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Foreword

The development of the post-industrial economy is bringing significant changes in almost every dimension of management, work organization and finance. The use of modern IT technologies, expert applications, and automation in enterprises and institutions is becoming common. This requires the application of new management principles and methods as well as technical analysis applications for economic research, project and innovation management, co-creation of value with external organizations in the field of logistics, knowledge and shared services.

These papers are an attempt to present the reader with the authors' position on contemporary knowledge about finance and management of complex organizations. The aim of the authors of the articles is to look for answers: how these organizations can be constructed and organized as well as how they can function in a situation where the pace of changes causes the emergence of thus far unknown phenomena and processes, raising new problems that cannot be solved without appropriate research and new knowledge. Each of the presented articles composing this issue of *The Małopolska School of Economics in Tarnów Research Papers Collection*, vol. 47, issue 3/2020, are, in turn, aimed at adapting the analysis of the world of organization and finance to the pace of these changes. The articles, which are the result of scientific work conducted as part of basic and implementation research, present the issues of measuring the profitability of an enterprise, forecasting the state of economic activity in pre-emerging countries, researching the financial effectiveness of R&D activities in an enterprise; as well as analysis of factors for the development of cooperative banks, assessment of the effectiveness of the management motivation system, marketing activities and social media in the context of enterprise innovation and others.

In the articles, the reader can find many original theoretical approaches and observations of a practical nature. For this reason, *The Małopolska School of Economics in Tarnów Research Papers Collection* may be an interesting and useful item for both theoreticians of organization and management, economics and finance, as well as students and practitioners.

The journal is the work of research and teaching staff of our School and employees of other universities and research centres, i.e. University of Szczecin, Jan Kochanowski University in Kielce, The Catholic University of America—The Busch School of Business in Washington, Poznań University of Economics and Business (2 articles), Cracow University of Economics, the University of Agriculture in Krakow and the Lublin University of Technology.

I would like to thank everybody who co-edited this issue of the journal, especially the Editors who took the trouble to express their opinions on the submitted articles, the Reviewers for their substantive and valuable comments, and also to the entire Editorial Team and all collaborators.

Leszek Koziol
Editor-in-Chief

ECONOMICS AND FINANCE

The stock market as a barometer of the future state of economic activity on the example of pre-emerging countries

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Abstract: The article considers whether the stock market could be as a barometer of the future state of economic activity. The study was conducted on the example of a group of pre-emerging countries (frontier markets). The article partially fills the gap in the literature on the subject. Research on the links between the stock market and the real economy can be found in developed and even emerging markets. However, there is a lack of research on this topic in the area of pre-emerging markets. That is why this article is devoted to the group of pre-emerging markets. Accordingly, the article examined the relationship between the situation on the stock market in year T and the future real rate of change in GDP, private consumption and investment in year $T + 1$. Firstly, a strong positive correlation was noted between the rate of return on the stock index in the year T and the real rate of GDP and its components in the year $T + 1$. Secondly, there is a consumer effect in the stock markets of all pre-emerging countries. There is also an investment effect in most of the countries studied. The strength of both effects is similar. Thirdly, participants in the pre-emerging stock markets are trying to confront reality with expectations. They welcome data on better than expected change in economic growth. Fourthly, negative links between the rate of return on equity markets and inflation were observed in the group of countries studied.

Keywords: stock market, stock returns, real activity

1. Purpose of the article and research methodology

The aim of the article is to investigate whether the stock market could play a role as a barometer of the future state of economic activity on the example of a group of pre-emerging countries. Certain research hypotheses have also been verified, including is it true that higher returns on equity markets in pre-emerging countries are obtained in the year before the real GDP recovery than before it cools. Moreover, the view verified that high returns from the equity markets of

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pre-emerging countries can be expected in the so-called surprise effect and much lower rates of return can be expected in the so-called disappointment effect.

The view as to whether it is true that in the equity markets of pre-emerging countries we deal with the occurrence of both the investment effect and the consumption effect was also verified. The strength of both effects was then tested.

The article fills the gap in the literature on the subject. Research on the links between the stock market and the real economy can be found within developed markets as well as emerging markets. However, there is no research on this in the area of frontier markets. Accordingly, the article examines the relationship between the situation on the stock market in year T and the future real changes in GDP, private consumption and investments in year $T + 1$ in the group of frontier markets. Research in individual pre-emerging countries (frontier markets) was conducted in 2005–2019. Comparative research between the group of developed, emerging and frontier markets was conducted in the years 2003–2019.

The pre-emerging countries (frontier markets) include: Estonia, Croatia, Lithuania, Romania, Ukraine, Slovenia, Bulgaria, Bosnia and Herzegovina, Kazakhstan, Mauritius, Botswana, Bahrain, Kuwait, Oman, Jordan, Lebanon, Kenya, Morocco, Nigeria, Tunisia, Sri Lanka, Vietnam, Bangladesh, Jamaica, Panama, and Trinidad and Tobago. In addition to the group of pre-emerging countries they also include: Ivory Coast, Senegal, Zimbabwe and Serbia. However, due to the lack of complete macroeconomic data, the last four countries were not included in the research.

On the one hand, the question is whether the economic situation on the stock market can be used to forecast such macroeconomic variables as GDP, consumption or investments. On the other hand, the question is whether it is possible to obtain high rates of return on the stock market by using macroeconomic data on GDP and inflation.

The macroeconomic data was taken from the IMF and World Bank databases and the stock index data from the database from the Stooq website. Selected quantitative tools, such as arithmetic mean and correlation coefficients, were used for the research.

2. Relationships between the stock market and GDP in literature

Research on the relationship between the rate of return on the stock market and changes in GDP has been undertaken in the literature. In foreign literature, the leading representative of this research trend is P. Mauro (2000). This author has researched both developed and emerging markets. His research shows that there are positive relationships between the economic situation on the stock market and changes in GDP. M. Binswanger (2000) reached similar conclusions.

In recent years, research on the relationship between the stock markets and the real economy has been performed, among others, by B. Cornell (2010), J. R. Ritter (2005), F. Gong and R. S. Mariano (1997), and A. A. Enisan and A. O. Olufisayo (2009).

B. Cornell proved that US stock investors discount the future economic growth in the US. On the other hand, J. R. Ritter examined the relationship between the average annual GDP growth rate per capita in the years 1900–2002 and the geometric average annual rate of return on the stock market index in a given country in the same period. He came to the conclusion

that this relationship is not very strong. Other researchers, F. Gong and R. S. Mariano, using their preferred research methods (e.g. VAR), failed to discover strong links between macroeconomic factors and the situation on the South Korean stock market. On the other hand, A. A. Enisan and A. O. Olufisayo showed that the development of the stock market can support economic growth in Africa.

In Poland, E. Łon (2006) studied the relationship between the situation on the stock market and the real activity of the economy, studying both developed and emerging markets. Moreover, he examined the relationship between the stock market and economic activity on the example of the Polish economy. His research shows that the stock market is a barometer of the future state of the economy. There is some time shift. The stock market is one year ahead of the real economy. Research in this area in Poland was also conducted, among others by: W. Dębski (2008, pp. 10–15), A. Kasprzak-Czelej (2012) and H. Wiśniewski (2014, pp. 7–40). All these authors came to similar conclusions as E. Łon about positive connections between the situation on the stock market and the future real economy.

3. Three categories of stock markets

Given the point of view of the stock market investor, the investment bank Morgan Stanley distinguishes three groups of countries (markets). These are developed markets, emerging markets and frontier markets. In its statistics, this bank distinguishes 23 developed countries, 26 emerging countries and 30 frontier countries.

Table 1. List of countries forming the three categories of stock markets as of the end of May 2020

| Developed markets | Emerging markets | Frontier markets |
|-------------------|------------------|------------------------|
| Austria | Argentina | Estonia |
| Belgium | Brazil | Croatia |
| Denmark | Chile | Lithuania |
| Finland | Colombia | Romania |
| France | Mexico | Ukraine |
| Germany | Peru | Slovenia |
| Ireland | China | Bulgaria |
| Italy | India | Bosnia and Herzegovina |
| Netherlands | Indonesia | Serbia |
| Norway | South Korea | Kazakhstan |
| Portugal | Malaysia | Mauritius |
| Spain | Pakistan | Botswana |
| Sweden | Philippines | Bahrain |
| Switzerland | Taiwan | Kuwait |

| | | |
|-------------|----------------------|---------------------|
| UK | Thailand | Oman |
| Australia | Saudi Arabia | Jordan |
| Hong Kong | Qatar | Lebanon |
| Japan | United Arab Emirates | Kenya |
| New Zealand | Egypt | Morocco |
| Singapore | South Africa | Nigeria |
| Canada | Czech Republic | Tunisia |
| USA | Poland | Ivory Coast |
| Israel | Hungary | Senegal |
| | Greece | Zimbabwe |
| | Russia | Sri Lanka |
| | Turkey | Vietnam |
| | | Bangladesh |
| | | Jamaica |
| | | Panama |
| | | Trinidad and Tobago |

S o u r c e: Database of the Morgan Stanley.

The analysis of this division leads to the conclusion that the division criterion is mainly the level of GDP per capita. Developed countries are very rich countries whose share in world GDP exceeds 50%. Moreover, the level of GDP per capita in developed countries is very high (Figure 1). And emerging countries are not as rich as developed countries. However, they show a dynamic increase in welfare and are trying to catch up with developed countries in terms of GDP per capita. Frontier countries are also a group of rapidly developing countries, although poorer than emerging countries. Frontier countries want to catch up with the group of emerging countries in terms of GDP per capita.

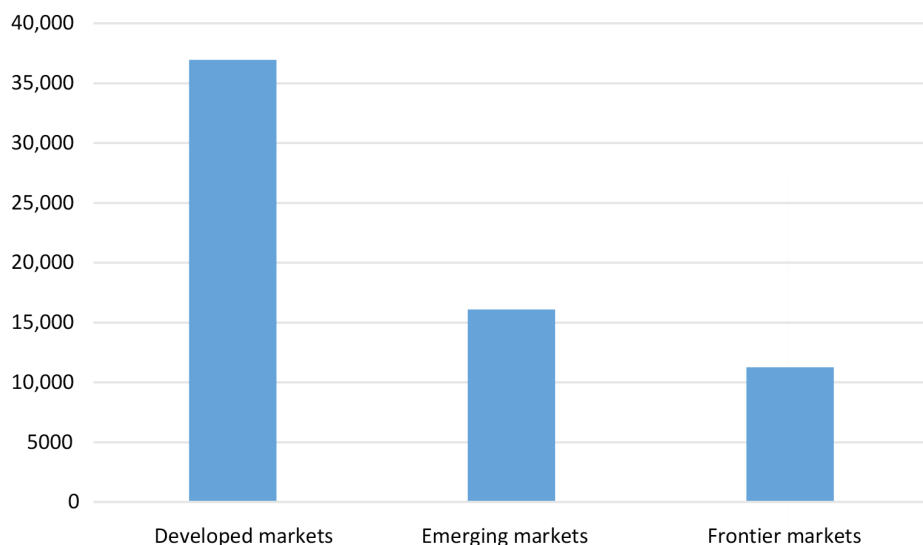


Figure 1. Median GDP per capita in the three groups of countries in USD in 2019

Source: Database of the IMF.

Thus, in emerging and frontier countries, GDP per capita is significantly lower than in developed countries. Nevertheless, it is in emerging and frontier countries that a higher growth rate of the welfare level can be expected. The convergence theory says that in the long run the level of GDP per capita will equalize (Barro, 1990; Malaga, 2004). For this to happen, the poorer countries must develop faster than the richer countries.

Therefore, it is expected that the convergence processes will lead in the future to an equalization of the level of wealth between the groups of countries. Therefore, investors who place their capital in emerging and frontier countries are particularly interested in the economic situation on local equity markets.

It is worth noting that in developed countries we are dealing with highly developed equity markets. These are countries with an established market tradition, where stock exchanges have existed for a long time, often from even the nineteenth century. In contrast, in emerging and frontier countries, the history of stock markets is shorter. The capitalization of companies in emerging and frontier markets in relation to domestic GDP is much lower than in developed markets (Figure 2).

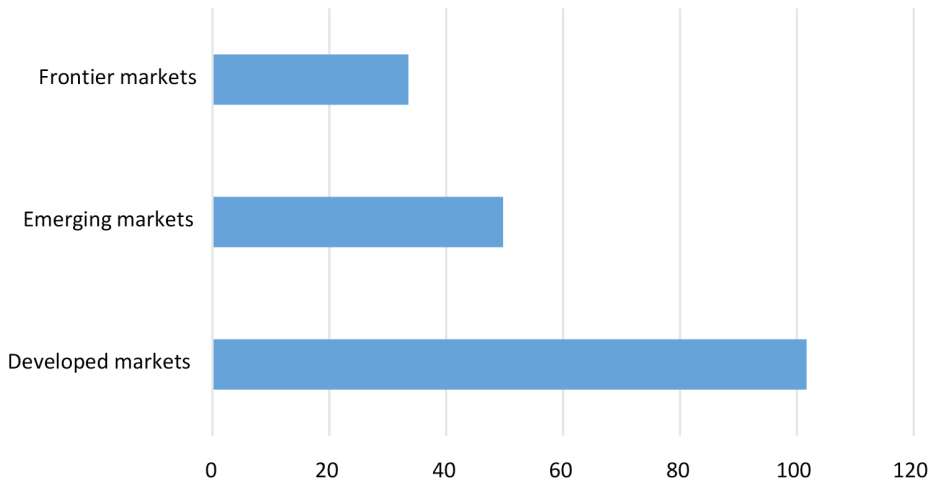


Figure 2. Stock market capitalization by country group in 2019

Source: Database of the IMF.

It is also worth noting that equity market returns in emerging and frontier countries are higher than in developed countries. On the other hand, however, investing in the equity markets of poorer countries is very risky (Figure 3).

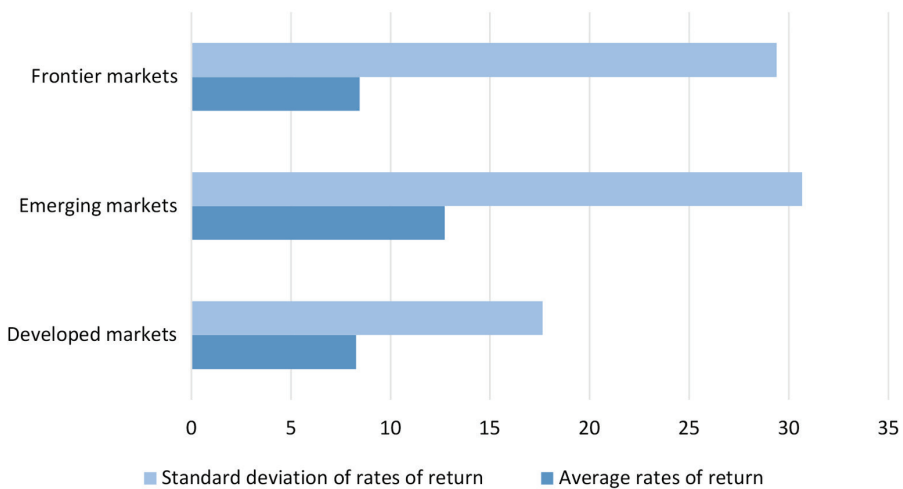


Figure 3. Average and standard deviation of returns on equity markets, 2003–2019

Source: Database of the Morgan Stanley.

Analyzing the situation in the equity markets of frontier countries, we can observe rapidly changing trends in recent years. It is worth using the so-called frontier premium, i.e. the difference between the rate of return on the equity markets of frontier countries and the rate of return on the equity markets of developed countries. The frontier premium shows the relative strength of frontier markets relative to developed markets. When this premium is positive in a given year, it means that investing in the equity markets of frontier countries is more profitable than investing in the equity markets of developed countries. When the premium is negative, it is more profitable to invest in the equity markets of developed countries.

Observing the behaviour of the frontier premium in the years 2003–2019, we can see that its positive nature continued until 2007 (Figure 4). Since the outbreak of the financial crisis in 2008, the frontier premium was usually negative. This meant that frontier markets were characterized by a relative weakness compared to developed markets in recent years.

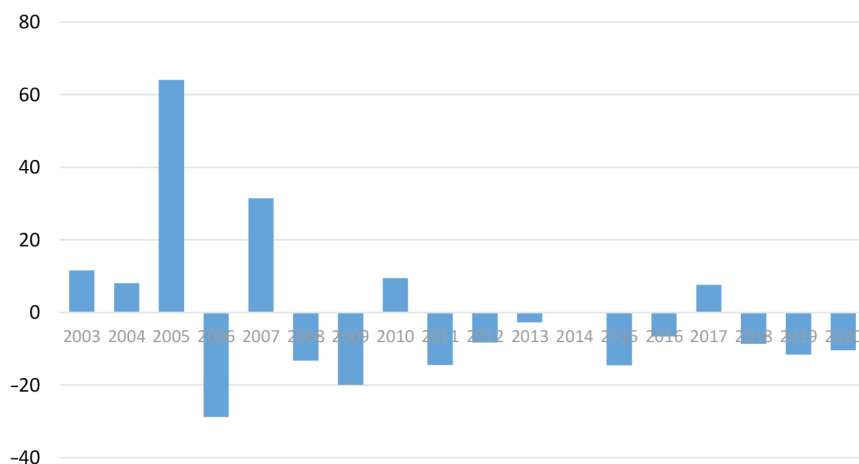


Figure 4. Frontier premium in 2003–2019 (in %)

Source: Database of the Morgan Stanley.

It is worth noting that the group of pre-emerging markets is very diverse not only in terms of indicators such as GDP per capita, but also other indicators such as: stock market capitalization and investment fund assets to GDP (Figures 5 and 6).

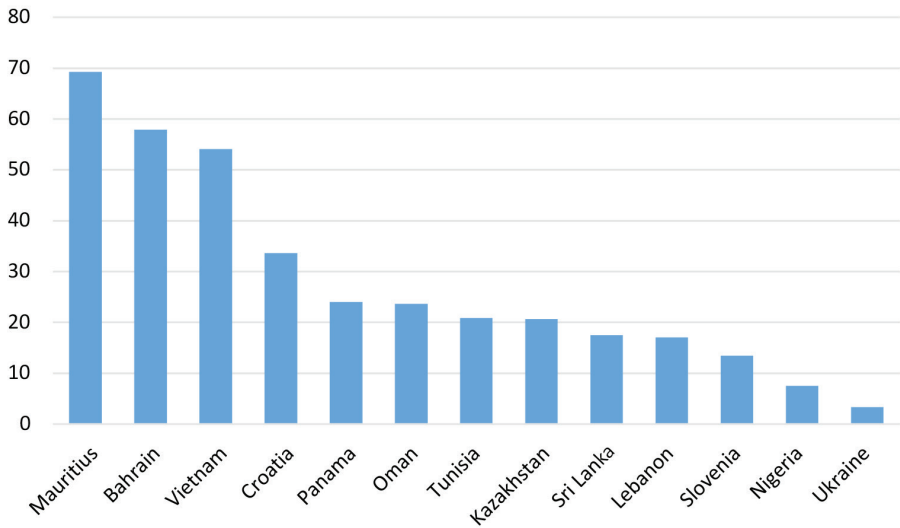


Figure 5. Equity market capitalization to GDP in selected frontier countries in 2018 (in %)

Source: Database of the IMF.

Countries with a relatively high ratio of equity market capitalization to GDP in the analyzed period were: Mauritius (69.25%), Bahrain (57.92%) and Vietnam (54.1%). The remaining group of countries recorded much lower levels of this indicator (below 50%).

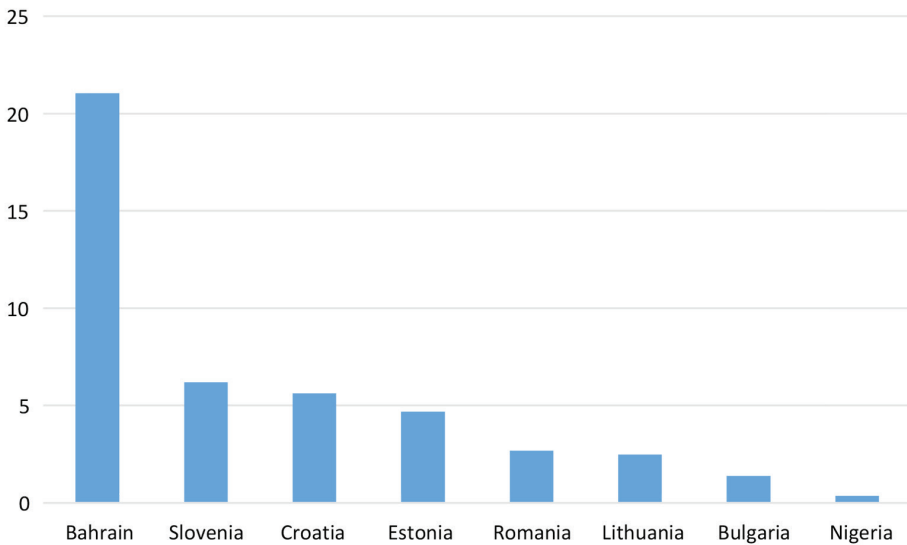


Figure 6. Mutual Fund Assets to GDP in Selected Frontier Countries in 2017 (in %)

Source: Database of the IMF.

Also, in terms of the ratio of mutual funds assets to GDP, there are large differences between individual frontier countries (Figure 6). The highest level of this indicator was recorded in Bahrain (21%). In other cases, the level of this ratio was very low and did not exceed 10%.

The frontier stock markets will be the subject of more detailed research later in this article.

4. The discounting nature of the stock market

The stock market is a discounting mechanism for the future. The stock market situation is most often presented in terms of the rate of return. Stock market investors who invest their capital in the shares of companies listed on the stock exchange compare the current market price of one share of a given company with the fundamental value of that share (Koch, 1996, pp. 145–146). This value is usually calculated using the discounted cash flow method (Copeland, Koller and Murin, 1997). The expected amount of the said flows depends, among others, on the forecast rate of economic growth. The level of estimated flows is then corrected using the so-called discount rate (Francis, 2000). Its value is the sum of the risk-free rate and the risk premium. The risk-free rate is defined as the yield on government bonds. This profitability is, in turn, largely related to the level of official interest rates set by the central bank.

5. Valuation of shares using the DCF method

It follows that both stock market investors and analysts should take into account macro-economic variables when estimating the fundamentally justified value of shares of a listed company. Among them, information on the level of economic activity (Mauro, 2000) and monetary variables (Conover, Jensen and Johnson, 1999, p. 42) play a special role.

Empirical research shows that in many countries there is a positive correlation between the rate of return on the stock exchange index in year T and the real rate of changes in GDP in year T + 1 (Łon, 2005). This is the situation we can observe both in developed, emerging and frontier countries (Figure 7). Interestingly, the strongest positive correlation was observed in emerging markets (0.78). Slightly lower in developed markets (0.75) and lowest in frontier markets (0.68). However, all these correlations show that the positive links between the situation on the equity markets in a given year and the future real rate of economic activity in the following year are permanent and persist in the long term.

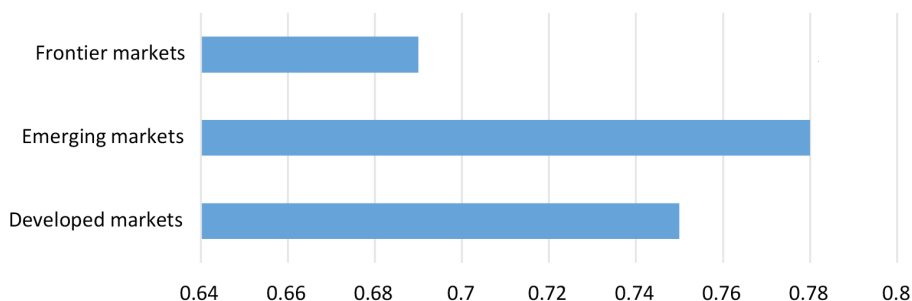


Figure 7. Correlation between the rate of return on the stock market in year T and the real GDP rate in year T + 1 on the example of three groups of markets in 2003–2019

6. The stock market and the future level of economic activity

This fact can be interpreted in two ways. According to the first interpretation known as passive, the level of positive correlation results from very accurate macroeconomic forecasts formulated by stock market participants. Since these investors were very eager to buy shares in the year preceding the high real rate of changes in GDP, and got rid of them in the year preceding the low level of this rate, it means that the future level of economic activity was an important motive for their decision to buy or sell shares. In line with the second, more active interpretation, it can be assumed that the shape of the economic situation on the stock market in a given year led to certain decisions of consumers and entrepreneurs in the next year, which resulted in the same level of real GDP changes (Łon, 2006).

It is worth examining further in the article whether the positive nature of the relationship between the rate of return on the stock market in a given year and the future real GDP rate can be observed on the example of specific countries that make up the group of frontier markets.

Table 2. Correlation between the equity market return in year T and the real GDP rate in year T + 1 in frontier countries in 2005–2019

| Countries | Correlation of returns on the equity market T and real GDP rate T + 1 |
|------------------------|---|
| Kazakhstan | 0.77 |
| Bulgaria | 0.74 |
| Bosnia and Herzegovina | 0.73 |
| Lithuania | 0.69 |
| Estonia | 0.68 |
| Vietnam | 0.64 |
| Slovenia | 0.64 |
| Panama | 0.61 |
| Kuwait | 0.56 |
| Ukraine | 0.56 |
| Croatia | 0.55 |
| Sri Lanka | 0.52 |
| Bahrain | 0.52 |
| Mauritius | 0.46 |
| Romania | 0.44 |
| Tunisia | 0.43 |
| Botswana | 0.37 |
| Morocco | 0.33 |

| | |
|---------|------|
| Jordan | 0.33 |
| Kenya | 0.33 |
| Nigeria | 0.31 |
| Jamaica | 0.24 |
| Oman | 0.05 |
| Lebanon | 0.01 |
| Average | 0.48 |

Source: Database of the IMF.

It turned out that we can observe such a positive correlation, and this is the case for all the surveyed countries (Table 2). In most of the analyzed countries, the correlation between the rate of return on the stock market in year T and the real GDP rate in year T + 1 was relatively strong and exceeded over 0.5. The highest correlation was recorded in the case of countries such as: Kazakhstan (0.77), Bulgaria (0.74), Bosnia and Herzegovina (0.73) and Lithuania (0.69). In fact, in these countries, equity markets played a role as a strong barometer of the future state of the real economy.

7. The stock market and the recovery and cooling of economic activity

There is another way to study the relationship between the stock market situation and the real GDP rate in frontier countries. Namely, it is worth distinguishing the concepts of high and low real GDP rate, and then economic recovery and cooling. By high real GDP rate we understand the real GDP rate higher than the average level and the low real GDP rate lower than its average level in the entire period under examination. On the other hand, by economic recovery we understand the situation where in year T + 1 the real GDP rate is more favourable than the real GDP rate in year T.

By economic cooling, in turn, we understand the situation in which the real rate of changes in GDP in the year T + 1 is less favourable than in the year T.

On the basis of the research conducted so far, it can be formulated that the participants of the stock market are interested in both the future real rate of economic growth and the change in this rate. In the course of further analyzes, this hypothesis will be verified. For this purpose, four cases, or in other words four groups of years, were distinguished. The first type of years is designated AA, the second AB, the third BA, and the fourth BB.

The year AA is understood as the year T, which precedes the high real rate of changes in GDP in the year T + 1 and, at the same time, the economic recovery in the year T + 1. Year AB is understood as year T, which is preceded by the high real rate of changes in GDP in the year T + 1 and the economic cooling in the year T + 1. Year BA is understood as year T, which is preceded by a low real rate of changes in GDP in the year T + 1 and the economic recovery in the year T + 1. The year BB is the year T, which is preceded by the low real rate of changes in GDP

in the year $T + 1$ and the economic cooling in the year $T + 1$. Next, you need to examine what returns in frontier stock markets to expect in years AA, AB, BA, and BB (Figure 8).

On the basis of the performed calculations, it was noticed that the average rates of return on the stock market in year AA were higher than the average rates of returns on the stock market in year BB for all analyzed frontier countries. Moreover, positive and very high rates of return were recorded in AA for all the countries surveyed. On the other hand, also in the case of all surveyed countries in BB, negative and very low rates of return were recorded.

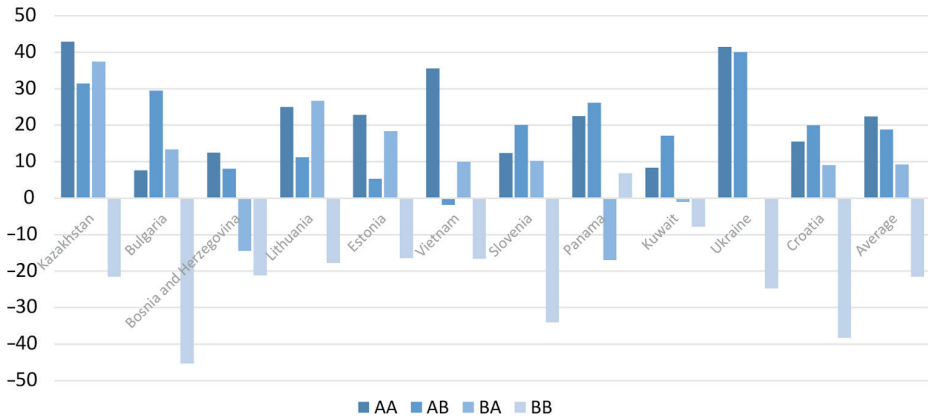


Figure 8. Average returns from the pre-emerging stock market in AA, AB, BA and BB 2005–2019 (in %)

Source: Database of the IMF.

The largest difference between the average rate of return on the stock market in AA and BB was recorded in Kazakhstan and Ukraine (Figure 8), which very clearly shows that in both countries the equity markets played a role of a barometer of the future level of economic activity and changes of this level.

8. The surprise and disappointment effect on the stock markets

It is worth noting that if in a given year $T + 1$ the economic growth (measured by GDP) was higher than in the year T , it means that there was an improvement in economic growth. Otherwise, it can be said to worsen.

One can also distinguish the concept of changes in economic growth. If in year $T + 1$ the average real GDP rate was at the level of 2.2%, and for the next year the IMF researchers predicted this rate at the level of 3.1%, it can be said that they expected a change in economic growth by 0.9 points percentage.

This forecast change in economic growth should be compared with the actual change. We can observe a situation in which the change in economic growth was more favourable than expected. Then we are talking about the so-called surprise effect. On the other hand, if the change in economic growth was actually less favourable than the expected change, we are talking about the so-called result of disappointment.

Research has been done on a group of frontier countries to check what rate of return on the stock market can be achieved in the years of the surprise effect and in the years of the disappointment effect (Figure 9).

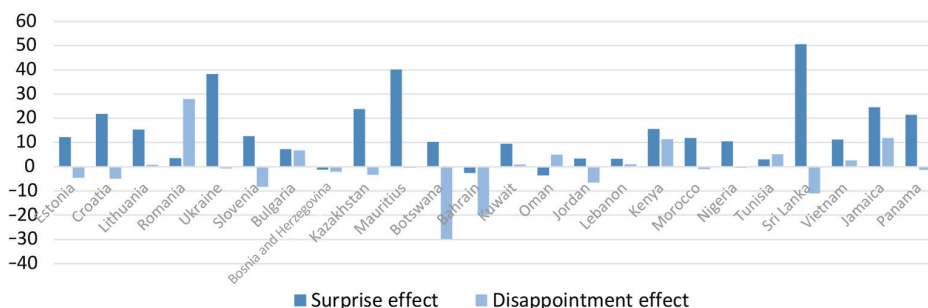


Figure 9. Average rate of return on the equity market in the year when the actual GDP rate is more favourable than forecast (surprise effect) and the year when the actual GDP rate is less favourable than forecast (disappointment effect) in frontier countries in 2005–2019 (in %)

Source: Database of the IMF.

It turns out that in the case of most of the surveyed countries we can observe a situation where the average rate of return on a given domestic stock exchange index was higher in the year in which the change in economic growth was more favourable than expected (surprise effect) than in the years when the change economic growth was less favourable than expected (disappointment effect).

In the years of surprise, investors obtained positive and at the same time very high rates of return. Particularly high rates of return in the analyzed years were achieved by equity market participants in countries such as Sri Lanka (50.64%), Mauritius (40.17%), Ukraine (38.21%) and Jamaica (24.54%). Interestingly, the years of disappointment saw low, usually negative returns on the stock market. Such years were perceived particularly negatively by participants in the stock market of such countries as: Botswana (−29.8%), Bahrain (−19.78%) and Sri Lanka (−11.04%).

9. Investment effect and consumption effect

When discussing the problem of connections between the economic situation on the stock market in frontier countries and the level of economic activity in the next year in these countries, it is necessary to refer to the investment effect and the consumption effect. The fact of the first of them was noticed by J. Tobin (Kaźmierczak, 2018). He found that the appreciation of the share prices of listed companies leads to an increase in the level of the indicator measuring the ratio of the company's market value to the replacement cost of its assets.

This cost can be equated simply with the dividend rate. A good economic situation on the stock market encourages companies to undertake new issues, and a poor economic situation discourages from such activities. The source of the consumption effect discovered by F. Modigliani is, in turn, the increase in the share of stocks in financial assets owned by house-

holds. Consumers, noticing rising share prices, become more optimistic and therefore more often than before decide to incur consumer spending, especially on goods characterized by higher elasticity of demand. These include, for example, household items. It is worth checking whether we can observe investment and consumption effects also in frontier countries.

Therefore, research was undertaken on the relationship between the rate of return on the stock market in year T and the real rate of private consumption and investment in year T + 1 in individual frontier countries. It turned out that in these countries there were both investment and consumption effects. It was observed that the strength of these effects was similar. The consumption effect occurred in all countries and the investment effect in 9 out of 10 countries (Figure 10).

We saw a strong consumption effect in countries such as: Mauritius (0.85), Croatia (0.79), Lithuania (0.76), and Ukraine (0.76). On the other hand, there was a strong investment effect in countries such as Lithuania (0.84), Estonia (0.75) and Botswana (0.66).

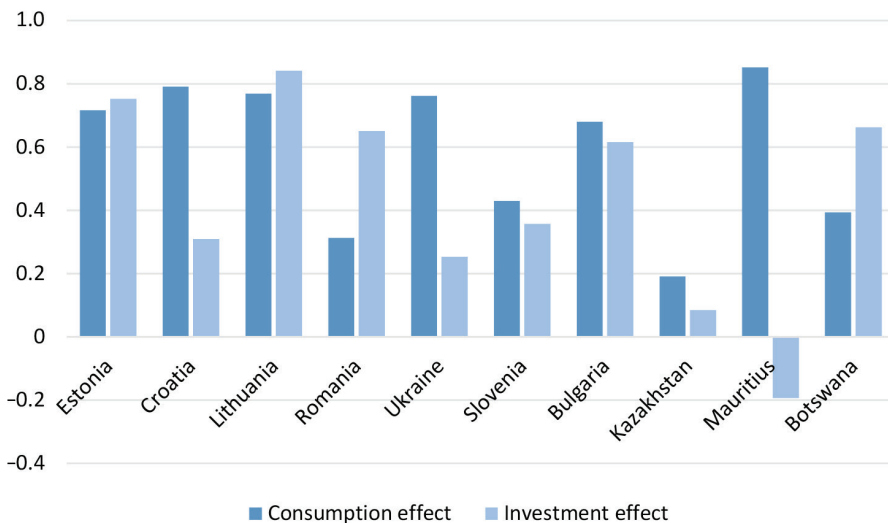


Figure 10. Correlation between the rate of return on the stock market in a given country in year T and the real rate of private consumption in year T + 1 (consumption effect), and the correlation between the rate of return on the stock market in a given country in year T and the real rate of investment in the year T + 1 (investment effect) in frontier countries in 2005–2019

Source: Database of the IMF.

10. The stock market and inflation

In addition to GDP, stock market investors are also interested in other macroeconomic data, such as the inflation rate. The prevailing opinion in the literature is that the boom in the stock market is favoured by lower inflation and the bearish by higher inflation (Kaul, 1987, p. 253). It was decided to verify this view on the example of a group of frontier countries. Appropriate research has been conducted on this topic.

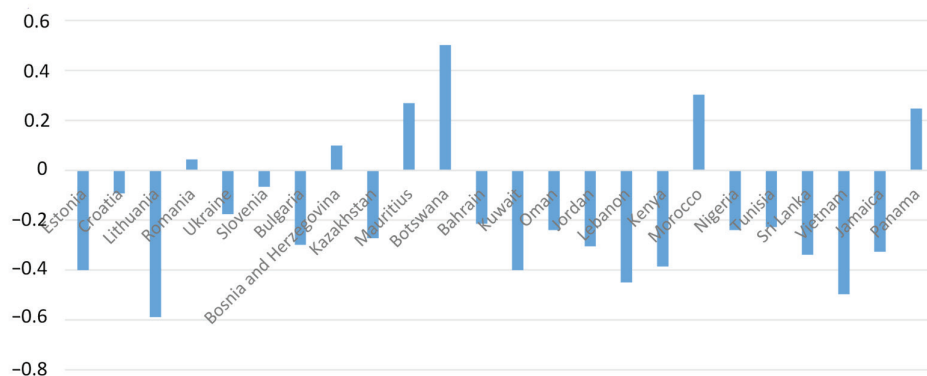


Figure 11. Correlation between returns on the stock market and inflation in frontier countries, 2005–2019

Source: Database of the IMF.

It turned out that the negative correlations between the situation in the stock market and the inflation were confirmed (Figure 11). Research shows that in the year of low inflation, a high rate of return on the stock market can be expected. The strongest negative correlation between the rate of return on the stock market and inflation was recorded in the following countries: Lithuania (−0.58), Vietnam (−0.49) and Lebanon (−0.45).

11. The actual and expected direction of changes in inflation

It is also worth checking whether, in the case of this macroeconomic indicator, it is important to confront expectations with reality. The research showed that we deal with two groups of frontier countries (Figure 12). On the one hand, there are countries (e.g. Sri Lanka, Croatia and Lithuania) where investors are satisfied with lower actual inflation than forecast. Then they achieve high rates of return on the stock market. On the other hand, there are frontier countries where periods of higher-than-expected inflation are favourable for investors in the stock market. This group of countries includes Ukraine, Kazakhstan and Panama.

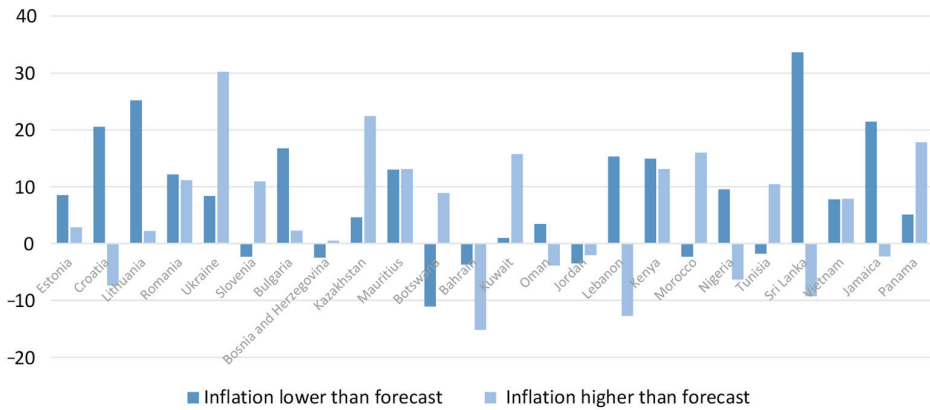


Figure 12. Average return on the equity market in the year when actual inflation is below forecast (first bar) and in the year when actual inflation is above forecast (second bar) in frontier countries 2005–2019 (in %)

Source: Database of the IMF.

12. Final conclusions

First, research shows that frontier stock markets are relatively strong barometers of the future state of the economy. There was a strong positive correlation between the rate of return on the stock exchange index in year T and the real rate of GDP and its components in year $T + 1$. Equity markets in countries such as Kazakhstan, Bosnia and Herzegovina, Bulgaria, Lithuania, Estonia, Vietnam, Slovenia and Panama turned out to be strong barometers of the economy. In all these countries, the correlation between the rate of return on the stock market in a given year and the real GDP rate in the following year exceeded 0.6.

Second, it turned out that there is both an investment and a consumption effect in the equity markets of frontier countries. The strength of both effects is similar. Strong investment effect occurred in countries such as Lithuania, Estonia and Botswana. In turn, there was a strong consumption effect in countries such as: Mauritius, Croatia, Lithuania and Ukraine.

Third, it turned out that higher returns on equity markets in frontier countries were achieved in the year before the real GDP recovery than before it cooled. High rates of return in the year before the revival of the real GDP rate were recorded in the case of countries such as Kazakhstan and Ukraine.

Fourth, high returns from frontier stock markets can be expected in the so-called surprise effect and much lower in the case of the so-called disappointment effect. The highest rates of return in the event of a surprise effect were observed in countries such as Sri Lanka, Mauritius, Ukraine and Jamaica.

Fifthly, negative correlations between the rate of return on stock markets and inflation were observed in the analyzed group of countries. The strongest negative correlation between the rate of return on the stock market and inflation was recorded in countries such as Lithuania, Vietnam and Lebanon. Moreover, frontier countries can be divided into two subgroups.

There are countries (e.g. Sri Lanka, Croatia and Lithuania) where investors are satisfied with lower actual inflation than forecast. On the other hand, there are also some frontier countries where the periods of higher-than-expected inflation are favourable for investors in the stock market. This group of countries includes Ukraine, Kazakhstan and Panama.

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Rynek akcji jako barometr przyszłego stanu aktywności gospodarczej na przykładzie krajów przed-wschodzących

Abstrakt: W artykule rozważano, czy rynek akcji może być barometrem przyszłego stanu aktywności gospodarczej. Badanie przeprowadzono na przykładzie grupy krajów przed-wschodzących (*frontier markets*). Artykuł wpisuje się w pewną lukę występującą w literaturze przedmiotu. Badania na temat powiązań rynku akcji ze sferą realną gospodarki można spotkać w obrębie rynków dojrzałych, a nawet rynków wschodzących. Jednakże brakuje badań na ten temat w obszarze rynków przed-wschodzących, dlatego artykuł ten poświęcono właśnie grupie rynków przed-wschodzących. Badania w poszczególnych krajach przed-wschodzących prowadzono w latach 2005–2019. Badania porównawcze między grupą rynków dojrzałych, wschodzących i przed-wschodzących prowadzono zaś w latach 2003–2019. W związku z tym w artykule zbadano związek między sytuacją na rynku akcji w roku T a przyszłym realnym

tempem zmian PKB, konsumpcji prywatnej i inwestycji w roku $T + 1$. Z przeprowadzonych badań nasuwają się następujące wnioski. Po pierwsze, odnotowano silną korelację dodatnią między stopą zwrotu z indeksu giełdowego w roku T a realnym tempem PKB i jego składowymi w roku $T + 1$. Po drugie, na wszystkich rynkach akcji krajów przed-wschodzących występuje efekt konsumpcyjny. W większości badanych krajów występuje również efekt inwestycyjny. Siła obu efektów jest podobna. Po trzecie, uczestnicy rynków akcji krajów przed-wschodzących próbują konfrontować rzeczywistość z oczekiwaniami. Z zadowoleniem przyjmują dane dotyczące lepszej, niż oczekiwano, zmiany wzrostu gospodarczego. Po czwarte, w badanej grupie krajów zaobserwowano ujemne powiązania między stopą zwrotu na rynkach akcji a inflacją.

Słowa kluczowe: rynek akcji, stopa zwrotu, aktywność gospodarcza

Profitability on an accrual and cash basis on the example of enterprises from video game sector listed on the Warsaw Stock Exchange

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Abstract: The aim of this paper is to check whether information based on accrual basis are reflected in cash approach to profitability. Therefore, whether financial data from income statement are consistent with cash flow statement. The main hypothesis assumes that it is true. To check this ascertainment empirically, financial statements of 8 companies from video game sector listed on Warsaw Stock Exchange (WSE) were examined. First part includes sample definitions of profitability and accrual and cash approach to processes occurring in the enterprise. Applied analytical methods are presented further. In next part empirical dependencies between profitability in accrual and cash approach were analyzed. Research methods included literature review, empirical data analysis and also induction and deduction methods used for inference. Analyzed measurements and indicators were characterized by occurrence of similar signs, descriptive statistics' values and correlations. Therefore, conclusions about consistency between information referred to profitability in not only accrual, but also cash approach have been drawn. Both approaches simultaneously indicate good financial condition referred to profitability among majority of analyzed entities. Considering that, the hypothesis was confirmed.

Keywords: net income, operating cash flows, rates of return, financial indicators, generating profits

1. Introduction

Making profits used to be known as the most important aim of enterprises' activity. On the other hand, nowadays there is another view on the main purpose of functioning of business entities—maximizing their market value (other goals are e.g. maximizing cash flows or market share [Damodaran, 2015]). This inconsistency shows that there is not existing any universal purpose of leading business activity. Therefore, profitability is widely recognized as one of the aims, which are strongly connected with successfully running a business.

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Classic approach to profitability is connected with accrual principle. However, recently there has been popular different way which includes cash rule. Especially, increasingly used is approach based on comparing accrual and cash profitability. This way allows to get broader view on business entity's economic situation in terms of gaining profits.

The aim of this paper is verification whether incomes based on accrual principle and cash flows lead to similar conclusions about companies' profitability. The main hypothesis agrees with this statement. Analysis was based on financial data of companies listed on Warsaw Stock Exchange (WSE) in video game sector. Period included in the study is from 2017 to 2019. Applied research methods are literature review, empirical data analysis, induction and deduction methods. First part of the paper is focused on profitability as a measure as well as on accrual and cash principles. In the second section applied methods of analysis, like descriptive statistics and correlation analysis, are shown. Last part embraces empirical analysis based on financial statements of examined companies.

2. Accrual and cash profitability

Profitability is defined differently in Polish literature. For instance, this measurement is identified as:

- “occurrence of revenues earning from economic activity exceeding costs of their leading” (Waśniewski, 1997, p. 174);
- “relative measure of financial result indicating management efficiency” (Micherda [ed.], 2004, p. 229);
- “reflection, in the most synthetic form, of efficiency business management” (Sierpińska and Jachna, 2004, p. 95).¹

Most definitions, like these proposed by B. Micherda and M. Sierpińska with T. Jachna, recognize profitability as a relative measurement, referred to involved capital or expenditures. That approach is compatible with etymology of analyzed word (Stępień, 2013). Therefore, it can be said that profitability indicators reflect relation of income to capital or other reference value.

As mentioned, there are existing two main approaches to measure profitability. First of them, accrual rule, is one of overarching accounting principles. It is regulated by art. 6, par. 1 of The Accounting Act. According to the act, all revenues and associated costs concerning to the fiscal year should be included in accounting books regardless of the date of their payment. Another approach is cash-based. Revenues and costs of the current period are included within it in books at the time of their payment. Previously indicated principles are not always consistent, they might deliver various information about company.

Sources of financial information on accrual and cash basis are different. Income statement provides information about accrual profitability, whereas source of data referred to cash rates of return is cash flow statement. According to Polish law, first of already listed components of financial statement is mandatory for all business entities keeping books of accounts, while cash flow statement is not. That element has to be made only in companies whose financial statement is subject to examination by the auditors. On the other hand, for instance in

¹ For more see e.g. Stępień, 2013.

the United States of America, dominates approach mainly using cash values. Generally, in Anglo-Saxon countries, like the USA and Great Britain, the cash rule plays the greater role, while in continental Europe accrual principle is commonly used (Andrzejewski and Mazur-Maślanka, 2017).

Referring to profitability, accrual and cash approach manifests itself by using not only information from income statement, but also from cash flow statement. There are many arguments for that way. For example, evaluation of company's financial condition with using rates based on net income or operating cash flows is quite easy, and because of it that solution is widely used. Furthermore, based on comparison of accrual financial result and cash flows it is possible to find out, how much of the generated profit found reflection in actual cash flows (Sierpińska and Jachna, 2004). Moreover, cash better reflects the entity's payment capacity, when accrual income is vulnerable to manipulations (Misztal, 2018). What is more, amortization and depreciation, elements of accrual financial result, are important for many companies and they are not cash expenditures. Thereby, these quantities are reasons of dissimilarity between accrual and cash financial result (Friedlob and Scheifer, 2003). Because of many weaknesses of accrual approach to profitability (presented also e.g. by: Maślanka, 2008; Mazloom, Azarberahman and Azarberahman, 2013), it may seem that cash approach is a better one. However, it is not essential to use only cash flow data. Sometimes analyzing only cash flows may lead to conclusion about good financial situation of company, while in reality it is not true (Friedlob and Scheifer, 2003). Taking everything into account, it could be said that it is intentional to consider both accrual financial results and cash flows. This opinion is shared by the researchers of the subject (e.g. Watson and Wells, 2005; Scott, 2007).

Comparison of cash and accrual profitability usually involves net income and operating cash flows. When these two quantities are characterized by similar size, it could be stated that accrual profitability is reflected in cash flows from basic company activity. In other situations (when operating cash flows are above 0 and the net loss is generated, or vice versa) income and cash flow statements are providing inconsistent information about company's ability to generate profit (Maślanka, 2008).

3. Applied methods of analysis

Subject of analysis are financial statements from years 2017–2019 of companies listed on Warsaw Stock Exchange (WSE) Main Market in video game sector. 8 companies were selected out of 10, because of availability of their financial statements for 2019. Companies included in the analysis are: PlayWay S.A. (further: PlayWay), CD Projekt S.A. (CD Projekt), Ultimate Games S.A. (Ultimate Games), Ten Square Games S.A. (Ten Square Games), 11 Bit Studios S.A. (11 Bit Studios), Artifex Mundi S.A. (Artifex Mundi), CI Games S.A. (CI Games) and BoomBit S.A. (BoomBit).

Initially, variants of operating, investing and financing cash flows were analyzed among group of examined companies. Subsequently, relations between net income and operating cash flows were checked. Further part of analysis was focused on accrual and cash indicators of profitability. Construction of these indexes is as follows (Damodaran, 2015; Mazur-Maślanka 2017):

- *return on equity (ROE)* = $\frac{\text{net income}}{\text{average value of equity}}$,
- *return on assets (ROA)* = $\frac{\text{net income}}{\text{average value of assets}}$,
- *return on sales (ROS)* = $\frac{(\text{net income})}{\text{revenues from sales}}$,
- *return on invested capital (ROIC)* = $\frac{\text{operating income} \times (1 - \text{tax rate})}{\text{invested capital}}$,
- *cash return on equity (cash ROE)* = $\frac{\text{operating cash flows}}{\text{average value of equity}}$,
- *cash return on assets (cash ROA)* = $\frac{\text{operating cash flows}}{\text{average value of assets}}$,
- *cash return on sales (cash ROS)* = $\frac{\text{operating cash flows}}{\text{revenues from sales}}$.

Firstly, descriptive statistics based on these indicators were computed—arithmetic average, standard deviation, coefficient of variation, quartiles, minimum and maximum values and distance (Wasilewska, 2009). After that, correlations between analyzed indicators were calculated.

4. Empirical analysis of accrual and cash profitability

Focus was especially on cash flow analysis despite its quite rare using, to emphasize its value for recipients. Therefore, variants of cash flows were analyzed, because of signs of operating, investing and financing flows. Next, connections between the net income and operating net cash flows were studied. Further part is analysis of descriptive statistics of indicators based on accrual and cash principles. At the end, correlations existing between those indexes were computed.

In group of companies listed on WSE dominated versions with plus operating cash flows. Table 1 shows variants of cash flows observed among these companies in the period 2017–2019.

Table 1. Observed variants of cash flows

| Variant of cash flows* | Numbers of observed cases | | | |
|------------------------|---------------------------|------|------|--------------|
| | 2017 | 2018 | 2019 | Together (%) |
| +,+,+ | 0 | 0 | 1 | 4.17 |
| +,+,- | 0 | 1 | 1 | 8.33 |
| +,-,+ | 1 | 2 | 2 | 20.83 |
| +,-,- | 5 | 4 | 3 | 50.00 |
| -,-,+ | 0 | 1 | 0 | 4.17 |
| -,+,- | 0 | 0 | 1 | 4.17 |
| -,+,+ | 1 | 0 | 0 | 4.17 |
| -,-,- | 1 | 0 | 0 | 4.17 |

* In sequence: signs of operating, investing, financing activities.

Half of companies are characterized by appearance of variant with higher than 0 operating and negative investing and financing cash flows. Analyzed version is commonly approved as evidence of solid economy condition, when net operating flows allow to invest and pay liabilities. It may be interpreted as positive information about companies' financial condition, in terms of profitability. The best companies in this approach are CD Projekt and Ten Square Games, which achieved variant taken into account in years 2017–2019.

Quite popular among analyzed entities was variant with positive operating and financing cash flows. It indicates good companies' statuses as well as the previous one. Corporations reaching this option of cash flows are taking advantages from their basic activity and acquiring other sources of funding, so it can be supposed that they highly likely have trust of creditors. Such flows appeared e.g. in 11 Bit Studios (2017–2018) and CI Games (2018–2019).

In two cases, Ultimate Games in 2018 and PlayWay in 2019, there were observed negative financing cash flows with positive other. This is average information about financial situation of these companies. Moreover, remaining versions of signs of cash flows were observed once at analyzed period. Worth focusing is condition of Artifex Mundi, where were observed variants with operating cash flows lower than 0 in every year 2017–2019. Such situation indicates problems with basic activity in this entity. It should be assessed as a negative symptom of condition of this company.

Connections between net income and operating cash flows were further examined. Relations among these variables are shown in Table 2.

Table 2. Relations between net income and operating cash flows

| Net income | Operating cash flows | Number of observed cases | | | |
|------------|----------------------|--------------------------|------|------|--------------|
| | | 2017 | 2018 | 2019 | Together (%) |
| + | + | 6 | 6 | 6 | 75.00 |
| + | – | 1 | 0 | 0 | 4.17 |
| – | + | 0 | 1 | 1 | 8.33 |
| – | – | 1 | 1 | 1 | 12.50 |

“+” means value > 0, “–” value < 0 (no values = 0).

S o u r c e: Author's own elaboration based on financial statements of analyzed enterprises.

Most observations were characterized by appearance of positive variants not only of the net income, but also of operating cash flows (half of analyzed companies, PlayWay, CD Projekt, 11 Bit Studios and Ten Square Games, throughout the entire analysis period). This variant must be evaluated as good signal referred to financial condition of these entities. Another situation was observed in Artifex Mundi. This company noted less than 0 both net income and operating cash flows. It signals considerable problems with profitability of this company in terms of accrual and cash principles. Other variants have been observed once at some companies (net loss and positive operating flows in Ultimate Games in 2017, negative financial result and operating cash flows in CI Games in 2018 and BoomBit in 2019). In these cases

only three forms of profitability did not give similar information. Summarizing, in majority of cases the inferences relating to accrual and cash profitability are consistent. Sign of the accrual income finds confirmation in operating cash flows in 87.5% cases.

Next part of analysis was focused on financial indicators. Firstly, descriptive statistics for these indexes were computed. It has been shown in Table 3.

Table 3. Descriptive statistics among analyzed indexes

| Indicator | Av. | D | V | Q1 | Med. | Q3 | Min. | Max. | Dist. |
|-----------|-------|------|--------|------|-------|--------|---------|--------|--------|
| ROE | 31.6% | 0.47 | 149.5% | 4.3% | 24.1% | 68.4% | -51.7% | 143.1% | 194.8% |
| ROA | 26.9% | 0.39 | 145.4% | 3.1% | 22.7% | 60.7% | -42.7% | 110.7% | 153.4% |
| ROS | 18.8% | 0.46 | 244.2% | 4.9% | 32.2% | 47.6% | -102.4% | 89.9% | 192.3% |
| ROIC | 76.9% | 1.26 | 161.5% | 8.8% | 27.4% | 111.2% | -46.3% | 448.0% | 494.3% |
| C. ROE | 31.0% | 0.43 | 138.0% | 7.7% | 25.8% | 54.7% | -41.7% | 162.5% | 204.2% |
| C. ROA | 25.4% | 0.34 | 134.8% | 5.4% | 24.7% | 45.9% | -36.8% | 125.8% | 162.5% |
| C. ROS | 27.3% | 0.32 | 116.2% | 9.5% | 38.3% | 47.7% | -33.7% | 71.3% | 105.0% |

Av.—arithmetic average, D—standard deviation, V—coefficient of variation, Q—quartile, Min., Max.—in sequence: minimum and maximum value, Med.—median, Dist.—distance (between Min. and Max.); C. ROE, C. ROA, C. ROS—in sequence: cash return on equity, assets and sales.

S o u r c e: Author's own elaboration based on financial statements of analyzed enterprises.

ROE indicators in accrual and cash approach are characterized by appearance of similar values of descriptive statistics, especially arithmetic average and standard deviation. Such situation was observable in case of ROA, too. Noticeable values were quite high, close to 25% and 30% average in sequence for return on equity and assets. Otherwise, these indexes were characterized by high variability—values of coefficients of variation exceeded 100%. Significant differentiation of values of ROA and ROE indicators are confirmed by minimum, maximum and distance values (at the level of several times higher than arithmetic average).

Return on sales in accrual approach reached values below 20% on average, whereas volatility of this index was quite high. This index is the only one, which the absolute value of minimum was higher than maximum. Cash ROS reached higher values than its accrual equivalent, for instance for average and quartiles, whereas its variability was at the lower level. Therefore, it can be stated that in the case of sales profitability cash index took more favourable values than its accrual version.

Finally, descriptive statistics for indicators of profitability of equity in accrual and cash variants were characterized by similar values. It allows to suppose that there are existing positive dependencies between them, similarly as in the case of ROA. However, for return on sales calculated measurements were slightly different in accrual and cash approach.

To check if there are existing statistically relevant dependencies among analyzed indexes, correlations between these indicators were calculated. Results of this study are shown in Table 4.

Table 4. Correlations between accrual and cash indicators

| | ROE | ROA | ROS | ROIC | C. ROE | C. ROA | C. ROS |
|--------|---------|---------|---------|---------|---------|---------|--------|
| ROE | 1.000 | – | – | – | – | – | – |
| ROA | 0.996** | 1.000 | – | – | – | – | – |
| ROS | 0.666** | 0.697** | 1.000 | – | – | – | – |
| ROIC | 0.911** | 0.885** | 0.416* | 1.000 | – | – | – |
| C. ROE | 0.787** | 0.750** | 0.386 | 0.787** | 1.000 | – | – |
| C. ROA | 0.795** | 0.764** | 0.421* | 0.774** | 0.997** | 1.000 | – |
| C. ROS | 0.313 | 0.320 | 0.573** | 0.124 | 0.539** | 0.570** | 1.000 |

C. ROE, ROA, ROS—in sequence: cash return on equity, assets, sales.

*—relevant with $p < 0.05$; **—relevant with $p < 0.01$.

S o u r c e: Author's own elaboration based on financial statements of analyzed enterprises.

There are observed very strong connections between accrual return on equity and assets and between their cash equivalents. However, for aims of this paper it is essential to measure correlations between cash and accrual forms of the same indicators. For ROE there was noticeable strong, positive dependence between two types of this index, almost at the level of 0.78. Similarly it is for ROA, where value of correlation is bigger than 0.75, too. A little difference existed between accrual and cash ROS. Dependence of this indicators is less than 0.6, however it is still statistically relevant positive correlation. To sum up, it could be said that there are observed strong, positive dependencies between accrual and cash indicators on average.

5. Conclusion

The research, focused on dependencies between accrual and cash indicators referred to profitability, allows conclusions to be drawn. Accrual and cash variants of rates of return were characterized by occurrence of similar values of descriptive statistics (especially average and standard deviation). For ROE and ROS differences between cash and accrual measures were at the lower level than for ROA. Furthermore, among analyzed indicators there were observable positive dependencies on average. Accrual and cash versions of return on equity were characterized by strong correlations. The same was true for return on assets. For return on sales dependency was weaker, it could to be evaluated as moderate correlation.

In general, accrual and cash indicators referred to profitability in group of 8 companies listed on WSE in video game sector on average led to similar conclusions about companies' financial condition. Likewise, the net income and operating cash flows in most cases (87.5%) were source of congenial information. It can be stated that on an example of that business entities accrual incomes were confirmed in cash flows in period from 2017 to 2019. Therefore, the hypothesis might be considered as a confirmed one.

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Rentowność w ujęciu memoriałowym i kasowym na przykładzie przedsiębiorstw z branży gier wideo notowanych na Giełdzie Papierów Wartościowych w Warszawie

Abstrakt: Celem opracowania jest sprawdzenie, czy informacje oparte na zasadzie memoriałowej znajdują odzwierciedlenie w kasowym podejściu do rentowności. Równocześnie, czy dane finansowe z rachunku wyników są zgodne z ujętymi w sprawozdaniu z przepływów pieniężnych. Główna hipoteza zakłada prawdziwość takiego stwierdzenia. W celu empirycznej weryfikacji tego założenia badaniu poddano sprawozdania finansowe 8 przedsiębiorstw z branży gier wideo notowanych na Głównym Rynku Giełdy Papierów Wartościowych w Warszawie. W pierwszej części artykułu zaznaczono przykładowe definicje rentowności oraz memoriałowe i kasowe podejście do procesów zachodzących w przedsiębiorstwie. Dalej przed-

stawiono wykorzystane metody analityczne. W ramach kolejnego fragmentu przeanalizowano empiryczne zależności pomiędzy zyskownością w ujęciu memoriałowym i kasowym. Metodyka badań obejmowała przegląd literatury, empiryczną analizę danych, metody indukcji i dedukcji wykorzystane do wnioskowania. Analizowane miary i wskaźniki charakteryzowały się podobnymi znakami, wartościami statystyk opisowych i korelacjami. Wobec tego wyciągnięto wnioski o zgodności informacji odnoszących się do rentowności zarówno w ujęciu memoriałowym, jak i kasowym. Oba ujęcia równocześnie wskazywały na dobrą kondycję pod względem zyskowności wśród większości badanych podmiotów. Wobec tego hipoteza została potwierdzona.

Słowa kluczowe: zysk netto, operacyjne przepływy pieniężne, stopy zwrotu, wskaźniki finansowe, generowanie zysków

Improving the effectiveness of marketing activities of enterprises through the use of heuristics and irrational behaviour described in behavioural economics

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Abstract: Behavioural economics is gaining importance in the theory of economics. This can be proved by the fact that the Bank of Sweden Award Alfred Nobel in economics in 2017 was awarded to Richard Thaler, who promotes a behavioural approach to economic problems. More and more representatives of science admit that man is not homo oeconomicus rationally maximizing usefulness, but as a human being he is sometimes irrational and commits repetitive, systemic errors in the reasoning and evaluation of phenomena. The results of experiments carried out by behavioural economists can be very useful in developing, promoting and selling products. This article presents selected effects and heuristics, which are treated by behavioural economics and their use in marketing activities of enterprises. The main purpose of the work was to answer the questions: how to improve the effectiveness of the company's marketing activities in conditions of strong competition through the use of heuristics and irrational behaviour. Some of the analyzed cases were taken from the market practice of companies, while others are new proposals that may be used in the future.

Keywords: behavioural economics, economic psychology, consumer psychology

1. Introduction

The modern economy is characterized by an unprecedented level of globalization. On the one hand, it is an opportunity for the most resilient companies, and on the other hand, it means very fierce competition if a given entity intends to compete in the global markets. Simultaneously with globalization in developed countries, the role of information in the economy is growing, and the concept of “knowledge economy” is cited (Żabiński, 2009, pp. 15–16). Another trend in the field of marketing is the decline in the effectiveness of advertizing and the increase in the costs of producing and broadcasting advertizing spots (Żbikowska, 2005, p. 29). Then again, the costs of creating and maintaining a website are much lower

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compared to a classic advertizing campaign. This lack of technical, organizational or financial barriers opens the door to virtually everyone to exist on a global scale (Wiktor, 2006, p. 39). Therefore, the role of knowledge in the process of competition is growing. For this reason, enterprises should look for their competitive advantage, constantly improving known tools and introducing new ones.

In these conditions, the quality of information and the efficiency of its processing is of increasing importance. It supports all processes in the enterprise by developing a product, producing it, searching for foreign partners, conducting negotiations or selling (Kamiński, 2006; Bartosik-Purgat and Schroeder, 2013). Successful enterprises are characterized, *inter alia*, by high innovation (Kłósiewicz-Górecka, 2011). As a result, there is also increasing pressure to use information in a creative and productive way. This can be done by combining different fields of knowledge. For example, measuring and evaluating the effects of advertizing can be done using physiological methods, which consist of observing the body's response during promotional tests. This can be done by tracking eye movement, observing the eye pupils, analyzing the tone of voice, performing a pupillometry test or examining how the heart responses (Woźniczka, 2012, p. 134).

In recent years, scientists' discoveries combining psychology and economics, *i.e.* behavioural economists, have increasingly influenced economics. The most famous are Dan Ariely, Amos Tverski, Daniel Kahneman (2002 Nobel Prize winner) and Richard Thaler (2017 Nobel Prize winner). This field broadens its area of knowledge mainly through experiments that reveal the irrationality and cognitive distortions characteristic of humans. The conclusions drawn from them are very useful in marketing which is based on the knowledge of the consumer.

According to Wyner (2016), behavioural economics and marketing have had a lot in common for decades. Marketing has developed an understanding of consumer behaviour and a departure from purely rational choice. Mruk (2012, p. 58) also believes that the assumption that buyers' choices are rational should be rejected. Rudnicki (2012, pp. 12–13) mentions various situations in which the consumer is sometimes rational and sometimes irrational. In recent years, there has been a growing interest in using behavioural economics in marketing to improve business performance as it describes the consumer as he is, not as he should be according to the model.

According to Philip Kotler, classical economists marginalized marketing, and the greatest irony today is the fact that neoclassical economists are now facing a new challenge of behavioural economics, which challenges the key assumption that consumers maximize their utility. Striving to maximize utility or profit is the key to building economic decision models. Otherwise, economists would have to work with a different assumption that consumers are essentially "satisfied" without wasting time maximizing, and this is their imperfect optimum (Kotler, 2016).

When analyzing another trend, one can consider identifying market segments, *i.e.* groups of recipients with similar needs and preferences (Domański, 1995, p. 23). Taking into account the use of elements of behavioural economics, it is reasonable to ask which of the presented heuristics are our target group. For example, young men may be prone to the effects of overconfidence and risk-aversion. Researchers have demonstrated a relationship between

testosterone concentration and risk-aversion in many studies (Apicella et al., 2008; Wang et al., 2000; Goetz et al., 2014). Guided by the same need, men make consumer decisions differently than women (Kiezel and Smyczek, 2012). Appropriate segmentation is also not an ideal and constant solution over time, as consumers and market conditions are constantly changing. For example, the factor influencing consumption may be the economic crisis—the impact of the economic turmoil in 2008–2009 on consumer attitudes is analyzed by Rudawska (2010). The aim of this article is to indicate the applications in the marketing of discoveries and phenomena described within the framework of behavioural economics.

2. Purpose and methods

The main purpose of the article is to answer the question: How can a company improve the effectiveness of its marketing activities under the conditions of strong competition by using heuristics and irrational behaviours?

Heuristics are simplified inference rules. The human mind, using these heuristics, makes judgments about the probability or value (numerical or quantitative) of a given matter, things, people, etc. As a result, the process is fast, requires less mental resources, but is more susceptible to cognitive distortions (Tversky and Kahneman, 1974). An example of heuristics is anchoring, as described in the article. A given value (sometimes random) affects our perception of the phenomenon.

In addition to heuristics, behavioural economics analyzes **i**rrational behaviours that are in some way repetitive and can be observed through experiments. An example of such irrationality as per classical economics may be choosing the default option, instead of analyzing all the options and choosing the most appropriate one, as the model “*homo oeconomicus*” should do. This behaviour is irrational from the point of view of the neoclassical paradigm (where the subject is perfectly rational), which does not mean that such behaviour should be criticized from a functional point of view. Analyzing all options is time-consuming and energy-intensive, so perhaps the consumer would not be able to function this way with his/her biological limitations (finite energy and cognitive abilities, information asymmetry, etc.).

The goal will be implemented with the help of published research. The results of the experiments will be presented for use in marketing. Some of the uses are already implemented into practice and some may be not. The author is not able to clearly separate one from the other due to the confidentiality of some promotional strategies and the limited possibilities of processing distributed, decentralized and non-quantified information.

3. Factors determining consumer behaviour

The consumer makes purchasing decisions based on a myriad of factors. There is a wealth of literature on this subject. Only an outline is presented in Table 1 below.

Table 1. Selected factors determining consumer behaviour

| Factors determining consumer behaviour | Synthetic description of factors determining consumer behaviour |
|---|---|
| Cultural | Relationship with values, norms and knowledge in the society. Values and norms are reflected at the level of objects and behaviours. For example, Western culture is characterized by: <ul style="list-style-type: none"> – freedom and democracy (source: Athenian political system and culture); – individual responsibility and individualism (source: Calvinism—everyone interprets the Scriptures individually); – equality of all people (source: French and American Revolutions); – consumerism: St. Thomas Aquinas, Martin Luther and John Calvin criticized the wickedness of entrepreneurs. They can be called the first consumers. Within consumerism, the goal is to provide consumers with better protection, rights, guarantees and information. Consumer rights are protected in Western culture. |
| Identity and image | Identity is a schema of oneself. Consumers, by purchasing goods, create their image, depending on the desired image, they will make purchasing decisions. |
| Emotional or, more broadly, psychological | Many purchasing decisions are influenced by emotions. Some products are purchased by the consumer when he is happy or wants to celebrate an event (buying champagne), while other products are purchased for “comfort”, e.g. sweets—of course not only in a sad state, but the key is that there are people who react to sadness or stress in this way. |
| Social | As early as 1890, a Franchman Gabriel Tarde emphasized the role of imitation in the context of consumer behaviour. Products promoted by authority figures and “celebrities” are often perceived as more attractive. |
| Situation | This topic has been raised for a long time, e.g. Lewin, 1936; Kakkar and Lutz, 1981. A situation is a point in time and space, unrelated to the characteristics of the consumer or the product. Different products may be preferred in different situations. |
| Demography | <ul style="list-style-type: none"> – Family life cycle—the needs of young adults without children are completely different from those of parents with small children. Within the family, the child socializes and acquires consumption patterns. How the child is shaped largely depends on the parenting style (Carlson and Grossbart, 1988). – Social status—determines awareness and consumption style. – Age—human needs change with it. |
| Economic factors | These factors are related to demographic, social status and, to a large extent, age. Disposable income clearly determines consumption. When the income is lower, the consumer is forced to choose cheaper products. In the case of high disposable income (or wealth), opportunities open up for the purchase of “premium” or luxury goods. |
| Attitude towards innovation | Different consumer groups have different approaches to innovation. There are groups of e.g. innovators who are particularly eager to buy a product only because it is new. On the other end of the spectrum there are extremely conservative people who are reluctant to change their habits and will only buy a new product if they are forced to. There is a whole range of indirect behaviours between the extremes. |
| Interests, views | Each person’s purchasing preferences differ due to their unique interests, such as specific hobbies. The views are an important factor, e.g. a person promoting the fight against plastic production due to ocean pollution will probably avoid products made of this material. |

Source: Author’s own elaboration based on: Tarde, 1890; Lewin, 1936, p. 11; Kakkar and Lutz, 1981, p. 204; Carlson and Grossbart, 1988; Rogers, 1983; Gajewski, 1997, pp. 94–99; Antonides and van Raaij, 2003; Smyczek and Owl, 2005; Wiśniewska, 2005, pp. 16–20; Karczewska, 2010, pp. 478–481.

Presented above are some brief factors determining consumer behaviour. The list is very long and certainly not complete. The next part of the text will describe the heuristics and effects studied in the framework of behavioural economics, along with their possible use in marketing.

4. Selected heuristics and irrational behaviours and the possibility of using them in marketing.

Default option (*status quo* effect)

When a person has a wide array of choices, they often remain passive and do nothing or take the default option. In behavioural economics, this phenomenon has been called the *status quo* effect (Samuelson and Zeckhauser, 1988). This effect is especially strong when the range of options is rich and the selection is relatively complicated. We can observe this type of situation when saving money for retirement. This is an important problem in the societies of Western countries due to the demographic structure which results from low fertility and prolonged human life. Future retirees theoretically know that they should save for retirement, but the number of available options, including various funds and accounts entitling to tax credits (IKE and IKZE), is overwhelming even in our country, where financial markets do not offer such a range of products as in economically mature countries. In this situation, future pensioners do not save for post-working age, even though they are aware of low state pensions.

How have many countries dealt with this? The default option was used. In cooperation with employers, they created capital funds, where the enrollment was automatic with the possibility to unsubscribe. Participation in such programmes is very satisfactory. In Poland, in 2019, Employee Capital Plans (PPK), which are based on the *status quo* effect, came into force, if the future pensioner does nothing, they will be enrolled in the programme.

The question arises: how can the *status quo* effect be used in the context of private company marketing. In many cases, the default option can be used in place of cross-selling. For example, instead of offering additional insurance for a laptop, the company can prepare an offer where the equipment is sold by default with insurance with the option to opt-out. Based on the discoveries related to the *status quo* effect, this type of strategy may bring positive results and its research may prove profitable for many companies.

Late payment

The seller's goal is to make the act of paying appear as small of a discomfort as possible. Deferred payment means deferred discomfort of spending money, which, especially for people with high time preferences (preferring immediate gratification), will be very valuable. People with low time preference who are willing to save avoid loans and unnecessary expenses, which makes them somewhat resistant to these methods. But in societies where consumerism is more widespread, such methods can be very effective, especially when selling more expensive products.

The dynamic development of credit financial instruments allowed for the wide application of such solutions. On the market, we can often find offers with payment installments, which is a delay in payment, and precisely its distribution. What's more, solutions assuming a certain period without payment are also popular, then the consumer does not have to worry about

the cost of the product for a long time. It is worth noting that this type of offer may be effective among people who prefer current consumption, but it is worth bearing in mind that this type of practice may cause financial problems. This risk should be considered in particular by consumers (individual approach) and relevant state entities (systemic approach) that are interested in stability, e.g. the Polish Financial Supervision Authority and the National Bank of Poland.

Ownership effect

The ownership effect can be illustrated by one of the experiments carried out at Duke University, where basketball games are very popular. In order to buy a ticket, interested parties had to wait in a line for several days (in tents), and the first people received not a match ticket, but a lottery ticket, with which they can enter to win an actual game ticket. Researchers called students who obtained a ticket and those who did not. The former were asked for what amount they would be willing to sell the ticket for. The second group was asked for what amount they are willing to buy the ticket. Students who did not have tickets were willing to pay 170 USD on average, while the average selling price was around 2400 USD. Not a single person wanted to sell the ticket at the price offered by the buyers (Ariely, 2018, pp. 123–127). The experiment of Kahneman, Knetsch and Thaler (1990) leads to similar conclusions, but in a less spectacular dimension, where participants with a given item valued it “only” twice as high as those without it.

The goods that we have in our possession we value higher. This may be due to emotional attachment. The ownership effect may also result from the knowledge of a given item or service. If a consumer uses the services of a given operator or Internet provider, he often does not decide to change it, despite breaches of the contract, because the change is associated with uncertainty. A new risk has to be taken: signing a new contract, installing new hardware, and there is no guarantee that the new service will be better.

Companies use the ownership effect in their offers. They make it possible for consumers to try a given product or service. It is difficult to assess whether the ownership effect is the most important element of this type of activity. Perhaps the very possibility of trying a good is the most important issue by design. For example, by having a product for a trial period, the buyer becomes attached to it and incorporates it into his life, so that the subjective value in the eyes of the buyer increases and the chance of keeping it also increase (giving it back seems less profitable). Such strategies also seem to be influenced by the *status quo* effect. If a given individual decides to return the product, it is necessary to take active measures—e.g. pack the goods, write to the seller, risking the costly and sometimes emotional investigation into their affairs. Therefore, these types of returns are not frequent, and from the perspective of companies, such strategies are effective.

Loss aversion

Kahneman and Tversky (1979) describe deviations from rationality within the framework of the theory of perspective, which are manifested, among others, in:

- value perception in relation to a benchmark (e.g. a person who keeps losing stocks in a portfolio for an extended period of time may come to terms with the price and the reduction of loss may perceive profit);
- decreasing sensitivity to losses and gains (e.g. the first thousand of profit generates more utility than each subsequent one; subsequent units of profit generate less and less satisfaction);
- perceiving the grief of loss as more intense than the satisfaction of profit.

Much greater sensitivity to losses has its neurological justification. The study showed that it was enough to show a negative image for two-hundredths of a second for the amygdala to react. This information is transmitted through an extremely fast neural channel directly to the emotional part of the brain—bypassing the visual cortex, which is responsible for “conscious” vision (LeDoux, 1998). This type of “privileged” treatment of negative information may result from evolutionary natural selection. The fastest responders to a threat are statistically more likely to pass on their genes because they are more effective in staying alive, e.g. they escape or eliminate the threat faster.

Sensitivity to losses is inherent in human nature, and companies seem to bear this in mind. One Italian telephone operator used loss aversion to retain customers. It was standard for subscribers calling the hotline intending to terminate the cooperation to receive 100 free calls if they decided to continue cooperation. This type of strategy did not bring satisfactory results. For this reason, the company has implemented an approach based on the discoveries of behavioural economics. When the subscriber initiated the termination procedure, they received a message from the operator that they had already received 100 free calls. The difference was small, and yet it strongly translated into consumer behaviour, significantly increasing the number of those who decided to stay online. In the minds of customers, the minutes they already have and may lose turned out to be a stronger impulse than the potential 100 minutes they could receive provided that they continued cooperation with the operator (Gorączka and Protasiuk, 2016).

Businesses can also assume the risk of losing a client. They make it possible to return a good or service without consequences, based on the principle that hardly anyone actually uses this right, and this possibility partially neutralizes the aversion to losses.

Freebies

Shampanier, Mazar and Ariely (2007) conducted an experiment in which they sold two types of chocolates: Lindt (very high-quality chocolates) and Kisses (average quality). Originally, Lindt chocolates cost 15 cents, while Kisses cost 1 cent. At these prices, 73% of people bought Lindt, and 27% bought the Kisses. A given participant could only buy one item. In the next step, the prices were reduced—Lindt chocolates were 14 cents and Kisses chocolates were free. With the second price configuration, Kisses chocolates were bought by 69% of customers, and Lindt only by 31%. In line with the assumptions of the classical economy, lowering prices by 1 cent should not cause such changes in preferences. This experiment shows the importance for consumers of having a given item for free. Often we can observe the purchase (in the case of a free product without payment) of unnecessary products because they are free or a paid product has been added to another for free.

Offering goods for free or at a very low price is irrationally attractive to consumers. This effect is widely used, for example, freebies are added to large purchases, for repeat customers, etc. As Milton Friedman says, “there are no free dinners”. Free products perform a certain function, such as persuading the customer to try the product and start buying it, or to make them visit a given place and make other purchases there. We should bear in mind that nowadays more and more services are offered for free, e.g. in the past, calls were paid, and now—thanks to the widespread access to the Internet in mobile phones—it is becoming more and more popular to make calls via the Messenger application, which is not burdened with costs. As such, consumer responsiveness to “for free” slogans may decline over time and entrepreneurs should find ways to get these reactions—perhaps through other behavioural economics discoveries.

Expectations and the placebo effect

In order to show the impact of expectations on our feelings, Ariely, Lee and Frederick (2006, p. 1054) conducted an experiment using beer. They offered the bar guests two beer samples and then asked them to choose one of them. One was without balsamic vinegar and the other with its addition (two drops of vinegar for one ounce of beer). In the first version, guests were offered two beer samples without revealing the names—back then, the beer with vinegar was more often chosen as tastier. In the second version, participants were informed which beer contained the vinegar. Then, after tasting it, they expressed negative feelings with facial expressions and asked for a “normal” beer. Consumers were probably guided by the idea that the vinegar does not fit with beer and when formulating their expectations accordingly, subjectively experienced a worse taste.

This type of phenomenon can be noticed not only in the context of taste, but for example, the effectiveness of a substance. Waber, Shiv, Carmon and Ariely (2008) conducted an experiment where volunteers were given electric shocks and tested the effectiveness of pain-killers. Each participant was informed that they would be given the reputable pain reliever Veladone-Rx, which costs 2.50 USD a piece. After taking the substance, the pain was considerably less noticeable in all subjects, even though the administered “drug” was a vitamin C capsule. In the second phase of the experiment, participants saw that the price of the drug was reduced from 2.50 USD to 10 cents. As it turned out, only half of the participants felt relieved after this change. This experience shows how susceptible the feelings of the human nervous system are to change.

Companies use the power of suggestion to build a brand image. By anchoring the belief in the customer’s mind that a company’s product is prestigious, of good quality, etc., it can act as a self-fulfilling prophecy, actually increasing consumer satisfaction. Then again, we should keep in mind that the product or service of a given company raises certain expectations. If they are disappointed, e.g. with a defect in the equipment and rude service in the case of a complaint, it may be a very blatant contrast for the recipient. Then he may feel disadvantaged as a loyal customer and become a person unfavourable to the company.

Honesty

The “classic” experiment is the so-called Ultimatum Game (Binmore, Shaked and Sutton, 1985; Guth, Schmittberger and Schwartz, 2010). Over time, various versions of it appeared, but the main assumption is as follows. Two participants take part in the game and receive a certain amount to divide amongst themselves. One of the participants proposes to divide the funds between themselves and the other person. The other participant can accept the split—then the amounts are allocated—or reject it—then no one gets the money. From the point of view of an economy based on the assumptions of the rationality of entities, a person deciding whether to accept a bet should accept any offer according to which they may receive more than zero. The results turned out to be different—people who thought the split was unfair did not accept the split, so the participant proposing the unfair split was “punished” in this way. Thaler (2018, p. 188) indicates that the maximum profit in ultimatum play can be obtained by offering about 40% of the pot. Participants receiving bids below 20% of the pool usually rejected them. The experiment was carried out in different parts of the world, also with large amounts; the results were not significantly different (Hoffman, McCabe and Smith, 1996; Cameron, 1999; Henrich, 2000). It is worth adding that the “revolt” against this type of dishonesty was also observed in monkeys. The animal did not want to participate in the experiment after another animal received a more desirable reward for the same task (Brosnan and De Waal, 2003).

The negative reaction to dishonesty was also examined in relation to the pricing policy of entrepreneurs (Kahneman, Knetsch and Thaler, 1986; Thaler, 2018). Study participants outlined the following: An industrial store was selling snow shovels for 15 USD. The store raised the price to 20 USD the morning after a big snowstorm. They were then asked to express their opinion on the seller’s behaviour using the form. Only 18% of respondents answered that such behaviour is acceptable, while as many as 82% assessed it as unfair. This example clearly shows that business behaviour is also assessed in terms of ethics and decency. It is worth noting that the behaviour of a seller who raises prices in response to increased demand is completely rational and economically viable. Increased demand should lead to a price increase while supply is constant, bringing the market to an equilibrium. This is an example where the conclusions of the behavioural economists’ research are more relevant to reality than those of the neoclassical models. For entrepreneurs, it is a clear signal that in order to build the company’s image, one should not make efforts to earn at any cost in a situation when there is an opportunity to do so related to the shortage of goods or the difficult situation in which people found themselves (e.g. during a flood). Charitable activities may be a better strategy in the event of exceptional factors.

Contrast effect and anchoring

Ariely (2018, p. 31) notes that people tend to compare things, but they also tend to focus on comparing things that are relatively easy to compare and they avoid comparing things that cannot be easily compared. Anchoring is a heuristic involving the subconscious reference to initial information during an evaluation (Scherif, Taub and Hovland, 1958).

Ariely, Prelec and Loewenstein (2003) conducted an experiment in which students were asked to write down the last two digits of their insurance and to bid on several items. The auction was preceded by the question of whether a given person would be willing to pay for

particular items the amount indicated in their insurance number, but in dollars. An auction followed, after which the winner purchased the product. It turned out that students with the highest numbers at the end of the insurance number (80–99) decided to pay the most, while those with the lowest numbers (01–20) the least. For example, those in the top 20% by social security number offered an average of 56 USD for a wireless keyboard, while those in the top 20% by social security number offered an average of 16 USD. It turned out that students with social security numbers ending in the top 20% offered as much as 216%–346% more than those whose last two digits of that number were in the lowest 20%.

The last digits of the social security number are used as the “anchor”. The participants subconsciously referred to this level and this random value significantly influenced their actual willingness to pay a certain amount.

Restaurateurs include several expensive dishes on the menu, which may not be very popular, but serve as an anchor value. On the basis of the law of contrast, a traditional dinner for 50 PLN may seem like a relatively advantageous offer when it is preceded by a salad for 40 PLN, followed by a caviar set priced at 200 PLN.

Excessive choice

In light of the research conducted by Iyengar and Lepper (2001), the assumption that offering more choices is more beneficial for the sales volume may be questioned. Experiments have shown that people are more likely to buy jam or chocolate when a limited set of 6 options is offered as opposed to a wide selection of 24 or 30 options. Moreover, participants actually reported greater satisfaction with their choice when their choice was limited.

People have limited cognitive resources, so they feel more comfortable when they can choose from fewer options. The choice itself is very often determined by benchmarks, such as the price or quality of similar goods. When a consumer has a choice of two or three products, their comparability is fairly transparent on the main points. What’s more, with such a set it is easier to reject, for example, the most expensive or the weakest in terms of quality, and then choose from the remaining, very narrow options. In the case of a wide choice, it is difficult and then the consumer more often decides to make a purchase based on the first impressions, advertising or recommendations. Then the choice of comparing all options becomes mentally much more expensive.

Bearing in mind anchoring, it is relatively easy to guide the consumer to the choice of the product that the seller cares about the most. In addition to the target offer, two “competitive” ones can be highlighted—one which is a bit cheaper, but of a very different quality, and the other—very expensive and only slightly better in quality. With this type of set, the target product will appear to be a “reasonable choice”. It seems common for companies to adopt this type of “architecture of choice”.¹

Limits

Wansink, Kent and Hoch (1988) conducted an experiment in which they investigated the effect of introducing a maximum number of items that can be purchased. In the first group, there was no limit, in the second group it was 4, and 12 in the third. It turned out that buyers

¹ The phrase “architecture of choice” was taken from the works of Richard Thaler.

who bought the product without imposed limits bought on average 3.3 cans, while buyers limited with limits (up to 4 and 12 pieces) bought on average 3.5 and 7 cans. Particularly high sales were recorded with a limit of 12 units. Low limits can increase the number of buyers by showing the opportunity, while higher limits can increase the number of items a buyer buys through the anchoring effect.

The rule of non-availability promoted by Cialdini also applies to the sale of goods. Information about the sales limit makes consumers perceive it as a rare opportunity. The cap suggests that if you could buy as much as you want, the merchandise would be gone in a short time. Consequently, many people choose to purchase as many pieces as the limit allows. After citing this example, it can be concluded that a skillfully applied unavailability rule can also work in marketing—despite the common belief that theoretically the seller is interested in maximizing the sales volume.

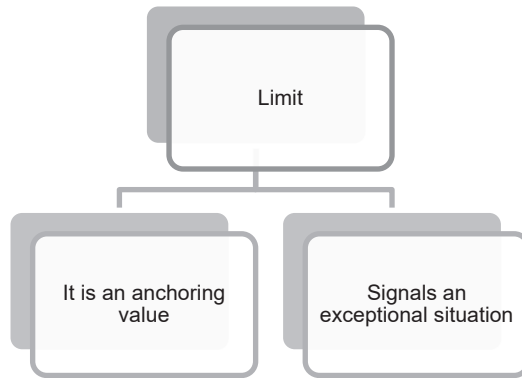


Figure 1. Sale limit functions

Source: Author's own elaboration.

Social context

Choices depend not only on individual preferences but also on the social context. In order to show this phenomenon, one can recall an experiment conducted in a bar. In the first variant, the researchers collected orders from the guests publicly, and in the second—they asked them to place orders on a piece of paper. In the next stage, it was examined how tasty the drinks were to individual people. Participants who ordered publicly tried not to order the same drinks as the other participants. Satisfaction was low with the exception of the person who placed the order first. With orders placed in writing, the satisfaction was higher. Ariely is of the opinion that by placing orders publicly, the participants wanted to express their individuality and did not want to order a drink that had already been “taken” (Ariely, 2018, pp. 202–204).

With the above experiment in mind, salespeople should adapt their sales strategies to the environment, context and people with whom a given person is making a purchase. Young people who make purchases in a group of peers may behave differently than when they are with their parents. For example, when a young driver comes to a car showroom, statistically,

there is a good chance that they will be interested in the appearance or the maximum speed of the car. On the other hand, if their mother was with them, he/ she probably wouldn't be trying to show interest in the speedy ride; they will want to give the impression that they are interested in safe driving, and may react more positively to such information. These relationships should be reflected in the sales strategy.

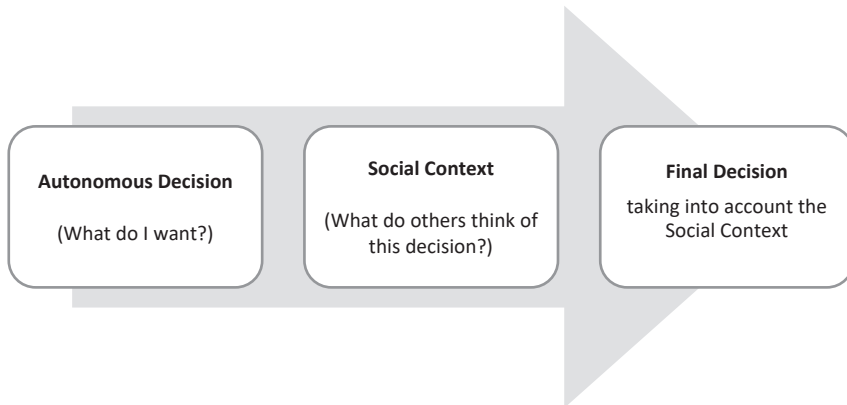


Figure 2. Influence of the social context on the final consumer decision

Source: Author's own elaboration.

Unconscious stimuli

Kahneman (2012, p. 31), inspired by Stanovich and West (2000), uses a schematic distinction between two human cognitive systems: fast and slow. In the work of Thaler and Sustein (2017, p. 34) they have been called automatic and reflective. The first (automatic) is uncontrolled, effortless—fast, associative, unconscious. The reflective system, on the other hand, is slow, deductive, self-aware—rules-abiding, controlled, and takes effort. We use the first (fast) system, for example, to recognize emotions on the face of another person. It happens automatically, effortlessly—we are not fully aware of the various stages of the process. On the other hand, when we solve a math problem, we use the second (slow) system. In this case, we must consciously go through the various stages of thinking that we are able to trace—actions are performed slowly and non-automatically. Due to the existence of these two systems, heuristics and various types of cognitive distortions described in behavioural economics, e.g. the illusion of control, arise (Langer, 1975; Cowley, Briley and Farrell, 2015; Davis, Sundahl and Lesbo, 2006).

We should bear in mind that a very large part of decisions (perhaps the vast majority) are made using the “fast” system, in a way “autopilot”. When conducting marketing research, it is worth paying attention to which system the client uses to make a decision to buy a given product—whether he/ she writes down the parameters and discusses them with another person, or it is rather an intuitive choice, based on gut instinct or brand image, etc. An important signal for the consumer is the packaging itself, which suggests quality, price level and allows it to stand out from the competition (Taranko, 2014; Falkowski, Du Cane and Olszewska, 2011).

Priming

Barg, Chen and Burrows (1996) in one of their experiments asked participants to form sentences from words. In one group, students formed sentences from neutral words, while in the second—the words that were the basis of the task were related to old age. The researchers then measured how long it took for each group to move to a different location for the next experiment. It turned out that students who dealt with words related to old age walked on average a dozen or so percent slower than the control group. The participants later showed no influence of the task words on their behaviour, so the influence was unconscious.

Bateson, Nettle and Roberts (2006) conducted another experiment—showing the effect of extra-conscious impulses on our behaviour. In a school cafe, people could brew drinks and add milk to them; it was not obligatory to pay extra for the milk, although there was an honesty box next to the milk where people could drop some extra money. Researchers placed posters behind the box that were changed every week. The posters showed either flowers or a section of a human face where the eyes are visible, which could give the impression that you were being watched. It turned out that the type of poster had a very clear impact on the number of payments. During the weeks with the eyes on the poster, the payment for milk was 2.76 times higher than in the weeks with the flowers on the poster. Human eyesight has a very strong influence on our behaviour and we are evolutionarily adapted to interpret it (Emery, 2000). The experience cited above gives a direct indication of what types of images should be displayed in places where various types of contributions are made and at the same time people feel that they should put the coins in the box or that it will be well perceived. It is doubtful that the mere image of the eyes or the human face motivates people to share their resources when they do not feel such an obligation.

The practical usefulness of priming was demonstrated by North, Hargreaves and Mckendrick (1999) by examining the influence of music (French and German) on the sale of French and German wines. During two weeks in the shop, French and German music was played once and it was checked which wines were chosen more willingly. It turned out that while listening to French music, consumers bought 40 bottles of French wine and 8 bottles of German wine. During the playback of German music, only 12 bottles of French wine and 22 bottles of German wine were sold. Thus, the influence of music on consumer decisions was very significant. It is important to test on a small group of people how they react to a given advertising message; the method should be made dependent on the type of advertising (Mazurek-Łopacińska, 2005, pp. 436–442).

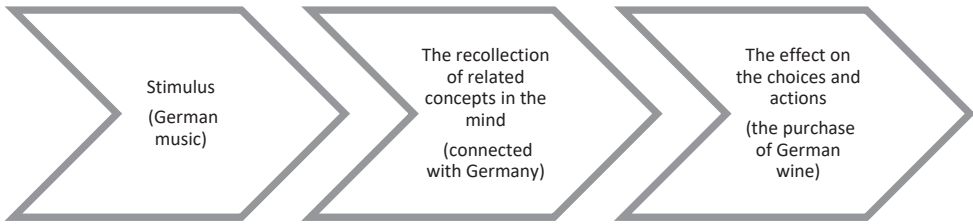


Figure 3. Priming scheme based on the experiment of North, Hargreaves and Mckendrick

S o u r c e: Author's own elaboration based on North, Hargreaves and Mckendrick, 1999.

5. Conclusion

The shaping of consumption is a product of needs, aspirations, goals, the possibility of their implementation (Witek, 2007, p. 207) and many other factors. Preferences are determined by changing factors, so they themselves are subject to constant changes. All components of the market offer should interact with each other and interpenetrate. For this reason, it is necessary to integrate the product, price, promotion and distribution (Karasiewicz, 1997, p. 27), which makes the process itself very complex—and which forces its interdisciplinarity.

In a dynamic environment, this type of synchronization is a big challenge for the marketing department. Moreover, consumer satisfaction results not only from the goods purchased, but also from the conditions and manner of offering them (Karwowski and Witek, 1995). Adequate coordination of all these components is undoubtedly, as already mentioned, an interdisciplinary process, so the knowledge about human preferences and the way of thinking provided by behavioural economics cannot be overestimated.

The aim of the study was to answer the question: How can a company improve the effectiveness of its marketing activities under the conditions of strong competition by using heuristics and irrational behaviours? This article provides space for reflection and analysis. Selected phenomena described in the framework of behavioural economics, such as heuristics and other cognitive biases, that can be adapted in the company's marketing activities, were developed there. Section 4 describes each of them along with possible applications in the business environment. Many of the heuristics and effects have already found their application in the real world, then the added value is their justification from the point of view of experiments carried out within the framework of behavioural economics. The author is not able to clearly define which of the strategies are not yet applied in business practice, due to the confidentiality of many promotional strategies and the limited possibilities of processing distributed, decentralized and non-quantified information.

The publication framework does not allow for an exhaustive description of the application of each of the heuristics and other irrational behaviours, therefore the author hopes that the work will provide research questions and hypotheses for further considerations.

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Poprawa skuteczności działań marketingowych przedsiębiorstw poprzez wykorzystanie opisanych w ramach ekonomii behawioralnej heurystyk i zachowań nieracjonalnych

Abstrakt: Ekonomia behawioralna zyskuje coraz większe znaczenie w teorii ekonomii. Świadczyć może o tym fakt, że Nagrodę Banku Szwecji im. Alfreda Nobla w dziedzinie ekonomii w 2017 roku przyznano Richardowi Thalerowi, który propaguje behawioralne podejście do proble-

mów natury ekonomicznej. Coraz więcej przedstawicieli nauki przyznaje, że człowiek nie jest *homo oeconomicus* racjonalnie maksymalizującym użyteczność, ale jako istota ludzka czasem jest nieracjonalny i popełnia powtarzalne, systemowe błędy w rozumowaniu i ocenie zjawisk.

Wyniki eksperymentów przeprowadzanych przez ekonomistów behawioralnych mogą być bardzo przydatne przy opracowywaniu, promowaniu i sprzedaży produktów. W niniejszym artykule zaprezentowano wybrane efekty i heurystyki, o których traktuje ekonomia behawioralna, oraz wskazano ich zastosowanie w działaniach marketingowych przedsiębiorstw. Głównym celem pracy była

odpowiedź na pytanie: jak poprawić skuteczność działań marketingowych przedsiębiorstwa w warunkach silnej konkurencji poprzez wykorzystanie heurystyk i zachowań nieracjonalnych. Niektóre z analizowanych przypadków zaczerpnięto z praktyki rynkowej firm, a inne są nowymi propozycjami, które być może zostaną wykorzystane w przyszłości.

Słowa kluczowe: ekonomia behawioralna, psychologia ekonomiczna, psychologia konsumentów

Activity of cooperative banks: Research on structural changes and factors related to their number in the Polish voivodeships

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Abstract: The article pertains to the topic of cooperative banking in Poland that has been significantly connected with development of the local communities since the nineteenth century. The objective of the article is a structural analysis and an examination of the relations between the number of banks in the Polish voivodeships and selected economic indicators. The analysis of cooperative banking in Poland, including the historical factors, structural changes, financial situation against the background of the banking sector and legal conditions of functioning has been conducted. On the basis of the conducted research it has been stated that a number of cooperative banks is related to the population and the number of districts in the voivodeships. The local character of these banks confirms their connection with the service of agriculture. Correlation with the number of agricultural holdings, agricultural land area or global commodity production in the voivodeships has been presented. Cooperative banks in Poland are mostly characterized by the level of equity capital which allows them to operate within the territory not exceeding the district confirming the fragmented character of this sector. The capital held by the bank and the address of its seat, resulting from normative acts regarding the activity of these banks and their financial condition, have an influence on the area of activity.

Keywords: cooperative banks, cooperative movement, banking sector

1. Introduction

Cooperative banks in Europe and Poland, present since the half of the nineteenth century, operate mainly to support local markets and communities. The double importance of these banks, implementing their activities not only to maximize profit or achieve high financial efficiency, yet, generate social values for their stakeholders, has been repeatedly emphasized (Ayadi et al., 2010; Butzbach and von Mettenheim, 2016; Spulbar and Birau, 2019; Migliorelli [ed.], 2018; Migliorelli and Dessertine [eds.], 2019). In Poland, cooperative banking

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sector, through offered services, influences development of the rural areas, operating in the locations that commercial banks are frequently not interested in (Idasz-Balina et al., 2020). Cooperative banks are listed in the Strategy for Responsible Development as local entities supporting economic development that—by providing access to finance—act against financial exclusion (Strategy, 2017).

In the last twenty years, the number of cooperative banks in Poland has decreased, mainly as a result of mergers and takeovers, being a consequence of the capital requirements imposed by law provisions. The objective of the article is to conduct the structural analysis of the sector and examine the relations between the number of banks as of February 2019 in the Polish voivodships and selected indicators. Critical analysis of the literature, normative acts and available statistical data from the Central Statistical Office, reports from the Polish Financial Supervision Authority and others constitute the research method.

2. Cooperative banks as an element of the legally regulated banking system

The banking system is regulated by law provisions aiming at ensuring its stability and, consequently, macroeconomic balance. This is particularly important with regard to the role played by banks in economy by providing access to finance and possibility of efficient allocation of the funds. By restricting the freedom of activity of the banks, legal regulations influence their functioning conditions (Matejun and Oderkiewicz, 2009). In Poland, the main regulations include the Banking Law Act, the Act on Covered Bonds and Mortgage Banks as well as Act on the Bank Guarantee Fund, Deposit Guarantee Scheme and Forced Restructuring. The activity of cooperative banks is regulated by the Act of 7 December 2000 on the operation of cooperative banks, their affiliation and affiliating banks (consolidated text, Journal of Laws of 2020, item 449).

Pursuant to the Banking Law Act of 29 August 1997 (consolidated text, Journal of Laws of 2019, item 2357), Art. 12, “Banks may be established as state banks, cooperative banks or banks in the form of joint stock companies”. The following forms of banks can be distinguished:

- state, cooperative, joint stock companies—based on the form of ownership;
- domestic banks, foreign banks—according to the location of their seat;
- established by domestic persons, foreign persons (or with participation of foreign persons), formed abroad by domestic persons (or with their participation)—due to the seat of the bank founders.

Analyzing the special function of the bank, the following are distinguished: banks running housing funds, active through investment activity on the capital market, cooperative, mortgage and other (Grzywacz, 2006).

Cooperative banks provide various types of services. Due to the nature, location and scope of these services, they are treated as universal banks, however, they are associated with the service of agriculture functioning in the rural areas (Nowacka and Szewczyk-Jarocka, 2015). It is pointed out that cooperative banks, unlike commercial ones, do not operate solely for making the profit (Sahut and Bouheni, 2019).

3. Development and mission of the cooperative banking

The cooperative banking sector in Poland arose from the need to support local peasants, merchants and craftsmen using cheap loans (Financial Supervision Authority, 2008). A cooperative bank is a bank operating in the form of a cooperative (Act of 7 December 2000). On the other hand, a cooperative constitutes a voluntary association of the unlimited number of people, with a variable membership and a variable share fund that conducts joint economic activity in the interest of its members. A cooperative may conduct social, educational and cultural activities for the benefit of its members and their environment (Act of 16 September 1982, Cooperative Law, consolidated text, Journal of Laws of 2020, item 275).

Cooperative movement is distinguished, among other organizational and legal forms operating in business, by the cooperative principles adopted at the 31st Jubilee Congress of the International Cooperative Alliance in Manchester in 1995. These principles include: self-assistance, personal responsibility of the members, democracy, equality, justice and solidarity as well as ethical values: honesty, openness, social responsibility, care for others (Gniewek, 2016). The roots of the cooperative banking in Central Europe date back to the second half of the nineteenth century and are related to the activities of Friedrich W. Raiffeisen and Franz H. Schulz in Germany, for whom development of savings and granting of loans had a social impact (Poli, 2019).

The literature highlights that the objective of cooperative banks constituting the implementation of the needs of the local communities is different from the one characteristic for commercial banks (Warsaw Banking Institute, 2019). The target of the action is a consequence of the mission that defines the basic purpose of the organization (Sengupta and Sahay, 2017). The National Association of Cooperative Banks describes the mission of the cooperative bank as “acting for the benefit of its members, customers and development of the local community by providing banking products” (KZBS, 2020).

4. Activity of cooperative banks in Poland—structural changes of the sector and financial results against the industry background

The cooperative banking sector is constantly changing, which is a result of the introduced legal regulations and economic conditions. As institutions operating on the local market, they are still strongly associated with agriculture. Over the last twenty years, the cooperative banking sector has been a subject to a number of changes that systematically cause the decrease in the number of these banks operating in Poland. The greatest changes took place until 2003 and resulted from the introduction of the Act of 7 December 2000 on the operation of cooperative banks, their affiliation and affiliating banks which, on the one hand, increased the freedom of association of cooperative banks and, on the other hand, increased capital requirements.

Introduction of this act resulted in creation of two two-tier structure—cooperative banks associated in one affiliating bank (Rolski, 2019). In 2015, the Institutional Protection System (IPS)—the BPS Association Protection System and the SGB (Cooperative Bank Group) Protection System—were created that increase the security of operation of their cooperative banks. Their target is to provide mutual support within the scope of liquidity and solvency in the event of a difficult situation in any of the banks (KZBS, 2020).

Mergers and takeovers are mainly influenced by stakeholders, such as the government or managers (Coccorese, Ferri and Spiniello, 2017). As a result of the act introduced in 2000, cooperative banks were obliged to increase their capital to 300,000 EUR by the end of 2001, 500,000 EUR by the end of 2005, 1 million EUR by the end of 2010. Due to the low level of equity capital of cooperative banks, their fragmentation and the necessity to adapt to the new legal requirements, the process of consolidation of those banks was started and in the years 1996–2003 several hundred consolidations were carried out (Figure 1). Since 2003, the consolidation process in the sector of cooperative banks has been continued, however, its dynamics is stable and concerns several bank mergers per year.

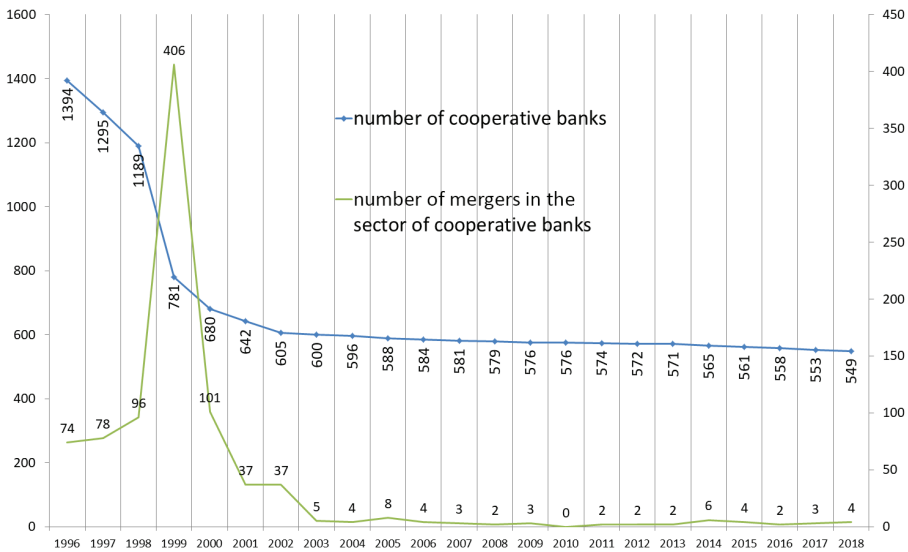


Figure 1. The number of cooperative banks and the number of mergers in the sector of cooperative banks in the years 1996–2018 in Poland

Source: Authors' own elaboration based on: KNF, 2020; Kozak, 2013.

Furthermore, since 1999, both employment and the number of branches of cooperative banks have been growing, which has strengthened their retail and relational character, with high importance of the employee–customer contact (Figure 2). These changes were a consequence of the faster economic growth, Poland's accession to the European Union in 2004, receiving the EU subsidies by the farmers and the farmers' obligation to have a bank account, and thus a greater interest in banking services on the part of people living in the rural areas.

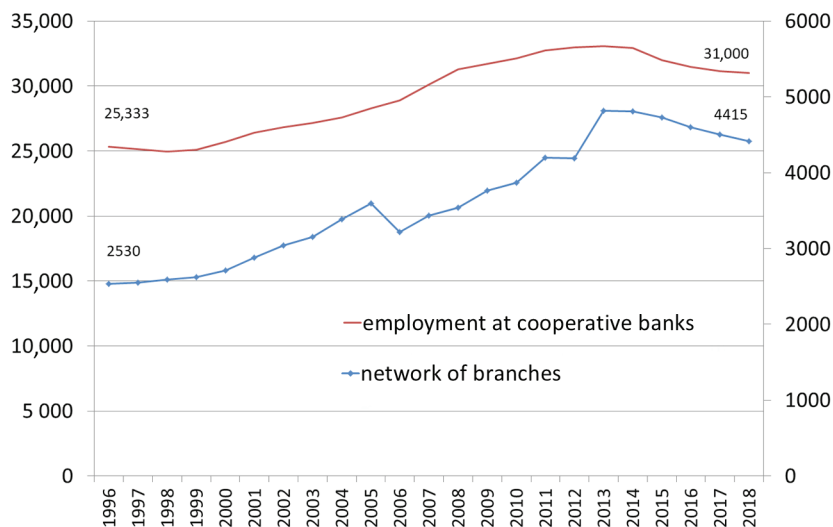


Figure 2. The number of employees and number of branches of cooperative banks

Source: Authors' own elaboration based on: KNF, 2020; EACB, 2020.

Since 2013, there has been a steady trend indicating a decrease in the number of employees and the number of branches of cooperative banks. This is a result of the development of new technologies and development of the Internet access channels to banking services, without the necessity to visit the branch of the bank. Furthermore, banks have been expanding areas of their operations by opening the branches in large cities (National Bank of Poland, 2018).

In 2018, the situation of the banking sector remained stable due to economic growth (GDP in 2018 was 5.1%), improvement in the labour market (unemployment rate 5.8%), increase in remuneration in the business sector and improvement in the mood of enterprises and consumers (UKNF, 2019a). Selected data and financial indicators of cooperative banks in the years 2003–2018 are presented in Table 1.

Table 1. Financial indicators of the banking sector in the years 2003–2018

| Indicator | | Banking sector in total | Cooperative banks | Commercial banks |
|--------------------------------|------|-------------------------|-------------------|------------------|
| Net financial result (mln PLN) | 2018 | 14,531 | 623 | 13,716 |
| | 2013 | 15,426 | 757 | 14,669 |
| | 2008 | 13,935 | 914 | 12,820 |
| | 2003 | 2512 | 282 | 2230 |
| Costs/Income C/ I (%) | 2018 | 56.10 | 67.89 | 53.80 |
| | 2013 | 53.25 | 70.81 | 51.23 |
| | 2008 | 54.70 | 65.70 | 53.40 |
| | 2003 | 68.60 | 75.20 | 68.00 |

| | | | | |
|--|------|--------|-------|--------|
| Interest income/ Total assets (%) | 2018 | 2.58 | 2.96 | 2.59 |
| | 2013 | 2.81 | 3.68 | 2.77 |
| | 2008 | 2.87 | 4.85 | 2.84 |
| | 2003 | 3.10 | 5.60 | 3.00 |
| Net result/ Total assets (ROA, %) | 2018 | 0.79 | 0.47 | 0.83 |
| | 2013 | 1.10 | 1.14 | 0.81 |
| | 2008 | 1.60 | 1.70 | 1.50 |
| | 2003 | 0.50 | 1.20 | 0.50 |
| Net result/ Average funds (ROE, %) | 2018 | 7.08 | 5.15 | 7.21 |
| | 2013 | 10.09 | 7.90 | 10.24 |
| | 2008 | 21.20 | 19.60 | 21.00 |
| | 2003 | 6.20 | 12.30 | 5.90 |
| Share of at-risk receivables from the non-financial sector in total receivables (NPL, %) | 2018 | 6.80 | 9.00 | 6.70 |
| | 2013 | 8.50 | 6.40 | 8.60 |
| | 2008 | 4.40 | 2.80 | 4.70 |
| | 2003 | 20.90 | 7.20 | 21.80 |
| The balance sheet total (mln PLN) | 2018 | 1895.9 | 138.4 | 1691.7 |
| | 2013 | 1407.2 | 96.5 | 1310.6 |
| | 2008 | 1041.8 | 56.5 | 929.1 |
| | 2003 | 489.2 | 25.7 | 463.6 |
| Number of entities conducting banking activities | 2018 | 612 | 549 | 32 |
| | 2013 | 640 | 571 | 41 |
| | 2008 | 649 | 579 | 52 |
| | 2003 | 754 | 680 | 78 |

Source: Authors' own elaboration based on: UKNF, 2019c; 2014; 2009; 2004.

In 2018 the Tier 1 capital ratio in the banking sector was 17.2% and with reference to cooperative banks it reached 16.8% which confirms the stable capital base. Banks are required to maintain the Tier 1 capital ratio at a level not lower than 6% of the total amount of risk exposure increased by an add-on imposed under individual decisions on banks with significant exposures to the loan foreign exchange market for mortgage-backed households (UKNF, 2019c).

In 2018 and in the previous years the financial result of the banking sector was achieved thanks to commercial banks with a positive result in cooperative banks representing 4.3% of the net profit for 2018 of the banking sector in total. All indicators except interest margin are more favourable in 2018 for the commercial banking sector which confirms difficulties in achieving better results by local institutions.

It should be pointed out that effectiveness of the Polish cooperative banks is influenced by their operating model based on high deposit dynamics and favourable structure of the interest rates on the side of the assets and liabilities, and placement of surplus liquidity in the affiliating bank debt instruments of the National Bank of Poland or State Treasury. This model has lost its effectiveness in the conditions of the low interest rates, leading to worse economic indicators—particularly the interest margin (Kata, 2017). This is confirmed by the fact that deposits from the non-financial sector (mainly households) constituting over 80%

of the balance sheet total of these banks were a dominant source of funding in 2018, whereas their share in the commercial banks was about 61% (National Bank of Poland, 2019). Cooperative banks, playing an important role in mobilizing savings of the local households, do not conduct local credit activity to the extent improving their efficiency. Instead the funds from savings are invested in the affiliating bank resulting in worse results of the whole sector (Lepczyński, 2017).

Total employment in the banking sector in 2018 amounted to 162.6 thousand people including 31 thousand people in cooperative banks and the average employment in cooperative banks equals 56.8 FTEs and it is twice as high as the share of assets of the cooperative sector in the total banking sector (UKNF, 2019a). The high level of employment in these banks translates into operating costs which are difficult to reduce reflected in low C/I and ROA efficiency ratios as compared to commercial banks (NBP, 2019). The relational operating model characteristic for cooperative banking is more labour-intensive with less pressure to automate and standardize business processes preventing achievement of the scale effects (Lepczyński, 2017).

Analyzing the quality of the assets of cooperative banks, we can observe a slight deterioration. The share of at-risk receivables from the non-financial and local government sector of these banks increased from 6.4% in 2013 to 9.0% at the end of 2018. For comparison commercial banks had a 6.7% share in their assets as at the end of 2018. The increase in the share of at-risk receivables results from deterioration in the quality of receivables from the small and medium-sized enterprises and individual entrepreneurs (UKNF, 2019b). This can be associated with the fact that during this period cooperative banks were opening their branches in the large cities in an attempt to expand their activities.

It should be noted that activities of cooperative banks in contrast to commercial banks are not exclusively focused on generating profits. Most of the available analyzes and literature do not take into account the fact that the social values generated by cooperative banks are difficult to measure and directly compare their financial results with those of commercial banks (Fonteyne, 2007).

5. Factors related to the number of cooperative banks in 2018 in the voivodeships—authors' own research

According to data from the Polish Financial Supervision Authority (UKNF), there were 549 banks in Poland at the end of 2018 and some of them operated outside the associations. For comparison there were 32 commercial banks operating in Poland in 2018 which indicates high fragmentation of the cooperative banking sector.

The number of cooperative banks operating in Poland associated in the SGB (Cooperative Banking Group) and BPS (Cooperative Banks) Group in voivodeships is presented in Table 2.

Table 2. Number of cooperative banks in the Polish voivodeships associated with SGB and BPS Groups as of February 2020

| Voivodeship | BPS | SGB | Cooperative banks associated at BPS and SGB groups—in total |
|------------------------------|------------|------------|---|
| Voivodeships in total | 326 | 194 | 520 |
| Lower-Silesian | 19 | 7 | 26 |
| Kuyavian-Pomeranian | 1 | 28 | 29 |
| Lublin | 47 | 1 | 48 |
| Lubusz | 5 | 8 | 13 |
| Łódź | 10 | 26 | 36 |
| Lesser Poland | 36 | 0 | 36 |
| Masovian | 43 | 27 | 70 |
| Opole | 17 | 1 | 18 |
| Subcarpathian | 36 | 1 | 37 |
| Podlaskie | 28 | 2 | 30 |
| Pomeranian | 2 | 24 | 26 |
| Silesian | 45 | 0 | 45 |
| Świętokrzyskie | 21 | 2 | 23 |
| Warmian-Masurian | 14 | 5 | 19 |
| Greater Poland | 1 | 49 | 50 |
| West Pomeranian | 1 | 13 | 14 |

S o u r c e: Authors' own elaboration based on: BPS Group, 2020; SGB, 2020; KZBS, 2020.

The article examines the features influencing the number of cooperative banks in the areas covering each of the Polish voivodeships. The choice of the voivodeship is determined by selected independent variables and availability of the data for these variables as well as legal conditions for operation of cooperative banks and resulting territorial restrictions. The most up-to-date and available data i.e. for the year 2018 has been adopted for the research. The conducted research will constitute a foundation for further analyses taking into account the broader time horizon. In order to examine the relationship between the factors influencing the number of cooperative banks located in the Polish voivodeships in 2018, the Pearson correlation coefficient between the following has been calculated:

- a dependent variable—the number of cooperative banks in the particular voivodeships;
- and the following independent variables for each of the voivodeships for 2018: total area population number of agricultural holdings based on the data from 2016¹; global agricultural production² including commodities³; agricultural land area population in the urban and rural communes; number of the districts; average population in the districts (without cities with district status); poverty index⁴ and relatively high income indicator.⁵

The results of the correlation research are presented in Table 3.

Table 3. The Pearson correlation coefficient for the number of cooperative banks in 2018 and for selected independent variables for the Polish voivodeships in 2018

| Independent variables by voivodeships | Dependent variable—number of cooperative banks in the voivodeship |
|---|---|
| Total area | 0.619 |
| Total population | 0.833 |
| Number of agricultural holdings | 0.860 |
| Global agricultural production including: | 0.762 |
| – agricultural production by commodities | 0.735 |
| Agricultural land—area | 0.749 |
| Population—urban communes | 0.270 |
| Population—rural communes | 0.286 |
| Number of districts | 0.828 |
| Average population in the districts | 0.438 |
| Poverty index | (-)0.152 |
| Relatively high income index | 0.485 |

Source: Authors' own elaboration based on Central Statistical Office reports, data from the years 2016–2018 (GUS, 2020).

The number of cooperative banks in 2018 demonstrates the strongest correlation (the Pearson correlation coefficient above 0.8) with the number of agricultural holdings population and the number of districts in particular voivodeships. High dependence on the number of the districts

¹ The next agricultural census will be conducted in 2020.

² According to the Central Statistical Office (GUS), it is the sum of the value of (unprocessed) products of plant and animal origin (GUS, 2020).

³ According to the Central Statistical Office (GUS), it is the sum of the sales of agricultural products for purchasing centre and at marketplaces, taken by % share of each voivodeship (GUS, 2020).

⁴ According to the Central Statistical Office (GUS) in 2018, the poverty line for a single-person agricultural holding was 1280 PLN (GUS, 2019).

⁵ According to the Central Statistical Office (GUS) in 2018, the high income limit for a single-person agricultural holding was 3556 PLN (GUS, 2019).

results from the Act of 7 December 2000 on the operation of cooperative banks, their affiliation and affiliating banks according to which the bank operates within the territory of the district where the seat is located. The bank may operate within the territory of the voivodeship if its initial capital is higher than the equivalent of 1 million EUR but lower than 5 million EUR whereas a bank with an initial capital of at least 5 million EUR may operate within the territory of the state. Therefore, cooperative banks in Poland are mostly characterized by the level of equity capital which allows them to operate within the territory not exceeding the district confirming the fragmented character of this sector. Consequently the area of operation of cooperative banks determines the value of their capital and the address of their seat.

High correlation with the total population and the number of agricultural holdings in the voivodeships proves the nature of the activity aimed at serving the local community confirming the relational and retail character of cooperative banking based on direct contact with the customer and the need for their presence in the economic life.

The Pearson index between the number of cooperative banks and global agricultural production including the one by commodities and agricultural land area in 2018 above 0.7 confirms the strong connection between this banking sector and agriculture in Poland. These banks mainly finance and serve agriculture. The average population in the districts and population in the rural and urban communes (Pearson index below 0.5) has a small impact on the number of cooperative banks in Poland. While analyzing the correlation with the poverty index and relatively high income index, it can be concluded that the number of these banks does not have a strong correlation with the level of wealth of the population in the voivodeships.

Research on the variables influencing the number and density of the bank branches and cooperative savings and credit unions in the districts and voivodeships in the years 2010–2016 was conducted by A. Szelągowska. Independent variables included among others: number of inhabitants, unemployment rate, area of the district, area of the voivodeship and the number of its inhabitants, number of physicians and dentists per 10,000 inhabitants, GDP per capita, housing stock, number of registered cars (Szelągowska, 2019). The conclusions presented in this article refer to the research conducted on the basis of the latest and available data for the number of cooperative banks for the year 2018. In order to extend the analysis, the research should be conducted over a longer time horizon. Further research could cover dependence of the number of cooperative banks on other indicators including economic ones and sustainable development of the voivodeships as well as extend the research to the relationship between the financial condition of banks and these indicators.

6. Conclusion

Cooperative banks in Poland, with long traditions, have been subject to numerous transformations. Consolidation processes resulting from legal regulations that have been taking place since the 1990s have influenced the number of these banks and technological development has had an impact on the employment structure. The importance of these banks is still great particularly in the sphere of their activities for the benefit of the local communities.

On the basis of the conducted research it can be concluded that a decreasing number of cooperative banks is considerably related to the number of agricultural holdings and the population in the voivodeships confirming their local character and it is based on customer relations. The large fragmentation of the sector is connected with capital requirements that do not allow banks to cross barriers of the district. These banks demonstrate a strong correlation with the number of districts global agricultural production and agricultural land area.

The challenges facing this fragmented sector arising from IT development and the necessity to implement costly systems in order to remain competitive under conditions of technological progress as well as challenges arising from legal changes have been emphasized.

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Działalność banków spółdzielczych. Badania nad zmianami strukturalnymi oraz czynnikami związanymi z ich liczbą w województwach w Polsce

Abstrakt: W artykule podjęto temat bankowości spółdzielczej w Polsce, która od XIX wieku w silny sposób jest związana z rozwojem lokalnych społeczności. Celem artykułu jest analiza strukturalna oraz zbadanie związków pomiędzy liczbą banków w województwach Polski a wybranymi wskaźnikami ekonomicznymi. Przeprowadzono analizę bankowości spółdzielczej w Polsce z uwzględnieniem czynników historycznych, zmian strukturalnych, sytuacji finansowej na tle sektora bankowego oraz prawnych warunków działania. Na podstawie przeprowadzonych badań stwierdzono, że liczba banków spółdzielczych jest związana z liczbą ludności i liczbą powiatów w województwach.

Lokalny charakter tych banków potwierdza ich związek z obsługą rolnictwa. Wykazano korelację z liczbą gospodarstw rolnych, powierzchnią użytków rolnych czy produkcją globalną towarową w województwach. Banki spółdzielcze w Polsce charakteryzują się w większości poziomem kapitałów własnych, który pozwala im głównie prowadzić działalność na terenie nieprzekraczającym powiatu, potwierdzając rozdrobniony charakter tego sektora. Wpływ na teren działania ma posiadany przez bank kapitał oraz adres siedziby, wynikające z aktów normatywnych dotyczących działalności tych banków tudzież z ich kondycji finansowej.

Słowa kluczowe: banki spółdzielcze, spółdzielczość, sektor bankowy

MANAGEMENT AND QUALITY

Management motivation system in responsibility centres

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Abstract: The article describes selected elements of the motivation system in an enterprise, paying particular attention to the factors and instruments of motivating the managerial staff. The task system as well as the competences and duties of the heads of organizational units are also presented, together with the scopes of their activities within the responsibility centres. Varieties of management contracts are given, which form the formal framework for the implementation of the factors motivating managers. The aim of the article is to present the concept of a motivation system for the management of a responsibility centre and the results of empirical research. Factors and tools for stimulating the motivation of the work of managerial staff are adopted as the subject of the analysis, while the activity and development of the enterprise are the reference. The scope of the research was limited mainly to the positions of the profit centre and the normative cost centre, and to a lesser extent the income centre. The following research methods were used to achieve the objectives of the article: literature analysis, work analysis, modelling, interview, expert research and case study. The presented concept of a motivation system for management in responsibility centres is based on the views of the authors emphasizing that it is mainly the management of the organization and working conditions that are the key in the motivation of work, as well as the results of work analysis and managers' proposals—collected during the interviews. This concept covers 10 groups of motivation factors, which constitute a subclass of non-salary motivation factors and a subclass of salary factors, i.e. the remuneration system and the task-based system of the responsibility centre. Established factors may constitute the basis for building motivation systems for managers of units with a lower degree of autonomy and independence, including managers of functional units separated in a centralized structure.

Keywords: motivation system, factors and instruments of motivating management staff, responsibility centres, management contract

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1. Introduction

An enterprise with extensive and diversified activities is often unable to achieve economies of scale by grouping tasks into major functions. In the case of large diversification of produc-

tion, such a way of organizing an enterprise may hinder the successful development of particular types of activity due to insufficient consideration of the specificity of each of them. This phenomenon has long been pointed out by A. Chandler, B. Scott and others (Strategor, 2001). More recent studies on these topics show that an organization with a divisional (multi-departmental) structure often performs better than large organizations with a functional structure, or even a matrix structure, considered by some managers as a form of anarchy (Griffin, 2018, pp. 380–382; see also Griffin and Pustay, 2020; Jones, 2013). Currently, decentralized organizational structures can be found in the majority of large American corporations operating in the following industries: IT, modern technologies, electronics, machinery, automotive, chemical, food, tourism; thus, the decentralization process intensifies in those areas of production where there are frequent changes in the range of production and innovative products, where there is a need to react quickly to market signals, and where there is a territorial dispersion of individual plants. Recent analyses show the growing role of the competition factor, which also has a strong influence on the decentralization of management.

The implementation of this concept in the experience of Polish enterprises often boils down to creating responsibility centres, also known as business units. These centres can be established on the basis of operational, production organizational units in order to improve the productivity, flexibility and competitiveness of their operations. The way to create conditions for the implementation of these goals is to increase the independence and responsibility of internal units and to link the remuneration system of employees and management with the work results achieved (Duraj, 2000, p. 19). The organizational unit operating in such a system is the basic link of the enterprise in the economic sense. In this situation, the management of the unit focuses their attention on the effective conduct of business, themselves revealing bad management and eliminating it, thus contributing to building the earning capacity of the company. Therefore, the problem arises of creating a system of motivating the management and employees of the responsibility centre that would contribute to the implementation of the principle of internalization of organizational goals, and in particular to bringing employees' goals in line with the effectiveness of the responsibility centre.

The aim of the article is to present the concept of a motivation system for management in responsibility centres and the results of empirical research.

The subject of the analysis was the factors and tools for stimulating the motivation of the work of managerial staff, while the reference is the activity and development of the enterprise. The scope of the analysis was limited mainly to the positions of the managers of the profit centre and the normative cost centre and to a lesser extent the income centre. The following research methods were used to achieve the aims of the article: literature analysis, work analysis, modelling, expert research and case study.

The final shape of the concept of the motivation system for management in responsibility centres was formulated in a two-stage research process, the purpose of which was to build and verify the developed concept.

The first stage of the research was the analysis of the results of the previous research in the field of work motivation and the analysis of managerial work. Five main groups of factors relevant to the motivation of managers' work were identified. In the second stage, the above mentioned factors were verified. For this purpose, an interview was used as a research method, which was in the form of expert consultations with managers who were asked for their evaluations and to provide other determinants.

2. Selected concepts of motivation

In the most general terms, motivation can be defined as the whole of the motives occurring in an action that activate, direct and regulate behaviour. It is readiness to act, meet needs and achieve set goals (Brockhaus [ed.], 2001, p. 38). M. Armstrong points out that motivation deals with factors influencing people to behave in a certain way (Armstrong, 2006, p. 2010). A definition that is to some extent similar is provided by F. Rheinberg, who wrote that it is “an activating orientation of the current act of life towards a positively assessed target state” (Rheinberg, 2006, p. 18). This otherwise concise definition requires additional clarification; the terms “activating orientation” and “positively assessed target state” must be considered in many senses. For example, it can be said that motivation is different states and behaviours such as: wanting, trying, wanting to strive for something; but it can also mean: avoidance, reluctance, fear of undesirable events and experiences. Hence, according to the author, the motivation to avoid something differs in many respects from the motivation to strive for something.

The term *motivation* is related to the concept of motivation. In the literature in the field of organization and management science, it refers to one of the functions of management, consisting in “stimulating and encouraging to act through a set of stimuli, means and conditions for achieving personal satisfaction and benefits in the organization” (Penc, 1996, p. 25). Motivating is a conscious impacting and influencing of people’s behaviour so that they move in the direction desired by the motivator and implement the goals and tasks set by him (Pietroń-Pyszczek, 2007, p. 10). It seems that this process was best described by Griffin, who wrote that motivation is a system of forces that prompts people to behave in a certain way (Griffin, 2018, p. 514). However, people do not always undertake activity and continue certain activities solely because they strive to achieve goals—they may also do so because of the satisfaction that comes with performing these activities. Performing such activities then becomes a specific goal of the individual.

The given concepts and definitions of motivation and motivating define the mechanisms that stimulate the activation, direction, maintenance and termination of behaviour, and do not constitute a homogeneous unity. The concept of motivation describes the mechanisms of both simple and complex behaviours, it concerns external and internal mechanisms as well as affective and cognitive, homeostatic and heterostatic processes (see Waszczak, 2010).

Depending on economic and social conditions or individual differences (resulting from personality traits and experiences), people are guided in their personal actions by various motivations, i.e. motivation factors, stimuli.¹

The literature provides many classifications of types of motivation that are justified in psychological theories and others. One of them is the distinction between salary motivation and non-salary motivation. The research used the model of work motivation by Hackman and Oldham (1976), and Humphrey, Nahrgang and Morgeson (2007), which is based on the assumption that it is precisely management, work organization, working conditions and individual characteristics of employees that are key in motivating work. According to the mentioned authors, we have almost no influence on the characteristics of employees, while the management staff and specialists have a significant influence on the organization of work.

¹ Motivations, i.e. the factors of motivation, stimuli, needs, tasks, can be defined as any change in the human environment (e.g. a change in the employee’s situation) that causes or changes the motive of action.

Taking the above statements into account, the subject and scope of the analysis were limited to the motivational aspects of the organization and working conditions of the management of the responsibility centre and to incentives as factors of the work motivation system.

In their concept of the motivation model, Hackman and Oldham distinguished five main groups of factors in the features of the job position:

- the possibility of using broadly understood employee qualifications;
- comprehensive work performance, not just parts of it;
- perception of the importance of the work performed for other people;
- the ability to decide on the methods and pace of work;
- the quality of the feedback received.

Considerable progress has been observed with regard to the methodology of studying the phenomenon of motivation and the motivational potential of the work of an organization, especially in the area of measuring and recording results. The theoretical basis of these systems is the concept of management by money, which in practice involves, among others, creating the so-called profit centres and investment centres (Anthony, Dearden and Vancil, 1972, pp. 200–201), the *performance management* method defined as management through effects and the concept of self-regulation in management, embracing the issues of autonomy and teamwork (Jabłoński, 2011, pp. 157–158).

The analysis and evaluation of the effectivity of responsibility centres is related to the use of the so-called Key Performance Indicators, which are set individually in relation to the goals and specificity of the process being implemented (Czapla and Malarski, 2009, p. 116). The most commonly used performance measures are: profitability, costs, productivity (financial measures), but also new products, new processes, efficiency, new customers (marketing measures), sales of new products and services, timely execution of orders, time to market of the product and the adaptation and development of the individual (development measures).

The use of *Business Performance Management* is usually associated with the use of various management methods related to the evaluation of results. These include: Balanced Scorecard, Six Sigma method, Activity-Based Costing (ABC), Total Quality Management (TQM), Economic Value Added Analysis and others (Grabowska, 2017; Kolano, 2018; Parmenter, 2016).

Concluding the topic concerning the development of methods for measuring and assessing effectivity of the responsibility centre, it is necessary to mention the issue of matching the manager's competences to the requirements of the job, which in essence boils down to achieving the strategic goals of the company by implementing the plans and projects of the responsibility centre.

3. The management contract as a tool for motivating management staff

Contracts are a rapidly developing form of salary motivation that can be used in relation to managers of responsibility centres. The need to increase the effectivity of plants, departments and teams transformed into responsibility centres requires the introduction of management contracts. Conclusion of a contract means the emergence of bilateral obligations of the partners—the order taker obtains significant powers, receives strictly defined duties and takes re-

sponsibility for them. It is advisable to simultaneously introduce management contracts with the introduction of responsibility centres (Haus and Nowosielski, 1995).

The essence of the management contract is that one party—the service provider (manager), as an organizationally free entity, undertakes, for a fee (remuneration), to run a part of the enterprise of the other party, i.e. senior management. The service provider is to manage part of the enterprise on behalf of the senior management, and in the interest of the senior management, on their account and at their risk. The business management service, understood in the context of organization and management theory, consists in the implementation of the process of planning, organizing, managing and controlling its activities, using the company's resources to achieve the set goals. In this contract, the individual undertakes to make due efforts to achieve specific economic goals. However, this is not a pure due diligence contract, as it also contains elements of an outcome contract. Due diligence and outcome obligations are often found side by side, so it can be considered that a management contract is somewhat of a mixed contract.

Due to multiple social, economic and organizational conditions, it is proposed that contract managers' remuneration for work should be regulated in a corporate collective labour agreement. This applies in particular to the base salary of these employees.

One of the variants of regulating the remuneration of persons with whom management contracts have been concluded is the inclusion of special bonus regulations in the system. These regulations should include an enumeration of specific conditions the fulfilment of which would entitle those persons to this bonus.

In the second variant, it is possible to include a provision providing for a special award for contract managers which would give the possibility to differentiate the remuneration depending on the degree of implementation of the assigned tasks.

Another possibility of a lower-level managerial contract may be that the basic salary will be specified in a corporate collective labour agreement, and moreover, this agreement will provide for an appropriately high functional bonus for this category of employees, determined individually in the employment contract. In such a case, a general provision should be included in the corporate collective labour agreement, that persons with whom management contracts have been concluded are entitled to a functional supplement agreed individually in the employment contract. These varieties of management contracts provide a formal framework for the implementation of managers' motivating factors.

It should be noted that the choice of the type of contract should be decided by both parties, but the owner of the enterprise has a greater say; the employee (contract manager) should, however, be free to choose. Regardless of the type of contract (contract of mandate, contract based on the labour code), it is necessary to individualize it, because it presents a catalogue of matters that regulate the mutual relations of the parties to the contract.

The practice of concluding contracts for the provision of managerial services in the form of an employment contract is not uniform. In companies, this agreement is extensive and is often subtitled "management contract". The provisions of a contract for the provision of managerial services define, among others:

- purpose;
- the period for which the contract is concluded;

- specific powers, duties and responsibilities of the manager;
- contract performance assessment;
- remuneration for work.

The purpose of concluding the contract is the efficient management of a given territorial, objective or functional section. It can be, for example, a task in the form of generating a positive result—e.g. gross profit.

A contract for the provision of management services may be concluded for an indefinite or definite period. In the case of a contract for an indefinite period, the manager is obliged to provide efficient management. However, in the case of a contract for a definite period, the implementation of a given project is usually assumed. It appears that a contract for the provision of management services should be concluded for a period of 1 year with the possibility of its further extension.

The issues of mutual dependence occupy a central place in the contract. In drawn up contracts, these relationships should be precisely defined, because on the one hand, the person with whom the contract is signed is entrusted with the company's property or a part of it, and on the other hand, at the same time, he is given the power to spend the company's funds.

Issues related to decentralization and delegation of powers have been raised earlier. It should be emphasized here that maintaining the autonomy of organizational units (plants) requires the fulfilment of several conditions. The most important is the one that assumes higher level management giving up the right of ongoing interference in the activities of lower levels. This interference may only take place under strictly defined conditions and on the basis of procedures specified in the contract (Koziół and Tyrańska, 2002, pp. 169–174).

In addition to the above-mentioned components of remuneration, the managers may receive other income, which may sometimes be components of remuneration, for example, a jubilee award, a permanent insurance subsidy, for business and private use of a car, and a housing subsidy.

Systems and forms of salary motivation for managers of responsibility centres can be grouped as follows (Kopertyńska, 1998, pp. 39–40):

- salary motivation systems based on the principle of different rates of basic salary depending on the results achieved by individual centres;
- salary motivation systems based mainly on linking the flexible part of remuneration (bonuses and awards) with the results of the centres.

The effectiveness of the staff motivation system and the benefits it brings depend, however, on overcoming many limitations. The most important difficulties include: defectiveness of the measures used, frequent failures in taking into account long-term preferences in motivating the management staff, the occurrence of non-compliance of the interests of plants with the interests of the company as a whole as well as transfer pricing (internal). The internal sale mechanism is more a source of conflicts and additional clerical work than an increase in work motivation and economic benefits.

Despite the aforementioned difficulties and limitations, the concept of contract management, and with it decentralization and delegation of powers, finds more and more practical application in our companies, bringing them significant economic benefits.

The analyses show that the manager of the centre that is an autonomous organizational unit, authorized to control and make decisions about the use of resources, has a much higher level of motivation to act than a person leading the team in a highly centralized structure. Therefore, the conclusion is that self-regulation and increasing the autonomy of the individual by creating a responsibility centre creates a motivational work position, which is related to the manager's motivation to increase the effectivity of the centre (Hart and Moore, 1990).²

In addition to improving the results, thanks to the presented process, the manager's competences also increase (Ziębicki, 2011, p. 99).

The most convenient time for introducing management contracts in the company is the beginning of the financial year. In commonly occurring cases, when the financial year coincides with the calendar year, the introduction of independent management of the company's organizational units by managers on the basis of management contracts (agreements) from January 1, 2021 requires changes in the accounting system in 2020. In practice, two adaptation approaches are mentioned, the first of which is designing a financial and accounting system from scratch, which is a labour-intensive solution. A simpler solution can be applied, which assumes that the newly established responsibility centres are covered by accounting analytics, that is, the imposition of the standard scope of calculation obligations currently functioning in the company on each such unit (Świerk, 2004). In particular, this may boil down to transforming the corporate chart of accounts in such a way that it would ensure the obtaining of the data necessary for accounting for each independent organizational unit managed by the manager. This system must ensure:

- keeping records of revenues broken down into organizational units;
- keeping records of costs by type, broken down into organizational units;
- keeping records of financial revenues, other operating revenues as well as financial costs and other operating costs broken down by organizational units;
- keeping records of losses and extraordinary profits also by organizational units.

The recommended indicator of the settlement of the profit responsibility centre is a properly formulated coverage margin. Most often it is the gross financial result, which, depending on the specificity of the responsibility centre, is adjusted by such costs as financial costs, management costs, market acquisition costs, etc. (Nowak, 2002). The amount of the contractual coverage margin may be the basis for the calculation of the manager's remuneration and the assessment of his work by the management board.

It is indicated that the cost account should make it possible to distinguish costs related to current activity from costs resulting from the implementation of the company's strategy. For example, implementing the kaizen philosophy aimed at reducing the wastage of resources usually generates costs of introducing improvements or training. These are investments focused on the

² Management decentralization is a desirable solution, but like any process it has its drawbacks, which may pose a threat to the functioning of the enterprise. The most important of them include problems with the division of competences between managers and various company bodies, appearing at the initial stage of negotiations, autonomy and non-compliance of the objectives of responsibility centres, duplication of certain functions of the company's staff units, disintegration of the enterprise, disputes between employees of centres resulting from differences in salaries or a lack of a sense of security, or even fear of the top management (of the team) of legal responsibility for the actions of managers of responsibility centres. Therefore, it is necessary for the management board and supervisory board of the company to supervise and monitor responsibility centres in order to effectively integrate the components for both entities (see: Skrzypek and Hofman, 2010).

long-term development of the enterprise, but in the short term they may worsen the financial result for which the contract manager is responsible. In such a situation, a kaizen cost account is required, which, apart from the standard recording and settlement of costs, requires systemic cost analysis and reporting (Kister, 2009).

The following part of the article presents the features of the manager's job and the incentives in responsibility centres that influence attitudes and beliefs towards work, in short, they affect work motivation.

4. Case study of a company

Przedsiębiorstwo Robót Budowlanych Budostal based in Kraków was taken as the object of analysis (empirical research). The company specializes in construction, road and track works, and also carries out specialist engineering works such as viaducts, tunnels and trenching. It employs about 550 people. In the organizational structure of the company, five basic organizational units have been distinguished, under the Construction Works Team Management (CWTM)—four units and the Equipment and Transport Base. Moreover, this structure consists of the following administrative units: Finance and Accounting Department, Company Service Department, Human Resources Department and other single-person units. The company is managed by a two-person management board.

The Management Board concluded contracts for the provision of management services (management contract) with the managers of the production units of the CWTM. The most important provisions of the contracts are the task system and the manager's remuneration system.

The issues related to the task system, i.e. the tasks, powers and obligations of managers, have been precisely regulated, such as:

- technical and organizational preparation of production and sales;
- production quality management;
- responsibility centre personnel management;
- reduction of own production costs and optimal use of the means of production at the disposal of the centre;
- use of the company's fixed and current assets;
- conclusion of contracts with other organizational units of the company for the implementation of production tasks;
- conducting business activities with due diligence;
- material liability for entrusted material and financial resources in accordance with the provisions of the Labour Code;
- financial liability for losses incurred by the organizational unit that he manages in connection with the performance of this contract, resulting from his culpable intentional act, omission or gross negligence;
- responsibility towards the company for the financial results achieved by the organizational unit and the implementation of tasks specified in the contract and others.

It has also been established that the remuneration of contract managers consists of three basic parts: monthly salaries, bonuses and awards. The monthly salary is always fixed in advance, while bonuses and awards may be regulatory or discretionary. However, if bonus tasks

are established, they are of a regulatory nature. An award may be determined on a discretionary basis depending on the achievement of a certain level of indicator, profit or costs.

As it can be seen, the contract specifies a system of material incentives (task-oriented system and managers' remuneration), and non-salary motivation factors are omitted. As a result of the analysis of the elements of the task system, and then the transposition of the elements of this system into motivation factors, several of them were distinguished, which significantly supplement the list of factors provided by Hackman and Oldham (1976, p. 3).

Five managers of the CWTM responsibility centres established in the company were consulted on this concept. In the opinion of those involved, the characteristics of work identified by Hackman and Oldham are important factors of motivation, but in their opinion the list is incomplete. The following factors should be taken into account in the model:

- the manager's responsibility for the results and management of the responsibility centre;
- intellectual effort and creativity;
- responsibility for external contacts, representing the unit outside;
- the task system; and
- the remuneration system, in particular.

For the purposes of further analysis, the concept of the model of motivation of managers of responsibility centres was adopted, which covers 10 groups of motivation factors favouring the maximization of centre results. Most of them are a subclass of non-salary motivation factors, the second subclass of the motivation system are salary factors, i.e. the remuneration system and the task system of the responsibility centre (see Table 1). They were considered as criteria for assessing the motivation system of centre managers.

Table 1. Motivation factors of managers of responsibility centres

| Non-salary motivation factors | Salary motivation factors |
|--|--|
| <ul style="list-style-type: none"> – the possibility of using broadly understood employee qualifications (centre managers) – comprehensive work performance, not just parts of it – perception of the importance of the work performed for other people – the ability to decide on the methods and pace of work – the quality of the feedback received – the manager's responsibility for the results and management of the responsibility centre – intellectual effort and creativity – responsibility for external contacts, representing the unit outside | <ul style="list-style-type: none"> – task system – remuneration system (base salary, bonuses, awards, additional benefits) |

Source: Authors' own study.

The model includes factors with different action vectors and instruments for shaping working and pay conditions and work characteristics in the context of work motivation, while the reference is the functioning and development of the enterprise.

The given key factors of the motivation model (job factors and incentives) have been and still are the subject of research by numerous authors. The methods and concepts of management developed on this basis, as well as modern techniques of measuring the productivity of production factors, contributed to increasing the relevance, harmonizing the individual goals of employees with the effectiveness of the organization, thus ensuring a solution to one of the fundamental management dilemmas, i.e. creating an effective and humanistic organization.

5. Final remarks and conclusions

Effective management can only be ensured by a system of employment and motivation that will allow for the appreciation of the results obtained and balance the risks and responsibilities that the managerial staff are subject to. This function can be fulfilled by management contracts, which have recently played an important role in practice.

Internal management contracts create new organizational and legal forms for employing managers at middle and lower management levels. They have a significant impact on the effectiveness and efficiency of management as well as on the development and effectivity of the organization.

Contractual forms of employment are conducive to the optimization of employment, adapting it to the current needs and financial possibilities of the company.

Managerial contracts, in essence, should be based on the principles (criteria) contained in the presented model for motivating the work of managers. It presents in a harmonious and differentiated way both types of motivation factors: salary and non-salary. The lack of even one of the factors mentioned in the motivation model means that employees and managers are significantly less satisfied with their work.

It is the responsibility of the company's senior management to treat managers fairly and with respect in terms of both relationships and salaries, non-salary benefits and stability and safety at work.

The right proportions of tasks, responsibilities and improvements specified in a management contract direct attention and increase persistence in carrying out tasks, motivate intellectual effort, and trigger creativity in increasing the results of the responsibility centre.

At the end of the presentation of the implementation of contractual forms of employment in an organization, it is worth emphasizing that a properly structured management contract significantly reduces the problems of agency and solves the issues of owners' supervision. The internalization of the manager's goals and the system of incentives contained in it should effectively discourage opportunistic behaviour.

The motivation factors established on the basis of the results of the previous research, interviews and the results of the analysis of the work of managerial positions may constitute the basis for the construction of motivation systems for heads of units with a lower degree of autonomy and independence, including the heads of functional units separated in a centralized structure.

Another reflection of a more general nature arises: the development of this system and a high contract culture may also contribute to the reduction of controlling costs, inter alia, by limiting supervisory institutions or numerous control tools, which—as experience shows—are characterized by an insufficient level of effectiveness and efficiency.

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System motywowania kadry kierowniczej w centrach odpowiedzialności

Abstrakt: W artykule opisano wybrane elementy systemu motywacji w przedsiębiorstwie, ze zwróceniem uwagi szczególnie na czynniki i instrumenty motywowania kadry kierowniczej. Przedstawiono także system zadaniowy oraz kompetencje i obowiązki kierowników jednostek organizacyjnych, jak również zakresy ich działalności w ramach centrów odpowiedzialności. Podano odmiany kontraktów kierowniczych, które stanowią formalne ramy implementacji czynników motywowania kierowników. Celem artykułu jest prezentacja koncepcji systemu motywacyjnego kadry kierowniczej centrum odpowiedzialności oraz prezentacja wyników badań empirycznych. Jako przedmiot analizy przyjęto czynniki i narzędzia pobudzania motywacji pracy kadry kierowniczej, natomiast odniesienie stanowią działalność i rozwój przedsiębiorstwa. Zakres badań ograniczono głównie do stanowisk pracy centrum zysku oraz centrum kosztów normatywnych i centrum dochodów w mniejszym stop-

niu. Do realizacji celów artykułu wykorzystano metody badawcze: analiza literatury, analiza pracy, modelowanie, wywiad, badania eksperckie i analiza przypadku. Zaprezentowaną koncepcję systemu motywowania kadry kierowniczej w centrach odpowiedzialności oparto na poglądach autorów podkreślających, że to głównie zarządzanie organizacją i warunki pracy są kluczowe w motywacji pracy, jak również na wynikach analizy pracy oraz pozycjach kierowników – zebranych w trakcie wywiadu. W koncepcji tej ujęto 10 grup czynników motywacji, które stanowią podklasę pozapłacowych czynników motywacji oraz podklasę czynników płacowych, to jest systemu wynagradzania i systemu zadaniowego centrum odpowiedzialności. Ustalone czynniki mogą stanowić podstawę budowy systemów motywacyjnych kierowników jednostek o niższym stopniu autonomii i samodzielności, w tym kierowników jednostek funkcjonalnych wyodrębnionych w scentralizowanej strukturze.

Słowa kluczowe: system motywacyjny, czynniki i instrumenty motywowania kadry kierowniczej, centra odpowiedzialności, kontrakt kierowniczy

Annex to the contract for the provision of management services

Rules for calculating and awarding commissions

§ 1

The conditions for granting the commission are:

1. The positive result of the unit in the month and calculated cumulatively in accordance with the corporate chart of accounts.
2. Timeliness of tasks performed in accordance with contracts concluded for the implementation of tasks.
3. Good quality of performed tasks.
4. Correct cash flow reflected in the commission base related to:
 - a) proper management of materials (materials for building, purchase of materials for the warehouse);
 - b) negotiated payment terms in the case of contracts of: purchase, sale, lease with internal contractors concluded by the Manager.
5. Performance of substantive tasks imposed by the superior.

§ 2

The basis for calculating the commission is the entity's gross profit adjusted for management costs.

§ 3

The commission applicable in is% of the base specified in § 2 of this Annex.

§ 4

Cases resulting in a reduction of the commission amount:

1. Untimely performance of tasks—reduction of commission by up to 20%.
2. Poor quality of works—reduction of commission by up to 30%.
3. Lack of care for financial flows—reduction of commission by 10%.
4. Lack of confirmation of the completion of material tasks—reduction of the commission by up to 30%.

§ 5

The commission will be paid according to the rules set out in § 9 of the contract.

§ 6

In the event of an overpayment of the commission in a given year, the surplus of commission paid will be returned by the Manager.

An original approach to the Gap Model with regard to the business insurance sector

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Abstract: Service providers, including business insurance, are looking for solutions to offer services of the best possible quality, including an assessment of that quality. For this reason, the attempt to apply the Gap Model was to demonstrate how other methods could be used to assess service quality, as opposed to assessing the quality of a typical product. Most of the methods used today are based on the difference between the expectations of customers of business insurance companies and their perception of the service offered. The observed difference is one of the gaps in the service quality model—the so-called Gap Model. For the purpose of this analysis, the literature that has been published so far on the subject was used. The model has been verified based on a survey conducted among 20 experts from Poland and abroad from the world of science and practice, including insurance companies. In comparison with traditional models, the proposed model includes the basic assumptions of the SERVQUAL strategy in an insurance company. The main aim of the study was to compare different variants described in the literature on the subject—the Gap Model. The article is a theoretical study and the tangible effect is to acquaint the readers with the basic elements of the Gap Model, on the one hand, and to present the author’s own Gap Model with respect to the business insurance sector, on the other hand.

Keywords: service quality, Gap Model, expectations of customers, insurance companies, business insurance

1. Introduction

The concept of “quality” is subject to systematic and continuous research and as such requires special treatment. This is because one rarely comes to a conclusion as to what quality really means and, consequently, the improvement of service quality in service companies, including property insurance companies. Therefore, according to the authors, it can be said that it is often assumed implicitly that everyone knows what “quality” is anyway, as well as—what “quality” is. Thus, there is no need to think more carefully about what is really con-

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tained in the definition of quality¹, especially “what it hides”. According to A.I. Vroeijenstijn (1992, pp. 109–113): “quality is like love”. The consequences of this would be less acute if the research on quality were only academic in nature. However, M. Woodhead (1998, pp. 116–117) in his study titled “Pursuing the Rainbow” believes that “‘quality’ is a bit like trying to find the crock of gold at the end of the rainbow. We may make progress in the right direction, but we never quite get there!” On the other hand, A. Gilmore (2003, pp. 4–9), defined a service as: action, process, and execution. Jerzy Łańcucki (2001, pp. 10–11), in his study, stated that the service quality is the ability to continuously meet the needs and expectations of internal and external customers regarding functional and technical elements. Later, the same author stated that due to the immaterial elements in service offers they are difficult to compare. Service recipients often look for material evidence of their quality, e.g.: in the appearance of service centres, the competencies of employees, or references relating to individual service providers (cf. Łańcucki, 1997, p. 5). Such proofs can be found especially in services that are important for customers, e.g.: financial and insurance services. As reported by E. Burch, H. P. Rogers and J. Underwood (1995, p. 1), perception of high quality translates into customer satisfaction, which “leads to market share as well as profits” and the loyalty that is necessary for long-term relationships between customers and the insurance company (Przybytniowski, 2019, p. 11).

As P. Dicken and A. Malmberg (2001, pp. 345–363) write, the development of any field, including the insurance industry, is subject to systematic change and is directed and irreversible. These changes may relate to the quantitative aspect on the one hand, while on the other hand, they also refer to the qualitative aspect. Bearing this definition in mind, the customer perceives the service from the perspective of two criteria: technical quality, i.e. the materiality of the service provided (in business insurance these are the General Insurance Terms and Conditions [GIC]) and functional quality, related to the behaviour of the staff, their professionalism (communicativeness, knowledge and experience). The most significant factor of customer satisfaction is the creating lasting relationship. According to the literature on the subject, an insurance service can be defined as a service that is provided by an insurance company, which is an integral “component” of the financial services sector, which aims to mitigate or eliminate the negative effects of a random event, to those entities such events are threatening. It can be concluded that an insurance service is a product (e.g. an insurance contract) offered by an insurance company. However, according to J. W. Przybytniowski (2019, p. 274), the quality of an insurance service is defined by the sum of the features and characteristics of the product or service that make it possible to adequately meet the defined explicit or hidden expectations of the client. Complementing this definition is the concept of “quality management”, that is, the continuous improvement of everything we intend to do, or effectively do in an insurance company using commonly known methods, as well as with the participation of all employees and associates.

Taking into account the content of this study, as well as the analysis of the existing definitions of service quality, with consideration to the systematically changing insurance market, J. Łańcucki’s definition has become one of the basic indicators in assessing the performance of an organization on the market, as well as its perception as a factor of development. This

¹ According to A. I. Vroeijenstijn (1992, pp. 109–113), “quality is like love. Everybody talks about it and everybody knows what they are talking about. Everybody knows and feels when there is love. Everybody recognizes it. But when we try to give a definition of it we are left standing empty-handed”.

is also confirmed by observations made by B. Dobiegała-Korona and S. Kasiewicz, in their study entitled *Methods for assessing enterprise competitiveness* (2000, p. 89).

The aim of the study was theoretical analysis of various approaches frequently described in the literature on service quality models—the so-called Gap Model. Accordingly, the article provides a tangible effect to acquaint the readers with the basic elements of the Gap Model and presents the modified model of gaps including the property insurance.

The authors of the subject, who deal specifically with the quality of services offered, have created several models that help us understand and identify the most important elements. In addition, these models are used to design service quality assessments. However, it needs to be pointed out at this point that the Gap Model developed by A. Parasuraman, V. A. Zeithaml and L. Berry (1985, pp. 44–45) is the precursor of the service quality model, and thus the most frequently used, albeit at times in modified version. According to these authors, the following factors have a significant impact on the compliance of a service with the client's expectations: teamwork, matching the company's personnel to the work performed, customization of technological and IT solutions to the work performed, having control, control systems, the role of conflict and ambiguity of expectations (Parasuraman, Zeithaml and Berry, 1985, pp. 44–45).

2. Service quality models: Expected quality and perceived quality

The most common models are based on a premise where service quality is related to the relationship between the quality expected, and the quality perceived by the recipients of the services. A number of authors who were supporters of such a solution should be mentioned: Ch. Grönroos (1984, p. 36), E. Gummesson (1993, p. 229) and A. Parasuraman, V. A. Zeithaml and L. L. Berry (1985, pp. 41–50). Ch. Grönroos presented his service quality model, where the total quality perceived by the customer, which determines the image of the company, is based on two pillars: technical quality (the final result of operational processes) and functional quality (shaped during the course of service provision) (Figure 1).

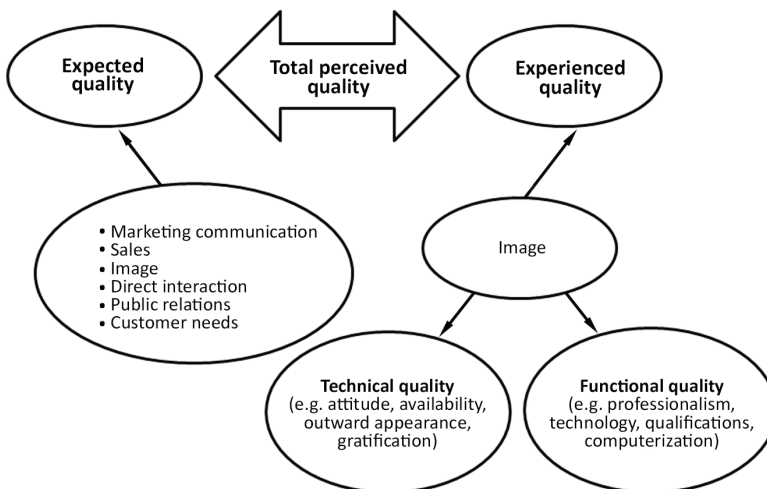


Figure 1. Service quality model according to Ch. Grönroos

Source: Authors' own elaboration based on Ch. Grönroos, 1984, p. 36.

A more complex service quality model considers the effects of the service process (functional and technical quality), as well as the sources of quality—project quality as well as production and delivery quality. The author of this model was E. Gummesson (1993, p. 218) (Figure 2). He proposed that the above types of quality, the so-called 4Q, should be considered by companies, and which are prerequisites for perceived quality and satisfaction, in his opinion.

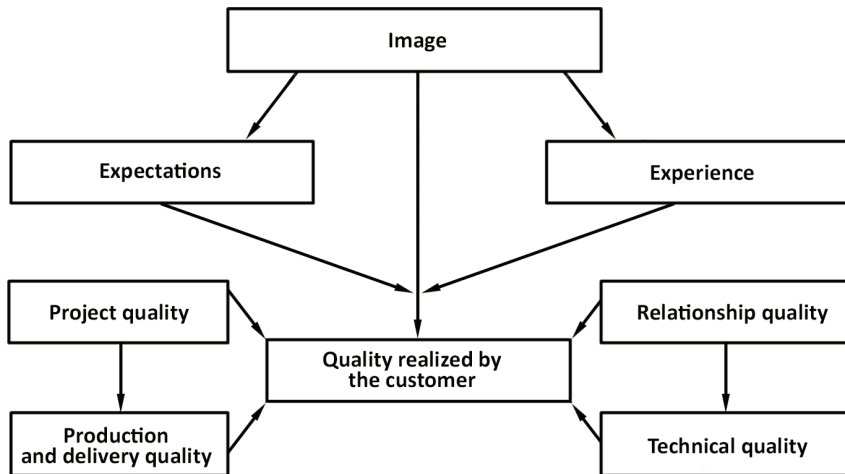


Figure 2. Service quality model according to E. Gummesson, the so-called 4Q model

Source: Authors' own elaboration based on Gummesson, 1993, p. 218.

On the other hand, one of the most developed service quality model showing the relationship between perceived and expected quality is the Gap Model as proposed by A. Parasuraman, V. A. Zeithaml and L. L. Berry (Parasuraman, Zeithaml and Berry, 1985, pp. 41–50) (Figure 3). The essence of the gap concept (see: Andersson, 1992, pp. 41–58; Rigotti and Pitt, 1992, pp. 9–17; Buttle, 1996, pp. 8–26) was the assumption that the assessment of the quality of a given service by the recipient of the service results from the difference between their perception of the service and their expectations² of the service, and which have an impact on the reduction of quality.

² The definition of the SERVQUAL method found in the literature (Urbanik, 2013, p. 31; Goranczewski and Puchato, 2011, pp. 166–171; Kadłubek, 2011, p. 682; <https://mfiles.pl/pl/index.php/Servqual>; Stoma, 2012, p. 65)—“measuring the difference between the level of satisfaction of expectations and customer perception of services”—is an erroneous assumption. It is inconsistent with the original assumption of the creators of that method, since, given the above, that quality of service is the fulfilment of consumer expectations. Therefore this indicator requires the establishment of service quality characteristics in relation to this definition is incorrect. Because then it should be written that: $S = \sum(O - P)$, and the result would always correspond to the conclusion that $O < P$ —the quality of service is satisfactory. For example, the perceived service is not in line with expectations and is unacceptable—the customer is dissatisfied and disappointed—positive value. An accurate transcription (directly translating the theories of American scientists, published in the study entitled *A conceptual model of service quality and its implications for future research* from 1985) is: “measure of how well the service level delivered matches customer expectation”, and, as a result, determination of the level of expectations of the service recipient as to the quality of service and measuring the divergence from their opinions.

In this concept, the appearance of gaps results from deficiencies in the successive stages of preparation and provision of the service, which in effect means that during the process of service provision some differences may or may not arise between the recipient and the service provider (Parasuraman, Berry and Zeithaml, 1991, pp. 420–450; Guglielmetti, 2010, pp. 5–36; Ingaldi, 2018, pp. 54–59; Ingaldi and Ulewicz, 2018, pp. 55–56; Torre, 2016, pp. 192–193).

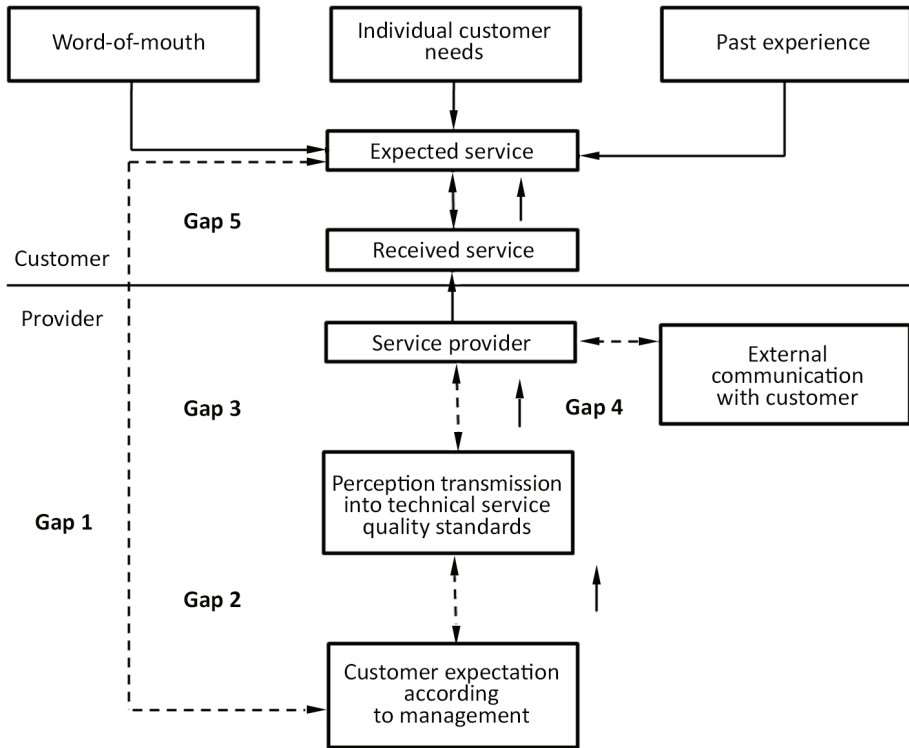


Figure 3. 5-Gap Model

Source: Authors' own elaboration based on: Parasuraman, Zeithaml and Berry, 1985, p. 44; Torre, 2016, pp. 192–193.

This method identifies 5 types of situations, the emergence of which causes a decrease in the quality of services offered to the customer. It combines strategic assumptions of the quality of the service offered from the point of view of the service recipient and, at the same time, the service provider, which allows for quick and efficient recognition of errors in the conceptual process and, subsequently, service provision. These discrepancies are described as follows (Zeithaml, Parasuraman and Berry, 1996, pp. 31–46; Gilbert and Parhizgari, 2000, pp. 46–48; Guglielmetti, 2010, pp. 5–36; Torre, 2016, pp. 192–193; Ingaldi, 2018, pp. 54–59; Ingaldi and Ulewicz, 2018, pp. 55–66; Przybytniowski, 2019, pp. 168–178):

Gap 1—arises at intersection between the service provider and the service recipient at the moment when management proposes the requirements for a given service offered to their customers.

Gap 2—arises when management implement is based on the acquired knowledge of customer needs.

Gap 3—indicates whether the company's personnel are adequately prepared to implement the assumed strategic objectives and, accordingly, answers the question of whether the process of providing a given service does not deviate from the previously identified requirements.

Gap 4—is related to the difference between the quality of the service and the information the customer receives about the service.

The four gaps analyzed above essentially constitute a fundamental discrepancy, the so-called **fifth gap**, which is the difference between the level of perception of a given service and the customer's expectations regarding this service, which is reflected in the fulfillment of the customer's needs and, as a result, customer satisfaction or the lack thereof.

This model represents a practical model that not only facilitates the understanding of a service quality problem, but also, and perhaps most importantly, enables the identification of deficiencies in the quality of the service offered and, as a result, the use of appropriate countermeasures. For companies providing services, including insurance, it is important to take continuous action to reduce gaps and discrepancies. An important element of this process is the systematic monitoring of these actions.

The service quality models presented above show the relationship between different service attributes. In this group of models, we can also include:

- 1) J. Haywood-Farmer's model (1988, pp. 19–29);
- 2) A. A. Brogowicz's synthetic service quality model (1990, p. 31);
- 3) Spreng and Mackoy's model of perceived service quality and satisfaction (1996, p. 203).

In the literature on the subject (Frost and Kumar, 2000, p. 361) one can also find such service quality models that are based on the Gap Model of A. Parasuraman, V. Z. Zeithaml and L. L. Berry. Such models are an extension, modification, or use a scale that has been used in SERVQUAL to measure quality, as well as its modification, and which will be presented in the next chapter.

3. Other versions of the model based on the Gap Model

The authors of the Gap Model have modified it several times during their research. One of the most important modifications was the introduction of elements that may have an influence on specific gaps (Figure 4).

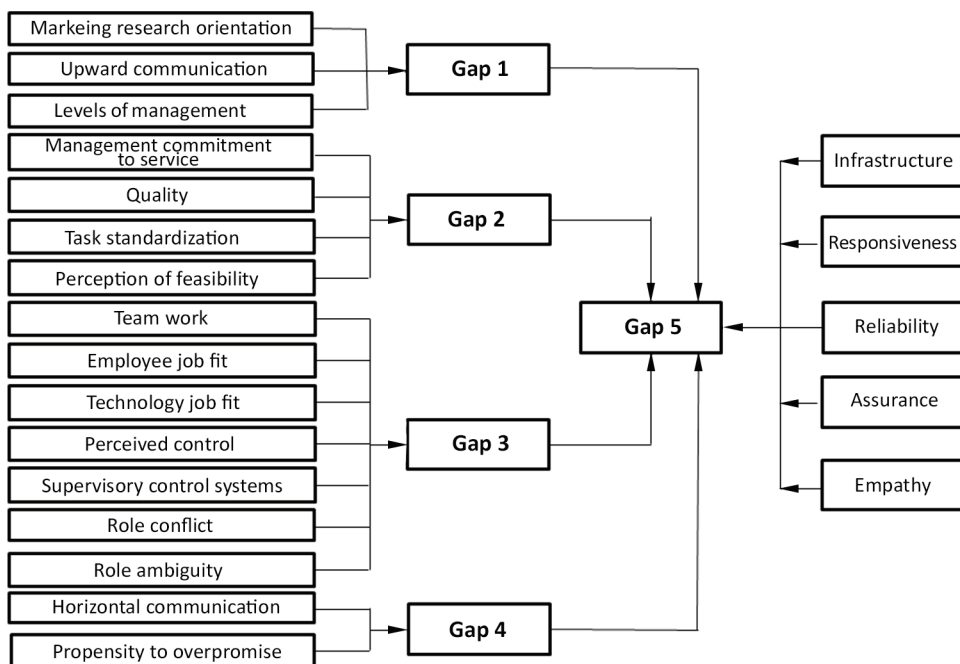


Figure 4. Parasuraman's extended Gap Model

Source: Authors' own elaboration based on Zeithaml, Parasuraman and Berry, 1996, pp. 31–46.

The Gap Model as presented by Parasuraman is a practical model which makes it possible, firstly, to understand the reason of the problem related to service quality in the insurance company being analyzed and, secondly, to estimate the shortcomings related to quality and for the management to use them in order to apply appropriate countermeasures. For insurance companies that provide an intangible service such as an insurance contract, it is important to take continuous and systematic action to close the gaps and the discrepancies that may arise. It is also important that each time the employees responsible for the distribution of insurance services constantly monitor (control) all the actions aimed at closing the gaps that may arise. With this in mind, Figure 5 below presents an extended version of the Gap Model, including barriers. This model found recognition among other authors (Luk and Layton, 2002, pp. 109–128; cf. Ingaldi, 2019, p. 76) and was transformed and supplemented by two additional gaps, 6 and 7 (Figure 6):

- 1) **Gap 6**—the difference between the expectations of service recipients and the perception of their expectations by employees. If the company's employees misunderstand the expectations of service recipients, the possibility of a negative impact on customer satisfaction arises.
- 2) **Gap 7**—the difference between the perception of service recipients' expectations by the company's employees and the expectations of customers in the assessment of management. This gap is directly related to the professionalism of employees. It is possible to reduce this gap when there is good communication between management and employees in order to solve any problem that arises.

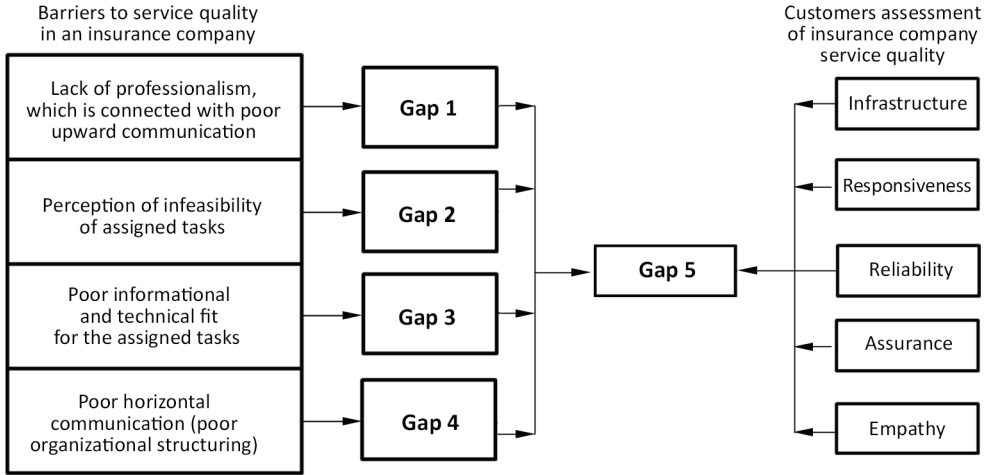


Figure 5. Extended Gap Model including barriers

Source: Authors' own elaboration based on: Seth, Deshmukh and Vrat, 2005, pp. 913–949; Parasuraman, 2004, pp. 45–52.

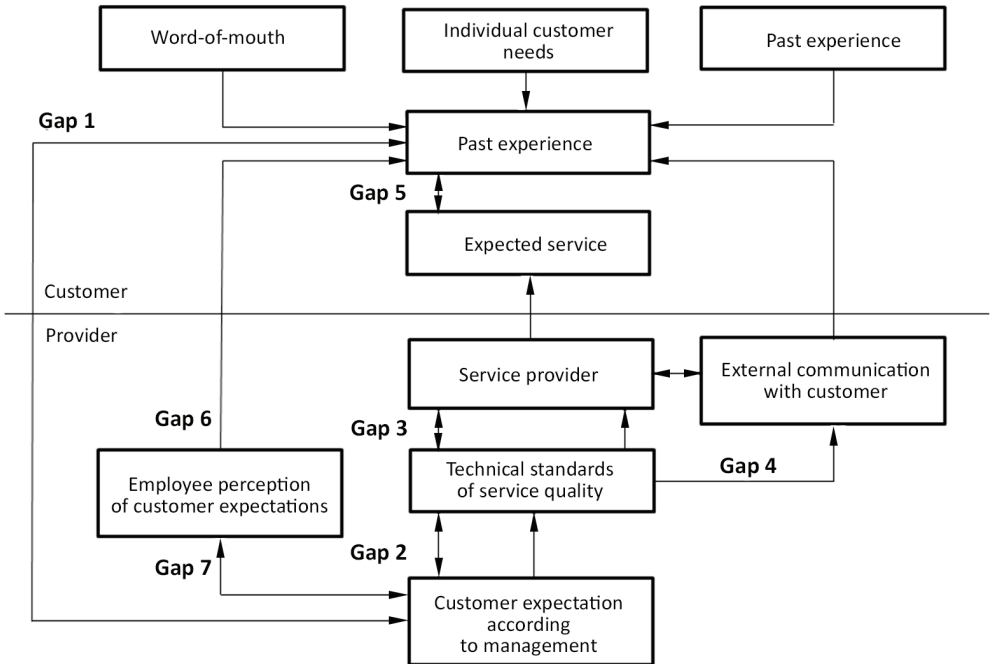


Figure 6. Extended Gap Model by Luk and Layton

Source: Authors' own elaboration based on Luk and Layton, 2002, pp. 109–128; Na, 2010, pp. 12–26.

A. Shahin and M. Samea (2010, pp. 1–11) “went” even further and added additional 7 gaps to the standard Gap Model (Figure 7). They identified a significant gap between the expectations of the service recipient and the service provider related to the moment of service provision, the so-called moment of truth. In this model the authors added several elements, which identified additional gaps. The left side of the model, where the perception of what the service recipient expects and how the client perceives the service, has been extended the most. In addition, the service quality strategy and policy were considered (cf.: Baffour-Awuah, 2018, p. 1843; Ingaldi, 2019, p. 77).

As shown in Figure 7, the five new elements that are included in this model, are the basic standards in service quality. They include: explanation of service quality strategy and policy; service quality strategy and policy; perception by employees; perception by customers and perception by management. However, the eight new gaps in the presented model are: Gap 2: management perception and service quality strategy and policy; Gap 3: service quality strategy and policy and service specifications; Gap 4: service specifications and ideal standards; Gap 5: service specification and external communication; Gap 11: customer perception and management perception; Gap 12: the gap between the perception of management and service quality strategy; Gap 13: customer perception and employee perception; and Gap 14: the gap between the employee’s perception and the management’s perception of a gap in service quality—affects the provision of services; therefore, managers of individual departments must detect and eliminate them as early as possible. The impact of service quality gaps on strategy development and implementation makes it increasingly important that management and planners do the same (Shahin and Samea, 2010, p. 6).

The strengths and benefits of using the Gap Method are demonstrated by the following:

- 1) It is one of the first methods on which scientists have started to address the issue of measuring service quality levels.
- 2) It is useful as a basic blueprint for refining research tools.
- 3) It has a high degree of flexibility and thus the possibility to adapt this method to different research purposes, type of service or industry.
- 4) It gives the possibility of a very broad field of analysis—the analysis can simultaneously include: the recipient of the service, the service provider, the service company itself, as well as competitors.
- 5) It is characterized by the multidimensionality of the concept, which makes it possible to perform a multi-faceted interpretation of the results.
- 6) It features a high degree of ease about administration, the research process and analysis of results.
- 7) It provides an opportunity to monitor ongoing changes in the service quality management process.
- 8) It provides the possibility of linking the results obtained with other test methods, e.g.: SWOT method, CSI.

Moreover, on the basis of this method one can identify the most important attributes of service quality, both from the perspective of the customer and the management of the insurance company, as well as the most important stages in the evolution of service quality considerations from the perspective of both the management of the company and the recipients of its services.

However, the negative aspects of this method include:

- 1) The validity of measuring customer expectations should be limited to customer perception only.
- 2) The manner of understanding customer expectation categories.
- 3) Format of the measuring instrument—usefulness of the arithmetic measurement (calculation of the difference between two different quantities (customer perceptions and expectations)).
- 4) Limitations related to the possibility of measuring the level of service quality only to a group of customers who have already had contact with the service in question, and thus have some knowledge and experience in the evaluation (lack of full objectivity).
- 5) Construction and implementation of the measurement tool itself.

Thus, in today’s service market, where there are many industries, a separate research method should be proposed to measure service quality, considering the specific characteristics of a given service. This is connected with the observation, which was used by the scientific team led by A. Parasuraman, that: “SERVQUAL is only a backbone which, when needed, should be modified and thus adapted to the specific needs of the companies being studied”.

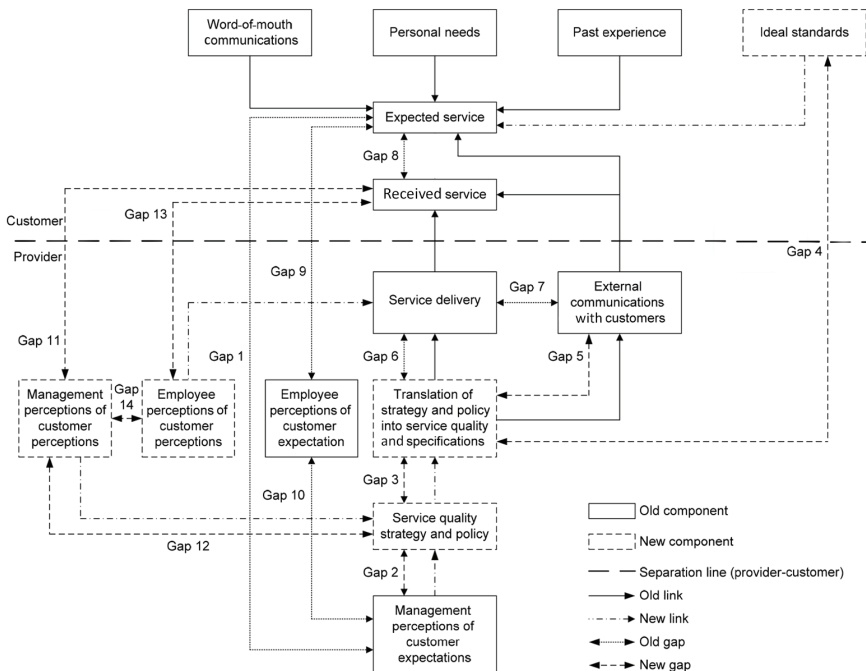


Figure 7. Gap Model of service quality by A. Shahin and M. Samea

Source: Authors’ own elaboration based on Shahin and Samea (2010, p. 11).

4. Authors' model of service quality

The proposed Gap Model for the insurance sector was verified by means of a survey conducted among 20 experts, including 5 experts from European Union (EU) countries (management staff of insurance companies), 5 from the United States of America (USA—management staff of insurance companies) and 10 experts from Poland—5 of whom came from universities and 5 from the management of insurance companies.

Before the experts started filling in the questionnaire, the proposed Gap Model was clearly defined for them, including: the specific gaps and the determinants characterizing them as well as the reasons for their inclusion in the model. It was explained to them that the research concerns the determination of the quality level of property insurance. Moreover, in order for the research to relate to the subject of research, it was explained that the quality of the insurance service is the reality, certainty, the level of financial loss coverage, universality, speed of compensation payment and timeliness after liquidation of losses.

To confirm the consistency of the experts' opinions about the results, the authors used a binomial test, which was used to test the zero hypothesis—"No differences between expert opinions". Each of the experts had the task of presenting their opinion by marking "I agree" (1) or "I disagree" (0) for each of the proposed gaps and its determinant. Test proportion was set at 0.50, which meant that at least 50% of the experts were expected to agree on the gaps and determinants. The results are shown in Table 1.

Table 1. Results of the binomial test

| Soft factor | Agreed proportion | Disagreed proportion | Test proportion | Exact Sig. (2-tailed) |
|-------------|-------------------|----------------------|-----------------|-----------------------|
| 1 | 0.84 | 0.19 | 0.50 | 0.021 |
| 2 | 0.84 | 0.19 | 0.50 | 0.021 |
| 3 | 0.85 | 0.17 | 0.50 | 0.019 |
| 4 | 0.85 | 0.17 | 0.50 | 0.019 |
| 5 | 0.85 | 0.17 | 0.50 | 0.019 |
| 6 | 0.85 | 0.17 | 0.50 | 0.019 |
| 7 | 0.86 | 0.15 | 0.50 | 0.005 |
| 8 | 0.86 | 0.15 | 0.50 | 0.005 |
| 9 | 0.86 | 0.15 | 0.50 | 0.005 |
| 10 | 0.86 | 0.15 | 0.50 | 0.005 |
| 11 | 0.86 | 0.15 | 0.50 | 0.005 |
| 12 | 0.86 | 0.15 | 0.50 | 0.005 |
| 13 | 0.88 | 0.13 | 0.50 | 0.004 |
| 14 | 0.89 | 0.12 | 0.50 | 0.001 |

| | | | | |
|----|------|------|------|-------|
| 15 | 0.89 | 0.12 | 0.50 | 0.001 |
| 16 | 0.89 | 0.12 | 0.50 | 0.001 |
| 17 | 0.89 | 0.12 | 0.50 | 0.001 |
| 18 | 1.00 | 1.00 | 0.50 | 0.000 |
| 19 | 1.00 | 1.00 | 0.50 | 0.000 |
| 20 | 1.00 | 1.00 | 0.50 | 0.000 |

Source: Authors' own elaboration based on research results.

As can be observed, all levels of significance are less than 0.05 and the test proportion (0.50) is higher than the proportions observed. Thus, it can be concluded that the null hypothesis was not rejected, and thus there are no substantial differences between the experts' opinions. According to the agreed parts, which are larger than 0.83, it can be argued that the experts largely agree on the proposed gaps as well as on the determinants characterizing them with a confidence level of 0.95.

On the basis of the above, it can be concluded that the basis for effective conclusions on the need for changes in the level of insurance services provision is the systematic research not only among service recipients, but also among managers and employees offering these services as well as among competitors. The scope of these surveys should be the basis for verification of the level of insurance services provided, as well as the quality of services provided by the insurance company itself. This system should be systematically enriched, through ongoing market analysis results, in effect—constantly developed, with a view to:

- 1) Research of customer expectations using tolerance (desired services).
- 2) Constant collection and analysis of information (emphasis on information quality).
- 3) Linking the level of provision of insurance services to the economic performance of an insurance company.
- 4) Mobilizing insurance company employees by engaging them in the process of improving their skills.

It should be emphasized that the need and necessity of the process of improving customer service and, consequently, the feedback received from customers of non-life insurance companies is the result of the existing market situation. This requires insurance companies to systematically implement corrective and preventive tasks, which should be preceded by detailed studies of their potential impact on the quality of the customer service quality improvement process. This will be the basis for management to make an assessment of whether or not profits involved with the planned changes will cover the costs of their implementation and whose specific objectives are presented in Figures 8 and 9.

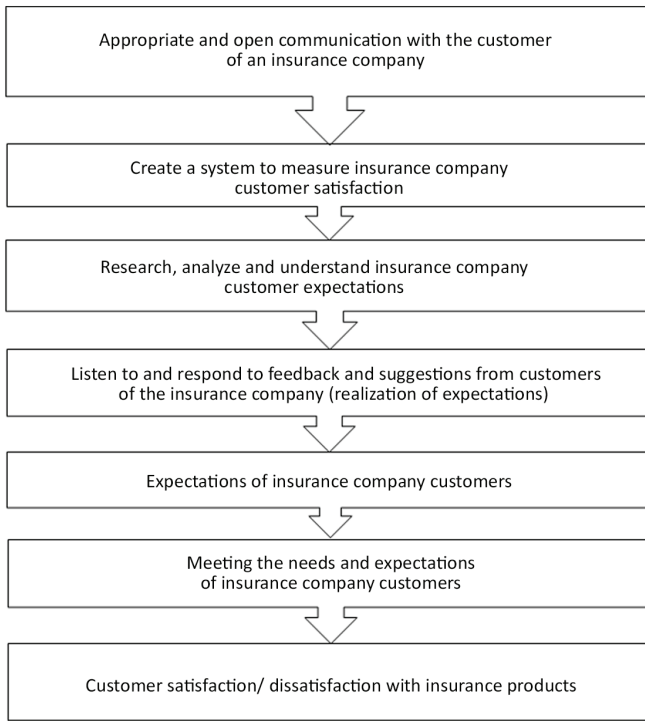


Figure 8. Customer focus

Source: Authors' own elaboration.

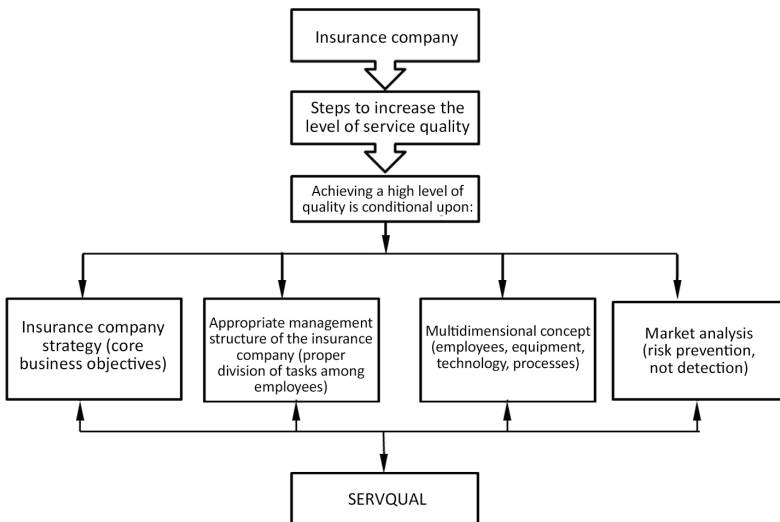


Figure 9. Basic assumptions of the strategy of the service quality method in an insurance company

Source: Authors' own elaboration.

In conclusion, it can be said that the method described above derives from views related to customer focus.

On the basis of the final results of the research related to the assessment of the level of property insurance service provision, as well as the described factors determining the process of providing property insurance services, taking into account the opinions of experts, which have contributed to the modification of the method for improving service quality, as a tool indicating the difference between what the purchaser perceives, an original model was developed.

In order to precisely define the presented gaps, the study used a survey tool consisting of 22 statements, divided into five areas:

- 1) empathy, i.e. understanding the client's needs;
- 2) speed of the insurance service—mainly related to the claim settlement process;
- 3) reliability of the insurance service—relating to the timely claim settlement or payment of compensation;
- 4) credibility of the insurance service—related mainly to the information provided to the client;
- 5) infrastructure of the insurance company, i.e. equipping it with new technology, which contributes to the efficiency of customer service.

In the presented gaps, the differences between them were determined:

1. The expectations of the customer of the insurance company (policyholder/ insured) and what is perceived by the management and employees of the insurance company (Gap 1).
2. Perception of the expectations of the customer (policyholder/ insured) by the management and employees of the insurance company, and technical characteristics of non-life insurance services (Gap 2).
3. The (standard) quality of property insurance services offered by the insurance company and what the actual level of service offered is (Gap 3).
4. The level of property insurance services offered by the insurance company and the information provided to the customer (policyholder/ insured) about this service (Gap 4).
5. The expectations of the customer (policyholder/ insured³) and what they perceive in the property insurance service (Gap 5).

Each of these gaps appeared at the various stages during the provision of services that relate to individual customers.

³ An insured—an individual or a firm in whose name an insurance policy is written. The policyholder receives the specific types of coverage (life, health, etc.) stated in the policy, subject to the payment of premiums. It is important to note that a policyholder does not make any legally enforceable promises when he/ she takes out a policy.

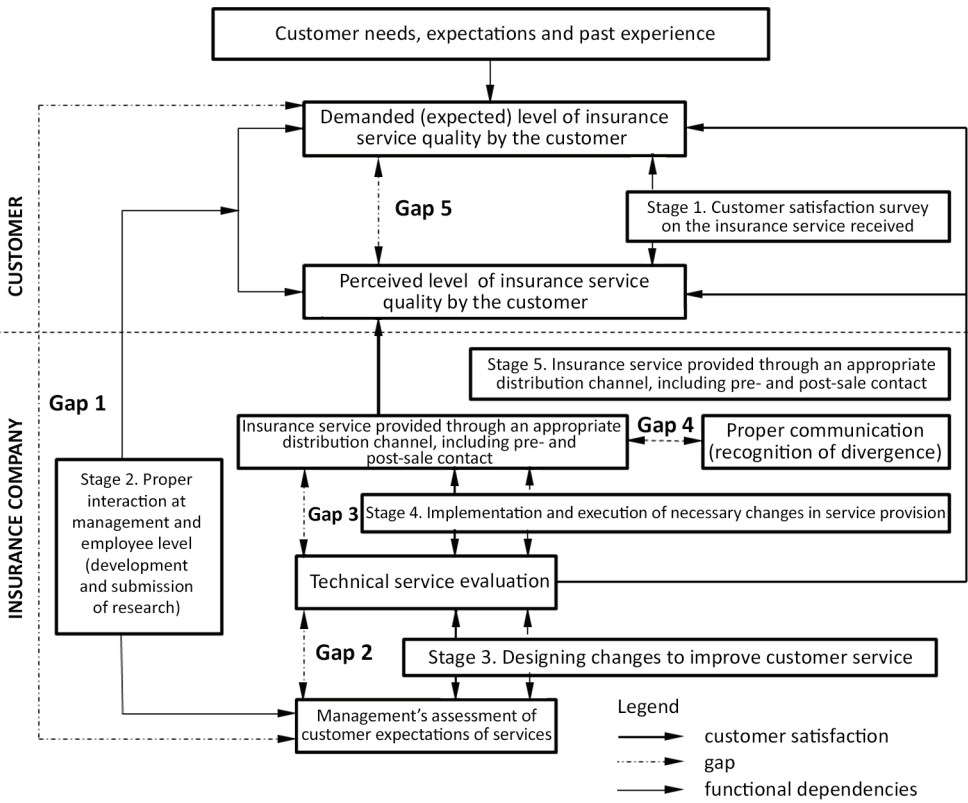


Figure 10. The authors' model of improving the quality of business insurance services

Source: Authors' own elaboration based on the conducted research, using the 5-Gap Model.

Based on the Gap Model and other service quality models found in the literature, the most important elements were selected, and a new proprietary service quality model developed. This model is presented in Figure 6. The model is based on a systemic approach (service production system).

Service quality is dictated by many elements (materiality of service, availability, up-to-datedness, etc.). Its level, according to the available literature and other service quality models, is determined primarily by two components: expected quality, or customer requirements for the service, and experienced (perceived) quality, i.e. how the customer receives the finished service and the process of its implementation. Both components are influenced by many factors. In the case of expected quality, these may be e.g. the client's own experience, his requirements, ubiquitous advertizing, or the image or position of the service company in the market. As far as experienced quality is concerned, its elements include the course of the service provision process, its final effect, how well the customer's requirements correspond to his expectations. Service quality affects customer satisfaction and, consequently, customer loyalty. A loyal customer will return, choose the service again and spend money, which in effect should of course translate into company profits.

By definition, customer expectations are any set of behaviours or actions that individuals anticipate when interacting with a company. Historically, customers have expected basics like quality service and fair pricing—but modern customers have much higher expectations, such as proactive service, personalized interactions, and connected experiences across channels. As disruptive companies leverage breakthroughs in cloud, mobile, social, and artificial intelligence technology to deliver personalized, valuable, and immediate experiences, customers have more choices than ever. As a result, they grow to expect this superior experience from any business they engage with.

5. Conclusion

This article reviews traditional Gap Models of service quality and discusses and modifies them. Although this study shows that traditional models are not fully comprehensive, attempts have been made to develop them so as to make them more comprehensive for broader audience and many different applications. The impact of service gaps on the creation and implementation of strategies makes it increasingly important that managers and planners do the same. Although this document develops a gap model of service quality for the insurance sector on the basis of discussions and their modifications, as well as the use of expert “feedback”, it is necessary to review and confirm the proposed model. This should be done by validating the developed model in practical research. Moreover, while this study sought to provide a bit more comprehensive model of service quality differences, it still has the potential to be further developed to become even more comprehensive. However, the empirical implementation of the proposed model may cause some difficulties. The proposed model addresses the gaps in a way that they more directly relate to the business insurance sector, making it more difficult to assess than traditional models. The conceptual design of the questionnaire to be developed for gap measurement is the main tool of the proposed gap model. Moreover, although there are standard questionnaires based on the SERVQUAL approach to gap measurement, the design of the questionnaire for other gaps is still a critical issue which requires further research. It should be noted that even in traditional models such as Parasuraman, Zeithaml and Berry (1985), the measurement of some gaps, such as Gaps 2, 3 and 4, requires research to be developed and carried out on this topic. The proposed model therefore aims to allow and provide an excellent opportunity for researchers to further explore and research such topics in the development and improvement of service quality models. This can be particularly useful in the financial sector, as well as exploring more detailed measurement approaches.

The research issues discussed in this study have not only cognitive but also practical value. It is a part of the achievements available in the literature on the subject, as well as the achievements implemented in economic practice. The obtained research results can be used as a certain proposition for solving further scientific considerations, eliminating the cognitive gap in this area. These studies may contribute to practical application in the management of insurance companies, and thus, successively improving the quality of services in the property insurance sector.

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Autorskie podejście do modelu luk z uwzględnieniem sektora ubezpieczeń gospodarczych

Abstrakt: Przedsiębiorstwa usługowe, w tym ubezpieczeń gospodarczych, szukają sposobów, jak oferować usługi o jak najlepszej jakości, z uwzględnieniem oceny tej jakości. Dlatego podjęta próba zastosowania modelu luk miała wykazać, jak w przypadku oceny jakości usług można wykorzystać inne metody, w odróżnieniu od oceny jakości typowego wyrobu. Tym samym większość stosowanych na dzień dzisiejszy metod oparta jest na różnicy, jaka zachodzi między oczekiwaniami klientów zakładów ubezpieczeń gospodarczych a ich postrzeganiem w stosunku do oferowanej usługi. Analizowana różnica stanowi jedną z luk w modelu jakości usług: tak zwanego modelu luk. Do niniejszej analizy została wykorzystana opublikowana dotychczas lite-

ratura przedmiotu. Opracowany model został zweryfikowany na podstawie ankiety przeprowadzonej wśród 20 ekspertów z Polski i zagranicy, reprezentujących świat nauki i prowadzących praktykę, w tym z zakładów ubezpieczeń. W porównaniu z tradycyjnymi modelami zaproponowany model obejmuje podstawowe założenia strategii SERVQUAL w zakładzie ubezpieczeń. Celem głównym opracowania było zestawienie różnych wariantów modelu luk opisywanych w literaturze przedmiotu. Artykuł stanowi opracowanie teoretyczne, a efektem wymiernym jest z jednej strony zapoznanie czytelników z podstawowymi elementami modelu luk, a z drugiej – zaprezentowanie autorskiego modelu luk z uwzględnieniem sektora ubezpieczeń gospodarczych.

Słowa kluczowe: jakość usług, oczekiwania klientów, metoda luk, ubezpieczenia gospodarcze, zakłady ubezpieczeń

Effectiveness of the financial management in terms of R&D activities across selected stock companies in Poland

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Abstract: The purpose of the study is to determine the financial impact of expenditure on research and development activities (R&D) of selected companies listed on the Warsaw Stock Exchange. The work is based on reports of 44 such companies, which conducted R&D activities between 2015 and 2017. Expenditure on R&D was taken as a diagnostic variable in the assessment of a given company's management efficiency. The financial condition was assessed using three diagnostic indicators: the return of assets, current liquidity levels and debt ratio. The two first were assumed to be stimulants, while the third was taken to be destimulant. A scoring method—recommended among others by M. Tarczyńska-Łuniewska and W. Tarczyński—was used to construct a complex measurement of the overall financial condition. The methodology adopted was based on the results of studies conducted by (among others) Baruch, Hurwitz, Lines and Schmidt, Walczak, as well as Glova, Dancakova and Suleimenova. The results observed made for an examination of a subtle relationship between financial results of the companies with the levels of R&D activities conducted. It was found that there was no significant impact of research activities on the financial condition and management effectiveness of the selected enterprises.

Keywords: R&D activities, intangibles, listed companies, financial performance, business excellence

1. Introduction

Business management effectiveness was taken to refer to the degree of achieving predetermined goals and the pace of adaptation to changes taking place in the organizational environment (Grudzewski and Hejduk, 2002; Wawak, 2001). When testing effectiveness, any final outcomes of decisions previously made by managers are examined mostly in relation to the economic dimension (financial performance, financial condition of the company) (Drucker, 2006). It is generally assumed that better tangible results and healthier financial conditions of a selected company (including its cor-

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porate value) provide a measure of the effectiveness of management (Borowiecki and Siuta-Tokarska, 2017).

To describe and accurately measure business management effectiveness, comprehensive methods can be used, such as an analysis of Key Performance Indicators (Parmenter, 2015). These contain a set of financial and non-financial indicators on the basis of which it is possible to measure degrees of achievement of predetermined objectives, both for the whole company and for particular segments of the given organization (Grycuk, 2010). Other examples of multi-criteria models used to assess management efficiency are (among others), the Business Excellence Model (Dahlgaard and Dahlgaard, 1999) and as subsequently modified, i.e.: the Business Excellence Framework (Dahlgaard et al., 2013), and the FACT model (Mohammad et al., 2011). The 4P excellence model (Dahlgaard and Dahlgaard, 1999) and the Balanced Scorecard method (Kaplan and Norton, 2001) are also tools to measure effectiveness of a selected company's operations. Some companies score highly for efficiency and management performance, according to various indicators (both qualitative and quantitative) (Zymonik, 2012). In the USA, the Malcolm Baldrige National Quality Award is accorded to companies on the basis of the MBNQA Model, which measures the quality of management (NIST, 2020). On the other side of the Atlantic, the European Foundation for Quality Management (EFQM) is the kitemark for continental European ventures. This model enables a company to score its level of competitiveness and business excellence (EFQM, 2019).

Qualitative indicators are becoming increasingly important for the purposes of analyzing the business management efficiency. Q.I.'s take into account factors such as knowledge management processes, information processes, methods of building intellectual capital, relations in the organization, research and development activities, organizational culture, and others (Grabara and Dima, 2012). An increase in the value of non-measurable factors may sometimes determine the company's development (Lev and Sougiannis, 1996). As underlined by Dahlgaard and Dahlgaard (1999), an analysis of a company's management efficiency should refer primarily to strategic future-oriented indicators. Key goals of strategic management are searching for new solutions and launching new products (Porter, 1998; Griffin and Pustay, 2005), but may extend to "creating" new markets, e.g. blue ocean strategy (Kim and Mauborgne, 2005). Companies embarking on such endeavours often become leaders in their respective industries, overtaking competitors, because they are able to anticipate changes in technology and global trends (Haryanto and Haryono, 2015). Innovation activities significantly enhance business and finance performance because investment in research activities increases (Hult, Hurley and Knight, 2004). Therefore, the amount of expenditure on research and development (R&D) and the effectiveness of the same may prove to be key factors determining business management efficiency (Krause, 2016).

R&D provides a reliable basis for analyzing enterprises in various ways. The Eurostat classification (Eurostat, 2016) divides industry into four categories, taking into account the level of R&D expenditure in turnover. Industries in which R&D expenditure accounts for over 5% of the market share is referred to as "high-technology" industries, while "medium high-technology" industries represent those with a 3–5% share of R&D expenditure, "medium low-technology industries" are those with a 1–2% share of R&D, and "low-technology industries" are those trailing with a 1% or less share of R&D. According to the European

Commission (2016), the most advanced are electromechanical and pharmaceutical industries, along with sectors providing IT and telecommunications services (Eurostat, 2016).

In the paper, the following hypotheses were verified: The intensity of spending on research and development activities has a direct positive impact on the company's financial condition. In the following years, more and more enterprises conduct more intensive research and development activities.

2. Materials and methods

In this study, an analysis was made of one selected indicator—i.e.: spending on research and development activities (R&D). For our research purposes, the International Accounting Standards (IAS aka IFRS) encompasses activities aimed at acquiring and developing knowledge and applying it in practice. Additionally, development activities may be related to the design, implementation and testing of various prototypes, tools, products or new solutions.

This article analyzes results of a sample of companies listed and registered in the Polish National Court Register. In all, 44 companies listed on the Warsaw Stock Exchange (GPW) were selected for analysis of their R&D expenditures in the stock reports published in 2015, 2016 and 2017. The companies were chosen from the electromechanical, pharmaceutical, IT, chemical and biotechnology sectors.

The authors adopted expenditure on R&D as a diagnostic variable for the assessment of the given company's management efficiency. Expenditure on R&D related to development works constitute a part of those of intangible assets of the enterprise (intangibles), which the Accounting Act (consolidated text from 2013, item 330, Art. 3, par. 1, point 14) defines as "proprietary copyrights, related rights, licenses, concessions, rights to inventions, patents, trademarks, utility and decorative designs, know-how, acquired goodwill and costs of completed development works".

Baruch Lev (2001) developed a method for analyzing performance intangibles based on GAAP¹ financial reporting, and this method may be applied to measure the intangible performance of Stock Exchange enterprises. This method was later developed by Hurwitz, Lines and Schmidt (2002), who reached the conclusion that adapting an appropriate strategy for using intangibles directly or indirectly affects stock returns. Walczak (2010) emphasized the importance of such an approach in order to maximize the given company's value to shareholders and other stakeholders. Similar issues were analyzed by Glova, Dancakova and Suleimenova (2018) and Mrazkova (2018) in their studies, which tested the hypothesis that there is a relationship between R&D expenditure and business value.

For the purposes of this study, the financial condition of the selected company was taken to be the determining measure of management effectiveness. The financial situation was assessed using three diagnostic indicators: the return of assets, current liquidity levels and the debt ratio. The return on assets and current liquidity were assumed to be stimulants, while the level of debt was taken to be a destimulant. These ratios were calculated in accordance with generally accepted models (Sierpińska and Jachna, 1994), i.e.: the return on assets as a quotient of the financial result and total assets, the current liquidity as a quotient of current assets and short-term

¹ Generally Accepted Accounting Principles—financial statements prepared in accordance with US standards. They allow the company to enter the New York Stock Exchange and access other American capital markets.

liabilities, and the debt ratio as a quotient of total liabilities and total assets. A scoring method was used to construct a complex measurement of the overall financial condition (Tarczyński, Tarczyńska-Luniewska and Tarczyński, 2017). This exercise depends on assigning a specific score for each factor, depending on the relative importance of that factor. In terms of the chosen enterprises, an appropriate score was applied, reflecting the values calculated for particular years, according to the formal criteria (as in Table 1), where: ROA_A , CR_A , DR_A are matched to ROA , CR and DR respectively for company A, while d_{ROA} , d_{CR} and d_{DR} represent the average deviation of ROA , CR and DR , in the respective group of companies surveyed. As a complex measure of the company's situation, the scores accorded to individual diagnostic measures were adopted. If the sum was less than 4, then the company was placed into group 1, i.e.: companies in the weakest financial condition. If the sum was between 4 and 6, then the company was placed into group 2 (i.e.: poor financial condition). If the sum was between 7 and 9, then the company was placed into group 3 (i.e.: good financial condition). The companies in the strongest financial conditions were placed into group 4, where the score was at least 10.

Table 1. Scoring method for selected indicators for company A

| Diagnostic measure | The range of the value adopted by the measure in company A | Assigned score |
|----------------------------|--|----------------|
| Return of assets (ROA) | $ROA_A < 0$ | 0 |
| | $0 \leq ROA_A \leq \overline{ROA} - 0,5d_{ROA}$ | 1 |
| | $\overline{ROA} - 0,5d_{ROA} < ROA_A \leq \overline{ROA}$ | 2 |
| | $\overline{ROA} < ROA_A \leq \overline{ROA} + 0,5d_{ROA}$ | 3 |
| | $\overline{ROA} + 0,5d_{ROA} < ROA_A$ | 4 |
| Current ratio (CR) | $CR_A \leq \overline{CR} - 0,5d_{CR}$ | 1 |
| | $\overline{CR} - 0,5d_{CR} < CR_A \leq \overline{CR}$ | 2 |
| | $\overline{CR} < CR_A \leq \overline{CR} + 0,5d_{CR}$ | 3 |
| | $\overline{CR} + 0,5d_{CR} < CR_A$ | 4 |
| Debt ratio (DR) | $DR_A \leq \overline{DR} - 0,5d_{DR}$ | 4 |
| | $\overline{DR} - 0,5d_{DR} < DR_A \leq \overline{DR}$ | 3 |
| | $\overline{DR} < DR_A \leq \overline{DR} + 0,5d_{DR}$ | 2 |
| | $\overline{DR} + 0,5d_{DR} < DR_A$ | 1 |

S o u r c e: Authors' own elaboration based on: Sudol, 1999; Woźniak (ed.), 2002; Sierpińska and Jachna, 1994.

Based on the methodology developed by Sudoł (1999) and Woźniak (ed., 2002), the companies analyzed were divided into four groups depending on size, total assets, revenue and number of employees. In the case of the companies surveyed, these results strongly correlate with each other each year, as shown in Table 2.

Table 2. Linear correlation matrix between revenue, total assets and the number of employees in the companies surveyed in particular years

| 2015 | | | | 2016 | | | | 2017 | | | |
|------|---|------|------|------|---|------|------|------|---|------|------|
| | R | A | Ne | | R | A | Ne | | R | A | Ne |
| R | 1 | 0.97 | 0.91 | R | 1 | 0.99 | 0.93 | R | 1 | 0.97 | 0.91 |
| A | X | 1 | 0.97 | A | X | 1 | 0.96 | A | X | 1 | 0.97 |
| Ne | X | X | 1 | Ne | X | X | 1 | Ne | X | X | 1 |

Source: Authors' own elaboration.

Where the values examined strongly correlate with one another, it suffices to use one criterion (size of the company) in order to divide companies into groups. In such cases, revenue was taken to be the key criterion (Table 3).

Table 3. Criteria for assigning company A to groups (by size)

| | Scope of assumed value of revenue in company A | Group (by size of the company) |
|-----------------------|--|--------------------------------|
| Revenues (<i>R</i>) | $R_A \leq \bar{R} - 0,5d_R$ | (1)—the smallest companies |
| | $\bar{R} - 0,5d_R < R_A \leq \bar{R}$ | (2)—small companies |
| | $\bar{R} < R_A \leq \bar{R} + 0,5d_R$ | (3)—big companies |
| | $\bar{R} + 0,5d_R < R_A$ | (4)—the largest companies |

Source: Authors' own elaboration.

The financial intensity of R&D activities was measured by the share of expenditure on turnover (or revenue activities) of the company. The companies were divided into four groups in terms of their size and level of intensity of R&D funding (Table 4).

Table 4. Criteria for assigning company A to groups (by intensity of R&D expenditures)

| | Scope of assumed value of share of expenditure on R&D activities in company A | Group (by intensity of R&D financial activities) |
|--|---|---|
| Share of R&D expenditure in turnover (E) | $E_A \leq \bar{E} - 0,5d_E$ | (1)—the smallest intensity |
| | $\bar{E} - 0,5d_E < E_A \leq \bar{E}$ | (2)—small intensity |
| | $\bar{E} < E_A \leq \bar{E} + 0,5d_E$ | (3)—large intensity |
| | $\bar{E} + 0,5d_E < E_A$ | (4)—the highest intensity |

Source: Authors' own elaboration.

The relationship between the size of the company and the intensity of R&D funding, and then the relationship of the same with the company's financial performance was assessed by comparing the categorization of objects into specific groups, taking into account the criteria adopted.

3. Results and discussion

For 2015, the groups marked as 1, 2, 3 and 4 were classified as 30, 13, 5, and 4 companies, respectively. The results dictated the majority of the companies analyzed to be placed into the first group ("the smallest companies"). For 2016, the results were 30, 13, 4 and 5 companies respectively, and for 2017, the totals were 32, 11, 3 and 6 companies using the same respective breakdown. While examining the relationship between the size of the company and intensity of R&D activities, a slight negative correlation can be observed, i.e.: -0.41 for 2015, -0.36 for 2016 and -0.30 for 2017. This indicates that there is a small negative correlation between the size of the company and the intensity of its R&D funding activities. Smaller companies were characterized by a slightly higher degree of R&D activities. However, the research conducted showed that there is no substantive relation between the size of the company and its financial condition—the correlation coefficient model did not exceed 0.12.

The proportion of expenditure on R&D in the turnover of the selected companies was lower than the Eurostat assumption for high, medium-high, medium-low and low technology sector divisions. The maximum level of expenditure on R&D in the turnover of the surveyed companies in 2015, 2016 and 2017 was 35.32%, 43.97%, 42.32%, respectively. However, the medians in individual years were: 0.59%, 0.93% and 0.70%, while the first quartile reached the value of 0.12%, 0.04%, 0.03%, and the third quartile 2.27%, 2.61%, 2.28%. This means that, in percentage terms, the selected company's financial commitment to R&D activities did not exceed 2.65% of turnover in any of the periods analyzed.

In 2015, 34 out of the 44 surveyed enterprises fitted into group 1 of R&D funding intensity. Eight were on a par with group 2, and three companies slotted into group 3, while there were seven companies in group 4. In 2016, 29 companies belonged to group 1, 14 companies to group 2, three companies to group 3, and six to group 4. In 2017, there were 30 surveyed enterprises in group 1, ten in group 2, three in group 3 and nine in group 4. Most companies were

characterized by low levels of R&D activities. There were no clear trends (both upward and downward), and overall it may be assumed that the companies surveyed did not pursue strategic plans in terms of R&D activities, and undertook such activities in an ad hoc manner, perhaps in response to a need to modify products/ services or a desire to cooperate over R&D activities.

Our research did not establish a clear relationship between the level of R&D funding activities and the financial condition of the given company.

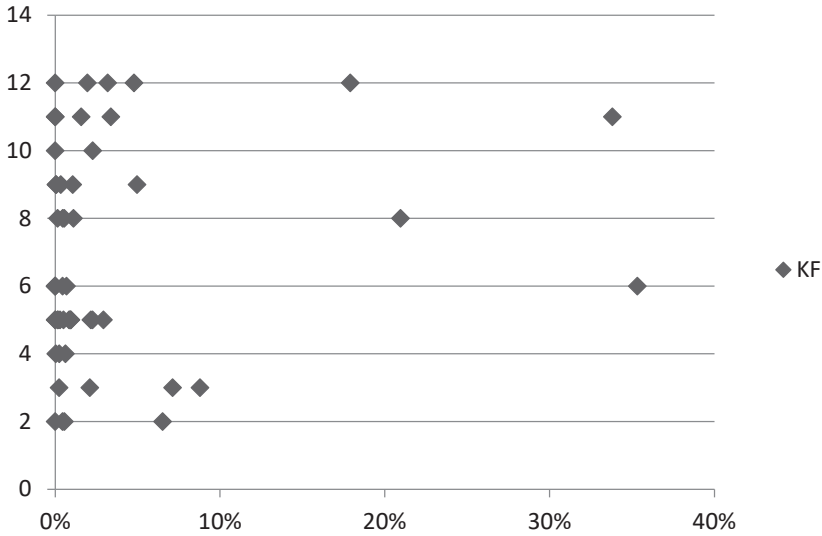


Figure 1. The measurement of levels of R&D activities against the financial condition of the enterprises in 2015

Source: Authors' own elaboration.

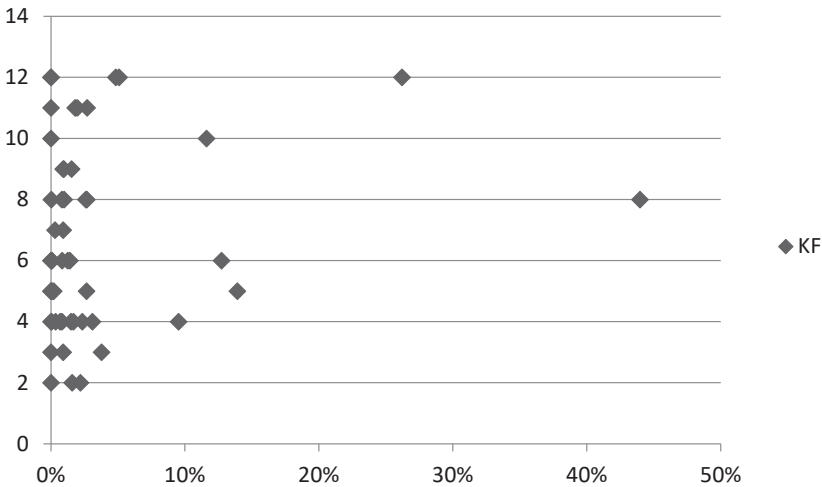


Figure 2. The measurement of levels of R&D activities against the financial condition of the enterprises in 2016

Source: Authors' own elaboration.

Table 5. Intensity of R&D activities and the financial condition of the enterprises surveyed

| | | Intensity of research and development activities (<i>E</i>) | | | |
|---------------------|-----------|---|--------------|--------------|--------------|
| | | <i>E</i> = 1 | <i>E</i> = 2 | <i>E</i> = 3 | <i>E</i> = 4 |
| | | 2015 | | | |
| Financial condition | $K_f = 1$ | 4 | 1 | 0 | 0 |
| | $K_f = 2$ | 18 | 3 | 0 | 5 |
| | $K_f = 3$ | 8 | 0 | 1 | 1 |
| | $K_f = 4$ | 4 | 4 | 2 | 1 |
| | | 2016 | | | |
| | $K_f = 1$ | 3 | 2 | 1 | 0 |
| | $K_f = 2$ | 15 | 6 | 0 | 3 |
| | $K_f = 3$ | 7 | 3 | 0 | 1 |
| | $K_f = 4$ | 4 | 4 | 2 | 2 |
| | | 2017 | | | |
| | $K_f = 1$ | 4 | 3 | 0 | 0 |
| | $K_f = 2$ | 10 | 3 | 2 | 4 |
| | $K_f = 3$ | 11 | 1 | 3 | 1 |
| | $K_f = 4$ | 5 | 3 | 0 | 4 |

Source: Authors' own elaboration.

The results presented in Table 5 illustrate a slight decrease in the number of companies with the lowest levels of R&D funding of the highest degree. In the group of companies with the lowest level, there is an improvement in the financial condition in 2017 as compared to 2015. The same trend can be observed in the case of companies with the highest levels of R&D. In the group of companies classed as groups (2 and 3 in terms of R&D activities), there was a slight decrease in the proportion of companies in a stronger financial condition, as opposed to those in a weaker position. Despite the lack of evidence of a determination to increase R&D activities, some indications of improvement can be observed. The same can be said of the financial condition of companies conducting more intensive R&D activities (Table 5).

4. Conclusions

Based on the research and results, it is apparent that there is a small negative association between the size of a company and the relative financial level of R&D activities in the selected period. Smaller sized companies are characterized by a slightly higher intensity of R&D activities. The research conducted did not reveal a clear correlation between the size

of the company and its financial (management) robustness. Moreover, the analysis did not indicate that there is a tangible relationship between the E and K_f indicators. When the results were analyzed so as to determine a linear correlation between grouped companies according to the level of R&D activities against the financial condition of the enterprise, it was found that none of the cases exceeded a reading of 0.135. Therefore, the hypothesis that the intensity of research and development activity has a direct positive impact on the company's financial condition has not been confirmed. The hypothesis that more and more companies in the next few years conduct more intensive research and development activities has been partially confirmed.

5. Limitations and suggestions for future research

Based on the conducted analysis, the following recommendations for further research are made:

1. Research and development activities are oriented towards the implementation of long-term goals, therefore an analysis of management effectiveness should be made taking into account a longer time interval.
2. To effectively analyze business excellence, it is necessary to take into account not only quantitative but also qualitative results that have a significant impact on competitive advantage. Reports published by listed companies do not take into account such data, and the reporting procedure itself makes it difficult to obtain uniform data from listed companies.
3. The complex measurement of a company's financial condition through the scoring method can be used for further research, and should address the question of how levels of R&D activities are likely to develop in the near future (5–10 years). It is also necessary to compare the impact of the levels of R&D on the financial condition of a given company using 3 and 5-year time periods.

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Finansowa skuteczność zarządzania przedsiębiorstwem w świetle działalności B+R wybranych spółek giełdowych w Polsce

Abstrakt: Celem pracy jest określenie wpływu wydatków na działalność B+R na kondycję finansową wybranych spółek notowanych na Giełdzie Papierów Wartościowych w Warszawie. Do analizy wybrano raporty 44 polskich spółek giełdowych, które w latach 2015–2017 prowadziły działalność badawczo-rozwojową. Nakłady na działalność B+R stanowiły w analizie zmienną diagnostyczną oceny sprawności zarządzania spółką. Do oceny kondycji finansowej wykorzystano trzy wskaźniki: rentowności aktywów, płynności bieżącej i stopnia zadłużenia, przy czym dwa pierwsze są stymulantami, trzecia destymulantą. Do skonstruowania miary syntetycznej kondycji finansowej wykorzystano metodę scoringową,

zalecaną między innymi przez M. Tarczyńską-Łuniewską i W. Tarczyńskiego. Przyjęta metodyka opiera się na wynikach analiz prowadzonych przez m.in. Barucha, Hurwita, Lines i Schmidta, Walczaka, a także Glowę, Dancakową i Suleimenową. Dokonane analizy pozwoliły zaobserwować niewielką zależność między wynikami finansowymi badanych spółek a intensywnością ich działalności B+R. Oznacza to, iż nie stwierdzono istotnego wpływu działalności badawczej na kondycję finansową oraz na skuteczność zarządzania. Opracowano model diagnostyczny, który może posłużyć do analizy skuteczności zarządzania w dłuższej perspektywie czasowej, będącej istotnym elementem planowania strategicznego.

Słowa kluczowe: działalność B+R, aktywa niematerialne, spółki giełdowe, wynik finansowy, skuteczność zarządzania

Social media in the context of marketing innovations— based on own research among service companies from Szczecin

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Abstract: Based on observation of the market and the need for change the process of creating marketing innovations in service companies in *Szczecin*, the author adopted as the aim of the article the identification of new marketing solutions for the service market by way of an evaluation of the possibility of taking advantage of social media potential and social media activities carried out by local companies. In assessing the tools characteristic of new media and the attitude of companies towards these tools, an attempt was made to identify opportunities for companies to use social media. As part of the research, a questionnaire was used that was targeted at owners and managers of local companies from *Szczecin*. The study was expanded to include virtual ethnography, which involved observation of a company's profile on social media. The article presents a proprietary classification of social media by social channels and their functions. The author has paid particular attention to breaking down social media not by the technology they use, but by their practical applications.

Keywords: marketing innovations, social media, service companies

1. Introduction

Contemporary companies face a large challenge—functioning and competing in rapidly changing market conditions. Methods of building relationships with customers used to date are falling into oblivion and become forgotten. The products and services offered are continuously subjected to change to meet the swiftly changing customer needs.

The experiences of local companies prove that companies that offer products that are both innovative and meet customer expectations win against the competition. Researchers from around the world and business professionals agree that the most important role of contemporary local companies is continuous improvement of products and services (Cushman and King 1995). The literature on the subject highlights that innovations are changes whereby a company assimilates the

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knowledge it has acquired. As J. Wiśniewska claims, innovations are considered to be the main factor determining the development of modern companies (Wiśniewska, 2010, p. 31). Therefore, companies that want to be thought of as innovative should focus on acquiring information on how to improve their products, services and ways of communicating with customers.

According to Drucker, innovations permeate all areas of a company's activity and these can be changes in product design, marketing method, offered price, service for a customer, or communication method (Drucker, 1993, p. 25). A special type of innovation in terms of local companies is marketing innovation, including its possibilities arising from taking advantage of the potential of the attractiveness of social media. The popularity of services, development of social networking sites and other channels of communication creates unlimited opportunities for local companies to directly communicate with all stakeholders. The development of new technologies and association of various social and economic planes are headed towards involving social media users in joint decision making and co-creating the company, in both virtual and actual terms, for example, in stores or premises with a fixed location. Innovation using new media can be not just about the community as a whole, but about specific users. The rapid development of online services is an opportunity for companies that in their quest to be thought of as innovative or pro-consumer they focus their activities on new channels of communication.

Social media only gained popularity in Poland in the last several years, and this has resulted in a research gap due to a lack of scientific studies devoted to social media in local companies. However, the author hopes that the examples of small and micro service companies from Szczecin outlined in this article will be an inspiration for other metropolises and for the commencement of research not only in corporations with advanced IT and customer service departments, but also in small and micro companies such as hair salons, cosmetic clinics, restaurants and food outlets.

The aim of the article is to highlight new marketing solutions for the needs of the service market by way of an evaluation of the possibility of making the most of social media and social media activities carried out by local companies. To achieve this goal, the research methods involved the use of a comparative analysis of concepts and conclusions published in the scientific literature. Empirical studies were also carried out among local companies from Szczecin to analyze their social media activity based on virtual ethnography. The author used Polish tools, i.e. Brand24 and Sotrender, to monitor the firms. The research tools allowed her to analyze the companies' social media activity and define their involvement. The research results led to many conclusions that refer to the processes of building marketing innovation in the field of social media.

2. Marketing innovations

Innovations are associated with the technical and technological sphere, and are often incorrectly equated to discoveries, while the social aspect of innovation is often ignored. On the other hand, an integral component of creating a company based on knowledge is innovative solutions, not only from the field of technology and economics, but also social activities. Local services such as restaurants and food outlets, hair salons, cosmetic clinics and consultancy are increasingly penetrating into the market economy, and are being noticed in the virtual world.

This refers to new operating regions, such as creating marketing innovation together with using the latest channels of communication, such as social media (Pawlak, 2015, p. 227).

At present, marketing innovations are becoming one of the main methods of improving effectiveness not only for large corporations, but particularly for micro and small companies. The term *innovation in service provision* means every implementation of a new or improved process of service provision or any crucial element that forms part of this service, for example, communication with customers via Facebook, WhatsApp or Instagram, that is successful and accepted by market participants. The first use of social media to communicate with customers can be a manifestation of innovation. However, as noted by Jacek Chwałek (2014, p. 88), such a general term does not take into account the diversity of innovations that can have very different effects.

The meaning of innovation in services depends mainly on the type of innovation. The term *marketing innovations* has been defined for the purposes of economic practice by the OECD (Organisation for Economic Cooperation and Development) as “A new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing, or business model, arising due to a new marketing strategy of a company” (*Innowacja marketingowa*, 2020).

A distinctive feature of marketing innovations among other changes within the scope of marketing strategies is the fact that they rely on the implementation of a marketing strategy that is new for the company. It must be part of a new marketing concept or strategy introducing significant changes compared with current marketing methods. Marketing innovations do not include seasonal, regular or routine changes to marketing tools, or marketing methods that have been previously used to acquire new markets (Szymański, 2012, p. 266). The goal of marketing innovations is to better satisfy the needs of customers and open new markets, for example, enter the online world and run a YouTube channel increasing the demand for services rendered at a fixed location. The author presents examples of marketing innovation activities in Table 1.

Table 1. Examples of innovative activities in the area of marketing innovations

| Innovation plane | Characteristics | Examples of activities |
|------------------|--|--|
| Product | Significant changes in the project and product design constituting an element of a new marketing strategy. Changes in the packaging of such products, such as food products and beverages, where the packaging is the main determinant of the appearance of the product. | A change in the form and appearance of products not leading to a change in their functional or performance features. Another example can be the introduction of significant changes in the form, appearance or taste of food or beverages, such as the introduction of new flavours of a food product or acquiring a new customer segment. |
| Price | Innovations within the scope of pricing involve the use of new pricing strategies for the sale of products or services of the company on the market. | The first use of a new method—correction of the price of a good or service depending on demand (for example, when demand is low, the price is also low). The introduction of a new method allowing customers to choose the desired features of a product on the company’s website, and then checking the price and the chosen combination of features. |

| | | |
|--------------|--|--|
| Promotion | New marketing methods within the scope of product promotion involve the use of new concepts for promoting a company's goods or services. | Introduction of a system of personalized information, for example, that obtained based on using Facebook. First implementation of product promotion by opinion leaders, famous people or specific trendsetting groups. |
| Distribution | Implementation of new sales channels. | First implementation of a sales system via Facebook or Instagram. The implementation of new concepts for product display in the form of products being presented by bloggers or influencers. |

Source: Author's own elaboration based on the OECD, 2018, pp. 69–75.

Based on the above-mentioned examples, it can be noted that the breakdown of marketing innovations as per the marketing mix simplifies the classification of innovation.

The share of entities that have introduced marketing innovations increases along with the value measured based on the number of employees, as seen in Figure 1. As can be seen from the Statistics Poland report (Figure 1), in the services, the percentage of companies implementing marketing innovations in entities with 250 employees or more was four times that in entities with 10–49 employees. Such a result may indicate greater awareness of medium and large companies about innovative solutions for building relationships with customers.

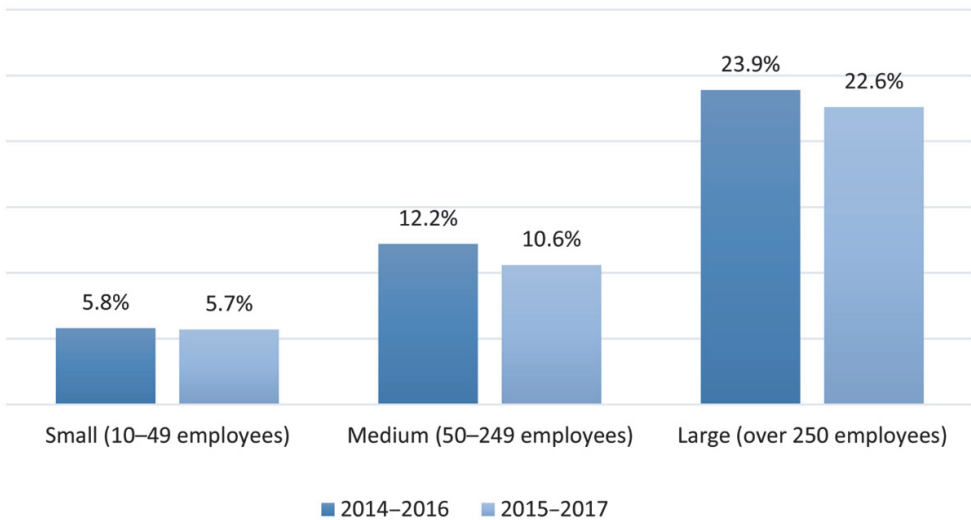


Figure 1. Implementation of marketing innovations in service companies in 2014–2017

Source: Author's own elaboration based on Statistics Poland reports.

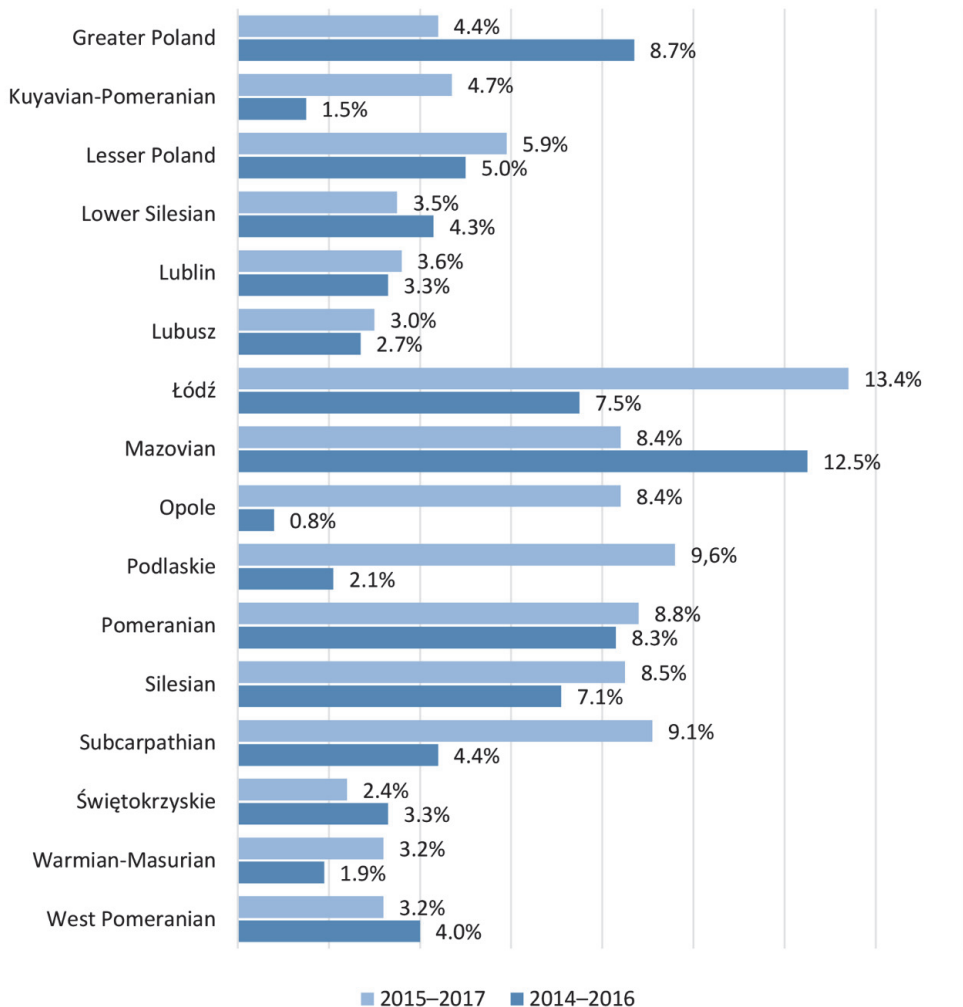


Figure 2. Service companies that in 2014–2017 implemented marketing innovations by voivodeship

Source: Author’s own elaboration based on Statistics Poland reports.

Compared with 2014–2016, most voivodeships saw an increase in the percentage of service companies that implemented marketing innovations. The highest percentage increase among service companies was noted in the Opole Voivodeship (by 7.6 percentage points) (Statistics Poland, 2018).

3. Social media presence of companies

Studies on the innovation of companies focus on the increasing role of not only internal organizational factors, for example, absorptive capacity (Glabiszewski, 2016; Glabiszewski and Zastempowski, 2016; Limaj and Bernroider, 2019) and innovation capability (Aas and

Breunig, 2017; Alves et al., 2017), as well as external environmental factors (Assink, 2006). The Internet has become the basis for mass exchange of information among customers. Abandoning traditional forms of marketing (radio, television, banners, posters, flyers, newspapers), consumers are increasingly demanding more control over their media consumption, which is closely related to their convenience. When using social media, contemporary consumers expect access to notifications and news anywhere, anytime. With each passing day, social media are transforming into an increasingly influential channel of communication with customers. The latest Digital 2020 report presents an increase in Polish social media users. In January 2020, 50% of the Polish population actively used social media, spending on average two hours per day using them (Digital, 2020). This result shows that local companies can use social media to easily reach their desired target group while decreasing the costs of promotional activities. As highlighted by Weber, the activities of companies on social media must be based on a completely new method of communicating with consumers in the digital environment (Weber, 2009). On the other hand, Drury explains that as a result of the growth of the network of relationships on the Internet, establishing contact with customers has become the main element of social media marketing activities. Until recently perceived as a one-dimensional link, marketing has now become a multi-dimensional process that covers both the company as well as the customers (Drury, 2009). Turkish researchers agree with this view—in their opinion, the development of social media to date has impacted traditional purchasing processes, and content marketing is no longer the only way to build customer confidence (Bitiktas and Tuna, 2020). Social media allow companies to create groups of local customers, encouraging them to share ideas, which can later be used by the organizations in the creation or development of products and services. In 2019, one in three companies in Poland were using at least one social media. The most popular tool was social networking sites (Table 2).

Table 2. Enterprises using social media

| Business size classes | Year | Use of social media | | | | |
|-----------------------|------|--------------------------------------|----------------------------------|-------------------------------------|------------|-------------------------------|
| | | Social networks | Enterprise's blogs or microblogs | Multimedia content-sharing websites | Wiki tools | At least one of the following |
| | | In % of total enterprises in a group | | | | |
| Small | 2016 | 20.9 | 3.5 | 6.8 | 1.9 | 22.5 |
| | 2017 | 23.1 | 3.5 | 6.6 | 1.6 | 24.2 |
| | 2018 | 25.8 | 3.8 | 7.1 | 1.7 | 26.9 |
| | 2019 | 32.2 | 4.7 | 10.5 | 1.8 | 33.2 |
| Medium | 2016 | 30.9 | 6.7 | 13.3 | 2.8 | 33.6 |
| | 2017 | 35.5 | 7.1 | 15.7 | 3.8 | 38.4 |
| | 2018 | 38.5 | 7.7 | 16.4 | 3.3 | 41.1 |
| | 2019 | 45.6 | 7.8 | 20.7 | 3.7 | 47.2 |

| | | | | | | |
|-------|------|------|------|------|------|------|
| Large | 2016 | 49.8 | 16.6 | 32.4 | 12.2 | 54.4 |
| | 2017 | 54.6 | 18.7 | 35.9 | 12.6 | 58.4 |
| | 2018 | 60.1 | 20.4 | 39.1 | 13.1 | 63.8 |
| | 2019 | 67.7 | 24.0 | 46.5 | 14.8 | 70.5 |

Source: Author’s own elaboration based on GUS, 2019.

An analysis of the above-mentioned data gives rise to the statement that the awareness of small and medium enterprises of social media activities is lower than that of large corporations. The growth trend (Figure 3) shows that year on year, increasingly more companies are using social networking channels to communicate with their customers, which is the basis for the conclusion that the popularity of marketing innovations in companies is increasing.

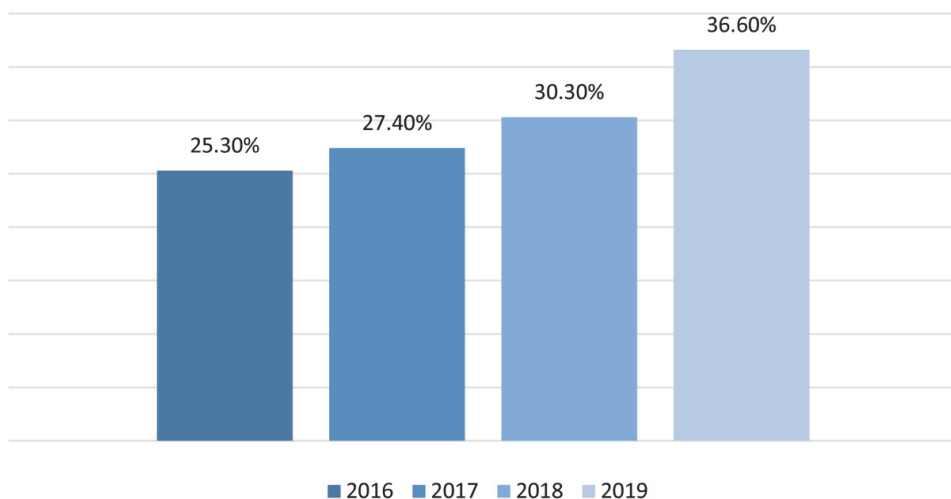


Figure 3. Use of social media by Polish companies in 2016–2019

Source: Author’s own elaboration based on Statistics Poland reports.

4. Social media and their effectiveness

The term *social media* covers a wide range of channels of communication referred to as Web 2.0. They include numerous social networking sites, which bring together people, for example, based on their place of residence, interests or problems. The next significant channel of communication is forums and discussion groups, often created linked to news sites and the websites of companies, newspapers and publishing houses. Another form of online media that enables dialogue with communities is blogs and microblogs. Content communities, which allow users to exchange multimedia files, are also becoming a popular social medium. They enable online community members to easily share their views on a given topic (Fabianiak-Czeraniak, 2012). Social media and their rules of activity are based on functionality and reach.

The author pays particular attention to breaking down social media not by the technology they use, but by their practical applications. Based on numerous reports about Web 2.0 (Firat, 2019; Wamuyu, 2018; Koban, 2018; Kaplan, 2010) and efforts being made to present the source of the building of marketing innovation, Figure 4 presents the author's own classification of social media. According to the author, these categories may overlap and should not be treated as a rigid key that can unambiguously break websites or online services down.

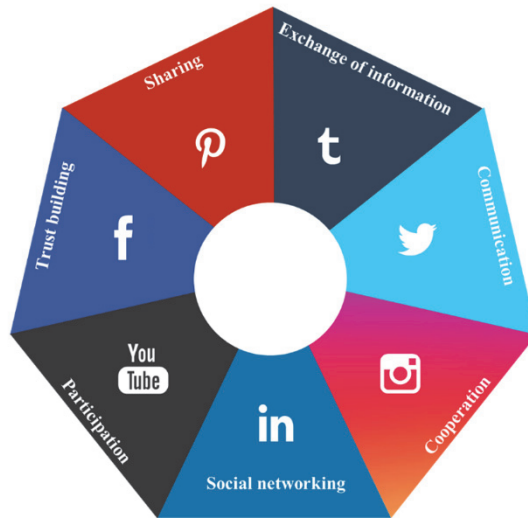


Figure 4. Classification of social media by social channels and their functions

Source: Author's own elaboration based on own observational material.

1. Social media targeted at joint participation associated with the term *user-generated content* (UGC) and related to content shared publicly online, the authors of which are not full-time professionals, but people who without previous experience want to share content on the YouTube channel (Flasiński, 2015). This is a great opportunity for micro and small enterprises to, at low cost, advertise their business by sharing content about the specifics of their services.
2. Social media targeted at sharing information, i.e. blogs/ microblogs. As Sebastian Kotuła said, "it's the development of the blogosphere that broadened the category of content creators to practically every person. Such a classification makes a consumer a prosumer, someone like a 'wreader'. The term *wreader*, which is a combination of the words *write* and *reader*, means someone who is a writer and a reader at the same time—a creator and consumer" (Kotuła, 2007). Blogs can help companies promote their business through specialists and opinion leaders who are well versed on the topic and thus create the image of the enterprise. Due to their interactivity, blogs allow easy creation of communities, decrease the distance between a company and consumers, and present a humanized picture of the company, all of which is usually not possible using a conventional website (Mazurek, 2008). Such activities are characteristic of the social networking channel Tumblr, on which users can register to create a blog, in which they can choose from seven different types of posts based on the

type of content being shared: text, photo, link, chat, quote, audio and video (Bourlai, 2018, p. 47). By using Tumblr, companies can use their blog to inspire the use of their services. The main users of Tumblr are young people, so enterprises interested in this target group have a great opportunity to share information with potential customers.

3. Social media targeted at mutual sharing by classification of fragments of text assigned to a specific fragment of information (text, multimedia file) (Zieliński, 2008). This classification allows users to search company websites for relevant material (for example, information on a new product) in a quicker and more efficient manner. In terms of marketing innovations, companies can analyze consumer preferences, as well as sites that are frequently visited and recommended to other users (Miller, 2007). An example of such activities is the social networking channel Pinterest, which allows users to search for and browse interesting or creative ideas. Visual materials and links to specific sites are stored on the user's virtual boards, which can be organized however the user likes. This is a helpful tool for companies, as it can increase traffic directed from a Pinterest account to a blog or company website for free (szybkielajki.pl, 2019).
4. Social media targeted at collaboration. User collaboration in the forms of social tagging means that users of, for example, Instagram, can quickly and easily completely for free help advertize their favourite company by tagging its profile on their account. A specific feature of Web 2.0 is public tagging, which is unlike rigid categorization of information by one person.
5. Social media targeted at building confidence. The impact of consumer confidence on increasing the value of a company is largely underestimated by managers. Building user confidence towards a site creator brings about many benefits, such as increasing the intensity of use of the site, increasing the number and quality of content shared (the user is more willing to share personal information), increasing the share of the site in overall online communication, and encouraging the use of paid services available on the website. Research results show that Facebook is the most popular social media domain (2.45 billion users around the world) (Statista.com, 2020). In Poland there are 21.2 million Facebook users, and it's the second-most popular platform after google.pl (26.5 million). Facebook brings together approximately 55% of the Polish population (Gemius, 2019) and offers the opportunity to create company fanpages that enable dynamic interaction with users, thus building confidence.
6. Social media targeted at communication enable not only promotion of a company's products and services, but also facilitate enterprises in establishing contact with and presenting themselves to users who are influencers, i.e. people who are influential in a given sector. An example of such activities is the social networking channel Twitter, where communication is brought to the forefront using hashtags, which make it easier to establish relationships and highlight the values of a company, and for the company to present itself as an expert in its industry. As the user analysis carried out by Pawlak shows, Twitter is an attractive virtual place for promotion of micro and small enterprises (Pawlak, 2016).
7. Social media targeted at establishing and maintaining relationships. Despite the fact that social media are mainly associated with dialogue with final customers on B2C markets (Deszczyński, 2012), they can also be used for professional communication on the B2B market (Cawsey and Rowley, 2016). Among hundreds of virtual communication platforms, LinkedIn and its 415 million members from over 200 countries (including just

under one million from Poland) seems to be the best platform for establishing business cooperation (LinkedIn, 2016). It makes it possible for even small and medium enterprises, including micro companies, to have an easier option for starting international expansion, which until fairly recently was reserved only for large entities (Vollmer, 2013).

Knowledge of the opportunities and applications of specific social media allows firms to build relationships with customers in an innovative way. The future of every company includes being open to new communication methods, more activity in online communities, and using the Internet to enter into interaction with potential buyers.

5. Use of social media by micro and small companies from Szczecin

Quantitative research supported by qualitative analysis were conducted by the author between January and March 2020, and focused on activities undertaken by companies on social media. The study looked at 31 local companies from Szczecin in the cosmetics, hairdressing, restaurant and food outlet industries. As part of the research, a questionnaire was used that was targeted at owners and managers of the companies. The studies were broadened to include virtual ethnography, which is a qualitative research method constituting the application of a set of methods and techniques used in anthropology for the virtual environment, with an unchanging epistemological message (Etnografia, 2020). The selection criterion was local micro and small companies. When asked whether their business uses social media, 62% of respondents answered “yes”. The second question was about using paid Facebook advertisements—56% of respondents said that they do use them. In the second question, the respondents were asked to indicate the reason why they advertise their company’s profile on Facebook (Figure 5). The majority of respondents (51%) use Facebook advertisements to acquire new customers. Only 9% stated that a Facebook ad increases the use of services at a fixed location.

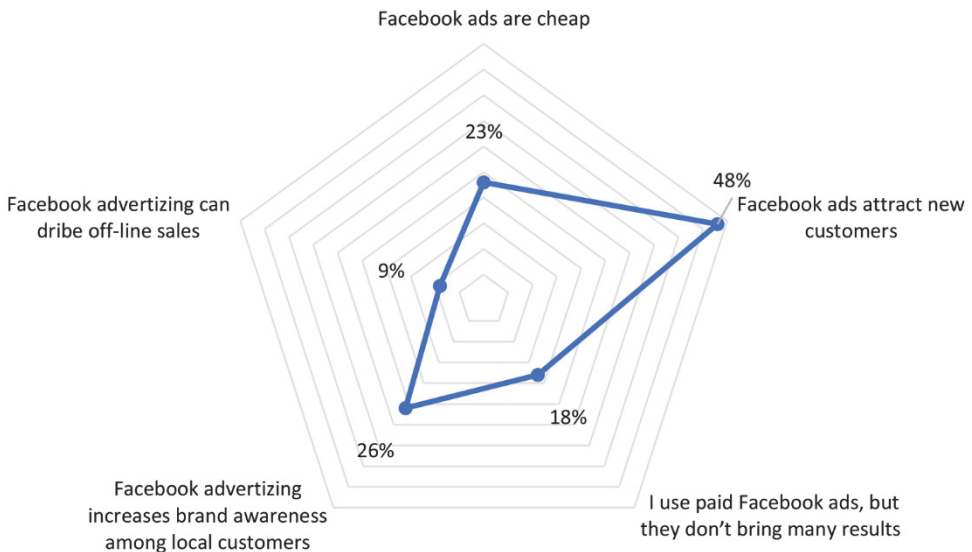


Figure 5. Why do companies advertise their business on Facebook?

The research included observation of selected virtual communities of local companies, and an analysis of the content published on sites related to them. As part of the research needs, the fanpages of local companies from Szczecin with Facebook accounts are considered as an area of activity of virtual communities. The results of the study using virtual ethnography show that among companies that declared that they use social media, 86% have a company fanpage on Facebook, but less than half (41%) actively participate in building a community. The average time for publishing posts is 10 days. A lack of regularity in adding posts may indicate a low level of involvement of micro and small companies. When asked whether the company uses the services of a marketing agency to advertize their business online, 69% of respondents said that they do not. The respondents were also asked to indicate the reasons why they do/ do not cooperate with marketing agencies. The results of the study are shown in Figures 6 and 7.

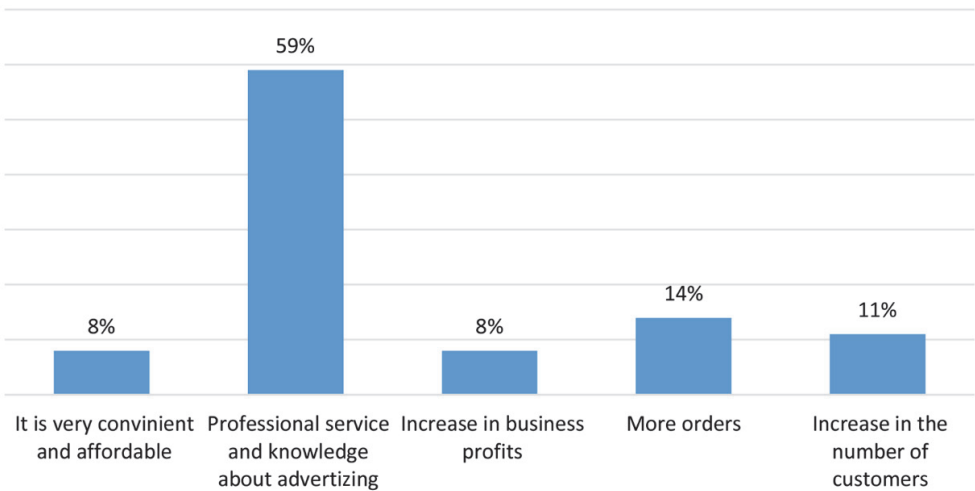


Figure 6. Why does the company use the services of a marketing agency?

Source: Author’s own elaboration.

As can be seen in Figure 7, 59% of users use marketing agencies because experience and professionalism in the operation of online tools can impact the effectiveness of social media activities. Companies that do not use marketing agencies claim that they do not need external companies to advertize online (51%), while 26% of respondents said that the prices of marketing agencies are too high to be able to use their services.

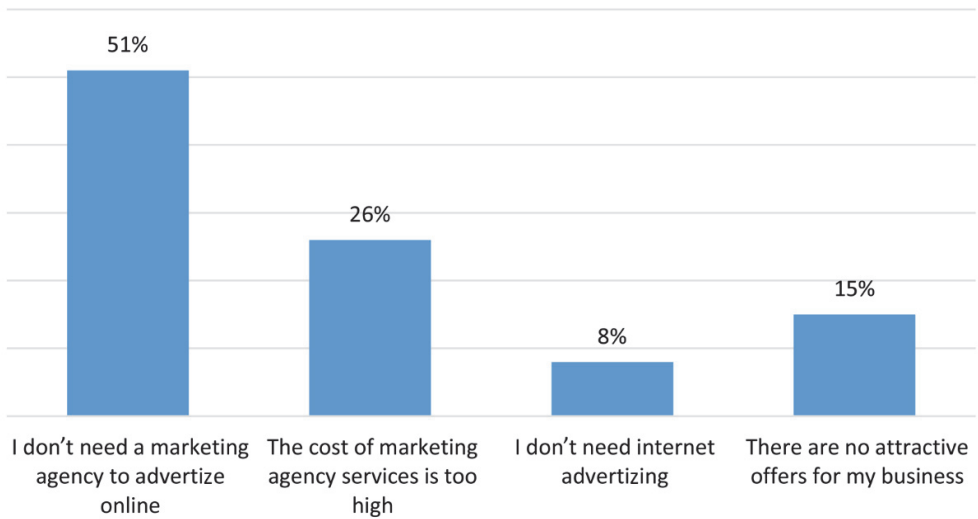


Figure 7. Why does the company not use the services of a marketing agency?

Source: Author's own elaboration.

A key element of the virtual communities of local companies is having a dialogue between the company and its fans. This is why it is extremely important to respond to all fan comments, and to conduct advertizing activities on Facebook in a deliberate manner. The proper overseeing of Facebook advertizing accounts can help local companies build relationships with potential customers. As it is seen in Figure 7, 51% of companies do not use marketing agencies because they have no such need, not because of the high costs, which can mean a lack of awareness about the effectiveness of marketing agency services.

6. Conclusion

In summary of the considerations presented in this report, it should be noted that the introduction of marketing innovations by service companies can be a great opportunity to develop the business. New marketing solutions for the services market can include active communication with customers using social networking channels, such as Facebook and Instagram. As the Digital2020 report shows, the number of social media users is increasing year on year, which creates a good opportunity to establish relationships with potential customers from around the world. The use of social media is due to the response to market demand, but also the unlimited reach and involvement of stakeholders, including, in particular, customers who regularly use the services of companies with fixed locations. Marketing innovations should refer not only to technological changes, but first and foremost to new habits and behaviours of companies, which should become the creators of messages on new social media and websites. The results of the study show that companies from Szczecin do not take full advantage of the potential of customers on social media—the lack of regular posts on company fanpages decreases the opportunity to build relationships with customers. The study using virtual eth-

nography shows that 86% of companies surveyed have a company fanpage on Facebook, but less than half (41%) actively participate in building a community. Fanpages are an important source of information about the company, and are often the first point of contact in terms of news on the company's offer. Local companies from Szczecin should not ignore the potential of Facebook and its advertising activities. Properly conducted Facebook advertising campaigns are becoming a crucial element of the marketing innovations of companies, and owners of local small businesses should focus not only on having a Facebook fanpage, but also on active, regular and proper marketing activities using Facebook.

In an environment where competitors implement new, better marketing activities, innovations are currently one of the key factors determining competitive advantage for service companies. The above considerations should become the rationale for micro and small companies, which compared with large corporations are not very active on social media. Business owners should focus on the essence of marketing innovations, which can improve the process of building relationships with customers thanks to communication on social media. The author is considering future research involving a comparative analysis of the SME sector building a virtual community using Facebook.

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Media społecznościowe w kontekście innowacji marketingowych – na podstawie badań własnych wśród przedsiębiorstw usługowych ze Szczecina

Abstrakt: Na podstawie obserwacji rynku i potrzeb zmian w procesie tworzenia innowacji marketingowych w przedsiębiorstwach usługowych w Szczecinie autorka za cel artykułu przyjęła identyfikację nowych rozwiązań marketingowych dla rynku usługowego poprzez ocenę możliwości wykorzystania potencjału mediów społecznościowych i działań w nich podejmowanych przez firmy lokalne. Badając narzędzia charakterystyczne dla nowych mediów oraz podejście przedsiębiorstw do nich, podjęto próbę identyfikacji możliwości wykorzystania mediów społecznościowych przez przedsiębiorstwa. Media społecznościowe zyskały popularność w Polsce dopiero w ostatnich kilku latach, co spowodowało powstanie luki badawczej,

w której brakuje opracowań naukowych poświęconych mediom społecznościowym w firmach lokalnych. Do przeprowadzenia badań wykorzystano kwestionariusz ankiety, który był skierowany do właścicieli oraz menedżerów firm lokalnych ze Szczecina. Badania zostały rozszerzone o metodę etnografii wirtualnej, która polegała na obserwacji profilu firmy w mediach społecznościowych. W artykule została przedstawiona autorska klasyfikacja mediów społecznościowych według kanałów społecznościowych i ich funkcji. Autorka artykułu zwróciła szczególną uwagę na podział mediów społecznościowych nie ze względu na wykorzystaną w nich technologię, ale ze względu na zastosowania praktyczne.

Słowa kluczowe: innowacje marketingowe, media społecznościowe, przedsiębiorstwa usługowe

The concept of balancing work and private life

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Abstract: The article describes selected elements of the *work-life balance* system, paying particular attention to the instruments of balancing work and personal life, highlighting aspects of the employee's time balance. The concept of improving the working time system (research methodology) in terms of increasing work efficiency and flexibility is also presented. The aim of the article is to present the methodology of the analysis and reconstruction of the working time system in an enterprise, taking into account the principles of *work-life balance*, and to present the results of empirical research. It is worth emphasizing that the analysis of working time determinants still remains a poorly recognized issue of economic analysis. The basic problem of the research is the identification and parameterization of the gap that exists between the working method used in the enterprise and the working time system, on the one hand, and the requirements of professional and private life on the other, as well as an indication of possible ways and instruments for its reduction. A thesis was adopted that assumed compliance between the working time system and the working method. The concept of the method of work mentioned in the article includes the technological system, the economic system, and the social system including *work-life balance* indicators. Based on the adopted thesis, the empirical part of the article presents the results of the research in the form of a case study analysis. Working time systems were described and assessed along with the identified working methods in the examined workplace. Organizational solutions were indicated that contributed to the improvement of the existing working time systems. The research methods used are: economic analysis, elements of ergonomic analysis, interview and questionnaire.

Keywords: working time system, working method, methodology of improving working time, *work-life balance*

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1. Introduction

In numerous and extensive studies on the essence of the allocation of time, determinants of shortening working time, methodology of improving the working time system in an en-

terprise, and the effectiveness of flexible forms of working time, the beneficial effect of these solutions on the non-working life of employees is given as an argument for their use, and more broadly on well-being of employees. This is related to the problem of balancing professional life with leisure activities, which has often been raised since the beginning of the 1970s.¹

The concept of *work-life balance* was, according to numerous researchers, a reaction to prolonged working time and socio-cultural changes, such as, for example, the large and still growing participation of women in the labour market and the related new distribution of roles in the family differing from the traditional one, e.g. men's involvement in family and caring responsibilities (Kot-Radojewska, 2016), as well as significant changes in the nature and content of work. These phenomena caused employees' indisposition, illnesses, burnout, deterioration of family relationships, as well as a massive decrease in creativity, productivity and involvement of employees, further stimulating intentions to resign from their job (Samojlik, 2016; Zalewska, 2006), and also excessive work, fatigue, lack of job satisfaction, stress, low self-esteem and an increased sense of instability (Chou, Hecker and Martin, 2012; Zhao, 2012; Styhre, 2011). The conclusions presented from research, often fragmentary and piecemeal, poorly empirically justified, are nevertheless worthy of attention, they direct the researcher's reflection to issues less known to a wider audience, important from the point of view of improving an enterprise's performance and increasing employee well-being.

The article presents selected elements of the *work-life balance* system, paying particular attention to the premises and manifestations as well as the instruments of balancing work and personal life. The concept of analysis and reconstruction of the working time system in an enterprise in terms of increasing the efficiency and flexibility of work is also presented.

The aim of the article is to present the methodology of the analysis and reconstruction of the working time system in an enterprise, taking into account the principles of *work-life balance*, and to present the results of empirical research—case studies.

The basic problem of the research is the identification and parameterization of the gap that exists between the requirements of professional and private life, an enterprise's working methods and the working time systems used, as well as indicating the instruments for its limitation. It should be emphasized that an increase in the volatility of the environment and competition in the market in which the enterprise operates requires the creation and improvement of working methods and appropriate working time systems. The results of research and analyses often force us to verify or even reject the existing technological and organizational solutions or standards of research proceedings—we come to the conclusion that they have a limited scope of adequacy and relevance to reality.

¹ Already in the mid-twentieth century, authors dealing with the issue of time allocation, examining employee time budgets, emphasized the importance of free time in the development and improvement of the human being, on the one hand, and the development of science, technology and work organization on the other. They also indicated the processes of mutual interpenetration and stimulation of changes occurring simultaneously both in the sphere of work and in the sphere of time outside work, especially in free time. As a result of these changes, there has been a deepening of the creative nature of work and the creation of conditions for the development of modern production (Danecki, 1970; Greis, 1984; Ghez and Becker, 1975; Wnuk-Lipiński, 1981).

The following research methods were used to achieve this goal: elements of economic and ergonomic analysis, analysis of influence factors, interview and questionnaire by the Gap Model.²

2. Work-life balance—the content and scope of the concept

The term *work-life balance* has often been used as a synonym for such terms as: reflection on one's own experiences, the level of involvement and social roles played, or life satisfaction (Ferguson et al., 2012), the pleasure of combining work and personal life (Kalliath and Kalliath, 2014), conscious control of the roles played in life, harmonious combination and penetration of the private and professional spheres so that work, family life and passions form a coherent whole (Nieżurawska, Dziadkiewicz and Kowalewska, 2015).

There are many definitions of this phenomenon in the literature, some of which are described here. According to D. Clutterbuck, a balance between work and private life occurs when an individual deals with a potential conflict between various requirements for his time and energy in such a way that his desire for well-being and fulfilment is satisfied (Clutterbuck, 2005, p. 26). The *work-life balance* system is a specific set of management programmes and practices, as well as the dominant philosophy in the organization, supporting active efforts to help employees achieve success both at work and at home (Armstrong, 2000). It is an idea and practical activities aimed at motivating employees to work more effectively (Walentek, 2019). In fact, it is about the ability to allocate available time, not necessarily equally, according to needs, into areas of private and professional life, and to treat these two planes as complementary (Bargij, 2014; Gerlach, 2014; Siemieniak and Łuczka, 2016) so that they form a whole and bring general satisfaction.³

The observed changes in the sphere of professional and family life mean that it is necessary to make a choice: how to allocate time, energy and resources into both types of activity—important from the point of view of the individual's well-being. According to the theory of resource conservation by S. Hobfoll (1989), this choice may create a threat and even result in the loss of an individual's resources. This activity (choosing) leads to tension and stress in the decision-maker, especially in a situation where professional and family roles conflict, when the requirements of one role make it difficult to fulfil the other (Cinamon and Rich, 2002; Demerouti, Geurts and Kompier, 2004; Greenhaus and Beutell, 1985). Recently, more and more studies have been undertaken to investigate the relationships between conflicts of pro-

² A less well-known technique of analysis is the Gap Model presented by A. Parasuraman, V. A. Zeithaml and L. Berry (1985, pp. 44–45), further developed by: Guglielmetti (2010, pp. 5–36), Torre (2016, pp. 192–193), Ingaldi (2018, pp. 54–59). Using the Gap Model, the mentioned authors try to define the differences between the quality of services offered in the insurance and reinsurance sector and the expectations of customers.

³ For an employee, all directions and methods of spending time that contribute to satisfying his needs are important. Various ways of presenting the essence of the allocation of the employee's time can be found in the works of Anglo-Saxon authors who belong to the research trend called allocation of time theory (see Jevons, 1924; DeSerpa, 1971, p. 63; Sharp, 1981, pp. 22–32). In the light of this concept, this utility is maximized when the marginal utility of a unit of time in which a given activity is performed is higher than that of a unit of time of another activity that could be undertaken in place of the activity performed. In particular, this choice is made with regard to working time and time outside work. An attempt is being made to solve this on the basis of subjective experiences related to work and free time, applying marginal calculus and referring to the theory of choice.

fessional and family roles and self-esteem, emotional intelligence and other characteristics of a person, emphasizing the importance of intelligence in coping with the effects of stress (Ogińska-Bulik and Juczyński, 2008; Jaworowska and Matczak, 2008), although the relationship with emotional intelligence should be considered weak.

Psychological research on role conflict is conducted in three dimensions: behaviour, tension and time. In the first case, the conflict is related to the requirement of different behaviour in professional and family roles. In the second case, it is about the emotional tension resulting from the performance of a given role, resulting in increased anxiety (Chodkiewicz and Hauk, 2012), or fatigue, which makes it difficult to perform the duties of the second role.

According to the concept of J. H. Greenhaus, K. M. Collins and J. D. Shaw, work-family balance includes the following dimensions: time balance, involvement balance, and satisfaction balance, which concern the individual in work and family life (Sadowska-Snarska, 2014).

Authors dealing with conflicts of professional and family roles have focused mainly on the first two levels of behaviour and tension, searching for the relationship of these conflicts with the well-being of an individual and his work results, and even with workaholism. The results of these (psychological) studies are based on the demonstration of cause-effect relationships, and the conclusions resulting from them, as well as the adopted theses and generalizations, constitute a good basis for further, appropriately in-depth research.

In the time plane, there is the issue of the lack of this resource, which makes it difficult or impossible to undertake particular forms of activity.

The quantity and quality of employees' free time is influenced by many different factors, which can be categorized into four main groups:

- a) personal situation of the employee, in particular his qualifications, marital status, number and age of children, type of work of the spouse, equipment of the household with labour-saving devices and their own habits;
- b) the needs of families related to the specificity of the functioning of educational, care and social institutions;
- c) production system, which consists of: a technical and technological system, economic system, social system and a working time system;
- d) characteristics and qualities of the individual, e.g. emotional intelligence, self-esteem, job satisfaction.

For the purposes of further analysis, attention was paid mainly to technological, economic and social determinants, with particular emphasis on the *work-life balance* principles regarding time balance. The subject of the research was limited to the internal factors of balancing working time and time outside work on which the enterprise has a significant influence.

3. The concept of *work-life balance* in shaping working time in an enterprise

The problem of the conflict of professional and family roles in the time plane can be considered more broadly, i.e. in the dimension of the enterprise and its production system in particular. Among the numerous determinants of the production system, especially the production environment, the ones selected were those that significantly and permanently shape the

features of the working method and the working time system, namely elements of the technical and technological system, elements of the economic system and elements of the social system, paying particular attention to the importance of balance between work and activities outside of work. These elements can be thought of as subsystems of a working method component. Subsystems should take into account three basic principles: feasibility, economy and balance (Kozioł, Mikos and Karaś, 2019).

This approach uses the category of working method. This category is the strategic link between the elements of the production system and the working time system (see Figure 1). A thesis was adopted assuming a correspondence between the working time system and the working method. In the light of the methodological assumptions of the research, it is the working time system that should respond to and support the phenomena and processes constituting the working method. The said thesis assumes that achieving the maximum production potential is possible only thanks to the integration of elements of the working method and elements of the working time system.⁴

The aforementioned elements of the production system shaping the features of the working method require clarification and determination of their connections and relationships. One of the most important elements of the working method shaping the organization of working time in an enterprise is the technical and technological system, understood as a set of inter-related means of production and equipment as well as processes of transforming factors of production into finished products.

The economic system of an enterprise can be defined as a set of phenomena and processes that, within a specific structure, shape its results, reflected in the form of technical, economic and financial measures and indicators.

Despite the ever faster, even dizzying, technological and organizational progress, expressed, among others, in the computerization and automation of production and management processes, the human-worker has not lost their decisive importance in both of these processes. These achievements constitute the potential to increase productivity; however, the activation and use of this potential is fully dependent on the human factor, on their work potential, and more broadly, on the adaptability of the social system to absorb new technical and organizational solutions.

⁴ In recent years, a growing discrepancy between the size and pace of implementing technical innovations and organizational changes in an enterprise and the pace of changes in the working time system has been observed more and more often and clearly. Changes in the working time system also do not keep up with the requirements of the enterprise environment, resulting from the pressure of competitors in the area of costs, globalization of the economy, hypertrophy of the consumer market or arrhythmia of social life. This discrepancy creates a particular organizational gap, which is highly costly for the enterprise and the economy. The growing organizational gap in working time is becoming an increasing problem for many enterprises and institutions, and its elimination turns out to be an important research issue (see: Kozioł and Kozioł, 2018).

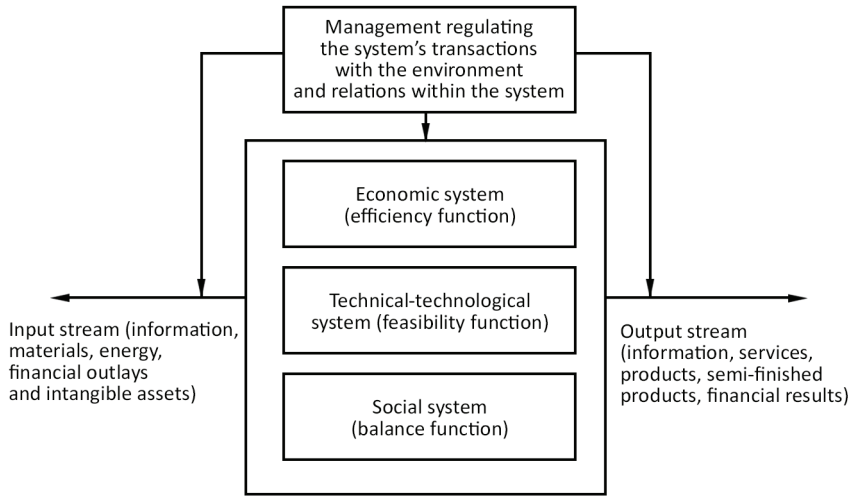


Figure 1. Model of the working method of the manufacturing system

Source: Authors' own elaboration.

The fulfilment of the equilibrium function by the social system is associated with the implementation of the adaptation process and the flexibility of the enterprise, on the one hand, and ensuring a balance between work and activities outside work, on the other hand. Such a balance occurs when work does not appropriate private life and vice versa, when life outside work does not happen at its expense (Borkowska, 2004, p. 54).

The given system illustrates the process of mutual interpenetration and stimulation of changes occurring in parallel in the sphere of the elements of the production system, in the working time system, and in the time system outside work. As a result, it is possible to meet the aforementioned principles: feasibility (production results), economy (economic results), and balance (development), including the deepening of the creative nature of work and an increase in employee well-being in the final analysis. The process repeats itself (see Figure 2). The authors make a reservation, however, that the above arrangement may function relatively undisturbed only in conditions of a high level and pace of technological development, knowledge in the field of production and work organization, cooperation of social partners in the enterprise and high flexibility of working time.

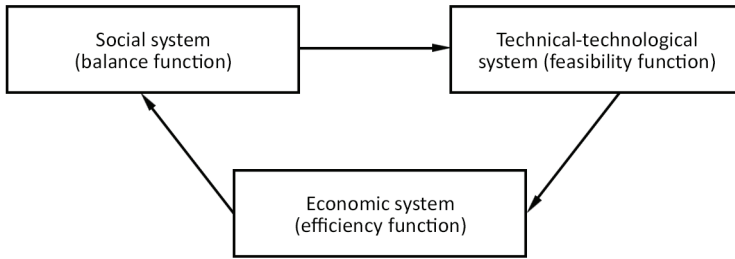


Figure 2. The system of stimulating changes in the sphere of work

Source: Authors' own elaboration.

The allocation of time can be done according to many criteria. The easiest way is to break it down into basic life activities, such as: working time, time for commuting to and from work, time for compulsory classes, time to satisfy physiological needs, and free time related to personal development. According to the population time budget survey conducted by the Central Statistical Office in 2013 and subsequent years, Poles from the age of 15 spent the largest proportion of their time, as much as 46% of a day, on satisfying physiological needs, such as: personal hygiene, eating, sleeping. 30% of their time was spent on duties—studying, helping others, housework, work, religious practice. Over 4% of the day was spent on travelling to various places; 20% of the day was left for free time—hobbies, cinema, computer, rest, meeting friends, recreation, sport, television (GUS, 2015, p. 90, and subsequent years).

From the quoted remarks it can be concluded that it is the employee who is the architect of their time budget structure and that he is responsible for the balance between work and home. However, there are definitions and opinions of researchers that largely transfer this responsibility to the employer. They emphasize that a balance can be achieved by “introducing organizational changes, special intervention programmes and benefits, and that the harmony between these two areas depends to a large extent on the organizational culture of the enterprise” (Dąbrowska, 2014). Increasingly, enterprises themselves implement programmes for the idea under discussion. The most important *work-life balance* activities include: reconstruction and flexibility of working time, wider use of e-learning and remote work, limiting the scope of work responsibilities in order to make time to learn, development of social programmes, paying particular attention to facilities for parents, as well as knowledge of the principles and skilful use of them in managing one's time (Kozioł, Mikos and Leśniak, 2018, p. 8). It will be of little use if we do not identify and include the working method in the working time system adopted in the employee's time balance, and employees will not learn or acquire skills in how to rationally manage their own time, and in the context of work organization, mental resilience and skills for coping with stress, interpersonal communication skills, and even mastering the principles of *savoir-vivre*, are important.

The analysis and evaluation process was based on the principles of a holistic approach, which made it possible to precisely determine the degree of usefulness of the working time system used, as well as to identify the organizational gap and determine ways to eliminate it

by implementing new parameters of the elements of the working time system and *work-life balance* programmes.

A method including the following stages was used to verify the theses:

1. Identification of the enterprise's organizational units and the working method used.
2. Analysis and evaluation of the working time system.
3. Modelling and designing of a new working time system.
4. Implementation and evaluation of the effectiveness of the system.

4. Results of empirical research—case study

The Rehabilitation and Social Welfare Centre is a municipal budgetary unit, which employs over 70 people in 4 organizational units (see Table 1). In organizational units, 3 working time systems are used: a basic one-shift system, a two-shift system and an equivalent work system (Table 2).

Table 1. Classification of organizational units

| Independent positions | Finance and Accounting Department (FAD) 2 positions | Administrative, Economic and Nutrition Department (AEND) 17 positions | Therapeutic and Care Department (TCD) 45 positions |
|--|--|---|---|
| 1. Home Director (HD)—1 position 2. Deputy Home Director—1 position 3. Inspector for HR and payroll—1 position 4. Health and safety inspector—½ time 5. IT specialist—½ time 6. Inspector of Personal Data Protection—½ time 7. Legal counsel—½ time | 1. Chief accountant 2. Settlement inspector | 1. Head of the Administrative, Economic and Nutrition Department 2. Secretary 3. Administration clerk 4. Conservator 5. Driver 6. Receptionist 7. Cleaner 8. Laundress 9. Seamstress 10. Ironer 11. Kitchen manager 12. Dietitian 13. Cook 14. Kitchen assistant | 1. Social worker 2. Psychologist 3. Occupational therapist 4. Occupational therapy instructor 5. Cultural and educational instructor 6. Physiotherapist 7. Masseur 8. Carer 9. Housemaid 10. Chaplain 11. Senior nurse 12. Nurse |

Source: Authors' own elaboration.

Employees' opinions on the working time system were collected through a survey.

As a result of the analysis, 3 dysfunctional solutions in the field of working time organization were identified, which were important from the point of view of the comfort of employees' work.

Problem 1—the working time of medical caregivers

Medical caregivers, nurses and housemaids, as caregivers of dependent people, are responsible for providing round-the-clock care and assistance to physically disabled people and the elderly. They work at unusual times or days due to the rigidly set hours of the day care facilities.

According to the schedule, the caregivers on duty at the Rehabilitation and Social Welfare Centre work in a two-shift system, with 3–4 people, depending on the number of residents in the Home. The problem is high absenteeism of this category of employees for various reasons: sick leave, problems in the family, vacation on request, childcare and others. Caregivers, as well as nurses and housemaids who work at this time, must perform these activities with double intensity in order to do the work for the absent people. There are days when the shift is quiet, but there are often situations where there is a shortage of hands to work, especially when handling people who are bedridden or disabled, who are unable to function without the help of a caregiver, e.g. eating, changing, bathing. Work performed under time pressure and exceeding the normal workload is too difficult, stressful and causes dissatisfaction—this is an important factor of absenteeism. The respondents' statements show that they experience many problems related to balancing work and private life. There is a time conflict resulting from the working time system and excessive work intensity that hinder rest and the performance of non-professional functions.

Proposals for improving the system:

- a) another employee starts working overtime;
- b) employment of a person part-time;
- c) conclusion of a mandate contract with a person from outside the workplace.

Ultimately, the second option was chosen: taking on a part-time employee.

Problem 2—driver's working time

The driver works in a basic one-shift system from 7:00 am to 3:00 pm. He takes people (residents) for medical consultations and examinations carried out in various medical facilities and localities. The driver's working time often exceeds his daily norm. Therefore, the problem of overtime work appears as well as the problem of organizing the driver's time outside of work.

Proposed change of the working time system:

In the opinion of the management and the respondents, the driver's working time should be changed from the basic working time system to an equivalent system, which will allow the driver's working hours schedule to be set up in such a way as to ensure the necessary transport for residents for examinations and consultations, at the same time complying with the provision on an equivalent work system, according to which the driver has a sufficient number of hours to rest after work, e.g. 12 hours work—12 hours rest and possibly an additional day off from work.

Problem 3—working time of the Nutrition Department

In the current working time organization system, cooks work in a basic working time system in a single shift, between 6:30 am and 2:30 pm.

The kitchen assistant works in a two-shift working time system from 7:00 am to 3:00 pm and from 11:00 am to 7:00 pm. The kitchen often runs late as there is little time to prepare breakfast, which, according to the regulations of the Centre, starts at 8.00 am. When prepar-

ing meals, kitchen staff must take into account various diets and nutritional restrictions of the residents, which in turn increases the labour-intensity of preparing meals.

Another issue is cleaning after dinner, which takes, according to the regulations, from 6.00 pm to 7.00 pm. As experience shows, serving dinner takes longer, and there is also no time for cleaning and other finishing activities.

Suggestion to improve the system:

Introducing a change in working hours for people working as a kitchen assistant on the first shift from 6:30 am to 2:30 pm, which extends the time for preparing breakfast for such a large number of residents by half an hour, and on the second shift, the moving of working time from 11:00 am to 11:30 am, which in turn will allow adequate time to clean the kitchen and dining room and other finishing activities.

5. Conclusion

The article addresses the issue of improving the working time system in economic organizations and institutions, taking into account mainly technologically and economically important reasons (working method), but also the principles of *work-life balance*. The aspects of balancing work and private life constituted the main stream of research presented in the study. This is an important issue, because improper shaping of this system and the conditions of its functioning may result in significant losses for the economic entity, but also in the social sphere—the non-professional life of employees.

The presented methodology for the analysis and improvement of the working time system in an enterprise is based on the concept of the working method and the correspondence between the working method and the working time system used, on the one hand, and elements of the production system and the concept of *work-life balance* on the other.

In dynamic terms, the presented system illustrates the process of mutual interpenetration and stimulation of changes occurring simultaneously in the sphere of elements of the production system, in the working time system, and in the time system outside work (see Figure 2).

This concept was illustrated by a practical example (case study) at the Rehabilitation and Social Welfare Centre with a diversified scope of activity, which fulfils various economic and social functions, using various forms and varieties of working time.

The activity potential of the examined organizational unit does not allow much freedom in the selection of the working time system, mainly due to the social functions fulfilled, i.e. services for the Centre's residents. In this case, we can only talk about extending the scope of application of the balanced working time system (the driver's work), adjusting the work schedule of kitchen workers and increasing employment in the group of medical caregivers. When performing work, employees feel a lot of fatigue and discomfort, which undoubtedly affects the effectiveness of their work, hence the suggestion put forward by employees regarding the possibility of taking advantage of additional holidays seems justified.

Finally, it is worth emphasizing the benefits of using a methodology of improving the working time system in which the elements of the production system and the principles of balance between work and private life are central.

From the cited comments, it can be concluded that the above system can function relatively undisturbed only in conditions of a high level and pace of technological development, knowledge in the field of production and work organization, cooperation of social partners in the enterprise and high flexibility of working time.

It should be emphasized that it is the employee who is the architect of their time budget structure and that he is responsible for the balance between work and home. Of course, the employers are also responsible for this balance. It is in the employer's decision-making sphere to introduce appropriate organizational changes and programmes. The most important of them include: reconstruction and flexibility of working time, wider use of e-learning and remote work, limiting the scope of work responsibilities in order to make time to learn, development of social and living programmes, paying particular attention to facilities for parents as well as knowledge of the principles and skilful use of them in managing one's time (Kozioł, Mikos, and Leśniak, 2018, p. 8). It will be of little use if we do not identify and include the working method in the working time system adopted in the employee's time balance, and employees will not learn or acquire skills in how to rationally manage their own time. In the context of the organization of one's own work, mental resilience and skills for coping with stress, interpersonal communication skills, and even mastering the principles of *savoir-vivre*, are important.

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Koncepcja równoważenia życia zawodowego i prywatnego

Abstrakt: W artykule opisano wybrane elementy systemu *work-life balance*, ze zwróceniem uwagi szczególnie na instrumenty równoważenia życia zawodowego i osobistego, eksponując przy tym aspekty równowagi czasowej pracownika. Przedstawiono także koncepcję doskonalenia systemu czasu pracy (metodykę badań) w aspekcie zwiększania efektywności i elastyczności pracy. Celem artykułu jest przedstawienie metodyki analizy i rekonstrukcji systemu czasu pracy w przedsiębiorstwie z uwzględnieniem zasad *work-life balance* oraz prezentacja wyników badań empirycznych. Warto podkreślić, że analiza determinant czasu pracy nadal pozostaje słabo rozpoznany zagadnieniem analizy ekonomicznej. Podstawowy problem badań to identyfikacja i parametryzacja luki istniejącej między metodą pracy stosowaną w firmie a systemem czasu pracy z jednej

strony oraz wymaganiami zawodowymi i prywatnymi z drugiej, jak również wskazanie możliwych sposobów i instrumentów jej ograniczenia. Przyjęto tezę, która zakłada zgodność między systemem czasu pracy a metodą pracy. Wspomniana w artykule koncepcja metody pracy obejmuje system technologiczny, system ekonomiczny, system społeczny obejmujący wskazania *work-life balance*. Na bazie przyjętej tezy w empirycznej części artykułu przedstawiono wyniki badań w postaci studium przypadku (analiza *case study*). Opisano i oceniono systemy czasu pracy wraz ze zidentyfikowanymi metodami pracy w badanym zakładzie pracy. Wskazano rozwiązania organizacyjne, które przysłużyły się do poprawy istniejących systemów czasu pracy. Wykorzystane metody badawcze to: analiza ekonomiczna, elementy analizy ergonomicznej, wywiad i ankieta.

Słowa kluczowe: system czasu pracy, metoda pracy, metodyka doskonalenia czasu pracy, *work-life balance*

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