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**Summary of the doctoral dissertation.**

**Alternative investments based on the example of the numismatic market**

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The choice of the topic of this dissertation on alternative investments was motivated by three main aspects. The first is the existing scarcity in the literature on the subject: alternative markets, especially emotional ones, are relatively young and have not been comprehensively analysed in economic publications. A significant problem for researchers is the specific nature of these markets. Their analysis often required professional expertise in a field other than economics (history, art, or even geology). Another argument in favour of choosing this research topic is the growing interest in the numismatic market on the part of investors, the media and the potential involvement of financial institutions, which translates into an increase in turnover and returns on investment. Consequently, the results of the research work can be applied in practice. The last reason for undertaking this research is the author's own interest in the numismatic market, which goes back twenty years, and his knowledge of practical investment in the emotional investment market, which he can use in this thesis. The presented dissertation is of interdisciplinary nature. Its results derive from the combination of economics (market research), finance (study of rates of return) and numismatics as an auxiliary science of history (old coins as objects of circulation).

Guided by the motivation presented above, the author faced a **research problem** formulated in the following way: **the numismatic market in Poland is not sufficiently explored in qualitative and quantitative terms. There is also a lack of tools to assess it.** From these problems arise the research objectives and questions posed by the author of this dissertation. The following research questions were formulated in the dissertation:

**RQ 1:** How to define the emotional investment market, and how to place it in the financial market structure?

**RQ 2:** How to synthetically assess the situation in the numismatic investment market?

**RQ 3:** How has the numismatic market in Poland developed in terms of quality and quantity (from the point of view of rates of return)?

**RQ 4:** How have rates of return in the numismatic market compared to rates of return on other financial instruments?

The main objective of the dissertation is to assess the numismatic market in Poland between 1995 and 2018, and to prepare tools to enable such assessment. This objective was achieved through the specific objectives (SO) assigned to the research questions (marked in brackets after the objective):

**SO1:** Develop a definition of alternative and emotional investments with a high degree of generality (RQ1).

**SO2:** Prepare a classification of financial markets that is consistent with the above definition (RQ1).

**SO3:** Design a tool to synthetically assess the emotional investment market (RQ2).

**SO4:** Conduct a qualitative assessment of the evolution of the numismatic market in Poland during the period examined (RQ2).

**SO4:** Conduct a quantitative assessment of the numismatic market in Poland during the period examined (RQ3).

**SO6:** Compare selected segments of the traditional market with the numismatic market (RQ4).

In connection with the search for a solution to the research problem and answers to the research questions, the author adopted the **main hypothesis** of the dissertation, which assumes that **the numismatic market is an attractive alternative market for investors, yielding long-term high rates of return** compared to traditional markets. In addition, three auxiliary (specific) hypotheses were adopted:

**SH1:** Between 1995 and 2018, there was a qualitative change in the numismatic market in Poland manifested by an increase in its professionalisation (to objective 4).

**SH2:** During the period 1995-2018, there has been an increase in the volume of transactions and rates of return of the market under study (to objective 5).

**SH3:** The rates of return in the numismatic market can be higher than the rates of return on investments in traditional markets (to objective 6).

The subject of the research was the market for investment in numismatics, the research subject was specialist auction houses. The analysis covers transactions made between 1995 and 2018 during numismatic auctions in Poland. Several **qualitative and quantitative research methods** have been used in this dissertation. A literature analysis necessary for the preparation of the theoretical basis of the dissertation was carried out. The descriptive method allowed us to explore the origins and present the development of alternative investment markets, with a

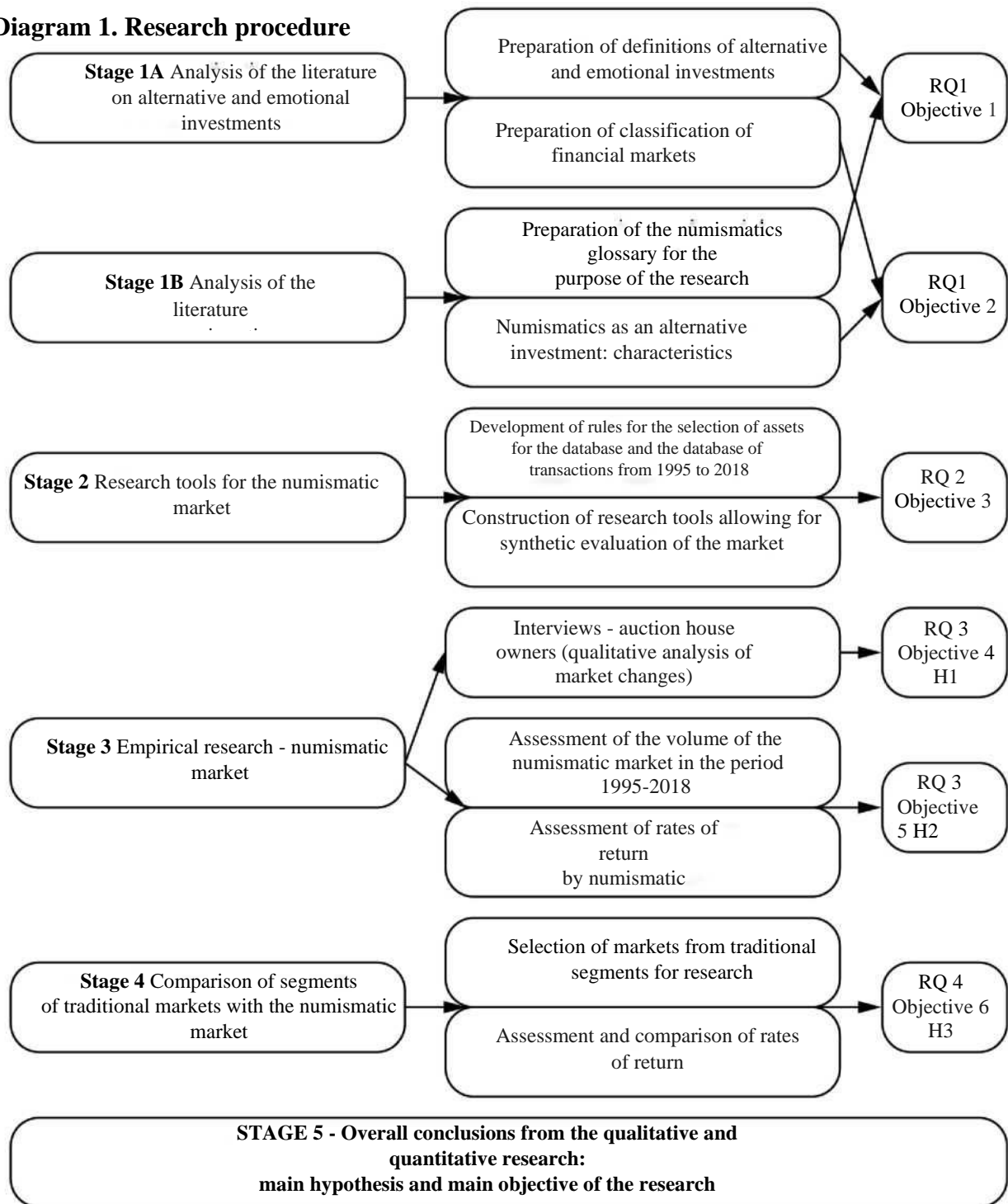
particular focus on emotional investments. As part of the empirical research, a **database of numismatic auctions from the years 1995-2018 was compiled, which is the first existing in the literature and market practice collective compilation of these auctions**, and a complete set of auction catalogues with result lists was collected. Analysis of the collected data allowed for the development of **a tool to synthetically assess the numismatic market - the Polish Numismatic Index**. In the next stage, the results of rates of return achieved on the numismatic market were compared with the rates of return from “classical markets” - stock and bond markets. Work on the study of quantitative and qualitative changes in the numismatic market was carried out in parallel. **Interviews with auction house owners** and analysis of national numismatic auctions indicated the direction of the evolution of the market under study. The five-stage research procedure is presented in diagram 1.

The dissertation is divided into four main chapters, an introduction and summary. The first two chapters are theoretical and descriptive in nature. The first chapter defines alternative investments, which are the main point of consideration, and discusses their specificities and origins. It discusses examples of alternative markets with a special focus on emotional markets, which are exemplified by the numismatic market of interest to the author.

The second chapter presents the world of numismatics, its history and evolution from the point of view of the auxiliary science of history. This will make it possible to understand the specific language that operates in this market and the basic criteria for assessing traded assets. Changes in the market and its current shape are discussed in this chapter. The author also presented the legal and tax bases of numismatic trading, the knowledge of which is necessary for potential investors.

The third chapter covers own research. It discusses the research methodology, the assumptions made to create the primary database and the selection of the research sample. The author presented the concept of a tool to assess the market situation. With its help, the numismatic market volume has been estimated for the period 1995-2018, along with the weights of the numismatic sub-periods. Based on a previously selected research sample, the author calculated rates of return on investment in the numismatic market. These are compared with returns on “classic” markets.

**Diagram 1. Research procedure**



Source: Own elaboration.

In the fourth chapter, the author summarised the conclusions of his own research. He presented the prospects for the development of the numismatic market in Poland.

In order to achieve the research objectives, **emotional investments** have been defined as **tangible investments whose subject matter possesses individually distinguishing characteristics that result in a psychological benefit for the holder, the so-called emotional dividend, independent of financial value.** They have replaced the alternative investment group in the market structure. In the author's classification, the main dividing axis is between physical investments and financial investments. It does not undermine previous research work but represents a certain evolution of that work, which is appropriate to the changing market situation.

The trading volume was calculated by adding up the achieved values listed in the result lists created after each numismatic auction. **Some 200,000 detailed data were aggregated. Separate results** were generated **for each auction, auction house and numismatic category.** The initial research needed to analyse rates of return was part of the auction volume calculations. Coins had to be selected according to the correct proportion of turnover generated within each auction category. **Based on their percentage distribution, the right coins were selected for the sample. One hundred coins** were selected within the categories **according to the following parity:** medieval monarchy - six pieces, modern monarchy - sixty-six pieces, times of partitions - eleven pieces, the Second Republic of Poland - thirteen pieces, coins of countries related to Poland - six pieces. The selected assets were assigned 2,400 of their auction listings from 1995-2018. Price changes have been presented in the form of index changes, which form the **basis for the calculation of the annual index value.** Gains on investment in numismatics increased virtually throughout the entire research period. **A full assessment of the profitability of the investment was only possible in comparison with other available investments, preferably “classic” ones.** Two standard instruments were selected for such a comparison: the stock market, whose situation was represented by the WIG index, i.e. a market with relatively high risk, and the long-term government bond market with low risk.

According to our hypothesis **the numismatic market is an attractive alternative market for investors, yielding long-term high rates of return** compared to traditional markets. The hypothesis was confirmed through a detailed examination of its individual components and associated supporting research hypotheses. The results of the research suggest that there has been a substantial increase in prices and turnover in the auction numismatic market between 1995 and 2018. The reflection of these results in the form of the author's Polish Numismatic Index showed a change in its value from **10,000 to 140,724 points.** In the same research period,

the **volume of sales increased from 886,630 to 42,557,920**. This indicates that there has been a more than tenfold increase in the rates of return of the analysed segment of the emotional asset market in the period under review, with a substantial increase in turnover. **The long-term rate of return on PNI was more than double that of the compared classic investments.**

The dissertation was carried out in the **full assumed scope of subject, object, time and territory**. **The main objective of the dissertation was achieved**, a synthetic assessment of the numismatic market was carried out using newly developed research tools. The results of the dissertation primarily contribute to science. They fill an existing gap in theoretical and methodological dimensions in the literature in the field of economics and finance. Their practical aspects are especially important for potential investors - both those planning to enter the market and those currently operating in it.