

## Accounting Perceptions on Hedging Currency Risks: From Theory to Practice

### Účetní pohled na zajištění měnového rizika: od teorie k praxi

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#### Abstract

Paper offers an accounting perspective to hedging currency risk from both a theoretical and practical perspective. From the theoretical point of view we first position the study by considering historical developments of accounting research literature. Furthermore, we mainly look at currency hedging techniques being established through trade literature and practice while developing an overview of research literature. On the other hand, there are also analyzed the use of techniques for hedging currency risk in practice. The employed research methodology includes literature review specific methods. The objective of this paper is to document the necessity of developing an adequate system of surveillance and control measures imposed through the certainty of currency risk itself. The purpose and benefit in developing such a system as a component of sound corporate governance policies would be to limit companies' exposure to currency risk.

#### Key words

Currency risk, hedging, derivatives, corporate governance, management and marketing objectives.

**JEL Classification:** M41, G30

## 1. Introduction

The increased pace of the globalization process enhances the impact of exchange rate fluctuations upon various ratios reflecting the efficiency of entities conducting transactions in foreign currency. Exchange rate fluctuations taking place since contracting until payment might significantly impact the contracting parties generating an either positive or negative effect. In other words, one partner is always exposed to currency risk. Since currency risk is quantifiable, we consequently argue for the corresponding measures to avoid it, as well as for the advantages of their implementation. Paper approaches strategies in hedging currency risk from both a theoretical and practical perspective. From the theoretical point of view we mainly look at currency hedging techniques being established through trade literature and practice while developing an overview of research literature (mainly accounting) in the area. On the other hand, we also analyze the use of various techniques for hedging currency in

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practice. The idea of companies disclosing information in relation to their risk management policies as a management tool is also discussed. The objective of this paper would finally be to document the necessity of developing an adequate system of surveillance and control measures imposed through the certainty of currency risk itself. The purpose and benefit in developing such a system as a component of sound corporate governance policies would be to limit companies' exposure to currency risk. Conclusions document the usefulness of such measures capturing the interest of researchers, practitioners and regulators in search for appropriate solutions to avoid or at least minimize currency risk. The reminder of the paper is organized as follows: the main aspects related to the employed research methodology are synthesized; setting the research background is done by first looking at the evolution in accounting theory in relation to the development of global capital markets and further completed through a comprehensive review of accounting research literature on hedging currency risk; the practical perspective further covers the designing and implementing of foreign currency hedging strategies in practice; the final part of the study formulates and discusses the conclusions of this analysis.

## **2. Methodology**

The employed research methodology includes literature review related aspects. Literature review methodology is used in order to develop a critical and evaluative account of what has been published within accounting research literature on hedging currency risk. As Matis & Bonaci (2011) point, literature review methodology imposes a certain organizational pattern that combines both summary and synthesis by covering question formation, identification of the relevance, assessment of quality, evidence summarization and interpretation of findings. Papers being covered through this analysis approach hedging currency risk from both a theoretical and practical perspective. The first part of the analysis is dedicated to accounting research literature while the second focuses on practical aspects related to designing and implementing foreign currency hedging strategies.

## **3. Accounting Theory and Global Capital Market**

The complete understanding of an accounting view on financial instruments (especially derivatives) can only be reached by following their historical development being interrelated with capital market evolutions. We consider worldwide known bankruptcies that pointed out a series of gaps in national accounting systems to represent a significant factor in the development of accounting theory, or at least in emphasizing the components of previous developments. The significant number of financial scandals made stakeholders express their concern regarding the ability of financial information (supposable useful based on accounting standard setting bodies declared objective) to signal or prevent such financial catastrophes. What these financial scandals confirmed out of the positive accounting theory is that one of the parties acted in order to maximize its own wealth in the obvious detriment of the other party. We are therefore tempted to consider the necessity of developing a comprehensive theory with regard to the impact accounting practices could have on human behaviour instead of focusing on explaining past events and the corresponding behaviour.

Figure 1 captures the correlations between the development of accounting theory, the perspective of a global capital market through capital market research and worldwide known bankruptcies. As it can be seen from the graphical representation, the integration process of world capital markets, which recorded a 60% progress from markets segmentation to their integration (Lindert & Williamson, 2002), almost totally overlaps the periods in the

development of accounting theory, from the general scientific period to the positive accounting theory. Naturally, capital market researches increase significantly under the positive accounting theory when markets global integration process already recorded significant results. In terms of worldwide known bankruptcies we included in the figure the biggest twenty of them, but from a chronological point of view we must mention their appearance starting with year 1987. Figure 1 speaks for itself in demonstrating the manner in which developments in accounting theory, capital markets integration process and capital market research interrelate.

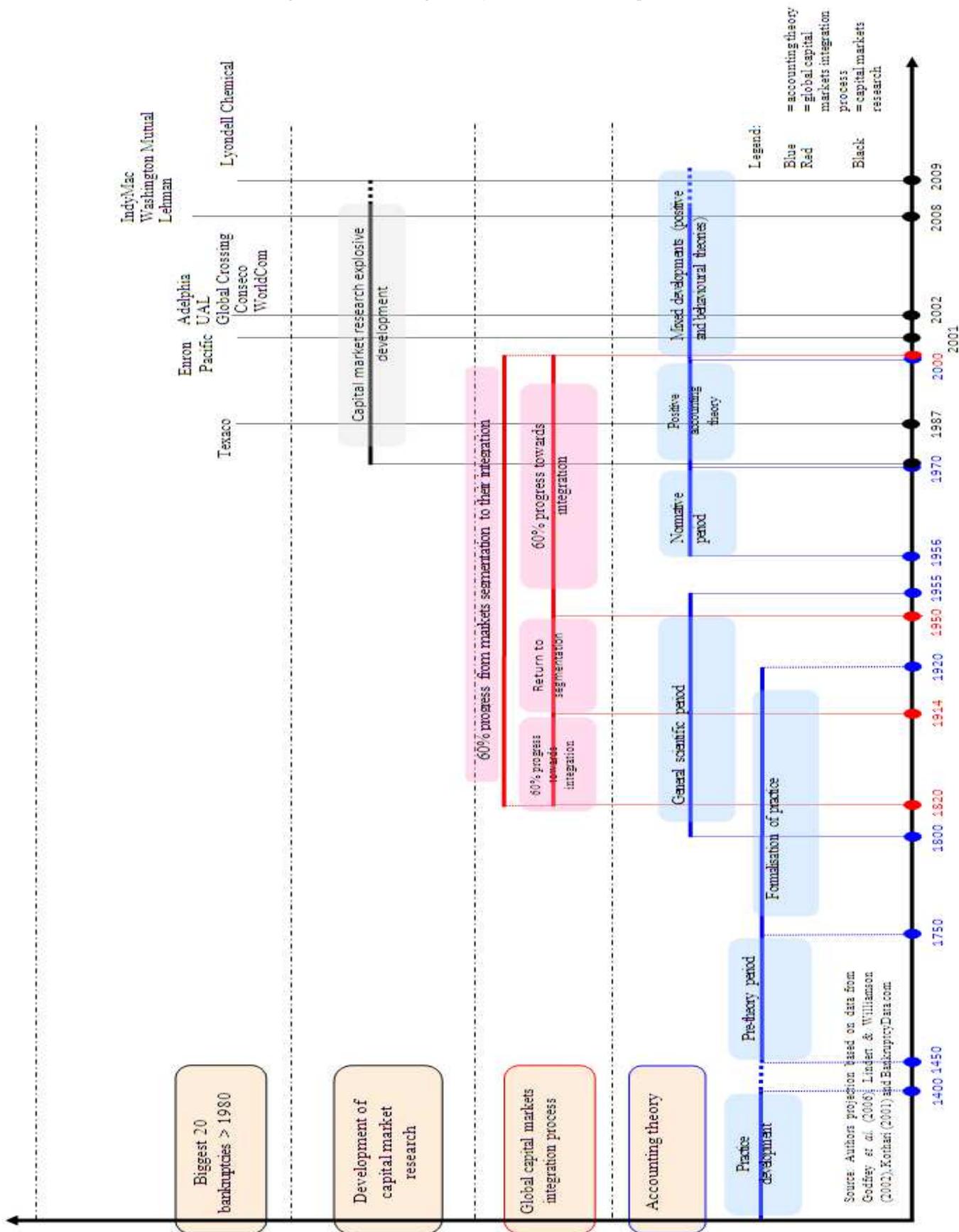
#### **4. Hedging Currency Risks**

In developing a review of accounting research literature we first developed a content analysis of published papers approaching the issue of hedging currency risk. This further led us to dividing the analyzed published papers within three main categories, as follows: capital market research studies, studies focusing on management's behaviour and studies focusing on accounting regulations and accounting practices. We should also mention that considering the above mentioned categories does not claim to cover all existing literature exhaustively. Mentioning the fact that the established categories are not excluding each other is also necessary since we did find studies which can not only be included within one category. We will further synthesis studies being analyzed within each category by considering their objective, the employed research methodology and obtained results.

As Chowdhury & Sarno (2004) emphasize, exchange rate volatility plays a major role in international portfolio diversification and in several aspects of economic policy, including, inter alia, the determination of the uncertainty surrounding prices of exports and imports, the value of international reserves and open positions in foreign currency, and the domestic currency value of debt payments and workers' remittances which, in turn, may affect domestic wages, prices, output and employment. This is actually the reasoning for having a significant body of literature focusing on modelling time-varying exchange rate volatility.

In the area of capital market research studies, Makar & Huffman (2008) examine the relationship between UK multinationals' stock returns and changes in the principal exchange rate to which each firm is most exposed, finding more firms with significant foreign exchange exposure estimates using this firm-specific principal currency data, compared with those exposure estimates using the broad exchange rate index data prevalent in prior studies. Furthermore, the cross-sectional variations in such principal-currency exposure estimates are explained in relation to the financial currency-hedge techniques that each firm specifically identifies as being used to manage its currency risk. Through the use of ordinary least squares (OLS) regression Makar & Huffman (2008) provide evidence that firms effectively use foreign currency derivatives and foreign-denominated debt to reduce the currency risk associated with the bilateral exchange rate to which they are most exposed. Clark & Mefteh (2011) provide evidence on the asymmetric sensitivity of stock returns of French firms to exchange rate risk and the effect of foreign currency derivative use in alleviating this risk. Cross sectional analysis provides evidence that foreign currency derivatives use has a significant effect on reducing foreign currency exposure to appreciations and depreciations of non-USD currencies and depreciations of the USD, but not to appreciations of the USD.

Figure 1. Accounting Theory and the Global Capital Market



Source: own analysis

The second considered category of studies (those focusing on management's behaviour) positions us in the area of risk management literature which has increased significantly during the last decade. Marsden & Prevost (2005) synthesize the theoretical component of this literature as showing that risk management can add value to the company, while the empirical literature describes the cross-sectional determinants of derivative usage and risk management. Furthermore, Marsden & Prevost (2005) discuss how in general the findings of the empirical and survey literature are consistent with the theoretical justifications of using derivative contracts to hedge. Their synthesis documents that corporate hedging and derivative usage can increase company value because of lowered contracting costs, imperfect access to external capital markets, financial distress costs, reductions in agency costs, and reduction in expected taxes.

Makar et al. (1999) investigate how large US multinational companies use foreign exchange derivatives to manage currency risk. Their study tests whether a company's use of foreign exchange derivatives is associated with its exposure to changing exchange rates, and whether such risk management practices are affected by the company's degree of geographic diversification indicative of natural hedging. The employed research methodology includes ordinary least squares (OLS) regression estimates. The obtained results document that large companies' foreign exchange derivatives use increases with the level of foreign currency exposure as well as with the degree of geographic concentration indicative of using less natural hedging (Makar et al., 1999). Dhanani & Groves (2001) use qualitative research methodology in examining the responses of multinational companies, their organisational structures, systems and managers to strategic exchange rate risk. They therefore document that the management of exchange rate risk as a whole appears to have been an evolutionary process with companies progressing gradually from the management of translation risk in the 1970s to that of transaction risk in the 1980s, and more recently to strategic exchange rate risk management (Dhanani & Groves, 2001).

Rather than assuming that the relationship between a manager's stake and corporate hedging is unequivocally positive, Spanò (2007) focuses on the weaker hypothesis that managerial risk aversion is an incentive to deviate from the optimal hedging position. The study employs the use of binary probit multivariate analysis on the determinants of the likelihood to hedge and ordinary least squares (OLS) analysis on the determinants of the hedging position. Empirical results therefore allow the conclusion that the conflicts of interest between shareholders and managers are at the centre of the decision about the firm's risk profile but are not relevant as determinants of the decision to hedge which is rather associated with factors enhancing the firm's expected value (and shareholders' expected wealth), namely, the alleviation of underinvestment problems, costs decreasing with the size of the firm and the possibility of reducing expected tax liabilities (Spanò, 2007). Furthermore it is documented that that managerial motivations are a strong incentive to change the firm's risk profile and deviate from the perfectly balanced hedging position. Spanò (2007) documents that risk averse managers whose wealth is directly affected by the firm's value use hedging instruments in a suboptimal way, thereby systematically creating gains or losses, while managers whose wealth is only marginally affected by the firm's value act in a more risk neutral way and their firms are closer to the perfectly balanced hedging position.

The adoption of the "euro" as common currency offered the opportunity to also examine the determinants of risk management in an environment where exposure to foreign exchange risk was considerably reduced. With the use of multivariate regressions, Capstaff et al. (2007) therefore examine the impact of the euro on derivative use for a sample of French firms. Their results document that the decline in the use of foreign exchange derivatives was greater for firms with substantial sales within the euro zone and less for firms in industries that still had

significant imports from outside the euro zone. Furthermore, the reduction in hedging was not in direct proportion to the reduction in foreign exchange exposure, implying that euro risk was hedged more intensely than French franc risk in the sample of French firms over the chosen years (Capstaff et al., 2007).

We further find that studies looking at management's behaviour are closely linked to the financial reporting process, studies documenting correlations with accounting practices and even changes in accounting regulations. E.g. Huguen (2010) examines behaviour following a change in accounting treatment for derivative hedges by examining companies having to choose between maintaining stability in economic earnings but increase the volatility of accounting earnings and maintaining stability in accounting earnings but increase the volatility in economic earnings. She therefore documents a change in management behaviour following a change in accounting method, finding that firms' historic abilities to meet earnings targets are positively associated with the likelihood that firms will focus on accounting earnings rather than economic earnings. The study's methodology employs the use of the probit model. Marshall & Weetman (2007) address the issue of transparency in financial reporting by comparing disclosures of foreign exchange (FX) risk management in financial statements and managerial information on foreign exchange risk management policy, as evidenced in questionnaire responses. Their study involves the use of regression analysis. They conclude that modelling and explaining the aspect of incomplete accounting disclosure in an international setting must be sufficiently flexible to accommodate national differences in managerial behaviour. Furthermore, considering their comparative study of US and UK firms they find incomplete disclosure in both samples but with differing aspects. This deduction is drawn from the particularities of their study, Marshall & Weetman (2007) documenting, in the US case, that the information gap is lower where the information has higher relevance or firms with higher financial risk (greater leverage) are signalling the extent of risk, but the gap is greater where firms are in competitive product markets. Meanwhile, for the UK sample, the information gap is significantly lower where firms have higher financial risk or higher liquidity, but the gap is greater where the shares are more closely held (Marshall & Weetman, 2007).

Moving forward towards the category of studies focusing on accounting regulations and accounting practices we find Ahmed et al. (2006) documenting that investor valuation of derivative financial instruments differs depending upon whether the fair value of these instruments is recognized or disclosed. Based on a sample of banks that simultaneously held recognized and disclosed derivatives prior to SFAS No. 133, Ahmed et al. (2006) find that the valuation coefficients on recognized derivatives are significant, whereas the valuation coefficients on disclosed derivatives are not significant. Moreover, when using a sample of banks that had only disclosed derivatives prior to SFAS No. 133, which were recognized after SFAS No.133, their results document that while the valuation coefficients on disclosed derivatives are not significant, the valuation coefficients on recognized derivatives are significant. Ahmed et al. (2006) therefore contribute to arguing for the view that recognition and disclosure are not substitutes.

In terms of accounting for derivatives we have to mention an older study which we consider relevant in terms of providing an example of the analysis necessary to prepare and evaluate accounting for a derivative transaction. Cerf & Elmy (1998) do this through the logic developed in the case questions providing the ability to understand:

- the international interest rate environment which motivates currency transactions;
- foreign exchange rate risk;
- how the cash flows of the currency swap interact with the cash flows of the debt to hedge the foreign exchange risk,

- how entering into the currency swap mitigates currency risk, but exposes the company to counterparty credit risk and legal risk;
- the attributes of accounting and reporting for the debt and currency swap as separate instruments or as a combined synthetic instrument; and
- accounting for the currency swap at fair value.

## 5. Designing and Implementing Hedging Strategies

Debates following the recent financial crisis relate to a significant extent to strategic management failings stimulating the dramatic downturn in corporate and economic performance. This enhances the need for better risk management aiming to prevent strategic management failings and risk exposure. Corporate use of derivatives to hedge foreign currency exposure has become standard practice for firms with foreign operations or commercial interests (Clark & Mefteh, 2011). Furthermore we must not forget that developing and implementing a foreign currency hedging strategy requires a commitment of financial, physical, and human resources that can represent significant costs for the firm, as also discussed by Clark & Mefteh (2011). Understanding the nature of foreign currency exposure and further trying to optimize a strategy meant to reduce it can only be done by considering the complexity of economic reality. We therefore need to consider exchange rates within their economic context that includes a series of economic factors (such as those mentioned by Clark & Mefteh (2011): relative prices, income, expenditure, interest rates, supply, and demand). Going back to considering the costs involved by developing and implementing a foreign currency hedging strategy, shareholders need to know whether hedging reduces exposure and adds value to the firm.

Fung & Leung (1991) derive an optimal rule for hedging currency risk in a general utility framework by examining ex ante hedging performance of the forward markets through the use of optimal hedge ratio derived from the utility model and an optimal rule derived from another model (excess return per unit risk) suggested in the hedging literature. Interestingly, their results document that a naive (one-to-one) hedge performs similarly to the optimal hedge ratios under either model therefore suggesting that financial managers of multinational firms should simply follow a one-to-one rule when hedging foreign exchange risk in the forward markets. Intriguing results are also obtained by Chowdhry (1995) when analyzing hedging policies for a corporation that generates a foreign currency cash flow that is not known with certainty. Chowdhry (1995) documents that the probability of bankruptcy for a firm that attempts to minimize this probability is lower when there is some uncertainty in the exchange rates than when there is no uncertainty in the exchange rates: the firm reduces the probability of bankruptcy by borrowing more than its financing needs through foreign currency borrowing alone and by investing the excess funds in domestic risk-free securities.

Choi (2010) compares the effectiveness of constant hedge and speculative hedge by focusing on the recent experience of major and minor currencies in order to establish whether there are any significant differences between both hedges. The obtained results document speculative hedge to be slightly more effective than the constant hedge in reducing currency risk, therefore suggesting that speculative hedge about major currencies can be a relevant hedging tool.

## 6. Conclusions

Paper offers an accounting perspective to hedging currency risk from both a theoretical and practical perspective. The developed analysis documents risk management's preoccupations in

handling risk exposure to include the use of derivatives to hedge foreign currency exposure. A first part of analysis documents the interest for hedging currency risk by looking at accounting research literature and its orientations. The analyzed papers ended up being included and presented within three main categories, as follows: capital market research studies, studies focusing on management's behaviour and studies focusing on accounting regulations and accounting practices. The objective and results of each study are closely correlated with the category to which the study belongs. Interpreting the employed research methodology of the analyzed studies we can conclude that most of them are empirical studies relating to the positive accounting theory. This further adds to setting the research background for our study being done by reference to developments in accounting theory and particularly positive accounting theory. The second part of the study focuses on analyzing developments in companies' practices and documents their approach towards managing currency risk is becoming more sophisticated and focused. When designing and implementing an effective foreign currency hedging strategy we must also relate to Smith & Stulz's (1985) positive theory of corporate hedging stating that the therefore generated costs can be justified only if imperfect capital markets create conditions where corporate hedging reduces exposure and adds value to the firm.

Literature even covers the context of environments where exposure to foreign exchange risk had been considerably reduced due to economic events such as the adoption of the "euro" as common currency for several European countries. Studies (such as Capstaff et al., 2007) document the foreign exchange derivative usage (even though in decline) despite the decrease in foreign exchange risk exposure. Furthermore, Capstaff et al. (2007) document the reduction in foreign exchange derivatives usage was less than proportional to the reduction in foreign exchange exposure while the number of sample firms using foreign exchange derivatives was virtually unchanged, which could reflect more intense hedging of the residual foreign exchange risk following the adoption of the euro, uncertainty caused by macroeconomic events, or the volatility and performance of the euro. Another fact being documented by Capstaff et al. (2007) which we consider relevant for foreign exchange derivative usage is that the reduction in the use of foreign exchange derivatives was greater for French firms with a higher proportion of business within the euro zone.

The idea of companies disclosing information in relation to their risk management policies (our paper focusing on the particular area of currency risk) as a management tool should also be considered. When managers choose not to disclose all the relevant information in their possession in their financial statements, there is an information gap between the managers and users and consequently a lack of transparency (Marshall & Weetman, 2007). We consider the possibility of opportunistic use of such a gap should not be underestimated. We finally argue for the necessity of developing an adequate system of surveillance and control measures related to currency risk exposure as a component of sound corporate governance policies. More precisely, we argue that companies' use of derivatives to hedge foreign currency exposure should be coordinated through sound corporate governance mechanisms. This proposal relates to Marsden & Prevost's (2005) results illustrating that internal governance mechanisms can play a role in corporate derivatives policy, and that the legislative and regulatory environment may affect this role.

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## Summary

Příspěvek se zabývá účetním pohledem na zajištění měnových rizik z pohledu teorie a praxe. Nejprve jsou nastíněny výsledky účetních výzkumů v analyzované oblasti, dále pak se příspěvek zabývá technikami zajištění měnových rizik. Cílem tohoto příspěvku je pak zdokumentovat nezbytnost řízení měnových rizik v podnikatelské praxi.