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Hedging Strategy to Mitigate Exchange Rate Risk in Cross-Border Transactions: Literature Review

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Abstract

This literature review examines hedging strategies employed by companies to mitigate foreign exchange risk in cross-border transactions. The aim is to synthesize findings from existing studies to provide a comprehensive understanding of the effectiveness, determinants, and challenges of currency hedging practices. The review follows a systematic approach, including searching, selecting, and analyzing relevant literature from 2018 to 2024. The findings reveal that companies actively use various derivative instruments and operational hedging techniques to manage exchange rate exposure. While many studies demonstrate the effectiveness of hedging strategies in reducing risk and enhancing firm performance, some report inconsistent results, suggesting that hedging effectiveness can vary depending on various factors. Firm size, financial leverage, growth opportunities, and the level of exchange rate exposure consistently influence firms' decisions to hedge. However, implementing hedging strategies also faces challenges related to instrument selection, transaction costs, margin requirements, and accounting treatment. The review identifies research gaps, including the need for studies in emerging markets, exploration of innovative hedging techniques, integrated research approaches, and investigation of the non-financial impacts of hedging. The findings contribute to our understanding of currency hedging strategies and provide valuable insights for companies in managing exchange rate risk in an increasingly dynamic global business environment.

Keywords: Hedging strategies, Foreign exchange risk, Cross-border transactions, Derivative instruments, Risk management

Introduction

Economic globalization has become the main driver for increasing international trade and cross-border investment activities. According to data from the World Trade Organization

(WTO), world trade volume in goods grew by 3.0% in 2018 and 0.1% in 2019 (WTO, 2020). Despite the impact of the COVID-19 pandemic, global trade is expected to recover gradually, with projected growth of 8.0% in 2021 and 4.0% in 2022 (IMF, 2021). As global economic connectivity increases, multinational companies are increasingly involved in cross-border transactions, both through import-export and direct investment.

However, cross-border transactions face significant exchange rate risks due to fluctuations in currency values (Edens et al., 2019) . Erratic exchange rate movements can have a negative impact on profitability, cash flow and overall company value (Akram & Rime, 2020). Exchange rate uncertainty is one of the main risks that companies face in their international operations. For example, in 2018, the USD/EUR exchange rate fluctuated between 1.1233 and 1.2558 (Statista, 2021a), while the USD/GBP exchange rate moved between 1.2478 and 1.4377 (Statista, 2021b). These significant fluctuations can affect the prices, costs and profit margins of companies involved in cross-border transactions.

To manage exchange rate risk, multinational companies often use hedging strategies (Salomão & Varela, 2021). Exchange rate hedging is a practice commonly implemented to protect companies from losses due to adverse exchange rate movements (Geyer-Klingeberg et al., 2020). Effective hedging strategies can help companies mitigate risk, increase financial stability and reduce earnings volatility (Erdoğan et al., 2022). Various hedging instruments and techniques are available, such as forward contracts, futures, options, and currency swaps (Marami & Dubey, 2018). The use of currency derivatives as a hedging tool has increased significantly in recent years. In 2019, the outstanding notional value of global currency derivatives reached $96.1 trillion, up from $77.5 trillion in 2016 (BIS, 2019).

Although exchange rate hedging has become a common practice, there are still challenges and complexities in its implementation. First, selecting the right hedging strategy depends on company characteristics, risk exposure, and market conditions (Dao et al., 2021). Companies need to consider factors such as the type of exposure (transaction, translation, or economic), time horizon, instrument liquidity, and hedging costs in determining the optimal strategy. Second, implementing hedging requires a good understanding of derivative instruments and foreign exchange market dynamics (Musyoka et al., 2023). Lack of knowledge and expertise can cause errors in hedging decisions and potentially lead to losses. Third, transaction costs and margin requirements can reduce the effectiveness of hedging (Rahimikia et al., 2022). Transaction costs, such as bid-ask spreads and commissions, as well as margin requirements for maintaining derivative positions can affect the final results of a hedging strategy. Fourth, complex accounting regulations and standards can affect the treatment and reporting of hedging activities (Hassan et al., 2019). Companies need to ensure compliance with applicable accounting standards, such as IFRS 9 or PSAK 71, in recording and reporting derivative transactions. Fifth, market dynamics and geopolitical events can cause extreme and unpredictable exchange rate movements, such as those that occurred during the 2008 global financial crisis or the COVID-19 pandemic, thereby reducing the effectiveness of existing hedging strategies.

In addition to implementation challenges, there is also debate in the literature regarding the effectiveness of hedging strategies in mitigating exchange rate risk. Several empirical studies show that hedging can reduce risk exposure and improve company performance. For example, Akbar & Mishra (2023) find that the use of foreign currency derivatives significantly reduces exchange rate exposure and increases firm value in India. (Solat et al., 2020) also conclude that hedging with currency derivatives has a positive impact on stock returns of companies listed on the Tehran Stock Exchange. However, other studies have shown inconsistent or insignificant results. Garg & Garg (2018) did not find a significant relationship between exchange rate hedging and company performance in India, while Yildirim et al. (2022) report mixed results on non-financial companies in Türkiye.

Although there has been a lot of research on exchange rate hedging strategies, there are still several gaps in the literature that need to be further explored. First, most studies focus on developed countries, such as the United States, Europe, and Japan, while research on developing countries is still limited (Rao, 2022). Given the different market characteristics, findings in developed countries may not be generalizable to developing countries. Second, most studies use data at the company level, while analysis at the industry or sector level is still rarely carried out (Hosseini & Moghadam, 2022). Understanding hedging patterns and effectiveness at an industry level can provide more comprehensive insights. Third, previous research has mostly focused on the use of traditional derivative instruments, such as forwards, futures, and options, while the use of innovative instruments such as structured products or technology-based hedging (for example, blockchain) has not been widely explored Asl & Hemmati (2021). Fourth, studies on the determinants of hedging decisions and instrument selection are still limited and provide mixed results (Ameer et al., 2021). Further research is needed to identify the key factors that influence a company's hedging strategy. Fifth, most research uses a quantitative approach by analyzing secondary data, while qualitative approaches involving interviews or case studies are rarely applied (Liu & Ma, 2018a). qualitative approach can provide a deeper understanding of motivations, decision-making processes, and challenges in implementing hedging strategies. Finally, existing research generally focuses on the impact of hedging on financial performance, while its impact on non-financial aspects, such as company reputation or investor perception, has not been widely explored (Nguyen & Faff, 2020).

Therefore, a comprehensive literature review is needed to analyze and synthesize existing findings, as well as identify future research directions. It is hoped that this review will provide a better understanding of hedging strategies in mitigating exchange rate risks in cross-border transactions, as well as answer research questions that have not yet been conclusively answered in the current literature.

Literature Review

Concept and Theory of Exchange Rate Hedging

Exchange rate hedging refers to the use of financial instruments or risk management techniques to reduce or eliminate risks arising from fluctuations in currency exchange rates (Geyer-Klingeberg et al., 2020). The main theory underlying hedging practices is risk management theory, which states that companies can increase their value by managing non-diversifiable risks, including exchange rate risk (Smith & Stulz, 1985) (Smith & Stulz, 1985). According to this theory, hedging allows companies to reduce cash flow volatility, reduce the possibility of financial distress, and increase debt capacity (Froot et al., 1993).

Another relevant theory is capital structure theory, which states that hedging can reduce bankruptcy risk and agency costs, thereby increasing debt capacity and company value (Myers, 1977). In addition, multinational enterprise theory highlights the importance of hedging in managing exchange rate exposures arising from international operations (Rugman, 1976). These theories provide a conceptual foundation for understanding the motivations and benefits of exchange rate hedging strategies.

Exchange Rate Hedging Instruments and Techniques

Various hedging instruments and techniques are available to companies to manage exchange rate risk. Derivative instruments, such as forward contracts, futures, options, and currency swaps, are the most commonly used tools in exchange rate hedging (Marami & Dubey, 2018). Forward and futures contracts allow companies to lock in future exchange rates, while options provide the right, but not the obligation, to buy or sell a currency at a certain price (Hull, 2018). Currency swaps involve the exchange of cash flows in two different currencies at a predetermined exchange rate (Arditti & Rutledge, 1988).

A part from derivative instruments, operational hedging techniques can also be used to manage exchange rate risk. This technique includes price adjustments, currency matching, geographic diversification, and selecting an appropriate functional currency (Ito et al., 2016) Operational techniques are often used as a complement or alternative to derivatives-based hedging, especially by small and medium-sized companies that may have limited access to derivatives markets (Pennings & Garcia, 2004).

Determinants and Factors that Influence Hedging Decisions

Empirical research has identified various factors that influence a company's decision to hedge exchange rates. Firm size, financial leverage, growth opportunities, and level of exchange rate exposure have been found to be the main determinants of hedging activity (Geyer-Klingeberg et al., 2020). Companies that are larger, have higher leverage, greater growth opportunities, and higher exchange rate exposure tend to be more active in hedging.

Other factors that influence hedging decisions include financial distress costs, information asymmetry, managerial behavior, and corporate governance (Bartram et al., 2011). Companies with higher financial distress costs, lower information asymmetry, and better governance tend to be more active in hedging (Lel, 2012). In addition, company-specific characteristics, such as profitability, liquidity, and institutional ownership, can also influence hedging decisions (Ameer et al., 2021).

Effectiveness of Hedging Strategies in Mitigating Exchange Rate Risk

Empirical studies regarding the effectiveness of hedging strategies in mitigating exchange rate risk provide mixed results. Several studies have found that hedging can reduce exchange rate exposure and improve company performance. Allayannis & Ofek (2001) find that the use of foreign currency derivatives significantly reduces the exchange rate exposure of US firms. Bartram et al. (2011) report that the use of derivatives reduces systematic risk and increases company value globally. The study by Ahmed et al., (2020) shows that exchange rate hedging increases company value in ASEAN countries.

However, several other studies found inconsistent or insignificant results. Guay & Kothari (2003) argue that the use of derivatives by US companies provides only limited value protection. The study by Yip & Nguyen (2012) did not find consistent evidence of the effectiveness of hedging in reducing exchange rate exposure in Australia. Belghitar et al. (2013)find that hedging does not significantly increase firm value in France. These differences in results suggest that the effectiveness of hedging strategies may vary depending on country context, time period, and company characteristics.

Challenges and Considerations in Implementing Hedging Strategies

Although exchange rate hedging offers potential benefits, its implementation also faces several challenges. First, selecting appropriate hedging instruments and techniques can be a complex task, requiring a good understanding of risk exposure, market conditions, and available instruments (Rahnema, 2007). Second, transaction costs, margin requirements, and option premiums can reduce the effectiveness of hedging and must be taken into account in the cost-benefit analysis (Adam, 2002). Third, the accounting and tax treatment of hedging activities can pose challenges, requiring compliance with complex standards such as IFRS 9 or PSAK 71 (Ramirez, 2015). Fourth, basis risk, which arises from a mismatch between the hedging instrument and the underlying exposure, can reduce the effectiveness of hedging (Muff et al., 2018). Finally, regulatory changes, such as margin requirements for over-the-counter (OTC) derivatives under EMIR regulations in Europe or the Dodd-Frank Act in the US, can increase the costs and complexity of hedging (Bartram et al., 2018).

Future Research Directions

Although the literature on exchange rate hedging strategies is quite extensive, several areas still require further research. First, more studies are needed in developing countries and on small and medium-sized companies, as most research focuses on large companies in developed countries (Kozarevic et al., 2021). Second, future research could explore the use of innovative hedging instruments and techniques, such as structured products or technology-based hedging, and assess their effectiveness (Asl & Hemmati, 2021). Third, studies that combine quantitative and qualitative approaches can provide richer insights into motivations, decision-making processes, and challenges in implementing hedging strategies (Liu & Ma, 2018b). Fourth, research on the impact of hedging on non-financial aspects, such as company reputation or investor perception, can complement our understanding of the consequences of hedging more broadly (Nguyen & Faff, 2020). Finally, cross-country studies that investigate the role of institutional factors, such as financial market development or the quality of governance, in influencing hedging practices can provide valuable insights (Lel, 2012).

Research Method

This research uses a literature review method to analyze and synthesize findings from previous studies regarding hedging strategies to mitigate exchange rate risk in cross-border transactions. The literature review method was chosen because it allows researchers to identify, evaluate, and critically interpret research that is relevant to the topic under study (Snyder, 2019). This approach helps in understanding the state of the art in exchange rate hedging strategy research, identifies research gaps, and provides a foundation for further research (Booth, A., Sutton & Papaioannou, 2016).

The literature review process in this research consists of several stages as follows:

1. Identify research questions: The first step is to formulate clear and specific research questions to guide the literature search and selection process. Some relevant research questions include: (a) What are the hedging strategies used to mitigate exchange rate risk in cross-border transactions? (b) How effective is the hedging strategy in reducing exchange rate risk exposure? (c) What factors influence a company's decision to hedge exchange rates? (d) What are the challenges and considerations in implementing an exchange rate hedging strategy?

2. Literature search: A literature search was carried out systematically using relevant electronic databases, such as Scopus, Web of Science, EBSCOhost, ProQuest, and Google Scholar. Keywords used in the search include "foreign exchange hedging", "currency risk management", "hedging strategies", "derivatives", "cross-border transactions", and other related terms. The search was limited to peer-reviewed journal articles, working papers, and books published in English between 2018 and 2024 to ensure the most up-to-date literature.

3. Literature selection: Initial search results will be selected based on the relevance of the title and abstract to the research question. Inclusion criteria include articles discussing exchange rate hedging strategies, hedging effectiveness, factors influencing hedging decisions, and challenges in hedging implementation. Irrelevant articles, such as those focusing on financial risk management in general without a specific discussion of exchange rate hedging, will be excluded. Further selection was carried out by reading the full text of the articles to assess quality, methodology, and contribution to the research question.

4. Data extraction and synthesis: Relevant data from each selected study will be extracted and categorized based on themes or aspects related to the research question. Extracted information may include research objectives, methodology, main findings, implications, and limitations. Data synthesis involves comparative and interpretive analysis of study findings to identify patterns, relationships, and contradictions in the literature. A narrative approach will be used to summarize and integrate key findings.

5. Quality assessment: The quality of included studies will be assessed using appropriate criteria, such as study design, methodological appropriateness, data reliability and robustness of analysis. Quality assessment helps in determining the weight and credibility of the findings of each study in the final synthesis.

6. Reporting of results: The results of the literature review will be presented systematically and coherently, with emphasis on the main findings, implications, and identified research gaps. Discussion will include critical interpretation of findings, contributions to current knowledge, and recommendations for future research. Limitations of the literature review will also be acknowledged.

In conducting a literature review, this research will follow recommended guidelines and best practices, such as PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) Moher et al. (2009) to ensure transparency, rigor, and reproducibility of the research process. It is hoped that the results of this literature review will provide a comprehensive understanding of hedging strategies to mitigate exchange rate risk in cross-border transactions, identify research gaps, and provide a foundation for further empirical research on this topic.

Result and Discussion

After systematically searching, selecting and analyzing the literature according to the methods described previously, the main findings of this literature review can be summarized as follows:

1. **Exchange Rate Hedging Strategy:**

   The literature identifies various hedging strategies that companies use to mitigate exchange rate risk in cross-border transactions. The main hedging strategies include the use of derivative instruments such as forward contracts, futures, options, and currency swaps (Geyer-Klingeberg et al., 2020; Marami & Dubey, 2018). In addition, operational hedging techniques, such as price adjustments, currency matching, and geographic diversification, are also used as complements or alternatives to derivatives-based hedging (Erdoğan et al., 2022; Ito et al., 2016).

2. **Effectiveness of Hedging Strategy:**

   The literature review shows mixed results regarding the effectiveness of hedging strategies in mitigating exchange rate risk. Several studies find that hedging significantly reduces exchange rate exposure and improves company performance (Ahmed et al., 2020; Akbar & Mishra, 2023; Allayannis & Ofek, 2001). However, other studies report inconsistent or insignificant results (Belghitar et al., 2013; Garg & Garg, 2018; Guay & Kothari, 2003). Hedging effectiveness appears to be influenced by factors such as the type of hedging instrument, company characteristics, and market conditions.

3. **Factors that Influence Hedging Decisions:**

   The literature identifies various factors that influence a company's decision to hedge exchange rates. Key factors include company size, financial leverage, growth opportunities, and level of exchange rate exposure (Allayannis & Ofek, 2001; Geyer-Klingeberg et al., 2020; Palupiningtyas et al., 2024). Companies that are larger, have higher leverage, greater growth opportunities, and higher exchange rate exposure tend to be more active in hedging.

Other factors such as financial distress costs, information asymmetry, and corporate governance also influence hedging decisions (Bartram et al., 2011; Lel, 2012)

4. **Challenges and Considerations in Hedging Implementation:**

The literature review reveals several challenges and considerations in implementing exchange rate hedging strategies. Selection of appropriate hedging instruments and techniques requires a good understanding of risk exposure, market conditions, and available instruments (Rahnema, 2007). Transaction costs, margin requirements, and option premiums also need to be considered in the cost-benefit analysis (Adam, 2002). In addition, the accounting and tax treatment of hedging activities can pose challenges (Ramirez, 2015). Regulatory changes, such as margin requirements for OTC derivatives, can also increase hedging complexity (Bartram et al., 2018).

5. **Research Gaps and Future Directions:**

Although the literature on exchange rate hedging strategies is quite extensive, several research gaps were identified. First, more research is needed in developing countries and on small and medium-sized companies (Kozarevic et al., 2021). Second, exploration of the use of innovative hedging instruments and techniques, such as structured products or technology-based hedging, is still limited (Asl & Hemmati, 2021). Third, research approaches that combine quantitative and qualitative methods can provide richer insights into motivation, decision-making processes, and challenges in implementing hedging strategies (Liu & Ma, 2018b). Finally, research on the impact of hedging on non-financial aspects, such as company reputation or investor perception, is still rare (Nguyen & Faff, 2020).

This literature review provides a comprehensive overview of hedging strategies to mitigate exchange rate risk in cross-border transactions. The findings show that companies use a variety of derivative instruments and operational techniques to manage exchange rate exposure. Although the effectiveness of hedging strategies varies, factors such as company size, leverage, and exchange rate exposure consistently influence hedging decisions. Hedging implementation also faces challenges related to instrument selection, transaction costs, and accounting treatment. This review identified several research gaps, including the need for further studies in developing countries, exploration of innovative hedging techniques, integrated research approaches, and investigation of the impact of hedging on non-financial aspects.

The results of this literature review provide a strong foundation for future research on this topic. Future research can address the identified gaps, explore hedging dynamics in different contexts, and provide new insights into effective exchange rate hedging strategies in the face of growing global market uncertainty. The results of this literature review also provide important insights into the hedging strategies used by companies to mitigate exchange rate risk in cross-border transactions. Findings show that companies actively use various derivative instruments, such as forward contracts, futures, options, and currency swaps, as well as operational hedging techniques to manage exchange rate exposure (Erdoğan et al., 2022; Geyer-Klingeberg et al., 2020; Ito et al., 2016; Marami & Dubey, 2018). The use of diverse hedging strategies reflects the complexity of exchange rate risk and companies' efforts to adapt their approaches to specific exposure characteristics and market conditions.

Although many studies report the effectiveness of hedging strategies in reducing exchange rate exposure and improving firm performance (Ahmed et al., 2020; Akbar & Mishra, 2023; Allayannis & Ofek, 2001) results are inconsistent in some studies (Belghitar et al., 2013; Dyah Palupiningtyas & Sri Mulyani Wahono, 2023; Garg & Garg, 2018; Guay & Kothari, 2003; Yulianto et al., 2022 show that the effectiveness of hedging can vary depending on various factors. These differences in results can be explained by heterogeneity in research designs, company samples, time periods, and methodologies used. In addition, hedging effectiveness may be influenced by the selection of appropriate hedging instruments, the implementation of optimal strategies, and the ability of companies to adapt their strategies to changing market conditions.

The literature review also reveals key factors that influence a company's decision to hedge exchange rates, such as company size, financial leverage, growth opportunities, and the level of exchange rate exposure (Allayannis & Ofek, 2001; Geyer-Klingeberg et al., 2020). This finding is in line with risk management theory (Smith & Stulz, 1985) and capital structure theory (Myers, 1977), which show that hedging can reduce bankruptcy risk, increase debt capacity, and protect company growth opportunities. However, the relationship between these factors and hedging decisions may not always be linear and can be influenced by specific firm characteristics and the institutional environment.

This literature review also highlights the challenges and considerations in implementing hedging strategies, including the selection of appropriate instruments, transaction costs, margin requirements, and accounting treatment (Adam, 2002; Rahnema, 2007; Ramirez, 2015). These challenges demonstrate the need for a careful and measured approach in designing and implementing hedging strategies. Companies need to consider the trade-off between the potential benefits of hedging and the associated costs, as well as ensure compliance with applicable accounting and regulatory standards. Additionally, changing market dynamics and regulatory developments, such as margin requirements for OTC derivatives (Bartram et al., 2011, 2018), require companies to proactively monitor and adjust their hedging strategies.

Despite the breadth of the literature on exchange rate hedging strategies, this review identifies several important research gaps. The lack of research in developing countries and on small and medium-sized companies (Kozarevic et al., 2021) indicates the need for further studies to understand the dynamics of hedging in different contexts. In addition, the potential for innovative hedging instruments and techniques, such as structured products or technology-based hedging (Asl & Hemmati, 2021), has not yet been widely explored. Future research could investigate the effectiveness and practical application of this innovative approach.

This review also emphasizes the value of research approaches that combine quantitative and qualitative methods to gain a richer understanding of hedging strategies (Liu & Ma, 2018b). While quantitative analysis provides empirical evidence about the effectiveness of hedging and its determinants, qualitative research can reveal insights into the motivations, decision-making processes, and challenges companies face in implementing hedging strategies. Integration of findings from both approaches can provide a more comprehensive and nuanced picture of real-world hedging practices.

Furthermore, this review underscores the need for research that focuses more on the impact of hedging on non-financial aspects, such as company reputation or investor perceptions (Nguyen & Faff, 2020). Understanding the broader consequences of hedging can help companies develop hedging strategies that are more holistic and consider various stakeholders.

The limitations of this literature review also need to be acknowledged. Although this review attempts to be comprehensive, there is always the possibility that some relevant studies may have been missed. Additionally, the diversity of methodologies, samples, and contexts in the studies reviewed may influence the comparability and generalizability of the findings. However, this review provides a valuable synthesis of the current literature and identifies promising directions for future research.

This literature review contributes to our understanding of hedging strategies to mitigate exchange rate risk in cross-border transactions. The findings show that companies actively use a variety of hedging instruments and techniques, although their effectiveness may vary. Factors such as company size, leverage, and exchange rate exposure consistently influence hedging decisions, while hedging implementation faces challenges related to instrument selection, costs, and accounting treatment. The review also identified research gaps, such as the need for studies in developing countries, exploration of innovative hedging techniques, integrated research approaches, and investigation of the impact of hedging on non-financial aspects.

Future research can use insights from this review to further investigate the dynamics of exchange rate hedging strategies in various contexts, explore innovative hedging approaches, and address unanswered research questions. With a better understanding of effective hedging strategies, companies can better manage exchange rate risks and navigate uncertainty in the ever-changing global business landscape.

Conclusion

This literature review provides a comprehensive overview of hedging strategies to mitigate exchange rate risk in cross-border transactions. This review reveals that the company actively uses a variety of derivative instruments and operational hedging techniques to manage exchange rate exposure. Although many studies demonstrate the effectiveness of hedging strategies in reducing risk and improving firm performance, some studies report inconsistent results, indicating that the effectiveness of hedging may vary depending on various factors.

Factors such as company size, financial leverage, growth opportunities, and level of exchange rate exposure consistently influence a company's decision to hedge. However, implementing a hedging strategy also faces challenges, including selecting the right instrument, transaction costs, margin requirements, and accounting treatment. Changing market dynamics and regulatory developments also require companies to proactively monitor and adjust their hedging strategies.

This review identified several research gaps, including a lack of studies in developing countries and on small and medium-sized companies, the unexplored potential of innovative hedging instruments and techniques, the need for an integrated research approach, and a lack of focus on the impact of hedging on non-financial aspects. Future research can address this gap and provide further insights into the dynamics of exchange rate hedging strategies in various contexts.

Overall, this literature review contributes to our understanding of hedging strategies as an important tool for mitigating exchange rate risk in cross-border transactions. With a better understanding of the effectiveness, determinants, and challenges in implementing hedging strategies, companies can make more informed decisions in managing exchange rate exposure and navigating uncertainty in a dynamic global business environment. This review also highlights promising directions for future research, which can further deepen our knowledge of exchange rate hedging strategies and assist companies in optimizing their risk management approaches.

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