

The Structure of Stock Exchange Recommendations in Poland in the Context of the Anchoring Effect and Excessive Optimism

Radosław Pastusiak and Jakub Keller

Abstract—This paper focuses on the structure of recommendations published in the Polish capital market in the years 2009-2012 in relation to the largest public companies. The conducted research compares the moment of publication of recommendations with macroeconomic determinants in Poland and analysis the characteristics of recommendations, such as price range. The problem analyzed in this paper comes from the thesis that analysts present an excessive optimism while issuing recommendations for companies and try to avoid strong and unambiguous recommendations. The research results showed that the lack of strict and unambiguous procedures and methods of valuation of the companies by analysts causes subjectivity which leads to the occurrence of the effects described by behavioral theories. The authors argue that the structure of recommendations and the specificity of dates of their publication shows that optimism is typical for most analysts.

Index Terms—Recommendations, capital market, behavioral finance,

I. INTRODUCTION

The recommendations published by brokerage houses are a regular part of the capital market. A recommendation is the subjective opinion of the analyst representing financial market institutions, which helps the clients of these institutions gain a competitive advantage over other market participants. It is available to all investors at the time of publication in the market. The impact of recommendations on the quotations of companies has been the point of interest of researchers for a long time. Depending on the market and type of financial instrument, the obtained results of the impact of recommendations seem to be different. The available research results show that there are different types of approach to the problem of the impact of the recommendations. Especially their noticeable impact on prices or lack thereof is observed.

The aim of this paper is to analyze the recommendations of brokerage houses and their convergence with current economic situation in the country. How analysts issue recommendations, if the evident trends can be seen here, what is the price range of the issued recommendations? Analysis was carried out on the basis of the Polish capital market, and the empirical data comes from the Warsaw Stock

Exchange. The problem tackled in this paper is an argument that analysts show excessive optimism issuing recommendations for companies and try to avoid strong and unambiguous recommendations. Behavioral context of the conducted analysis results from the fact that the target prices and recommendations themselves are not determined only by mathematical calculations. Despite some established procedures and schemes used in the valuation process, calculations are still based on subjective assumptions. Furthermore, the results of the obtained forecasts and analysis are ultimately evaluated by the analyst preparing the report. In this process, he can verify the obtained results on the basis of non-objective and sometimes erroneous factors resulting from heuristics.

II. PREVIOUS STUDIES

The research on the impact of recommendations on price changes has been conducted since 1934, when the first paper by Cowles [1] was published, which characterized the effectiveness of this type of analysis in the capital market. Cowles came to the conclusion that most of recommendations do not provide valuable information. In subsequent years recommendations have been analyzed multidimensionality, which resulted in a series of studies in which the authors often came to different conclusions. There are several streams in existing studies, the primary one being the confirmation or negation of the impact of recommendations on price changes of financial instruments. Then, the impact of recommendations on small and large companies. Another area is the increased effectiveness of positive recommendations. Liu, Smith and Syed [2] in their studies showed the impact of recommendations on prices at the date of the publication of the recommendation. In the last two decades, valuable research related to recommendations has been conducted by Stickel [3] who argued that the position of the company which is issuing recommendations is important. In his research he received a variety of results for different institutions - that means that investors do not treat all recommendations in the same way. However, the analysis made by Walker and Hatfield [4] showed that investors do not have additional benefits coming from the use of recommendations. In a study made by Clark et al. the recommendations issued in 1995 - 2001 were tested. The researchers tried to prove an excessive optimism presented by their authors. The results do not confirm the existence of the curvature, representing optimism. Barber et al. [5] showed that positive recommendations result in higher and negative in lower rates of return. The results were compared

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with market benchmarks, which indicated a significantly higher rate of return in the case of the strategy, in which recommendations were used. Jaffe and Mahoney [6] drew attention to the costs of obtaining a recommendation. According to them, if these costs are taken into account, investors do not achieve additional gains from recommendations. Juergens [7] showed the results indicating that the publication of recommendations makes additional changes in prices and makes it possible to achieve above-average returns. The researcher analyzed 3679 recommendations for the IT and related sectors, analyzing recommendations and information from the companies. Ho and Harris [8] in their study showed that investors who use recommendations, confirm them additionally using their own basic economic measures. Their optimism about the effectiveness of recommendations is limited. Aitken [9] analyzed the Australian Stock Exchange in the period 1992 - 1998. He showed that recommendations published by real estate agents cause changes of prices of companies associated with the industry on the day of publication. Barber et al. [10] who analyzed the NYSE showed that short term strategies based on recommendations generate profits for investors, but their profitability may be seriously reduced by the cost of frequent transactions. Ayako et al. [11] analyzed the distortions of prices of financial instruments caused by recommendations of European analysts. The information is often provided in the wrong context and character of recommendations is adjusted to the market trend. This means that investors interpret recommendations freely. If it is positive in the downward market, it has lower impact on the stock price. If there is a positive trend in the market, it does not reflect the full scale of growth either. Fang [11] in their research demonstrated the usefulness of recommendations and substantially higher profitability of investments, which are carried out on the basis of recommendations. Chang and Chan [12] showed that the impact of recommendations depends on a brokerage house which they were issued by, on the company which they are related to, its size and age. In the research conducted by Loh and Stulz [14] supernatural change of prices after the announcement of recommendations can be seen, particularly in the case of companies being in the media spotlight. Their research proves that about 25% of the recommendations have no impact on the quotations, and the impact of about 10% of them is very large. The reputation of assessing institution is important.

The presented studies show the interest of researchers for recommendations. These reports are analyzed on many levels and their impact is examined in a different contexts. This paper is an additional voice in the debate, which should provide the data and arguments in favor of subjectivity of analysts who publish recommendations.

III. RESEARCH METHODOLOGY

The analysis performed in this paper was based on a sample of 786 analytical reports published between 2009 and 2012. They are related to the largest companies listed on the Warsaw Stock Exchange, which belong to the WIG 20, as of

May 2012. They were issued by 31 both Polish and foreign brokerage houses. It is worth mentioning that all of the recommendations are available free of charge, and thus can be used by any investor interested in their content.

As part of the study, a multi-faceted grouping of reports was performed. The aim of this is to analyze and to evaluate the structure of the issued recommendation with respect to the content of publications, publishing institutions and companies which they are related to. The analysis was divided into several steps:

The first step was applying a number of statistical measures that describe the analyzed population. In the first place arithmetic means, medians and standard deviations of growth potential of stock prices in each group of recommendations were analyzed. It should be noted that the grouping was based on the direct content of reports. However, due to the differing terminology used by various brokerage houses, the contents of reports was unified, so that in the final form five main groups of reports for were taken into consideration:

Sell, Reduce, Neutral, Accumulate, Buy.

Additionally, the growth potential arising from the report is the value calculated according to the formula:

$$P_w = \frac{Cd - Cz}{Cz} \times 100\% \quad (1)$$

where:

P_w - growth potential

Cd - target price

Cz - closing price on the day of publication

In case of publication of the report on the day on which there was no trading session, the closing price from the closest possible day prior to the publication of the report was taken into account.

- The second step was analyzing the spread between particular groups of reports in terms of price growth potential. This value is important for assessing the uniqueness and precision of analytical reports.
- The third step was the tendencies and trends, together with the regularity and the frequency of appearance of particular types of publications.
- The last step was assessing the type, signal strength and density of publications in the context of economic conditions in Poland in the period 2007 - 2012. Reference was made to a number of basic economic indicators, in this case: GDP (y / y), unemployment rate, inflation (y / y), industrial production (y / y).

IV. RESEARCH RESULTS

In the first step it is necessary to look at the basic grouping of reports, related to the types of issued recommendations only. Simplified grouping in this regard is presented in Table 1. Refinement of this division, which includes presentation taking into account the organization that publishes a report and the company to which it is related is

presented in Table II and Table III shown in the Annex.

TABLE I: NUMBER OF REPORTS BY TYPE

	Accumulate	buy	neutral	reduce	sell	Sum
No. of publications	97	268	268	62	91	786

It is easy to notice that many of the analyzed recommendations are the reports having positive expression. There are 365 positive reports representing more than 46% of the sample, meaning: “accumulate” and “buy”, while the number of negative ones, that is, “reduce” and “sell”, is 153, or just over 19% of the sample. This means that there are twice as many positive recommendations as the negative ones, which confirms the results obtained by the researchers dealing with this issue in other stock exchanges worldwide. It is worth noting that the neutral analyses present more than 34% of the total. So it is necessary to investigate what is the reason for such a big group of ambiguous analyses. It could be assumed that in 268 cases the evaluated companies promise such a slight change in the value that brokers refrain from expressing a clear opinion on whether to buy or to sell. It is, however, it is worth looking at the range of prices for different types of reports. That is the minimum and maximum price that appeared in a specific type of report. For the analyzed sample they are presented in Table II.

TABLE II: LIMITS OF GROWTH POTENTIALS FOR THE ANALYZED GROUPS OF RECOMMENDATIONS

TYPE OF REPORT	MIN	MAX
Buy	1,22%	133,39%
Accumulate	2,12%	44,57%
Neutral	-18,65%	35,24%
Reduce	-20,73%	9,43%
Sell	-58,33%	1,37%

It can be seen that the growth potential limit values at which the recommendations of the specific type were issued are very unambiguous. First of all, a big difference in the approach of individual analysts and brokerage houses in assigning the type of recommendation to the estimated target price can be seen. What is more, there are reports suggesting a reduction, or even selling at a target price that is significantly higher than the price on the date of publication. Bizarre situation is the fact that despite the issuance of reports in five categories their ranges overlap to such an extent that we can find the reports "sell" with a higher growth potential than the minimum for the recommendation "buy". For these reasons, suggesting oneself by the final content of the report virtually eliminates its usefulness in the objective assessment of the analyzed security. Of particular interest in issuing such recommendations seems to be the range of neutral recommendations, which span contradicts the assumption that the predicted asset price volatility is low. The span in this case is nearly 54%, and the minimum and maximum values very clearly exceed the thresholds for recommendations “reduce” and “accumulate”. In this context, it is worth paying attention to the medians and standard deviations in each group of reports (Table III).

TABLE III: MEDIANS AND STANDARD DEVIATIONS OF GROWTH POTENTIALS IN THE ANALYZED GROUPS OF RECOMMENDATIONS

TYPE OF REPORT	MEDIAN	STANDARD DEVIATION OF GROWTH POTENTIAL
buy	20,46%	13,17%
accumulate	11,76%	7,61%
neutral	3,24%	6,83%
reduce	-9,74%	5,13%
Sell	-14,29%	9,60%

Distribution of rates of return relative to the number of reports in a specific group is also illustrated in Fig. 1

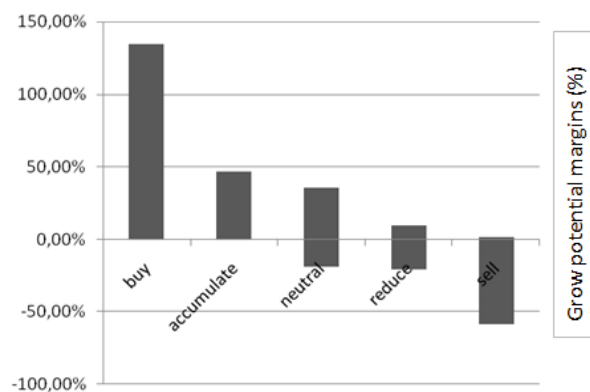


Fig. 1. The span of growth potentials in various groups of recommendations.

Despite the occurrence of the group of observations, in which the content of the report is to a great extent not commensurate to the potential price increase, it may be concluded that most of the neutral reports are mathematically justified, since the standard deviation for this group is 6.83%, which is in convergence with the standard deviation of WIG20 in the analyzed period, which is 6.38%.

It is worth noting that the number of neutral reports is very large compared to the whole analyzed population. For some of them, in which the target price is not significantly different from the price at the date of issuance, this type is valid, but there is a group of reports with a very large dispersion of this potential, which was after all not assigned to other types, as the valuations would suggest. The reason for this situation is the existence of other reports related to the companies, which were published shortly before the publication of new, non-typical reports, and which showed very ambiguously the direction of price changes. Apparently the analysts finally were reluctant to issue recommendations much different from the others and despite the conducted valuation; they decided to adapt the content of their reports to other reports. The contradictions in other groups of reports, in which the growth potential is not commensurate with the issued recommendation, can be explained in a similar way.

Another issue is the evaluation of the structure of reports in the context of the economic situation of Poland in the analyzed period. The economic conditions expressed by a number of previously suggested indicators are shown in Fig. 2 – Fig. 4. The years 2007 and 2008 were very difficult for the Polish economy. Decline in GDP, collapse of industrial production and very weak indicators of the economic climate and of the mood of consumers. Difficult situation throughout the continent very negatively affected the investment climate. According to the proposed measures, the end of 2008 was

characterized by a kind of double bottom, followed by a slight recovery, which however, in the end, quickly turned into a long-term horizontal trend of the whole economy. Still prevailing economic uncertainty is not conducive to development and the influx of capital. According to the authors, the economic climate is not conducive to the bull market. Despite this, however, a very large percentage of recommendations indicated growth. The rooted optimism in the assessment of the economic situation and the reluctance to issue negative recommendations caused that in spite of this type of data, 561 out of the analyzed 786 recommendation indicated an increase in the value of the analyzed stocks. This represents over 71% of the sample. It should be noted that, assuming monthly investment horizon, only 255 reports in this group turned out to be right.

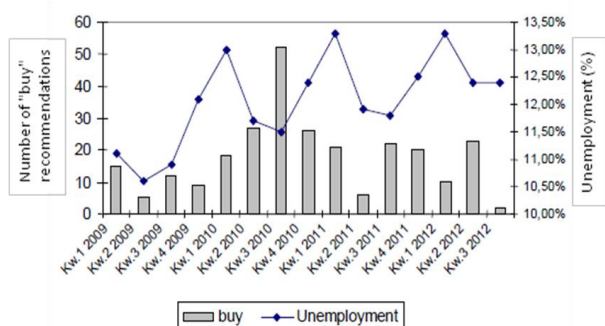


Fig. 2a. Unemployment rate and recommendations "buy".

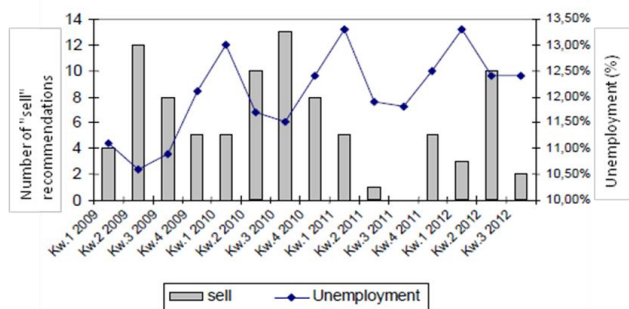


Fig. 2b. Unemployment rate and recommendations "sell".

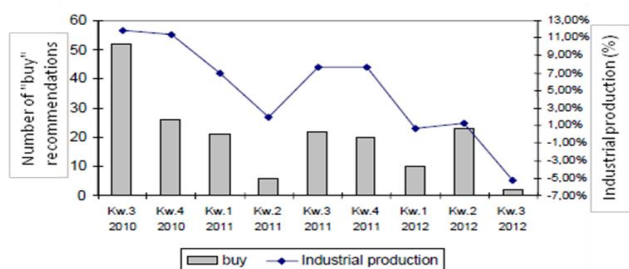


Fig. 3a. Industrial production and recommendations "buy".

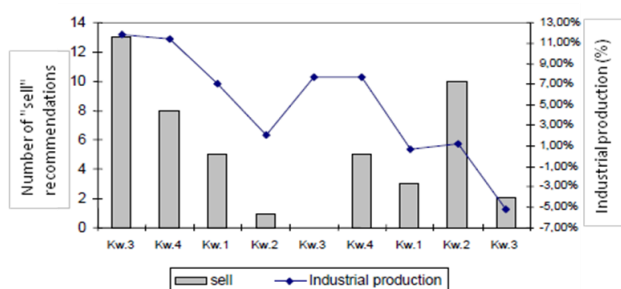


Fig. 3b. Industrial production and recommendations "sell".

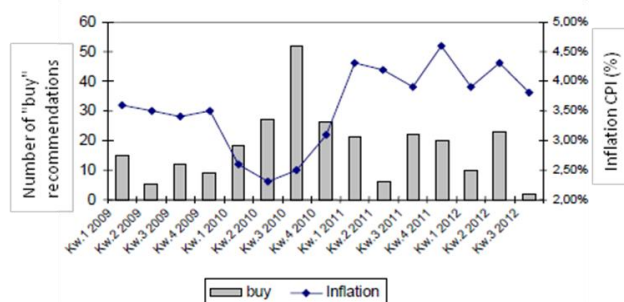


Fig. 4a. Inflation CPI and recommendations "buy".

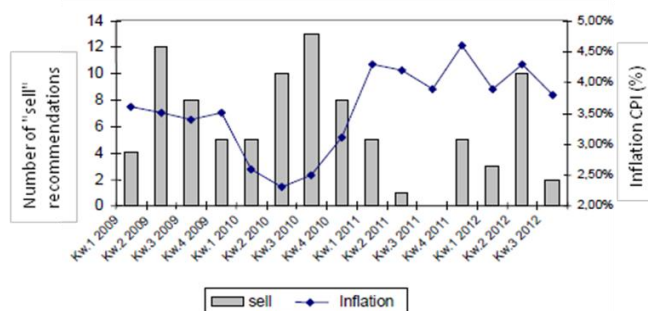


Fig. 4b. Inflation CPI and recommendations "sell".

Optimism is also revealed in the analysis of limits of growth potentials for the whole analyzed sample. It is worth noting that the minimum of expected declines is -58.33%, and the maximum of growths is 133.39%, which is more than twice as much. This is confirmed by the median and standard deviation in groups "buy" and "sell". It can be seen that the median of negative recommendations is closer to 0 in relation to "buy". This in combination with the same number of positive and negative reports and placing the analyzed sample in the actual economic conditions makes the thesis of demonstration of excessive optimism by traders completely justified.

Another interesting issue is the strength of the signals coming from the recommendations. It is understood as a sufficiently large difference between the target price and the price at the date of issuance of the report. In this context, the posed thesis refers to the reluctance to issuing strong recommendations. Brokers tend to be cautious in their evaluation of companies. They avoid issuing reports giving clear, strong signals suggesting several tens percent changes in prices. Especially under conditions of high uncertainty, even if the report shows huge potential price changes, they tend to weaken its strength by placing it in the "accumulate" or "reduce" instead of "buy" or "sell". An interesting confirmation of anchoring of their evaluations to other recommendation is that the time of publication of reports is very specific. Despite the relatively large number of analyzes, they appear in batches. After publication of recommendations by a large brokerage house within in a few days appear other reports, often similar to each other. Most analyzes and reports for companies from the analyzed sample are prepared by three institutions: BRE, ING Securities and KBC Securities. It is their publications which causes the publication of reports by other brokerage houses. The number of reports in the analyzed sample, coming from individual institutions is shown in Fig. 5.

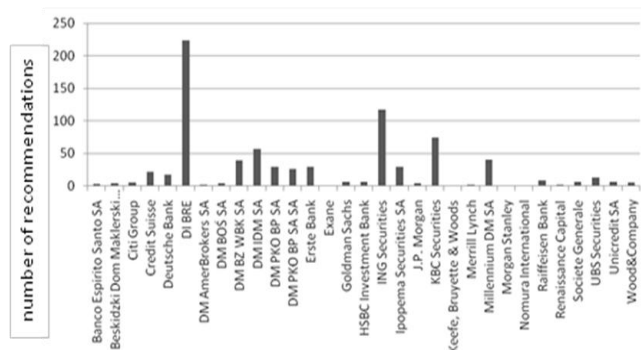


Fig. 5. Number of recommendations issued by individual brokerage houses.

What's more, the trend of changes in signal strength seems to be weakening throughout the analyzed period. Brokerage houses issue weaker and weaker "sale" and "reduce" recommendations along with a downward trend in the group of "buy" reports. It can be also seen that "buy" reports undergo conversion into "accumulate", which is an expression of extreme caution of analysts as the growth rates estimated by them in this group of recommendations are growing with time. That would mean no more than those direct indications for individual companies show their growing potential, but the economic climate is not conducive to issuing a "buy" recommendation. A high issuing frequency and stability of trends is observed in neutral recommendations which, however, do not bring anything significant to the market. Distribution of growth is worth noting that there are distinct periods of increased prevalence of specific groups of recommendations. So the reports which are neutral appear in an increased number virtually over the entire year 2010 and later since the beginning of 2012. Surprising is a very small number of "sale" and "reduction" recommendations in 2011, where many macroeconomic indicators point to slowdown in economic recovery and the transition to a phase of stagnation. It is easy to see that "buy" recommendations appear relatively regularly throughout the study, which also indicates strongly rooted optimism of stock exchange analysts.

V. CONCLUSIONS

The research conducted on a representative sample showed that the lack of strict and unambiguous procedures and methods of valuation of companies listed on the stock exchange by analysts' causes' subjectivism, which leads to the occurrence of the effects described by behavioral theories. In authors' opinion the structure of stock exchange recommendations and the specificity of dates of their publication show that optimism is strongly rooted among all analysts, and that they try to keep relative conformity, avoiding assessments being in opposition to other, which appeared within a short period of time and are related to the same stocks. What is more, the anchoring to the assessments published in other reports cause's specific recommendation anomalies, such as for example neutral recommendations with the growth potential of 35%. Because of such effects an objective interpretation of final results of the analyzes carried out in the course of making the recommendation is much more difficult. It is then necessary to track closely the entire

analytical process, including the initial assumptions, which may virtually require independent elaboration of valuations of individual companies.

The aim of this study was also to present interesting research directions and to draw attention to the problem of subjectivity of capital markets and its causes, arising on the basis of cognitive psychology, which the authors of this paper are planning to develop in future publications.

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