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Financial Internet Quarterly „e-Finanse" 2017, vol.13/ nr 4, s. 110-126

DOI: 10.1515/fiqf-2016-0040

eFinanse
financial internet quarterly

THE INFLUENCE OF THE RECENT FINANCIAL CRISIS ON THE FINANCIAL SITUATION OF POLISH LISTED COMPANIES

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Abstract

The recent financial crisis that began in 2007, also known as the Global Financial Crisis, had a huge influence on the financial situations of enterprises and financial institutions around the world. The situation on world stock markets was also strongly affected by the crisis. As the behavior of investors may be affected by various factors which can impact their decisions on the stock exchanges, some of them may be unable to act in a rational manner and make the right decisions. The huge drop in share prices on world stock markets was visible in the early stages of the crisis. The share price does not always reflect the real situation of the company. The main purpose of this article is to evaluate the influence of the recent financial crisis on the financial situation and performance of Polish listed companies. Financial ratios will be utilized to evaluate the real changes in the financial situation of Polish listed companies during the crisis. A large group of companies will be covered by the survey in order to assess the impact of macroeconomic factors on the financial situations of enterprises in different phases of the crisis. Market tests will not be applied because they may be affected by changes in share prices which in turn are often affected by irrational decision-making and fear.

JEL classification: G1, G2, G3
Keywords: financial statement analysis, financial situation and performance of listed companies, global financial crisis, financial ratios

Received: 10.08.2016 Accepted: 15.12.2017

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Introduction

The term "crisis" may be defined in many different ways depending on the context in which we use the term, whether it be crisis in a specific company, currency crisis, crisis in a specific industry or macroeconomic crisis. The majority of business practitioners considers crisis as a negative and unwanted occurrence. However, it seems that it should not be perceived only in a negative light. Cyclic corporate crises force businesses to innovate and evolve, while macroeconomic crises motivate politicians and government authorities to introduce new deregulatory legislation with the aim of easing day to day business operations. However, crises may lead to many demands for tighter regulations in specific areas. They encourage investors to back out of risky and unrewarding investments. Macroeconomic crises are an expected phenomenon of the market economy. Among other reasons, these crises are simply a natural result of the business cycle. Modern business cycles usually last between 2 and 8 years. An average life span is between 3 and 5 years. The growth period tends to be longer than the period of decline. Cycle amplitudes vary as does their duration. Today`s cycles are characterized by declines in GDP of no more than 5%. During the Great Depression of 1929 – 1933 many countries witnessed declines in production of about 50%. Cyclic changes in the state of the economy manifest in various macroeconomic variables like level of production and employment, profitability, investment expenditures and company inventories. These changes, in turn, influence the incomes and expenditures of the state (Hübner & Lubiński, 1994, p. 12 – 13).

The Austrian-born American economist J. Schumpeter described the process of industrial mutation "that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one". This concept is well known as "creative destruction" and is associated and identified with J. Schumpeter, according to whom "it is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in" (Schumpeter, 2005, p. 83). Schumpeter used to emphasize the importance of innovations and entrepreneurship in the process of economic development. He formulated a very interesting definition of innovations. In his opinion they take place "by means of new combinations of existing factors of production, embodied in new plants and, typically, new firms producing either new commodities, or by a new, i.e. as yet untried, method, or for a new market, or by buying means of production in a new market" which "means essentially putting productive resources to uses hitherto untried in practice, and withdrawing them from the uses they have served so far" (Schumpeter, 1928, p. 377-8). In his opinion, "the constant injection of new innovations in the form of new consumer goods, new production techniques, new modes of transportation and new forms of industrial organization" fuels capitalism and these innovations change the economic structure from within, constantly destroying the old one and creating a new one. This process may be perceived as creative because "it creates new value". However, it can be seen at the same time as destructive due to the fact that "economic returns to capital/labor producing obsolete products are lowered or eliminated entirely" (Lanzillotti, 2005, p. 12). During crisis, many badly managed businesses fail, but they are replaced by others. Many companies are forced to carry out a restructuring that can contribute to market success in the future. Some firms are able to weather the crisis and perform well even during its lifetime. The process of creative destruction is evident in today's world, especially in developed countries. Its effects may be seen not only during the macroeconomic crisis. We have witnessed the dot-com boom during 1997 to 2001 when many dot-coms, were founded. However, many of these dot-coms failed and the dot-com bubble collapsed. E-business is based upon a new technology which has enormous influence on the existing structure of many industries. Thus, the collapse of many dot-coms which were dependent on this new e-technology may result in dismissal of its impact (Stewart, 2005, p. 165-166). However, Schumpeter was not always right. He thought that capitalism would be replaced by socialism, which has never happened. He believed that "there is inherent in the capitalist system a tendency toward self-destruction which, in its earlier stages, may well assert itself in the form of a tendency toward retardation of progress". In his opinion "economic and extra-economic factors, reinforcing each other in imposing accord, contribute to that result" and "make not only for the destruction of the capitalist but for the emergence of a socialist civilization" (Schumpeter, 2005, p. 162). It should also be stressed that Schumpeter "never fell back on censorship, propaganda, terror and the one-party State" (Reisman, 2005, p. 87).

During the Great Depression, the amount of

outstanding commercial loans decreased by half within the first four years, whereas investment spending plummeted to just 10% of its pre-crash value. While the economy tends to recover quickly in most recessions, a 25% decline in price level between 1930 and 1933 prevented such a natural recovery. This, in turn, sparked debt and deflation in which net worth fell as firms were not able to deal with the increased burden of indebtedness. Subsequently, the level of unemployment rose to 25% of the labor force. The legacy of the 1929 crash is often viewed as catastrophic. However, it is forgotten that more than half of the stock market decline had been reversed by the middle of 1930 (Mishkin, p. 193-194).The recent economic and financial crisis, the beginning of which can be linked to the collapse of investment bank Lehman Brothers in 2008 and which has expanded to the whole world, has influenced the formation of a number of phenomena and events in the economic life of the modern, globalized world mostly due to its size and time span (years 2008-2011; however there are opinions that its effects are still visible today). Multidirectional impact of the economic crisis has been revealed, inter alia, in (Mc Kibbin & Stoeckal, 2009):

"1) production and import,
2) stock market,
3) investment,
4) GDP,
5) export,
6) economic policy and fiscal stimulus".

However, the starting point of the crisis is debatable (Spychała, 2013, p. 261). According to some authors, the crisis began in 2007 (Radomska, 2013, p. 1, 5) while, to others, in 2008 (Spychała, 2013, p. 261). Symptoms of the crisis were already evident in 2007, so in this article, this crisis will be called the 2007 financial crisis. One can see the apparent impact of the crisis on the development of international capital flows, mergers and acquisitions, and state budgets. This article presents the impact of the global financial crisis on the financial situation (which is reflected by fluctuations in the level of basic financial ratios) of 165 selected listed companies and on the financial standing and performance of enterprises from selected sectors of the economy. One of the most significant signs of the importance of the global financial crisis on the economy is its impact on the economic and financial situation of enterprises. The main objective of this paper is to examine the relationship between the occurrence of the crisis in Poland, and changes in the economic and financial situation of the selected group of listed companies. 165 joint-stock companies listed on the regulated market of the Warsaw Stock Exchange (Giełda Papierów Wartościowych w Warszawie, GPW) were covered by the survey. Financial data of these companies were extracted from the Notoria Serwis database, which is available on the University of Lodz Library's website. However, some data were verified and corrected by the authors due to the fact that some items had abnormally high values (e.g. current assets of Synthos SA in 2010) using financial statements published by listed companies on their websites. The authors made every effort to ensure that the results of their research are correct, but they were unable to check and verify all financial data provided by Notoria.

As financial ratios are the best measure of the financial health of businesses, 24 of them were used to examine the impact of the crisis on the changes of the financial situations of listed firms. The value of each ratio was calculated on the basis of financial reports from the years 2005-2014. The financial ratios were calculated for the years 2006-2014 and financial data from 2005 were only used to compute the average values of some financial statement items necessary to calculate ratios for 2006. This was necessary because the calculation of certain ratios (e.g. asset turnover ratios or profitability ratios) necessitates the use of financial data from the beginning and from the end of a given year. However, some of the ratios (e.g. interest coverage) were rejected since they could not be calculated for a number of companies. One of the ratios (debt / shareholders` equity) was removed as better alternatives to this ratio were utilized. Finally, 20 financial ratios were used to evaluate the financial situations of listed companies.

The causes and effects of the global economic and financial crisis

General opinion is that the crisis began in the mortgage market in the United States and has spread to include other banking products, covering the whole financial sector and the entire US economy. As a result of globalization, it has spread to the whole world.

According to C. Reinhart and K. Rogoff: "The 2007 United States sub-prime crisis … has its roots in falling US housing prices, which have in turn led to higher default levels, particularly among less creditworthy borrowers.

The impact of these defaults on the financial sector has been greatly magnified due to the complex bundling of obligations, that was thought to spread risk efficiently. Unfortunately, the innovation also made the resulting instruments extremely nontransparent and illiquid in the face of falling house prices" (Reinhart & Rogoff, 2009, p. 339-344).

The spread of the crisis to the region outside the US including Central Europe, Eastern and South-Eastern Europe was only a matter of time. Some authors suggest that banks from countries in the aforementioned regions were not properly prepared for overcoming the effects of the crisis in the banking sector. S. Gardo and R. Martin state that: "In Central and Eastern Europe, central banks seem to have been less active in directly managing capital inflows" and "… they have a "need for a more radical reform …" and later "the crisis also had a major impact on capital flows to the region, although the magnitude of the impact differed again notably, depending on the type of capital inflows and the receiving country" (Gardo & Martin, 2010).

There is a common view that not only the whole banking system has failed but also supervisory authorities and financial management systems of many countries. "Central bankers and other regulators bear responsibility too, for mishandling the crisis, for failing to keep economic imbalances in check, and for failing to exercise proper oversight of financial institutions" (The Economist, 2013).

A lot of attention is paid to the dangers associated with the introduction of new banking products that may pose a threat to a given bank's customers, who have confidence in banks and rely on their offer to such an extent that they are willing to take the risk associated with the purchase of risky banking products not being fully aware of how much risk they really take on themselves. The activities of banks are becoming even more speculative due to the offering of increasingly dubious and risky products (Crotty, 2009).

One of the main reasons for the 2007 crisis is the misuse of securitized assets created from packages of other securities in a process called securitization. The sub-prime meltdown ended up affecting almost all aspects of the economy. The first victims were financial institutions. Many of them failed to sell their sub-prime mortgages. Among such companies were New Century, which declared bankruptcy in 2007, IndyMac, which was placed under FDIC control in 2008, and Countrywide, which was acquired by Bank of America in 2008. Another reason for these collapses of securitizing firms was that they kept some of the new securities they created. Examples of firms victimized by this practice include Fannie Mae and Freddie Mac, which suffered substantial losses on their portfolio assets and ended up being virtually taken over by the Federal Housing Finance Agency in 2008. Many investment banks, such as Lehman Brothers (forced into bankruptcy), Bear Stearns (sold to JPMorgan Chase) and Merrill Lynch (sold to Bank of America), also incurred losses related to their positions in credit default swaps. To avoid panic and a total lockdown in the money markets, the U.S. Treasury decided to insure some investments in money market funds. AIG was heavily involved in credit default swaps and had a worldwide influence. Therefore, to avoid panic and a disastrous collapse of hundreds of financial institutions, the Fed effectively nationalized AIG. The 2007 crisis also affected commercial banks which owned mortgage-backed securities, commercial paper issued by failing institutions and/or were involved in credit default swaps. Thus, they were unable to provide liquidity to the economy. They stopped providing credit to other banks and businesses. The market for commercial paper collapsed, forcing the Fed to begin purchasing new commercial paper from issuing companies. Banks were also prone to holding cash and maintaining their own liquidity. At the end of 2008, they stockpiled over $770 billion in excess reserves compared to $75 billion in required reserves. In effect, construction, manufacturing, retailing, and consumption suffered declines, causing job losses in 2008 and 2009 (Ehrhardt & Brigham, 2011, p. 16, 41-42).

However, the 2007 crisis traces its roots back further in the decade. The problems that beset the market for home mortgages were just one effect of a broader set of forces that swept through America's credit markets between 2003 and 2006. To stimulate the economy after the 2001 recession, the Fed made borrowing more attractive by pushing the federal funds rate to just 1 percent, which in turn increased demand for houses. All of this fed the real estate price bubble. Pushed by modest rates of return on safe assets, investors started to buy riskier securities, like "junk" bonds, emerging-market debt, mortgage-backed securities and others. The investors were less risk avert because frequencies of delinquency and default on virtually all sorts of lending were low from 2004 to 2006. Due to low defaults, lenders started to perceive risky investments as far safer than they really were. Such unsupported confidence, lack of

proper regulation and subsequent careless attitude to giving credit allowed almost anyone to receive a loan or credit. (Baumol & Blinder, 2011, p. 780).

During the 2007 crisis, the prices of housing dropped by roughly 30 percent over just a few years. Such a situation had not been witnessed since the Great Depression. Many banks and other financial firms held mortgages backed by real estate. Many homeowners had problems repaying their loans leading to their houses being repossessed. However, by that time, housing prices had fallen, and homes had to be resold cheaper than the value of debt owed. With many such situations compounding, financial institutions found themselves in big financial trouble, many of them facing bankruptcy. All of these troubles undermined the public`s confidence in financial institutions. Investors became anxious about the future of the whole financial system and began pulling out their money from investments in these financial institutions. Thus, these institutions had to cut down on lending, further exacerbating the cycle. Potential borrowers had trouble getting loans and had to halt or give up their investments, even if they looked promising. As a result, the financial system failed to fulfill its normal function of directing the resources of savers into the hands of borrowers. As these would-be borrowers were unable to obtain funding for their projects, the overall demand for goods and services dropped. This resulted in the drop in national income and employment. The economic downturn reduced the profitability of numerous firms and the value of many assets. However, thanks to government intervention, many financial institutions were able to survive and continue to fulfill their function of financial intermediation (Mankiw, 2012, p. 561).

The effects of the financial and economic crisis had implications both for national economies and for individual companies. Relations between national economies have changed considerably. Social considerations now play a greater role, which has resulted in, among other changes, moving production from foreign subsidiaries to the parent company or abandonment of the benefits of Business Process Outsourcing. Thus, the consequences for the economic policies of countries in which the effects of the crisis were apparent, turned out to be very significant (Claessens, Dell'Arica, Igar & Laever, 2010). At the microeconomic level, the effects of the crisis were reflected by the decisions taken by the management teams of companies and by the changes in the relationships between companies and banks. "We find that … constrained firms plan to cut more investment, technology, marketing and employment relative to financially unconstrained firms during the crisis … constrained firms are forced to burn a sizeable portion of their cash savings during the crisis and to cut more deeply planned dividend distributions … constrained firms accelerate the withdrawal of funds from their outstanding lines of credit …" (Harvey, Campello & Graham 2009). The aforementioned actions were caused by the deteriorating financial situation of enterprises. Therefore, it is important to examine and present the impact of the crisis on the financial condition of Polish enterprises.

The collapse of the mortgage market in the United States has had the greatest impact on the financial markets of highly developed countries. Through their development and reach, they have had unrestricted access to investment possibilities whose market has collapsed. Financial institutions of emerging economies (Poland included) did not suffer direct losses from investments in these instruments as they were less popular (Adamczyk, 2012, p. 24).

The 2007 financial crisis that began in the US subprime mortgage market turned into the most serious economic breakdown in the world since the Great Depression of the 1930s. Further waves of this crisis have also affected the various segments of the financial market in Poland.

The impact of the 2007 global financial crisis on the Polish financial market was strong. One of the main factors that could have caused this was the negative perceptions held by investors towards developing countries. Foreign investors reacted nervously to the negative signals coming from the market. They primarily reduced their investment in emerging markets, despite the fact that those countries had no direct exposure to the US subprime mortgage market. During the times of threat to liquidity and solvency, foreign investors preferred assets presenting the highest liquidity and creditworthiness (flight to liquidity, flight to quality). They were selling Polish treasury bonds. It was easy due to the high liquidity of this market relative to those of other countries in the region. It is worth pointing out that the relative good condition of the Polish economy did not justify such a strong reaction. The capital connections of international financial institutions (which are the owners of leading banks operating in Poland) were also of great importance. The restrictions imposed by the parent companies from developed markets on

their subsidiaries operating on the Polish market have significantly contributed to limiting the investment activity of these subsidiaries in Poland. Compared with developed countries and other countries in the region, the reaction of the Polish economy to the effects of the financial crisis can be perceived and considered as moderate. This was due to the large domestic market, relatively diversified export structure, as well as a relatively small dependence of Polish companies on external financing. Moreover, the floating exchange rate allowed to partially offset the shock associated with the crisis (Konopczak, Sieradzki & Wiernicki, 2010, p. 67).

The economic situation in Poland during the global crisis looked favorable. The dynamics of private consumption were positive, unlike in most developed countries. These dynamics began to decline in the second quarter of 2008, as did GDP. The average growth rate of consumption in big economies like USA, Japan, Germany, France, UK, Italy (just as in many other Eurozone countries) was negative or near zero during nine successive quarters (from the first quarter of 2008 to the first quarter of 2010). At the same time consumption in Poland increased on average by more than 3.6%. For comparison, Slovakia reached an average 2.5% growth rate of consumption and this is also a very good result. Some symptoms of improvement emerged in the second and third quarters of 2009. The Polish government did not take decisive action to stimulate private consumption and counteract any possible decline in GDP growth (Czekaj, 2010, p. 201-202). According to J. Czekaj (2010, p. 202-203), the growth of private consumption in Poland during the crisis was possible thanks to actions undertaken in Poland long before the crisis. These include: reduction of pension contribution (it is paid by employees), and liquidation of the highest rate of the Personal Income Tax, which amounted to 40%. The low level of unemployment and the good situation of Polish households had a positive impact on the Polish economy during the crisis. Investment demand fell in the Polish economy to a lesser extent than in other countries. The dynamics of investment expenditures began to decline in the second quarter of 2008, but only reached negative values in the first quarter of 2009 (Czekaj, 2010, p. 202-203).

The condition of the Polish economy was better than those of many other countries of the European Union. During the crisis confidence in developing economies declined. The exchange rate of the Polish currency also fell relative to other major currencies. Polish goods became more competitive on world markets and labor costs were significantly lower than in developed countries. J. Ewing of The New York Times quoted this fact and praised Poland for dealing with the crisis: "The floating zloty, which has fallen about 18 percent against the euro since early 2009, acted as a pressure release valve, helping to keep Polish products competitive on world markets and insulating Poland from the effects of the sovereign debt crisis. Poland has proved itself to be Europe's most dogged economy (…) It was the only member of the European Union to avoid recession, soldiering on even after a plane crash in April killed much of the political elite, including the president and the central bank governor. No banks needed to be rescued" (Ewing, 2010).

Connor Adam Sheets (2012) from International Business Times emphasizes that: "As the European Union fell into the global recession that began in 2008, only one nation in the region kept growing while its neighbors saw their economies fall. That title belongs to Poland, which made it through the period without experiencing a single year of falling gross domestic product. Growth slowed down, but even at the lowest point, Poland's economy continued to expand slightly". He cites the opinion of Rafal Szajewski, team lead for the services section at Poland's Foreign Investment Department, who tried to explain why Poland coped relatively well with the crisis. It was due to "the huge amount of European Union funds that have been spent on improving infrastructure and completing other projects in Poland", "internal consumption, as Polish citizens never stopped purchasing even in the worst of the global recession, which helped keep Polish companies afloat, attracted outside investment and kept confidence high among business owners" and "foreign investment because when there is a crisis, companies are looking for savings, and Poland was the answer to that because the quality of product or service is equal to or beyond that of countries in Western Europe but costs are much lower". Under-Secretary of State Beata Stelmach cited in the same article noted that: "In Poland you have very qualified engineers and workforce, but you pay much less than elsewhere in Europe" (Sheets, 2012). Thus, the low labor costs and the falling exchange rate of the Polish currency made the Polish economy very attractive for investors when compared to other euro area countries.

This does not mean, however, that there has been no decrease in the inflow of FDI to Poland. As J. Różański

(2014, p. 190) observes: "Statistical data in the area of FDI show that EU countries became a less interesting place of FDI location. Also, corporations of these countries invested less abroad. The same tendencies are observable in Poland". This has been due to the fact that "Poland as a place of FDI location is very strongly connected with the European Union countries. About 60% of inward FDI to Poland was made by the major European countries" (Różański, 2014, p. 193).

It is worth noting, however, that despite the decline in FDI flow to Poland, their outflow was much lower on average than in the rest of the EU (just as before the crisis). Throughout the period of 2006-12, FDI inflows to Poland outweighed their outflow. However, across the EU in the same period, outflow of FDIs was higher than their inflow. However, in 2010, FDI inflows to Poland ($ 8859 million) were significantly lower than in the preceding 2006 crisis ($ 19603 million) and in 2007 during which FDIs peaked at $ 23561 million (World Investment Report 2013, as cited in Różański, 2014, p. 191).

Marcin Piątkowski (2015) stresses that a significant impact on "Poland's impressive performance has also been driven by a healthy banking sector. Polish banks remained profitable, liquid, and well-capitalized throughout the crisis. They did not need a single dollar of public support. In contrast to most other EU countries, Poland's banks managed to increase lending to the private sector during the crisis, supporting the country's growth. An overlooked factor has been the counter-cyclical role of PKO BP—a commercial public bank and the largest player in the Polish market with almost a 20 percent market share—in helping to deal with the crisis. While foreign-owned banks, which controlled almost 75 percent of the banking sector's assets, were cutting lending in panic, PKO BP was expanding lending at the same time. Its loan portfolio increased by 1.2 percent of GDP in 2009 and represented 40 percent of total new bank lending in that year. The bank's lending increased for all market segments, including the crucial small and medium-sized enterprise sector". This is a very important tip for the future. If banks in Poland will continue to be domestically owned (either privately or state-owned), the Polish economy will be morally immune to financial turmoil and the deteriorating condition of global financial institutions.

In times of crisis, access to capital is hindered. That is why many companies are in the midst of a downturn in crisis that could survive in good times. Thanks to the easy availability of capital, they would have the financial resources they need and would continue to operate even if they were suffering losses.

The purpose of this article is to show the changes in the financial situation of Polish listed companies under the influence of the 2007 financial crisis. These changes should be reflected by fluctuations in the average level of key financial ratios of companies from different sectors of the economy. The authors of the article formulated the following hypothesis: The 2007 financial crisis has affected the temporary deterioration of the financial situation of Polish listed companies.

The influence of the financial crisis on the economic situations of listed companies reflected by the changes in values of key financial ratios

As financial ratios are treated as a key indicator of a company`s health and economic situation, 24 of them were computed to analyze the influence of the crisis on the financial standing and performance of Polish listed companies. Financial data of companies covered by the study were extracted from the Notoria Serwis database, which is available on the University of Lodz Library's website. As already mentioned, some of the ratios (e.g. interest coverage) were rejected since they could not be calculated for a number of companies. Calculation of some other ratios such as the inventory turnover ratio and stock turnover ratio in days was also not possible in the case of several companies, so they were omitted. The final dataset consisted of the following twenty financial ratios:

X1 = shareholders` equity / debt

X2 = fixed assets / current assets

X3 = shareholders` equity / fixed assets

X4 = long-term capital / fixed assets

X5 = debt / current assets

X6 = (shareholders` equity / debt): (fixed assets / current assets)

X7 = working capital / total assets

X8 = current assets / current liabilities

X9 = liquid assets / current liabilities

X10 = cash and short-term investments / current

liabilities

X11 = sales / average total assets

X12 = sales / average fixed assets

X13 = sales / average accounts receivable

X14 = 365 / accounts receivable turnover

X15 = debt / total assets

X16 = shareholders` equity / total assets

X17 = long-term debt / shareholders` equity

X18 = net profit (loss) × 100% / sales

X19 = net profit (loss) × 100% / average total assets

X20 = net profit (loss) × 100% / average shareholders` equity

Construction industry

The shareholders` equity to fixed assets ratio (X3) shows whether fixed assets are financed with shareholders` equity, which is the safest way of asset financing. The average level of this ratio during the period 2006-2013 was always greater than 1 (between 2008 and 2009 it even exceeded 2), but it fell to -2,18 in 2014 (table 1), which was caused by the very low level of the ratio for one of the companies that went bankrupt (Budopol-Wrocław SA w upadłości układowej, the value of the ratio amounted to -54,32 in the case of that company). One company (Pemug SA) also had an extremely high X3 ratio during 2010-2014.

Prior to the crisis, the average ratio of debt to current assets (X5) was higher than 1, which means that the debt of construction companies was slightly higher than their current assets. During 2007-2011 the value of the debt was lower than the value of current assets, so the average debt of companies included in the research could be repaid out of their current assets. However, from 2012 the value of the ratio has grown considerably. As a result, financial liabilities of construction companies exceeded twice the value of their current assets in 2014.

Working capital to total assets ratio (X7) measures a company's ability to meet its short term financial obligations. The larger the working capital, the better able is the business to repay its liabilities. Calculating working capital as a percentage of total assets enables one to compare working capital positions of different firms regardless of their size. The working capital position of construction companies improved during the years 2006-2009, as average working capital was a higher percentage of total assets in each subsequent year during that period. However, the trend reversed in 2010 and the value of working capital to total assets ratio began to drop from 0,33 in 2009 to 0,26 in 2010, reaching a nine-year low of –0,44 in 2014. Analyzing the level of said ratio, a similar trend could be observed as in the cases of ratios X3 and X6. Thus, between 2009 and 2010, there has been a deterioration in the financial situation of construction companies.

Table 1: The average values of 13 financial ratios for the 15 companies in the construction industry in the years 2006-2014

	2006	2007	2008	2009	2010	2011	2012	2013	2014
X3	1,75	1,93	2,20	2,48	1,61	1,46	1,38	1,52	-2,18
X5	1,09	0,89	0,71	0,69	0,74	0,81	1,30	1,61	2,09
X7	0,14	0,23	0,30	0,33	0,26	0,17	0,18	0,09	-0,44
X8	1,47	1,96	2,32	2,44	2,07	1,75	2,50	2,80	1,93
X11	1,56	1,44	1,51	1,09	1,07	1,03	0,96	0,84	0,87
X12	6,50	5,90	6,01	4,37	3,42	3,26	3,20	2,88	3,14
X13	3,66	3,76	4,80	3,67	3,81	3,80	3,39	2,84	2,86
X14	113,99	109,71	93,27	115,82	123,58	123,25	198,27	570,82	1147,56
X15	0,64	0,51	0,44	0,42	0,41	0,46	0,54	0,61	1,25
X16	0,36	0,49	0,55	0,58	0,59	0,54	0,46	0,39	-0,25
X17	-0,12	-0,15	0,14	0,15	0,16	0,13	4,44	0,65	0,18
X19	4,39%	8,14%	5,74%	4,43%	2,58%	-1,55%	-10,77%	-14,27%	-8,65%
X20	13,05%	26,87%	13,08%	9,91%	7,40%	-3,28%	-198,10%	-181,44%	-1,95%

Source: the author's own study based on financial reports of listed companies extracted from Notoria Serwis

Construction companies, which are vulnerable to the effects caused by the change of the economic situation, should therefore take care to maintain sufficient financial liquidity. The average liquidity ratios for construction companies (current ratio X8, quick ratio X9, cash ratio X10) never fell below the accepted minimums throughout the entire period. The lowest values of the above-mentioned ratios were recorded in 2006, just before the crisis. The average value of current ratio and quick ratio grew quickly from 2006 until 2009. Liquidity ratios decreased during 2010 -2011 to rise again in 2012-2013. In 2014 all three aforementioned ratios fell again, but they were greater than in 2006. Construction companies tend to have high profits during good times, but they suffer large losses during a recession or an economic slowdown. Therefore, they should maintain high liquidity so that they do not run out of cash. The desire to increase profits may lead to a reduction in the level of current assets, because such a policy of managing current assets is cheaper. However, if the economic situation deteriorates and profits fall, the company may not have the liquid assets necessary to meet its short-term obligations and will suffer from a serious liquidity crisis, which can lead to bankruptcy.

Average total assets turnover ratio (X11) and fixed assets turnover ratio (X12) remained at a similar level in 2006-2008, but their value decreased in 2009 and declined further in subsequent years. In 2014 both ratios increased slightly comparing to 2013, but they were significantly lower than in pre-crisis 2006.

Accounts receivable turnover ratio (X13) and accounts receivable in days (X14) indicate whether or not the company has difficulties with collecting its receivables. The first one tells us about how many times during a given period of time (usually a year) a business collects its average level of debtors. The second one measures how quickly a company is converting its receivables into cash. When accounts receivable turnover ratio increases, the debtors' collection period decreases and vice versa. During 2006-2009 average accounts receivable ratio increased, which meant improving inventory turnover (at the same time, the second of these ratios, X14, declined). In 2009, the turnover of receivables worsened. A similar situation persisted in 2009-2011 (in those years, the level of both ratios did not undergo major changes). In 2012-2013, accounts receivable turnover deteriorated further. Ratios from 2014 were similar to those in 2013. Several companies had very unusual ratios (this includes, inter alia, Budopol-Wrocław SA w upadłości układowej and Resbud SA during 2013-2014).

The level of debt and financial leverage has a major impact on the assessment of the situation of the company. In 2006, on average, approximately 64% of the assets of construction companies were financed by debt, and roughly 36% with equity. In subsequent years, the debt level decreased and the average debt ratio (X15) reached a minimum of 0,41 in 2010. However, in 2014 the situation suddenly reversed, because the average overall debt ratio went up to 1,25. This was due to a sharp increase in the debt level of an insolvent company, Budopol-Wrocław SA w upadłości układowej, which had negative shareholders` equity in 2013-2014, and its debt exceeded the value of its assets 10,5 times in 2014. In that year the said failed company had a shareholder equity ratio (X16) of -9,55. This distorted the average level of both ratios in the construction sector.

A ratio of long-term debt to shareholders` equity ratio (X17) indicates the amount of long-term debt per unit of shareholders` equity. Equity and long-term liabilities are the safest sources of financing assets. The sum of equity and long-term liabilities form the so-called constant capital. However, it is riskier to finance assets with non-current liabilities than through shareholders` equity, which doesn`t have to be repaid in the future. Generally, the higher the ratio, the riskier the business. During 2006-2007 the average level of long-term debt-to-equity ratio for companies in the construction sector was negative, which resulted from the fact that some firms had negative equity (e.g. Elkop SA in 2006 and 2007, Pemug SA and ENAP ENERGOAPARATURA SA in 2006). One bankrupt company had no long-term debt during almost the entire period covered by the study (Budopol-Wrocław SA w upadłości układowej). On the other side, another company, also struggling with financial problems, Polimex-Mostostal SA had a very high level of long-term debt in relation to equity in 2012 (its X17 ratio amounted to 66,45). This distorted the results of the survey in 2012, because the average long-term debt-to-equity ratio for all 15 construction companies was much higher than in other years.

ROA and ROE measures a company's ability to turn its assets/equity into profit. Profit is one of the most important determinants of corporate success. Incurring a loss for a short period of time is not always dangerous but generating losses for several years in a

row can lead to bankruptcy. Average profit ratios for construction companies reached their peak values in 2007. This was the best year for the construction sector. Average performance of companies in the construction sector deteriorated gradually in subsequent years. Many companies have incurred heavy losses, some have even gone bankrupt. The values of the average profitability ratios were distorted by abnormal levels of ratios in the cases of some companies. The period 2012-2014 was the most difficult for the construction industry. In 2014 ROA and ROE amounted to - 8,65% and -1,95% respectively. It is difficult to interpret the average value of ROE in that particular year, due to the fact that it was distorted because the company Budopol-Wrocław SA w upadłości układowej suffered very heavy losses in 2012-2013, generating almost no income from sales. The company Resbud SA also had very unusual profitability ratios, especially in 2012-2014, as well as Elkop SA which had extremely high/low return on sales ratios, especially during 2008-2014. There was an evident clear trend of gradual deterioration in average profitability ratios during 2008-2014. It should be emphasized that these ratios were better in 2007 than in 2006. Later, however, the performance of construction companies significantly worsened.

Industry

The presentation of the averages of the 20 ratios for each industry separately was abandoned due to limitations on the volume of this article. Hence, the average value of 13 selected financial ratios will be presented and interpreted altogether for the following industries: chemicals (3 firms), wood and paper (3), electro-engineering (10), pharmaceutical (2), light industry (8), metals (13), automobiles (3), oil and gas (3), food (12), basic materials (1) and plastics materials (4).

Shareholders` equity to fixed assets ratio (X3) reached its peak value of 1,89 in 2006 and was dropping gradually in the following years, reaching a minimum of below 1 in 2013. A slight growth of the ratio was observed in 2014. Average fixed assets of industrial companies were fully financed with shareholders` equity over almost the entire study period, however the average level of the ratio declined during the crisis.

Before the crisis the average ratio of debt to current assets (X5) was below 1 but it went up during the next three years (2007-2009). It dropped slightly in 2010 and increased again in 2011 and 2012, reaching a peak value of 2,77. During 2013-2014 the average value of debt to current assets ratio was almost twice as in the pre-crisis year 2006. During 2007-2014 the average industrial firm could not repay its debts out of current assets, which are more easily convertible into cash than non-current assets.

Working capital to total assets ratio (X7) was very stable throughout the whole research period, ranging from 0,1 in 2009 to 0,18 in the pre-crisis year 2006. As working capital ensures that a company is able to continue its operations and that it has sufficient current assets to repay its current liabilities, it is very important

Table 2: The average values of 13 financial ratios for the 62 companies in 11 industry sectors during 2006-2014

	2006	2007	2008	2009	2010	2011	2012	2013	2014
X3	1,89	1,18	1,20	1,20	1,14	1,09	1,03	1,00	1,00
X5	0,94	1,12	1,21	1,35	1,16	1,21	2,77	1,85	1,77
X7	0,18	0,13	0,10	0,10	0,12	0,12	0,11	0,11	0,13
X8	2,28	1,83	2,82	4,53	5,01	5,96	7,37	4,31	3,81
X11	1,17	1,08	0,91	0,80	0,85	0,95	0,97	0,92	0,91
X12	2,62	2,33	1,84	1,57	1,55	1,83	1,91	1,75	1,72
X13	5,49	5,77	5,45	5,04	5,84	5,61	5,54	6,13	6,09
X14	82,30	78,92	152,04	460,16	1399,30	134,01	316,94	115,72	115,35
X15	0,41	0,39	0,39	0,36	0,35	0,38	0,38	0,38	0,39
X16	0,59	0,61	0,61	0,64	0,64	0,62	0,62	0,62	0,61
X17	0,20	0,19	0,18	0,17	0,22	0,24	0,14	0,22	0,25
X19	6,69%	7,39%	-0,65%	1,34%	2,58%	3,27%	2,52%	3,29%	3,48%
X20	10,04%	12,05%	19,00%	1,65%	3,50%	6,69%	3,46%	2,43%	9,14%

Source: the author's own study based on financial reports of listed companies extracted from Notoria Serwis

for a business entity to have a positive working capital. The average working capital of 62 industrial companies was positive during 2006-2014 unlike in the case of the construction sector which had a negative value of average working capital to total assets ratio in 2014.

The average liquidity ratios (current ratio X8, quick ratio X9, cash ratio X10) for industrial companies were very high. This means that companies were not likely to have problems with paying off their current liabilities during the crisis but had – on average - too many current assets (e.g. inventories and receivables) which could have had a negative influence on their performance and profits. One could say that the investors did not have to worry about the liquidity problems of a typical industrial firm, however the average liquidity ratios do not reflect the financial situation of all companies. Average values were distorted by unusual values of liquidity ratios in the cases of some firms like Kerdos Group SA from the pharmaceutical industry which had very high liquidity ratios in 2014. Hence, the average liquidity ratios do not fully prove the financial health of the whole industrial sector. However, the average short-term solvency of 62 industrial firms has not worsened during the crisis comparing to the pre-crisis year 2006.

Before the crisis, average total assets turnover ratio (X11) for industrial companies stood at 1,17, however it fell during 2007-2009. It bottomed out in 2009 at 0,80 and increased during 2010-2012. Its average values were quite stable but it had its peak value in 2006, then dropped and never returned to this level just like the fixed assets turnover ratio (X12). The latter also had the highest level in 2006 and never came back to that level in the following years. It fell slightly during 2007-2010, reaching a trough at 1,55 in 2010.

In the case of total/fixed assets turnover ratios, comparisons of their values between companies may only be made for different companies within the same industry because firms from different industries may have totally different average values of these ratios. Hence, the interpretation of the average value of this ratio for 62 companies from different sectors of industry must be treated with caution.

Average accounts receivable turnover ratios (X13) were higher in the case of the construction sector throughout the whole analyzed period. The ratio was very stable and did not change considerably during the crisis, ranging from 5,04 in 2009 to 6,13 in 2013 (its peak value). This proves that the crisis did not have a big influence on average receivable turnover of industrial companies. However, some of them had problems with collection from their debtors.

Accounts receivable in days (X14) measures how many days a company needs to convert its receivables into cash. It is calculated by dividing the number of days in the year by total assets turnover ratio. However, its average value isn`t just a product of dividing the number of days in the year by the average accounts receivable turnover ratio. If a few examples from a large number of companies (e.g. like in the case of this research) have abnormally high or low receivable turnover it will not be equally reflected by average accounts receivable turnover ratio (X13) as it is in the case of days' sales in an accounts receivable ratio (X14). Some companies, like Sandwil SA (chemicals) during 2009-2011 and Wistil in 2012, had extremely high accounts receivable in days, which shows that these entities could have had difficulties with collecting from their debtors.

The average debt ratio (X15) and shareholder equity ratio (X16) show what percentage of assets is financed with debt and with equity, respectively. The higher the latter of these ratios, the safer is the situation of the business. However sometimes it is useful to use debt to make effective use of the financial leverage offered but it may be difficult to implement such a strategy during an economic crisis. Hence, it was safer for industrial firms to lower their level of debt. Their average debt ratio (X15) dropped from 0,41 in 2006 to 0,35 in 2010. The average level of debt in case of the 62 industrial companies was very reasonable, so a typical company from the industrial sector was not likely to have problems caused by the excessive use of financial leverage.

The influence of the crisis on the performance of industrial companies may be clearly reflected by the drop of average profitability ratios like ROA and ROE.

The average values of ROA and ROE clearly show that the performance of construction companies has significantly worsened during the crisis. The first of them stood at 6,67% in 2006, went up a bit in the next year but then dropped from 7,39% in 2007 to reach a low of -0,65% in 2008. Their performance recovered during the following years but it was still much lower than in 2006 and 2007. The average ROE rose from 10,04% in 2006 to 19% in 2008 but plummeted to just 1,65% in 2009. Similarly, it recovered in the following years. However,

its level was lower throughout 2009-2014 in comparison with its values during 2006-2008.

Retail and wholesale trade

The effect of the financial crisis was also clearly visible in the cases of retail and wholesale trade. In case of the retail trade, 12 companies from this sector were included in the study (Table 3). The level of the equity to fixed assets ratio (X3) decreased from 1,69 in 2006 to 0,73 in 2009. At the same time, the increase in the debt to current assets ratio from 0,74 in 2006 to 1,36 in 2009 was observed. The average working capital to total assets ratio (X7) reached its peak level of 0,22 in the pre-crisis year and fell to just 0,04 in 2009. It ranged between 0,12 and 0,16 during 2010-14. The average days' sales in an accounts receivable ratio (X14) was at 69,81 before the crisis, but increased significantly between 2011 and 2012 reaching its peak value of 1441,26 in 2012 meaning that some companies from the retail sector could have had problems with collection of their receivables during that period. It is worth noting that 2009 was a particularly difficult year for the retail industry, as the average return on assets ratio was negative during this year. ROA fell from almost 9% in 2006 to – 4,8% in 2009 to recover steadily during 2010-11 but it plummeted to hardly 3,3% in 2012.

The influence of the global financial crisis was also evident as far as wholesale trade is concerned (Table 4). Before the crisis (in 2006) the average shareholders` equity was twice as high as fixed assets, but the level of the equity to fixed assets ratio (X3) for 16 companies from the wholesale sector decreased gradually in the following years, hitting the lowest level of 0,81 in 2014. Starting from 2011, the average ratio was below 1. A healthy company should finance all of its fixed assets through equity or with constant capital. The ratio of debt to current assets (X5) was 0,9 in 2006 and fell slightly to 0,87 in 2007, it then rose gradually for the next 5 consecutive years to reach a level of over 4 in 2012, it fell to 2,31 in 2013 to peak at 7,94 in 2014. The average working capital to total assets ratio (X7) oscillated at around 0,2 in 2006-2007. It then started to deteriorate during the crisis, its level being negative throughout 2012-2014, indicating that some wholesale companies had a negative level of working capital during that period. Similarly, the average total assets turnover ratio (X11) and the fixed assets turnover ratio (X12) for wholesale companies stood at 1,9 and 10,66, respectively, in the pre-crisis year 2006 but then the values of both ratios showed a steady decline during the crisis hitting their lowest levels in 2014 (which were at 1,11 in the case of X11 and 3,2 in the case of X12). The average days' sales in an accounts receivable ratio (X14) was at 285,18 before the crisis, but jumped to almost 342 days in 2007. It then fell to 68 days in 2008 and stabilized at this level during the next year. It climbed to over 200 days in 2011 to fall again in 2012 and then stabilized at 100 during 2013-14. It should be noted that 2014 was generally a difficult year for wholesalers, as the average debt ratio (X15) and shareholder equity ratio (X16) both had their "worst" levels in that particular year (X15 peaked at 0,69 whereas

Table 3: The average values of 13 financial ratios for the 12 companies from the retail sector in the years 2006-2014

	2006	2007	2008	2009	2010	2011	2012	2013	2014
X3	1,69	1,37	0,95	0,73	1,16	1,92	1,25	1,33	1,45
X5	0,74	0,75	1,22	1,36	1,23	1,27	1,21	1,09	1,04
X7	0,22	0,20	0,06	0,04	0,15	0,16	0,12	0,14	0,13
X8	1,75	2,58	1,85	1,93	5,96	6,79	14,52	14,25	2,05
X11	1,80	1,65	1,43	1,37	1,31	1,18	1,23	1,24	1,33
X12	5,58	4,49	3,34	3,05	2,78	2,43	2,66	2,86	3,12
X13	10,95	9,79	10,21	12,00	15,49	14,70	16,62	16,72	18,55
X14	69,81	65,27	60,75	48,26	43,73	336,01	1441,26	77,75	54,08
X15	0,44	0,41	0,54	0,57	0,48	0,51	0,48	0,46	0,45
X16	0,56	0,59	0,46	0,43	0,52	0,49	0,52	0,54	0,55
X17	0,06	0,13	0,34	0,33	0,39	0,54	0,25	0,30	0,19
X19	8,76%	8,30%	1,45%	-4,75%	10,86%	9,42%	3,30%	8,73%	8,21%
X20	16,05%	14,53%	2,52%	-159,19%	209,22%	10,65%	8,35%	15,78%	14,64%

Source: the author's own study based on financial reports of listed companies extracted from Notoria Serwis

Table 4: The average values of 13 financial ratios for the 16 companies in the wholesale sector during 2006-2014

	2006	2007	2008	2009	2010	2011	2012	2013	2014
X3	2,08	1,65	1,28	1,23	1,26	0,97	0,98	0,94	0,81
X5	0,90	0,87	0,88	1,20	1,27	1,74	4,08	2,31	7,94
X7	0,20	0,20	0,19	0,17	0,12	0,08	-0,03	-0,01	-0,09
X8	1,51	1,95	1,93	1,86	1,28	1,35	1,50	67,62	2,61
X11	1,90	1,70	1,64	1,54	1,54	1,53	1,22	1,16	1,11
X12	10,66	7,05	5,77	4,86	4,97	4,88	3,96	3,57	3,20
X13	5,95	5,76	6,69	7,04	6,47	6,34	5,78	5,98	6,47
X14	285,18	341,40	68,38	66,62	54,02	200,87	133,35	99,68	100,13
X15	0,56	0,48	0,54	0,50	0,53	0,55	0,61	0,57	0,69
X16	0,44	0,52	0,46	0,50	0,47	0,45	0,39	0,43	0,31
X17	0,15	0,16	0,28	0,29	0,19	0,20	0,13	0,09	0,20
X19	0,54%	4,86%	0,79%	1,10%	-0,65%	1,14%	-2,60%	-0,63%	-5,71%
X20	7,94%	11,76%	1,72%	3,08%	0,97%	2,25%	8,20%	-1,43%	-27,73%

Source: the author's own study based on financial reports of listed companies extracted from Notoria Serwis

Table 5: The average values of 20 financial ratios for the 165 companies from 21 sectors of the economy during 2006-2014

	2006	2007	2008	2009	2010	2011	2012	2013	2014
X1	2,84	3,46	17,14	16,16	21,12	23,03	51,97	14,35	9,83
X2	1,68	2,09	3,30	77,44	4,54	4,71	12,98	6,58	14,01
X3	17,14	3,42	9,58	1,81	0,84	-27,11	1,41	2,33	1,19
X4	17,38	3,67	9,88	2,25	1,22	-26,66	1,83	2,82	1,45
X5	1,08	1,07	1,35	1,60	1,43	1,28	2,21	1,70	2,55
X6	150,33	8,66	276,86	5,04	6,53	18,73	10,32	45,53	6,37
X7	0,20	0,17	0,13	0,14	0,13	0,11	0,12	0,12	0,04
X8	2,47	2,94	4,00	5,12	6,31	4,78	7,11	38,01	6,38
X9	1,99	2,42	3,40	4,52	5,59	3,66	6,41	32,97	5,48
X10	1,10	1,36	2,33	3,69	4,70	2,57	5,38	29,09	4,35
X11	1,25	1,13	1,01	0,87	0,89	0,92	0,88	0,85	0,83
X12	10,09	9,33	4,03	2,63	2,45	2,66	3,04	2,90	2,69
X13	5,43	5,48	5,37	7,23	7,22	6,22	5,63	6,40	6,24
X14	313,09	269,28	260,22	333,37	1351,28	983,34	50,84	679,97	1755,14
X15	0,43	0,40	0,43	0,40	0,41	0,45	0,44	0,44	0,53
X16	0,57	0,60	0,57	0,60	0,58	0,55	0,56	0,56	0,47
X17	0,08	0,14	0,19	0,15	0,36	0,11	0,54	0,21	0,16
X18	219,29%	319,46%	-17,93%	-117,07%	928,25%	-116,38%	-13296,25%	-703,23%	-2019,09%
X19	5,74%	5,72%	-1,47%	0,49%	1,55%	2,00%	5,33%	-0,37%	-0,29%
X20	9,10%	15,55%	10,59%	-11,88%	24,58%	8,04%	-24,05%	-19,74%	-0,71%

Source: the author's own study based on financial reports of listed companies extracted from Notoria Serwis

X16 hit a low of 0,31). The average profitability ratios, ROA and ROE, were also at their lowest level of – 5,714% and almost 28%, respectively, in 2014.

Just as in the cases of other sectors, the average level of some ratios in chosen years was abnormally high or low. Companies with extremely high or low ratios distorted the average values of these ratios. The abnormal levels of some of these average financial ratios, caused by very high or low ratios in the cases of some firms, may indicate that these companies had financial troubles.

The changes of average financial ratios in the case of 165 listed companies from 21 different sectors during the crisis

The average value of financial ratios are presented in Table 5 for the following sectors of the economy: construction (15 firms), developers (9), finance – others (10), retails (12), wholesale (16), hotels and restaurants (2), IT (20), media (6), chemicals (3), wood and paper (3), electro-engineering (10), pharmaceutical (2), light industry (8), metals (13), automobiles (3), oil and gas (3), food (12), basic materials (1), plastics materials (4), telecom (5) and services-others (8). Some of the average ratios were abnormally high or low due to the fact that several companies had very high or low ratios. Hence, some of the ratios (e.g. X1, X2) will not be taken into consideration.

The influence of the crisis on the financial situation and performance of 165 listed companies was evident, as the average values of the following ratios changed during the years 2006-2014:

1) shareholders` equity to fixed assets ratio (X3) reached its peak value of 17,14 (which was, of course, abnormally high due to extremely high ratios in the cases of some firms) in 2006 but its downward trend was observed in the following years (with the exception of 2008),

2) long-term capital to fixed assets ratio (X4) also reached its highest level of 17,38 in 2006 and has never hit that level again in the following years,

3) the average ratio of debt to current assets (X5) was the lowest during 2006-2007 and then went up during 2008-2009, fell to 1,28 in 2011 and rose in 2012 and 2014. A typical listed company could not repay its debts with current assets and, during 2012 and 2014, average liabilities exceeded average current assets of 165 listed companies more than two-fold,

4) working capital to total assets ratio (X7) was quite stable during 2006-2007 but dropped in 2008 to 0,13 and stayed at a very similar level until 2014 when it plummeted and reached a trough at 0,035. The average working capital to assets ratio was lower during 2008-2014 than in 2006 and 2007. However, the average liquidity ratios (current ratio X8, quick ratio X9, cash ratio X10) did not drop during the crises, which was partly due to abnormally high ratios in the cases of some companies,

5) a downward trend was observed in the case of the total assets turnover ratio (X11) during 2006-2009 and fixed assets turnover ratio (X12) in 2006-2010. Both ratios recovered slightly in 2011 but decreased slowly throughout 2012-2014,

6) accounts receivable in days (X14) jumped to over 1350 in 2010 and reached its peak level of over 1750 in 2014 due to the fact that this ratio was extremely high in the cases of some companies, which means that several firms had difficulties with collecting from their debtors. However, the average accounts receivable turnover ratio (X13) has not worsened during the crisis,

7) the ratio of long-term debt to shareholders` equity (X17) stood at 0,08 in 2006 and increased slightly during 2007-2008, it fluctuated during the following years reaching its peak of 0,54 in 2012. This means that some companies had extremely high debt-equity ratios because they had a high relation of current liabilities to their equity (at the same time, X19 was not that high). Current liabilities are considered to be a riskier source of financing assets because they must be repaid within a shorter period of time than non-current liabilities. However, the average debt ratio (X15) was very stable throughout 2006-2013 ranging from 0,40 in 2009 to 0,45 in 2011, which does indicate that a typical listed company could have problems due to its excessive level of debt. It increased up to 0,53 in 2014 but this level is also acceptable.

ROA stood at its peak level of 5,74% during 2006-2007 but it bottomed out at -1,5% in 2008. It recovered gradually during 2009-2012 but then plummeted to -0,04% in 2013. Similarly, a downward trend of ROE was observed during 2006-2009. It rose sharply in 2010 but then plummeted to -24,1% in 2012. It had negative values also throughout 2013-2014.

Conclusions

The entire study involved computation of more than thirty thousand financial ratios. Standalone financial reports of 165 listed firms from 2005-2014 were used to compute 20 average financial ratios for 21 different sectors. Regrettably, all the research findings cannot be presented in the article due to volume limitations. The authors are also aware that the average values of some ratios do not always reflect the real financial situation of some businesses. Utilizing multiple discriminant analysis models used to predict corporate failure to evaluate a number of listed companies that were at risk of bankruptcy during 2009-2014 could be a possible alternative. However, the changes of the average financial ratios clearly show that the financial crisis had a significant influence on the financial health and performance of Polish listed businesses.

Under the conditions of crisis, people and businesses reduce investment expenditure. Prior to the crisis, the average ratio of shareholders' equity to fixed assets in the construction industry was 1,75. However in 2014, it had a value of less than negative two, which signifies that the average construction firm had a negative shareholders' equity. Consequently, the relation of debt to current assets increased from 1,1 in 2006 to 2,1 in 2014. Moreover, 2014 was the only year in which the average working capital of firms in the construction sector was negative. The assets turnover fell by almost one half between 2006 and 2014 (from 1,55 to 0,87), which means that many construction companies had problems generating sales. This is also reflected by the increase of stock turnover ratio in days from 114 days in 2006 to 1150 days in 2016. This was due to the reduction in investment expenditure during the crisis by individual investors and companies. The construction industry coped relatively well with the crisis. It should be emphasized that during the crisis, Poland built highways and incurred large expenditures on transport infrastructure. Certainly, this helped to weaken the impact of the crisis on the situation of many building companies, especially those involved in the construction of highways.

The average values of financial ratios for the 62 companies in 11 industry sectors fluctuated during the crisis but many of these ratios ended up at the same (or quite similar level) in 2014 as they were in 2006. A substantial difference between the year 2006 and 2014 was noted, inter alia, in the level of an average shareholders' equity to asset ratio (dropped from 1,89 to just 1) and in the case of the ratio reflecting the general financial situation of the business (X6 faced a decline from 4,6 to 1,49).

In the case of the retail trade, the average values of the ratios were not as volatile as in other industries during the crisis. It is interesting to note that the average value of the ratio reflecting the general financial situation of the business (X6) increased from 2,84 in 2006 to 5,39 in 2014 which may indicate that the general financial standing of retail firms was better in 2014 than before the crisis. It may also indicate that consumer purchasing behavior did not change dramatically during the crisis and so retail companies were able to maintain financial solvency. On the other hand, asset turnover ratio deteriorated from 5,58 in 2006 to 3,12 in 2014. Moreover, the ratio of debt to shareholders' equity rose from 0,89 in 2006 to 1,48 in 2014. These data indicate that retail companies increased the level of debt in their financing structure. Companies operating in the retail industry coped very well with the crisis. Some ratios worsened during this time, but, in 2014, many of them had a similar level to their pre-crisis values. Some ratios (X1, X6, X9, X14, X19) were better in 2014 than in 2006. This was probably due to a systematic increase in income and consumer spending of Poles.

In the case of wholesale companies, the average ratio of shareholders' equity to fixed assets dropped from 2,1 to 0,81 and the ratio reflecting the general financial situation of the business (X6) dropped from 3,99 to 1,43. As opposed to retail companies, the financial situation of wholesale firms deteriorated during the crisis. During 2012-2014, the average working capital of these firms was negative. However, they managed to improve their receivables turnover as average accounts receivable turnover dropped from 255 to just 100 days. Perhaps this was caused by the diminishing level of working capital which made these companies introduce a more aggressive policy in financing current assets. It can be argued that the crisis affected wholesale more than it did retail. It seems, however, that the deterioration of the financial situation of many warehouses was also due to other factors. Poles are more likely to make purchases in large retail chains, which do not need to use the services of intermediaries such as wholesalers. Perhaps, even if there hadn`t been any crisis, the situation of wholesalers would still be worse in 2014 as compared to 2006.

The impact of the crisis on the financial situation of enterprises can be most easily identified using the financial ratios. For many individual companies, ratios have changed significantly during the crisis. Many listed companies went bankrupt including 6 listed construction firms (ABM Solid S.A., Hydrobudowa Polska S.A., Intakus S.A., PBG S.A., BUDOPOL-WROCŁAW S.A., ENERGOMONTAŻ-POŁUDNIE S.A.), 10 industrial companies (Odlewnie Polskie S.A., Zakłady Lniarskie ORZEŁ S.A., Swarzędz Meble S.A., Krośnieńskie Huty Szkła KROSNO S.A., Huta Szkła Gospodarczego IRENA S.A., Grupa Kolastyna S.A. - currently Miraculum S.A., Mennica Polska S.A., Drewex S.A., Dolnośląskie Surowce Skalne S.A., Wilbo S.A.), 3 companies from the retail sector, (Monnari Trade S.A., Bomi S.A., Euromark Polska S.A.), 4 companies from the wholesale sector (Pronox Technology S.A. - currently Regnon S.A., Advadis S.A., Firma Handlowa Jago S.A., Fota S.A.), one company from services-others (Zakłady Naprawcze Taboru Kolejowego w Łapach S.A.), one company from the hotels and restaurants sector (PolRest S.A., Polskie Jadło S.A), one IT firm (TECHMEX S.A.), one media company (Internet Group S.A. – currently W Investments S.A.) one telecom firm (Elektrim S.A.) and one developer (Gant Development S.A.). Average values of many ratios changed in many industries during the crisis. As mentioned before, many companies had very unusual (high or low) ratios, which confirms the impact of the crisis on their financial situation. The biggest number of bankrupt companies were from the construction industry. Empirical studies conducted by the authors show that the financial crisis had a significant impact on the condition of the studied companies. However, its effects cannot be compared in any way to the effects of the Great Depression. The impact of the recent crisis on companies from various industries was diversified.

References

Adamczyk, M. (2012). Współczesny kryzys finansowy - przyczyny i konsekwencje dla gospodarki światowej. *Prace i Materiały Instytutu Handlu Zagranicznego Uniwersytetu Gdańskiego*, No. 31, 13-29. Sopot: Wydawnictwo Uniwersytetu Gdańskiego. Retrieved from ekonom.ug.edu.pl/web/download.php?OpenFile=930.

Baumol, W., Blinder, A. (2010). *Economics: Principles and Policy*. Mason: South-Western Cengage Learning.

Claessens, S., Dell'Arica, G., Igar, D., Laever, L. (2010). Cross-country Experiences and Policy Implications from the Global Financial Crisis. *Economic Policy*, 25 (62).

Crash course (2013). *The Economist, 7* (09).

Crotty, J. (2009). Structural Causes of the Global Financial Crisis a Critical Assessment of the "New Financial Architecture". *Cambridge Journal of Economics*, 33.

Czekaj, J. (2010). Wpływ światowego kryzysu gospodarczego na polską gospodarkę. In G. Kołodko (Ed.), *Globalizacja, kryzys i co dalej (pp. 189-209)?* Warszawa: POLTEXT.

Ehrhardt, M., Brigham, E. (2011). *Corporate Finance: a Focused Approach.* Mason: South-Western Cengage Learning.

Ewing, J. (2010, Dec. 6). Poland's Currency Lifts Economy. *New York Times.* Retrieved from http://www.nytimes.com/2010/12/07/business/global/07zloty.html.

Gardo, S., Martin, R. (2010). The Impact of the Global Economic and Financial Crisis on Central, Eastern and South-eastern Europe. *Occasional Paper Series,* 114.

Hübner, D., Lubiński, M., Małecki, W., Matkowski, Z.(1994). *Koniunktura gospodarcza.* Warszawa: PWE.

Lanzillotti, R. (2005). Schumpeter, Product Innovation and Public Policy: the Case of Cigarettes. In U. Cantner, E. Dinopolous, R. Lanzillotti R. (Ed.), *Entrepreneurship, the new economy and public policy: Schumpeterian perspectives* (pp. 11-32). Berlin-Heidelberg: Springer-Verlag.

Mankiw, G. (2012). *Principles of Economics.* Mason: South-Western Cengage Learning.

Harvey, C., Campello, M., Graham, J. (2009). The Real Effects of Financial Constraints Evidence from a Financial Crisis. *SSRN Electronic Journal*, 12.

Konopczak, M., Sieradzki, R., Wiernicki, M. (2010). Kryzys na światowych rynkach finansowych – wpływ na rynek

finansowy w Polsce oraz implikacje dla sektora realnego. *Bank i Kredyt, 41*(6), 45–70.

Mc Kibbin, W., Stoeckal, A. (2009). The Global Financial Crisis: Causes and Consequences. *Working Paper in International Economics*, 11.

Mishkin, F. (2004). *The Economics of Money, Banking, and Financial Markets.* Boston, San Francisco, New York: The Addison-Wesley Series in Economics.

Notoria Serwis – the main source of financial data.

Piątkowski, M. (2015, June 12). Future Development: Four Ways Poland's State Bank Helped It Avoid Recession. *The Brookings Institution*. Retrieved from https://www.brookings.edu/blog/future-development/2015/06/12/four-ways-polands-state-bank-helped-it-avoid-recession/.

Radomska, E. (2013). Globalny kryzys finansowy – przyczyny, przebieg, skutki. Zarządzanie Zmianami. *Zeszyty Naukowe POU*, 2-3 (59), 1-21. Retrieved from http://pou.pl/zeszyty_naukowe/pdf/2013_59_nr_2-3_Radomska.pdf.

Reinhart, C., Rogoff, K. (2009). Is the 2007 US-subprime Financial Crisis so Different? An International Historical Comparison. *American Economic Review,* 98, 339-344.

Reisman, A. (2005). *Democracy and Exchange: Schumpeter, Galbraith, T.H. Marshall, Titmuss and Adam Smith. Cheltenham*. Northampton: Edward Elgar Publishing.

Różański, J. (2014). Foreign Direct Investment and the World Economic Crisis. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, 365, 186-195.

Sheets, C.A. (2012, Sept. 29). The East European Miracle: How Did Poland Avoid The Global Recession? *International Business Times.* Retrieved from http://www.ibtimes.com/east-european-miracle-how-did-poland-avoid-global-recession-795799.

Schumpeter, J. (2005). *Capitalism, Socialism and Democracy*. London: Routledge.

Schumpeter, J. (1928). The Instability of Capitalism. *The Economic Journal 38*(151), 361-386.

Spychała J. (2013). Stan budżetu państwa w Polsce w obliczu światowego kryzysu gospodarczego na tle Unii Europejskiej. *Nierówności Społeczne a Wzrost Gospodarczy*, 30, 261-269. Retrieved from file:///C:/Users/Toshiba/Downloads/19%20(1).pdf.

Stewart, J. (2005). Capital in the New Economy: A Schumpeterian Perspective. In U. Cantner, E. Dinopolous, R. Lanzillotti R. (Ed.), *Entrepreneurship, the new economy and public policy: Schumpeterian perspectives (pp. 163-180)*. Berlin-Heidelberg: Springer-Verlag.