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Review

Managing, measuring, and reporting geopolitical risk exposure: New challenges and current evidence

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Geopolitical risks pose a significant threat to many companies' performance, necessitating the acquisition and evaluation of reliable information to manage these risks effectively. Furthermore, increased legal requirements in recent years demand more comprehensive reports on firm-specific risks. Therefore, detailed knowledge of the regulatory framework, accounting implications, and measurement is essential for corporate managers, board members, and regulators to address and report geopolitical risks. This paper first provides an overview of legal provisions on corporate geopolitical risk reporting in the European Union, comparing them with provisions in the U.S. Regulation of geopolitical risk management and reporting often remains "soft law," granting significant discretion to corporate managers. Secondly, the paper discusses incentives for voluntarily providing information on geopolitical risks and analyzes the implications of these risks for the quality of financial reporting. Thirdly, based on a literature review, it describes current approaches to empirically measuring geopolitical risks at the country and company levels, offering various opportunities to expand the limited accounting literature on geopolitical risks.

Key words: Accounting quality, disclosure, political risk, reporting.

INTRODUCTION

Political crises and conflicts in recent years have raised concerns among both the public and the business world. To account for the effects of the Russian invasion of Ukraine, JP Morgan revised its global GDP growth forecast by 1.6% on March 18, 2022. Similarly, the French credit insurer Coface, which had already noted a significant rise in political risk during the Covid-19 crisis (Coface, 2021), estimated the short-term economic costs of the war at 1% of global GDP growth (Coface, 2022). Due to the increasing international interdependence of supply chains, sales, and labor markets, even domestically operating companies are exposed to geopolitical risks. In a recent outlook on the world economy's development, the International Monetary Fund warned of higher volatility in commodity prices due to climate and geopolitical shocks (International Monetary Fund, 2023:161).

The significance of geopolitical risks for companies' business activities, especially banks and insurance

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companies, as well as for foreign direct investments, has long been the subject of financial and economic studies (Rugman, 1977; Shapiro, 1985). For accountants and auditors, geopolitical risks have become even more critical in recent years due to increased legal requirements on companies' risk reporting and management systems, which demand precise identification, mapping, and examination of geopolitical risks. Moreover, geopolitical risk factors can impact the quality of financial reporting directly through increased valuation uncertainties or indirectly if managers adjust their reporting strategy voluntarily to account for geopolitical changes in the business environment. While there is a rapidly growing literature on geopolitical risks in corporate finance and economics, the accounting literature on the determinants and consequences of geopolitical risk reporting is still limited.

This study aims to provide a basis for the analysis of geopolitical risks in accounting by giving an overview of the legal requirements for reporting and managing geopolitical risk, as well as incentives for reporting. By focusing on the effects of geopolitical risks in accounting, it adds to the literature on risk reporting (Elshandidy et al., 2018) and the growing literature on the real effects of these risks (Hassan et al., 2023a, b). First, it compares regulations in Europe - with a focus on the two largest economies within the European Union, France and Germany - and the U.S. Besides representing two out of the three largest economic areas in the world (OECD (2024b)), these countries also stand for different governance traditions.[1] Detailed knowledge of the regulatory framework is crucial for corporate managers and accountants to ensure compliance with legal requirements. Secondly, the study examines incentives for voluntary reporting of geopolitical risks. Thirdly, it presents approaches for measuring these risks based on a comprehensive literature review.

Awareness of voluntary reporting incentives is essential, particularly for regulators and board members responsible for enforcing standards and firm-level governance. Researchers can utilize the different measurement approaches presented in this paper to analyze the accounting implications of geopolitical risks. To ensure a comprehensive overview of the literature and the main indicators currently used to measure geopolitical risk, the Scopus database was searched for the terms "geopolitical risk" and "political risk" in September 2023. A total of 376 articles mentioned these terms in their title, abstract, or keywords. Only articles published in journals included in the most recent Academic Journal Guide (AJG, 2021) were considered, resulting in 166 studies. Given the study's focus, accounting, finance, and general management journals (including business ethics and CSR) were considered, narrowing down the selection to 56 articles. Most of these studies, specifically 46, were published in finance journals. While reading these studies, emphasis was placed on the measures for geopolitical risk employed.

DEFINITION AND REPORTING OF GEOPOLITICAL RISKS

Definitions of geopolitical risks

According to Wernick (2006:67), geopolitical risk can be understood as "the potential for international political actors (including non-state actors) and events to directly or indirectly affect the operations of international firms or their key value chain partners, resulting in lost revenues or business opportunities." This cause-related risk definition includes a large number of politically motivated events: cases of corruption, the failure of agreed payments or problems with the transfer of profits due to restrictions on payment transactions, forced closures in the course of a political crisis, arbitrary punitive taxes, expropriations of foreign assets or unexpected access restrictions for foreign companies to domestic markets are only a few examples of such risks. This definition, as well as a part of the professional and academic literature on geopolitical risks, refers exclusively to the potential negative consequences or so-called "downside risk" caused by political actors and events.[2] Corporate reporting, public discourse, and several popular risk measures (for example, the value at risk or shortfall risk measures, e.g., Fishburn (1977), and Yamai and Yoshiba (2005) focus on downside risk as well. Indeed, it can be argued that the publication of information on potential loss hazards should be regarded as more important since the voluntary publication of positive deviations is often in the interest of managers (Schrand and Elliott, 1998:279). Moreover, it seems likely that some external stakeholders, such as regulators or creditors, are primarily concerned about the occurrence and prevention of negative consequences (job losses, default of payments, etc.)[3].

However, definitions of the term "geopolitical risk" vary in the academic literature. Risk concepts used in statistics and valuation are typically based on the variation of the result around a target value. This perspective seems useful not only for risk-neutral investors; even the downside risk cannot be determined without simultaneous consideration of the upside risk if one does not want to usea maximum value as the target value to which the uncertain result is compared (Ryan, 2012:296). In addition,

[1] For a review and critical discussion of the differentiation into "English origin", "German origin", and "French origin" countries in the comparative governance literature, and of corporate governance convergence, see, e.g., Afsharipour and Gelter (2021).

[2] For a similar definition, see, e.g., McKellar (2017, p.3) who defines political risk as "potential harm to a business operation arising from political behavior". Most authors use "geopolitical risk" and "political risk" synonymously.

[3] For example, Greve et al. (2021) provide evidence on loss aversion on individual and organizational goals based on data from a European football league. Hong et al. (2021) show that strong lender monitoring reduces the effectiveness of specific managerial compensation plans.

geopolitical changes that positively affect a company's short-term earnings can result in negative long-term effects, making reporting useful even for risk-averse investors.[4]

An international comparison of legal requirements on corporate risk reporting shows that both two-sided definitions focusing on chances and threats and one-sided definitions focusing solely on the downward risk are used. For example, European prospectus regulation (see Article 16 of Regulation (EU) 2017/1129 from June 14, 2017) explicitly focuses on the "negative impact" of risks that companies should report on. In contrast, Article 225-100 of the French commercial code generally obliges French companies to describe their principal risks and uncertainties. Section 289 (1) sentence 4 of the German Commercial Code explicitly applies a two-sided concept of risk by demanding an assessment and explanation of significant opportunities and threats. This is in line with the SEC's Regulation S-K (Item 105), which requires a discussion of material factors that make an investment in the registrant or offering speculative or risky. The IFRS Practice Statement 1 Management Commentary (§ 32), which serves as a guideline for risk re- porting, also refers to a two-sided definition. Finally, the definition of risk in Article 3.1 of the ISO guidelines on risk management (ISO 31000:2018) allows for both interpretations by defining risk as a deviation from the expected that can be positive, negative, or both.

Legal requirements

Internal risk reporting is a quintessential part of an effective risk management system. Established standards such as ISO 31000:2018 (Risk management - Guidelines) of the International Organization for Standardization or the Enterprise Risk Management Framework of the Committee of Sponsoring Organizations of the Treadway Commission (COSO), which has been recognized by the SEC as the standard for the internal control system since 1992, provide risk management guidelines. Corporate reporting requires adequate identification and assessment of geopolitical risks as well to avoid a mere "shopping list" (Lee, 2012:326) of critical risks in corporate reports.

The implementation of a risk management system and the reporting of corporate risks are required by law. In the United States, sections 302 and 404 of the Sarbanes-Oxley Act, adopted in 2002, require companies listed in the US to implement (and the companies' auditors to confirm) an effective internal control system. Significant weaknesses in the internal control system have to be communicated. In the European Union, the directives 2006/43/EC and 2006/46/EC require listed companies to describe the key features of their risk management systems and internal controls concerning the financial reporting process in their annual report and to supervise the effectiveness of these systems.[5] These companies must also make clear whether they apply any provisions on corporate governance that go beyond the legal obligations, for example, their adherence to a corporate governance code. The European directives were transposed into national laws, such as the law passed on July 3, 2008, and the directive passed on December 8, 2008, in France, or the changes in the Commercial Code in Germany by the Risk Limitation Act of August 12, 2008.

Several European countries had already required listed companies to report on their internal control procedures before the directives on the European level were passed. In France, for example, the "Loi de Sécurité Financière" passed in 2003 required a report on internal controls, and the amendments of the Code de commerce in 2008 explicitly mandated a report on companies' risk management.[6] In Germany, § 91(2) of the German Companies Act (AktG), introduced in 1998, mandates that the executive board of a listed company establish an early risk detection system to identify "developments endangering the continued existence of the company" at an early stage. Comprehensive regulation at both the European and national levels, along with IFRS requirements, significantly influence the design of financial reporting. In Europe, external risk reporting, such as in the "document de référence" required by French companies, must adhere to provisions and guidelines established by the European Securities and Markets Authority (ESMA).

European directives, like ESMA31-62-1217, are transposed into national law and enforced by securities regulators, such as the French AMF or the German BaFin. Moreover, International Financial Reporting Standard (IFRS) 7 mandates that companies listed on regulated markets in the European Union report their exposure to risk arising from financial instruments, along with disclosing firm-specific objectives, risk management policies, and measurement methods. However, IFRS 7 specifically addresses risks stemming from financial instruments. Geopolitical risks impacting a firm's operations, such as those affecting the supply chain, production process, or sales markets, fall under the purview of the IFRS Practice Statement 1 Management Commentary, published by the IASB in 2010. While this practice statement is not an IFRS standard, it serves as a guideline to aid companies in preparing a management commentary, and its application is not mandatory for compliance with IFRS standards. The level of detail and scope of regulation outlined in the IFRS Practice

[4] For example, think of a firm gaining easier market access in a country due to a political regime change. Here, entering a new market with an unstable political environment could have a long-term impact on the firm by affecting fundamental business risks and the risk of reporting inaccuracies and fraud.

[5] For an analysis of the relation between U.S. and European regulation, see, e.g., Cortijo-Gallego and Yezegel (2008).

[6] Additional requirements concerning the implementation of internal control structures and corporate reporting about risks arose in the following years due to legal provisions such as the anti-corruption legislation (so-called "Loi Sapin 2") passed in 2016.

Statement are less extensive than the disclosures required by IFRS 7. Additionally, § 24(c) requires the reporting entity to disclose its "most significant resources, risks, and relationships." The entity should disclose the principal strategic, commercial, operational, and financial risks and changes in those risks and provide information on risk management strategies and their effectiveness (§ 31-32). While the Practice Statement mentions that risks can be external or internal from the reporting entity's perspective, geopolitical risks are not explicitly mentioned. The Practice Statement provides general guidelines rather than specific standards for risk reporting. To meet the increased information needs of investors and creditors, especially non-financial information, the IASB published an exposure draft for a new Practice Statement (ED/2021/6) in May 2021, including more detailed and specific guidelines. The revised guidelines require companies to provide information on matters fundamental to the company's prospects in six content areas, among them risks and the external environment. To avoid "boilerplate information", the focus should be on key risks, defined as "events or circumstances that could fundamentally disrupt the entity's ability to create value and generate cash flows...". After the IASB had discussed the feedback on the exposure draft in March and April 2022, the International Sustainability Standards Board (ISSB) published a Request for Information Consultation on Agenda Priorities in May 2023. This request included a potential joint project on the integration of reporting with the IASB that could build on concepts from the Exposure Draft Management Commentary. While the Request for Information closed for comment on 1 September 2023, the outcome of the revision process is still open.

Despite recent attempts to provide more specific guidelines and require detailed information on corporate risk exposure, current regulations about risk management and risk reporting often represent "soft law" (De Luca (2021, p. 29 ff.)). While they require companies to implement specific governance structures and to report information about risks, the effectiveness of risk management systems and the quality of risk reporting are still mainly at the discretion of the management. They often refer to guidelines developed by private bodies such as the aforementioned Practice Statement by the IASB, the Code de gouvernance d'entreprise of the French Association of Private Enterprises (AFEP-Medef), or the German Corporate Governance Code that was developed and is constantly revised by a commission of corporate representatives and stakeholders. In addition to the specific audit obligations for risk reporting and the risk management system, identifying and considering risks in the audit process itself are also integral parts of the audit of the annual financial statements. The International Standards on Auditing provide for an assessment of the business environment and the internal control system as part of the audit planning and execution (ISA 315 - Revised 2019). ISA 315.A70-A73 and ISA 250 (Revised) address the specific significance of regulatory and political factors. While management is responsible for compliance with legal requirements of operating activities, the auditor's consideration of these factors should provide reasonable assurance that no material misstatement is detected.

Increasing regulation of corporate ESG reporting (such as the SEC's proposed rules for climate-related disclosures, which should include information on climate-related risks and companies' greenhouse gas emissions; the European Union's proposed Corporate Sustainability Reporting Directive; or national requirements such as the "Déclaration de Performance extra Financière (DPEF)" that is mandatory for large companies in France) can have an additional impact on the demand for information on geopolitical risk exposure as well. A substantive report on a company's business consequences on society or the environment requires detailed information on political or environmental factors. For example, information on the risk of corruption or the quality of the legislative environment in the countries where the company is active is needed. The paragraphs above show that companies must legally provide information on geopolitical risks. Empirical studies indicate positive effects of legal regulations on risk management and risk reporting on the quality of accounting. For example, Brown et al. (2014) show that after passing the Act on Control and Transparency in Business (KonTraG) in Germany, companies affected by the Act accounted for impending losses earlier and reduced the intertemporal smoothing of profits. They thus confirm the results of American studies that document comparable effects of the Sarbanes-Oxley Act's regulatory changes on companies' accounting policies (for a review see, e.g., Coates and Srinivasan (2014)). However, the above paragraphs also suggest that companies can meet regulatory requirements using and reporting unspecific information. Coates and Srinivasan (2014) refer to the lack of studies that establish a causal relation between regulatory requirements and reporting quality[7].

Voluntary reporting on geopolitical risks

This part discusses companies' incentives and accounting practices to meet and exceed legal prerequisites by reporting detailed information on firm-specific risk exposure. Based on analytical studies, it first discusses the incentives of corporate managers to disclose information on these risks voluntarily. Second, it describes the empirical literature on the accounting effects of institutional and political factors and the more recent literature on the real effects of geopolitical risks. Third, it addresses the determinants and implications of geopolitical risk reporting,

[7] Some studies also suggest that companies replace accounting policies with other forms of profit influence or targeted expectation management (Cohen et al. (2008), Koh et al. (2008)).

which provides an interesting field for future studies.

Besides the legal requirements described previously, firms also have economic incentives to report information on firm-specific exposure to political risks. Providing decision-useful information about the potential impact of political risks on firm performance contributes to the information function of accounting. Reporting on the effect of these risks on accounting numbers serving as a basis for legal or contractual claims adds to the contracting function of accounting.

Political risk disclosures can thus contribute to the reduction of information asymmetries and agency conflicts. However, only a few theoretical studies consider specifically the disclosure of information on company risk. Jorgensen and Kirschenheiter (2003) use a theoretical model to analyze under which circumstances managers would prefer to disclose information about their company's future cash flow risk. According to their model, low-risk firms choose to disclose this favorable information, while high-risk firms prefer not to reveal it. They also state that the level of risk up to which a manager would like to disclose varies with the uncertainty the investor faces before observing a disclosure. The higher the investors' uncertainty about the risk, the more firms would prefer to disclose this information. Heinle and Smith (2017) analyze the effects of (truthful) disclosures of cash flow risks. Their analytical results suggest that firms have incentives to provide additional disclosures when their previous disclosures suggest that their risks are high.

The above studies focus on corporate investors who can diversify idiosyncratic risks. For these investors, risk reports are helpful if they provide information on the underlying systematic risk of the company. Moreover, incentives for companies' disclosure of geopolitical risks might also be driven by corporate stakeholders that cannot diversify, such as employees, politicians, and labor unions. For these stakeholder groups, even information about the idiosyncratic (unsystematic) part of risk could be useful.

Since geopolitical risks can be regarded as uncertainty about potential future changes in the geopolitical environment, a comprehensive empirical literature on the influence of political-institutional factors on accounting and the capital market (Dechow et al., 2010) served as a starting point for the more specific analysis of geopolitical risks and their reflection in corporate reports. This literature shows that political and institutional factors such as legal certainty and a country's susceptibility to corruption influence the demand for accounting information and shape the incentives of accounting preparers.

Comparing the accounting quality of companies or groups with their registered office or stock exchange listings in different countries, the results of numerous international studies reflect the influence of institutional and political factors of the country in which the financial statements are prepared on the quality of financial reporting. They also provide fundamental insights into the impact of specific factors on accounting quality.

For example, Leuz et al. (2003) examine the effects of country-specific factors, such as investor protection and law enforcement, on the scope of accounting policies. Since weak investor protection, for example, offers managers or majority owners extensive opportunities for misappropriating operational resources, there may be incentives to conceal this misappropriation in accounting. Based on four empirical indicators, such as the smoothing of profits and the avoidance of small losses, the authors form an index for the country-specific extent of balance sheet policy. Their findings suggest that more robust investor protection and consistent law enforcement go hand in hand with a lower degree of balance sheet policy. Numerous other studies confirm that country-specific factors such as accounting enforcement and the legal system have an impact on the quality and capital market impact of accounting (Haw et al., 2004; Burgstahler et al., 2006; Daske et al.,2008; Isidro and Marques, 2015). While these studies initially relied primarily on a cross-sectional comparison among countries, later analyses (for example, Christensen et al. (2013) include institutional changes over time in their identification strategy.

A rapidly growing literature in finance and economics deals with real effects of geopolitical risks. For example, Ramesh and Athira (2023) document a positive relation between geopolitical risk and corporate tax avoidance. In line with tax avoidance serving as a preventive mechanism against financial risks, this positive relation is more pronounced for financially constrained firms. Hassan et al. (2023a) determine firms' exposure to Covid-19 and other epidemic diseases using firm-level measures based on transcripts of earnings conference calls. They find that both supply and demand effects of Covid-19 impacted firms' market valuation and explained a drop in employment. In contrast, they identify a negative demand-side effect of the pandemic as the leading driving force behind the significant reduction in firm-level investment. Using a similar research approach, Hassan et al. (2023b) investigate the effects of the U.K.'s decision to leave the European Union. They document negative stock price, investment, and employment effects of Brexit risk, which is measured by conference call participants' use of the words "risk" and "uncertainty" (as well as synonyms) near the term "Brexit".

A growing number of studies focus on firms' exposure to climate-related risks. For example, Huang et al. (2022) demonstrate that a higher perceived and actual exposure to climate hazard events deteriorates firms' financing conditions. Specifically, firms exposed to higher risk encounter higher interest rates, stricter debt covenant constraints, and are more frequently required to collateralize their loans. Sautner et al. (2023) find that investors anticipate a positive risk premium from firms exposed to climate risk.

However, only a few recent studies concentrate on the determinants and implications of geopolitical risk reporting.

Some empirical studies investigate the drivers and effects of corporate risk reporting in general (Elshandidy et al., 2018; Ryan, 2012). Hope et al. (2016) conduct an empirical study where they develop a measure for the specificity of firms' qualitative risk disclosures. They discover that companies with high proprietary costs disclose less specific information about their risk factors. Additionally, they find a positive correlation between the specificity of the risk-factor disclosures in US 10-K filings and the market reaction to the filings, suggesting that more specific risk disclosures provide more valuable information to the market. Cannizzaro and Weiner (2015) examine the disclosure of individual investment projects in the oil-producing industry. They investigate the influence of geopolitical risk factors (utilizing, for example, the ICRG index described in the next part as an indicator) on the voluntary publication of information on new investment projects both in the country of residence and in the third country, that is, the country in which foreign investment is made. The results suggest that higher political risk in the home country leads to less transparency. Conversely, the authors find no significant correlation between the political risk in the home country and the quality of voluntary disclosure. The study by Cannizzaro and Weiner (2015) is based on an analysis of the (voluntary) disclosure of information on exploration projects in the oil-producing industry. Due to the specific nature of this industry, the findings cannot be readily extrapolated to other sectors.

Disclosures on geopolitical risk have the specific characteristic that companies' information about the likelihood of the underlying event (a political shock, a legal change, etc.) is often not superior to that of the public. Thus, a non-disclosure of relevant information on a particular firm can take the form of non-disclosure (that is, not mentioning a specific risk) and publishing boilerplate information that can be obtained from other sources. There are four main parts of geopolitical risk disclosures. First, the company states which risks it is exposed to; second, it evaluates the magnitude of the exposure, including its materiality for the company as a whole; third, it provides a description of the risk management systems in place and their ability to reduce the potential impact of the risky event; and finally, it provides a final assessment of the firm-specific risk and its probability of occurring. Typically, boilerplate disclosures only provide information about the underlying risk but remain vague about the firm-specific exposure and risk management policies. The overview provided by the French telecommunications company Orange can serve as an example for a general description of risks (Orange (2022:52):" Orange has a large base of business in countries or geographic areas marked by political, economic, regulatory, or fiscal instability, or countries in which the Group's contribution to local economic activity is significant while its image is sometimes linked with the French State."[8] A specific discussion of firm-specific risks and policies can be found in the recent events section of the same report about the war in Ukraine: "In light of the situation in Ukraine, the Orange Group has taken steps to guarantee the safety of its teams in Ukraine and Russia, ... The Group has also stepped up its cybersecurity surveillance and joined the collective effort to support those who have been affected by the conflict... OBS has around 800 employees in Russia and generated just over 100 million euros of revenue there in 2021. The total value of assets located in Russia is approximately 50 million euros..."[9]

The example illustrates that geopolitical risk reporting, which has significantly increased over the last few years, sometimes entails detailed discussions about selected risks and corporate counter-measures, but often remains vague. A more detailed analysis of the determinants and effects of these reports represent an interesting field for further research.

MEASUREMENT OF GEOPOLITICAL RISKS

This part provides an overview of current measures for geopolitical risk. The reliable identification of geopolitical risks is a prerequisite for empirical analyses and can also be crucial for companies to predict and adequately report these risks.

Macro-level measures

The high dynamics and challenging extrapolation of political developments, along with the complex evaluation of firm-specific risk exposure, complicate the quantification of geopolitical risks. Various institutions and companies publish risk assessments, indicators, and rankings that offer country-specific information on geopolitical risks. Geopolitical risk measures can be classified in different ways. Kaufmann and Kraay (2008) distinguish between various types of indicators based on several criteria:

Firstly, they differentiate between rule-based governance indicators, which assess the existence of legal regulations, such as those related to combating corruption, and results-based indicators, which are derived from data and evaluations concerning the actual prevalence of certain phenomena.

Second, a distinction is made between general and thematically specific indicators.

Third, indicators are differentiated based on the groups of individuals surveyed for data collection, such as lawyers, members of non- governmental organizations, company representatives, or scientists.

In addition to traditional macro-level indicators, which primarily rely on interviews with experts and reviews of

[8] For a similar description see also the description of macro-economic and geopolitical risks in Kering (2022, 296): "The Group is present in many markets and exposed to changes in the economic, regulatory, social or political environment that may affect consumer demand, disrupt its operations or dampen its profitability..."

[9] For a similarly detailed description, see also Kering (2022:292).

governance regulation, more recent indicators utilize empirical proxies such as the shock to the volatility of a wide range of assets (Engle and Campos-Martins, 2023), the number of expiring tax regulations, risk-indicating key terms in national newspapers, or the dispersion of analyst forecasts on economic development (see, for example, Economic Policy Uncertainty, 2024).

The following list provides an overview of established sources of information on country-specific geopolitical risks. Information is supplied by supranational and non-governmental organizations, academic authors and universities, and private companies.

1. The World Bank's Worldwide Governance Indicators (WGI) Project offers six indicators of countries' governance systems, encompassing country-specific measures of legal certainty and corruption control. These indicators are derived from aggregating numerous individual variables, primarily gathered through expert surveys. The project's websites provide comprehensive information on the data basis and methodology, including disaggregated data (The World Bank Group, 2024b). Similarly, from 2002 to 2020, the World Bank furnished country-specific indicators on the international business climate through its Doing Business (DB) Project, which was discontinued in 2021. The termination occurred following the detection of data irregularities in the reports of 2018 and 2020 (Machen et al., 2021). The project encompassed eleven indicators, offering a comparative overview of factors such as the costs associated with establishing a business and the complexity of tax requirements in different countries. In 2024, the World Bank plans to introduce a new report on the business environment and investment climate in most economies worldwide (The World Bank Group, 2024a).

While the indicators from the WGI and the DB projects also consider institutional characteristics that indirectly influence geopolitical risk, the Country Risk Classification of the OECD (OECD, 2024a) directly offers a country-specific risk indicator. This indicator is determined through a two-step procedure, involving a quantitative assessment of a country's credit risk and a qualitative expert assessment. However, the OECD emphasizes that its risk classification is exclusively produced for determining minimum premium rates for official export credits. The use of the risk classification for any other purpose is neither endorsed nor encouraged by the OECD. Lastly, the annual Global Risks Report published by the World Economic Forum (World Economic Forum, 2023) presents global perceptions of geopolitical, economic, environmental, societal, and technological risks. This report is based on surveys and statements from risk experts and leaders in business, government, and civil society. In contrast to the aforementioned indicators, it does not provide a time series of country-specific risk but rather offers a qualitative assessment of different risk categories.

2. Caldara and Iacoviello (2022) introduce a measure of geopolitical risk that is based on the fraction of newspaper articles discussing geopolitical issues.[10] In the first step, they construct a dictionary of terms related to geopolitics. This dictionary is then used to identify articles in leading international newspapers that cover geopolitical risks. The frequency of these articles is subsequently utilized as a measure of geopolitical risk. Numerous studies, particularly in corporate finance and economics, utilize this measure to investigate various phenomena, such as spillover effects of geopolitical risks on foreign stock markets (Oad Rajput et al., 2023), inflation rates (Bouri et al., 2023), oil-price differentials (Filippidis et al., 2023), or the impact of geopolitical risks on firms' cash holdings (Aksoy-Hazır and Tan, 2023).

Similarly, the Economic Policy Uncertainty Index assesses country-specific policy uncertainty monthly based on the coverage of policy uncertainty in newspaper articles (Economic Policy Uncertainty, 2024). For the United States, factors such as the number of federal tax code provisions set to expire over the next ten years and the dispersion among economic forecasts collected in a survey by the Federal Reserve Bank of Philadelphia are also taken into account. Baker et al. (2016) provide an overview of the methodology. Lastly, Engle and Campos-Martins (2023) develop an estimation model to measure volatility shocks common to all assets and asset classes (Global COVOL). In their comparison of different measurement methods, Karagozoglu et al. (2022) find that Global Covol reflects changes in geopolitical risks more quickly than measures based on textual analysis of newspaper articles or reports.

3. Various companies provide country risk analyses and ratings as well.[11] For example, the International Country Risk Guide (ICRG) provided by the PRS Group is used by asset managers, universities, or courts in commercial disputes (PRS Group, 2024). The Blackrock Investment Institute publishes regular risk reports based on a machine-learning approach (Donilon et al., 2023). Its risk indicators are based on the relative frequency and the sentiment of brokerage reports and financial news stories linked to specific geopolitical risks and on estimated market reactions to a realization of a specific risk event.

From an investor perspective, country-specific indicators offer only an initial indication of a company's geopolitical risk exposure. Company-specific risk analyses are necessary to validate and specify potential effects on individual companies. Company-specific risks, such as regulatory requirements and restrictions, are greatly influenced by factors such as the industry (The World Bank Group, 2010:8), the size of the company, and its international interdependence in terms of production processes, supply chain, target markets, etc. Country-specific indicators typically cannot capture the resulting

[10] Data is provided on https://www.matteoiacoviello.com/gpr.htm.

[11] The methodological background of these analyses is often less transparent than for the methods presented above.

inter-firm risk variation or regional differences within countries. For instance, the World Bank's Doing Business project assumed, for its analyses, a domestic small or medium-sized enterprise operating in the largest city of a respective country. As discussed in the next part, it can be beneficial to determine and report geopolitical risk exposure at the firm level. Recent studies have developed several approaches to measure firm-level geopolitical risk exposure.

Firm-level measures

Going beyond the established country-level indicators of geopolitical risks, firm-specific measures rely on 1) the use of specific language by the firm, 2) the risk perception by corporate managers, and 3) the spatial distribution of a firm's activities.

First, Hassan et al. (2019) develop a firm-level measure of political risk based on computational linguistics.[12] They identify specific two-word combinations (bigrams) frequently used in political texts and determine how often these bigrams are combined in firms' conference calls with the words ”risk” and ”uncertainty”. To validate their measure, they show that the firm-specific share of quarterly earnings conference calls devoted to political risks (according to their measure) is positively associated with higher stock return volatility, lower investment and planned capital expenditures, and more extensive lobbying.

Second, Huang et al. (2022) use US managers' responses in the CDP survey regarding their firms' physical climate risk exposure and their firms' policies to address these issues. Third, Huang et al. (2022) also assess firms' actual exposure to climate change-related natural disasters by utilizing information from the Spatial Hazard Events and Losses Database for the United States (SHELDUS). The data from this database, containing regional natural disasters in the US, are then aggregated per US state and year. The aggregated measure is matched with the subsidiaries located in the respective state, and a firm-level measure is computed as the average score of a firm's subsidiaries.

CONCLUSION

Identifying and assessing geopolitical risks present challenges not only for company management but also for accounting and auditing. This article discusses legal requirements and economic incentives for firms to manage and report their exposure to geopolitical risks. The empirical results of selected studies indicate that political and institutional factors, along with geopolitical risks, significantly influence the quality of financial reporting and the economic performance of firms. Despite the increasing size and scope of risk reports, boilerplate disclosures continue to limit the information content. One explanation for this phenomenon is the difficulty in measuring geopolitical risks. Therefore, the article presents various measures of geopolitical risks at the country level and recent approaches to empirically identify company-specific risk exposure. Building on these measures, future measurement approaches could consider firms' economic activities in even more granular detail, such as integrating sales distribution among different regions or the international group structure. From a regulatory perspective, a more precise and firm-specific measurement of geopolitical risks could enable more specific reporting requirements and better enforcement of corporate disclosures. However, mandating reliable, informative, and firm-specific disclosure on geopolitical risks remains challenging and is likely to incur significant direct and indirect costs (for a review of disclosure costs, see Christensen et al., 2021:1187-1188).

A significant portion of available studies examining the effects of geopolitics on corporate accounting still relies on the cross-sectional variation of country-specific indicators. Future empirical analyses can leverage novel measures to analyze firm-level consequences of specific geopolitical risks. By providing greater inter-temporal variation in geopolitical risk, these measures enable researchers to better control for other factors affecting risk management and reporting quality. The presented firm-level measures of geopolitical risk also allow for a company-specific analysis of the association between geopolitical risk and accounting quality. Moreover, future studies can contribute to a better understanding of geopolitical risk reporting by considering specific disclosure regulations. Due to its focus on risk management and risk reporting, this study does not discuss the rapidly growing literature on geopolitical risks in neighboring fields such as corporate finance and economics. Future studies could draw on this literature as well. Another aspect not addressed in this paper pertains to the linguistic and cultural factors that lead to differences in the perception and reporting of geopolitical risks. Finally, companies are not merely subject to geopolitical risks but also shape their political and social environment through their actions. This circular relationship also represents an interesting field for future analyses.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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[12] The measure is used, for example, by Hassan et al. (2023a,b) to investigate the economic consequences of the Covid-19 epidemic and of the UK's decision to leave the EU activities. Sautner et al. (2023) use a similar approach to develop a measure for the firm-specific exposure to climate change.

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