

WHEN WORLDS COLLIDE

THE DYNAMICS BETWEEN M&A AND GEOPOLITICAL RISK

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When Worlds Collide: The Dynamics between M&A and Geopolitical Risk

Abstract:

We empirically investigate the relationship between geopolitical risk and mergers and acquisitions (M&A) between 1985-2022 by U.S. public acquirers, using the index of Caldara and Iacoviello (2022) as a proxy. Our findings indicate that magnified risk is coupled with a drop in both the total deal volume and value, as well as an enduring decline in the M&A probability. Additionally, we discover a negative trend suggesting that merger waves get delayed, although the empirical evidence is deemed as rather weak. Nevertheless, there is strong support for the absence of hedging through vertical integration, notwithstanding upsurged tensions. Yet, in contrast to these undesirable transaction adversities, distressed acquisitions appear to become more prevalent even in the face of geopolitical spikes. Finally, the injurious impact predominantly stems from threats and associated expectations rather than actual world events.

Keywords:

Geopolitical Risk, Mergers and Acquisitions, Acquisition Likelihood

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Introduction

The 9/11 terrorist attacks, U.S. invasion of Iraq and the recent Russian invasion of Ukraine 2022, are all instances of events that have fueled and propelled geopolitical risk. In truth, this uncertainty has risen to the forefront of the agenda of top executives and even persuaded investment bankers to specialize in mitigating geopolitical concerns for their clients to smooth decision making, thus, remaining an indispensable consideration for business and M&A activity (The Economist Impact, 2022; Herbst-Bayliss et al. 2022; Franklin and Indap, 2022; Grant and Haider, 2023). However, while this insinuates that geopolitical risk could damage M&A processes, and despite the growing pertinence therein, empirical studies on the transaction implications of global tensions arising from wars, terrorism, and colliding worlds, remain glaringly limited.

In this thesis, we analyze the relationship between elevated geopolitical risk and the activity and likelihood of M&A transactions through a multifold approach, using the geopolitical risk index of Caldara and Iacoviello (2022), or “GPR” hereafter, as a proxy. We design our empirical methodology, primarily by following the theoretical foundations and procedure of Nguyen and Phan (2017). Based on U.S. deals between 1986-2014, the authors identify a negative effect from economic policy uncertainty (EPU) shocks on company-level M&A likelihood as well as on transaction volume and value at the industry level (referred to as “aggregate transaction activity” in this thesis). In short, these two elements are our key frameworks for assessing the influence of geopolitical risk. Relatedly, our approach is inspired by Bonaime et al. (2018) who also find a negative impact on both aggregate transaction activity and company-level likelihood and, on top of that, show a damaging effect on the occurrence of periods with higher M&A activity (or “merger waves”) as well as evidence on managers mitigating against EPU by pursuing vertical transactions across the supply chain (which we associate with “risk management” hereafter). Both papers are prominent cornerstones of the literature regarding the EPU effects on M&A and indicate that uncertainty affects M&A in diverse ways. However, our use of risk index is different since GPR has a peculiar global element and considers events that are not captured by EPU and similar proxies, such as terrorist attacks and war outbreaks (Caldara and Iacoviello, 2022). Moreover, our newspaper-based measure has

two distinct subindices, namely, the threat of future events and the risk stemming from current and actual incidents (“threats” and “acts” hereafter). Thus, we attempt to contribute to the overall M&A literature by focusing on the GPR index and its two components since precluding all three could likely lead to the neglect of relevant transaction risk factors. In fact, this literature stream is incipient with a sparse body of research. A recent working paper, also combining the research designs of papers in the EPU field, Hao et al. (2022), finds that GPR is negatively associated with both U.S. domestic and cross-border deal announcement likelihood, utilizing M&A data between 1986-2018. We aim to complement this research by including recent years’ transactions to capture significant events such as the buildup to the Russian invasion of Ukraine, the Taliban’s return to Afghanistan, the start of the AUKUS partnership, and the 2020 U.S.-Iran tensions, among others. Furthermore, to the best of our knowledge, previous papers evaluating the M&A effects of GPR have not yet examined the impact on the aggregated annual number of U.S. deals and their transaction values, as studied by Nguyen and Phan (2017) at the industry level, as well as Bonaime et al. (2018). Moreover, two subtopics of the latter, namely “merger waves” and “risk management”, also remain unexplored in the context of geopolitical risk. Additionally, we extend the scope of the uncertainty and M&A literature by uncovering distressed transactions such as “fire sales”. Henceforth, to the best of our knowledge, our paper is the first of its kind to consider the GPR impact on M&A related to bankruptcies, restructurings, and liquidations, to further contribute to the dynamics of geopolitical risk. Finally, we attempt to give insights on the differences between geopolitical expectations and current incidents, to explain the driving forces behind our identified outcomes. Succinctly, our thesis aims to present novel insights on our acumen of the dynamics of geopolitical risk on the M&A market both at the aggregate- and company level, by providing an updated view on previously studied topics while examining unexplored dimensions, with implications for navigating M&A during magnified geopolitical tensions, particularly relevant for advisors, acquirers/targets, and key decision makers within politics.

In essence, using M&A data on U.S. transactions by public acquirers between 1985-2022, and controlling for firm-, industry- and macro-level control variables, we design a series of OLS and probit likelihood regressions seizing these perspectives. Specifically, our empirical revelations imply that heightened GPR is related to a contraction in the overall

industry-level activity, measured by aggregate announced deals and deal value on an annual basis, with a stronger effect for the latter. Moreover, we show supporting evidence that spikes in the index are directly conjoined with a persistent diminution in the likelihood of M&A, suggesting that transactions are not only delayed but rather dropped altogether. Indeed, geopolitical uncertainty is damaging for M&A and behaves like other proxies, such as policy uncertainty, both at the aggregate- as well as on the company level. Extending on this belief, we also identify a negative trend pinpointing that geopolitical risk is detrimental for initiating “merger waves”. However, since we do not observe any significance, we cannot assert this finding with certainty. Interestingly, our ensuing analysis reveals that the likelihood of distressed M&A announcements soars given high levels of GPR, hinting that not all types of M&A are harmfully influenced by this risk type. Furthermore, we argue that incentives for vertical transactions, as suggested by the M&A literature, do not exist in our setting, indicating that managers abstain from risk mitigating against amplified GPR by implementing such M&A strategies. Wherever applicable, we also split our main index into its two subcomponents and show that both impact M&A differently, with geopolitical threats having a more deleterious impact on aggregate activity and transaction likelihood. This suggests that the negative impact of GPR is mainly explained by the risk induced by threats and associated expectations. In subsequent robustness tests, we include additional controls and alternative proxies, among other checks, to ultimately show that the identified M&A implications primarily hold. Following this, we discuss our results in relation to specific topics, such as the impact over time as well as the effect on cross-border deals. Besides, we recognize that our study is exposed to multiple limitations. Therefore, we acknowledge the need for further research with richer designs covering neglected perspectives, particularly with a greater focus on the mechanisms behind the adversities, and including more macroeconomic control variables, to provide a more comprehensive and accurate understanding of this topic.

Our study comprises five main sections. Section I briefly introduces the literature and presents our key predictions. Section II describes our data. Section III defines our empirical methodology and interprets the results. Section IV discusses additional subtopics, challenges our findings, and specifies key limitations. Section V concludes.

I. Literature Review and Hypotheses

The scope of our paper lies within the broader literature regarding the impact of uncertainty and risk dimensions on the variations and dynamics of firm decisions, with a particular focus on M&A outcomes (Bhagwat et al. 2016; Nguyen and Phan, 2017; Bonaime et al. 2018; Nguyen et al. 2018; Cao et al. 2019). Compared to the topic of policy uncertainty and its effect on economic outcomes, however, this subgroup has received limited focus in research (Bonaime et al. 2018). Bhagwat et al. (2016), a notable paper in the field, study the effect of market volatility on public companies' transaction activities and find a negative effect on M&A frequency. Other studies have instead focused on political and policy uncertainty. For instance, Cao et al. (2019) show that cross-border M&A is heavily influenced by higher levels of political uncertainty in the sense that it deteriorates transaction volumes and outcomes, especially when the target firms are exposed to domestic elections. Another paper, Chen et al. (2023), highlights that political uncertainty leads to acquirers avoiding to halt deal announcements and also seek to bid lower to risk mitigate against such uncertainty. Moreover, Sun et al. (2022) show that Chinese bidders are keener to restrain from buying non-domestic targets given higher uncertainty in their respective countries. Overall, these studies suggest that M&A is negatively impacted by uncertainty. However, our study is more closely related to two other prominent research papers, namely, Bonaime et al. (2018) and Nguyen and Phan (2017). Both limit their scope to the effects of economic policy uncertainty (EPU) using the eminent index of Baker et al. (2016). The former finds policy uncertainty to be a negative factor for transactions, controlling for both macro- and firm factors, as it acts as friction against public companies' M&A business decisions. Moreover, certain uncertainty factors, such as monetary and fiscal policy, are stronger inhibitors than others. The latter also identifies a negative effect from EPU shocks and further argue that both the probability of announcing transactions as well as the time taken to complete deals, get harmed. Furthermore, they show that EPU shocks are correlated with a drop in the aggregate-level activity and transaction value, similar to Bonaime et al. (2018). Considering their major contribution to the topic, we primarily use these papers as guidance in our empirical design. Yet, though both are important to highlight, they do not account for the effect of geopolitical risk.

The difference between geopolitical risk and other uncertainty categories are worthy to discuss. Caldara and Iacoviello (2022) construct a GPR index based on newspapers which captures situations related to conflicts and global tensions which could increase policy uncertainty and drive financial volatility, as well as events that are unlikely to be induced by economic factors, particularly compared to other proxies for uncertainty, for example the EPU and VIX. For instance, shocks to the other proxies are not correlated with various geopolitical instances such as major terrorist events or the 2014 annexation of Crimea (Caldara and Iacoviello, 2022). Moreover, GPR has a distinctive global element as it does not solely depend on domestic events. Furthermore, it can also be divided into two subindices, one measuring the risk induced by the perception of geopolitical threats, and the other, actual geopolitical occurrences such as terrorist acts (Hao et al. 2022). Thus, excluding GPR when analyzing M&A transactions, could likely lead to results that neglect significant and relevant risk factors. Henceforth, our first contribution lies in our focus on the GPR itself, and particularly on its business effects in M&A settings. Other studies that are closely related to the GPR literature have highlighted the impact of terrorism on M&A. For instance, Nguyen et al. (2018) identify that terrorist attacks have a negative effect on targets, both with respect to the number of transactions and premiums. However, few research papers have specifically focused on GPR. Though some have conducted macro-level analyses on the impact on oil prices (Antonakakis et al. 2017) and the equity markets of BRICS nations (Balcilar et al. 2018), the literature on the micro-level financial and corporate decision effects of GPR, particularly in an M&A context, is relatively scarce.

Thence, our paper closely resembles recent studies focusing on the impact of GPR on M&A. For instance, Koirala et al. (2022) use data on 19 emerging markets and show a significant positive effect on transaction frequency driven by domestic transactions, and a negative impact on the total value, highly influenced by the quality and conditions of institutions as well as governance. Others have analyzed the role of GPR in specific industries. Shen et al. (2021) conclude that GPR instead has a positive effect on the size and quantity of deals for electric power and energy businesses. A recent working paper by Hao et al. (2022) conducts a multi-faceted exploration of the topic, primarily finding that GPR and its subindices are all negatively linked with both U.S. domestic and cross-border deals, measured by the probability of participating in announced M&A. Moreover,

they highlight that bidders tend to avoid engaging in large and “risky” acquisitions. We aim to complement this emerging research area, with a particular focus on the total impact of GPR on the volume and value of transactions by U.S. acquirers since this has not been studied before. Altogether, previous studies such as Bonaime et al. (2018) and Nguyen and Phan (2017) suggest a negative effect of EPU on aggregate activity (the latter at the industry level), allowing us to formulate our first empirical question. For this, we aim to update the existing literature on GPR with the overall effects of GPR on M&A, and by studying recent data not covered in prior studies. This includes acquisitions conducted in the buildup of the 2022 Russian invasion of Ukraine and at the height of the worsening China-Taiwan relations, among other significant events. In essence, our first group of hypotheses measure the general impact of GPR, and is similar to Bonaime et al. (2018) and Nguyen and Phan (2017), yet, adjusted for the specificities of the GPR index:

Hypothesis 1A: Heightened geopolitical risk decreases the M&A volume and value.

Hypothesis 1B: This effect holds true for geopolitical acts and/or threats.

The previously mentioned papers have also analyzed the impact on M&A likelihood, again primarily indicating a dampening impact. For example, Hao et al. (2022) show that the probability of conducting acquisitions decrease given an increase in overall GPR from the year before. Furthermore, they decompose the index to geopolitical threats and acts, ultimately showing that both negatively affect M&A. Additionally, both Bonaime et al. (2018) and Nguyen and Phan (2017) show a negative relationship between policy uncertainty and the probability of M&A announcements. Our paper complements this field by solely focusing on GPR and its components. Accordingly, by splitting the GPR index and using data not covered by Hao et al. (2022), we aim to add a more recent perspective to the existent literature. Therefore, our hypotheses are the following:

Hypothesis 2A: Heightened geopolitical risk decreases the likelihood of M&A.

Hypothesis 2B: This effect holds true for geopolitical acts and/or threats.

Another angle concerns whether the effect on the likelihood holds over time. Previous studies have found that the consequences of upsurged uncertainty and risk, remains even after several years (Nguyen and Phan, 2017; Bonaime et al. 2018). As a specific example, Nguyen and Phan (2017) find that the harmful effect of policy uncertainty remains for up

to four years (from the initial shock), albeit the likelihood weakens slightly. This effect is also one year longer than the findings of Gulen and Ion (2015) who study the impact on capital expenditures. In the context of GPR, Hao et al. (2022) show that companies are affected for up to 3 years. These examples indicate the absence of a sudden reversal with respect to the effect of uncertainty, and more particularly GPR, on acquisitions. This exemplifies the lasting negative consequences of heightened GPR, while signifying a case where deals are rather lost than delayed, altogether suggesting that the company-level impact remains over time.

Hypothesis 3: The effects of GPR on the M&A likelihood is not temporary.

Our paper is also related in spirit to the topic of “merger waves”. Prior literature has shown that mergers are clustered across time within sectors and industries, with some periods exhibiting higher activity. There are two potential theories explaining the occurrence of such waves, namely, “neoclassical” and “behavioral” (Harford, 2005; Bonaime et al. 2018). The latter implies that high-activity periods are fueled by factors such as “market timing” and “stock market bubbles” conjoined with “inflated valuations” (Harford, 2005; Rhodes-Kropf et al. 2005). The former, instead, suggests that external shocks that are “technological, regulatory or economic” in a specific period for a given industry leads to a re-distribution of assets within that sector, suggesting the occurrence of “merger waves” by initiating M&A at scale (Mitchell and Mulherin, 1996; Harford, 2005). In this sense, geopolitical shocks could be seen as another factor of “merger waves”. The question, however, concerns the characteristics and appearance of such relationship. Garfinkel and Hankins (2011) show that “merger waves” are strongly determined by cash flow uncertainty, while Duchin and Schmidt (2013) complement this result suggesting that company-specific uncertainty is also related to those waves. Yet, Bonaime et al. (2018) find that the EPU, specifically related to “taxes, monetary/regulatory policy and government spending”, can hinder the occurrence of such clusters. Nevertheless, within this literature stream, no studies have yet examined the relationship between GPR and periods of elevated M&A activity, though the findings of Bonaime et al. (2018) could suggest that our proxy of choice could be an inhibitor as well. To examine if this is the case, we formulate our fourth group of hypotheses accordingly:

Hypothesis 4A: Heightened geopolitical risk hinders “merger waves”.

Hypothesis 4B: *This effect holds true for geopolitical acts and/or threats.*

Furthermore, we contribute to the literature on corporate bankruptcies and financial distress in general, and distressed M&A in particular. Some studies have confirmed the effect of non-financial risk and uncertainty on company-level performance. Fedorova et al. (2022) and Stolbov and Shchepeleva (2020) both show that EPU and VIX significantly increase the probability of bankruptcies. Also, Iqbal et al. (2020) find that firm performance is negatively related to rises in the EPU index. Similarly, Ma and Hao (2022) argue that EPU shocks also worsen the “financial constraints” of Chinese public firms. Other papers confirm that elevated uncertainty indeed is negative, particularly regarding the relationship between “bankruptcy rates” and monetary policy as well as macroeconomic pressure (Hol, 2007; Bhattacharjee et al. 2009; Sarikov and Kuprianov, 2020). As the risk heightens, firms could be exposed to increased financial distress which could potentially have an impact on M&A activity, and particularly a “positive” one for distressed transactions (such as “fire sales”). In the context of geopolitical risk, previous papers have through both empirical and theoretical approaches shown that geopolitical events-induced uncertainty is linked to a fall in sales, produced output and company productivity, as well as a rise in the uncertainty of cash flows (Abadie and Gardeazabal, 2008; Bloom, 2009; Caldara and Iacoviello, 2022; Adra et al. 2023). However, no previous studies have examined the impact on distressed transactions. Thus, we intend to examine the specific impact on distressed sales of targets related to bankruptcies, restructurings, and liquidations, to provide a novel perspective on the effects of uncertainty and risk on financial distress. Thus, our main contribution within this subtopic lies in the unique M&A type, allowing us to add distressed M&A to the overall uncertainty and M&A literature. Accordingly, our fifth hypothesis is the following:

Hypothesis 5A: *Heightened geopolitical risk increases the distressed M&A likelihood.*

Hypothesis 5B: *This effect holds true for geopolitical acts and/or threats.*

Finally, we contribute to the research on M&A determinants. Previous studies have uncovered that transactions are driven by multiple factors, such as valuation differences between buyers and targets (Shleifer and Vishny, 2003), industry-specific external forces such as economic shocks (Harford, 2005), and liquidity among acquirers in relation to the financial distress level of target firms (Almeida et al. 2011), among others. Bonaime et

al. (2018) find that higher policy uncertainty is linked to higher incentives to delay transactions, following the “real options channel” specified by Bloom (2009). In addition, they confirm the “interim risk hypothesis” similar to Bhagwat et al. (2016), altogether suggesting that high uncertainty disincentivizes M&A announcements as the value of the target could potentially change between signing and deal completion (or the “interim period”). Another hypothesis, namely the “empire-building channel”, suggests that firms with poor governance are encouraged to commit “empire-building” given higher policy uncertainty, without fearing any consequences and thereby increasing the likelihood of “low-quality” transactions (Duchin and Schmidt, 2013; Bonaime et al. 2018). Another determinant relates to “risk management” in general, and “vertical mergers” in particular. A prominent paper in the field, Garfinkel and Hankins (2011), shows that higher cash flow uncertainty leads to increased vertical M&A activity, which suggests that companies are more inclined to buy within the supply chain to manage risk, particularly to reduce the uncertainty related to production inputs and outputs. This is also a catalyst for “merger waves”. Bonaime et al. (2018) find similar results, showcasing that heightened EPU could also inspire acquirers to select targets strategically as an “operational hedge”. Specifically, the authors illustrate that the likelihood of such M&A increases given elevated policy uncertainty, indicating that such integration is important for managing policy-related risk among companies. In addition to vertical activity, they also argue that cross-border M&A increases given higher EPU, illustrating that M&A buyers further hedge against increased domestic policy risks (Bonaime et al. 2018). Although Hao et al. (2022) confirm the “real options” and “interim risk” theories and reject the “empire-building” channels, they merely discuss the “risk management” explanation and suggest that the former cannot be a determinant. Thus, no previous studies have yet empirically tested the “risk management” channel in the context of geopolitical risk. Therefore, our final hypothesis relates to whether risk managing by pursuing vertical transactions is a key determinant of M&A spikes.

Hypothesis 6A: Heightened geopolitical risk drives firms to vertically integrate.

Hypothesis 6B: This effect holds true for geopolitical acts and/or threats.

II. Data

Below, we describe the main index from Caldara and Iacoviello (2022), as well as our M&A data. Moreover, we introduce our macro-, industry- and company-level controls.

A. Geopolitical Risk Proxy

We employ the prior year mean of our monthly uncertainty index, and partially deviate from Nguyen and Phan (2017) who use the quarterly mean, as we deem this approach to be more prevalent in the prior literature (e.g., Bonaime et al. 2018; Hao et al. 2022). Concretely, we include the annual mean across the past calendar year of the GPR index from Caldara and Iacoviello (2022) as a proxy. The authors 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 and Iacoviello, 2022). This index is constructed from the analysis of newspapers and represents and captures media articles covering geopolitical affairs. The intuition is that a greater level of geopolitical risk leads to stronger public interest of a certain event. The authors’ automated textual analysis identifies eight relevant risk groups: “*War risks, Peace threats, Military buildup, sanctions, embargos, Nuclear Threats, Terrorist threats, Beginning of war, Escalation of war, and Terrorist acts*” (Caldara and Iacoviello, 2022). Furthermore, the authors dissect the main index into two categories. This facilitates the isolation of the effects of non-realized threats and future expectations from the impact of current and already materialized incidents such as terrorist attacks or actual armed conflicts (Baur and Smales, 2020). The geopolitical threats (GPRT) subindex captures mentions that are part of groups 1-5, whereas the geopolitical acts (GPRA) subindex grasps words pertaining to the rest. Additionally, GPR is not affected by periods of financial market and economic turbulence or around elections with rising policy tensions (Caldara and Iacoviello, 2022; Hao et al. 2022). Conversely, events such as the 2014 Crimea conflict or certain terrorist acts do not concur with surges in the EPU index and VIX (Caldara and Iacoviello, 2022).

Caldara and Iacoviello (2022) provide a recent GPR measure, starting in 1985, as well as an historical one covering more years, from 1900. While the latter follows searches of the

archives of newspapers such as *The New York Times* and *The Washington Post*, the recent measure analyzes the electronic records of six U.S., one Canadian and three United Kingdom newspapers. However, since this paper studies the impact of geopolitical risk on the acquisition behavior of U.S. acquirors, we choose to base our variable on the monthly U.S. historical index. Furthermore, it allows us to match Bonaime et al. (2018)’s beginning of their observation period, which requires data of 1984 as well. The index is normalized to have a mean of 100 throughout 1900-2019. A value below 100 hence indicates that the frequency of media articles about unfavorable events, such as wars or conflicts, is below the average of the full period (Caldara and Iacoviello, 2022). Figure 1 plots the historical index and its two subindices between January 1985 - December 2022. The GPR spikes during the Gulf war, after 9/11, during the Iraq war and lately at the full-scale escalation of the Russo-Ukrainian conflict. The two subcomponents, GPRA and GPRT, behave in a similar fashion.

Figure 1. The historical GPR, GPRA and GPRT over time

Figure 1 illustrates the monthly GPR index and its subcomponents across 1985–2022. The GPR is displayed in red, GPRA in purple, and GPRT in green.

Graph: GPR and its subcomponents

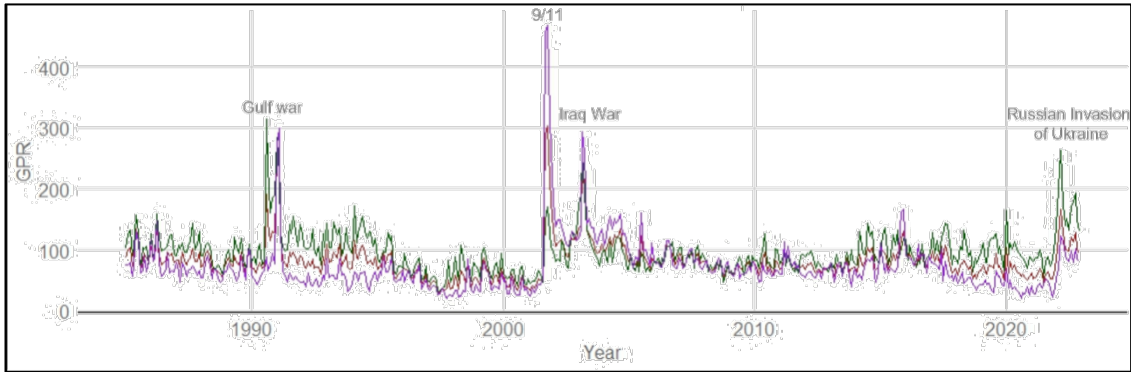


Table AI in Appendix provides summary statistics on the two GPR indices and their corresponding components. Panel A highlights the distributions across the sample period. The historical proxy has an average of 81.5 during the sample period. The standard deviations of the recent and historical GPRA indices imply that these measures fluctuate the strongest over time. Panel B illustrates that the recent GPR index strongly imitates the historical during the sample period, presenting a correlation coefficient of 0.96. The

recent GPR index correlates stronger with the GPRA factor than with GPRT. This relationship also applies for the historical GPR.

B. M&A Data

We export transaction data for historical M&A by American public companies from Securities Data Company (SDC) Platinum. Our sample includes transactions from 1985 to 2022, primarily to suit the availability of our proxy. Following Bonaime et al. (2018) and Nguyen and Phan (2017), we select deals of public acquirers which are equal to or above \$1m (measured by the value of the transaction), with transaction ratios below 1% (transaction size divided by the market capitalization of the buyer), and where the acquiring company initially owns nothing or less than 50% of the shares prior to the M&A announcement but 100% post-transaction. Furthermore, we remove companies from the utility sector and financial industries (*SIC codes 4900-4999* and *6000-6999*, respectively), as these firms face substantial regulatory oversight (Nguyen and Phan, 2017). Table 1 shows summary statistics of our sample of 39,069 transactions. The average of the annual deal size is approximately \$ 341.1bn and the distribution is right skewed as the average deal size is c. \$ 340.5m while the median is close to \$ 31.5m. Following this, we merge the M&A data with accounting data for the acquirers from Compustat as well as annual stock returns from the Center for Research in Security Prices (CRSP) database, among other control variables, which results in 13,589 individual announcements. While c. 82% of these transactions are acquisitions of U.S.-based firms with an average valuation of \$593.7m, the residual share comprises announcements of non-American target companies (average value of \$441m). Additionally, because we perform tests on distressed targets, we follow Meier and Servaes (2014) and characterize deals in our sample as distressed (and bankrupt) if they (i) have a target that gets bankrupt during the deal (or is initially bankrupt), (ii) involve a target that is experiencing a liquidation and/or (iii) include a target partaking in restructuring. Only 1.4 % of the merged dataset fit the specifications, with a mean value of \$177.2m. Furthermore, a quarter of the deals in our dataset are acquisitions of companies that operate on different levels of the same supply chain than the acquirer, with an average transaction size of \$408.6m. Precisely, we classify these transactions as vertical M&A based on the “Benchmark Input-Output” tables from the Bureau of Economic Analysis (BEA) following Bonaime et al. (2018). We calculate the

percentage of the output from industry i flowing into industry j to the total output of industry i (which is simply the input from i needed for the production in j), and vice versa. We record a vertical relation, if any of the described values rise above 1%, adhering to the methodology of Ahern and Harford (2014).

Table 1. M&A summary statistics

The table shows summary statistics of M&A announcements extracted through the SDC database spanning between 1985-2022. The selection process results in the inclusion of transactions that are worth \$1m or more, involve a public U.S. acquirer, and where the acquirer initially owns less than half of the shares but acquires 100% post-transaction. In Panel A, we present all deals that meet these criteria. In Panel B, we present those announcements with data available from Compustat and CRSP.

	# of deals	Annual deal size, Average (in \$bn)	Deal size, Average (in \$m)	Deal size, Median (in \$m)
Panel A: Full SDC Dataset				
Public US acquirer	39,069	341.1	340.5	31.5
Panel B: Merged Dataset				
Public US acquirer	13,589	202.4	565.9	66.4
Domestic deals	11,112	173.6	593.7	65.5
Cross-border deals	2,477	28.8	441.0	69.0
Distressed deals	193	1.0	177.2	39.0
Vertical deals	3,493	37.6	408.6	59.0

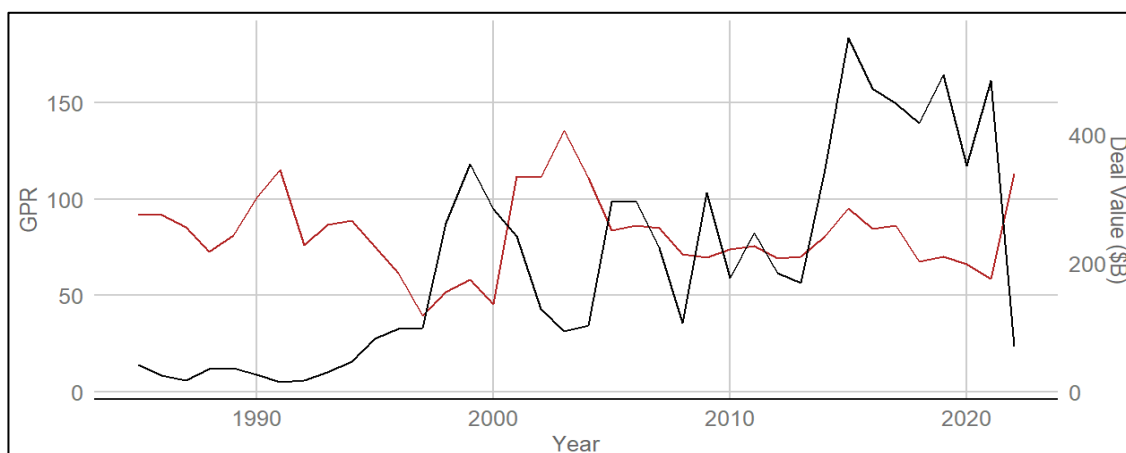
Figure 2 illustrates the GPR index with total deal value and number of deals (on a year-by-year basis) over the sample period. The figure suggests that both the deal value as well as number of deals plummets in times of high geopolitical risk, especially after 9/11 and the beginning of the Russian invasion of Ukraine, ultimately hinting that M&A activity drops in performance.

Figure 2. Geopolitical Risk and Aggregate Transaction Activity

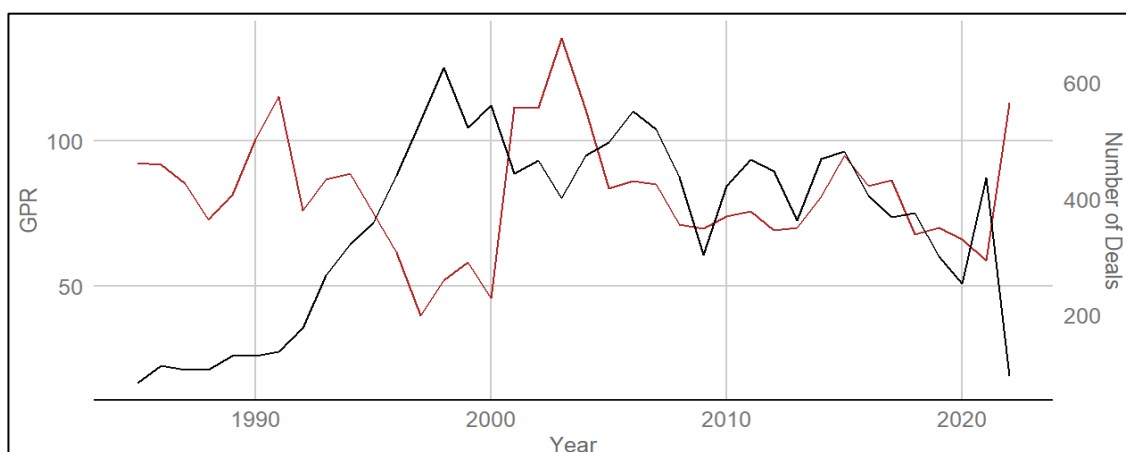
Figure 2 illustrates the aggregate transaction size (Graph A) and the aggregate number of M&A deals (Graph B), with the data values from the SDC database summed on a year-by-year basis respectively,

together with the GPR index, over the sample period 1985–2022. The proxy is displayed in red while the aggregate value and number of transactions are both shown in black in their respective graphs.

Graph A: GPR and Annual Deal Value



Graph B: GPR and Annual Deal Volume



C. Firm-, Industry- and Macro-level Data

We use data at the company-, sector- and the macroeconomic level to construct the control variables. These measures are captured before a given transaction. In short, we include the following factors from Nguyen and Phan (2017): “Size” (natural logarithm form of the asset book value); “Stock returns” (stock returns from the past year for the acquirer); “Firm Age” (total time the firm has existed in the Compustat database); “3-year Average Sales Growth”; “Book Leverage” (debt book value divided by asset book value); “Non-Cash Working Capital” (working capital for each firm but excluding cash and divided by the asset book value); “Market-to-Book” (asset market value in relation to the

corresponding book value); “GDP Growth”; “Yield Spread”; “CRSP Market Returns” (market index with returns that are “value-weighted”). Specifically, the yearly accounting data is gathered from Compustat, and the monthly data for stock and market returns are from CRSP and annualized. Furthermore, the annual (real) GDP growth rate for the U.S. is exported from the International Monetary Fund, and the monthly yield spread (which we again annualize) is from the Federal Reserve Bank of St. Louis. Additionally, we use Fama-French 12 industry average Market-to-Book values, with inspiration from Nguyen and Phan (2017). Below, we show the summary statistics of our controls for our first group of hypotheses, namely, the aggregate activity analysis.

Table 2. Summary statistics for aggregate activity analysis

Table 2 presents summary statistics of our control variables of the aggregate transaction activity test for our first hypothesis group. Our proxies, GPR, GPRA and GPRT, are presented in natural logarithm forms. The Market-to-Book values are measured on the Fama French 12 industry level and captured at the fiscal year closure preceding the deal. Macroeconomic controls are captured at the closure of the calendar year before.

	Mean	Std. Dev.	10 th P	Median	90 th P
GPR	4.36	0.25	4.06	4.40	4.71
GPRA	4.21	0.38	3.64	4.20	4.89
GPRT	4.52	0.23	4.27	4.53	4.85
Market-to-Book	2.06	0.71	1.31	1.91	3.11
GDP Growth	2.69	1.94	0.10	2.80	4.50
Yield Spread	1.09	0.79	0.14	0.98	2.30
CRSP Market Returns	0.13	0.17	-0.11	0.16	0.32
Number of Observations	379				

Table 3 shows the summary statistics of the fully merged dataset and the acquirers-only likelihood analysis subsample, including the rest of our company-specific control variables. The full sample has 57,093 firm-year observations and the M&A subsample covers 10,785 firm-year datapoints. The full dataset has a lightly higher average GPR index than the M&A subsample. The means of non-cash working capital, firm age, and the book leverage are marginally lower in the M&A subsample, whereas the M&A

subsample exhibits higher means of the market-to-book factor, company size, the individual stock returns, and 3-year mean growth of sales.

Table 3. Company-level summary statistics

Table 3 presents summary statistics at the company-level of our full M&A dataset and of acquirers only in Panel A and B, respectively. GPR is presented in natural logarithm form. We define a firm with at least one M&A announcement in t as a buyer in that year. The controls are measured in $t-1$.

Panel A: Full data sample					
	Mean	Std. Dev	10 th P	Median	90 th P
GPR	4.35	0.26	4.06	4.33	4.71
Size	6.07	2.25	3.26	5.97	9.04
Market-to-Book	3.11	71.92	0.70	2.11	6.44
Stock returns	0.21	0.87	-0.44	0.09	0.83
Book Leverage	0.35	1.01	0.00	0.21	0.60
3-year Average Sales Growth	0.56	16.37	-0.06	0.10	0.51
Non-Cash Working Capital	0.13	0.42	-0.10	0.12	0.45
Firm Age	22.41	16.31	5.00	18.00	48.00
Number of Observations		57,093			
Panel B: M&A subsample (acquirers only)					
GPR	4.34	0.27	3.95	4.33	4.71
Size	6.35	2.08	3.76	6.30	9.03
Market-to-Book	3.44	29.31	0.94	2.43	6.74
Stock returns	0.29	1.01	-0.34	0.15	0.93
Book Leverage	0.32	0.86	0.00	0.19	0.57
3-year Average Sales Growth	0.58	7.69	-0.03	0.12	0.62
Non-Cash Working Capital	0.12	0.28	-0.08	0.11	0.40
Firm Age	21.20	16.69	5.00	16.00	48.00
Number of Observations		10,785			

III. Empirical Analysis

In this section, we specify our empirical models, describe the methodologies employed, and test our predictions. Moreover, we include our empirical results and interpret their implications.

A. Geopolitical Risk and Aggregate Transaction Activity

We start our empirical tests by examining the relationship between GPR and the total volume and deal value, and more specifically, the performance of aggregate transaction activity between 1985-2022 given heightened GPR across industries, controlling for a group of preceding factors. Concretely, we follow Nguyen and Phan (2017) and replace their uncertainty variable with GPR. Using the natural logarithm of the total size of the deal value and volume for each Fama-French 12 industry on a year-by-year basis, our empirical model is specified as follows.

Equation 1

$$\begin{aligned} \ln(\text{deal value}_{i,t}) &= \alpha + \beta_1 * \ln(\text{GPR}_{t-1}) + \beta_2 * \text{Market} - \text{to} - \text{Book}_{i,t-1} + \beta_3 \\ &\quad * \text{GDP Growth}_{i,t-1} + \beta_4 * \text{Yield Spread}_{i,t-1} + \beta_5 \\ &\quad * \text{CRSP Market Returns}_{i,t-1} + \varepsilon_{i,t} \end{aligned}$$

Equation 2

$$\begin{aligned} \ln(\text{no of deals}_{i,t}) &= \alpha + \beta_1 * \ln(\text{GPR}_{t-1}) + \beta_2 * \text{Market} - \text{to} - \text{Book}_{i,t-1} + \beta_3 \\ &\quad * \text{GDP Growth}_{i,t-1} + \beta_4 * \text{Yield Spread}_{i,t-1} + \beta_5 \\ &\quad * \text{CRSP Market Returns}_{i,t-1} + \varepsilon_{i,t} \end{aligned}$$

These tests control for *Market – to – Book*, *Yield Spread*, *GDP Growth* and *CRSP Market Returns*. GPR_{t-1} is the average historical GPR from the prior year. Additionally, we run the same set of tests for geopolitical threats and acts by replacing GPR with GPRT and GPRA, respectively. Based on Table 4, we identify that GPR surges

are followed by a fall in aggregate industry-level performance the following year, both concerning deal value and volume, although the latter is considered weaker. Specifically, a 1% increase in GPR, is related to a 1.689% and 0.465% decrease in deal value and volume, all else equal (significant at 1% and 10%, respectively). This highlights that the identified effect is not only stronger in statistical meaningfulness but also in magnitude, for the aggregate transaction value. Furthermore, our results indicate that the coefficient estimates for geopolitical threats (-1.224 and -0.861 for deal value and volume, respectively) suggest a negative impact on aggregate industry-level activity, both significant at 1%. Yet, we find no indication of a relationship with the risk stemming from existing geopolitical events, neither for M&A value nor volume. Henceforth, relating our estimates to our first group of hypotheses, we confirm that heightened geopolitical risk is, indeed, linked to a drop in the total volume and value of M&A, with an overall effect that holds true for geopolitical threats. Altogether, these findings suggest that the GPR has a negative impact on aggregate transaction activity at the industry level which is driven by threats rather than the realization of geopolitical events. This is partly consistent with Caldara and Iacoviello (2018) who also highlight that the negative impact of geopolitical risk on macroeconomic and business outcomes are mostly explained by the threat of geopolitical tensions rather than their materialization. Moreover, our results mirror the findings of both Nguyen and Phan (2017) and Bonaime et al. (2018). Additionally, our GPR-coefficient for deal size is greater in magnitude than their corresponding values, and the coefficient for transaction volume is also larger than the counterpart in Bonaime et al. (2018). Interestingly, the estimates below showcase a negative impact on the total volume unlike the emerging-market-analysis of Koirala et al. (2022), possibly indicating a divergence between developed and emerging markets.

Table 4. Geopolitical Risk and Aggregate M&A Activity

Table 4 presents the estimates of six OLS regressions of the aggregate industry-level M&A volume and transaction size. Our dependent variables, shown in column groups 1 and 2, are the natural logarithms of the transaction volume as well as the transaction value per industry, on a year-by-year basis, respectively. GPR denotes the natural logarithm of the historical index across the calendar year $t-1$. Similarly, GPRA and GPRT denote the natural logarithm of their corresponding indices. These proxies are each represented by the Geopolitical Risk variable. Both dependent variables comprise three specifications each, one for each geopolitical risk index (GPR, GPRA and GPRT). Market/Book, GDP Growth, Yield Spread and CRSP Market Returns are control variables and defined in Section II. The t-statistics are derived from

heteroscedasticity-robust standard errors that are clustered annually and presented in parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

	<i>Dependent variables:</i>					
	<i>Aggregate Transaction Value</i>			<i>Aggregate # of Deals</i>		
	GPR	GPRA	GPRT	GPR	GPRA	GPRT
Geopolitical Risk	-1.689*** (0.386)	-0.348 (0.260)	-1.224*** (0.327)	-0.465* (0.267)	-0.007 (0.180)	-0.861*** (0.233)
Market/Book	0.896*** (0.113)	0.947*** (0.112)	0.960*** (0.110)	0.549*** (0.077)	0.568*** (0.077)	0.563*** (0.072)
GDP Growth	-0.167*** (0.042)	-0.142*** (0.044)	-0.152*** (0.042)	-0.090*** (0.029)	-0.087*** (0.030)	-0.084*** (0.028)
Yield Spread	0.215* (0.111)	0.064 (0.112)	0.056 (0.104)	0.142* (0.077)	0.091 (0.074)	0.111 (0.071)
CRSP Market Returns	-0.552 (0.569)	-0.671 (0.649)	-0.645 (0.588)	-0.278 (0.369)	-0.224 (0.412)	-0.438 (0.383)
Constant	14.571*** (1.721)	8.775*** (1.217)	12.837*** (1.531)	4.039*** (1.202)	2.040** (0.855)	5.973*** (1.111)
# Observations	379	379	379	379	379	379
Adjusted R²	0.194	0.153	0.180	0.130	0.122	0.159

B. Geopolitical Risk and M&A Likelihood

In this subsection, we test the relationship between geopolitical risk and the company-level decision to partake in (announced) transactions following upsurged uncertainty. Similar to subsection A, we partially replicate the study of Nguyen and Phan (2017) and replace their proxy of uncertainty, EPU, with the GPR index (in natural logarithm form). We estimate the probability of being an acquiror in t as the function of the mean of the

GPR index in the preceding calendar year. Following Nguyen and Phan (2017), and as previously introduced in Section II, we control for company-level variables that could drive the acquisition probability, namely, “firm size”, “market-to-book” values, “book leverage”, “previous year’s stock returns”, “average sales growth (past 3 years)”, “non-cash working capital” and “company age”. Moreover, we consider Fama-French 12 industry fixed effects to account for typical industry factors. For a given year, firms are exposed to similar levels of uncertainty, thus, we do not include any year-fixed effects and strictly follow the methodology of Nguyen and Phan (2017). Furthermore, similar to the authors, we cluster the “heteroscedasticity-robust standard errors” annually (Nguyen and Phan, 2017). Ultimately, we apply the probit specification below to analyze the potential relationship:

Equation 3

$$\begin{aligned}
 M\&A\ Dummy_{i,t} &= \alpha + \beta_1 * \ln(GPR_{t-1}) + \beta_2 * \ln(Size_{i,t-1}) + \beta_3 \\
 &* Market - to - Book_{i,t-1} + \beta_4 * Stock\ Returns_{i,t-1} + \beta_5 \\
 &* Book\ Leverage_{i,t-1} + \beta_6 * 3y\ average\ sales\ growth_{i,t-1} + \beta_7 \\
 &* Non - Cash\ Working\ Capital_{i,t-1} + \beta_8 * Firm\ Age_{i,t-1} + \gamma \\
 &* Industry - fixed\ effects + \varepsilon_{i,t}
 \end{aligned}$$

The estimates of the probit regression are presented in Table 5. The coefficient of GPR is negative (-0.134) and statistically significant at 1%. Inspired by Bonaime et al. (2018) and Hao et al. (2022), we also calculate the marginal effects of our coefficients to provide more intuitive insights. After converting, the results suggest that an increase of one standard deviation in the GPR from its average, is linked to a 3.58% decrease in transaction probability, all else equal (see Table AIX). This indicates that heightened GPR in the year before decreases the likelihood of being a buyer in the ensuing year. Furthermore, we confirm that this relationship holds true for both subcomponents. Indeed, the coefficients are both negative as well as significant at 1%. However, the results also suggest that GPRT tends to drive the relationship. Particularly, based on marginal effects, a one standard deviation positive shift in the GPRT off the mean is linked to a 5.70% drop in likelihood, all else equal, whereas a similar increase of the GPRA index from its average leads to a 1.18 % fall. These findings back the GPR-specific study of Hao et al.

(2022), finding a similar pattern. Moreover, this mirrors the results we observed in our aggregate industry-level OLS regression as it again underlines the argument of Caldara and Iacoviello (2022), namely, that the negative impact on business outcomes (M&A in our case) is predominantly explained by the risk stemming from threats and future expectations, rather than current incidents.

Table 5. Geopolitical Risk and the Probability of Announcing M&A

Table 5 presents the estimates of the probit regressions testing the probability of M&A announcements, using three different indices of geopolitical risk. The dependent variable is an M&A dummy equaling 1 if an acquirer conducts a transaction during year t , otherwise 0. The table comprises three specifications, one for each geopolitical risk index (GPR, GPRA and GPRT). Geopolitical Risk represents the appropriate geopolitical risk index (GPR, GPRA or GPRT). GPR is the natural logarithm of the average of the historical geopolitical risk index across $t-1$, and GPRA and GPRT are the corresponding measures for their equivalent indices. Other variables are defined in Section II. We also consider Fama–French 12 industry fixed effects. The Z-statistics are derived from “heteroscedasticity-robust standard errors” that are clustered on a year-by-year basis and presented in parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

	<i>Dependent variable: M&A Dummy</i>		
	GPR	GPRA	GPRT
Geopolitical Risk	-0.134*** (0.024)	-0.044*** (0.015)	-0.214*** (0.027)
Size	0.074*** (0.003)	0.074*** (0.003)	0.073*** (0.003)
Market/Book	0.00003 (0.0001)	0.00003 (0.0001)	0.00003 (0.0001)
Stock Returns	0.073*** (0.009)	0.072*** (0.009)	0.074*** (0.009)
Book leverage	-0.022** (0.011)	-0.022** (0.011)	-0.019* (0.010)
3y average sales growth	0.00004 (0.0003)	0.00005 (0.0003)	0.00004 (0.0003)

Non-Cash Working Capital	-0.022 (0.017)	-0.022 (0.017)	-0.020 (0.016)
Firm Age	-0.007*** (0.0005)	-0.007*** (0.0005)	-0.007*** (0.0005)
Constant	-0.693*** (0.108)	-1.091*** (0.073)	-0.317*** (0.123)
Industry-fixed Effects	Included	Included	Included
# Observations	57,093	57,093	57,093

In subsequent tests, we study the persistence of the above identified relationship to investigate whether firms delay or cancel M&A decisions given amplified GPR. We use our baseline probit and adjust the dependent variable to estimate future M&A probabilities for up to three years following the methodology of Bonaime et al. (2018). These results are shown in Table 6. The first specification, denoted as $t+1$ to be more intuitive, reflects our regression from Table 5. The remaining regressions predict the M&A probability for years two and three. If the fall in announcement likelihood is caused by M&A postponement, we should find a positive relationship as of two years in the future (Bonaime et al. 2018). However, we observe a negative relationship at the 10% significance-level between GPR and M&A likelihood for up to two years. This effect becomes positive but insignificant in the third year, and finally, suggests that geopolitical risk causes firms to abandon and not to temporarily halt processes which is in line with similar studies (Nguyen and Phan, 2017; Bonaime et al. 2018; Hao et al. 2022).

Table 6. The Level of Persistence of the Impact on M&A Probability

Table 6 presents the estimates of the company-level probit regressions on the index from Caldara and Iacoviello (2022). The dependent variable equals zero if a firm is not involved in a transaction in $t+1$, $t+2$, or $t+3$; otherwise, it equals 1. We measure the main proxy as the mean in the calendar year prior to $t+1$, and all company-level variables in fiscal year t . All variables are defined in Section II. The Z-statistics are derived from “heteroscedasticity-robust standard errors” that are clustered on a yearly basis and Fama French 12 industry, and presented in parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

<i>Dependent variable: M&A Dummy</i>			
	<i>t+1</i>	<i>t+2</i>	<i>t+3</i>
GPR	-0.134*** (0.024)	-0.044* (0.024)	0.029 (0.025)
Constant	-0.693*** (0.108)	-1.105*** (0.111)	-1.456*** (0.114)
Industry-fixed effects	Included	Included	Included
# Observations	57,093	56,077	54,571

C. Geopolitical Risk and Merger Waves

In this subsection, we investigate the possibility that geopolitical risk could impact the start of time periods with high transaction activity. Specifically, we follow Bonaime et al. (2018) and Harford (2005) to identify such waves and split our main M&A data sample into four periods accordingly: 1985-1994, 1995-2004, 2005-2014, 2015-2022. Our identification procedure stems from Harford (2005), and we start by assuming that “merger waves” have a duration of two years. The process consists of two parts. First, we find the strongest two-year concentration of merger activity per industry for every decade, and select these two-year periods as potentially being “merger waves” due to their high volume of deals. Second, for each sector, we compare this identified period to an “artificial” counterpart. Specifically, to assess whether a potential cluster is a “real” wave, we run 1000 simulations of all announced M&A bids on an industry-basis for each of our four periods. Concretely, we assign the presence of a company’s M&A participation from a chosen industry to a specific month with equal probability in a random manner and simulate different distributions accordingly. Thereafter, for a given sector, we identify the highest two-year concentration in each of these 1000 simulations. Following this, we categorize the initially identified cluster as an actual wave if its concentration is larger than the ninety-fifth percentile from the distribution of the (strongest) concentrations described above (Harford, 2005). This sophisticated procedure results in the identification

of 21 actual “merger waves” across 10 industries, out of which 16 take place in the first (1985-1994) and second (1995-2004) periods. Moreover, we identify “real” waves in all four decades for Fama French industries 3 (“Manufacturing”) and 6 (“Business Equipment and Software”) only. Based on these 21 waves, we apply our baseline likelihood model but modify it following Bonaime et al. (2018) using our industry averages instead of company-level controls to capture the relationship between geopolitical risk and the beginning of a wave in the year that follows.

Equation 4

$$\begin{aligned} Wave_{i,t} = & \alpha + \beta_1 * \ln(GPR_{t-1}) + \beta_2 * GDP\ Growth_{t-1} + \beta_3 * Yield\ Spread_{t-1} \\ & + \beta_4 * CRSP\ Market\ Returns_{t-1} + c \\ & * Industry - level\ controls_{i,t-1} + \gamma * Industry - fixed\ effects \\ & + \varepsilon_{i,t} \end{aligned}$$

Table 7 shows the estimates of our regressions. While our results for GPR and GPRA suggest that a wave is less probable to occur following heightened geopolitical risk, our results are not statistically significant. Moreover, this relationship is positive for GPRT. In truth, these findings differ from our predictions based on the results of Bonaime et al. (2018) who observe a statistically significant negative relationship for their uncertainty proxy (EPU). This could indicate that geopolitical risk might affect industries rather temporarily with limited effect on influencing high-concentration M&A clusters, whereas policy uncertainty could be more likely to represent an irretrievable external shock to a given sector, with a stronger effect on such activity.

Table 7. Geopolitical Risk and Merger Waves

Table 7 presents the estimates from our industry-level-adjusted probit regressions that predict a merger wave’s start as a constructed function of our three geopolitical risk indices each. The wave dummy takes 1 if the industry experiences the inception of a wave in the year after, and zero otherwise. We identify “merger waves” following Harford (2005). The table comprises three specifications, one for each geopolitical risk index (GPR, GPRA and GPRT). Geopolitical Risk represents the appropriate geopolitical risk index (GPR, GPRA or GPRT). GPR is the natural logarithm of the average of the historical geopolitical risk index across $t-1$, and GPRA and GPRT are the corresponding measures for their equivalent indices. Other variables are defined in Section II. The company-specific data is averaged at the Fama-French 12 industry level and measured at the fiscal year closure preceding the announcement. The Z-statistics are derived from “heteroscedasticity-robust standard errors” that are clustered on a yearly basis and Fama French 12 industry,

and presented in parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

	GPR	GPRA	GPRT
Geopolitical Risk	-0.211 (0.548)	-0.266 (0.408)	0.093 (0.594)
Yield Spread	0.240 (0.188)	0.247 (0.187)	0.205 (0.179)
GDP	0.019 (0.071)	0.016 (0.071)	0.030 (0.071)
CRSP Market Returns	1.919* (1.101)	1.844 (1.145)	2.055* (1.077)
Constant	1.832 (3.534)	1.907 (2.905)	0.228 (4.069)
Industry-level Controls	Included	Included	Included
Industry-fixed Effects	Included	Included	Included
# Observations	380	380	380

D. Geopolitical Risk and Distressed M&A

Inspired by the literature on bankruptcy and financial distress, we introduce a distressed M&A angle to the acquisition likelihood methodology of Nguyen and Phan (2017). In essence, we test whether heightened GPR is linked to an increase in the likelihood of “fire sales”, or simply distressed M&A. We follow Nguyen and Phan (2017) and modify our baseline regression from subsection B by solely targeting transactions that fit the specifications of Meier and Servaes (2014), namely that the M&A either (i) involves a target that becomes bankrupt during the deal (or is initially bankrupt), (ii) includes a target that is in liquidation, and/or (iii) is considered as restructuring, following SDC Platinum. In this case, the dummy is 1 if a company, in a given year, has (at least one) distressed transaction announcement, otherwise 0. The findings are presented in Table 8. Indeed, our result for GPR (coefficient of 0.331) is aligned with the key prediction. Namely, while

amplified geopolitical risk has a negative influence on the U.S. public M&A likelihood, it instead has a positive effect on the probability of announcing “fire sales”. This striking result is significant at 1%. When calculating the marginal effects, we observe that an increase of one standard deviation in the GPR from the mean is linked to a 0.27% increase in transaction announcement likelihood of distressed M&A, all else equal (see Table AX). Although these findings are not fully comparable to the previous literature, we are aligned with the conclusions regarding the impact of other uncertainty variables on bankruptcies, such as EPU and VIX (Stolbov and Shchepeleva, 2020; Fedorova et al. 2022). Furthermore, we find a similar significant relationship for GPRA (0.217), whereas GPRT is insignificant. This partially differs from our general likelihood scope which indicates that geopolitical expectations have a stronger (negative) effect on the likelihood of M&A compared to tensions from existing incidents. Based on these two observations, we argue that geopolitical threats seem to be more harmful on “general M&A” likelihood whilst geopolitical acts are potentially more harmful for the performance of companies resulting in increased financial distress, which ultimately boosts a specific subgroup of transactions. Past studies argue that terrorist attacks (actual events) do not only coincide with high levels of volatility and detrimental uncertainty, but also physical damages on capital (Johnston and Nedelescu, 2005). Moreover, geopolitical acts are further unique in the sense that such events can fuel and generate tensions and distress, such as wars between nations, to a higher degree, compared to threats (Caldara and Iacoviello, 2022). However, while they provide some background on the differences between the two subindices, these examples do not fully explain the divergence in M&A implications with respect to general versus distressed M&A, and thus, we refrain from making a conclusive interpretation due to the limited research.

Table 8. Geopolitical Risk and Distressed M&A Deal Likelihood

Table 5 shows the estimates from the probit regression results applied to distressed transactions. The dependent variable is an M&A dummy equaling 1 if a company conducts a distressed deal during a given year, otherwise 0. The table comprises three specifications, one for each geopolitical risk index (GPR, GPRA and GPRT). Geopolitical Risk represents the appropriate geopolitical risk index (GPR, GPRA or GPRT). GPR is the natural logarithm of the average of the historical geopolitical risk index across $t-1$, and GPRA and GPRT are the corresponding measures for their equivalent indices. Other variables are defined in Section II. We also include Fama–French 12 industry fixed effects. The Z-statistics are derived from “heteroscedasticity-robust standard errors” that are clustered on a year-by-year basis, and presented in

parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

	<i>Dependent variable: Distressed M&A dummy</i>		
	GPR	GPRA	GPRT
Geopolitical Risk	0.331*** (0.112)	0.217*** (0.066)	0.160 (0.114)
Size	0.031*** (0.012)	0.029** (0.012)	0.032*** (0.012)
Market/Book	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)
Stock Returns	-0.015 (0.035)	-0.014 (0.034)	-0.012 (0.033)
Book leverage	-0.124** (0.051)	-0.118** (0.049)	-0.134** (0.053)
3y average sales growth	-0.013 (0.012)	-0.014 (0.013)	-0.015 (0.013)
Non-Cash Working Capital	-0.043 (0.040)	-0.040 (0.042)	-0.045 (0.039)
Firm Age	-0.008*** (0.002)	-0.008*** (0.002)	-0.009*** (0.002)
Constant	-3.951*** (0.509)	-3.423*** (0.308)	-3.218*** (0.526)
Industry-fixed effects	Included	Included	Included
# Observations	57,093	57,093	57,093

E. Geopolitical Risk and Risk Management

Following our literature review, we expect vertical transactions to become more prevalent given increased GPR as they could potentially reduce the uncertainty in the production stream as well as diversify a company's risk exposure. Henceforth, we follow Bonaime et al. (2018) to identify this M&A type by using the "Benchmark Input-Output" tables issued by the Bureau of Economic Analysis. Based on the "Make and Use" section specifically, we use the fraction of the required output flowing from industry i to j of the total output from industry j (which is produced using input from industry i , in other words), and vice versa (Bonaime et al. 2018). We categorize a cross-supply-chain transaction if either of these two values is greater than 1%. To examine whether acquirers use this activity as way to hedge, we apply our baseline likelihood analysis to estimate the effect on the likelihood of firms being active in vertical deals. For these tests, the dependent variable is an M&A dummy which takes a value of 1 if a firm is active in one or more vertical deal(s) during a given year, otherwise 0. Table 9 highlights the results of our company-level probit analyses. The relationship between the GPR index and vertical transactions, with 1% significance, is negative (-0.112). Likewise, the coefficient of GPRT (-0.181) is also negative as well as statistically significant at 1%. For the former, the calculated marginal effect suggests that an increase of one standard deviation of the GPR index from its average is linked to a 1.16% fall in the probability of vertical deals, all else equal (see Table AXI). Moreover, holding all other variables equal, an increase equal to one standard deviation off the mean for the GPRT index is linked to a decrease of 1.88% in vertical deal likelihood. Furthermore, we find a statistically significant (10% level) negative relationship for GPRA with a marginal effect of -0.4% being interpreted analogous to above. The results indicate that M&A booms explained by vertical transactions between companies, are not driven by geopolitical risk. Thus, we find support for the insignificance of this type of M&A determinant, further confirming the suggestion of Hao et al. (2022). Henceforth, our estimates imply that risk mitigation by targeting vertical deals, is less common in the geopolitical risk context compared to other types of uncertainty, as shown by Bonaime et al. (2018) for policy uncertainty and Garfinkel and Hankins (2011) for the uncertainty of cash outflows and inflows.

Table 9. Geopolitical Risk and Vertical Transactions

Table 9 presents our probit regressions predicting if a given deal is considered vertical, as a constructed function of the GPR index as well as its subcomponents. The table comprises three specifications, one for each index. Geopolitical Risk represents the appropriate index (GPR, GPRA or GPRT). Other variables are defined in Section II. We also include Fama–French 12 industry fixed effects. The Z-statistics are derived from “heteroscedasticity-robust standard errors” that are clustered on a year-by-year basis and presented in parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

<i>Dependent variable: Vertical Merger dummy</i>			
	GPR	GPRA	GPRT
Geopolitical Risk	-0.112*** (0.034)	-0.037* (0.022)	-0.181*** (0.037)
Size	0.041*** (0.004)	0.041*** (0.004)	0.040*** (0.004)
Market/Book	0.00004 (0.0001)	0.00004 (0.0001)	0.00004 (0.0001)
Stock Returns	0.053*** (0.009)	0.053*** (0.009)	0.054*** (0.009)
Book leverage	-0.077*** (0.024)	-0.078*** (0.025)	-0.072*** (0.024)
3y average sales growth	0.00004 (0.0003)	0.00005 (0.0003)	0.00004 (0.0003)
Non-Cash Working Capital	0.003 (0.035)	0.003 (0.035)	0.005 (0.035)
Firm Age	-0.002** (0.001)	-0.002** (0.001)	-0.001** (0.001)
Constant	-1.643*** (0.157)	-1.973*** (0.111)	-1.315*** (0.174)
Industry-fixed effects	Included	Included	Included
# Observations	57,093	57,093	57,093

IV. Discussion

In this section, we further investigate our M&A sample and discuss our results in relation to perspectives such as the effect on cross-border transaction and geopolitical risk over time. Moreover, we conduct a series of robustness tests and present this paper's main limitations.

A. Geopolitical Risk and Cross-Border Transactions

As stated by Caldara and Iacoviello (2022), geopolitical events are global and could generate tensions that deteriorate the state of multinational relations and possess the power to disrupt the health and performance of countries, industries, and firms. Based on this nature and its characteristics, we argue that engaging in global M&A decisions, such as cross-border M&A, could further increase a company's exposure to geopolitical risk. As shown in our empirical analysis, we identify a negative company-level impact on the probability of transaction announcements across "general M&A". Henceforth, we expect the likelihood of announcing cross-border M&A to also be negatively affected by elevated risk. To investigate if this applies to our sample, we again utilize our baseline likelihood analysis. Since our sample consists of solely U.S. acquirors, we only capture the impact of geopolitical risks on "outbound transactions" in which a U.S. company acquires a foreign target (Hao et al. 2022).

In Table 10, we present the probit regressions testing whether the target company is based outside the U.S., as a constructed function of the GPR index as well as its subcomponents, respectively. As expected, we report a negative effect of the GPR index on cross-border transactions (-0.152) which is statistically significant at 1%. Based on the marginal effects, an increase of one standard deviation in the GPR from the mean is linked to a 1.22% decrease in M&A likelihood of non-American targets, all else equal (see Table AXII). Likewise, the effect of GPRT is negative and also significant at 1% (-0.274). Precisely, an increase of one standard deviation in GPRT from its average is linked to a 2.19 % fall in the announcement likelihood of foreign targets, all else equal. Interestingly, there is no statistically significant relationship between GPRA and the announcement of international target acquisitions. Our results indicate that companies partake in cross-

border activity more guardedly given heightened geopolitical risk, particularly following higher threats. Thus, our conclusion mirrors the results in our main empirical tests as the relationship is mainly driven by GPRT. Our analysis is also aligned with previous studies analyzing the effect of different types of uncertainty on cross-border deals. Hao et al. (2022) find a negative relationship of GPR on both “outbound” and “inbound” transactions, and Sun et al. (2022) argue that Chinese acquirers are less likely to consider foreign targets in times of high uncertainty. In contrast, Bonaime et al. (2018) find that U.S. acquirers instead seek to buy foreign targets, mainly to mitigate against elevated domestic policy uncertainty. This discrepancy could be explained by the construction of the domestic EPU index which is aggregated at the national level whereas GPR captures risks that are transboundary (Hao et al. 2022). Therefore, we argue that non-U.S.-deals could diversify an American company’s exposure to domestic policy uncertainty while the acquisition of a foreign target could even increase the same firm’s exposure to geopolitical risk, potentially explaining why our identified relationship is negative and further suggesting the absence of risk management incentives with respect to cross-border M&A.

Table 10. Geopolitical Risk and Cross-Border Transactions

In Table 10, the regressions are probit models testing if the acquired target is based outside the U.S., as a constructed function of the GPR index as well as its subcomponents. The table comprises three specifications, one for each geopolitical risk index (GPR, GPRA and GPRT). Geopolitical Risk represents the appropriate geopolitical risk index (GPR, GPRA or GPRT). Our variables at the company-level are measured fiscal year closure preceding the announcement and defined in Section II. We also include Fama–French 12 industry fixed effects. The Z-statistics are derived from “heteroscedasticity-robust standard errors” that are clustered on a year-by-year basis, and presented in parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

<i>Dependent variable: M&A Dummy</i>			
	GPR	GPRA	GPRT
Geopolitical Risk	-0.152*** (0.038)	-0.029 (0.025)	-0.274*** (0.041)
Size	0.084*** (0.005)	0.084*** (0.005)	0.083*** (0.005)
Market/Book	0.00004 (0.0001)	0.00004 (0.0001)	0.00004 (0.0001)
Stock Returns	0.054*** (0.009)	0.053*** (0.009)	0.055*** (0.010)
Book leverage	-0.057** (0.024)	-0.057** (0.024)	-0.049** (0.022)
3y average sales growth	0.0004 (0.0004)	0.0004 (0.0004)	0.0004 (0.0004)
Non-Cash Working Capital	-0.009 (0.034)	-0.008 (0.035)	-0.006 (0.034)
Firm Age	-0.002*** (0.001)	-0.003*** (0.001)	-0.002*** (0.001)
Constant	-1.668*** (0.171)	-2.209*** (0.118)	-1.107*** (0.190)
Industry-fixed effects	Included	Included	Included
# Observations	57,093	57,093	57,093

B. The Effect of Geopolitical Risk over Different Time Periods

To provide additional insights on geopolitical risk and M&A, we also discuss whether the relationship identified in our baseline likelihood model varies across different historical time periods. Specifically, we cluster our sample into the periods used for our “merger waves” analysis, namely 1985-1994, 1995-2004, 2005-2014, and 2015-2022. Then, we re-run the likelihood model for each period and present the results in Table 11. Interestingly, our results suggest that the relationship between GPR and acquisition likelihood is negative in the beginning of our sample but becomes weaker and even positive in the most recent periods. This finding is striking, and although it is partly aligned with previous papers that have identified a positive relationship between GPR and M&A announcements (Shen et al. 2021; Koirala et al. 2022), we still find a discrepancy with respect to our findings on aggregate transaction performance as well as M&A likelihood. Caldara and Iacoviello (2022) show that terrorism in the western world, the Iraq invasion and subsequent high-tension events, as well as tensions between countries dominate the index since the 2000s. Moreover, amongst the largest shocks to the index since its inception, the authors specifically identify U.S.-related events, such as the Iraq invasion (2003), Kuwait invasion / Gulf war (1990/1991) and the September 11 attacks (2001). Additionally, looking at the recent spikes, we find a greater occurrence of non-U.S.-induced/linked events, such as the Paris terrorist attacks (2015), Turkey’s military coup (2016) and the Russian invasion of Crimea and Ukraine (2014/2022), though in all honesty, some of these could still be linked to the U.S. Thus, although a possible explanation could be that our U.S.-specific sample is exposed to an index that in recent years incorporates a greater share of non-American-induced events whereas previous years includes more U.S.-linked events (that are also among the most powerful shocks since inception), we remain reluctant in making any conclusions on this subtopic, particularly due to the limited literature.

Table 11. Geopolitical Risk and M&A Likelihood across Time

Table 11 reports the results of our four clustered probit regression for the periods 1985-1994, 1995-2004, 2005-2014, and 2015-2022. The dependent variable is an M&A dummy equaling 1 if an acquirer conducts a transaction across a given year, otherwise 0. GPR is the natural logarithm of the average of the historical

geopolitical risk index across $t-1$, and GPRA and GPRT are the corresponding measures for their equivalent indices. Our variables at the company-level are measured at the fiscal year closure preceding the announcement and defined in Section II. We also include Fama–French 12 industry fixed effects. The Z-statistics are derived from “heteroscedasticity-robust standard errors” that are clustered on a year-by-year basis, and presented in parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

	<i>Dependent variable: M&A Dummy</i>			
	1985-1994	1995-2004	2005-2014	2015-2022
Geopolitical Risk	-0.338*** (0.128)	-0.152*** (0.027)	0.276*** (0.075)	0.615*** (0.090)
Size	0.096*** (0.010)	0.077*** (0.006)	0.075*** (0.006)	0.041*** (0.007)
Market/Book	0.0005 (0.001)	-0.0002 (0.0001)	0.0005 (0.001)	0.00003 (0.0001)
Stock Returns	0.105*** (0.020)	0.067*** (0.012)	0.063*** (0.019)	0.099*** (0.031)
Book leverage	-0.540*** (0.081)	-0.413*** (0.038)	-0.026 (0.021)	0.030*** (0.010)
3y average sales growth	-0.001 (0.002)	0.001 (0.002)	0.004** (0.002)	0.003 (0.005)
Non-Cash Working Capital	-0.356*** (0.078)	-0.109*** (0.036)	0.037 (0.041)	0.024 (0.043)
Firm Age	-0.006*** (0.002)	-0.007*** (0.001)	-0.007*** (0.001)	-0.006*** (0.001)
Constant	0.048 (0.579)	-0.485*** (0.125)	-2.468*** (0.337)	-3.727*** (0.405)
Industry-fixed effects	Included	Included	Included	Included
# Observations	9,769	17,355	17,815	12,154

C. Robustness Checks

In this subsection, we conduct a series of robustness tests to challenge our assumptions and empirical results, primarily regarding the baseline likelihood analysis. First, we include alternative proxies and reconstruct our main GPR index. Second, we introduce additional control variables. Finally, we conduct a two-stage Heckman modification for applicable tests.

C.1 Alternative GPR and Other Proxies

We identify two different approaches in the literature to construct the independent uncertainty variable. Bonaime et al. (2018) and Hao et al. (2022) use the annual mean level of their uncertainty index. Our variable construction follows these papers and is therefore based on the natural logarithm of the average historical GPR index across $t-1$. Nguyen and Phan (2017), however, construct their proxy as (the natural logarithm of) the weighted mean of the EPU index across the final quarter of the fiscal year before the transaction. Therefore, we test whether our main results remain robust under the approach of Nguyen and Phan (2017). Table AII shows the results of our company-level probit regressions, mirroring the estimates of Table 5 in Section III. Additionally, we deviate from the prior literature (Nguyen and Phan, 2017; Bonaime et al. 2018) by using Fama-French 12 instead of Fama-French 48 industries to capture common and shared sector factors. Therefore, we also conduct a separate robustness test by including Fama-French 48 industry fixed effects. The results of this probit regression are shown in Table AIII and their interpretation does not deviate from the previously presented analysis.

Another concern is our use of the historical index. The recent one is not only based on U.S. newspapers but also includes international media. In Table AIV, we re-run our main probit analysis using the recent index instead. The results indicate that our interpretation remains robust and is not contingent on the selection of index type. Furthermore, we use alternative indicators of geopolitical risk that are not newspaper-based, to challenge whether the index from Caldara and Iacoviello (2022) can accurately quantify

geopolitical risks. As the GPR relies on newspaper articles, we would argue that the index might be subject to bias and therefore misrepresent any shocks (Hao et al. 2022). Additionally, the GPR index might give rise to a potential “omitted variable bias” problem. For instance, factors that create increased media coverage of high-tension events might also depreciate investments (Hao et al. 2022). Therefore, with inspiration from Hao et al. (2022), we first employ an alternative geopolitical risk measure, namely, the “global common volatility index” (COVOL) of Engle and Campos-Martins (2023), measuring the size of global shocks to volatility common to a broad array of assets. In specification (1) of Table AV, we use the annual mean of the COVOL index across the year before the transaction as the independent variable. Additionally, for specification (2), we employ another proxy, gathered from the International Crisis Behavior (ICB) project which aggregates 496 global political crisis events (such as armed wars, coup d’états, terrorist attacks etc.) that occurred between 1918–2019. We specifically select a component of the overall project, namely the number of conflicts/crises, as our geopolitical risk proxy and re-run our baseline probit regression. Both alternative measures show a negative impact on company-level announcement likelihood. In the case of COVOL, however, we report insignificant results. We argue that a possible explanation could relate to the smaller sample size due to our selection of transactions solely being limited to post-2000 data. Nevertheless, the conclusions we draw from the GPR index partly persist.

C.2 Other Uncertainty Measures

To exclude the possibility that the GPR incorporates the effect of other uncertainty dimensions that might drive the identified negative relationship, we include the EPU which is the policy uncertainty index of Baker et al. (2016), employed by Bonaime et al. (2018) and Nguyen and Phan (2017), as well as the CBOE Volatility Index (VIX), as control variables similar to Hao et al. (2022). We report the results in Table AVI. Indeed, we provide statistically significant evidence in all specifications that the M&A probability is negatively driven by GPR, even when controlling for other risk dimensions.

C.3 Possible Selection Bias

As a final step, we modify our main regressions for our vertical and distressed M&A. Specifically, we adjust for concerns regarding the “self-selection bias” similar to Nguyen and Phan (2017) and Bonaime et al. (2018) as our selection of transactions from the “population” might not have been conducted in a random manner. Henceforth, we conduct a Heckman two-stage model procedure to lighten such concerns, using the “inverse Mill’s ratio” from Nguyen and Phan (2017) to be coherent in our methodology. This control variable is calculated based on the coefficients of the baseline probit and added to our tests. Our findings are shown in Tables AVII-VIII. Indeed, the modified distressed M&A test is robust, although GPR is now significant at 5%, whereas we still find significance at the 1% level for our vertical transactions, strengthening our main conclusion about the absence of a vertical M&A channel in the context of GPR.

D. Limitations

We recognize that our paper has multiple limitations. Below, we present two key discussion topics that weaken the strength of our study. First, even though we base our main empirical models and subsequent analyses on the prominent paper of Nguyen and Phan (2017), the empirical design of our study might still fail to include important control variables, particularly at the macro-level. For example, Bonaime et al. (2018) include a rich set of controls for “investment opportunities”, “market liquidity”, and similar proxies of general economic conditions as well as “low valuation levels” and the “availability of capital”. These are all factors that could be relevant in an M&A setting and could strengthen our results if employed, however, due to data limitation issues for certain variables, we cannot include these. Another data limitation concern relates to our Heckman-modification methodology. Bonaime et al. (2018) construct a covariate based on outflows from mutual funds instead of the “inverse Mill’s ratio” because the former specifically satisfies both the “relevance” and “exclusion” criteria in an M&A context, potentially making it a more accurate instrument. Although this has also been widely used by other papers, such as Edmans et al. (2012) and Hao et al. (2022), we choose to base our model on Nguyen and Phan (2017) due to limitations in accessing this data. Furthermore, we also employ the “inverse Mill’s ratio” to be more coherent in our

approach. Yet, as the two-stage Heckman tests applied by Bonaime et al. (2018) are also richer in terms of control variables, we still recognize that this as a key limitation.

Second, we recognize that our study has constraints in its research design with the effect that we fail to provide a more comprehensive view on the dynamics between M&A and geopolitical risk. Although we replicate two frameworks from Nguyen and Phan (2017), as well as take inspiration from Bonaime et al. (2018) for multiple regressions, we neglect to include certain analyses for the interest of time. For instance, Bonaime et al. (2018) also uncover a plethora of findings on transaction characteristics, specifying that higher uncertainty also decreases termination penalty amounts while boosting acquisition premiums, impacting the negotiation strength of acquirers, among other conclusions. Moreover, we do not study how geopolitical risk affects the shareholder values of acquirers or the time to finalize and complete transactions à la Nguyen and Phan (2017), although these angles could help us to further dissect the health of M&A given amplified tensions. Nonetheless, these are all perspectives we fail to examine and incorporate into our empirical design. Relatedly, as this field is relatively fresh, especially in relation to the research on EPU and M&A, we remain reluctant in some our results as some areas are not comparable with the previous literature. Thus, we recognize that our thesis is also limited with respect to the scope of the geopolitical risk literature, with implications on research design and the strength of our conclusions as exemplified by our historical likelihood analysis and distressed M&A findings. Additionally, despite our attempts to test whether M&A strategies related to “risk management” could act as a determinant of transactions, we do not further discuss other mechanisms behind the identified relationships. Hao et al. (2022) finds evidence on the “real options channel”, suggesting that managers would rather wait and postpone M&A due to upsurged GPR. In hindsight, we acknowledge that our scope is heavily focused on uncovering the effects rather than also discussing their causes, especially since the other possible drivers are not mutually exclusive, as stated by Bonaime et al. (2018). Furthermore, we only observe the deals of public companies due to accounting data limitations regarding company-level controls. Therefore, we cannot cover the wider M&A market, and refrain from generalizing our findings to private acquirers. Similarly, our study excludes certain transactions that could pave the way for further insights on the dynamics of geopolitical risk, such as leveraged buyouts and growth investments.

V. Conclusions

Using the GPR index of Caldara and Iacoviello (2022) and M&A transactions by publicly listed U.S. companies between 1985-2022, we present a sixfold conclusion on the dynamics between the two. First, we show that heightened risk is conjoined with a decrease in both the industry-level M&A deal volume and value, similar to policy uncertainty. Second, we explore the company-level impact and find that geopolitical spikes are linked to a persistent drop in the likelihood of announcing M&A. Third, we find a trend suggesting that geopolitical risk impairs “merger waves”. However, since we do not observe any statistical significance, we cannot confidently claim this identified relationship. Fourth, and coincidentally, a specific subgroup escapes this harmful nature of geopolitical tensions. In fact, the likelihood of announcing distressed M&A, for example “fire sales”, increases given high levels of the index. Fifth, in contrast to policy uncertainty, acquirers do not pursue vertical transactions to hedge, indicating the absence of “risk management” incentives. Sixth, by splitting the index into risks associated with threats and future expectations as well as “real” geopolitical events, we show that both relate to different outcomes, with the former being more harmful on transaction activity and M&A likelihood. Our results primarily persist when applying other geopolitical risk proxies and including additional uncertainty controls, among a multiplex of other robustness checks. In addition to these main findings, we explore cross-border transactions and find that they are also negatively affected by GPR, in contrast to domestic policy uncertainty. Furthermore, the identified effect on M&A likelihood might have weakened and turned positive in recent years, potentially due to a shrinking proportion of U.S.-related events, although we remain reluctant in affirming this finding with certainty. Nevertheless, our paper is subject to multiple limitations such as the neglect of certain variables, particularly at the macroeconomic level, and critical research design constraints. Finally, this thesis paves the way for multiple avenues of research, for instance the impact on private M&A or leveraged buyouts and the effect across time. Additionally, we offer guidelines to explore the differences between M&A markets or world regions and recommend others to provide a more comprehensive view on the divergence between threats and actual occurrences across various M&A as well as the mechanisms behind our observed relationships.

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Appendix

Table AI. The Geopolitical Risk Index and its subcomponents

Table AI presents summary statistics of the Caldara & Iacoviello (2022) index (presented as GPRH in this table to reflect the specification in the original database, but denoted as GPR throughout the thesis for convenience - we consistently use GPRH across all applicable tests) and the recent indices as well as the respective subcomponents of both on a monthly basis, during 1985–2022. Panel A shows summary statistics for the specified measures whereas Panel B presents their correlation coefficients.

Panel A: Summary Statistics						
	Mean	Std. Dev.	P10	Median	P90	
GPR	100.6	48.1	65.1	90.6	138.4	
GPRT	102.8	44.5	65.9	94.1	143.4	
GPRA	98.2	74.8	49.7	83.3	153.3	
GPRH	81.5	31.3	52.2	76.2	110.5	
GPRHT	96.4	34.8	62.5	90.5	132.3	
GPRHA	72.9	46.0	36.0	64.0	115.3	
Panel B: Correlation Coefficients						
	GPR	GPRT	GPRA	GPRH	GPRHT	GPRHA
GPRT	0.835					
GPRA	0.916	0.548				
GPRH	0.955	0.789	0.878			
GPRHT	0.728	0.923	0.436	0.783		
GPRHA	0.883	0.517	0.975	0.897	0.439	

Table AII. GPR measured as in Nguyen and Phan (2017), and M&A Likelihood

Table AII shows the estimates of our modified probit regression following Nguyen and Phan (2017). The dependent variable is an M&A dummy equaling 1 if an acquirer conducts a transaction during a given calendar year, otherwise 0. Our uncertainty proxy is the natural logarithm of either the average historical GPR index or its subcomponents across the closing quarter before the transaction. The table comprises three specifications, one for each geopolitical risk index (GPR, GPRA and GPRT). Geopolitical Risk

represents the appropriate geopolitical risk index (GPR, GPRA or GPRT). Our variables at the company-level are measured from the fiscal year closure preceding the announcement and defined in Section II. We also include Fama–French 12 industry fixed effects. The Z-statistics are derived from “heteroscedasticity-robust standard errors” that are clustered on a year-by-year basis, and presented in parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

<i>Dependent variable: M&A dummy</i>			
	GPR	GPRA	GPRT
Geopolitical Risk	-0.104*** (0.019)	-0.042*** (0.012)	-0.204*** (0.025)
Size	0.074*** (0.003)	0.074*** (0.003)	0.073*** (0.003)
Market/Book	0.00003 (0.0001)	0.00003 (0.0001)	0.00003 (0.0001)
Stock Returns	0.071*** (0.009)	0.071*** (0.009)	0.071*** (0.009)
Book leverage	-0.022** (0.011)	-0.022** (0.011)	-0.021** (0.010)
3y average sales growth	0.00005 (0.0003)	0.00005 (0.0003)	0.0001 (0.0003)
Non-Cash Working Capital	-0.022 (0.017)	-0.022 (0.017)	-0.020 (0.016)
Firm Age	-0.007*** (0.0005)	-0.007*** (0.0005)	-0.007*** (0.0005)
Constant	-0.828*** (0.090)	-1.104*** (0.061)	-0.365*** (0.116)
Industry-fixed effects	Included	Included	Included
# Observations	57,093	57,093	57,093

Table AIII. Geopolitical Risk and M&A Likelihood with Fama-French 48

Table AIII shows the estimates of our modified probit regression results following Nguyen and Phan (2017). The dependent variable is an M&A dummy equaling 1 if an acquirer conducts a transaction during a given calendar year, otherwise 0. Our uncertainty proxy is the natural logarithm of either the average historical GPR index or its subcomponents across the calendar year $t-1$. The table comprises three specifications, one for each geopolitical risk index (GPR, GPRA and GPRT). Geopolitical Risk represents the appropriate geopolitical risk index (GPR, GPRA or GPRT). Our variables at the company-level are included from the fiscal year closure preceding the announcement and defined in Section II. We also use Fama–French 48 industry fixed effects, which is the key modification step relevant for this table. The Z-statistics are derived from “heteroscedasticity-robust standard errors” that are clustered on a year-by-year basis and presented in parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

	<i>Dependent variable: M&A Dummy</i>		
	GPR	GPRA	GPRT
Geopolitical Risk	-0.135*** (0.024)	-0.044*** (0.015)	-0.216*** (0.027)
Size	0.074*** (0.003)	0.074*** (0.003)	0.073*** (0.003)
Market/Book	0.00003 (0.0001)	0.00003 (0.0001)	0.00003 (0.0001)
Stock Returns	0.074*** (0.009)	0.073*** (0.009)	0.075*** (0.009)
Book leverage	-0.023** (0.011)	-0.023** (0.011)	-0.020** (0.010)
3y average sales growth	0.0001 (0.0003)	0.0001 (0.0003)	0.0001 (0.0003)
Non-Cash Working Capital	-0.024 (0.018)	-0.024 (0.018)	-0.022 (0.018)
Firm Age	-0.007*** (0.0005)	-0.007*** (0.0005)	-0.007*** (0.0005)

Constant	-0.654*** (0.113)	-1.054*** (0.080)	-0.270** (0.127)
Industry-fixed effects	Included	Included	Included
# Observations	57,093	57,093	57,093

Table AIV. Recent Geopolitical Risk Index and M&A Likelihood

Table AIV shows the estimates from the probit regression using a different GPR index. The dependent variable is an M&A dummy equaling 1 if an acquirer conducts a transaction during a given calendar year, otherwise 0. Our uncertainty proxy is the natural logarithm of either the average recent GPR index or its subcomponents across $t-1$. The table comprises three specifications, one for each geopolitical risk index (GPR, GPRA and GPRT). Geopolitical Risk represents the appropriate geopolitical risk index (GPR, GPRA or GPRT). Our variables at the company-level are measured from the fiscal year closure preceding the announcement and defined in Section II. We also include Fama–French 12 industry fixed effects. The Z-statistics are derived from “heteroscedasticity-robust standard errors” that are clustered on a year-by-year basis, and presented in parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

	<i>Dependent variable: M&A dummy</i>		
	GPR	GPRA	GPRT
Geopolitical Risk (Recent)	-0.136*** (0.023)	-0.043*** (0.015)	-0.211*** (0.026)
Size	0.072*** (0.003)	0.072*** (0.003)	0.072*** (0.003)
Market/Book	0.00003 (0.0001)	0.00003 (0.0001)	0.00003 (0.0001)
Stock Returns	0.071*** (0.009)	0.070*** (0.009)	0.072*** (0.009)
Book leverage	-0.021** (0.010)	-0.022** (0.011)	-0.019* (0.010)
3y average sales growth	0.0002 (0.0005)	0.0003 (0.0005)	0.0002 (0.0005)

Non-Cash Working Capital	-0.017 (0.016)	-0.017 (0.016)	-0.016 (0.016)
Firm Age	-0.007*** (0.0005)	-0.007*** (0.0005)	-0.007*** (0.0005)
Constant	-0.640*** (0.109)	-1.061*** (0.077)	-0.299** (0.119)
Industry-fixed effects	Included	Included	Included
# Observations	56,374	56,374	56,374

Table AV. Other Geopolitical Risk Indicators and M&A Likelihood

Table AV presents the estimates from our probit regression using other geopolitical risk proxies with inspiration from Hao et al. (2022). The dependent variable is an M&A dummy equaling 1 if an acquirer conducts a transaction during a given calendar year, otherwise 0. In regression (1), COVOL is the natural logarithm of the “common volatility index” which captures global shocks, from Engle and Campos-Martins (2023), from the calendar year before. In a separate regression (2), we include crisis volume, or the Number of Conflicts as the natural logarithm of the annual global crisis volume, gathered from ICB. Our variables at the company-level are measured from the fiscal year closure preceding the announcement and defined in Section II. We also include Fama–French 12 industry fixed effects. The Z-statistics are derived from “heteroscedasticity-robust standard errors” that are clustered on a year-by-year basis, and presented in parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

	<i>Dependent variable: M&A dummy</i>	
	(1)	(2)
COVOL	-0.010 (0.031)	
Number of Conflicts		-0.122*** (0.013)
Size	0.066*** (0.004)	0.079*** (0.003)
Market/Book	0.00002	0.0001

	(0.0001)	(0.0001)
Stock Returns	0.058***	0.071***
	(0.011)	(0.009)
Book leverage	0.001	-0.036***
	(0.008)	(0.014)
3y average sales growth	0.004***	0.0001
	(0.001)	(0.0003)
Non-Cash Working Capital	0.042	-0.014
	(0.029)	(0.015)
Firm Age	-0.007***	-0.007***
	(0.001)	(0.001)
Constant	-1.215***	-1.106***
	(0.044)	(0.042)
Industry Fixed Effects	Included	Included
# Observations	37,466	51,474

Table AVI. Other Uncertainty Dimensions and M&A Likelihood

Table AVI shows the estimates from the probit regressions using additional uncertainty controls. The dependent variable is an M&A dummy equaling 1 if an acquirer conducts a transaction during a given calendar year, otherwise 0. The values for GPR, VIX and EPU are measured as the natural logarithms over their respective indices across $t-1$. In (1) and (2), we run all variables except EPU and VIX, respectively. In (3), we run all variables, including both EPU and VIX as controls. Our variables at the company-level are measured from the fiscal year closure preceding the announcement and defined in Section II. We also include Fama–French 12 industry fixed effects. The Z-statistics are derived from “heteroscedasticity-robust standard errors” that are clustered on a year-by-year basis, and presented in parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

<i>Dependent variable: M&A Dummy</i>			
	(1)	(2)	(3)
GPR	-0.123***	-0.111***	-0.117***

	(0.024)	(0.023)	(0.024)
VIX	-0.099***		-0.080***
	(0.022)		(0.025)
EPU		-0.260***	-0.060
		(0.030)	(0.039)
Size	0.063***	0.070***	0.063***
	(0.003)	(0.003)	(0.003)
Market/Book	0.00003	0.00002	0.00003
	(0.0001)	(0.0001)	(0.0001)
Stock Returns	0.068***	0.071***	0.068***
	(0.009)	(0.009)	(0.009)
Book leverage	-0.020*	-0.024**	-0.020**
	(0.010)	(0.011)	(0.010)
3y average sales growth	0.001	0.0003	0.001
	(0.002)	(0.0005)	(0.002)
Non-Cash Working Capital	0.002	-0.014	0.002
	(0.017)	(0.015)	(0.017)
Firm Age	-0.007***	-0.007***	-0.007***
	(0.0005)	(0.0005)	(0.0005)
Constant	-0.355***	0.408**	-0.167
	(0.138)	(0.166)	(0.184)
Industry Fixed Effects	Included	Included	Included
# Observations	51,923	56,374	51,923

Table AVII. Heckman two-stage model for Distressed M&A (second-stage table)

Table AVII shows the estimates from the second-stage Heckman probit regression results applied to distressed transactions. The dependent variable is an M&A dummy equaling 1 if a company conducts a distressed deal during a given calendar year, otherwise 0. The table comprises three specifications, one for each geopolitical risk index (GPR, GPRA and GPRT). Geopolitical Risk represents the appropriate

geopolitical risk index (GPR, GPRA or GPRT). GPR is the natural logarithm of the average of the historical geopolitical risk index in $t-1$, and GPRA and GPRT are the corresponding measures for their equivalent indices. The “inverse Mill’s ratio” is denoted IMR. Other variables are defined in Section II. We also include Fama–French 12 industry fixed effects. The Z-statistics are derived from “heteroscedasticity-robust standard errors” that are clustered annually, and presented in parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

<i>Dependent variable: Distressed M&A dummy</i>			
	GPR	GPRA	GPRT
Geopolitical Risk	0.414** (0.163)	0.270*** (0.100)	0.218 (0.133)
Size	0.039** (0.016)	0.036** (0.015)	0.043** (0.018)
Market/Book	-0.0002 (0.0001)	-0.0002 (0.0001)	-0.0002 (0.0002)
Stock Returns	-0.019 (0.035)	-0.017 (0.034)	-0.016 (0.034)
Book leverage	-0.151** (0.068)	-0.141** (0.063)	-0.176** (0.079)
3y average sales growth	-0.015 (0.013)	-0.016 (0.013)	-0.019 (0.015)
Non-Cash Working Capital	-0.054 (0.041)	-0.049 (0.043)	-0.061 (0.040)
Firm Age	-0.010*** (0.003)	-0.010*** (0.003)	-0.012*** (0.004)
IMR	31.967 (45.488)	29.820 (43.631)	46.844 (57.871)
Constant	-29.699 (36.630)	-27.325 (34.959)	-40.677 (46.258)

Industry-fixed effects	Included	Included	Included
Observations	57,093	57,093	57,093

Table AVIII. Heckman two-stage model for Vertical Mergers (second-stage table)

Table AVIII shows the estimates from the second-stage Heckman probit regression results testing the relationship between geopolitical risk and M&A stimulated by “risk management” incentives. The conducted analyses are probit regressions testing if a given merger is considered vertical, as a constructed function of the GPR index as well as its subcomponents. The table comprises three specifications, one for each geopolitical risk index (GPR, GPRA and GPRT). Geopolitical Risk represents the appropriate geopolitical risk index (GPR, GPRA or GPRT). The “inverse Mill’s ratio” is denoted IMR. Other variables are defined in Section II. We also include Fama–French 12 industry fixed effects. The Z-statistics are derived from “heteroscedasticity-robust standard errors” that are clustered on a year-by-year basis, and presented in parentheses. Statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

<i>Dependent variable: Vertical transaction dummy</i>			
	GPR	GPRA	GPRT
Geopolitical Risk	-0.181*** (0.044)	-0.062** (0.024)	-0.271*** (0.057)
Size	0.065*** (0.011)	0.067*** (0.011)	0.059*** (0.010)
Market/Book	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)
Stock Returns	0.101*** (0.020)	0.104*** (0.020)	0.094*** (0.019)
Book leverage	-0.109*** (0.032)	-0.113*** (0.032)	-0.096*** (0.029)
3y average sales growth	0.0001 (0.0003)	0.0001 (0.0003)	0.0001 (0.0003)
Non-Cash Working Capital	0.002	0.002	0.005

	(0.037)	(0.037)	(0.037)
Firm Age	-0.002***	-0.003***	-0.002***
	(0.001)	(0.001)	(0.001)
IMR	8.030**	8.655***	6.515**
	(3.191)	(3.246)	(3.136)
Constant	-7.737***	-8.762***	-6.100***
	(2.425)	(2.546)	(2.312)
Industry-fixed effects	Included	Included	Included
Observations	57,093	57,093	57,093

Table AIX. Illustrative summary of Marginal effects for M&A Likelihood Analysis

Table AIX presents the calculated marginal effects from Table 5 in Section III. The manually constructed table comprises three specifications, one for each geopolitical risk index (GPR, GPRA and GPRT). Geopolitical Risk represents the appropriate geopolitical risk index (GPR, GPRA or GPRT). Other variables are defined in Section II. Significance levels and other empirical specifications are indicated by Table 5 in Section III.

	<i>M&A Likelihood Analysis</i>		
	GPR	GPRA	GPRT
Geopolitical Risk	-0.036	-0.012	-0.057
SIZE	0.020	0.020	0.019
Market/Book	0.00001	0.00001	0.00001
Stock Return	0.019	0.019	0.020
Book leverage	-0.006	-0.006	-0.005
3y average sales growth	0.00001	0.00001	0.00001
Non-Cash Working Capital	-0.006	-0.006	-0.005
Firm Age	-0.002	-0.002	-0.002

Table AX. Illustrative summary of Marginal effects for Distressed M&A

Table AX presents the calculated marginal effects from Table 8 in Section III. The manually constructed table comprises three specifications, one for each geopolitical risk index (GPR, GPRA and GPRT). Geopolitical Risk represents the appropriate geopolitical risk index (GPR, GPRA or GPRT). Other variables are defined in Section II. Significance levels and other empirical specifications are indicated by Table 8 in Section III.

<i>Distressed M&A Analysis</i>			
	GPR	GPRA	GPRT
Geopolitical Risk	0.003	0.002	0.001
SIZE	0.0003	0.0002	0.0003
Market/Book	-0.00000	-0.00000	-0.00000
Stock Return	-0.0001	-0.0001	-0.0001
Book leverage	-0.001	-0.001	-0.001
3y average sales growth	-0.0001	-0.0001	-0.0001
Non-Cash Working Capital	-0.0004	-0.0003	-0.0004
Firm Age	-0.0001	-0.0001	-0.0001

Table AXI. Illustrative summary of Marginal effects for Vertical Mergers

Table AXI presents the calculated marginal effects from Table 9 in Section III. The manually constructed table comprises three specifications, one for each geopolitical risk index (GPR, GPRA and GPRT). Geopolitical Risk represents the appropriate geopolitical risk index (GPR, GPRA or GPRT). Other variables are defined in Section II. Significance levels and other empirical specifications are indicated by Table 9 in Section III.

<i>Vertical Mergers Analysis</i>			
	GPR	GPRA	GPRT
Geopolitical Risk	-0.012	-0.004	-0.019
SIZE	0.004	0.004	0.004
Market/Book	0.00000	0.00000	0.00000
Stock Return	0.006	0.005	0.006

Book leverage	-0.008	-0.008	-0.007
3y average sales growth	0.00000	0.00000	0.00000
Non-Cash Working Capital	0.0003	0.0003	0.0005
Firm Age	-0.0002	-0.0002	-0.0001

Table AXII. Illustrative summary of Marginal effects for Cross-Border M&A

Table AXII presents the calculated marginal effects from Table 10 in Section IV. The manually constructed table comprises three specifications, one for each geopolitical risk index (GPR, GPRA and GPRT). Geopolitical Risk represents the appropriate geopolitical risk index (GPR, GPRA or GPRT). Other variables are defined in Section II. Significance levels and other empirical specifications are indicated by Table 10 in Section IV.

	<i>Cross-Border M&A Analysis</i>		
	GPR	GPRA	GPRT
Geopolitical Risk	-0.012	-0.002	-0.022
SIZE	0.007	0.007	0.007
Market/Book	0.00000	0.00000	0.00000
Stock Return	0.004	0.004	0.004
Book leverage	-0.005	-0.005	-0.004
3y average sales growth	0.00003	0.00003	0.00003
Non-Cash Working Capital	-0.001	-0.001	-0.001
Firm Age	-0.0002	-0.0002	-0.0002