CORPORATE REPUTATION AND ASSESSMENT OF COMPANIES BY THE CAPITAL MARKET: EVIDENCE FROM THE POLISH BANKING SECTOR

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Abstract: The importance of reputation in achieving a competitive advantage and creating a company's value is noticed by both theorists and practitioners of management. However, the relationship between the level of corporate reputation and a company's investment characteristics, which determine their investment attractiveness, still has not been systematically and comprehensively verified. The variety of previously used methods for assessing and measuring corporate reputation means that the results are not quite reliable and cannot be used for intra-sectoral, cross-sectoral and over time comparisons and makes it difficult — or even impossible — to examine the relevant relationship between reputation and market value or the investment risk of different entities. Therefore, the main purpose of the paper is to attempt to determine the relationship between the assessment of companies by the capital market — based on price multipliers — and their reputation, obtained using an original method, based on information reported by companies and the methodology of fuzzy sets. The research is preliminary in nature and was performed on the Polish banking companies listed on the Warsaw Stock Exchange in the period of 2007-2018.

Keywords: corporate reputation assessment, correlation analysis, stock market indicators.

1. Introduction

Reputation is considered one of a company's most valuable resources in the current era of the knowledge-based economy. Reputation as an intangible strategic resource — valuable, rare, and difficult to imitate — can be a source of long-term strategic advantage (Barney, 1991; Davies, et al., 2003), and as a component of intellectual capital, it is classified as a market asset that builds enterprise value (Dowling, 2006). Although the valuation of reputation is still an open and difficult accountancy challenge, it is estimated that it can represent between 20% and

90% of a firm's value, depending on the industry and measurement method (Black, et al., 2000; Dube, 2009; Burke, et al., 2011; Adamska, and Dąbrowski, 2017).

The studies conducted over many years have revealed a positive relationship between reputation and the company's economic and financial results in most cases (Roberts and Dowling, 2002; Sabate, and Puente, 2003; Choi, and Wang, 2009; Love, and Kraatz, 2009; Vig, et al., 2017). The research on the relationship between reputation and the market ratios of listed companies or their market value is less clear (Dowling, 2006; Smith et al. 2010; Cole, 2012). One of the important dilemmas regarding the reliability of results and the possibility of making cross-sectoral or over time comparisons is the issue of measuring and quantifying reputation. So far, many concepts and methods for measuring reputation have been developed (Helm, 2005), but a single generally accepted methodology has not been developed. The one most often used is Fortune's Most Admired Companies (Flanagan, et al., 2011), although it is criticized for its extensive structure, the need for specialist knowledge, the strong correlation between the attributes studied, and too much impact of financial criteria on final results (Brown, and Perry, 1994; Fryxell, and Wang, 1994; Lewellyn, 2002).

The main purpose of the paper is to determine the relationship between the assessment of companies by the capital market, based on price multipliers, and their reputation. To assess this relationship and its significance, Pearson's correlation coefficient, the coefficient of determination (R2), and p-value tests were used. To measure corporate reputation, an original method was used, based on information reported by companies and the methodology of fuzzy sets (Nawrocki, and Szwajca, 2017). The research was performed on the Polish bank companies listed on the Warsaw Stock Exchange in the period of 2007-2018.

2. Literature review

Reputation affects a company's economic and financial results because it plays an important role in the decision-making processes of key groups of its stakeholders. The research conducted in this area has shown a significant impact of the company's reputation on the decisions of stakeholder groups such as clients, employees, or business partners (Puncheva, 2008; Wagner, et al., 2011). The key groups of stakeholders of joint-stock companies include investors who, as capital donors, determine their development opportunities. If investors are convinced that the reputation reveals relevant information about the profit, risk level, and development potential of a company, then the "reputation of [the] company will be influenced by the competition" (Chajet, 1997, p. 20). Although these issues have been the subject of interest to investor relations managers for many decades, the research carried out so far has not provided clear results as to the impact of reputation on the assessment of companies in the financial market and investors' decisions.

The majority of the research conducted in the 1980s and 1990s found that companies with the best reputation ratios are able to achieve above-average rates of return in the long run (Antunovich, and Laster, 1999; Roberts, and Dowling, 2002). Fombrun (1996) and Deephouse (1997) note that companies with a better reputation are assigned higher positions in the financial market rankings. The opinions of specialists from the financial market are also formulated on the basis of the company's reputation rating (Return on Reputation, 2006).

However, the practice shows that safe shares and high future profits are not only guaranteed by companies with high reputation rates. As Shefrin (2001) notes, "investors err if they expect safe stocks and high future earnings only from highly reputed companies". In turn, other authors (deBondt, 1998; Goldberg and von Nitzsch, 2001) have noted that a company's reputation and the price of its shares are not necessarily correlated. Blajer-Gołębiewska and Kozłowski (2016), in their research on companies listed on the FEZ showed a lack of strong, short-term relationships between the company's reputation and selected financial variables: profitability, financial stability, and risk.

Another group of studies suggests a significant impact of reputation on investor decisions. It has been shown that investors perceive companies with a good reputation as less risky than companies with comparable financial results but a worse reputation (Shefrin, and Statman, 1995; Srivastava, et al., 1997) and are ready to pay more for shares of more reputable companies (Larsen, 2002). Brown (1998) and Jones et al. (2000) note that investors treat reputation as a reservoir of trust in the company and a form of collateral in the event of unpredictable events that could adversely affect the company's profits and the price of its shares. The analyses carried out have shown that decreases in share prices and the market value of companies during economic downturns are significantly lower in the case of companies with a good reputation. Pfarrer et al. (2010) found in their research that both companies with a good reputation and well-known celebrities gain bigger market prizes for positive surprises and smaller market penalties for negative surprises than other companies.

Reputation also affects the level of satisfaction and loyalty, especially of individual shareholders towards the company, and becomes an important criterion for their investment decisions (Helm, 2007; Pfarrer, et al., 2010). In recent years, reputation — and especially the aspects of corporate social responsibility — are gaining more and more recognition in the eyes of various stakeholder groups, including investors. This applies to both individual and institutional investors (including investment funds), who begin to see the benefits of investing in the activities of enterprises that respect ethical standards and the rules of social coexistence. These benefits can be felt by both society and the company in the form of better financial results (Neville, et al., 2005; Pradhan, 2016; Rodriguez-Fernandez, 2016).

3. Research methodology

Based on a community interview among stock market investors on the Polish capital market and by analyzing the expectations of investors which were presented by Lev (2013), three main aspects which are relevant from the viewpoint of capital market participants were taken into account for the needs of corporate reputation evaluation: informational, financial, and development aspects, as well as social ones.

The general structure of the proposed corporate reputation assessment model, consistent with the approach proposed above and with earlier studies by other authors (Nawrocki, and Szwajca, 2017), is shown in Figure 1.

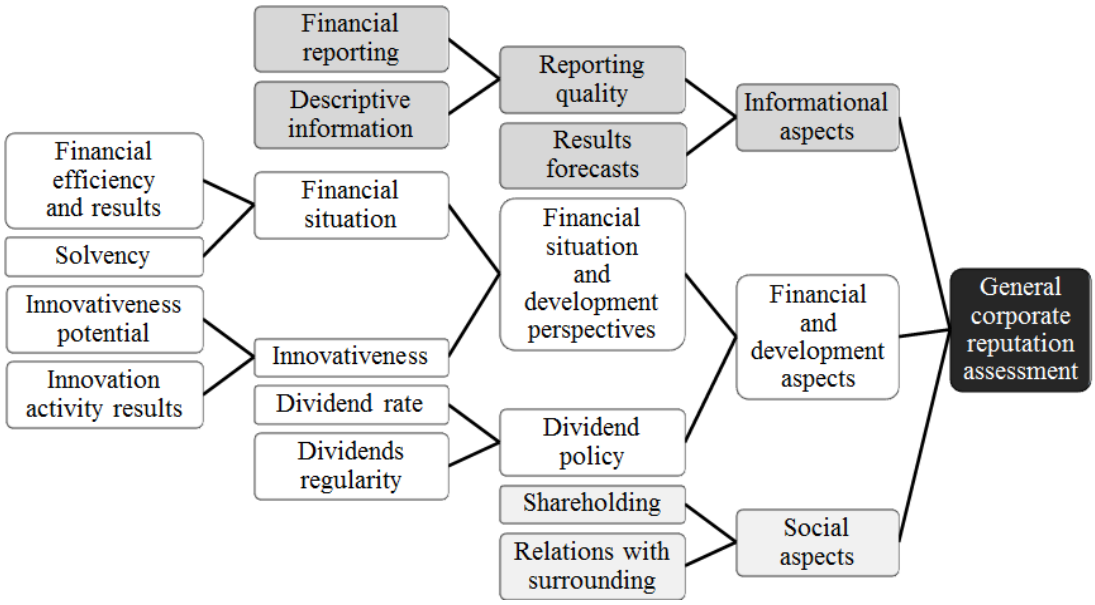

Figure 1. General structure of corporate reputation assessment model (stock market investors' view).

The calculation apparatus in the suggested solution is based on the fuzzy set theory (Zadeh, 1965; Piegat, 2001), which involved developing a fuzzy model. The Mamdani approach was used in its construction (Figure 2) (Mamdani, and Assilian, 1975). There were also some assumptions made regarding individual stages of the fuzzy model construction process (Nawrocki, and Szwajca, 2018):

- For all input variables of the model, the same dictionary of linguistic values was used, and their value space was divided into three fuzzy sets, named {low, medium, high}.
- For output variables of the model, in order to obtain more accurate intermediate assessments, the space of linguistic values was divided into five fuzzy sets, named {low, mid-low, medium, mid-high, high}.
- In the case of all membership functions to particular fuzzy sets, a triangular shape was decided for them.

- The values of the fuzzy sets' characteristic points (x_1, x_2, x_3) for the particular input variables of the model were determined partly based on the literature on companies' financial analysis and partly arbitrarily, based on the distribution of the values of analyzed variables and on the author's experience within the considered field.
- The fuzzification of input variables was carried out with the use of the simple linear interpolation method.
- Fuzzy reasoning in the particular knowledge bases of the model was conducted using the operators *PROD* (fuzzy implication) and *SUM*.
- For defuzzification of fuzzy reasoning results within particular rule bases, the simplified *Canter of Sums* method was used.

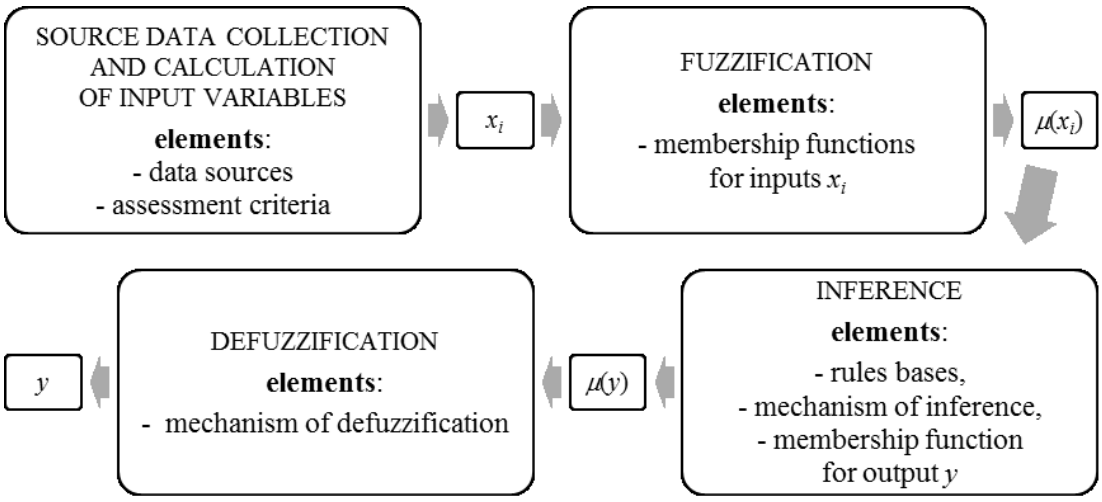

Figure 2. Construction process scheme of corporate potential innovativeness assessment fuzzy model. Source: own work based on Piegat A., *Fuzzy Modeling and Control*, Berlin Heidelberg 2001: Springer-Verlag.

Next, taking into consideration the general structure of the corporate potential innovativeness assessment model presented in Figure 1 and the author's experience in the issue being analyzed, nine rules bases were created in the form of "IF – THEN" statements (eight bases with nine rules and one base with twenty-seven rules); in this way, a "ready-to-use" form of fuzzy model was created. The intermediate and final assessments generated by the model take values in the range of 0-1, where from the viewpoint of the analyzed issue, values closer to 1 mean a very favorable result (better corporate reputation), while values closer to 0 indicate a less favorable result (worse corporate reputation).

It should also be noted that among many assumptions resulting from the characteristics of the applied methodology, one assumption taken into account refers to the long-term nature of corporate reputation: all of the assessment criteria used in the model were calculated or described over a 5-year period in order to consider a probable period of growth and economic downturn. Taking into account the timeframe of the research (2007-2018), seven readings of reputation are produced for the entities being studied.

With reference to the second variable in the dependency analysis — a market assessment of the studied entities — two basic price multipliers for the stock market were adopted: the price-to-book-value ratio (P/BV) and the price-to-earnings ratio (P/E). In order to preserve the comparability of both variables, the price multipliers used in the research were a median of monthly readings from 5 years (the arithmetic mean generated false results, due to the large spread of the readings).

The analysis of the relationship between the reputation of companies and their assessment by the capital market was performed based on Pearson's correlation coefficient (Pcc) and the coefficient of determination (R2) with a p-value test at the level of 0.05 to measure the significance of the results obtained.

4. Research results

The dependency analysis between corporate reputation and market assessment was conducted for eight banks listed on the Warsaw Stock Exchange with at least 11 years' history of public reporting and listing: BOŚ Bank – BOS, Bank Zachodni WBK – BZW, Citi Bank Handlowy – BHW, ING Bank Śląski – ING, mBANK – MBK, Bank Millennium – MIL, Bank PEKAO – PEO, and Bank PKOBP – PKO.

According to the adopted methodology, the basis for the corporate reputation assessment of the above-mentioned banks were data acquired from their annual reports published between 2008 and 2018. Therefore, for each of the banks reputation assessments were received for seven consecutive periods, ending in 2011, 2012, 2013, 2014, 2015, 2016, and 2017 (Nawrocki, and Szwajca, 2018).

On the other hand, data regarding the price multipliers P/BV and P/E for the banks under study were obtained from the website, www.stooq.com.

The relationship between corporate reputation and the market assessment of these banks was calculated separately for P/BV and P/E in two dimensions:

- individually for each bank, and
- generally, for all banks (the general homogeneity of the banks was assumed in terms of the banking industry).

In the first case, calculations were made based on seven pairs of variables; in the second one, they were based on 56 (eight bank companies times seven pairs of variables). In the area of reputation, the dependency analysis was performed for general reputation assessment as well as for its main components/aspects: informational, financial and development, and finally, social. The results are presented in Table 1. Significant results (with a p-value of ≤ 0.05) are distinguished by bold font.

Table 1.
Results of dependency analysis for the selected banks listed on the WSE

		P/BV				P/E			
		General Reputation Assessment	Informational Aspects	Financial and Development Aspects	Social Aspects	General Reputation Assessment	Informational Aspects	Financial and Development Aspects	Social Aspects
BOS	Pcc	**-0.969**	**0.770**	**0.771**	**-0.984**	-0.491	**0.937**	0.340	-0.590
	R^2	**0.938**	**0.592**	**0.595**	**0.968**	0.241	**0.879**	0.116	0.348
	p-value	**0.000**	**0.043**	**0.042**	**0.000**	0.263	**0.002**	0.456	0.163
BZW	Pcc	-0.564	-0.563	0.528	**-0.842**	**0.836**	**0.917**	-0.319	**0.816**
	R^2	0.318	0.317	0.279	**0.709**	**0.698**	**0.842**	0.101	**0.665**
	p-value	0.187	0.188	0.223	**0.017**	**0.019**	**0.004**	0.486	**0.025**
BHW	Pcc	0.678	**-0.904**	0.548	**0.914**	0.318	**-0.898**	0.166	0.635
	R^2	0.460	**0.816**	0.300	**0.835**	0.101	**0.806**	0.028	0.403
	p-value	0.094	**0.005**	0.203	**0.004**	0.487	**0.006**	0.722	0.126
ING	Pcc	0.553	-0.557	0.576	0.425	0.734	**-0.915**	**0.809**	**0.786**
	R^2	0.306	0.310	0.332	0.181	0.539	**0.837**	**0.654**	**0.618**
	p-value	0.198	0.194	0.176	0.342	0.060	**0.004**	**0.028**	**0.035**
MBK	Pcc	-0.412	0.433	-0.210	-0.562	-0.349	0.269	-0.178	-0.315
	R^2	0.170	0.188	0.044	0.316	0.122	0.072	0.032	0.099
	p-value	0.358	0.332	0.651	0.189	0.443	0.560	0.703	0.491
MIL	Pcc	0.133	0.261	0.176	-0.442	0.676	0.113	0.710	0.113
	R^2	0.018	0.068	0.031	0.195	0.457	0.013	0.504	0.013
	p-value	0.776	0.572	0.706	0.321	0.096	0.809	0.074	0.809
PEO	Pcc	-0.475	-0.467	-0.497	-0.341	0.600	-0.006	0.550	**0.793**
	R^2	0.225	0.218	0.247	0.116	0.359	0.000	0.302	**0.629**
	p-value	0.281	0.290	0.257	0.454	0.154	0.990	0.201	**0.033**
PKO	Pcc	**0.765**	**-0.914**	**0.934**	**-0.961**	-0.649	0.294	-0.559	0.530
	R^2	**0.585**	**0.835**	**0.872**	**0.923**	0.422	0.086	0.313	0.281
	p-value	**0.045**	**0.004**	**0.002**	**0.001**	0.115	0.522	0.192	0.221
All	Pcc	**0.532**	**0.267**	**0.545**	-0.082	**-0.442**	**-0.385**	**-0.493**	0.210
	R^2	**0.283**	**0.071**	**0.297**	0.007	**0.196**	**0.148**	**0.243**	0.044
	p-value	**0.000**	**0.047**	**0.000**	0.548	**0.001**	**0.003**	**0.000**	0.120

The results are characterized by a significant degree of ambiguity, including both the value of the correlation coefficient and the direction of the investigated dependence. Moreover, only slightly over 1/3 of them can be considered statistically significant at a p-value of 0.05 (due to the larger research sample, this mainly concerns the analysis of dependence for all analyzed banks, All).

In the case of the first — individual — dimension of the research, in the course of different variants of the variable pairs considered (reputation–market assessment), a very large range of values was obtained, including strong positive to strong negative correlations, which makes it impossible to draw valid conclusions.

In turn, in relation to the second — more general — dimension of the study (all banks as a relatively homogeneous sector) it may be only a partial (related to selected pairs of variables), moderate, and statistically significant correlation stated, but with a low coefficient of determination (R2) and different directions of correlation, depending on whether the multiplier P/BV (positive relationship) or P/E (negative relationship) will be accepted as a measure of the market assessment.

5. Conclusions and discussion

As mentioned at the beginning, the research should be considered preliminary, mainly due to the relatively short time series of data and the limitation to one sector. In addition, the proprietary method based on the fuzzy set theory was used to measure reputation, which makes it difficult to conclude based on the results obtained in relation to the results of research conducted by other authors in this field.

The results of this pilot study (mainly for individual banks) indicate that the correlation between the reputation of businesses and their assessment by the capital market is not as unambiguous as the theoretical premises indicate, or as research published by Fortune magazine suggests. It is not only about the value of correlation coefficients, but above all about their direction, which often indicated a negative relationship. What's more, this applies to both individual entities and their various dimensions of reputation. The findings confirm the opinions of such authors as Shefrin (2001), deBondt (1998), and Goldberg and von Nitzsch (2001), who state that a company's good reputation does not guarantee it good stock quotes and high future profits. In practice, it happens that companies with relatively low reputation ratios or those belonging to industries that are negatively perceived (e.g., oil companies, chemical corporations, or tobacco companies) can achieve better results on the capital market if they are considered financially attractive by investors (Helm, 2007). In addition, as noted by Blajer-Gołębiewska and Kozłowski (2016) in relation to companies listed on the WSE, in the short term it is difficult to observe strong positive relationships between their reputation and the level of risk or profitability.

In summary, it should be said that perhaps broader research, both in terms of subject (intersectoral) and time, would produce more reliable results and show clearer relationships and tendencies. Reputation is a very valuable, but specific resource that is built over many years, and its effects (especially positive ones) are revealed in the long run. This study, therefore, can be treated as a contribution and inspiration to undertake broader and more in-depth analyses in this thematic area.

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