

SUMMARY

In the second decade of the 21st century, international trade and cooperation with foreign entities was an everyday reality for most enterprises, both large and small and medium-sized enterprises (SMEs). For Poland, accession to the European Union on 1 May 2004 was particularly important for the development of market economy and free expansion of activity. The development perspective for Polish small and medium-sized enterprises which could already be treated as representatives of the European Union, and not only as enterprises from a medium-sized country, changed significantly at that time. Small and medium-sized enterprises operating internationally must face a risk of foreign exchange rates movements related to foreign operations settled in different currencies. However, not only the international trade is affected by the currency risk. Also enterprises settling with national contractors in a foreign currency are exposed to the currency risk.

The theory and practice of risk management, including the currency risk, should be one of the leading topics of modern finance. It should be noted that research on the currency risk is conducted for specialist financial institutions and there is no question of ordinary enterprises, and certainly not of enterprises from the SME sector - no research is conducted for them to search for the best solutions in optimizing their currency risk. The scale of the problem is important, since small and medium enterprises are the most numerous and have a significant impact on the functioning of the Polish economy. In view of the above, the author has chosen the subject for her doctoral dissertation, which allows her to focus attention on the problems of Polish small and medium enterprises in the field of economic and financial aspects of using derivatives to optimize their currency risk. It is worth to quote the words by L. Balcerowicz: "In the world of animals we tend to focus our attention more on elephants than on ants. It is similar in economy - we are far more impressed by large corporations hiring several dozen or several hundred thousand people, than small enterprises employing from a few to a few dozen people. However, those tiny organisms have significant impact on efficiency and development of economy". Those tiny organisms are small and medium enterprises. The argument in favor of undertaking research on this subject was also the author's personal interest resulting from her professional work in the accounting department of a medium-sized enterprise struggling with the problems of currency exchange rate fluctuations.

The main objective of this thesis is to diagnose economic and financial aspects of using derivatives to optimize the currency risk in small and medium enterprises in the context of specific conditions of their functioning.

In order to achieve the above-mentioned main objective, the following **sub-objectives** have been formulated, the implementation of which will take place in the following order:

- characteristics of small and medium-sized enterprises and the risk accompanying their activity in the conditions of international activity;
- characteristics of economic and financial conditions for the functioning of small and medium-sized enterprises;
- characteristics of the nature and concept of foreign exchange risk;
- presentation of instruments for the currency risk management in enterprises, including derivatives;
- analysis of the use of derivatives and other hedging instruments to optimize currency risk in small and medium-sized enterprises;
- gathering and analyzing expert opinions on the use by small and medium-sized enterprises of derivatives and other hedging instruments against currency risk;
- diagnosis, systematization and classification of economic and financial aspects of the use of derivatives by small and medium-sized enterprises.

The main **research problem** is the search for an answer to the question concerning economic and financial aspects of using derivatives to optimize currency risk in small and medium enterprises. The answer to the above problem shall be possible with the use of various research methods, including author's surveys and verifications of the following research hypotheses adopted in the thesis:

1. Not all economic and financial aspects of the functioning of small and medium enterprises significantly affect the use of derivatives to optimize currency risk by these entities;
2. The lack of knowledge or insufficient knowledge on instruments for hedging currency risk in Polish small and medium-sized enterprises results in their small use;
3. Low flexibility resulting from the standardization and construction of derivatives listed on the Warsaw Stock Exchange is a major disadvantage hindering and discouraging the use of exchange-traded *futures* to hedge against currency risk;
4. High costs related to the application of derivatives result in the fact that small and medium-sized enterprises at low level use them to optimize currency risk;
5. Small and medium-sized enterprises, despite having a different scale of operations than large enterprises, use a wide range of currency derivatives to hedge against currency risk.

The **subject** of research conducted in this thesis shall be Polish small and medium enterprises, while the **object of conducted research** shall include:

- economic and financial aspects of using derivative instruments to optimize currency risk;
- possibilities and methods of optimizing currency risk in small and medium-sized enterprises;
- derivatives and other hedging instruments used to optimize currency risk.

The time range of this thesis in the empirical part, i.e. the survey conducted among small and medium-sized enterprises covers the years 2010-2018. The starting date is related to the accepted time of the end of the financial crisis and was chosen intentionally for the purity and comparability of the analyzed information. The data included in chapter three come from various years, depending on their source. The information obtained from the Statistic Bulletins of the Warsaw Stock Exchange concerns the years 2010-2018. The values of average daily net sales volume on the Polish foreign exchange derivatives market divided into exchange and over-the-counter derivatives are from 2010-2016, as 2017 and 2018 have not yet been published by the National Bank of Poland. Data on average daily turnover on the domestic foreign exchange market, divided into individual transactions and transactions entered into by residents and non-residents, are from 2010-2016, which is related to the fact that only every three years the Bank for International Settlements-BIS, together with national central banks, examines the degree of development of the foreign exchange market and the OTC derivatives market. The last examination was performed in 2016, thus those are the latest accessible to the public information on the exchange derivatives on the Polish market. Due to the lack of available data for other years, the turnover ageing on the forward, FX options and CIRS transactions on the domestic market are presented only for 2013 and 2016.

The implementation of the goals adopted in the thesis and the verification of the research hypotheses was performed by means of the critical study of the literature on the subject, and on the basis of the results of two author's surveys including small and medium-sized enterprises and the financial market experts. Two independent researches were performed in order to confront various views on the use of derivatives by small and medium enterprises. The perspective of the representatives of small and medium-sized enterprises was necessary, since they are directly concerned by the currency risk. The perspective of financial market experts is of supplementary and comparison nature, since assuming both their familiarity with the methods of hedging against currency risk and their ability to look at the functioning of the financial market in a broader perspective, it was possible to compare their views and opinions with representatives of SME and to obtain information on the perspectives of using derivatives by SME sector entities.

The first survey included small and medium-sized enterprises from all the territory of Poland. The research was performed with the use of CSAQ technique (*Computerized Self-Administrate Questionarie*), which enabled respondents to take part in the survey independently, at any time and place by means of filling in an electronic *on line* questionnaire. The survey was addressed to 3,000 small and medium-sized enterprises selected by drawing lots by the Central Statistical Office. In the survey the answers of 429 small and medium-sized enterprises have been obtained. 25 of these questionnaires were not taken into account as these were replies from small and medium-sized enterprises which did not have any foreign transactions at all.

The questionnaire included 21 questions divided into 4 parts and a metric including 6 questions. The first part "Information on foreign transactions" contained 2 closed questions on whether the company had any foreign transactions at all and what percentage of its total turnover was foreign trade. In the second part of the questionnaire, "Currency derivatives", the respondents were asked about the level of awareness and knowledge about the currency derivatives. This part included 3 closed questions. The third part "Optimizing currency risk" included 11 questions. Five of them were open questions enabling writing own answers. In this section, respondents were asked whether they even use hedging instruments against currency risk and about their motives for hedging against currency risk. There were also questions which of the internal instruments used to hedge against currency risk and which of the external ones are used by the companies. The fourth part "Forecasting the use of derivative instruments to hedge against currency risk" included five questions. In this part there were three closed questions and the two remaining were open with the possibility to enter own answers. The part considered future use of derivative instruments to hedge against currency risk. There was also a question whether the implementation of the awareness-raising campaign among small and medium-sized enterprises would increase their use. The respondents were also asked about their opinion on the establishment of a specialized company providing advisory services in the use of derivatives to hedge against currency risk.

The second survey was conducted in a group of financial market experts, i.e. people who are most often involved on behalf of banks in selling these instruments, employees of insurance companies, brokers, derivatives dealers and academics who are more theoretically involved in this field of the science. The survey was also conducted with the use of CSAQ method. The questionnaire was addressed to 200 people. The answers were obtained from 152 people.

The questionnaire included 19 questions, including one concerning the function performed by a person completing the questionnaire. There were 10 closed questions and 8 open enabling entering own answers. The experts were asked, among other things, which features and factors determine to a large extent that small and medium-sized enterprises choose instruments to optimize their currency risk and to hedge against currency risk, and if they do not use them, what the main barriers are. In the following questions, experts were asked which of the instruments used to hedge against currency risk are more advantageous for small and medium-sized enterprises - internal or external - and which of the external derivatives are better. They were also asked what was their view on the development of foreign exchange risk hedging instruments market and whether there should be a new specialized financial institution offering the acquisition of foreign exchange risk hedging instruments or offering agency services in their acquisition.

The content and layout of the thesis was subordinated to the realization of the set objective and verification of the validity of the research hypotheses put forward. The structure of the doctoral dissertation is composed of five chapters, preceded with an introduction and concluded with a summary.

In **chapter one** "Medium and small enterprise as a subject of economic and financial relations" presents the concept of small and medium-sized enterprise in accordance with the Freedom of Economic Activity Act and the nomenclature adopted by the Central Statistical Office and Eurostat. Since small and medium-sized enterprises conform a special group of economic entities, the specificity of their operation has been presented. Further on, the economic and financial conditions of their functioning are discussed. There is also a presentation of economic risk factors present in the enterprises of small medium-sized enterprises sector, as well as increasingly advancing process on internationalization of the group.

Chapter two "Currency risk and its impact on the operation of the enterprise" includes the notion of the risk presented in the literature of the subject in two trends: offensive and defensive and its types occurring in the enterprise. This chapter also includes a detailed characteristics of the currency risk, in both positive and negative approach. In view of the risk's nature there is a presentation of its types and main sources. Moreover, the stages of currency risk management in the company as well as internal and external instruments hedging against the effects of currency risk are presented.

Chapter three "Derivatives used to optimize foreign exchange risk" focuses on derivatives used to optimize foreign exchange risk in small and medium-sized enterprises. There is an

elaboration of derivatives on the financial market, their definitions and types. In addition, both exchange and over-the-counter (OTC) derivatives and their use to hedge against adverse exchange rate fluctuations are presented. There is also a presentation of numerical data and analyses concerning the use of derivatives to manage currency risks of enterprises.

Chapter four "The use of derivatives and other currency risk hedging instruments to optimize currency risk on the example of a selected group of small and medium-sized enterprises" presents the results of a survey conducted on a randomly selected sample of Polish small and medium-sized enterprises. Additionally, this chapter includes information considering the research aim and methodology, selection method and characteristics of the research sample.

Chapter five "The use of derivatives and other currency risk hedging instruments to optimize currency risk in small and medium-sized enterprises in the opinion of financial market experts" presents the results of a survey focusing on the opinions of financial market experts on the use of derivatives and other currency risk hedging instruments by small and medium-sized enterprises. This chapter also includes information on the aim, subject and methodology of the the conducted research.

The last part of the work is the ending with the reference to the implementation of the main goal and specific objectives and to the formulated hypotheses. In addition, the ending includes the most important cognitive and application conclusions resulting from the research carried out throughout the course surveys on the use of currency hedging instruments by small and medium-sized enterprises and their market development prospects.

The conducted research, on both theoretical and practical basis enabled gathering material giving grounds for the verification of the hypotheses adopted for the dissertation.

The truthfulness of the **first hypothesis adopted**, which reads as follows: "not all economic and financial aspects of the functioning of small and medium-sized enterprises significantly affect the use of derivatives by these enterprises to optimize their currency risk", has been confirmed on the basis of a critical analysis of the literature and own experience and knowledge concerning the functioning of enterprises in conditions of currency risk. From the many different **economic aspects** that generate the need to use derivatives to optimize the currency risk of small and medium-sized enterprises, *microeconomic aspects* can be identified, including *tangible and intangible aspects*. The *tangible aspects* include: fixed assets (tangible fixed assets, long-term receivables or long-term investments) and current assets (inventories, short-term receivables, short-term investments). Next to tangible aspects there are *intangible aspects*, which generate the need of using derivatives to optimize the

currency risk by small and medium-sized enterprises. Those include: sector of activity, intellectual property of the company, employment structure, competence and involvement of employees, organizational structure of the company, formalization of activities, relations with external stakeholders, reputation of the company, company management system, human resources management system, corporate social responsibility.

There are many more intangible aspects in the matter of enterprise's functioning, but they are not related to the currency risk and the need to use derivatives to optimize the risk or they are related indirectly. They could include, for example, the name of the company, interpersonal relations of the employees, relations of superiors with their subordinates, quality management system or the organizational culture understood as social norms and value systems stimulating the employees, appropriate organizational climate, the way of management, shared meanings and symbols, cognitive patterns, behavioral requirements.

Among the **economic aspects** that generate the need to use derivatives to optimize currency risk in small and medium-sized enterprises, there are also *macroeconomic aspects*. They include: legal regulations, including regulations concerning establishing and conducting business activity, political system, financial system, including banking system, risk of conducting business activity

Among other macroeconomic aspects which do not influence the currency risk and do not generate the need to use derivatives by small and medium-sized enterprises there are such aspects as environment protection or creation of new work places.

Next to the economic aspects there are also **financial aspects** with significant importance in generating currency risk and related to the need of using derivatives to optimize the risk. Financial aspects can be divided into *performance* and *balance sheet aspects*. Among the *performance aspects* generating the need to use derivatives in order to optimize currency risk one can distinguish currency structure of income and costs as well as their amount.

Among the *balance sheet aspects* generating small and medium-sized enterprises' need to use derivatives in order to optimize currency risk there may be indicated: receivables and obligations, external sources of financing (e.g. bank credit, trade credit, leasing, factoring, franchising, subsidies).

Other financial aspects that do not materially affect or indirectly affect foreign exchange risk and at the same time do not generate the need for small and medium-sized enterprises to use derivatives include aspects such as: internal sources of enterprise financing and external own sources of enterprise financing.

The second hypothesis, concerning the lack or low level of knowledge on currency risk hedging instruments in Polish small and medium enterprises, resulting in low utilization of derivative instruments, has been positively verified. The validity of the hypothesis was verified on the basis of the results of the survey conducted on a randomly selected group of small and medium-sized enterprises and on the basis of the survey conducted among financial market experts. The research shows that the knowledge level of representatives of the surveyed small and medium enterprises about currency instruments used to optimize and hedge against currency risk is low.

The third hypothesis of low flexibility of futures contracts due to their standardization and design as a major flaw hindering and discouraging the use of futures contracts to hedge against currency risk. The validity of this hypothesis has been verified on the basis of the results of own research conducted among the experts of the market of instruments hedging against foreign exchange risk, as well as on the basis of an analysis of the average daily net trading values of exchange and over-the-counter (OTC) currency derivative instruments market. According to the majority of the surveyed experts, the standard, design and availability of currency futures contracts are unlikely to meet the needs of small and medium-sized enterprises to hedge against currency risk.

The fourth hypothesis of the dissertation is difficult to verify unequivocally. The hypothesis indicated that high costs related to the application of derivatives result in the fact that small and medium-sized enterprises at low level use them to optimize currency risk. The perspective of small and medium enterprises indicates that high costs are not a barrier to using derivatives to optimize currency risk. The situation is different in case of the financial market experts' perspective, more than half of whom claim that this is one of the most important barriers to using these instruments. In the opinion of the author of the dissertation, one should agree with the opinion of small and medium-sized enterprises representatives, only 2% of whom as the main reason for not using currency hedging instruments or using them to a limited extent indicate the unprofitability of using derivatives to hedge against the effects of currency risk.

The fifth hypothesis stipulates that small and medium-sized enterprises, despite having a different scale of operations than large enterprises, use a wide range of currency derivatives to hedge against currency risk. Based on the conducted own research this hypothesis has been negatively verified. The most frequently used derivatives are forward contracts. Currency derivatives that are not used at all by small and medium-sized enterprises to optimize and hedge against currency risk are currency futures and currency swaps.

More than half of the surveyed small and medium enterprises did not use any external currency risk hedging instruments at all. The representatives of the surveyed small enterprises hardly use also currency derivatives to optimize currency risk. The main reason, both among small and medium-sized enterprises, for not using hedging instruments against currency risk or for using them to a limited extent is the lack of specific knowledge and experience in currency risk management. It is positive that most representatives of the surveyed small and medium enterprises see a need to improve their knowledge of currency risk and the possibility to optimize it with hedging instruments available on the market. Among medium-sized enterprises, the most popular currency derivatives are forward contracts. This may result from their relatively simple construction and ease of access to this type of collateral, as currency forward contracts are offered by almost every bank.

Experts indicate that, in order to use currency hedging instruments at all, small and medium-sized enterprises must be aware of the fact that their enterprises are exposed to such risks. According to them, few small and medium-sized enterprises use currency derivatives to hedge against currency risk and the group is dominated by medium-sized enterprises. Almost all the barriers identified by experts as determining that small and medium-sized enterprises do not use hedging instruments against currency risk are related, in whole or in part, to the lack or low level of knowledge of the representatives of these entities about currency risk and ways to optimize it. This may indicate the need for either individual broadening of knowledge on the subject or organizing a nationwide educational campaign, thanks to which the representatives of these enterprises would be familiarized with the subject of currency risk and the possibilities offered by the financial market in order to optimize it. As the most advantageous external instruments hedging against currency risk for small and medium enterprises experts point to derivatives, including currency forward contracts.

Almost all the surveyed experts clearly indicate that currency derivatives shall gain importance in the economy. They believe that the market of currency forward contracts and currency options will develop best among small and medium-sized enterprises, while the market of currency swaps and futures contracts will develop only slightly.

With the exception of currency exchange options not offered by the Warsaw Stock Exchange, the Polish market offers a full range of instruments hedging against currency risk. Therefore, there is no indication that new instruments to hedge against currency risk shall become available.

Both representatives of the surveyed small and medium enterprises as well as the surveyed experts indicate that broadening the knowledge on currency risk and instruments used to

hedge and optimize currency risk would allow to increase the use of currency derivatives by small and medium enterprises, and at the same time to develop the market of these instruments. According to the surveyed experts and the representatives of the surveyed small and medium-sized enterprises, an increase in the use of currency derivatives by SMEs to optimize currency risk could be influenced by the establishment of a specialized institution providing advisory services in the field of currency risk management.

The collected research material allows to formulate application conclusions to be put in practice. The following crucial needs should be expressed:

- the need of conducting educational and popularization activities in the field of currency risk management in small and medium-sized enterprises,
- the need to increase education on derivatives used by small and medium-sized enterprises in order to optimize currency risk,
- the need to introduce changes in curricula of economic universities, which would take into account the issue of hedging small and medium-sized enterprises against currency risk.
- the need of reducing the standardization of currency futures contracts offered by the Warsaw Stock Exchange in order to adapt them to the specificity and needs of small and medium-sized enterprises,
- the need of taking actions aimed at introducing currency options by the Warsaw Stock Exchange in order to enrich the offer of currency derivative instruments used to optimize currency risk,
- the need to carry out research to develop new currency risk hedging instruments adapted to the specificities of small and medium-sized enterprises,
- the need to create organizational and legal conditions for the creation of specialized institutions providing advisory, training and intermediary services in the acquisition of currency derivatives by small and medium-sized enterprises.

The author is aware that the considerations presented in this dissertation do not exhaust the subject of currency risk optimization by small and medium enterprises and that they constitute a challenge for further work.