appendix B: Sectoral Effect Results

B.1. Sectoral Effects

Table B1: EV/EBITDA - EV/Sales

	(1) EV/EBITDA	(2) EV/Sales	(3) EV/EBITDA	(4) EV/Sales
GPR (t-1)	-0.076 (0.074)	-0.055 (0.057)	-0.116 (0.089)	-0.053 (0.058)
Technology Dummy	-0.483 (0.307)	0.351 (0.292)	-0.257 (0.280)	0.126 (0.320)
GPR × Technology	0.133 (0.174)	-0.471** (0.205)	0.046 (0.173)	-0.335 (0.216)
Cross-Border	0.024 (0.160)	0.100 (0.136)	0.014 (0.157)	0.040 (0.136)
Private	0.021 (0.271)	0.244 (0.219)	0.223 (0.276)	0.088 (0.223)
Constant	2.573*** (0.123)	0.514*** (0.101)	2.057*** (0.464)	-0.288 (0.280)

Year FE	No	No	Yes	Yes
Observations	295	702	295	702
R-squared	0.009	0.008	0.150	0.125
Adj. R-squared	-0.008	0.001	0.023	0.073

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table B2: EV/EBITDA - EV/Sales

	(1) EV/EBITDA	(2) EV/Sales	(3) EV/EBITDA	(4) EV/Sales
GPR (t-3)	-0.085 (0.070)	-0.073 (0.067)	-0.125 (0.083)	-0.063 (0.073)
Technology Dummy	-0.494 (0.308)	0.360 (0.294)	-0.235 (0.283)	0.131 (0.323)
GPR × Technology	0.154 (0.177)	-0.472** (0.204)	0.021 (0.183)	-0.332 (0.222)
Cross-Border	0.021 (0.160)	0.094 (0.136)	0.009 (0.157)	0.038 (0.136)
Private	0.019 (0.271)	0.244 (0.218)	0.222 (0.276)	0.090 (0.223)
Constant	2.578*** (0.123)	0.525*** (0.102)	2.052*** (0.465)	-0.282 (0.280)
Year FE	No	No	Yes	Yes
Observations	295	702	295	702
R-squared	0.009	0.009	0.151	0.125
Adj. R-squared	-0.008	0.002	0.024	0.074

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table B3: EV/EBITDA - EV/Sales

	(1) EV/EBITDA	(2) EV/Sales	(3) EV/EBITDA	(4) EV/Sales
GPR (t-6)	-0.080 (0.072)	-0.091 (0.075)	-0.142* (0.085)	-0.078 (0.081)
Technology Dummy	-0.500 (0.305)	0.352 (0.291)	-0.255 (0.281)	0.123 (0.321)
GPR × Technology	0.154 (0.168)	-0.434** (0.194)	0.065 (0.169)	-0.300 (0.208)
Cross-Border	0.024 (0.160)	0.092 (0.136)	0.006 (0.157)	0.037 (0.136)
Private	0.021 (0.271)	0.245 (0.218)	0.222 (0.276)	0.092 (0.223)
Constant	2.575*** (0.123)	0.532*** (0.103)	2.050*** (0.466)	-0.278 (0.279)
Year FE	No	No	Yes	Yes
Observations	295	702	295	702
R-squared	0.009	0.009	0.151	0.126
Adj. R-squared	-0.008	0.002	0.025	0.074

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table B4: EV/EBITDA - EV/Sales

	(1) EV/EBITDA	(2) EV/Sales	(3) EV/EBITDA	(4) EV/Sales
GPR (t-12)	-0.111 (0.089)	-0.109 (0.088)	-0.177* (0.099)	-0.093 (0.094)
Technology Dummy	-0.478 (0.294)	0.292 (0.284)	-0.265 (0.273)	0.076 (0.311)
GPR × Technology	0.140 (0.134)	-0.275 (0.170)	0.107 (0.134)	-0.181 (0.175)
Cross-Border	0.017	0.096	0.002	0.040

	(0.159)	(0.136)	(0.156)	(0.136)
Private	0.015	0.237	0.218	0.085
	(0.271)	(0.218)	(0.276)	(0.223)
Constant	2.590***	0.537***	2.052***	-0.271
	(0.125)	(0.104)	(0.465)	(0.279)
Year FE	No	No	Yes	Yes
Observations	295	702	295	702
R-squared	0.010	0.008	0.153	0.125
Adj. R-squared	-0.007	0.001	0.027	0.074

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

B.2. Extended Sectoral Effects

Table B5: EV/EBITDA - EV/Sales

	(1) EV/EBITDA	(2) EV/Sales	(3) EV/EBITDA	(4) EV/Sales
GPR (t-1)	0.012 (0.073)	-0.161* (0.086)	-0.052 (0.084)	-0.172 (0.107)
Technology Dummy	0.148 (0.407)	0.399 (0.293)	-0.184 (0.358)	0.410 (0.524)
GPR × Technology	-0.200 (0.184)	-0.155 (0.180)	-0.223 (0.183)	-0.166 (0.289)
Profitability	-0.092 (0.060)	0.037 (0.103)	-0.061 (0.073)	0.019 (0.117)
Leverage	-0.034 (0.066)	0.054 (0.082)	0.000 (0.062)	0.069 (0.087)
Liquidity	0.141 (0.193)	0.109 (0.160)	0.167 (0.196)	0.046 (0.180)
Cross-Border	0.299* (0.158)	0.371* (0.205)	0.285 (0.173)	0.277 (0.256)
Private	-0.261 (0.322)	-0.124 (0.331)	-0.176 (0.384)	-0.003 (0.385)
GDP Growth	0.000 (0.034)	-0.015 (0.043)	0.017 (0.057)	-0.014 (0.072)
Inflation	-0.007 (0.026)	0.031 (0.036)	-0.013 (0.035)	0.001 (0.051)
Interest Rate	-0.029 (0.032)	-0.151*** (0.038)	0.267* (0.143)	-0.065 (0.179)
Constant	1.751*** (0.306)	1.257** (0.540)	-0.887 (1.675)	0.913 (1.974)
Year FE	No	No	Yes	Yes
Observations	151	178	151	178
R-squared	0.060	0.118	0.295	0.257
Adj. R-squared	-0.014	0.060	0.020	0.026

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table B6: EV/EBITDA - EV/Sales

	(1) EV/EBITDA	(2) EV/Sales	(3) EV/EBITDA	(4) EV/Sales
GPR (t-3)	0.005 (0.069)	-0.153* (0.080)	-0.061 (0.081)	-0.172* (0.100)
Technology Dummy	0.127 (0.410)	0.386 (0.296)	-0.196 (0.357)	0.410 (0.528)
GPR × Technology	-0.179 (0.184)	-0.150 (0.196)	-0.214 (0.184)	-0.169 (0.301)
Profitability	-0.091 (0.060)	0.040 (0.103)	-0.059 (0.073)	0.022 (0.117)
Leverage	-0.034 (0.066)	0.052 (0.082)	0.000 (0.062)	0.068 (0.087)

Liquidity	0.141 (0.193)	0.106 (0.159)	0.168 (0.196)	0.045 (0.179)
Cross-Border	0.295* (0.158)	0.369* (0.205)	0.277 (0.171)	0.270 (0.255)
Private	-0.260 (0.323)	-0.118 (0.333)	-0.178 (0.384)	0.004 (0.387)
GDP Growth	0.001 (0.034)	-0.015 (0.043)	0.016 (0.057)	-0.015 (0.072)
Inflation	-0.007 (0.026)	0.031 (0.036)	-0.013 (0.035)	0.002 (0.051)
Interest Rate	-0.029 (0.032)	-0.150*** (0.038)	0.258* (0.142)	-0.081 (0.182)
Constant	1.759*** (0.306)	1.261** (0.540)	-0.782 (1.672)	1.074 (1.993)
Year FE	No	No	Yes	Yes
Observations	151	178	151	178
R-squared	0.059	0.118	0.295	0.258
Adj. R-squared	-0.015	0.060	0.020	0.027

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table B7: EV/EBITDA - EV/Sales

	(1) EV/EBITDA	(2) EV/Sales	(3) EV/EBITDA	(4) EV/Sales
GPR (t-6)	0.014 (0.073)	-0.162* (0.088)	-0.068 (0.085)	-0.192* (0.113)
Technology Dummy	0.114 (0.401)	0.397 (0.290)	-0.215 (0.348)	0.426 (0.515)
GPR × Technology	-0.163 (0.169)	-0.145 (0.171)	-0.177 (0.163)	-0.155 (0.264)
Profitability	-0.090 (0.060)	0.043 (0.103)	-0.057 (0.073)	0.023 (0.117)
Leverage	-0.034 (0.066)	0.056 (0.082)	0.002 (0.062)	0.072 (0.088)
Liquidity	0.139 (0.192)	0.105 (0.159)	0.170 (0.196)	0.050 (0.179)
Cross-Border	0.298* (0.159)	0.371* (0.205)	0.274 (0.171)	0.265 (0.255)
Private	-0.257 (0.323)	-0.126 (0.333)	-0.180 (0.384)	-0.006 (0.385)
GDP Growth	0.001 (0.034)	-0.016 (0.043)	0.017 (0.057)	-0.015 (0.072)
Inflation	-0.007 (0.026)	0.029 (0.036)	-0.013 (0.035)	0.002 (0.051)
Interest Rate	-0.029 (0.032)	-0.149*** (0.038)	0.259* (0.142)	-0.077 (0.181)
Constant	1.753*** (0.309)	1.282** (0.546)	-0.783 (1.666)	1.035 (1.985)
Year FE	No	No	Yes	Yes
Observations	151	178	151	178
R-squared	0.059	0.119	0.295	0.258
Adj. R-squared	-0.015	0.060	0.020	0.027

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table B8: EV/EBITDA - EV/Sales

	(1) EV/EBITDA	(2) EV/Sales	(3) EV/EBITDA	(4) EV/Sales
GPR (t-12)	-0.007 (0.092)	-0.206* (0.111)	-0.088 (0.105)	-0.235 (0.146)
Technology Dummy	0.090 (0.381)	0.398 (0.280)	-0.247 (0.335)	0.430 (0.486)
GPR × Technology	-0.100 (0.140)	-0.060 (0.133)	-0.094 (0.130)	-0.072 (0.193)
Profitability	-0.089 (0.060)	0.041 (0.103)	-0.056 (0.073)	0.022 (0.116)
Leverage	-0.032 (0.067)	0.060 (0.083)	0.005 (0.063)	0.077 (0.089)
Liquidity	0.143 (0.193)	0.112 (0.159)	0.173 (0.196)	0.058 (0.180)
Cross-Border	0.294* (0.158)	0.370* (0.205)	0.273 (0.171)	0.270 (0.255)
Private	-0.261 (0.323)	-0.145 (0.330)	-0.183 (0.383)	-0.027 (0.380)
GDP Growth	0.001 (0.034)	-0.016 (0.043)	0.017 (0.057)	-0.014 (0.072)
Inflation	-0.007 (0.026)	0.028 (0.036)	-0.013 (0.036)	0.002 (0.051)
Interest Rate	-0.029 (0.031)	-0.150*** (0.038)	0.256* (0.142)	-0.079 (0.183)
Constant	1.772*** (0.311)	1.303** (0.548)	-0.745 (1.668)	1.059 (2.012)
Year FE	No	No	Yes	Yes
Observations	151	178	151	178
R-squared	0.059	0.122	0.295	0.260
Adj. R-squared	-0.016	0.063	0.021	0.030

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Appendix C: Robustness Checks

C.1. VIX Robustness Results

Table C1: EV/EBITDA

	(1) EV/EBITDA	(2) EV/EBITDA	(3) EV/EBITDA	(4) EV/EBITDA	(5) EV/EBITDA	(6) EV/EBITDA
VIX	0.005 (0.013)	0.006 (0.013)	0.016 (0.011)	0.014 (0.011)	0.015 (0.014)	-0.039 (0.025)
Tech		-0.415* (0.238)	-0.018 (0.285)	-0.140 (0.347)	-0.042 (0.286)	-0.421 (0.277)
Cross-Border		0.038 (0.156)	0.145 (0.151)	0.185 (0.164)	0.285* (0.153)	0.330* (0.176)
Private		0.056 (0.271)	0.292 (0.271)	0.088 (0.358)	-0.184 (0.320)	-0.152 (0.392)
Profitability			-0.422*** (0.061)	-0.477*** (0.065)	-0.090 (0.060)	-0.047 (0.069)
Leverage				0.038 (0.068)	-0.037 (0.065)	-0.004 (0.061)
Liquidity					0.122 (0.186)	0.113 (0.183)
GDP Growth					0.007 (0.032)	0.025 (0.058)
Inflation					-0.011 (0.026)	-0.025 (0.038)
Interest Rate					-0.021	0.246*

Constant	2.435*** (0.240)	2.432*** (0.254)	0.589** (0.271)	0.500 (0.336)	(0.030) 1.445*** (0.377)	(0.144) 0.271 (1.847)
Year FE	No	No	No	No	No	Yes
Observations	295	295	242	193	151	151
R-squared	0.001	0.008	0.219	0.279	0.066	0.304
Adj. R-squared	-0.003	-0.006	0.203	0.255	-0.001	0.042

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table C2: EV/Sales

	(1) EV/Sales	(2) EV/Sales	(3) EV/Sales	(4) EV/Sales	(5) EV/Sales	(6) EV/Sales
VIX	0.022* (0.012)	0.023** (0.012)	0.028* (0.016)	0.013 (0.011)	-0.003 (0.018)	-0.032 (0.033)
Tech		0.056 (0.222)	-0.020 (0.315)	-0.007 (0.220)	0.137 (0.255)	0.150 (0.379)
Cross-Border		0.121 (0.134)	0.143 (0.173)	0.283 (0.185)	0.436** (0.202)	0.344 (0.255)
Private		0.281 (0.220)	0.523* (0.297)	0.286 (0.303)	-0.104 (0.326)	0.014 (0.377)
Profitability			-0.065 (0.065)	-0.135* (0.069)	0.046 (0.103)	0.028 (0.115)
Leverage				0.056 (0.063)	0.043 (0.082)	0.058 (0.085)
Liquidity					0.067 (0.158)	-0.010 (0.178)
GDP Growth					-0.018 (0.043)	-0.012 (0.074)
Inflation					0.037 (0.037)	-0.010 (0.050)
Interest Rate					-0.151*** (0.039)	-0.051 (0.176)
Constant	0.131 (0.226)	0.037 (0.241)	-0.064 (0.363)	0.039 (0.435)	1.216* (0.653)	1.624 (2.163)
Year FE	No	No	No	No	No	Yes
Observations	702	702	323	235	178	178
R-squared	0.009	0.012	0.029	0.044	0.103	0.251
Adj. R-squared	0.008	0.007	0.014	0.019	0.049	0.025

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table C3: EV/EBIT

	(1) EV/EBIT	(2) EV/EBIT	(3) EV/EBIT	(4) EV/EBIT	(5) EV/EBIT	(6) EV/EBIT
VIX	0.004 (0.013)	0.003 (0.012)	0.004 (0.010)	0.004 (0.011)	0.005 (0.015)	-0.016 (0.033)
Tech		-0.451 (0.282)	-0.093 (0.304)	0.078 (0.336)	0.194 (0.352)	0.318 (0.331)
Cross-Border		0.065 (0.160)	0.076 (0.153)	0.212 (0.175)	0.241 (0.186)	0.278 (0.212)
Private		-0.303 (0.283)	0.218 (0.244)	0.142 (0.336)	-0.118 (0.345)	-0.003 (0.503)
Profitability			-0.501*** (0.060)	-0.538*** (0.069)	-0.306*** (0.096)	-0.299*** (0.105)
Leverage				0.004 (0.068)	-0.067 (0.078)	-0.064 (0.082)
Liquidity					0.237 (0.190)	0.185 (0.218)
GDP Growth					0.041 (0.034)	-0.052 (0.055)
Inflation					0.015	0.010

					(0.043)	(0.063)
Interest Rate					-0.035	0.083
					(0.038)	(0.164)
Constant	2.824***	2.877***	1.051***	0.897**	1.338***	0.336
	(0.242)	(0.250)	(0.289)	(0.365)	(0.476)	(2.141)
Year FE	No	No	No	No	No	Yes
Observations	345	345	278	211	156	156
R-squared	0.000	0.011	0.255	0.283	0.127	0.296
Adj. R-squared	-0.002	-0.001	0.241	0.262	0.067	0.051

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table C4: EV/Net Assets

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/Net Assets	EV/Net Assets	EV/Net Assets	EV/Net Assets	EV/Net Assets	EV/Net Assets
VIX	0.045***	0.046***	0.036*	0.012	0.005	-0.007
	(0.015)	(0.015)	(0.019)	(0.012)	(0.027)	(0.045)
Tech		0.124	0.194	-0.153	-0.008	0.313
		(0.332)	(0.376)	(0.384)	(0.416)	(0.431)
Cross-Border		0.174	0.080	0.137	0.284	0.182
		(0.158)	(0.159)	(0.177)	(0.207)	(0.247)
Private		0.420*	0.516**	0.323	0.233	0.280
		(0.218)	(0.257)	(0.333)	(0.342)	(0.422)
Profitability			-0.125**	-0.158**	0.028	0.042
			(0.063)	(0.066)	(0.090)	(0.096)
Leverage				0.162***	0.113	0.124
				(0.061)	(0.084)	(0.075)
Liquidity					-0.168	-0.153
					(0.125)	(0.152)
GDP Growth					-0.030	-0.026
					(0.039)	(0.059)
Inflation					0.008	0.006
					(0.025)	(0.046)
Interest Rate					-0.069**	-0.363
					(0.033)	(0.221)
Constant	0.598**	0.462	0.190	0.851**	1.667***	5.476**
	(0.279)	(0.283)	(0.370)	(0.375)	(0.588)	(2.686)
Year FE	No	No	No	No	No	Yes
Observations	474	474	321	235	176	176
R-squared	0.042	0.050	0.060	0.103	0.074	0.309
Adj. R-squared	0.040	0.042	0.045	0.080	0.018	0.097

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table C5: EV/Net Income

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/Net Income	EV/Net Income	EV/Net Income	EV/Net Income	EV/Net Income	EV/Net Income
VIX	0.011	0.013	0.017	0.002	-0.000	-0.031
	(0.014)	(0.014)	(0.013)	(0.007)	(0.012)	(0.023)
Tech		-0.266	0.418	0.224	0.244	0.527**
		(0.289)	(0.308)	(0.307)	(0.314)	(0.259)
Cross-Border		0.160	0.139	0.284**	0.375**	0.356**
		(0.150)	(0.122)	(0.127)	(0.145)	(0.165)
Private		0.184	0.559***	0.392**	0.375*	0.517*
		(0.272)	(0.182)	(0.172)	(0.212)	(0.268)
Profitability			-0.654***	-0.705***	-0.726***	-0.725***
			(0.044)	(0.045)	(0.059)	(0.060)
Leverage				0.063	0.042	0.023
				(0.046)	(0.066)	(0.060)
Liquidity					-0.036	-0.132
					(0.105)	(0.124)

GDP Growth					0.009 (0.025)	-0.014 (0.044)
Inflation					-0.001 (0.024)	-0.009 (0.034)
Interest Rate					-0.022 (0.021)	-0.175 (0.115)
Constant	3.152*** (0.259)	3.058*** (0.268)	0.718*** (0.250)	0.913*** (0.257)	0.848** (0.331)	3.263** (1.574)
Year FE	No	No	No	No	No	Yes
Observations	409	409	340	242	183	183
R-squared	0.003	0.009	0.461	0.563	0.508	0.615
Adj. R-squared	0.000	-0.001	0.453	0.552	0.479	0.500

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

C.2. EPU Robustness Results

Since the robustness check for EPU was performed across all valuation multiples and time lags, including the full set of results in the Appendix would be excessive. Therefore, for each multiple, the tables show the one- and twelve-month lagged values to ensure better comparability among the multiples.

C.2.1. EPU Results: EV/EBITDA

Table C6: EV/EBITDA

	(1) EV/EBITDA	(2) EV/EBITDA	(3) EV/EBITDA	(4) EV/EBITDA	(5) EV/EBITDA	(6) EV/EBITDA
EPU (t-1)	-0.004** (0.001)	-0.003** (0.001)	-0.001 (0.001)	-0.002 (0.002)	0.001 (0.002)	0.001 (0.004)
Tech		-0.338 (0.225)	-0.014 (0.287)	-0.140 (0.345)	-0.040 (0.283)	-0.418 (0.278)
Cross-Border		0.060 (0.154)	0.157 (0.152)	0.195 (0.165)	0.304* (0.156)	0.295* (0.174)
Private		0.059 (0.269)	0.251 (0.273)	0.075 (0.360)	-0.251 (0.318)	-0.149 (0.396)
Profitability			-0.417*** (0.060)	-0.466*** (0.066)	-0.082 (0.062)	-0.052 (0.073)
Leverage				0.036 (0.067)	-0.034 (0.063)	-0.004 (0.062)
Liquidity					0.137 (0.191)	0.141 (0.187)
GDP Growth					0.008 (0.033)	0.019 (0.058)
Inflation					-0.009 (0.025)	-0.014 (0.036)
Interest Rate					-0.019 (0.033)	0.264* (0.149)
Constant	2.979*** (0.196)	2.957*** (0.204)	1.032*** (0.271)	0.987** (0.399)	1.630*** (0.475)	-0.885 (1.707)
Year FE	No	No	No	No	No	Yes
Observations	295	295	242	193	151	151
R-squared	0.023	0.028	0.212	0.276	0.058	0.288
Adj. R-squared	0.020	0.015	0.196	0.253	-0.010	0.020

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table C7: EV/EBITDA

	(1) EV/EBITDA	(2) EV/EBITDA	(3) EV/EBITDA	(4) EV/EBITDA	(5) EV/EBITDA	(6) EV/EBITDA
EPU (t-12)	-0.004***	-0.004**	-0.002	-0.003	-0.000	0.006

	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.009)
Tech		-0.298	0.024	-0.065	-0.028	-0.448*
		(0.229)	(0.287)	(0.342)	(0.276)	(0.264)
Cross-Border		0.045	0.155	0.178	0.296*	0.321*
		(0.154)	(0.152)	(0.163)	(0.154)	(0.180)
Private		0.108	0.278	0.125	-0.241	-0.207
		(0.270)	(0.275)	(0.362)	(0.333)	(0.391)
Profitability			-0.412***	-0.464***	-0.086	-0.059
			(0.060)	(0.065)	(0.060)	(0.073)
Leverage				0.033	-0.036	0.001
				(0.068)	(0.065)	(0.060)
Liquidity					0.130	0.147
					(0.197)	(0.186)
GDP Growth					0.001	0.021
					(0.031)	(0.057)
Inflation					-0.005	-0.018
					(0.024)	(0.035)
Interest Rate					-0.031	0.261*
					(0.030)	(0.142)
Constant	3.089***	3.061***	1.148***	1.141***	1.820***	-1.348
	(0.224)	(0.232)	(0.298)	(0.406)	(0.515)	(1.803)
Year FE	No	No	No	No	No	Yes
Observations	295	295	242	193	151	151
R-squared	0.025	0.029	0.214	0.281	0.056	0.292
Adj. R-squared	0.022	0.016	0.198	0.257	-0.011	0.025

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

C.2.2. EPU Results: EV/Sales

Table C8: EV/Sales

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/Sales	EV/Sales	EV/Sales	EV/Sales	EV/Sales	EV/Sales
EPU (t-1)	0.004***	0.004***	0.002	0.002	0.003	-0.001
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.005)
Tech		0.035	0.001	-0.013	0.134	0.147
		(0.236)	(0.361)	(0.233)	(0.251)	(0.382)
Cross-Border		0.117	0.115	0.293	0.452**	0.314
		(0.134)	(0.177)	(0.184)	(0.200)	(0.256)
Private		0.171	0.421	0.213	-0.102	-0.007
		(0.219)	(0.303)	(0.306)	(0.301)	(0.393)
Profitability			-0.081	-0.143**	0.046	0.027
			(0.067)	(0.069)	(0.103)	(0.116)
Leverage				0.067	0.047	0.056
				(0.063)	(0.082)	(0.085)
Liquidity					0.070	-0.007
					(0.156)	(0.177)
GDP Growth					0.001	-0.017
					(0.043)	(0.076)
Inflation					0.026	-0.001
					(0.033)	(0.051)
Interest Rate					-0.117***	-0.025
					(0.036)	(0.177)
Constant	0.102	0.047	0.074	-0.012	0.626	0.525
	(0.159)	(0.166)	(0.336)	(0.406)	(0.581)	(1.838)
Year FE	No	No	No	No	No	Yes
Observations	702	702	323	235	178	178
R-squared	0.014	0.016	0.020	0.047	0.113	0.245
Adj. R-squared	0.013	0.010	0.005	0.022	0.060	0.018

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table C9: EV/Sales

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/Sales	EV/Sales	EV/Sales	EV/Sales	EV/Sales	EV/Sales
EPU (t-12)	0.005*** (0.002)	0.005*** (0.002)	0.002 (0.002)	0.002 (0.003)	0.002 (0.003)	0.003 (0.016)
Tech		0.033 (0.244)	-0.001 (0.376)	-0.048 (0.244)	0.092 (0.270)	0.157 (0.371)
Cross-Border		0.118 (0.134)	0.123 (0.176)	0.297 (0.183)	0.452** (0.201)	0.320 (0.264)
Private		0.139 (0.221)	0.415 (0.308)	0.207 (0.315)	-0.127 (0.317)	-0.017 (0.372)
Profitability			-0.076 (0.068)	-0.139** (0.069)	0.045 (0.103)	0.025 (0.121)
Leverage				0.066 (0.063)	0.047 (0.081)	0.058 (0.085)
Liquidity					0.077 (0.157)	-0.008 (0.178)
GDP Growth					-0.005 (0.046)	-0.018 (0.074)
Inflation					0.030 (0.034)	-0.001 (0.051)
Interest Rate					-0.129*** (0.039)	-0.028 (0.175)
Constant	-0.008 (0.192)	-0.057 (0.198)	0.181 (0.382)	0.084 (0.443)	0.781 (0.710)	0.219 (2.042)
Year FE	No	No	No	No	No	Yes
Observations	702	702	323	235	178	178
R-squared	0.015	0.017	0.015	0.042	0.106	0.246
Adj. R-squared	0.013	0.011	-0.001	0.017	0.052	0.018

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

C.2.3. EPU Results: EV/EBIT

Table C10: EV/EBIT

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/EBIT	EV/EBIT	EV/EBIT	EV/EBIT	EV/EBIT	EV/EBIT
EPU (t-1)	-0.004*** (0.001)	-0.004*** (0.001)	-0.003* (0.001)	-0.003 (0.002)	-0.000 (0.002)	0.002 (0.004)
Tech		-0.358 (0.272)	-0.073 (0.306)	0.090 (0.335)	0.193 (0.348)	0.340 (0.333)
Cross-Border		0.098 (0.158)	0.094 (0.153)	0.199 (0.173)	0.239 (0.184)	0.285 (0.212)
Private		-0.295 (0.281)	0.230 (0.243)	0.164 (0.327)	-0.133 (0.344)	0.035 (0.504)
Profitability			-0.485*** (0.059)	-0.524*** (0.069)	-0.306*** (0.094)	-0.298*** (0.106)
Leverage				0.001 (0.067)	-0.067 (0.078)	-0.059 (0.080)
Liquidity					0.236 (0.192)	0.185 (0.210)
GDP Growth					0.036 (0.033)	-0.058 (0.054)
Inflation					0.018 (0.041)	0.012 (0.063)
Interest Rate					-0.042 (0.038)	0.084 (0.166)
Constant	3.416*** (0.192)	3.412*** (0.196)	1.516*** (0.298)	1.404*** (0.408)	1.519*** (0.527)	-0.330 (1.946)
Year FE	No	No	No	No	No	Yes

Observations	345	345	278	211	156	156
R-squared	0.026	0.034	0.265	0.295	0.127	0.297
Adj. R-squared	0.023	0.023	0.252	0.275	0.067	0.052

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table C11: EV/EBIT

	(1) EV/EBIT	(2) EV/EBIT	(3) EV/EBIT	(4) EV/EBIT	(5) EV/EBIT	(6) EV/EBIT
EPU (t-12)	-0.006*** (0.002)	-0.006*** (0.002)	-0.004** (0.002)	-0.006*** (0.002)	-0.004 (0.003)	0.006 (0.011)
Tech		-0.288 (0.280)	0.000 (0.308)	0.240 (0.328)	0.285 (0.336)	0.304 (0.328)
Cross-Border		0.084 (0.157)	0.089 (0.152)	0.173 (0.170)	0.215 (0.181)	0.294 (0.209)
Private		-0.226 (0.283)	0.277 (0.240)	0.249 (0.319)	-0.080 (0.355)	-0.033 (0.504)
Profitability			-0.477*** (0.059)	-0.516*** (0.068)	-0.309*** (0.092)	-0.305*** (0.107)
Leverage				-0.001 (0.066)	-0.069 (0.078)	-0.061 (0.081)
Liquidity					0.205 (0.196)	0.191 (0.212)
GDP Growth					0.018 (0.031)	-0.054 (0.055)
Inflation					0.028 (0.042)	0.009 (0.063)
Interest Rate					-0.069* (0.040)	0.086 (0.161)
Constant	3.668*** (0.222)	3.633*** (0.228)	1.729*** (0.329)	1.765*** (0.410)	2.046*** (0.599)	-0.618 (2.101)
Year FE	No	No	No	No	No	Yes
Observations	345	345	278	211	156	156
R-squared	0.038	0.043	0.271	0.312	0.137	0.296
Adj. R-squared	0.036	0.032	0.258	0.292	0.078	0.051

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

C.2.4. EPU Results: EV/Net Assets

Table C12: EV/Net Assets

	(1) EV/Net Assets	(2) EV/Net Assets	(3) EV/Net Assets	(4) EV/Net Assets	(5) EV/Net Assets	(6) EV/Net Assets
EPU (t-1)	0.003* (0.002)	0.003* (0.002)	0.001 (0.002)	0.001 (0.002)	0.002 (0.003)	0.005 (0.005)
Tech		0.206 (0.375)	0.258 (0.436)	-0.158 (0.383)	-0.004 (0.417)	0.385 (0.449)
Cross-Border		0.145 (0.160)	0.057 (0.165)	0.145 (0.177)	0.294 (0.206)	0.196 (0.238)
Private		0.299 (0.221)	0.413 (0.263)	0.272 (0.338)	0.209 (0.337)	0.351 (0.418)
Profitability			-0.137** (0.068)	-0.160** (0.067)	0.031 (0.089)	0.043 (0.094)
Leverage				0.169*** (0.061)	0.114 (0.083)	0.131* (0.074)
Liquidity					-0.174 (0.122)	-0.159 (0.147)
GDP Growth					-0.018 (0.038)	-0.040 (0.060)
Inflation					0.003 (0.026)	0.012 (0.042)

Interest Rate					-0.050 (0.035)	-0.373* (0.222)
Constant	1.057*** (0.211)	0.987*** (0.217)	0.659* (0.336)	0.987** (0.418)	1.422** (0.609)	4.817** (2.422)
Year FE	No	No	No	No	No	Yes
Observations	474	474	321	235	176	176
R-squared	0.011	0.016	0.027	0.100	0.078	0.318
Adj. R-squared	0.009	0.008	0.011	0.076	0.022	0.110

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table C13: EV/Net Assets

	(1) EV/Net Assets	(2) EV/Net Assets	(3) EV/Net Assets	(4) EV/Net Assets	(5) EV/Net Assets	(6) EV/Net Assets
EPU (t-12)	0.000 (0.001)	-0.000 (0.001)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.003)	-0.009 (0.010)
Tech		0.266 (0.388)	0.295 (0.445)	-0.138 (0.377)	0.013 (0.406)	0.303 (0.416)
Cross-Border		0.165 (0.161)	0.072 (0.164)	0.143 (0.177)	0.282 (0.207)	0.160 (0.242)
Private		0.324 (0.220)	0.450* (0.257)	0.304 (0.339)	0.227 (0.352)	0.346 (0.428)
Profitability			-0.121* (0.068)	-0.154** (0.066)	0.030 (0.089)	0.048 (0.095)
Leverage				0.163*** (0.062)	0.113 (0.083)	0.118 (0.076)
Liquidity					-0.170 (0.127)	-0.155 (0.155)
GDP Growth					-0.036 (0.039)	-0.025 (0.059)
Inflation					0.012 (0.026)	0.010 (0.042)
Interest Rate					-0.079** (0.038)	-0.355 (0.228)
Constant	1.391*** (0.205)	1.334*** (0.211)	1.041*** (0.375)	1.205*** (0.403)	1.911*** (0.609)	6.065** (2.737)
Year FE	No	No	No	No	No	Yes
Observations	474	474	321	235	176	176
R-squared	0.000	0.008	0.026	0.100	0.074	0.313
Adj. R-squared	-0.002	-0.001	0.011	0.076	0.018	0.102

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

C.2.5. EPU Results: EV/Net Income

Table C14: EV/Net Income

	(1) EV/Net Income	(2) EV/Net Income	(3) EV/Net Income	(4) EV/Net Income	(5) EV/Net Income	(6) EV/Net Income
EPU (t-1)	-0.003** (0.001)	-0.003** (0.001)	0.000 (0.001)	-0.000 (0.001)	0.000 (0.002)	0.003 (0.004)
Tech		-0.163 (0.300)	0.444 (0.336)	0.223 (0.305)	0.242 (0.312)	0.571** (0.267)
Cross-Border		0.165 (0.151)	0.127 (0.125)	0.285** (0.128)	0.376** (0.148)	0.340** (0.165)
Private		0.192 (0.265)	0.511*** (0.188)	0.388** (0.173)	0.376* (0.207)	0.552** (0.271)
Profitability			-0.656*** (0.046)	-0.703*** (0.046)	-0.726*** (0.061)	-0.725*** (0.063)
Leverage				0.063 (0.045)	0.042 (0.064)	0.026 (0.057)
Liquidity					-0.037	-0.129

					(0.106)	(0.121)
GDP Growth					0.012	-0.024
					(0.024)	(0.043)
Inflation					-0.002	0.001
					(0.023)	(0.034)
Interest Rate					-0.018	-0.158
					(0.025)	(0.112)
Constant	3.707***	3.641***	1.007***	0.983***	0.769*	1.957
	(0.185)	(0.191)	(0.244)	(0.316)	(0.464)	(1.405)
Year FE	No	No	No	No	No	Yes
Observations	409	409	340	242	183	183
R-squared	0.011	0.016	0.453	0.563	0.508	0.613
Adj. R-squared	0.009	0.006	0.445	0.552	0.480	0.497

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Table C15: EV/Net Income

	(1)	(2)	(3)	(4)	(5)	(6)
	EV/Net Income	EV/Net Income	EV/Net Income	EV/Net Income	EV/Net Income	EV/Net Income
EPU (t-12)	-0.005***	-0.005***	-0.001	-0.002	-0.002	0.004
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.008)
Tech		-0.103	0.470	0.274	0.282	0.533**
		(0.305)	(0.344)	(0.305)	(0.312)	(0.258)
Cross-Border		0.168	0.134	0.281**	0.364**	0.342**
		(0.150)	(0.124)	(0.128)	(0.147)	(0.168)
Private		0.271	0.535***	0.429**	0.400*	0.484*
		(0.265)	(0.189)	(0.177)	(0.218)	(0.271)
Profitability			-0.648***	-0.698***	-0.727***	-0.730***
			(0.047)	(0.045)	(0.061)	(0.063)
Leverage				0.058	0.039	0.024
				(0.046)	(0.064)	(0.060)
Liquidity					-0.042	-0.129
					(0.108)	(0.122)
GDP Growth					0.000	-0.020
					(0.023)	(0.044)
Inflation					0.004	-0.001
					(0.022)	(0.034)
Interest Rate					-0.037	-0.154
					(0.023)	(0.113)
Constant	3.961***	3.904***	1.220***	1.206***	1.092**	1.838
	(0.210)	(0.219)	(0.292)	(0.319)	(0.467)	(1.532)
Year FE	No	No	No	No	No	Yes
Observations	409	409	340	242	183	183
R-squared	0.023	0.028	0.454	0.567	0.510	0.611
Adj. R-squared	0.020	0.019	0.446	0.556	0.481	0.494

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01