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Zarządzanie finansami firm – teoria i praktyka

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Adam Kopiński
Paweł Kowalik

Spis treści

Wstęp

Działalność gospodarcza, w skali zarówno makroekonomicznej, jak i mikroekonomicznej, składa się z gospodarki realnej wytwarzającej dobra i świadczącej usługi, w której kluczową rolę odgrywa szeroko rozumiana sfera finansów, obejmująca trzy zasadnicze grupy zagadnień: racjonalnego wyboru celów jednostek (organizacji) gospodarczych w aspekcie finansowym, optymalnych źródeł ich finansowania, a także efektywnego wykorzystania zgromadzonych zasobów finansowych.

Procesy globalizacyjne, a także kryzysy polityczne i wojskowe, sytuacja gospodarcza w Unii Europejskiej spowodowana falą imigracji, załamanie w gospodarce chińskiej muszą być uwzględniane przy podejmowaniu bieżących i strategicznych decyzji finansowych. Ponadto okoliczności te przyczyniają się do powstawania niekorzystnych warunków gospodarowania przedsiębiorstw w sferze pozyskiwania kapitałów, a w skali makro mogą prowadzić do powiększania deficytu i długu publicznego. Warunki zewnętrzne i wewnętrzne wymuszają jeszcze większą koncentrację teorii i praktyki zarządzania finansami na problemach zarówno finansów publicznych, jak i finansów przedsiębiorstw. Chodzi mianowicie o takie zarządzanie finansami, które powoduje pomnażanie bogactwa właścicieli kapitału i jednocześnie prowadzi do wzrostu dobrobytu całych społeczności. Zagadnieniom tym poświęcone są artykuły opublikowane w niniejszym zeszycie Prac Naukowych. Problematyka poruszana w przedstawionych opracowaniach dotyczy między innymi następujących obszarów zarządzania finansami: pozyskiwania kapitałów przez inicjatywy partnerstwa publiczno-prywatnego, udziału *venture capital*, zarządzania finansami w jednostkach sektora publicznego, np. w służbie zdrowia, zarządzania ryzykiem w podmiotach gospodarczych, sterowania strukturą kapitału i płynnością finansową przedsiębiorstwa, finansowania działalności innowacyjnej przedsiębiorstw, oceny efektywności inwestycji w odnawialne źródła energii, finansowych aspektów zamówień publicznych, finansów sektora bankowego oraz efektywności rynku kapitałowego.

Artykuły wchodzące w skład niniejszej publikacji są związane z coroczną konferencją „Zarządzanie finansami – teoria i praktyka", organizowaną przez Katedrę Finansów Przedsiębiorstwa i Zarządzania Wartością oraz Katedrę Finansów Publicznych i Międzynarodowych Wydziału Zarządzania, Informatyki i Finansów Uniwersytetu Ekonomicznego we Wrocławiu z udziałem pracowników naukowych z najważniejszych ośrodków akademickich w Polsce, przedstawicieli praktyki gospodarczej i gości zagranicznych. Konferencja ewoluowała od wąskiego niegdyś ujęcia zarządzania finansami firm do ujęcia szerszego, którego istotą jest objęcie różnych sfer działalności gospodarczej, w których zarządzanie finansami ma duże

znaczenie. Dotyczy to finansów międzynarodowych, w tym finansów Unii Europejskiej, finansów centralnych (rządowych), finansów lokalnych (w tym jednostek samorządowych), finansów służb publicznych, jak również finansów wielu innych podmiotów gospodarczych.

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Mamy nadzieję, że niniejsza lektura będzie inspiracją nie tylko do dalszych badań naukowych, ale również do wdrażania innowacyjnych rozwiązań w zakresie finansów zarówno w sektorze przedsiębiorstw, jak i w sektorze publicznym.

Adam Kopiński, Paweł Kowalik

Magdalena Mikołajek-Gocejna

Warsaw School of Economics

e-mail: magdalena.mikgoc@gmail.com

WILLINGNESS TO DISCLOSE INFORMATION VERSUS INVESTORS' EXPECTATIONS IN COMPANIES LISTED ON THE WARSAW STOCK EXCHANGE

SKŁONNOŚĆ SPÓŁEK NOTOWANYCH NA GIEŁDZIE PAPIERÓW WARTOŚCIOWYCH W WARSZAWIE DO UJAWNIANIA INFORMACJI A OCZEKIWANIA INWESTORÓW

Summary: The purpose of the work is to establish a relationship between the information asymmetry and the level of enterprise's willingness to disclose information and between the asymmetry index of investor relation (AIR) and the metrics describing the value of investors' expectations in companies listed on the Warsaw Stock Exchange. Publicly traded companies have a major influence over the indices of information asymmetry in relations to external shareholders. For this reason, for the purpose of this study an asymmetry index of investor relations (AIR) has been constructed. This metric represents a company's ability to convey information about its operations. AIR was based solely on the guidelines of value reporting as proposed in the IC Rating™ Model [Jacobsen et al. 2005]. Adopting the IC Rating Model as a basis for the AIR allowed to encompass all the information voluntarily disclosed by companies to the market, and not only the disclosures required by legal regulations. As the metrics describing the value of investors' expectations were used: cost of equity (CE), future EVA growth (FGV) and threshold market value added (threshold MVA). The study has been based on stock market data, financial reports, and an analysis of the information published on the websites of companies listed on the Warsaw Stock Exchange within the continuous trading system, and for which all data necessary for the relevant calculations were available. As it has been revealed there exist statistically significant correlations between asymmetry indicators and investors' expectations. Companies with a high willingness to disclose information are more capable of creating investors' expectations. There are also statistically significant correlations between the indicators that represent the level of information asymmetry in investor relations (AIR) and companies' results.

Keywords: information asymmetry, asymmetry index of investor relation, cost of equity (CE), future EVA growth (FGV), threshold market value added (threshold MVA).

Streszczenie: Celem artykułu jest zbadanie relacji między asymetrią informacyjną i poziomem skłonności przedsiębiorstw do ujawniania informacji oraz pomiędzy wskaźnikiem asymetrii informacyjnej w zakresie relacji inwestorskich (AIR) i miarami opisującymi wartość oczekiwań inwestorów w spółkach notowanych na GPW. Na potrzeby badania został skonstruowany wskaźnik asymetrii informacji w obszarze relacji inwestorskich (AIR), wyrażający skłonność przedsiębiorstwa do przekazywania informacji na rynek kapitałowy. Konstrukcję wskaźnika oparto na wytycznych dotyczących raportowania wartości zawartych w propozycji [Jacobson, Hofman-Bang, Nordby Jr 2005] – IC Rating™ Model, co umożliwiło objęcie nim przede wszystkim informacji dobrowolnie przekazywanych przez spółki na rynek, a nie tylko tych, które wymagane są stosownymi przepisami prawa. Jako miary opisujące wartość oczekiwań inwestorów zostały wykorzystane: koszt kapitału własnego (CE), wartość przyszłego wzrostu EVA (FGV) i progowa rynkowa wartość dodana (próg MVA). Badania przeprowadzono na podstawie danych giełdowych, sprawozdań finansowych, jak również analizy zawartości informacyjnej stron internetowych spółek notowanych na GPW w Warszawie w systemie notowań ciągłych, dla których możliwe stało się zebranie wszystkich danych niezbędnych do wykonania stosownych obliczeń. Przeprowadzane analizy pozwalają stwardzić, że istnieje istotna statystycznie zależność pomiędzy asymetrią informacyjną a poziomem otwartości informacyjnej spółek notowanych na GPW w Warszawie oraz że istnieją istotne statystycznie relacje pomiędzy wskaźnikiem asymetrii w zakresie relacji inwestorskich a kształtowaniem oczekiwań inwestorów.

Słowa kluczowe: asymetria informacyjna, wskaźnik asymetrii informacyjnej w zakresie relacji inwestorskich, koszt kapitału własnego (CE), przyszły wzrost EVA (FGV), progowa rynkowa wartość dodana (threshold MVA).

*Set high expectations and at minimum
you will develop the habit of
performance above average*

Sam Villanueva

1. Introduction

The traditional model of companies' information policy and investor relations relies to a large extent upon the publication of historical financial data. In the current economic conditions, following shifts in companies, the investor community and business circles in general, and the capital market in particular, this traditional model does not endure the test of time and fails to fulfil its function effectively. To the company that recognises that it must compete for capital over the long run, the problem of disclosure should be viewed not only as one of regulations, but as the opportunity to display every aspect of the company that can contribute to a rounded picture for the prospective investor or lender [Marcus 2005, p. 50). The authors of the paper *Corporate Reporting. Is it what investment professionals expect?* [PricewaterhouseCoopers 2007] clearly indicate the significant disparity between investors' needs for information and the adequacy of information disclosed by companies.

Moreover, the centre of gravity with respect to investors' information expectations noticeably shifts from financial information towards information concerning future development prospects. Studies conducted by PricewaterhouseCoopers show that key factors taken into account by investors who plan to invest in a particular company are not its financial results, but above all transparency, openness with information and the quality of risk management [PricewaterhouseCoopers 2008, p. 4]. Financial reporting framework incompatible with investor expectations leads to the creation of the following communication gaps [Eccles et al. 2001, pp. 130-141]: information gap, reporting gap, quality gap, understanding gap and perception gap. The occurrence of communication gaps translates into divergence between information presented in financial statements and a company's stock valuation on the capital market, and it leads to the creation of value gap.

Our deliberations so far have implied that one of the essential conditions for the purposeful creation of investors' expectations and consequently long-term value growth and the creation of shareholder value is providing the capital market with reliable and credible information concerning the situation and development prospects of a company. It is especially important since a considerable portion of return for shareholders comes from the increase of stock value. Capital market efficiency is in this case conditional on the availability and quality of information about a company [Black et al. 1997, p. 86], since a company's willingness to disclose information guarantees faster capital flow. As information processes improve, capital markets become more effective. It follows that decisions made by managers of listed companies are verified by the market faster and more thoroughly, and companies react to changes in investors' expectations more efficiently. Errors in communication, or insufficient information discourage from making long-term investment and can disrupt the process of creating and maintaining value, restrict company's competitiveness on the capital market and lower its chances to acquire capital. According to Cole [2004, p. 21], these are investors, current and potential, who determine company's value. Moreover, ensuring better understanding of the strategy enables to protect a company from investors' short-sightedness and prevent violent reactions to positive or negative forecasts [Hutton, Stocken 2006, p. 36]. D. Ferreira and M. Rezende [2006, p. 23-24] indicate at the same time that voluntary disclosures in the area of corporate strategy have positive effect on value creation, which is a result of more trust placed in the management. The willingness to share information gives investors' more confidence in a company's future performance and actions, which in turn makes them more willing to invest their capital in its securities [Ferreira, Smith 2000, p. 4].

2. Voluntary disclosure vs investors' information expectations

All challenges connected to the expansion of the information package result mainly from investors' inability to estimate value of something they do not know. However, unlike financial reporting, value reporting is not a one-way process, because while it

is relatively easy to calculate EPS, an objective estimation of such elements as market share, customer satisfaction and brand awareness is much more complicated [Chambers 2003, p. 2]. There can be no doubt that the contemporary economic perspective completely changes the perception of corporate resources, and consequently also the traditional approach to performance measurement, which should constitute a starting point for the creation of a modern investor relations model.

Due to the evolution of the sources of company's competitiveness towards intellectual capital, traditional performance metrics are nowadays far from being sufficient, since they use conventional accounting information and financial reporting standards, and they mainly analyse relations between profit and various other accounting categories [Edvinsson 1997, pp. 266-373]. Deficiencies of accounting metrics and the need to regard company's effectiveness from the perspective of equal usage of tangible and intangible assets in the management process have been indicated for years. Eventually they inspired the development of effectiveness metrics based on value added, which are strongly connected to the concept of value-based management: Economic Value Added – EVA and Market Value Added - MVA [Stewart 1994], Shareholder Value Added – SVA [Rappaport 1999], Created Shareholder Value – CSV [Fernandez 2001], and Economic Shareholder Value Added – ESVA [Michalski 2001, pp. 69-87]. In view of current changes, the creation of a new IR model requires first of all successful identification and management of intangible assets, which entails the need to create appropriate methods of measuring their value. In this context, it seems that S. Firer from the Monash University and S. M. Williams from the Singapore University ask a very pertinent question: if knowledge is the key to future success, but it is not adequately reflected by traditional financial metrics (and these are the metrics that constitute the base for making managerial decisions), what system will be able to fulfil requirements of the present times and address the needs of modern enterprises? The problem is especially interesting, as we have already indicated, financial measures are only a small part of the information package investors demand in order to make rational investment decisions. Information concerning intangible assets allows investors and analysts to create a mosaic of sorts from which they can form opinions about a company's future. Just like a mosaic, the big picture of the future consists of many small pieces which investors and analysts assemble together [Cole 2004, p. 12]. Numerous studies show that investors often misprice the shares of companies in which intangible assets play an important part [Lev 2004, p. 109]. Sometimes the valuation is inflated, which leads to the loss of a part of the invested capital. However, much more often investors undervalue company's intangible assets. As a consequence, capital acquisition cost grows, which usually leads to underinvestment in intangibles, and thus to a limited ability to generate more value. Research clearly indicates that investors very often understate value of companies that make considerable outlays in the field of research and development. Of course, that does not stem from their ignorance, but rather from

the awareness that many R&D projects are uncertain undertakings burdened with technological and commercial risks [Lev 2004, p. 210]. Analysts stress as well that investors underprice shares of companies involved in R&D also because expenses in this area are noted in official financial reports in an entirely different way than other intangibles, although these expenses, are undervalued too. This situation is beneficial neither for investors nor for the companies, which take into consideration the market's cool reaction and usually limit their spending on intangible assets and funnel available financial resources to much safer, but also much less lucrative improvements of existing solutions. Thus a question arises: why rationally thinking individuals deprive themselves of the chance to increase potential returns resulting from the optimal allocation of means in intangible assets?

Dynamic development of the concept of intellectual capital induced numerous propositions to include it into corporate reporting. Thus, a new challenge emerges: how to transition from financial to business reporting and to establish better and more efficient communication of information indispensable for a reliable assessment of a company's activity in terms of value creation? Considering the matter of intellectual capital in a company can be compared to studying the roots of its value; they determine its future performance [Ross et al. 1998, pp. 16-17].

We should also bear in mind that companies more and more often prepare reports on Corporate Social Responsibility, which can constitute an equally useful source of information on intangible value drivers. Of course, this area evokes certain questions and doubts. Is the idea of CSR actually relevant for investors? Or is it only a trendy slogan which conceals dishonest practices? Or perhaps J. Bakan was right to assert that corporations have traits of a psychopathic personality: they care about nothing but themselves, they are incapable of caring for others, and do not experience fear or remorse?

3. Information asymmetry

Information asymmetry can be defined as an imbalance in the information available to market participants. The problem of imperfect (incomplete) information and its implications was discussed as early as in the 19th century by Marshall, in the context of imbalance between wages and the work actually performed by employees. The problem of information asymmetry appeared also in the works of Hayek, who, in an attempt to challenge the idea of centrally planned economy, proved that incomplete information leads to market inefficiency [Rosses 2003]. In the 1960s and 1970s, the theory of information asymmetry, perceiving information asymmetry as an imbalance in the information available to the market participants, was elaborated. The notion of information asymmetry itself was introduced to economics by J.A. Mirrlees, who in 1996 was awarded the Nobel Prize for his studies on the relationship between private companies and the government in the context of information asymmetry. The 1996 Economic Sciences Nobel Prize was also co-awarded to W. Vickrey who focused on

the analysis of auctions and transfer of rights to conduct business activity. Both economists pointed out that information asymmetry is frequently used to gain strategic advantage over market competitors and that the most important is to identify the hidden motives of market players. The phenomenon of information asymmetry was also studied by another Nobel Prize winner, R. Lucas, who in 1995 received the award for his hypothesis of rational expectations. It seems that the best known researchers on the phenomenon of information asymmetry are G.A. Akerlof, M. Spence and J.E. Stiglitz, mainly because of their contribution to the elaboration and development of tools used in the analysis of the problem.

In 1984, Akerlof introduced the idea of markets with asymmetric information, using the example of a second-hand car market [Akerlof 1970]. Two concepts underlined in the title of the paper, i.e. "quality" and "uncertainty" served as a basis for the analysis. Akerlof also described the process of "adverse selection".

Apart from the theory of adverse selection, the idea of incomplete information became the basis for other theories describing the phenomenon of asymmetrical access to information and decision-making in such an environment, including principal-agent theory and the theory of moral hazard.

The aforementioned studies on information asymmetry to a large extent focus on real economy, whereas the problem of information particularly gained in importance in the context of globalisation and intensive development of financial markets. The information asymmetry phenomenon translates into "fragility" of financial instruments and exposure of financial markets to volatility. The issue was widely discussed in the works of a Noble Prize winner J.E. Stiglitz who claimed that in a situation where pricing, including the pricing of financial instruments, relies on consciously shaped information, it will not contribute to the development of the economy, but merely serve the interest of a privileged group. This privileged group is referred to by Stiglitz as "the players" or simply "Wall Street". It turns out that there are important information asymmetries on the capital market: managers possess information unavailable to other market participants, such as stockholders or investment fund shareholders. In the world of high information asymmetry, even the best informed investors are disadvantaged [Cf. Stiglitz 2006, p. 90]. Stiglitz describes the fact of information hiding or providing false information as the triumph of avarice over prudence: "Executives who were paid by stock options had an incentive to do everything they could to get their firms' stock price up − including creative accounting [...]. Investors and regulators had been forewarned, but evidently had not learned the lesson: creative accounting was behind many of the scandals related to the dot-com (tech) bubble of the late 1990s" [Stiglitz 2010, p. 179].

It turns out that there are important information asymmetries on the capital market: managers possess information unavailable to other market participants, such as stockholders or investment fund shareholders. Information asymmetry and unawareness of market participants may lead to a situation where dishonest "game" participants seeking to maximise financial benefits, perform illegal activities.

Of course, countries protect their financial systems through legal safeguards or the creation of adequate institutions, the actions of which are aimed at minimising the negative consequences of information asymmetry. Nevertheless, complete elimination of its consequences is not possible. Therefore, in addition to the existing regulations, essential for reducing the degree of asymmetry on the capital market is to increase the scope and quality of information published by companies.

4. Research methodology

The main hypothesis assumed that there exists statistically important relationship between the information asymmetry and the level of enterprise's willingness to disclose information and between the asymmetry index of investor relations (AIR) and the metrics describing the value of investors' expectations in companies listed on the Warsaw Stock Exchange. The study was based on stock-exchange data, financial reports, and an analysis of information content available on the websites of companies listed in the continuous trading system on the Warsaw Stock Exchange which provided all data necessary for the calculations. In total, 277 companies were analysed from June through September 2011 with respect to information asymmetry and from 2009 through 2010 as regards financial indicators. In order to calculate and analyse the collected information, a dedicated data base was created (including financial reports for particular years, share prices, number of shares on the market, the amounts of dividend per share, beta values, expected inflation rates, number of analysts, shareholding structure, payment of dividend, etc.) and systems of spreadsheets.

Some assumptions of the research project may seem controversial and raise doubts. It is due to the fact that many of the issues outlined above have not been unequivocally resolved on the theoretical level. For this reason it can be assumed that although some assumptions are arbitrary, the conclusions of the study enable us to verify the main hypothesis of the article.

4.1. The variables of the information asymmetry level and their operationalisation

In the literature, many propositions of variables that can represent information asymmetry can be found. Taking into account the nature of problems discussed in this article, it seems appropriate to narrow down the question of information asymmetry to information asymmetry within investor relations, since they encompass a lot of information conveyed to investors and bilateral communication which in turn shapes investors' expectations. In this respect, the indicators that may represent information asymmetry are:
–   analysts coverage – i.e. the number of analysts following a given company and drafting periodical stock market reports [Bhushan 1989; Cai et al. 2008],

–   book-to-market ratio [Huddart, Ke 2007],
–   difference between analysts' predictions concerning stock market or financial results and actual results [Filbeck, Webb 2001; Boumoshleha, Reeba 2009],
–   number of big shareholders (who hold 5% of stock or more) and the participation of institutional investors [Huddart, Ke 2007].

The indicators of information asymmetry which most frequently evoked in the global literature are: analysts coverage, the number of large shareholders and the participation of dispersed shareholding (aka free float).

If following the publication of better quality information asymmetry becomes reduced, it results in a bigger interest in the company on the part of institutional investors and analysts. We can find a proof thereof for instance in the following studies: Verrecchia [1983; 1990], Barry and Brown [1984; 1985], Merton [1987], Kim and Verrecchia [1994].

At the same time, in the context of dispersed ownership, shareholders with small packages of shares are not able to exercise their right to vote at the general meeting to harness managerial decisions. Thanks to that executives can focus on their own interests first, at the expense of shareholders' interests [Popławski 2003]. In case of ownership concentration, the principal-agent problem occurs between the dominant shareholder (or a manager loyal to them) and the minority shareholder. The dominant shareholder has better access to information than others which results in information asymmetry. A high degree of free float, i.e. a high participation of dispersed ownership, favours a mitigation of information asymmetry, since it requires a broader openness with information on the part of the company [Clemente, Labat 2005; Attig et al. 2006; Cormier et al. 2009; Demsetz 1968].

Drawing from the conclusions from the evoked studies on the relationship between information asymmetry and the analysts coverage, the number of big shareholders and the participation of dispersed ownership, we have decided to use these variables in our analysis in order to describe the asymmetry in investor relations.

The data on the analysts coverage was retrieved from the websites of the analysed companies or from financial portals and it concerned analysts who had been drafting reports about these companies during the previous three years. If relevant data was unavailable, we got in touch with the people responsible for investor relations with a query. The number of big shareholders and the degree of free float were obtained in the same way.

On average, 6 analysts followed one company and prepared periodical stock market reports. It should be stressed here that analysts coverage, just like free float, is determined by the interest investors show in a given company. In the analysed period, the highest analysts coverage could be observed in the case of: PKO BP SA (27 analysts), New World Resources NV (26 analysts), Polski Koncern Naftowy ORLEN SA (25 analysts).

The average number of big shareholders for the analysed stock-listed companies was 3.22, although the minimum value for this coefficient was 1, which denotes one

shareholder owning over 5% of the entire stock (in 27 of the analysed companies), and the maximum value was 9 (Projprzem SA). The average flee float equalled 37.18%; the biggest participation of dispersed shareholders was observed in the Petrolinvest SA company, where the free float amounted to 93.17%.

Publicly traded companies have the major influence over the indices of information asymmetry in relations to external shareholders. For this reason, for the purpose of this study an asymmetry index of investor relations (AIR) has been constructed. This metric represents a company's ability to convey information about its operations. Each publicly traded company is obliged to maintain an investor relations service, so the study assumes that the information presented voluntarily by these services with the objective of conveying information about the company to its current and potential shareholders reflects the company's willingness to convey information within investor relations.

We have already mentioned that due to the changing architecture of the global capital market and the consequent change of the conditions of analyses and investment decisions, intangible aspects of companies' functioning more and more often gain primary importance and the synergetic coexistence of material and intangible factors is more and more often perceived as the source of value. For this reason, the metric of asymmetry in investor relations was based solely on the guidelines of value reporting as proposed in the IC Rating™ Model [Jacobsen et al. 2005]. The choice of this model was preceded by a critical analysis of other methods of reporting value which are discussed in the literature and applied in practice [http://www.sveiby.com/articles/IntangibleMethods.htm].

Adopting the IC Rating Model as a basis for the information asymmetry index allowed to encompass all the information voluntarily disclosed by companies to the market, and not only the disclosures required by legal regulations.

There were other considerations that spoke in favour of the IC Rating Model.

Firstly, the model is based on Sveiby's notion of intellectual capital, which distinguishes: human capital, two types of structural capital (organisational structural capital and internal structural capital), and relational capital, aka external structural capital.

Secondly, all those elements together create the so called "operational efficiency". A high operational efficiency means that a firm is successful in its basic activity, but it might lack strategic efficiency which requires a consideration of all elements of the IC from the strategic point of view that takes into account the business environment.

Thirdly, IC Rating™ showcases also the intangible components of a company's capital in three different perspectives: efficiency, risk, regeneration and development; it also perceives the company from the vantage point of current efficiency, future possibilities, and the ability to regenerate and develop.

The model in question includes into the rating over 200 intangible value drivers, which are classified according to the presented components of the IC.

For the purpose of this study, the scope of information necessary to construct the information asymmetry index of investor relations (AIR) has been slightly narrowed down to 57 intangible value drivers. The main argument in favour of such a restriction is to limit the study to the information which is the most desired and sought after by investors [Garcia-Meca 2005, p. 427].

This information was used to construct an information asymmetry index of investor relations (AIR), which reflects a company's willingness to convey information about its operations. Each piece of information listed above was assigned a 0-1 value. If the analysed investor relations service provided complete information, the item was rated as 1; when the information was incomplete or it referred to other sources it was rated as 0.5; when there was no relevant information the item received the value 0. In total, each of the analysed companies could score 57 points, one for every item on the list. The results of the study have been presented by the means of the indicator of willingness to disclose information (AIR), i.e. the ratio of the received score to the total possible score.

4.2. Correlation between information asymmetry in investor relations and asymmetry gauges

As measures of dependence between particular financial parameters we have used: Pearson's correlation coefficient and its square, aka the coefficient of determination, which informs what part of the variation in the response variable can be accounted for by the variation of the explanatory variable. The standard level of significance was assumed, i.e. 0.05. Correlation matrices have been constructed for standardised data, taking into account the specific character of the primary variables.

Table 1. Pearson's correlation coefficient between AIR and the variables representing the level of information asymmetry

Variable	Correlations Marked coefficients are significant when $p < ,05000$ N=136 (Listwise deletion was applied)				
	Average	Standard deviation	AIR	Analysts coverage	Number of big shareholders
AIR	64.76186	7.88402	1.000000	0.546560	-0.332395
Analysts coverage	6.27206	6.29811	0.546560	1.000000	-0.374129
Number of big shareholders	3.19118	1.64436	-0.332395	-0.374129	1.000000
Free float	37.36176	16.59376	0.011527	0.155707	-0.116737

Source: own work based on Statistica 9.0. Function: correlation matrices.

The preliminary analysis has lead us to the conclusion that there exist statistically important correlations between the AIR index and analysts coverage (0.55 – high positive correlation) and the number of big shareholders (-0.33 – average negative correlation). The results are not surprising, as in the global literature analysts

coverage constitutes the most popular indicator of information asymmetry in investor relations. At the same time, the statistically significant high correlation between these indicators confirms the legitimacy of using the constructed indicator of willingness to disclose information as a variable representing the level of information asymmetry in the area of investor relations. It means that the greater the amount of conveyed information, the greater the interest in the company, and the greater the analysts coverage. At the same time, the greater the number of big shareholders, the more the company is prone to convey information to investors.

4.3. Operationalisation of variables representing investors' expectations

In order to verify the main hypothesis, we have conducted an analysis of relationships between the variables representing the level of information asymmetry and the metrics taking investors' expectations into account. For this purpose we have made an attempt to measure the value of investors' expectations using the possibilities provided by the metrics of value creation: excess EVA improvement [Cwynar, Cwynar 2002, pp. 89-90, 109, 110-111; Cwynar, Cwynar 2004, p. 135; Olsen 2002, p. 16], cost of equity [Sharpe 1964; Black et al. 1972; Lewellen, Shanken 2002; Brav, Heaton 2002] and threshold MVA.

In order to verify the correlations between the ratios of information asymmetry on the one hand, and investors' expectations and firms' results on the other, relevant Pearson's coefficients have been calculated (see Tab. 2).

Table 2. Pearson's coefficients of correlation between the variables representing the level of information asymmetry in investor relations, investors' expectations and companies' results

Variable	ana-lysts cover-age	big share-hol-ders	free float	AIR	TSR	CE	MV	no. of shares	profit/share	P/E	divi-dend	net profit	FGV	MVA (thre-shold)	equity
analysts coverage	1.0	-0.37	0.25	0.60	0.08	0.40	0.71	0.30	0.27	0.22	0.22	0.60	0.40	0.72	0.63
big shareholders	-0.37	1.00	0.02	-0.28	-0.28	-0.33	-0.44	-0.33	-0.4	-0.7	0.05	-0.42	-0.09	-0.44	-0.44
free float	0.25	0.02	1.00	0.12	0.21	0.02	0.13	-0.14	0.13	0.07	0.13	0.18	0.08	0.13	0.01
AIR	0.60	-0.28	0.12	1.00	0.16	0.19	0.45	0.14	0.33	0.03	0.30	0.44	0.10	0.44	0.46
TSR	0.08	-0.28	0.21	0.16	1.00	0.05	0.10	0.17	0.15	0.00	0.15	0.14	-0.02	0.10	0.03
CE	0.40	-0.33	0.02	0.19	0.05	1.00	0.29	0.18	0.05	-0.02	-0.04	0.29	0.21	0.30	0.13
MV	0.71	-0.44	0.13	0.45	0.10	0.29	1.00	0.44	0.16	0.18	0.10	0.91	0.54	1.00	0.91
number of shares	0.30	-0.33	-0.14	0.14	0.17	0.18	0.44	1.00	-0.13	0.14	-0.10	0.43	0.16	0.44	0.62
profit/share	0.27	-0.04	0.13	0.33	0.15	0.05	0.16	-0.13	1.00	-0.06	0.89	0.20	-0.03	0.16	0.06
P/E	0.22	-0.07	0.07	0.03	0.00	-0.02	0.18	0.14	-0.06	1.00	-0.01	-0.05	0.02	0.18	0.19
dividend	0.22	0.05	0.13	0.30	0.15	-0.04	0.10	-0.10	0.89	-0.01	1.00	0.08	-0.02	0.10	0.02
net profit	0.60	-0.42	0.18	0.44	0.14	0.29	0.91	0.43	0.20	-0.05	0.08	1.00	0.39	0.91	0.83
FGV	0.40	-0.09	0.08	0.10	-0.02	0.21	0.54	0.16	-0.03	0.02	-0.02	0.39	1.00	0.55	0.37
MVA (threshold)	0.72	-0.44	0.13	0.44	0.10	0.30	1.00	0.44	0.16	0.18	0.10	0.91	0.55	1.00	0.90
equity	0.63	-0.44	0.01	0.46	0.03	0.13	0.91	0.62	0.06	0.19	0.02	0.83	0.37	0.90	1.00

Source: own calculations based on Statistica 9.0. Function: correlation matrices.

The analysis has revealed that there exists a statistically important correlation between asymmetry indices and investors' expectations (except for the dispersed shareholding). Companies which incite analysts' interest and which at the same time are willing to disclose information, are more able to shape investors' expectations. The analysis has demonstrated that there exists a statistically important correlation between the number of shareholders and the following measures of investors' expectations value: cost of equity (CE) – with the correlation coefficient at 0.40, future growth value (FGV) – with the correlation coefficient at 0.40, threshold value added (MVA) – with the correlation coefficient at 0.72. There are also statistically significant correlations between the number of big shareholders (a measure of information asymmetry) and investors' expectations. In this case, the correlation coefficients are negative and they take on the following values: -0.33 with the cost of equity, -0.44 with the threshold market value added. These results provide no grounds to reject the main hypothesis.

The correlation with the future growth value is of no statistical importance.

The analysis has also showed a statistically important correlation between the measure representing companies' willingness to disclose information and investors' expectations estimated thanks to the use of a threshold MVA. It confirms the main hypothesis, because the expected MVA for shareholders has been determined as a difference between the market value of equity expected for a given year and the invested equity, assuming that investors expect an increase in the market value of the capital that would at least compensate the cost of equity.

There are no statistically important correlations between one of the measures representing information asymmetry, i.e. the free float, and investors' expectations, neither between the measure of companies' willingness to disclose information within investor relations and investors' expectations determined thanks to the use of cost of equity and the future growth value. These facts oblige us to refute the main hypothesis, but this may be due to the character of the analysed period. Since the analysis was carried out during the period of crisis, without a shadow of doubt it affected the stability of stock markets and, first and foremost, the stock prices. In the case of future growth value, even if the capital markets had been stable, the correlations might have proven to be equally statistically insignificant, mainly due to the very construction of the metric itself. Excess EVA change is a measure which represents a company's potential to surprise the market with results higher than expected (projected by investors), as measured with EVA_E. At this point, an important doubt emerges – do investors have any expectations of the future value of economic value added, if firms do not provide them with such information? Calculating and reporting economic value added is extremely rare on the Polish stock market.

Moreover, the analysis has revealed there exists a statistically important relationship between the measures which represent information asymmetry within investor relations and companies' results.

Statistically important positive correlations have been observed in the following cases: between analysts coverage and market capitalisation (0.71), net profit (0.60), and equity (0.63). We can conclude, therefore, that investors show more interest in companies which achieve high financial results and market capitalisation. Negative statistically important correlations occurred in the case of big shareholders and the results mentioned above, and their respective values were: -0.44, -0.42 and -0.44, which means that the greater number of big shareholders is linked to lower financial results.

The fact that there exist statistically significant positive correlations between companies' willingness to disclose information (AIR) and companies' results is also worthy of notice. In the case of market value this correlation amounts to 0.45, for net profit – 0.44, for equity – 0.46, for the dividend level – 0.30.

The study has also proven that there are no statistically significant correlations between the free float and companies' results.

5. Conclusions

The analysis of correlations between the variables representing the level of market asymmetry, the indicator of asymmetry within investor relations, and investors' expectations has covered 277 companies listed on the Warsaw Stock Exchange and it has led to the following conclusions:

1. There exist statistically important correlations between analysts coverage and the number of big shareholders (which represent information asymmetry) on the one hand, and the willingness of companies to disclose information on the other. Thus, the main hypothesis cannot be refuted. However, in the case of dispersed shareholding, the hypothesis needs to be refuted.

2. There exist statistically significant correlations between asymmetry indicators and investors' expectations. It follows that the hypothesis cannot be refuted (except for the case of dispersed shareholding).

3. Companies with greater analysts coverage – and with a high willingness to disclose information – are more capable of creating investors' expectations. There exists a statistically important correlation between the number of shareholders and the following metrics for assessing the value of investors' expectations: cost of equity (CE) – correlation coefficient at 0.40, future growth value (FGV) – correlation coefficient at 0.40, or the threshold market value added (threshold MVA) – correlation coefficient at 0.72.

4. There also exist statistically important correlations between another indicator of information asymmetry – i.e. the number of big shareholders – and investors' expectations. In this case, the correlation coefficients take negative values: -0.33 for the cost of equity, -0.44 for the threshold market value.

5. Another statistically important correlation has been revealed between the indicator representing companies' willingness to disclose information and investors' expectations estimated using a threshold MVA.

6. The lack of statistically significant correlations between free float (which represents information asymmetry) and investors' expectations and between companies' willingness to disclose information within the scope of investor relations and investors' expectations (calculated using cost of equity and future growth value) leads us to refute the main hypothesis. This, nevertheless, can be attributed to the character of the period featured in the research. The study was carried out during the crisis, which had definitely affected the stability of the market and stock prices. In the case of future growth value, even if the capital markets had been stable – the dependence might have proven statistically insignificant due to the construction of the metric.

Additional conclusions from the analysis:

1. There exist statistically significant correlations between the indicators that represent the level of information asymmetry in investor relations and companies' results.

2. Positive statistically significant correlations have been observed between the variables that represent the level of information asymmetry, i.e. between analysts coverage and (1) market capitalisation (0.71), (2) market capitalisation (0.71), (3) net profit (0.63).

3. Negative statistically significant correlations have revealed themselves between the number of big shareholders and all the results of companies mentioned above and the respective coefficients were: -0.44, -0.42, -0.44. It follows that the greater number of big shareholders is related to lower results of firms.

4. The positive statistically significant correlation between companies' willingness to disclose information (AIR) and the companies' results also deserves a mention. In the case of market value the index equals 0.45, net profit – 0.44, equity – 0.46, and the level of dividend – 0.30.

5. There exist statistically significant correlations between the market capitalisation of companies and the metrics representing investors' expectations: cost of equity (CE) – 0.29, future EVA growth (FGV) – 0.54, and threshold market value added (MVA) – 1.0 (total correlation).

Positive statistically significant correlations have also revealed themselves between net profit and metrics that represent investors' expectations. They equalled respectively: 0.29, 0.39, and 0.91.

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