

ANALÝZA VÝVOJA TRHU S CENNÝMI PAPIERMI V POĽSKU PRIZMOU VYBRANÝCH FAKTOROV

ANALYSIS OF STOCK MARKET DEVELOPMENT IN POLAND THROUGH THE PRISM OF SELECTED FACTORS

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Abstract

The direction and strength of the development of the capital market (stock exchange) depends on many factors, including: market capitalization (stock markets, sectors, companies), market liquidity, the level of stock market indices and sector, trading volume, the number of domestic and foreign companies (including number of new listings on the market). State of knowledge of factors can affect the level of interest in the market, and hence the desire to invest in it. The main goal of the paper is analysis of stock market development in Poland in sectorial approach. The analysis was carried out in time and space with the use of selected (simple) statistical methods. It allows one to observe how the respective factors develop in time and how it is connected with determining the state of the market in Poland. Moreover, the analysis of interrelations between selected factors of the state of the market and selected measures of company value will make it possible to answer whether such interrelations actually occur and what is their impact on given information use for practical investing. The analysis cover the period from 2005 to 2015.

Key words: *analysis of market structures, number of companies, capitalization, stock exchange development, sector analysis, factors of stock exchange development*

1. Introduction

Role and significance of investments within various areas, in diversified forms and by means of different procedures (methods) has increased along with the development of markets and civilization. Development of the capital market, in particular the stock exchange market, is a consequence of the development of markets and economy. Stock exchange is a formalized form of this market and the place where, to a largest extent, the investment process takes place. Social and economic development is not possible without investments, while activities at the stock exchange market (including investors) prove maturity and strength of the market economy. Influence of the capital market development on economy as well as perception and evaluation of the development level of Polish capital market in comparison to the European Union is adequately presented in, among others:¹ *Strategia rozwoju rynku kapitałowego "Agenda Warsaw City 2010"* or *Polski rynek kapitałowy w rok po przystąpieniu do Unii Europejskiej*, Rozłucki, Kachniewski at al., Kucharek.

The principal aim of the article is analysis of the stock exchange market development in Poland divided into sectors in the period 2005 – 2015. The sector analysis may be an element supporting evaluation of the stock exchange development, which is used for verification of the

¹ *Strategia rozwoju rynku kapitałowego "Agenda Warsaw City 2010"*, Ministerstwo Finansów, kwiecień 2004, Rozłucki W., *Przyszłość Warszawskiej Giełdy Papierów Wartościowych*, Zeszyty BRE Bank-CASE 64, Kachniewski M, Orłowski W i in.: *Giełda a rozwój*, FOR, PricewaterhouseCooper, SEG, Warszawa2008, p. 19-36, Kucharek D.: *Wpływ prywatyzacji na rozwój giełd papierów wartościowych w Europie Centralnej*. [w:] *Nierówności społeczne a wzrost gospodarczy. Spójność społeczno-ekonomiczna a modernizacja gospodarki*, Woźniak M. G. (red.), Wydawnictwo Uniwersytetu Rzeszowskiego. Zeszyt 17. Rzeszów 2010, s. 347-357

capital market maturity. The analysis involved selected development factors and simple statistical tools to discover structure and dynamics of the stock exchange changes on a sectoral basis. Due to this it was possible to present, in a synthetic manner, a picture of the Polish stock market. The analysis of changes in development factors over time and their comparison to past periods may constitute a basis for the evaluation of the market changes direction, including preparation of strategy for the market development. Analyses of this type are also important from the point of view of other activities executed within the scope of stock market, e.g. investment activities. It is also possible to refer to guidelines included in the already existing capital market development strategies elaborated by the Ministry of Finance or in the strategies that are currently being developed².

2. Stock Market Development Factors

- Considering complexity of the investment process, the investor shall be aware of the fact which type of market they are dealing with:
- whether it is a stable market, characterized by low risk level and possibility to apply specialized investment tools³,
- whether it is a developing market, and if so: at the stable or unstable level of development, which relates to market evaluation and influences investment risk level; is there the possibility to apply specialized investment tools,
- what groups of the investment methods may be used and which of them would be the best for the investor taking into consideration the risk, existing financial instruments or listed entities.

The direction and strength of the development of the capital market (stock exchange) depends on many factors including: market capitalization (stock markets, sectors, companies), market liquidity, the level of stock market indices and sector, trading volume, the number of domestic and foreign companies (including number of new listings on the market). Additionally, it should be remembered that the development of the capital market is also influenced by the binding legal rules governing functioning of the capital market as well as by the stock exchange trading rules⁴. Identification of those factors and being aware of them may contribute to an investment success of institutional and individual investors. Additionally, state of knowledge of factors can affect the level of interest in the market, and hence the desire to invest in it. Naturally, in order to undertake the decision about participation on the respective market, other detailed analyses are conducted. These are analyses related to the instruments that the investor shall invest in, time of investment, investment methods, etc. It is also important to get acknowledged with the companies' value measures: book value, market and profit indicators. It should also be noticed that those elements constitute basis for analyses performed in relation to the markets during the world markets development process and the following globalization of the market processes.

In this perspective we can enumerate groups of the stock market development direction measures:

- market measures, that is all those factors which develop directly within the framework of the stock market game: stock exchange indexes, capitalization, shares

² <http://www.msp.gov.pl/pl/media/aktualnosci/27648,Strategia-dla-ryнку-kapitałowego-debata-PAP.html> ;, (...) *Council of Financial Market Development has undertaken to draw up a strategy of the capital market development. The Council includes representatives of Ministry of State Treasury, Ministry of Finance and broad market representation (...)*

³ „Specialized investment tools” shall mean a possibility to apply methods of technical , fundamental, portfolio analysis, risk diversification , financial engineering.

⁴ This issue is interestingly presented by e.g. Gruszczyńska-Broźbar E.: *Instytucjonalne uwarunkowania rozwoju rynku kapitałowego w Polsce* w: Ład instytucjonalny w gospodarce red. B. Polzakiewicz, J. Boehlke, *Ekonomia i Prawo* t.2, s.319-338 UMK Toruń : 2006

liquidity on the market, market price of the financial instruments, share trading measures (trading volumes, trading value),

- factors generated by the listed companies within the time frame of conducted business activity. This group corresponds directly to fundamental factors: economic and financial indicators, profit, internal value, etc.
- factors connecting information from the fundamental analysis with information from the market - mixed factors, related to market indicators: P/E, P/BV or earnings per share.

Combination of those elements enables investors and market analysts to perform effective analysis and diagnosis process. It is also connected with specification of the investment attractiveness and the investment techniques/methods. Taking into consideration complexity of the stock market, the analysis of its status and the development direction can be conducted:

- at various degrees of aggregation – general research (for the market as a whole, for individual sectors) and detailed research for companies;
- applying various methods of analysis – within this scope it is possible to use quantity tools to study statistical accuracy of: structure, dynamics and fluctuations, interdependences in time and space. Quantification of the issue increases quality and transparency of conducted analysis⁵.

3. Empirical study

An analysis enabling recognition of the status and sectoral development direction was conducted in relation to the Warsaw Stock Exchange. Two types of measures were applied in the research: capitalization in mln PLN and number of companies. The analysis covered the period from 2005 to 2015 (data as of the end of the year). Simple statistical methods were applied in the analysis⁶, which enabled visualization of structure and dynamics of the stock market sectoral changes.

Table 1 presents information of number of companies within the macro-sectors and type of the company in the period 2005 – 2015. During analysis of the data it can be noticed that within the examined period number of companies in the sectors had increased. The same situation takes place depends on types of the companies (domestic or foreign). It is very positive information that proves market development and maturity of the companies, which were newly listed on the stock exchange. This maturity shall be considered as fulfillment of conditions for entering the stock exchange by the economic entities. Comparison of individual macro-sectors shows that the financial macro-sector had increased most dynamically – on average, number of companies within this sector had been increasing annually by 20,8%. Within the industrial and services macro-sectors the annual pace of changes had been respectively 5,6% and 8,9%. Average annual increase for domestic and foreign companies in the same period of time had been respectively 8,9% and 25,4%. Changes in the number of companies observed in time on the basis of chain increments is presented in Table 2 and shows when during the examined period 2005-2015 there were significant changes in the number of stock exchange companies. In case of the financial macro-sector, the highest increment occurred in 2007 in comparison to the values from 2006 (215%). However, in 2008 number of companies decreased by 2% while in 2009 the number remained unchanged. In general, number of companies measured by means of chain increments in the remaining macro-sectors was characterized by a similar tendency. In

⁵ Application of proper type of quantitative tools depends on category and type of statistical data as well as the scope of conducted research.

⁶ By purpose, simple statistical tools of structure and dynamics analysis, in particular structure indexes, simple indexes or growths were applied. There were also used graphical presentation technics of statistical material. Thanks to statistical tools, it was possible to carry out sectoral analysis of the stock market in a synthetic and easy manner.

all macro-sectors decrease in number of companies could be connected with the financial crisis, which took place in 2007 and which symptoms were also noticed on the Polish market. Additionally, changes dynamics could be divided into two periods: prior to and after initiation of the financial crisis. In first years, the financial crisis had withheld development of the market, if we consider number of companies, although this shall not be treated as a negative phenomenon. In retrospect, an increase in the number of companies can be observed, although not a rapid one.

When analyzing number of listed companies, it is worth analyzing them taking into consideration structure of their share on the market. (Information presented in Table 3 and Drawing 2). The largest share on the market has the industrial macro-sector, which in the period 2005-2015 reached the level of 46%. In case of financial and services sectors, share in the number of companies remained at the level of respectively 17% and 37%. It can be observed that the financial macro-sector constitutes the smallest part of the market when considering number of companies, however, within the examined period it was characterized by higher dynamics in comparison to other macro-sectors. This situation confirms the development of the financial macro-sector. It is difficult to explicitly define, whether such structure of the number of companies is good or not. It is too general information and shall be combined with other factors. Nevertheless, taking into account number of companies in the macro-sectors, the market shall be diversified. On the other hand, change of the market structure resulting from increase in the number of companies within the financial macro-sector is clearly visible. It is a positive situation and confirms stock market development and increase of its maturity. Financial macro-sector is quite specific macro-sector, which covers companies running financial activities and services. In principle, those types of entities may emerge and develop on mature markets.

Another measure for evaluation of the market is capitalization. Observation of capitalization in time - both considering the division into macro-sectors and in reference to the whole market shall enable answering the question how has the value of macro-sectors been changing on the market. Those changes are consequences of changes within the scope of capitalization of companies included in the macro-sectors (and as a result in the market). Table 4 present capitalization according to macro-sectors within the examined period. Analysis of the data included in Table 5 and Drawing 3 show that, independent from the level of aggregation, capitalization can be divided into periods of strong increase in the years 2005-2007, rapid decrease in 2008 and another increase from 2008, which - including the decrease in 2010 - has maintained until 2015. The clearest changes are visible in the financial macro-sector. Moreover, level of capitalization within this macro-sector constitutes significant share in the capitalization of the whole market. It is worth noticing how the capitalization was distributed in relation to number of companies in the analyzed macro-sectors (information can be obtained from Table 5 and Table 1). Such analysis objectivizes the picture of the sector development level. In the situation when small number of companies "works out" large capitalization, it means that - among others - they are characterized by significant effectiveness of operation or are highly valued by the investors. Moreover, the companies characterized by large capitalization are safer in terms of investments and, in principle, have greater liquidity thus are more attractive to the investors. In this respect, financial sector is the most successful due to the fact that the proportion of capitalization to the number of companies is the highest within the whole analyzed period. In other macro-sectors the proportion is at the similar levels. However, large numbers of companies in those macro-sectors results in worse relation, because those companies are lower valued by the investors, are characterized by lower liquidity and are consequently less attractive as the investments. More detailed analysis of the issue of capitalization brings focus to share of the sector capitalization in the capitalization of market and the macro-sectors. Data are respectively presented in tables: 5 and 6. In the first case, we can notice in what way is the capitalization distributed within the individual sectors of the

market or what changes had occurred within the scope of capitalization of the respective sectors. Within the industrial macro-sector, the highest capitalization was noticed in case of the oil&gas industry (average in the period 9.7%) and the raw materials industry (average value in the period 7.9%). Capitalization in the oil&gas sector in the years 2006-2012 was maintained at stable level. Decrease has started after 2012 till 2015. Similarly situation was in the basic materials industry, even though the sector was separated on the market in 2011. Generally speaking, decreases were recorded after 2012 in almost all sectors. The stable level of capitalization is a result of positive evaluation of investors and high effectiveness of the companies within this sector. Nature of the sectors is also of high importance in the process of the capitalization formation. Those sectors are treated as the strategic sectors and all negative information or operations connected with or influencing the sectors may significantly influence the evaluation of the sector by the investors hence also the capitalization process. In case of other sectors, in most examples we can notice decreasing trend of the total share in capitalization and low index level. It is not a favorable situation due to consequences related to the pace of the economy development and evaluation of the sector investment attractiveness, which on the other hand influences development of the stock market. In case of the financial macro-sector, the sector with the dominating share in capitalization of the market is the banking sector (the average share in the examined period was 41.9%). In case of the banking sector, such share in the market capitalization shall be considered significant. It is even more important, if we take under consideration that proportionally the number of banking companies on the market is relatively small. However, index of the share in the market capitalization is characterized by fluctuations - increases and decreases. Such situation may indicate unstable evaluation of the companies by the investors or caution in their evaluation, which may influence market valuation and, as a consequence, level of capitalization. Within the services sector, the highest share in capitalization of the market in the period 2005-2006 showed the telecommunication sector. However, in the remaining years a significant decrease of the market capitalization share index was observed. In the energy sector, the market capitalization share index was at relatively high level (the average of 16.1%), although there were noticed fluctuation within the examined period.

4. Conclusion

Development of the stock exchange market in Poland shall be evaluated positively. Conducted research indicated that its development is proper, which is reflected both by the increase in number of listed companies and by increase of the capitalization.

On the other hand, analysis of the market structure based on research criteria shows disproportions. It is in particular visible in case of general capitalization within macro-sectors, extent of capitalization per number of companies or structure of the sectors capitalization share in the market capitalization. Such situation proves that there is uneven pace of development of the sectors as well as the companies within these sectors. Additionally, in the examined period there is visible an effect of the financial world crisis from 2007. Polish stock market was also influenced by negative changes in that affected world economy. The positive element was the fact that not all sectors were vulnerable to the financial crisis. In fact, taking into consideration type of examined quantities (in particular capitalization), it can be stated that changes within the scope of this phenomena are resulting from positive estimation of the market by the investors. In the same manner shall be considered increase in number of companies. This increase influences development of the market. Naturally, the information on quality of those companies is of high importance, are they strong, e.g. fundamentally, which correlates with stability of the market. Moreover, it has great impact in the context of the market development in time and its evaluation by the existing and potential market players.

Table 1. Structure of the number of companies according to macro-sectors and type on the Warsaw Stock Exchange in the period 2005-2015

Specification	Number of companies										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Industry	122	133	157	171	174	180	193	192	194	199	199
Finance	19	20	63	62	62	72	77	78	93	102	104
Services	80	100	138	138	141	147	150	161	161	170	173
Domestic (total)	221	253	358	371	377	399	420	431	448	471	476
Foreign	7	12	23	25	25	27	39	43	47	51	54
Total	228	265	381	396	402	426	459	474	495	522	530

Source: own elaboration on the base of stock annual reports

Table 2. Changes of the number of companies according to macro-sectors at the Warsaw Stock Exchange in the period 2005-2012

Chain increments in macrosectors	2006/2005	2007/2006	2008/2007	2009/2008	2010/2009	2011/2010	2012 /2011	2013 /2012	2014 /2013	2015 /2014
Industry	9%	18%	9%	2%	3%	7%	0%	1%	3%	0%
Finance	5%	215%	-2%	0%	16%	7%	1%	19%	10%	2%
Services	25%	38%	0%	2%	4%	2%	7%	0%	6%	2%

Source: own own elaboration on the base of stock annual reports

Table 3. Structure of the number of companies according to macro-sectors at the Warsaw Stock Exchange in the period 2005-2015

Specification	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Industry	55%	53%	44%	46%	46%	45%	46%	45%	41%	42%	42%
Finance	9%	8%	18%	17%	16%	18%	18%	18%	21%	22%	22%
Services	36%	40%	39%	37%	37%	37%	36%	37%	36%	36%	36%
Domestic (total)	97%	95%	94%	94%	94%	94%	92%	91%	91%	90%	90%
Foreign	3%	5%	6%	6%	6%	6%	8%	9%	9%	10%	10%

Source: own elaboration own elaboration on the base of stock annual reports

Table 4. Share of capitalization according to sectors at the Warsaw Stock Exchange in the period 2005-2012

Sektor	Share in market capitalization in %										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Industry	30	38	20	22	23	26	28	30	25	15	19
Food	3,4	3,3	1,43	2,09	1,98	2,79	2,91	2,42	2,22	1,21	1,92
Light Industry	0,3	0,3	0,26	0,09	0,07	0,09	0,07	0,08	0,10	0,08	0,10
Wood & Paper	1,8	2,3	0,74	0,57	0,73	0,62	0,56	0,17	0,36	0,29	0,32
Pharmaceutical	x	x	x	0,39	0,47	0,23	0,41	1,42	1,41	0,89	1,28
Plastics materials	x	x	x	0,09	0,10	11,75	0,11	0,12	0,14	0,08	0,10
Oil & Gas	x	10,9	9,14	11,40	10,93	11,0	10,66	11,70	9,16	5,43	7,83
Chemicals	14,2	4,2	1,73	0,62	0,70	1,03	1,68	2,18	2,55	1,56	2,57
Buildings materials	1,2	1,9	0,86	0,79	0,71	0,69	0,43	0,39	0,58	0,25	0,29
Construction	2,9	6,7	1,97	2,64	2,00	2,06	1,17	0,70	0,92	0,61	0,96
Electroengineering	0,7	1,5	1,05	0,79	0,99	0,92	1,01	1,19	1,31	0,73	0,76
Automobiles	x	x	x	0,19	0,24	5,67	0,24	0,27	0,51	0,28	0,53
Metals	5,6	6,7	3,06	2,62	4,36	0,24	1,21	1,15	4,24	0,92	1,04
Basic materials	x	x	x	x	x	x	7,81	7,95	1,13	2,19	1,42
Industry - others	0,1	0,4	0,07	0,01	0,00	0,03	0,02	0,04	0,05	0,03	0,10
Finance	42	43	60	48	49	46	40	44	52	67	64
Banking	41,4	42,7	53,86	44,81	43,86	38,91	33,03	36,55	41,74	58,29	53,72
Insurance	0,7	0,2	0,09	0,23	0,14	2,18	4,43	5,16	4,61	5,53	5,48
Developers	x	x	3,00	2,13	4,04	4,10	1,42	1,48	3,54	2,40	3,15
Capital market	x	x	x	x	x	x	x	x	1,61	0,25	0,26
Finance - others	0,1	0,2	2,63	0,48	0,49	0,80	0,75	0,88	0,31	0,95	1,04
Services	28	19	20	30	28	28	32	26	24	18	17
Retails	2,3	2,8	1,58	1,89	1,64	1,47	2,13	2,97	3,87	2,13	2,40
Wholesale	x	x	1,29	1,13	1,42	2,14	0,92	0,79	1,28	0,74	0,92
IT	2,2	2,3	1,16	1,36	1,30	1,11	1,16	1,14	1,18	0,91	1,23
Telecommunication	11,6	9,0	3,29	6,18	3,50	3,29	3,99	2,54	1,93	1,14	1,09
Media	3,4	2,9	1,57	2,53	1,73	1,90	1,75	1,60	1,85	1,93	1,51
Energy	x	x	10,22	16,06	17,58	16,66	20,43	15,41	11,47	8,97	7,43
Hotels&Restaurant	x	x	0,71	0,62	0,55	0,59	0,60	0,85	0,69	0,50	0,85
Services-others	8,0	1,6	0,26	0,31	0,44	0,60	0,75	0,86	1,65	1,22	1,25
Conglomerates	x	x	x	x	x	x	x	x	x	0,01	0,02
Total	100	100	100	100	100	100	100	100	100	100	100

Source: own elaboration

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