

DEALS ON HOLD

A STUDY ON THE IMPACT OF POLICY UNCERTAINTY ON
MERGER AND ACQUISITION ACTIVITY IN SWEDEN

ERNESTO CELIKER

MUHAMET RRAHMANI

Bachelor Thesis

Stockholm School of Economics

2024



Deals on Hold: A Study on the Impact of Policy Uncertainty on Merger and Acquisition Activity in Sweden

Abstract:

Policy uncertainty is significantly negatively correlated with merger and acquisition (M&A) activity in Sweden. Consistent with the real options channel theory, the effect is weaker in competitive industries, where delays are costly, and stronger in industries sensitive to government spending, where uncertainty about future profitability is greater. However, we find no evidence that irreversibility amplifies this effect. The negative effect is lasting, with no indication that delayed deals are completed later, highlighting the long-term costs of policy uncertainty for corporate investments.

Keywords:

Mergers and acquisitions, Policy uncertainty, Real options

Authors:

Ernesto Celiker (25689)

Muhamet Rrahmani (25349)

Tutors:

Ran Guo, Visiting Teacher, Department of Finance

Examiner:

Ramin Baghai, Associate Professor, Department of Finance

Bachelor Thesis

Bachelor Program in Business & Economics

Stockholm School of Economics

© Ernesto Celiker and Muhamet Rrahmani, 2024

1. Introduction

The relation between policy uncertainty and economic activity has gained increasing attention from academia and policymakers, particularly in the context of corporate investment decisions such as mergers and acquisitions (M&A). M&As are critical in reallocating resources, with an average annual deal value of approximately USD 2.6 trillion and approximately 36,700 deals on a yearly average globally between 1990 and 2023 (Statista Search Department, 2024). However, they are also complex and capital-intensive, making them sensitive to external macroeconomic conditions, including policy uncertainty. The past few decades have witnessed several global events, such as the global financial crisis in 2008, the Covid-19 pandemic and the Russia-Ukraine War, which have contributed to high levels of policy uncertainty worldwide. In fact, policy uncertainty, as measured by the Baker, Bloom, and Davis (2016) (henceforth, BBD) index, reached an all-time global high in April 2020, the highest level recorded since the index's earliest measurable data from 1996, driven by the uncertainty surrounding the Covid-19 pandemic. These developments underscore the importance of understanding how such uncertainty influences corporate decision-making - in this case, M&A activity.

Prior literature investigating the relation between policy uncertainty and M&A activity has primarily focused on large economies, particularly the US, and has been conducted prior to the recent years' record high levels of uncertainty. Studies like Bonaime, Gulen, and Ion (2018) and Nguyen and Phan (2017), covering M&A activity until 2014 and 2012 respectively, find that policy uncertainty is negatively correlated with M&A activity in the US. However, there is a lack of research exploring this relation in small open economies (SOEs), like Sweden. This paper addresses this gap by examining how policy uncertainty influences the firm acquisitiveness in Sweden. The Swedish and US economies are different regarding several important economic dimensions, such as political stability and government spending. According to the World Bank Political Stability Index (n.d.), Sweden ranked 34th globally compared to the US at 100th in 2022. Regarding government spending, Sweden's government expenditure as a share of the GDP was 47.3% in 2022, compared to 36.3% in the US (International Monetary Fund, 2022). By analysing the relation between policy uncertainty and M&A activity in Sweden, we provide new insights into how policy uncertainty impacts M&A activity outside the US, in a context with a fundamentally different political context. Our paper further contributes to the literature by examining if this relation holds across an extended dataset up until 2023, which includes new periods of record levels of policy uncertainty.

In this paper, we address the research question:

Does policy uncertainty reduce firm acquisitiveness in Sweden?

We hypothesise that periods of high policy uncertainty lead to a reduction in firm acquisitiveness in Sweden. To test this, we analyse the relation between policy uncertainty and M&A activity over the period 1991 to 2023, using the BBD (2016) index for Sweden as our measure of policy uncertainty. The BBD (2016) index is a weighted average of (i) the frequency of articles related to policy uncertainty in leading newspapers, (ii) tax code change uncertainty, and (iii) economic forecast disagreements. For Sweden, the index is constructed using article frequency data from four major Swedish

newspapers. It captures policy uncertainty specific to Sweden, with notable spikes during key events like the Nordic Banking crisis, the global financial crisis and the Covid-19 pandemic (see Fig. 1).

We begin our empirical analysis by investigating how policy uncertainty affects firm acquisitiveness using a probit model, where the dependent variable is an indicator for whether a firm announces at least one acquisition in a given year. The independent variable is the natural logarithm of the BBD (2016) index, capturing policy uncertainty, with controls for firm-level data and industry fixed effects. We find a significant negative relation between policy uncertainty and firm acquisitiveness, consistent with prior studies such as Bonaime et al. (2018) and Nguyen and Phan (2017). Our results suggest that a one-standard-deviation increase in the BBD (2016) index value above its mean reduces the probability of making an acquisition by 2.3%. This effect is economically important, given the sample's unconditional M&A probability of 17.6%.

To investigate a potential explanation to why policy uncertainty affects firm acquisitiveness negatively, we turn to the real options channel, which suggests that higher levels of uncertainty increase the value of delaying investments (e.g. Bloom, 2009), incentivising firms to postpone acquisitions. We use the framework outlined by Bonaime et al. (2018) and test three predictions related to this theory. First, the effect of policy uncertainty should be stronger for investments that are harder to reverse. Using durable industries as a proxy for irreversibility, we find no significant evidence that policy uncertainty has a stronger negative effect on acquirers operating in durable industries. This contrasts with findings by Bonaime et al. (2018) who conducted their analysis at the target level and found support for this hypothesis. Second, the option to delay should play a smaller role in acquisitions where postponement is costly. Consistent with this prediction, we find that policy uncertainty has a weaker effect in competitive industries, where the threat of losing strategic opportunities to competitors makes delays more costly. Third, the degree to which policy uncertainty increases the value of the option to delay should depend on how strongly policy uncertainty translates into uncertainty about the acquirer's profitability. Supporting this prediction, we find that policy uncertainty has a stronger negative effect on firms operating in industries sensitive to government spending, whose profits are likely tied more closely with government policies. Our findings suggest that the real options channel partially explains the negative relation between policy uncertainty and firm acquisitiveness. However, the lack of support for the irreversibility prediction may reflect limitations in our proxies or the acquirer-focused analysis, which might not capture constraints faced by acquiring more irreversible targets.

To fully understand the economic impact of these findings, it is important to ask whether the deals delayed during periods of high policy uncertainty get completed at a later time. We extend our analysis to examine the long-term effects of policy uncertainty on firm acquisitiveness, assessing its impact up to four years into the future. The results show consistently negative, statistically insignificant coefficients, indicating no reversal of the negative effect over time. This suggests that a sufficient portion of deals may be permanently forgone rather than simply delayed.

Policy uncertainty is often countercyclical (e.g. Bloom et al., 2018), raising concerns that high levels of uncertainty may coincide with weaker economic conditions and distort the

results. To address this, we conduct robustness checks with macroeconomic controls; GDP growth, yield spreads and the consumer confidence indicator. After controlling for the mentioned variables, we find that the negative relation between policy uncertainty and firm acquisitiveness remains robust. Additionally, we test the robustness of our findings by substituting the BBD (2016) index with the World Uncertainty Index (WUI), which captures broader uncertainty. The results show no significant relation between the WUI and firm acquisitiveness, reinforcing that policy-related uncertainty, as measured by the BBD (2016) index, plays a more critical role in influencing M&A activity than a broader measure of uncertainty.

2. Literature review

Our study contributes to two main strands of literature: (i) the drivers of M&A activity; and (ii) the impact of policy uncertainty on economic outcomes.

Starting with the first research area, i.e. the drivers of M&A activity, prior literature have highlighted several key determinants that influence M&A activity. This includes misvaluations (Dong et al., 2006), business cycles (Maksimovic and Phillips, 2001), product market considerations (Hoberg and Phillips, 2010), risk management (Garfinkel and Hankins, 2011), corporate liquidity (Almeida and Campello, 2007) and CEO traits and preferences (Jenter and Lewellen, 2015).

Beyond these drivers, recent studies have increasingly focused on the role of uncertainty in shaping M&A activity. Some studies argue that future cash flow uncertainty encourages vertical integration as a risk management strategy (Garfinkel and Hankins, 2011), which is consistent with other studies suggesting that merger waves increase firm-level uncertainty, which in turn drives mergers fuelled by empire-building motives (Duchin and Schmidt, 2013). Our study differs from these by focusing on macro level uncertainty, particularly uncertainty related to government regulations and fiscal policies, rather than firm-level.

Papers that are closer to our thesis are thus papers looking at how macro level uncertainty affects M&A activity, such as (Bhagwat, Dam, and Harford, 2016) and (Cao, Li, and Liu, 2019). Bhagwat, Dam, and Harford (2016) show that increases in market-wide uncertainty, as measured by market-wide implied volatility (VIX), are associated with weaker M&A activity. Cao, Li, and Liu (2019) studies how political uncertainty, proxied as national elections, affects the volume and outcome of cross-border acquisitions. Our paper differs by focusing specifically on the narrower impact of *policy* uncertainty on M&A activity.

The second literature strand explores how *policy* uncertainty impacts economic outcomes. For example, Baker et al. (2016) find that higher policy uncertainty correlates with increased stock price volatility and declines in industrial production and employment, while Gulen and Ion (2016) demonstrate a significant negative relation between capital expenditures and policy uncertainty - both studies using the BBD (2016) index, as we do in our analysis. Our study extends this literature by focusing on how policy uncertainty influences M&A activity specifically.

Studies that focus more narrowly on policy uncertainty and its impact on M&A activity are as such closer to our thesis, with a few recent studies fitting this frame. Bonaime et al. (2018) find that policy uncertainty is strongly negatively associated with M&A activity at the macro and firm level. Nguyen and Phan (2017) reach similar conclusions, while also finding that policy uncertainty is positively related to the time it takes to complete M&A deals as well as that it motivates acquirers to use stock for payment and to pay lower bid premiums. While both studies focus exclusively on the US, our research extends this literature by examining the impact of policy uncertainty on M&A activity in Sweden, contributing to the understanding of the effect in a SOE and fundamentally more stable political context. Moreover, as these papers cover M&A activity until 2014, our paper

helps understand this relation by using a larger dataset spanning until 2023 and including periods of record-high policy uncertainty.

3. Data and variables

In this section, we present the three main datasets used: (i) The Baker, Bloom, and Davis (BBD, 2016) policy uncertainty index; (ii) M&A data from the Refinitiv Eikon Database; and (iii) Firm-level data from Compustat Global, used as control variables.

3.1. Policy uncertainty data

We use the BBD (2016) index to proxy for policy uncertainty. Developed by Baker et al. (2016), this index is a weighted average of three components: (i) the frequency of news articles containing terms related to economic and policy uncertainty; (ii) uncertainty regarding future federal tax code changes; and (iii) dispersion in economic forecasts concerning government spending and inflation. The authors construct the index by normalizing each component and assigning weights of 1/2 for the news-based component, 1/6 for tax-related uncertainty and 1/3 for forecaster disagreement. This follows for each country measured and is, to the extent possible, constructed relative to the respective economy, including for Sweden. Consistent with prior literature, we construct the policy uncertainty variable as the natural logarithm of the weighted average of the BBD (2016) index values over the last three months of the preceding year for each firm.

We use the BBD (2016) index for Sweden for our tests. It is constructed by using the National Library of Sweden's online archives for analysing article frequency in four major Swedish newspapers: Aftonbladet, Expressen, Dagens Industri and Svenska Dagbladet. Articles are counted if they include terms related to the economy (ekonomi or ekonomisk), policy (riksbank, centralbank, regering, departement, or reglering) and uncertainty (osäker or oro). These counts are scaled by the total number of economic articles for each newspaper and standardized. The standardized counts are averaged across the four newspapers monthly to form the Swedish policy uncertainty index, which is normalized to have a mean of 100 over the baseline period (1985–2009). Given this country-specific construction, this index provides a focused measure of policy uncertainty specific to the Swedish economy. Fig. 1 shows clear increases around events which are expected to increase policy related uncertainty in Sweden, including: the Nordic Banking crisis in the early 1990s; the IT bubble crash and 9/11 terrorist attacks in the early 2000s; the global financial crisis in 2008; the European sovereign debt crisis in 2011; the Covid-19 pandemic in 2020; and the Russia-Ukraine war in 2022.

Moreover, Table 1 highlights the differences in level and volatility between the Global, US, and Swedish BBD (2016) indices, clearly demonstrating that Sweden exhibits lower mean and median values, as well as reduced fluctuations, compared to the two indices. This suggests that Sweden experiences more stable levels of policy uncertainty relative to these other regions.

Table 1

Summary statistics on the Baker et al. (BBD, 2016) policy uncertainty index and M&A data

The table presents summary statistics on the BBD (2016) policy uncertainty index and M&A data. The summary statistics on the BBD (2016) index are presented in the first panel and cover the global, US and Swedish statistics during our sample period (1990-2023). The summary statistics on M&A data are presented in the second panel and covers M&A announcements reported in Refinitiv Eikon between 1991 and 2023. To be included in our sample, deals must have a minimum value of USD 1 million and the acquirer must hold less than 50% of the target's shares six months prior to the announcement and achieve 100% ownership post-acquisition. The statistics cover deals by Swedish acquirers, public Swedish acquirers and public Swedish acquirers merged with Compustat Global.

	Mean	Q1	Median	Q3	Std.Dev
Global	142.11	80.04	116.71	177.74	78.59
United States	126.91	86.33	110.17	154.60	59.79
Sweden	100.43	83.78	99.95	115.18	22.29

	Number of deals	Average annual deal value (in \$ millions)	Average deal size (in \$ millions)	Median deal size (in \$ millions)
Swedish	3 304	16 132.37	166.01	20.12
Swedish Acquirer	1 934	7 150.20	125.70	16.00
merged	918	3 611.69	129.83	14.71

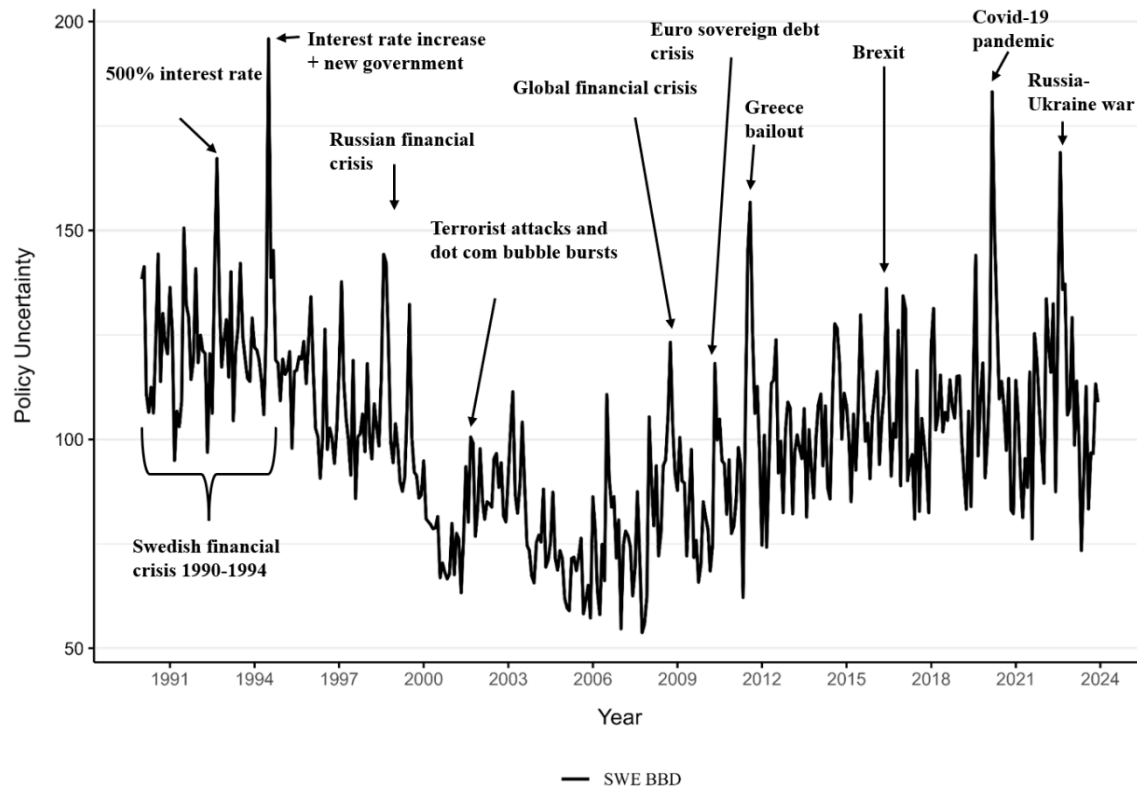


Fig. 1. Policy uncertainty index. This figure presents the monthly Baker et al. (BBD, 2016) policy uncertainty index for Sweden over the period 1990-2023.

3.2. M&A Data

We obtain the M&A data from the Refinitiv Eikon database. The sample covers the period from 1991 to 2023 to match the availability of accounting data from Compustat Global. We categorise deals into major industry groups using the 2-digit SIC code and restrict our sample to transactions involving Swedish acquirers. We focus on deals with a minimum value of USD 1 million and those where the acquirer held less than 50% of the target's shares six months prior to the announcement and achieved 100% ownership post-acquisition. Following prior literature, we also exclude deals from the Utility (SIC 4900-4999) and Financial (SIC 6000-6999) industries, as these sectors are highly regulated and may exhibit different acquisition patterns. Table 1 presents summary statistics for our sample of M&A deals. The full sample of M&A deals involving Swedish acquirers reports an average annual deal value of USD 14.5 billion, while the subset focusing on public Swedish acquirers averages USD 6.6 billion annually.

In Fig. 2, we focus on deals involving Swedish public acquirers and plot the annual total deal volume alongside the yearly BBD (2016) policy uncertainty index for the period 1990-2023. The figure indicates that higher levels of policy uncertainty are generally associated with lower M&A activity.

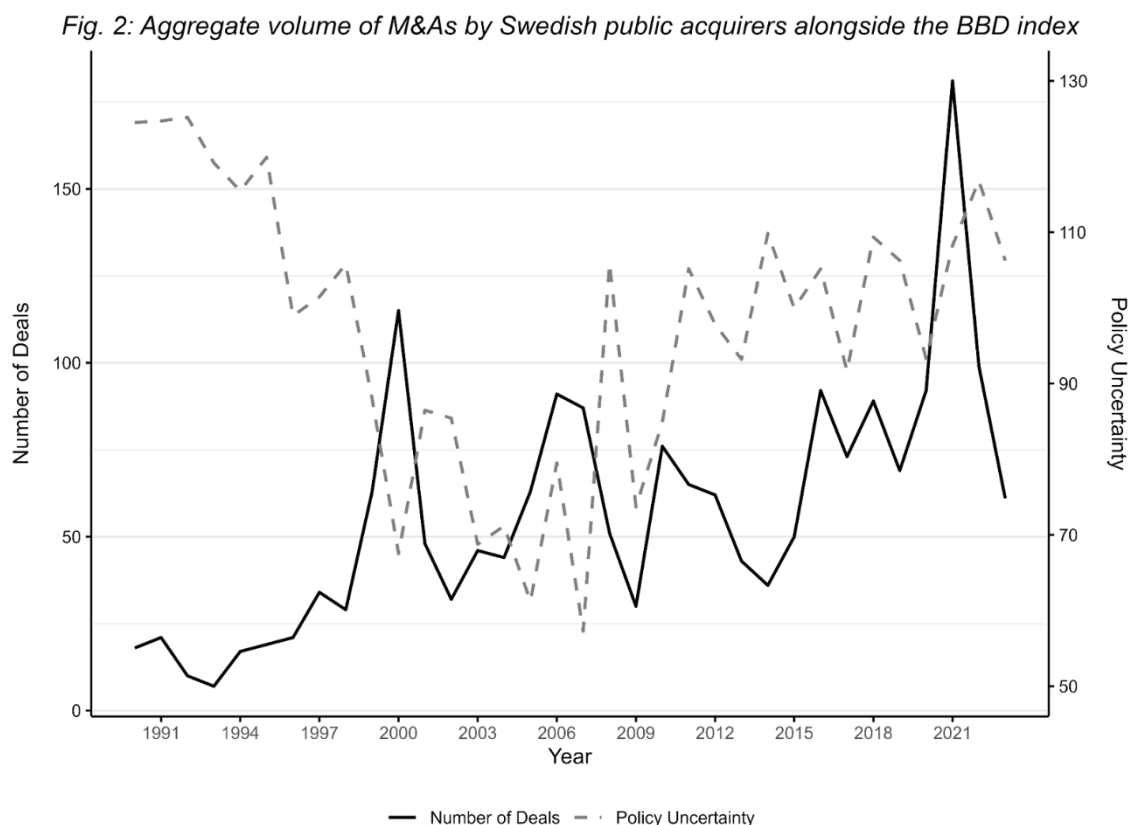


Fig. 2. Aggregate volume of M&As by Swedish public acquirers alongside the BBD index. This figure illustrates the aggregate M&A volume undertaken by Swedish public firms alongside the Baker et al. (2016) policy uncertainty index for the period 1990-2023. The solid lines (left axis) represent M&A volume, while the dashed lines (right axis) depict policy uncertainty.

3.3. Firm-level data for control variables

To obtain firm-level data for our control variables, we use the Compustat Global database for annual accounting and daily price data, ranging from 1989-2023 (two years earlier than the M&A data given the construction of the analysis). To link the M&A data from Refinitiv Eikon with firm-level data from Compustat Global, we use the Global Company Key (GVKEY) as the unique identifier, which is a six-digit number assigned to each company in the Capital IQ Compustat database. However, since GVKEYs are not directly available in the Refinitiv Eikon dataset, we use several manual methods to match the companies in the Refinitiv Eikon dataset to their respective GVKEYs. We first use ISIN codes to convert them into GVKEYs, which was provided from the Refinitiv support desk for part of the data. For the remaining dataset, we rely on company tickers to match them to GVKEYs. This process involves manually checking the output to make sure the correct companies are linked accurately.

Appendix A provides a detailed description of all variables used in this study.

4. Empirical analysis of policy uncertainty and firm acquisitiveness

We begin our empirical analysis by investigating how policy uncertainty affects firm acquisitiveness. We use a probit model with the following specification:

$$M\&A_dummy_{i,t} = + BBD_{t-1} + C_{i,t-1} + \gamma INDUSTRY_FIXED_EFFECTS + \varepsilon_{i,t}$$

where $M\&A_dummy$ is a dummy variable equal to 1 if firm i announces at least one acquisition in year t , and 0 otherwise. BBD represents the policy uncertainty variable, measured as the natural logarithm of the weighted average of the BBD (2016) index over the last three months of the preceding year relative to the deal. C is a vector of control variables. Following prior literature, we include firm characteristics known to influence acquisitiveness as controls, including *Size*, *Firm_age*, *Sales_growth*, *Book_leverage*, *Non_cash_working_capital*, *Past_12_month_return* and *Market-to-book*.¹ We include industry fixed effects to control for common industry factors that could affect acquisitiveness.² We provide definitions of the variables in Appendix A.

The estimates of our probit model are presented in Table 2. Column 1 shows that the coefficient for BBD is negative (-0.555) and statistically significant at the 1% level. These results are in line with our predictions and affirm that, consistent with Bonaime et al. (2018) and Nguyen and Phan (2017), there is a significant negative relation between policy uncertainty and firm acquisitiveness. Furthermore, our results contribute to the existing literature by demonstrating that this negative relation persists in a SOE like Sweden and with an extended dataset that captures record high levels of policy uncertainty. To assess the economic impact of policy uncertainty, we calculate the effect

¹ Although some control variables are not statistically significant in our baseline regression, we include them because prior literature has identified their explanatory power. Furthermore, when these variables are tested independently of the other controls, they demonstrate statistical significance, justifying their inclusion in the model.

² Since all firms experience the same level of policy uncertainty within a given year, we exclude year fixed effects from our regressions to avoid capturing most of the explanatory power of the policy uncertainty variable. Instead, we account for time-varying macroeconomic conditions by incorporating proxies for macroeconomic forces in the robustness checks section.

of a one-standard-deviation increase in BBD (2016) index value above its mean. Holding all other variables constant at their sample means, this increase corresponds to a 2.3% decrease in the probability of making an acquisition. This effect is economically important, given that the sample's unconditional probability of engaging in M&A activity is 17.6%.

Table 2

Policy uncertainty and firm acquisitiveness.

The table present results from the M&A probit regression on policy uncertainty and firm acquisitiveness. The dependent variable is M&A_dummy, which takes a value of 1 if a firm makes at least one M&A announcement in a given year, and 0 otherwise. BBD denotes the policy uncertainty variable, calculated as the natural logarithm of the weighted average of the BBD (2016) index over the last three months of the preceding year. Definitions of other variables are provided in Appendix A. Z-statistics, based on heteroscedasticity-robust standard errors clustered by year, are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Dependent variable:
	M&A_dummy
BBD	−0.555*** (0.164)
Size	0.105*** (0.015)
Firm_age	−0.017*** (0.006)
Sales_growth	0.029 (0.024)
Book_leverage	−0.029 (0.233)
Non_cash_working_capital	−0.083 (0.218)
Past_12_month_return	0.239*** (0.040)
Market_to_book	0.004 (0.005)
Constant	1.183 (0.968)
Industry fixed effects	Yes
Observations	4 160
Pseudo-R ²	0.236

5. Why does policy uncertainty affect firm acquisitiveness and is the effect temporary?

5.1. *The real options channel*

In this section, we investigate a potential explanation to why policy uncertainty affects firm acquisitiveness negatively: the real options channel. According to this theory, higher levels of uncertainty increase the value of delaying an investment, as firms benefit from waiting for more information before committing to irreversible decisions (Bloom, 2009). In the context of M&A, this implies that periods with higher levels of uncertainty could lead firms to postpone acquisitions. To test this hypothesis, we use the framework outlined by Bonaime et al. (2018), examining three key predictions of the real options theory: (i) the irreversibility of the investment; (ii) the cost of delaying the acquisition; and (iii) the firm's exposure to policy uncertainty.

5.1.1. *Investment irreversibility*

The hypothesis is that if policy uncertainty influences firm acquisitiveness by increasing the value of the option to wait, this effect should be stronger (more negative) for irreversible investments. To test this, we investigate if the negative effect of policy uncertainty on firm acquisitiveness is stronger for firms operating in industries where investments are difficult to reverse. As a proxy for irreversibility, we classify acquirers based on whether they operate in durable or nondurable industries. Industries producing durable goods are highly cyclical (Sharpe, 1994), and firms in highly cyclical industries are in turn less likely to be able to sell their assets to other firms in the industry during poor economic times, as potential buyers are often similarly affected by the same economic conditions (Shleifer and Vishny, 1992) and (Almeida and Campello, 2007). Bonaime, Gulen, and Ion (2018) identify the industries with the highest irreversibility scores, based on the Fama-French 48 classification, as steel works, rubber and plastic products, fabricated products, automobiles and trucks, transportation, restaurants, hotels and motels, business supplies, mining, and petroleum and natural gas. We include these industries in our proxy for irreversibility, mapping them to their corresponding 4-digit SIC codes based on the Fama–French classification.

We rerun our probit model for two subgroups: (i) firms operating in durable industries; and (ii) firms operating in nondurable industries. The results, presented in Table 3, do not show a statistically significant relation between policy uncertainty and firm acquisitiveness for firms in durable industries. Consequently, we find no evidence to support the hypothesis that the negative effect of policy uncertainty on firm acquisitiveness is stronger for irreversible investments, as observed in Bonaime et al. (2018). As we do not identify any country-specific differences between Sweden and US explaining the differences in the results regarding irreversible investments, we shift the focus to the difference in the analytical perspectives. Our study examines the acquirer level given our access to data, whereas Bonaime et al. (2018) focus on the target level and find support for their hypothesis. Analysing targets provides the advantage of directly observing the investment in question, allowing for irreversibility to be measured with greater precision at the target level. This distinction suggests that the relation between

policy uncertainty, irreversibility, and M&A activity may vary based on the perspective of the analysis.

Table 3

Investment irreversibility.

The table presents the results of the probit regressions examining the effect of policy uncertainty on firm acquisitiveness for two subgroups: (i) firms operating in durable industries (called “Durable”); and (ii) firms operating in non-durable industries (called “Non-durable”). For the respective group’s regression, the dependent variable equals 1 if a firm announces at least one M&A deal in a given year and 0 otherwise. Variable definitions are provided in Appendix A. Z-statistics, based on heteroscedasticity-robust standard errors clustered by year, are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	<i>Dependent variable:</i>	
	M&A_dummy	
	Durable 1	Non-durable 2
BBD	−0.298 (0.321)	−0.538*** (0.158)
Size	0.106** (0.051)	0.077*** (0.017)
Sales_growth	−0.040 (0.045)	0.048** (0.024)
Book_leverage	−0.267 (0.627)	0.062 (0.243)
Non_cash_working_capital	1.165* (0.648)	−0.255 (0.242)
Past_12_month_return	0.216** (0.085)	0.245*** (0.040)
Market_to_book	0.014 (0.016)	0.004 (0.005)
Constant	−0.244 (1.423)	1.067 (0.940)
Industry fixed effects	Yes	Yes
Observations	675	3 485
Pseudo-R ²	0.272	0.226

5.1.2. Cost of delaying

The hypothesis is that if policy uncertainty influences firm acquisitiveness by increasing the value of the option to wait, this effect should be reduced when the cost of delaying a deal is high. To test this, we investigate if the negative effect of policy uncertainty on firm acquisitiveness is weaker (less negative) where the cost of delaying is high. We use industry competitiveness as a proxy for the cost of delaying, classifying acquirers’ industries as either competitive (proxy for high cost of delaying) or non-competitive (proxy for low cost of delaying). Grenadier (2002) argues that the costs of delaying investments can be significantly higher in competitive industries, where the threat of rivals seizing share of the project’s value is higher. Our measure for competition is deal volume, defined in Appendix A.

We rerun our probit model for two subgroups: (i) firms operating in competitive industries; and (ii) firms operating in non-competitive industries. The results, reported in Table 4, show that there is a negative and statistically significant (at the 5% level) relation between policy uncertainty and firm acquisitiveness for firms operating in competitive industries. Moreover, consistent with the real options channel as well as Bonaime et al. (2018), the negative effect is weaker (less negative) for firms in these industries. This suggests that in competitive industries, the higher cost of delaying investments reduces the impact of policy uncertainty on firm acquisitiveness. Firms in these industries may feel greater pressure to act quickly, even under uncertain conditions, to avoid losing strategic opportunities to competitors. These findings are consistent with the explanation that policy uncertainty decreases firm acquisitiveness primarily by increasing the value of the option to delay.

Table 4

Cost of delaying (Competition).

The table presents the results of the probit regressions examining the effect of policy uncertainty on firm acquisitiveness for two subgroups: (i) firms operating in competitive industries (called “Competition”); and (ii) firms operating in non-competitive industries (called “Non-competition”). For the respective group’s regression, the dependent variable equals 1 if a firm announces at least one M&A deal in a given year and 0 otherwise. Variable definitions are provided in Appendix A. Z-statistics, based on heteroscedasticity-robust standard errors clustered by year, are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	<i>Dependent variable:</i>	
	M&A_dummy	
	Competition (1)	Non-competition (2)
BBD	−0.480*** (0.148)	−0.714 (0.506)
Size	0.080*** (0.016)	0.121** (0.058)
Sales_growth	0.033 (0.022)	0.149 (0.109)
Book_leverage	−0.067 (0.224)	0.103 (1.086)
Non_cash_working_capital	−0.178 (0.233)	1.247* (0.696)
Past_12_month_return	0.249*** (0.038)	0.077 (0.139)
Market_to_book	0.005 (0.005)	0.022 (0.039)
Constant	−3.571*** (0.694)	7.791*** (2.636)
Industry FE	Yes	Yes
Observations	3861	296
Pseudo-R2	0.233	0.326

5.1.3. *Exposure to policy uncertainty*

The hypothesis is that if policy uncertainty influences firm acquisitiveness by increasing the value of the option to wait, then the magnitude of this effect should depend on how strongly policy uncertainty translates into uncertainty about the acquirer's profitability. To test this, we investigate if the negative effect is stronger (more negative) for firms with higher exposure to policy uncertainty. We use the industries where firm's revenues are sensitive to government spending as a proxy for exposure to policy uncertainty. Baker et al. (2016) show that defence, health services, engineering & management (E&M) services and heavy construction are especially sensitive to uncertainty relating to government spending. Bonaime et al. (2018) also find that the aircraft industry is sensitive to government spending. We include all the mentioned industries in our proxy for exposure to policy uncertainty.

We rerun our probit model for two subgroups: (i) firms operating in industries sensitive to government spending; and (ii) firms operating in industries less sensitive to government spending. The results, reported in Table 5, show that there is a negative and statistically significant (at the 1% level) relation between policy uncertainty and firm acquisitiveness for firms operating in government sensitive industries. Moreover, consistent with the real options channel as well as Bonaime et al. (2018) and Nguyen and Phan (2017), the negative effect is stronger (more negative) for firms with higher exposure to policy uncertainty. This suggests that firms in government-sensitive industries face higher uncertainty about their profitability during periods of high policy uncertainty, increasing the value of delaying acquisitions, providing further support for the hypothesis that policy uncertainty affects firm acquisitiveness through the real options channel.

Table 5

Government sensitivity.

The table presents the results of the probit regressions examining the effect of policy uncertainty on firm acquisitiveness for two subgroups: (i) firms operating in industries sensitive to government spending (called “Government sensitive”; and (ii) firms operating in industries not sensitive to government spending (called “Less government sensitive”). For the respective group’s regression, the dependent variable equals 1 if a firm announces at least one M&A deal in a given year and 0 otherwise. Variable definitions are provided in Appendix A. Z-statistics, based on heteroscedasticity-robust standard errors clustered by year, are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	<i>Dependent variable:</i>	
	M&A.dummy	
	Government sensitive (1)	Less government sensitive (2)
BBD	−1.256** (0.532)	−0.455*** (0.140)
Size	0.215* (0.123)	0.077*** (0.015)
Sales_growth	0.058 (0.099)	0.038* (0.023)
Book_leverage	−1.328 (1.001)	0.040 (0.240)
Non_cash_working_capital	−0.255 (0.682)	−0.108 (0.207)
Past_12_month_return	0.398*** (0.121)	0.230*** (0.040)
Market_to_book	0.043*** (0.016)	0.003 (0.005)
Constant	4.632* (2.448)	0.713 (0.933)
Industry fixed effects	Yes	Yes
Observations	258	3 902
Pseudo-R ²	0.362	0.226

5.2. Temporary or lasting impact of policy uncertainty

If policy uncertainty leads firms to delay rather than forgo acquisitions, we would expect the negative relation between policy uncertainty and firm acquisitiveness to reverse over longer time horizons as delayed deals are eventually completed. To examine this, we extend our analysis to predict firm acquisitiveness up to four years into the future. Using our baseline probit model, we modify the dependent variable to capture M&A activity not only in the year immediately following the policy uncertainty, but also in subsequent years up to the fourth year.

The results, presented in Table 6, show consistently negative coefficients for policy uncertainty across all future horizons up to four years. None of these coefficients are statistically significant, suggesting they do not differ meaningfully from zero. These findings indicate that the observed negative effect of policy uncertainty on firm acquisitiveness is not offset in later years. While this does not imply that all deals are permanently forgone, it suggests that a sufficient number are, such that no long-term reversal in the effect is observed up to four years.

Table 6

Temporary or lasting impact of policy uncertainty.

The table presents the results of the probit regressions examining the effect of policy uncertainty on firm acquisitiveness. The dependent variable equals 1 if a firm announces at least one M&A deal in year t , $t+1$, $t+2$ or $t+3$, and 0 otherwise. All independent variables are measured at time $t-1$. Variable definitions are provided in Appendix A. Z-statistics, based on heteroscedasticity-robust standard errors clustered by year, are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	<i>Dependent variable:</i>			
	M&A_dummy _{t}	M&A_dummy _{$t+1$}	M&A_dummy _{$t+2$}	M&A_dummy _{$t+3$}
	(1)	(2)	(3)	(4)
BBD	-0.555*** (0.164)	-0.058 (0.321)	-0.232 (0.217)	-0.162 (0.223)
Size	0.105*** (0.015)	0.062*** (0.013)	0.043** (0.017)	0.042*** (0.016)
Firm_age	-0.017*** (0.006)	-0.008 (0.006)	-0.006 (0.008)	-0.005 (0.008)
Sales_growth	0.029 (0.024)	0.008 (0.028)	0.023 (0.028)	0.023 (0.029)
Book_leverage	-0.029 (0.233)	0.257 (0.207)	0.439* (0.246)	0.396* (0.203)
Non_cash_working_capital	-0.083 (0.218)	0.005 (0.171)	-0.026 (0.218)	-0.075 (0.204)
Past_12_month_return	0.239*** (0.040)	0.203*** (0.041)	0.034 (0.034)	-0.010 (0.045)
Market_to_book	0.004 (0.005)	0.001 (0.006)	-0.003 (0.006)	0.004 (0.008)
Constant	1.183 (0.968)	-5.399*** (1.446)	-4.419*** (1.010)	-4.770*** (1.011)
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	4 160	3 829	3 509	3 203
Pseudo-R ²	0.236	0.292	0.348	0.407

6. Robustness and additional discussion

In this section, we acknowledge and address several potential limitations and alternative explanations to strengthen the robustness of our findings, as well as directions for future research.

First, given that findings from prior literature suggest that policy uncertainty tends to be countercyclical (e.g. Bloom et al., 2018), we acknowledge the potential concern that high levels of policy uncertainty coincide with weaker investment opportunities and economic conditions, distorting the estimated impact of policy uncertainty. To address this, we rerun our model while including controls for macroeconomic factors to proxy for expectations about future investment opportunities and economic conditions: GDP growth rate, yield spreads and the consumer confidence indicator. The proxies are defined in Appendix A. The results, presented in Table 7, show that the negative correlation between policy uncertainty and firm acquisitiveness remains statistically significant, at the 5% level, demonstrating the robustness of our findings to these alternative explanations.

Table 7

Policy uncertainty and firm acquisitiveness with macroeconomic control variables.

The table present results from the M&A probit regression on policy uncertainty and firm acquisitiveness while controlling for macroeconomic variables. The dependent variable is M&A_dummy, which takes a value of 1 if a firm makes at least one M&A announcement in a given year, and 0 otherwise. BBD denotes the policy uncertainty variable, calculated as the natural logarithm of the weighted average of the BBD (2016) index over the last three months of the preceding year. Definitions of other variables are provided in Appendix A. Z-statistics, based on heteroscedasticity-robust standard errors clustered by year, are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	<i>Dependent variable:</i>
	M&A_dummy
BBD	-0.454** (0.195)
Size	0.080*** (0.016)
Sales_growth	0.034 (0.022)
Book_leverage	0.022 (0.241)
Non_cash_working_capital	-0.104 (0.210)
Average_CCI	-0.002 (0.003)
Average_Yield_Spread_interbank	0.003 (0.064)
GDP_in_decimal	0.517 (1.741)
Past_12_month_return	0.247*** (0.041)
Market_to_book	0.004 (0.005)
Constant	0.900 (1.228)
Industry fixed effects	Yes
Observations	4 062
Pseudo-R ²	0.246

Second, we explore the robustness of our results to alternative measures of uncertainty. We start by replacing the BBD (2016) index with the World Uncertainty Index (WUI). The WUI is based on the frequency of the term "uncertainty" in quarterly Economist Intelligence Unit country reports (Ahir, Bloom, and Furceri, 2022). Unlike the BBD (2016) index, which focuses on policy-related uncertainty, the WUI captures broader uncertainty from various sources, such as geopolitical risks and natural disasters. This distinction allows us to assess whether policy-specific uncertainty is the driving factor behind the observed negative relation or a broader measure of uncertainty. The results, presented in Table 8, show no significant relation between WUI and firm acquisitiveness, reinforcing that the BBD (2016) index provides a more relevant measure for analysing

the impact on M&A activity. We also test political uncertainty using national election years as a proxy, inspired by Cao et al. (2019), which is a more narrow measure than policy uncertainty, focusing on the political aspect. The results are presented in Appendix B, showing no significant relation. While election-based proxies have merit, the BBD index captures both election-related and non-election-related uncertainty and quantifies the relation. This ability likely explains why the BBD index gives significant results, making it a more comprehensive measure, especially when taking into account M&A variation in non-election years.

Table 8

World Uncertainty Index and firm acquisitiveness.

The table presents results from the M&A probit regression on the World Uncertainty Index (WUI) and firm acquisitiveness. The dependent variable is M&A_dummy, which takes a value of 1 if a firm makes at least one M&A announcement in a given year, and 0 otherwise. WUI denotes the uncertainty variable, calculated as the natural logarithm of the weighted average of the WUI index over the last three months of the preceding year. Definitions of other variables are provided in Appendix A. Z-statistics, based on heteroscedasticity-robust standard errors clustered by year, are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Dependent variable:
	M&A_dummy
WUI	−0.099 (0.224)
Size	0.073*** (0.014)
Sales_growth	0.035 (0.022)
Book_leverage	−0.005 (0.246)
Non_cash_working_capital	−0.035 (0.220)
Past_12_month_return	0.256*** (0.040)
Market_to_book	0.003 (0.005)
Constant	−1.348* (0.769)
Industry FE	Yes
Observations	4 062
Pseudo-R ²	0.246

Third, we consider potential sample biases and omitted variable concerns. Our dataset includes Swedish acquirers only, which raises the possibility that unobservable characteristics unique to Swedish firms may influence our results. Future research could incorporate cross-country comparisons or examine how the effects of policy uncertainty vary across different types of firms, such as private versus public acquirers, or across industries beyond those explicitly included in our subsample analyses.

Additionally, the scope of our analysis at the acquirer level might limit the interpretation of results. For example, Bonaime et al. (2018) found support for the real options channel at the target level, whereas our acquirer-focused study did not identify significant effects for irreversibility. Incorporating data on both acquirers and targets in future research may provide a more nuanced understanding of the interplay between policy uncertainty and irreversibility.

Finally, the time frame of our dataset, spanning from 1991 to 2023, includes periods of record high levels of policy uncertainty. These extreme spikes may increase or mask the typical relation between policy uncertainty and firm acquisitiveness. Although our extended dataset strengthens the generalisability of our findings, the role of such outlier events calls for further investigation. For example, future research could examine whether the magnitude of policy uncertainty's impact varies between "normal" and "crisis" periods.

7. Conclusion

This study investigates the relation between policy uncertainty and firm acquisitiveness in Sweden, a small open economy with high political stability and government spending. Using the BBD (2016) index as a proxy for policy uncertainty and data from 1991 to 2023, we find a robust and significant negative relation between policy uncertainty and firm acquisitiveness, consistent with prior findings in larger economies like the US. The economic impact is significant, with a one-standard-deviation increase in the BBD (2016) index reducing the probability of making an acquisition by 2.3%, compared to the sample's unconditional M&A probability of 17.6%. Our exploration of the real options channel provides partial support for its role in explaining this negative relation. Policy uncertainty has a weaker effect in competitive industries where delays are costly and a stronger effect in industries sensitive to government spending. However, we find no evidence that irreversibility strengthens the effect, suggesting that the influence of this mechanism may differ depending on whether the analysis is conducted at the acquirer or target level. Further analysis shows no reversal of the negative effect over time, indicating that many acquisitions are likely forgone rather than delayed during periods of high policy uncertainty. Robustness checks using macroeconomic controls and alternative measures of uncertainty reinforce the validity of our findings, highlighting the specific impact of policy-related uncertainty on M&A activity. These results underscore the lasting economic impact of policy uncertainty and offer important insights for policymakers aiming to reduce its negative effects on corporate investments.

References

Literature

- Ahir, Hites, Nicholas Bloom, and Davide Furceri. 2022. 'The World Uncertainty Index'. Working Paper. Working Paper Series. National Bureau of Economic Research. <https://doi.org/10.3386/w29763>.
- Almeida, Heitor, and Murillo Campello. 2007. 'Financial Constraints, Asset Tangibility, and Corporate Investment'. *The Review of Financial Studies* 20 (5): 1429–60. <https://doi.org/10.1093/rfs/hhm019>.
- Baker, Scott R., Nicholas Bloom, and Steven J. Davis. 2016. 'Measuring Economic Policy Uncertainty*'. *The Quarterly Journal of Economics* 131 (4): 1593–1636. <https://doi.org/10.1093/qje/qjw024>.
- Bhagwat, Vineet, Robert Dam, and Jarrad Harford. 2016. 'The Real Effects of Uncertainty on Merger Activity'. *The Review of Financial Studies* 29 (11): 3000–3034. <https://doi.org/10.1093/rfs/hhw061>.
- Bloom, N. 2009. 'The Impact of Uncertainty Shocks'. *Econometrica* 77 (3): 623–85. <https://doi.org/10.3982/ECTA6248>.
- Bloom, Nicholas, Max Floetotto, Nir Jaimovich, Itay Saporta-Eksten, and Stephen J. Terry. 2018. 'Really Uncertain Business Cycles'. *Econometrica* 86 (3): 1031–65. <https://doi.org/10.3982/ECTA10927>.
- Bonaime, Alice, Huseyin Gulen, and Mihai Ion. 2018. 'Does Policy Uncertainty Affect Mergers and Acquisitions?'. *Journal of Financial Economics* 129 (3): 531–58. <https://doi.org/10.1016/j.jfineco.2018.05.007>.
- Cao, Chunfang, Xiaoyang Li, and Guilin Liu. 2019. 'Political Uncertainty and Cross-Border Acquisitions*'. *Review of Finance* 23 (2): 439–70. <https://doi.org/10.1093/rof/rfx055>.
- Dong, Ming, David Hirshleifer, Scott Richardson, and Siew Hong Teoh. 2006. 'Does Investor Misvaluation Drive the Takeover Market?'. *The Journal of Finance* 61 (2): 725–62.
- Duchin, Ran, and Breno Schmidt. 2013. 'Riding the Merger Wave: Uncertainty, Reduced Monitoring, and Bad Acquisitions'. *Journal of Financial Economics* 107 (1): 69–88. <https://doi.org/10.1016/j.jfineco.2012.07.003>.
- Garfinkel, Jon A., and Kristine Watson Hankins. 2011. 'The Role of Risk Management in Mergers and Merger Waves'. *Journal of Financial Economics* 101 (3): 515–32. <https://doi.org/10.1016/j.jfineco.2011.03.011>.
- Grenadier, Steven R. 2002. 'Option Exercise Games: An Application to the Equilibrium Investment Strategies of Firms'. *The Review of Financial Studies* 15 (3): 691–721. <https://doi.org/10.1093/rfs/15.3.691>.
- Gulen, H., and M. Ion. 2016. 'Policy Uncertainty and Corporate Investment'. *Review of Financial Studies* 29 (3): 523–64. <https://doi.org/10.1093/rfs/hhv050>.
- Hoberg, Gerard, and Gordon Phillips. 2010. 'Product Market Synergies and Competition in Mergers and Acquisitions: A Text-Based Analysis'. *The Review of Financial Studies* 23 (10): 3773–3811. <https://doi.org/10.1093/rfs/hhq053>.
- Jenter, Dirk, and Katharina Lewellen. 2015. 'CEO Preferences and Acquisitions'. *The Journal of Finance* 70 (6): 2813–51.
- Maksimovic, Vojislav, and Gordon Phillips. 2001. 'The Market for Corporate Assets: Who Engages in Mergers and Asset Sales and Are There Efficiency Gains?'. *The Journal of Finance* 56 (6): 2019–65.
- Nguyen, Nam H., and Hieu V. Phan. 2017. 'Policy Uncertainty and Mergers and Acquisitions'. *The Journal of Financial and Quantitative Analysis* 52 (2): 613–44.
- Sharpe, Steven A. 1994. 'Financial Market Imperfections, Firm Leverage, and the Cyclicity of Employment'. *The American Economic Review* 84 (4): 1060–74.

Shleifer, Andrei, and Robert W. Vishny. 1992. 'Liquidation Values and Debt Capacity: A Market Equilibrium Approach'. *The Journal of Finance* 47 (4): 1343–66. <https://doi.org/10.2307/2328943>.

Databases and websites

- International Monetary Fund (IMF). (n.d.). *Government expenditure, percent of GDP*. Retrieved November 21, 2024, from <https://www.imf.org/external/datamapper/exp@FPP/USA/FRA/JPN/GBR/SWE/ESP/ITA/ZAF/IND>
- Statista Search Department. (2024). *Number of merger and acquisition (M&A) transactions worldwide from 1985 to May 2024*. Retrieved November 21, 2024, from <https://www.statista.com/statistics/267368/number-of-mergers-and-acquisitions-worldwide-since-2005/>
- Statista Search Department. (2024). *Value of mergers and acquisition (M&A) transactions worldwide from 1985 to May 2024*. Retrieved November 21, 2024, from <https://www.statista.com/statistics/267369/volume-of-mergers-and-acquisitions-worldwide/>
- TheGlobalEconomy.com. (n.d.). *Political stability - Country rankings*. Retrieved November 21, 2024, from https://www.theglobaleconomy.com/rankings/wb_political_stability/

Appendix A. Variables definition

A.1. Firm-level variables for controls

All firm-level variables are constructed using data from the Compustat Global database, with data ranging from 1989-2023. We winsorize each variable at the 1st and 99th percentiles.

- Size: Natural logarithm of total assets (Compustat Global annual item AT).
- Firm_age: Number of years that a firm appears in Compustat Global.
- Sales_growth: Year over year percentage change in sales (Compustat Global annual item SALE).
- Book_leverage: Long-term debt (Compustat Global annual item DLTT) plus debt in current liabilities (item DLC), all divided by total assets (item AT).
- Non_cash_working_capital: Working capital (Compustat Global annual item WCAP) minus cash and short-term investments (item CHE), all divided by the book value of assets (Compustat Global annual item AT).
- Market-to-book: Market value of equity divided by book value of equity. Market value of equity is share price (Compustat Global Security Daily item PRCCD) times common shares outstanding (item CSHOC). Book value of equity is common equity (Compustat Global annual item CEQ).
- Past_12_month_return: The buy-and-hold 12-month stock return of the year prior to an acquisition announcement. Measured as share price at the end of the period (Compustat Global Security Daily item PRCCD) times adjustment factor at the end of the period (item AJEXDI) minus share price at the start of the period (item PRCCD) times adjustment factor at the start of the period (item AJEXDI), all

divided by share price at the start of the period (item PRCCD) times adjustment factor at the start of the period (item AJEXDI).

A.2. Proxies used in the real options channel theory

- Durable goods industry: A binary variable equal to 1 if the target's industry is classified as a durable goods industry, determined by its corresponding SIC code. Industries classified as durable are steel works, rubber and plastic products, fabricated products, automobiles and trucks, transportation, restaurants, hotels and motels, business supplies, mining, and petroleum and natural gas (Bonaime et al., 2018).
- Deal volume: Measured as the number of public firms announcing acquisitions in the same industry divided by the total number of firms in the industry. Industries are classified as having low competition if their deal volume in the previous year falls below the previous year's average deal volume across all industries.
- Government spending sensitivity: A binary variable equal to 1 if the target's industry is classified as sensitive to government spending, determined by its corresponding SIC code. Industries classified as sensitive to government spending are defense, health services, engineering & management (E&M) services, and heavy construction (Baker et al., 2016) and aircraft (Bonaime et al., 2018).

A.3. Proxies for investment opportunities and economic conditions used in robustness check

- GDP growth: The average one-year Swedish GDP growth (available from the World Bank Database).
- Yield spread: We calculate the yield spread as the difference between long-term interest rates, represented by the 10-year Swedish government bond yield, and short-term interest rates, represented by the 90-day interbank rate (available from the St. Louis FED). To align with the annual frequency of the firm-level data, we use calendar-year averages of this monthly spread variable.
- Consumer confidence: The consumer confidence indicator reflects households' perceptions of their personal finances and the Swedish economy (available from the National Institute of Economic Research). It is calculated using the formula: confidence indicator = financial situation of the household now + financial situation of the household within 12 months + Swedish economy now + Swedish economy within 12 months + good time to buy consumer durables now.

Appendix B. Additional regressions

Appendix B.1.

Political uncertainty (national elections) and firm acquisitiveness.

The table presents results from the M&A probit regression on the political uncertainty (national elections) and firm acquisitiveness. The dependent variable is M&A_dummy, which takes a value of 1 if a firm makes at least one M&A announcement in a given year, and 0 otherwise. Binary_pre_election_year denotes the political uncertainty variable, which is a binary variable that takes value 1 if it is the year before an election, and 0 otherwise. Definitions of other variables are provided in Appendix A. Z-statistics, based on heteroscedasticity-robust standard errors clustered by year, are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Dependent variable:
	M&A_dummy
Binary_pre_election_year	−0.003 (0.088)
Size	0.073*** (0.014)
Sales_growth	0.036 (0.023)
Book_leverage	−0.004 (0.245)
Non_cash_working_capital	−0.037 (0.219)
Past_12_month_return	0.257*** (0.042)
Market_to_book	0.003 (0.005)
Constant	−1.362* (0.765)
Industry fixed effects	Yes
Observations	4 160
Pseudo-R ²	0.229

Appendix C. AI disclosure

We have used ChatGPT to assist us during the writing and coding process. The AI tool has been employed to review text, suggest alternative phrasing, and enhance clarity and conciseness throughout the document. It has also been used to assist in identifying coding errors and suggesting alternative approaches for completing programming tasks.