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Stock Exchange Recommendations and Economic Realities

Abstract

The aim of this paper is to present the impact of stock recommendations on the prices in the context of excessive optimism heuristic. The main goal of the conducted analysis is to show that investors on the Warsaw Stock Exchange seem to ignore the economic information that comes with the recommendation report. Also, as the analyzed recommendations are set in the specified economic conditions, authors would like to show that reports are biased with excessive optimism.

The research of the structure of recommendations was issued for the biggest companies of the Polish market listed on the Warsaw Stock Exchange from 2009 to 2012. The investigation showed that the ambiguity of the creation methods of analytical reports and differences in valuation of companies causes subjectivism in analysts' assessments, which leads to heuristic effects. According to the authors, the structure of reports and their specificity shows that excessive optimism is an important factor in creation of stock exchange recommendations.

Key words: stock recommendations, capital market, behavioral finance, Warsaw Stock Exchange, excessive optimism heuristic.

JEL classification: G11, G14, G16, G15

Introduction

The stock exchange recommendations published by brokerage houses are an important part of the capital market. The report of this type is the opinion of the analyst representing financial market institutions, intended to assess the situation of the company in a professional way and to provide customers of these institutions with comprehensive information, allowing gaining advantage over other market participants. Analyst issues recommendation after a detailed assessment of the company, but the implemented methodology makes the recommendation his subjective opinion. At the time of publication on the market, the report is fully opened and accessible for anyone.

The impact of recommendations on the quotations of companies has been the point of interest of researchers since the beginning of the twentieth century. Depending on the market and type of security, the obtained results of research on the impact of recommendations seem to be different. The available studies results show that there are different types of approach to the problem of the recommendations impact. Especially their noticeable effect on prices or lack thereof is observed.

The research problem set by the authors was an attempt to confirm that stock recommendations have an effect on the stock prices. Secondly they would like to show that excessive optimism heuristic is an important element in the process of constructing recommendations by the analysts. Behavioral context of conducted analyses results from the fact that the target prices and the recommendations themselves are determined not only by mathematical calculations. Despite a number of established procedures and schemes used in the valuation process, the calculations are still based on subjective assumptions and judgments. It should also be noted that final results of the forecasts are adjusted by analysts in a subjective way, sometimes based on erroneous assumptions resulting from heuristic. This paper is an attempt to answer the question is there a connection between the publication of the reports and the significant price changes. Second goal is to show that analysts issue recommendations avoiding slightly the negative macroeconomic data. The performed analyses were based on records from the Polish capital market and the empirical data was obtained from the Warsaw Stock Exchange.

Previous studies

First research on the impact of recommendations on price changes was conducted in 1934, when the first paper by Cowles was published, which characterized the effectiveness of this type of analysis in the stock market.

Cowles came to the conclusion that most of recommendations do not provide valuable information which would give an advantage to its holder. In subsequent years recommendations were analyzed multidimensionally, which resulted in a series of studies in which the authors often came to different conclusions. In studies published so far two equally strong trends have been observed that in contradiction to each other confirm and deny the effectiveness of the analysts' reports in supporting the construction of investment strategies.

Other research trends in this area are analyses comparing the impact of recommendations on stock prices depending on the segment to which the assessed company belongs. Another area is the increased effectiveness of positive recommendations. Liu, Smith and Syed [1990] 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 [1995] 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 analyses made by Walker and Hatfield [1996] 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 [1998] showed that positive recommendations result in higher and negative in lower rates of return. The results were compared with market benchmarks, which indicated a significantly higher rate of return in the case of the strategy, in which recommendations were used as a source of fundamental information about companies.

Jaffe and Mahoney [1999] were the first to draw attention to the problem of the cost of obtaining a recommendation as a factor diminishing the benefits. According to them, if these costs are taken into account, investors do not achieve additional gains from recommendations. Juergens [1999] 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 conducted research on 3679 recommendations for the IT and related sectors and analyzed recommendations and information coming directly from the companies. Ho and Harris [2000] in their analyses showed that investors who use recommendations treat them only as a basis for further analyses and confirm them additionally using their own, individually se-

lected economic measures. Their trust in the accuracy of recommendations is limited. Aitken [2000] 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 construction industry on the day of publication. Barber and his research team [2001] analyzed the NYSE. They found out that short-term strategies based on the recommendations provide profits to investors, although their profitability may be severely limited by the cost of frequent transactions.

Azzi [2005] analyzed the distortions of prices of financial instruments caused by recommendations made by 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 negative in the upward market; it has lower impact on the stock price. If it is positive in the downward market, the situation is similar. Fang and Yasuda [2005] in their research demonstrated the usefulness of recommendations and substantially higher profitability of investments, which are carried out on the basis of recommendations. The research conducted by Chang and Chan [2008] 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. Loh and Stulz [2009] observed over-average change of prices after the announcement of recommendations, particularly in the case of companies being in the media spotlight. Their research proves that about $\frac{1}{4}$ of recommendations has no impact on the quotations while the impact of about 10% of them is very large.

The presented research results show the interest of researchers for recommendations. These reports are analyzed multidimensionally and their impact is examined in different contexts. This paper is an additional voice in the debate, which should provide the data and arguments confirming subjectivism of analysts responsible for preparing recommendations.

Research methodology

The research presented in this paper was based on a sample of 786 stock exchange recommendations published between 2009 and 2012. They are related to the largest companies quoted on the Warsaw Stock Exchange, which belong to the WIG20 index, as of May 2012. They were issued by 31 both Polish and foreign brokerage houses. It is worth mentioning that all recommendations are available free of charge, and thus can be used by any investor interested in their content.

The reports in the sample were grouped according to various criteria which allowed the structural analysis of the content of the publication, the segment of companies and institutions publishing the reports.

The research was divided into several key steps:

1. The first step was to describe the analyzed sample. Authors used a several statistical measures to make the analyzed group as a whole and its subgroups more clear in its structure. The used measures will help in inference about the context of the published reports. The authors expect that describing the types, target prices and dates in the context of macroeconomic data will help to prove that the excessive optimism is deeply rooted in the recommendation preparation process.

Due to the different terminology used by various brokerage houses, the contents of reports were unified, so that in the final form five main groups of reports 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:

$$P_w = \frac{Cd - Cz}{Cz} \times 100\%$$

Where:

P_w – growth potential

Cd – target price

Cz – closing price on the day of publication

In a situation when the report appeared on the day on which there was no trading session, the closing price from the closest possible day before the appearance of the report is used for calculations.

2. The second step was focused on assessing the 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) and industrial production (y/y). This was aimed to show the general macroeconomic context of the report publication.
3. Finally, authors tried to find if there is a connection between the recommendation publication and the price change after it. In this term, two investment horizons were taken into consideration: 5 days after the publication and 30 days after it. Authors claim that if there is any

reaction for the report, it is noticed in a short time after its release. We should also consider the fact that the information doesn't spread immediately so we can't take into account time horizons like few hours after publication or even one day.

In the assumed investing horizons, authors have checked the correlation between the growth potential and the price change.

There are a lot of factors that have an effect on the price change and because of that, it is very difficult to measure the price change that is associated only to the stock recommendation. Authors would like to assess if there is abnormal movement connected with the publication and that is why, the price movement should be cleared out of normal distortions. To achieve that, authors decided to reduce all the price changes of the standard deviation in the considered horizon. The action taken is of course imperfect, but it should filter the strong signals that can be considered as connected with the publication of the report. The surplus over the standard deviation will be assessed in the described way in the following research. Authors hope, that the econometric estimations will prove that there is a significant link between reports and the price change.

Research results

In the first step it is necessary to look at the basic grouping of recommendation reports, which was made in the research. After the harmonization of types of recommendations, they were divided, first in a simple way, taking into account only the type of report and then more precisely, including additionally the publishing institution and the company the report is related to. The simplified division is shown in Table 1 below and detailed one in tables 2 and 3 in the Annex.

Table 1. Number of reports divided by type

	accumulate	buy	neutral	reduce	sell	Sum
Number of publications	97	268	268	62	91	786

Source: own elaboration

It is not difficult to notice that a significant part of the analyzed recommendations are the reports having positive expression. There are 365 positive reports, that is “accumulate” and “buy”, representing more than 46% of the sample, while the number of negative ones, that is, “reduce” and “sell”, is 153, or just over 19%. This means that there are twice as many positive recommendations as negative ones. This tendency was observed by researchers dealing with this issue in other markets worldwide. It is worth noting that the neutral analyses represent more than 34% of the total. So it is necessary to investigate what is the reason for such a big group of ambiguous analyses. Analyzing a simple information coming from such structure of reports it could be assumed that 268 of 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, worth looking at the range of prices for different types of recommendations that is the minimum and maximum price that determined issuing a specific type of report. For the analyzed sample they are presented in Table 4.

Table 4. 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%

Source: own elaboration.

It is easy to see that the growth potential limit values at which the recommendations of the specific type were issued are very ambiguous and in extreme situations can be inconsistent with reports coming from other institutions. First of all, a big difference in assignment the type of recommendation to the estimated target price between individual analysts and brokerage houses 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. Interesting 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 rec-

ommendation “buy”, which suggests an extreme methodological dissonance between different analysts preparing reports. For these reasons, suggesting oneself by the final content of the report, formulated in a final statement, virtually eliminates its usefulness for the objective assessment of the analyzed company. Of particular interest seems to be the group of neutral recommendations, which span of growth potential contradicts the assumption that the predicted stock price change is low. The span in this group is nearly 54%, and the minimum and maximum values very clearly exceed the thresholds for recommendations “reduce” and “accumulate”. In this context the medians and standard deviations observed in each group of recommendations should be analyzed (Table 5).

Table 5. The medians and standard deviations of growth potentials for the analyzed groups of recommendations.

TYPE OF REPORT	MEDIAN OF GROWTH POTENTIAL	STAND. DEV. 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%

Source: own elaboration.

Gathering the information above it is worth to assess it in the context of the macroeconomical environment. First of all it should be noted that the period of time considered in the research is very interesting due to the changing of the long term trends in the Polish and global economy. The situation between 2009 and 2012 showed a deep decrease in the market and also the opposite Stock trends in years 2011/2012, but the macro data seem that time was not promising. Below, diagrams show the main economic figures in the context of the occurring stock recommendations:

Figure 1. Unemployment rate and recommendations “buy”

Source: own elaboration.

Figure 2. Unemployment rate and recommendations “sell”

Source: own elaboration.

Figure 3. Industrial production and recommendations “buy”

Source: own elaboration.

Figure 4. Industrial production and recommendations “sell”

Source: own elaboration.

Figure 5. Inflation CPI and recommendations “buy”

Source: own elaboration.

Figure 6. Inflation CPI and recommendations “sell”

Source: own elaboration.

As can be seen on the mentioned graphs, the economical indicators used in the analysis describe Polish economy trends as horizontal and decreasing what should be a premise for more prudent recommendations. Despite that, it can be noticed that number of “buy” reports remained at the equal level in the most of the time considered. Also, the dispersion of the publication of the two main recommendations that can generate investment signal: sell and buy. The graphs 7 and 8 show how they were spread in the analyzed period (graphs for the other recommendation types are included in appendixes). Each dot represents one publication of the report. What can be easily seen is that “buy” reports significantly outweigh “sell”. Also, despite the main macroeconomic indicators, “buy” recommendations occur constantly. The economic conditions expressed by a number of previously suggested indicators are shown in Figures 1–6. The years 2007 and 2008 were very difficult for the Polish economy. In this period a decline in GDP dynamics, collapse of industrial production and very weak indicators of the economic climate and of the mood of consumers could be observed. Difficult situation throughout Europe 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. Political and economic uncertainty did not create good conditions for growth and capital inflows. According to the authors in this time the general economic conditions were not conducive to the bull market. However, despite the pervasive, negative macroeconomic signals, many recommendations at this time pointed to growth. Optimism, deeply rooted in the assessment of the economic situation and the reluctance to issue negative recommendations causes that despite weak market data, 561 out of 786 recommendations indicate an increase in the value of analyzed stock. This represents over 71% of the analyzed sample. It should be noted that, assuming monthly investment horizon, only 255 reports in this group turned out to be right.

The reluctance to issue negative recommendations is also visible when the thresholds of growth potentials for the analyzed recommendations are taken into account. It is worth noting that the reported minimum expected decline is -58.33% and the maximum growth is up 133.39%, which is more than twice as much. Confirmation of positive trends in assessments are also medians and standard deviations in the subgroups „buy” and „sell”. The median of growth potentials for negative recommendations is closer to 0 compared to that in a subgroup „buy”. Taking into account the number of negative and positive recommendations and locating the analyzed sample in actual economic conditions, the hypothesis of excessive optimism showed by brokers is likely to be confirmed.

Figure 7. Growth potentials of recommendations „sell”

Source: own elaboration.

Figure 8. Growth potentials of recommendations „buy”

Source: own elaboration.

In most recommendations the content of the report is consistent with the price growth potential with respect to the signal generated for investors, but in a certain group of reports this relationship is disrupted. Moreover, in the group of neutral reports, most of them are justified mathematically in the context of the target price as its standard deviation is 6.83%, which is consistent with the standard deviation of WIG 20 in the analyzed period, which is 6.38%.

It is worth noting that the number of neutral reports is very large compared to the entire sample. In many of them the target price estimated by the analyst is not significantly different from the price on the date of publication, so this type is justified, but there is a group of reports with a very large dispersion of this potential, which however have not been assigned to other groups as the pricing would indicate. The authors believe that the reason for

this is existence of other reports for the companies, that appeared around the same time and showed very ambiguously the direction of price change, or were divergent from each other. It is likely that the analysts fear the discomfort associated with issuing a recommendation much different from the others in the case where it would appear that their assessment has proved to be wrong. Therefore, although the assessment was prepared, they decided to finally distort the content of their reports, bringing it closer to other reports. In a similar way one can explain the divergence in other subgroups of reports in which the growth potential is ambiguous in relation to the issued recommendation.

It is worth noting that the changes in the strength of the signals seem to be weakening from year to year throughout the analyzed period. Brokerage houses issue recommendations with more and more blurred “sell” and “reduce” signals along with a downward trend in the group of “buy” reports. In addition, “buy” reports tend to turn to “accumulate”, which is a sign of extreme caution presented by analysts as the growth rates estimated by them in this group of recommendations are growing with time. It would mean that direct indications for individual companies show their growing potential, but the economic climate is not conducive to issuing “buy” recommendations.

A high issuing frequency and stability of trends is observed in neutral recommendations which, however, do not bring anything significant to the market. It 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 pointed 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 a strong optimism rooted among the stock market analysts.

Finally the authors tried to describe the relation between the price change and the recommendation with usage of the econometric modeling. As described before, to make the data more clear, the figures are represented with; the surplus above the standard deviation in the price change and the growth potential resulting from the recommendation. It should be noted here that all the recommendations reports that assumed growth potential lower than the standard deviation for a month interval for the market were taken out of the research sample. That would filter the insignificant reports for the decision

making. Also they decided to divide the made estimations to two groups after filtering the weak signals. Authors would like to find in the first place if there is a general connection between the report publication and the price change after it. They are also aware that large number of the published analysis can distort the signals coming from each one, so after modeling the on the whole group, researchers decided to make an additional estimations only for situations when the price has actually changed after the recommendation in a way that the report is suggesting. Consideration of the proper reports separately would help to answer the question if the price movement can be associated with the recommendation with the additional assumption that in cases of the discrepancy between the report and actual price change occurred, other important economical information was published, that was contrarian to the report and more important to the investors.

After adding the filter for the weak recommendations, a group of them has been excluded from the database. According to the five days horizon, 13,74% of the reports were removed and 678 reports were taken into final consideration and in the one month perspective more than 26% of reports were precluded and the estimation was made on a sample of 579 records. Below there are the result of the calculations made for both investment horizons.

Whole Sample

Horizon T+5 days:

The dependent variable: price T+5 change surplus

	<i>Factor</i>	<i>Stand. Dev.</i>	<i>t-Student</i>	<i>p-value</i>
const	0,0027	0,0033	0,802	0,423
Growth potential	0,03367	0,0109	3,089	0,002

The arithmetic mean of the dependent variable = 0,0058

The standard deviation of the dependent variable = 0,0894

The sum of squared residuals = 5,3856

Standard error of residuals = 0,0893

$R^2 = 0,0043$

corrected $R^2 = 0,0028$

Horizon T+30 days:

The dependent variable: price T+5 change surplus

	<i>Factor</i>	<i>Stand. Dev.</i>	<i>t-Student</i>	<i>p-value</i>
const	0,0016	0,0041	0,386	0,699
Growth potential	0,0696	0,0297	2,346	0,019

The arithmetic mean of the dependent variable = 0,0091

The standard deviation of the dependent variable = 0,0765

The sum of squared residuals = 3,2923

Standard error of residuals = 0,0755

 $R^2 = 0,0278$ corrected $R^2 = 0,0261$ ***Only correct recommendations sample***Horizon T+5 days:

The dependent variable: price T+5 change surplus

	<i>Factor</i>	<i>Stand. Dev.</i>	<i>t-Student</i>	<i>p-value</i>
const	0,00424	0,0064	0,661	0,509
Growth potential	0,06331	0,0310	2,039	0,042

The arithmetic mean of the dependent variable = 0,0108

The standard deviation of the dependent variable = 0,1078

The sum of squared residuals = 4,2737

Standard error of residuals = 0,1073

 $R^2 = 0,0110$ corrected $R^2 = 0,0084$ Horizon T+30 days:

The dependent variable: price T+5 change surplus

	<i>Factor</i>	<i>Stand. Dev.</i>	<i>t-Student</i>	<i>p-value</i>
const	-0,0044	0,0049	-0,893	0,373
Growth potential	0,1300	0,0365	3,554	0,0004

The arithmetic mean of the dependent variable = 0,0109

The standard deviation of the dependent variable = 0,0694

The sum of squared residuals = 1,4208

Standard error of residuals = 0,0649

 $R^2 = 0,1278$ corrected $R^2 = 0,1252$

The prepared estimations shows that there is a significant connection between the growth potential and the actual price movement after the publication of the recommendation report. Nevertheless, the further testing of the models above showed some very important statistical problems of the calculations. The most important is the fact that the model residuals are not homoscedastic and what comes with it, the estimator is convicted with big mistakes in conclusions. This problem occurs in every model, with whole sample and with only correct reports. Also, the R^2 in the proposed models shows that the proposed set of variables describes the dependent variable in very low percent. This arguments pushed authors to the statement that the relation observed is inconclusive and that is why we should not understand it as a prove for the initially claimed hypothesis.

The simple measure of correlation that was also implemented in the research affirms the upper conclusion. Table 6 contains the values for all the subgroups assessed.

Table 6. The correlation between the potential growth and the price change surplus.

Subgroup	Correlation	p-value
T+5 whole sample	0,0627	0,2493
T+5 only correct reports	0,0944	0,2100
T+30 whole sample	0,2510	0,0000
T+30 only correct reports	0,4868	0,0000

Source: own elaboration.

The correlation observed in T+5 horizon should be not taken into account due to the p-value calculated. The horizon of one month brings more interesting conclusions because of the relatively high correlation that shows a link between the assessed factors. It should be noted here that there is a higher risk of including other factors except the recommendations in discounting the price change, when we take into consideration the whole month period, but with the proposed methodology we should state that there is a noticeable and significant connection between the publication of the report ant the price change in a month period after it that can be assigned to the recommendation appearance.

Summary and final conclusions

The analyses carried out on a sample consisting of recommendation reports for the WIG 20 companies confirmed the hypothesis posed by the authors, suggesting the existence of behavioral effects in the process of creating these reports, such as excessive optimism and anchoring effect. These considerations show how the ambiguity of the procedures and methods of the valuation of the companies cause subjectivity of assessments and lead to heuristic effects. The authors are of the opinion that the structure of recommendations, their construction and the specific date of publication indicate that analysts in their judgments are trying to keep relative conformity, avoiding the assessments opposite to those which were already published for the same types of securities. Additionally the anchoring to the assessments expressed in other reports is causing the recommendation anomalies, such as for example neutral recommendations with a growth potential of 35%. The existence of these effects significantly impedes an objective interpretation of final results of analyses carried out in the course of making the recommendation. It is then necessary to track closely the entire analytical process, including the initial assumptions, which may require making new, independent valuation of the company.

Moreover, the second hypothesis about the effect caused by the recommendation publication on the shares price change was not unequivocally proved. Simple statistical measures shows that a link between the assessed figures is noticeable but the econometric modeling and testing uncovered that the estimated relation can be misleading. Authors state that the observed outcome does not result with the conclusion that the recommendations do not affect the prices, but their relation to them is more complicated and incorporated into the large stream of information that is affecting prices, which leads to the problems with extracting only the influence of the reports on the stock prices.

The conducted research also aims to identify interesting research directions and to draw attention to the problem of heuristic, which is distorting analytical processes and to subjectivism of capital markets, as well as its causes arising in psychology, which the writers are planning to explore in subsequent publications.

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ATTACHMENTS

Table 2. Number of reports by type and publishing organization.

Type of recommendation	accumulate	buy	neutral	reduce	sell	Sum
Banco Espirito Santo SA		2			1	3
Beskidzki Dom Maklerski SA	3	1				4
Citi Group		1	4			5
Credit Suisse	9		8	5		22
Deutsche Bank		9	6		2	17
DI BRE	51	61	74	30	8	224
DM AmerBrokers SA		1	1			2
DM BOŚ SA	1	2	1			4
DM BZ WBK SA		19	12		8	39
DM IDM SA		13	34		10	57
DM PKO BP SA	5	8	2	9	5	29
DM PKO BP SA SA	1	12	5	4	4	26
Erste Bank	8	3	13	3	2	29
Exane				1		1
Goldman Sachs		1	5		1	7

HSBC Investment Bank	2		3	1		6
ING Securities		55	34		28	117
Ipopema Securities SA		12	11		6	29
J.P. Morgan	4					4
KBC Securities		38	23		14	75
Keefe, Bruyette & Woods			1			1
Merrill Lynch		2				2
Millennium DM SA	13	5	13	9		40
Morgan Stanley			1			1
Nomura International			1			1
Raiffeisen Bank		7	2			9
Renaissance Capital		1	1			2
Societe Generale		2	3		1	6
UBS Securities		8	5			13
Unicredit SA		2	4			6
Wood&Company		3	1		1	5
Sum total	97	268	268	62	91	786

Source: own elaboration.

Table 3. Number of reports by type and the company they relate to, part 1

Companies	ACP	BHW	BRE	BRS	GTC	KER	KGH	LTS	LWB
Banco Espirito Santo SA									
Beskidzki Dom Maklerski SA							2		2
Citi Group			1				1		
Credit Suisse		1	3				2		1
Deutsche Bank		1			1	2	3		2
DI BRE	6	18		6	12	10	13	18	17
DM AmerBrokers SA									1
DM BOŚ SA									
DM BZ WBK SA	3	2	2	1			2	1	6
DM IDM SA	4	4	5		2		4	5	1
DM PKO BP SA		1	1				3	4	3
DM PKO BP SA SA		2	2				2	2	2
Erste Bank	1		1		4	2	3	1	
Exane									
Goldman Sachs							1		
HSBC Investment Bank							1		
ING Securities	7	11	12		3	5	11	5	2
Ipopema Securities SA	3	1	3			1	4	1	1

Table 4. Number of reports by type and the company they relate to, part 2

Companies	PEO	PGE	PGN	PKN	PKO	PZU	SNS	TPE	TPS	TVN
Banco Espirito Santo SA		1	1					1		
Beskidzki Dom Maklerski SA										
Citi Group	1		1		1					
Credit Suisse	4	3	1		4	1		1		1
Deutsche Bank	1	2		1				1	3	
DI BRE	21	10	18	13	20	6		4	12	20
DM AmerBrokers SA										1
DM BOŚ SA		1					2	1		
DM BZ WBK SA	3	1	4	2	3		3	1	5	
DM IDM SA	4	1	2	3	4		4		5	9
DM PKO BP SA	1		6	4			1		4	1
DM PKO BP SA SA	2	2	4	3		1	1	2	1	
Erste Bank	1	1		1	1	4	4		4	1
Exane		1								
Goldman Sachs		1	1	2	1	1				
HSBC Investment Bank	1				1				3	

ING Securities	9	4	7	7	12	3	6	3	5	5
Ipopema Securities SA	1	1	2	1	2	1	2	1	2	2
J.P. Morgan					1	2				
KBC Securities	6	2	7	6	6	1			5	8
Keefe, Bruyette & Woods					1					
Merrill Lynch										1
Millennium DM SA	4	1	1	4	3	2	1	2	5	1
Morgan Stanley						1				
Nomura International										1
Raiffeisen Bank		1		3				2	1	
Renaissance Capital		1						1		
Societe Generale	1			1		1				
UBS Securities	3				1	4		1		
Unicredit SA						1			1	1
Wood&Company										1
Sum total	63	34	55	51	61	29	24	21	56	53

Source: own elaboration.

Figure 9. Growth potentials of recommendations „reduce”

Source: own elaboration.

Figure 10. Growth potentials of recommendations „neutral”

Source: own elaboration

Figure 11. Growth potentials of recommendations „acumulate”

Source: own elaboration.