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Abstract of doctoral thesis
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Quantitatively-qualitative method of company valuation as an instrument for creating strategies based on investing in company value

The main idea of the dissertation was to develop and verify the effectiveness of the author's instrument supporting long-term investment decisions. The proposed solution is an implement for creating strategies of value investing within the meaning of B. Graham's concept. Presented proposition apply method of inductive quantitatively-qualitative valuation of companies. In this dissertation had a try to supplement the current state of knowledge about methods of valuation of companies based on the analysis of their linchpins with the category of investor's valuation based on the quantitatively-qualitative analysis of publicly available financial data. In this paper a proposal for a practical tool for long-term investors and researchers regarding the structure of elements affecting the internal value of the company's stocks and its market price was presented for further consideration.

In order to conserve the methodical correctness of studies and research and also to enable the basic aim of the dissertation to be achieved in the best possible way, it was necessary to reach the following partial goals:

1. Completion of a set of financial factors creating long-term enterprise value;
2. Formulation of generalized regularities regarding the relationship between return rates on shares and particular areas of financial analysis;
3. Presentation of the possibilities of using dendrograms to classify listed companies with similar properties.

The next step zooming to realisation of presented research objectives was to formulate hypotheses, which were tested afterwards. The main research hypothesis of the dissertation is that the use of quantitatively-qualitative method of valuation make it possible for value

investors to select companies that will achieve an above-average rate of return in the long run. It can be developed into specific hypotheses with the following content:

1. The direction and power of the dependence of rates of return on shares on particular factors creating the value of enterprises are within a given sector in most cases at a similar level and are relatively constant over time;
2. As the investment horizon lengthens, the level and variability of returns on shares are increasingly determined by the financial indicators of the company's fundamental analysis.

In pursuit of the objectives of this thesis, it was made an attempt to identify the basic factors determining the internal value of enterprises. Research methods and tools were selected for analysing particular exploration areas. Due to the nature of the input data and the specifics of the research, the induction analysis method was used. The verification of the main hypothesis and partial hypotheses required the use of the following research methods:

1. Critical and postulative analysis of domestic and foreign source literature;
2. Analysis and logical construction leading to the definition of schemes, categories, measures, structures and generalized form;
3. Categorization and coding data and their conversion into qualitative data (point grades);
4. Statistical analysis with particular emphasis on hierarchical cluster analysis (using dendrograms);
5. Comparative analysis in various variants of data aggregations;
6. Scenario analysis;
7. Inductive inference based on observation of source data (primary and processed) and results of empirical research.

The content of the dissertation consists of four chapters containing elements of the theory, research methodology and their results. The first two chapters are postulative theoretical analysis of the problem layer. The third chapter presents the research methodology as well as the course and results of its initial stages. The last of the chapters describes further stages of the research, their results and conclusions.

The first chapter is devoted to considerations about the value of an enterprise. It was divided into two parts. The first of them presents the main views on the purpose of the enterprise being, opinions about what is value and what it depends on. The differences between the internal value and the market value of the company were also highlighted. There also assessed the main valuation methods with particular emphasis on their pros and cons from the investment

point of view. The second part of the chapter concern the basic determinants of enterprise value. There was presented their classifications from literature sources and characterized the value factors significant from the point of view of empirical research. The quantitatively-qualitative analysis was designed and carried out in accordance with the structure presented in this part of the chapter.

The second chapter focused on the essence of value investing. As in the previous chapter, it has been divided into two parts. The first one presents the authorial category of investor's valuation (which is the starting point for quantitatively-qualitative analysis), justifies the assumption of market inefficiency and presents the long-term investor's point of view and differences between investing and speculation. In the second part of the chapter, profiles and strategies of the most important value investors have been characterized: Benjamin Graham, Warren Buffett with Charles Munger, Peter Lynch, John Neff and Philipp Fisher. There was also presented investment results of investment funds using value investing.

The third chapter is the first of two empirical chapters. It presents main research assumptions and methodology of the analysis carried out, and characterizes the initial stages of research:

1. Stage 0, which was concentrated for selection of companies for analysis. As part of it, selected from among all companies listed on the Warsaw Stock Exchange those with a sufficiently long history of listing.
2. Stage I, in which a pre-selection was made based on the level of fulfillment of three main criteria for value investing: low debt, low valuation and making profits. The companies selected in stage 0 became divided into "accepted" and "rejected".
3. Stage II, where a detailed analysis and assessment of the elements constituting the main factors of the company's value were carried out: external environment, profits, dividends, cash flow, capital structure, property situation and operational activity. The result of the analysis at this stage is a ranking based on the ratings of companies from the 'accepted' and 'rejected' groups.

The last, fourth chapter is a continuation and summary of the considerations the subject of this work. It presents the results of the stages in which the data were processed, aggregated and inference based on them. They include in particular:

1. Stage III, where an attempt was made to analyse and classify companies in terms of similarity of groups of factors. It summarizes the aggregate results of scoring in particular groups of factors, which were then used to conduct cluster analysis in the shape of dendrograms.

2. Stage IV, where the investment results of the companies classified (in the cluster analysis or by receiving similar grades in the previous stages) to mutual groups were analysed. It was assumed that the hypothetical investor buys stocks of companies equivalent to PLN 100 for each of these companies. The investment effectiveness was assessed based on the change in the value of this investment and dividend income as well as the Sharpe index and error matrix.
3. Stage V is devoted to appraisal the effects of hypothetical investment decisions. Changes in the main criteria for value investing were analysed: the level of valuation, indebtedness and profitability between the initial (June 30, 2009) and final (July 1, 2019) state. It was also checked how much investment income would be after each year of keeping stocks in the portfolio and what level of C / Z and C / WK ratios then recorded at the time. An investor's income simulation was also accomplished if he sold stocks this year when any of the indicators being the basis for qualification at the stage of the initial criteria (being indicators of the company's investment attractiveness according to the classic premises of value investing), would be exceeded. Income from stocks of companies with profits of these companies was also compared.
4. Stage VI, where companies selected by the quantitatively-qualitative method were valued using the comparative method. It was checked how the use of quantitatively-qualitative analysis improves the effectiveness of investments in stocks of companies considered undervalued purely after the valuation using the comparative method.

As a result of the analysis, the following conclusions were drawn:

1. Investment in the best companies from the point of view of the ranking based on the results of quantitatively-qualitative analysis was marked by one of the highest rates of return and the lowest standard deviation among the analysed portfolios. This means that the presented method of quantitatively-qualitative valuation based on fundamental analysis can be an effective instrument for long-term investments.
2. Application of the criteria of value investing and fundamental analysis contributes to reducing the risk of purchasing stocks which will collapse in the future.
3. Profit is not the main factor determining the price of stocks in the long run and should not be considered in isolation from other criteria.
4. Searching for the characteristics of investment-attractive companies, one should be guided towards those which for the majority of the surveyed years were highly

valued and possibly choose for further analysis those that are undervalued at the time of making the investment decision.

5. Dividends did not affect the superior increase in their stock prices. Companies which pay dividends even after increasing the income from the value changing of stocks by the proceeds from dividends achieved lower income for investors then companies which do not pay dividends or pay it irregularly.
6. Higher rates of return from stocks of non-indebted enterprises are obtained by stocks of companies with moderate or high level of liabilities in the balance sheet total.
7. Operating efficiency ratios had a direct impact on the long-term increase in stock prices - in the case of companies meeting the criteria for value investing, investment income was as higher, as the better the assessment of this aspect.
8. It is possible to use hierarchical cluster analysis as an effective tool for classifying groups of similar companies in terms of a set of factors.
9. Companies that meet the criteria for value investing after 10 years are even more fundamentally valuable from the point of view of these factors.
10. It cannot be unequivocally stated that investment attractive companies from the point of value investing always achieve better investment results in the long run than other companies. However, there is a tendency for these entities to achieve a better profit / risk ratio than in the group of rejected companies.
11. Valuation using the comparative method and estimating the future stock price on the basis of a profit forecast cannot be considered as a sufficient tools to make an optimal investment. The use of the quantitatively-qualitative method significantly improves the relationship between the shareholder return and investment risk.

Research has shown that quantitatively-qualitative valuation can be an effective instrument for selecting companies that are more likely to receive their stock above average investment returns in the long term. The development of methods and techniques based on quantitatively-qualitative valuation for investor purposes is important for finance theory and practice. The analysis of enterprise value factors and their groups can be a starting point for further research, starting with redefining value factors and criteria for their assessment on the basis of results obtained at this stage.