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Introduction

One of the fastest growing areas in the economic sciences is broadly defined area of finance, with particular emphasis on the financial markets, financial institutions and risk management. Real world challenges stimulate the development of new theories and methods. A large part of the theoretical research concerns the analysis of the risk of not only economic entities, but also households.

The first Wrocław Conference in Finance WROFIN was held in Wrocław between 22nd and 24th of September 2015. The participants of the conference were the leading representatives of academia, practitioners at corporate finance, financial and insurance markets. The conference is a continuation of the two long-standing conferences: INVEST (Financial Investments and Insurance) and ZAFIN (Financial Management – Theory and Practice).

The Conference constitutes a vibrant forum for presenting scientific ideas and results of new research in the areas of investment theory, financial markets, banking, corporate finance, insurance and risk management. Much emphasis is put on practical issues within the fields of finance and insurance. The conference was organized by Finance Management Institute of the Wrocław University of Economics. Scientific Committee of the conference consisted of prof. Diarmuid Bradley, prof. dr hab. Jan Czekaj, prof. dr hab. Andrzej Gospodarowicz, prof. dr hab. Krzysztof Jajuga, prof. dr hab. Adam Kopiński, prof. dr. Hermann Locarek-Junge, prof. dr hab. Monika Marcinkowska, prof. dr hab. Paweł Miłobędzki, prof. dr hab. Jan Monkiewicz, prof. dr Lucjan T. Orłowski, prof. dr hab. Stanisław Owskiak, prof. dr hab. Wanda Ronka-Chmielowiec, prof. dr hab. Jerzy Różański, prof. dr hab. Andrzej Sławiński, dr hab. Tomasz Słoński, prof. Karsten Staehr, prof. dr hab. Jerzy Węclawski, prof. dr hab. Małgorzata Zaleska and prof. dr hab. Dariusz Zarzecki. The Committee on Financial Sciences of Polish Academy of Sciences held the patronage of content and the Rector of the University of Economics in Wrocław, Prof. Andrzej Gospodarowicz, held the honorary patronage.

The conference was attended by about 120 persons representing the academic, financial and insurance sector, including several people from abroad. During the conference 45 papers on finance and insurance, all in English, were presented. There were also 26 posters.

This publication contains 27 articles. They are listed in alphabetical order. The editors of the book on behalf of the authors and themselves express their deep gratitude to the reviewers of articles – Professors: Jacek Batóg, Joanna Bruzda, Katarzyna Byrka-Kita, Jerzy Dzieża, Teresa Famulska, Piotr Fiszeder, Jerzy Gajdka, Marek Gruszczyński, Magdalena Jerzemowska, Jarosław Kubiak, Tadeusz Kufel, Jacek Li-

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Wanda Ronka-Chmielowiec, Krzysztof Jajuga

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**THE IMPACT OF THE BRAND VALUE
ON PROFITABILITY RATIOS –
EXAMPLE OF SELECTED COMPANIES LISTED
ON THE WARSAW STOCK EXCHANGE**

**WPLYW WARTOŚCI MARKI NA WSKAŹNIKI
RENTOWNOŚCI PRZEDSIĘBIORSTWA
NA PRZYKŁADZIE WYBRANYCH SPÓŁEK
NOTOWANYCH NA GPW W WARSZAWIE**

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Abstract: In the case of performance measures based on accounting data, the common drawback is that they do not account adequately for periodical effects and related investments. This applies mainly to companies that base their business on intangibles. The vast majority of intangible assets is not disclosed in the company's balance sheet, which underestimates the real amount of investment during the period. This problem has been recognized by theorists and practitioners many years ago. This article refers to the issue of modification of the indicators measuring the company profitability, by inclusion in their calculation the financial information regarding company's brand value. The article presents an application of proposed methodology for calculation of profitability ratios for selected companies listed on the Warsaw Stock Exchange. It also examines a strength of relations between profitability ratios estimated and shareholder value creation measure – price/book value (P/BV) ratio.

Keywords: company performance, brand value, ROA, ROE, ROIC, price to book value, economic profit margin.

Streszczenie: W dzisiejszej gospodarce, istotnym wyzwaniem jest raportowanie na temat osiągniętych przez przedsiębiorstwo wyników. W przypadku pomiaru wyników przedsiębiorstwa na podstawie danych księgowych, problemem jest to, że nie odzwierciedlają one prawidłowo, zarówno okresowych efektów, jak i okresowych nakładów poniesionych na ich uzyskanie. Dotyczy to przede wszystkim przedsiębiorstw, które opierają swoją działalność na aktywach niematerialnych. Problem ten został dostrzeżony przez teoretyków i praktyków zarządzania już wiele lat temu, co spowodowało powstanie szeregu rozwiązań mających na celu modyfikację danych ze sprawozdań finansowych, w kierunku ich urealnienia do rzeczywistości ekonomicznej. Prezentowany artykuł odnosi się do kwestii modyfikacji wskaźników

mierzących rentowność przedsiębiorstwa, poprzez uwzględnienie w ich kalkulacji informacji dotyczących wartości marek. W artykule przedstawiono praktyczne zastosowanie proponowanej metodologii do obliczenia wskaźników rentowności dla wybranych spółek notowanych na GPW. W artykule porównano także siłę relacji pomiędzy wskaźnikami rentowności oszacowanymi przy wykorzystaniu standardowej i zmodyfikowanej metody a wskaźnikiem cena do wartości księgowej.

Słowa kluczowe: wyniki przedsiębiorstwa, wartość marki, ROA, ROE, ROIC, cena do wartości księgowej, marża zysku ekonomicznego.

1. Introduction

The concept of creating value for shareholders is now one of the fundamental paradigms in the discipline of finance. The amount of value created becomes the basic criterion for assessing the quality of management and lack of success in value creation, results in a migration of shareholders' capital to those companies, that do a better job in this area [Young, O'Byrne 2000]. A comprehensive evaluation of the real situation of the company both, from the inside (company perspective) and outside (shareholders' perspective), requires consideration of all factors that contribute to value creation [Choong 2013]. The increased complexity of contemporary business processes, caused mainly by growing importance of 'hidden' intangible assets as drivers of shareholder value, causes decline in corporate transparency and thus arises difficulties in assessment of their present situation, as well as prospects for the future.

The growing importance of intangible assets is reflected in a higher market valuation of companies which base their activities on intangibles, relative to the traditional businesses that utilize mainly tangible and financial assets. The average price to book value ratio of the S&P500 index rose from 1,4 at the beginning of 1980s to 7 at the peak of dotcom bubble and then fell to 2,7 during 2008/2009 financial crisis. The average P/BV ratio between 1957 and 2009 of 3,7 means that tangible and financial assets of the business accounts only for around 27% of market value [Lindemann 2010]. The remaining value is attributed to intangibles, like: brand names, patents, R&D, customer relations, human capital, etc., which are not disclosed on balance sheet.

The lack of information on intangible assets – causes a lot of inconvenience, both for financial theorists and business practitioners. The most important here are: biased view of the actual business situation, troubles in comparing performance between companies (especially for companies employing intangibles to the different degree) and consequently, suboptimal allocation of resources at the level of companies and capital markets.

As brand is the key driver of consumer choices, it is usually the most important and valuable intangible factor. Globally, brands account for one third of the total

wealth. One hundred world's most valuable brands in 2008 were worth a total of 1.2 trillion dollars. For many companies, the brand is the most valuable single asset – the contribution of the brand to the market value in the case of the Nike brand was 84% [Gerzema, Lebar 2009], while for example in the case of the Polish company Zywiec in 2010, it was 21% of market value. In such circumstances, the omission of brand value in the analysis of company's situation undermines its credibility and can lead to wrong managerial decisions.

The main objective of this article is to present possible approaches to include brand value in the calculation of profitability ratios in order to enhance the understanding of companies' situation. The article presents a comparison of traditional ratios and ones calculated with proposed methodology for companies from the apparel and shoe industry, listed on the Warsaw Stock Exchange. The method of profitability analysis presented in this paper, contributes to the development of the theory of corporate finance, as well as to business management practices. Application of submitted methodology to calculation of the profitability ratio, increases the credibility and transparency of the analysis, and can help both, managers and shareholders to make better business and investment decisions.

The article begins with deliberations on relevance of the brand as business asset and its contribution to value creation for company and shareholders. Next, the accounting debate on brand and other intangibles disclosure in financial statements is presented. This is followed by presentation of alternative approaches to estimate the economic value of brand for the purpose of profitability analysis, together with the discussion of the conditions of their practical application. In the next part, the proposed methodology is tested on the example of the apparel and shoe companies, listed on the Warsaw Stock Exchange and compared with traditional approach. In conclusion, managerial implications of the study and directions for future research are discussed.

2. Brands and value creation

Brands have been functioning in business for centuries, however their role and significance for company's success has evolved over time [Bastos, Levy 2012]. Nowadays, brands which are well established on the market are becoming strategic assets, which manifest their impact both, on customer and financial markets.

For many decades, marketing and finance were considered in research studies as separate fields, due to differences in the research subject and utilised data sets. Finance-based studies use data from capital markets and firm's financial statements, while marketing researchers utilize data from consumer markets. Financial analysts adopt the perspective of shareholders and examine the impact of the strategy and the activities of companies on the investors' expectations regarding future cash flows [Madden et al. 2006]. Marketing analysts use customer lenses and examine the impact of marketing strategies on customers' behaviour.

A breakthrough publication in this field turned out to be D. Aaker's book on brand equity, in which the author introduced the term brand equity as the sum of assets associated with the name and the symbol of the brand, which is a source of certain benefits for both parties of a transaction: companies (brand owners) and customers [Aaker 1991]. In a later period, a greater research pressure was put on the issues of the methods of brand valuation and, subsequently, its impact on shareholder value. Growing number of evidence including scientific publications, revealed links between brand and company financial performance (e.g.: [Kerin, Sethuraman 1998; Conchar et al. 2005; Mizik, Jacobsen 2005; Madden et. al. 2006]). Hence, financial specialists are becoming more attentive to the brand in their analysis.

This results, among others, in performing of brand valuations more frequently and for various purposes. Some of these valuations are obligatory, like in the case of goodwill allocation in an acquisition transactions or determination of assets value in the process of bankruptcy. Brands are valued also for the purposes connected with operational and strategic controlling. This is a consequence of the fact that brand risk assessment is becoming more frequently a key element in risk management of the company as the whole.

Schultz and Schultz [2003] explained how strongly the brand affects different sources of revenue for the company: an increase in the number of customers, an increase in the brand being used by the present customers, an increase in the loyalty of customers and a possibility of extension of the brand in use to new products. A theoretical model of the impact of market assets, including the brand, on shareholder value has been presented in the already classic article by R. Srivastava, T. Shervani and L. Fahley [1998].

The impact of the brand on the company's value can be analysed with a financial model which identifies the key determinants of value creation. This model in its basic form is represented by the following equation [Koller et al. 2005]:

$$value = \frac{NOPLAT_1 \times (1 - \frac{g}{ROIC})}{wacc - g},$$

where: $NOPLAT_1$ – net operating profit after tax, $wacc$ – weighted average cost capital, $ROIC$ – return at invested capital, g – operating profit growth rate.

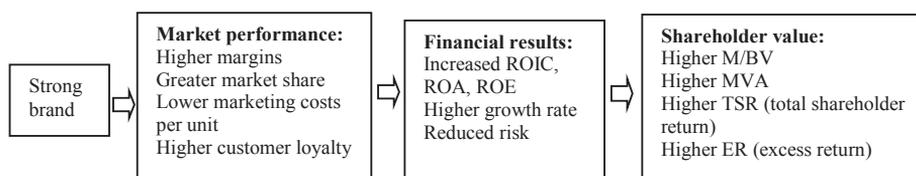


Figure 1. Brand – shareholder value link

Source: Author's own study.

The strong brand may influence all variables of the model, in consequence affecting the value of the company. A strong brand can influence firm's margins (higher NOPLAT and ROIC), sales level (higher NOPLAT and g) and volatility of company's profits (lower $wacc$). The cause-and-effect link between a strong brand and shareholder value can be summarized using the following scheme (Figure 1).

3. Brand accounting

The debate about brand valuation and its recognition on balance sheet has started among financial analytics and members of accounting standards committees in the beginning of the 80s in Great Britain. Since that time, a number of British firms listed on the London Stock Exchange, conducted brand valuation to record this value as intangible assets on their balance sheets [Murphy 1990]. The main idea behind this trend was a desire by companies to improve the strength of their balance sheets, in order to protect themselves from hostile takeovers, as well as to increase their „buying power” before planned acquisitions. It is worth to mention, that at that time equity analysts and markets were generally undervaluing companies with strong brands.

Accounting standards committees for long time were against recognition of intangible assets including brands on the balance sheet. Instead, in case of acquisition, they required companies to write-off goodwill during a given number of years. Thus, companies which paid premium above the book value for acquired businesses, ended up with reduced equity, as a result of goodwill write-offs. This was at odds with business reality, because at least some components of the goodwill (like brands) maintain, and even increase, their value over time. Finally, in the late 90s the accounting bodies started to adjust to the new business reality.

In 1997 UK Standards Board issued FRS 10 and 11 and in 1998 International Accounting Board issued IAS 38 regarding treatment of acquired goodwill on balance sheet [Lindemann 2010]. IAS 38 indicates that „an intangible asset shall be recognized if and only if: it is probable that the expected future economic benefits that are attributable to the asset will flow to the entity, and the cost of the asset can be measured reliably” [Salinas 2009]. The recognition of intangible assets happens through purchase price allocation of all acquired assets, in proportion to their fair value.

In 2007, the International Valuation Standards Committee published a document that can serve as interpretation and a detailed guide to the methods for valuation of intangible assets for reporting allocation connected with goodwill [IVSC 2007]. According to this document, there are several different methods available for determining fair value of intangible assets, each belonging to one of the three following fundamental approaches:

- sales comparison approach,
- income capitalization approach,
- cost approach.

Standards introduced by accounting regulators do not solve all the problems associated with the disclosure of brand value on the balance sheet of the company. In practice, they are helpful only in very few cases, which relate to brands acquired individually or as a result of acquisition of the whole business. Meanwhile, the vast majority of intangible assets, primarily brands, are generated internally. As such, they fall into the category of nonrecognizable intangible assets and remain in the so-called shadow financial reporting.

Accounting standards introduced for dealing with acquired goodwill are a half-way solution. According to them, internally generated brands cannot be presented in the balance sheet as separate intangible assets, although undoubtedly they do constitute intangible assets from the economic point of view – they represent a source of future economic benefits and are controlled by the firm. The result of this solution is that comparable brands (in terms of their potential to generate value), depending on how they were obtained, may or may not be recognized on the balance sheet. Therefore, for example Burger King brand appears on the balance sheet of Burger King Holdings since it was acquired, while internally generated McDonald's brand, does not [Lindemann 2010].

As a consequence, a problem of the comparability between companies, based on the accounting data analysis, as well as the reliability of financial statements themselves as a source of knowledge on the company assets' base, arises. A possible solution to this problem is to determine the value of internally generated brands and use this information for transformation of the balance sheet from accounting to economic perspective, in order to better reflect business reality.

4. Brand on economic balance sheet

Valuation of the brand and its disclosure in the company's pro forma balance sheet, can be performed in different ways. The choice of the solution depends on the purposes of conducted analysis. Generally, a brand can be revealed at either: historical cost, fair value, current use value. In each case the first step to brand disclosure is its valuation.

In the case of the historical cost valuation method, the brand can be "activated" by capitalization of past expenditures on its creation. The advantage of this approach is the recognition of the brand in the same way as other balance sheet assets, according to their incurred costs less depreciation. This approach, similar to the capitalization of R&D expenditures in EVA calculation, in practice is difficult to implement, due to its two major disadvantages.

The first is related to the lack of information on expenditures incurred for brand building. Such data is usually difficult to obtain, because accounting systems typically do not collect information in this manner. The problem here is also the identification of all costs, which are associated with brand building. These costs include, not only advertising and promotion, but also wages of people working in the

marketing department, part of the remuneration of the management board etc. Even assuming that all required information is available, question arises about a number of years for which the expenditures should be counted for and what rate of amortization is to be applied.

The amortization rate should be different for various brands, because the possible loss of brand value, depends on its specific characteristics. On the other hand, lack of amortization of the capitalized expenditures, would cause overvaluation of brands which are present on the market for a long time, in comparison with the younger brands.

The second disadvantage of cost approach is the low correlation between the actual market value of the brand and expenditures incurred in the past for its promotion. Brand value depends on its ability to generate benefits in the future, not costs connected with its promotion. This is due to different efficiency of different promotional investments. Many heavily promoted brands did not survive on the market and thus their value is negligible, whereas for example, the most valuable brand in the world – Apple – is known for being moderately promoted. These drawbacks in practice eliminates the cost approach as appropriate to determine the economic value of the brand.

The fair brand value can be calculated using two other general approaches, accepted by the IAS 38 standard, for goodwill allocation: sales comparison approach or income capitalization approach. In practice, the first approach (although preferred by IAS 38) is again inapplicable in the case of the brand. The reason for this is lack of comparable transactions, which could be used as a reference point in the valuation process. For this reason, the fair value of the brand is most commonly estimated using different methods within the income capitalization approach, usually: analytical or relief from royalty.

Income methods calculate brand value as the present value of future cash flows attributable to the brand. This value can be included in the extended economic pro-forma balance sheet, when its aim is to present the fair value of all the company's assets, that contribute to value creation. The role of such extended balance sheet can be seen as the closer of the gap between the market value and book value of the company.

If the expanded pro-forma company's balance sheet is prepared for the purposes of determining the results achieved in a given period (year), brand value should be included in its current value 'in use'. This is due to the fact, that calculating the efficiency of actions in a given period, requires comparing of achieved results with utilized resources. Therefore, the brand should be reflected in the balance sheet at its value in use (the amount of brand 'utilized' in the current period), and not in its total 'income' value which comprises future benefits associated with it. Hence, the total brand value can be conceptualized as a sum of its value in use and growth value. In the current period, the company is obliged to achieve the required return on the value it uses, but not the future – i.e. growth – value.

Figure 2 presents the concept of the extended balance sheet from two perspectives: invested assets during the period and fundamental value of the assets.

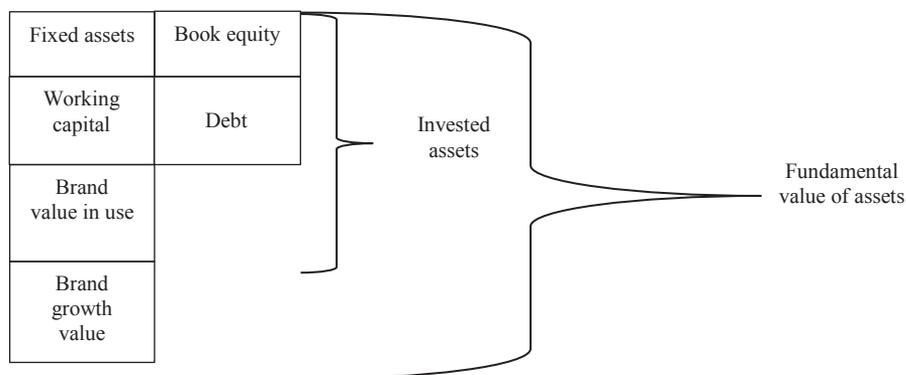


Figure 2. Extended balance sheet

Source: Author's own study.

The problem of how to determine the value of the brand in use arises. This variable is not directly observable. However, if brand income capitalization value is known, value in use can be calculated based on the assumptions about the growth rate of income related to the brand, the cost of capital for the brand (at *wacc*) and expected return on the brand. This can be done by adaptation of the basic company valuation model, to brand valuation. Thus, after replacement of the company value with the brand value and of the invested capital with the brand value in use, brand value can be calculated from the following equation:

$$BV_T = BV_0 + \frac{BV_0 \times EBR}{wacc - g},$$

where: BV_T – total brand value, BV_0 – brand value „in use”, EBR – excess brand return, $wacc$ – weighted average cost of capital, g – growth rate of brand income.

After solving for the brand value „in use”, we obtain¹:

$$BV_0 = \frac{BV_T}{\left(1 + \frac{EBR}{wacc - g}\right)}$$

¹ Since a growing perpetuity formula is applied in the above formula, it is important to note that proposed method can be used only if the cost of capital (*wacc*) is higher than the growth rate (*g*).

The new concept introduced in the proposed methodology is excess brand return (EBR). EBR is the return on brand above the weighted average cost of capital. EBR is a function of brand market strength. Stronger brand can easier attract the new customers and retain the current ones. As a result, a strong brand should generate additional cash flows and contribute to excess returns. EBR can be calculated based on the brand strength index.

In this study, we use the index from annual ranking of the most valuable polish brands, published since 2004 by Rzeczypospolita daily². According to this ranking, the brand strength index can take a value between 0 (for brand without any marketing appeal) and 100 points (for an ideal brand). Therefore, a brand of an average strength is rated at 50 points. If we assume that the average brand is generating the return equal to wacc, then the excess return for a brand can be calculated using the equation:

$$EBR = wacc \times \frac{BS}{50} - wacc,$$

where: *EBR* – excess return on brand, *wacc* – weighted average cost of capital for company, *BS* – brand strength in points.

Table 1 presents the calculation of excess return on brand for each company analysed in this study. The calculations were conducted based on the average data on brand strength for the period 2010-2013. For companies that posses more than one brand, a resulting brand strength index is an arithmetical average of the individual brands strength³.

Table 1. Excess return on brand for companies

Company	Average Brand Strength Index 2010-2013	Wacc	Expected return on brand	Excess return on brand
LPP	59	9.03%	10.7%	1.64%
Redan	53	10.14%	10.7%	0.61%
Solar	53	9.03%	9.6%	0.54%
Bytom	57	9.10%	10.4%	1.32%
Vistula	60	10.05%	12.0%	1.91%
Wojas	59	9.43%	11.1%	1.65%
Gino Rossi	60	10.27%	12.3%	2.05%
CCC	65	9.52%	12.4%	2.83%

Source: Author's own study.

² Brand strength index is estimated based on the results of the market research, as the sum of nine partial indicators that describe the market position of the brand. They include: awareness, top of mind, preference, loyalty, perceived quality, reference rate, prestige, perceived value, industry affiliation.

³ Weighted average cost of capital is set at fixed level from year 2012, for the whole period of analysis.

After estimation of the brand in use, it is possible to calculate the modified profitability ratios of the company. In the approach presented here, we propose a modification of the profitability ratios – ROA, ROE and ROIC, by inclusion in their denominators, the value of the brand in use. The logic behind the proposed modification is that brand, as an economic asset of the company, is generating identifiable benefits which are reflected in numerators of this ratios. Omission of the value of certain class of assets which generate this benefits in the denominator, causes overestimation of these ratios.

Return on the employed assets with the brand value included is calculated using the following equation:

$$BROA = \frac{NP}{TA + BV_0},$$

where: NP – net profit, TA – total assets, BV_0 – brand value in use.

The return on the employed equity with brand value included is calculated using the following equation:

$$BROE = \frac{NP}{BVE + BV_0},$$

where: NP – net profit, BVE – book value of equity, BV_0 – brand value in use.

Return on the invested capital with brand value included is calculated using the following equation:

$$BROIC = \frac{NOPLAT}{FA + WC + BV_0},$$

where: $NOPLAT$ – net operating profit after tax, FA – fixed assets, WC – working capital, BV_0 – brand value in use.

Economic profit margin (BEPM) with the brand value included is calculated using the following equation:

$$BEPM = BROIC - WACC.$$

where: $WACC$ – weighted average cost of capital.

5. The empirical study

5.1. Research design and hypotheses

As it has been stated, the purpose of this paper is to present a new methodology for calculation of the profitability ratios with inclusion of brand value and its verification

as a better proxy for shareholders' value creation than is the case of the standard ratios. Based on conducted studies, two hypotheses were put forward:

H1: The inclusion of brand value into the profitability ratios, in addition to the changes in their absolute level, can influence relative assessment of the results achieved by companies.

H2: Modified profitability ratios are more strongly correlated with shareholder value creation measure P/BV, than the standard ratios.

The analysis presented here can be divided into two stages. In the first phase, a comparison between the profitability ratios calculated with standard and proposed methodology for selected companies is conducted for verification of hypothesis 1. Calculations are performed using time-series data for each company and then aggregated to averages for the period 2010-2013. Subsequently, in order to verify hypothesis 2, a correlation analysis is carried out to check relationships between, standard and modified ratios, and value creation measure – Price/Book value (P/BV), respectively. Correlation analysis is conducted based on the time-series data.

5.2. Dataset

Empirical study is conducted based on the data from 2010 to 2013, on the set of eight companies from apparel and shoe industry, listed on the Warsaw Stock Exchange. The choice of industry is dictated by the fact of extensive utilization of brands by companies from this industry. Companies are selected for research, based on availability of data on brand value and brand strength index, published by Rzeczpospolita daily, in relation to the annual ranking of the most valuable Polish brands. Finally, eight companies and 13 brands are selected for the analysis – Table 2 presents brand strength index and brand value for each brand in an analysed period.

Financial data for the analysis is derived from EMIS database, except for data on the weighted average cost of capital, which is taken from A. Damodaran web page⁴.

⁴ Data on weighted average cost of capital for analyzed Polish companies for the year 2012 is taken from: www.pages.stern.nyu.edu/; downloaded in 2013.

Table 2. Brand strength index and brand value

Company	Brands	2010		2011		2012		2013	
		Brand strength index	Brand value in mil. PLN	Brand strength index	Brand value in mil. PLN	Brand strength index	Brand value in mil. PLN	Brand strength index	Brand value in mil. PLN
LPP	House	55	134.4	57	106.8	57	140.2	57	167.0
	Cropp	54	125.5	55	137.1	58	168.6	56	218.1
	Reserved	60	396.5	66	466.3	66	589.3	68	773.4
Redan	Top Secret	54	41.4	56	50.3	56	66.6	56	63.1
	Troll	48	17.6	50	15.5	51	18.4	53	12.2
Solar	Solar	52	39.1	54	49.7	56	50.5	50	38.1
Bytom	Bytom	56	29.4	60	16.8	56	13.7	57	21.4
Vistula	Vistula	54	50.8	59	40.2	58	38.8	58	42.8
	Wólczanka	58	22.2	64	17.6	62	16.8	63	20.0
Wojas	Wojas	56	20.2	60	30.7	61	37.8	58	42.7
Gino Rossi	Gino Rossi	61	43.6	60	35.8	59	36.7	60	47.7
CCC	Lasocki	59	85.5	60	80.2	63	89.9	63	112.5
	CCC	67	39.8	68	38.2	68	47.4	71	57.7

Source: [Anklewicz 2011; Anklewicz 2013]

5.3. Results and discussion

Table 3 presents standard and modified financial ratios calculated for the analysed companies.

Table 3. Standard and modified with brand value profitability ratios

Year	Company	ROA	ROE	ROIC	EP margin	ROA brand	ROE brand	ROIC brand	EP margin brand
1	2	3	4	5	6	7	8	9	10
2010	LPP	9.63%	18.72%	15.88%	6.85%	7.07%	10.99%	10.53%	1.50%
2010	CCC	17.38%	27.87%	19.81%	10.29%	14.86%	21.91%	16.26%	6.74%
2010	REDAN	0.26%	0.55%	3.79%	-6.26%	0.24%	0.46%	3.40%	-6.65%
2010	VISTULA	3.55%	7.46%	9.21%	-0.93%	2.62%	4.26%	5.64%	-4.50%
2010	GINO ROSSI	4.42%	9.97%	12.55%	2.28%	3.54%	6.39%	9.03%	-1.24%
2010	WOJAS	29.07%	50.93%	36.76%	27.73%	21.99%	32.57%	26.54%	17.51%
2010	SOLAR	3.87%	10.24%	6.94%	-2.49%	3.41%	7.56%	5.65%	-3.78%

Table 3, cont.

1	2	3	4	5	6	7	8	9	10
2010	BYTOM	-65.33%	-696.62%	-176.04%	-185.14%	-43.02%	-106.73%	-64.13%	-73.23%
2011	LPP	16.68%	29.60%	27.83%	18.80%	12.39%	18.34%	17.85%	8.82%
2011	CCC	12.71%	24.80%	18.31%	8.79%	11.41%	20.28%	15.83%	6.31%
2011	REDAN	0.00%	0.00%	4.19%	-5.86%	0.00%	0.00%	3.83%	-6.22%
2011	VISTULA	1.66%	4.14%	7.45%	-2.69%	1.26%	2.32%	4.64%	-5.50%
2011	GINO ROSSI	-6.14%	-16.88%	-1.36%	-11.63%	-5.13%	-10.97%	-0.99%	-11.26%
2011	WOJAS	32.52%	35.86%	36.25%	27.22%	25.34%	27.33%	27.69%	18.66%
2011	SOLAR	3.36%	10.20%	11.46%	2.03%	2.85%	6.64%	8.52%	-0.91%
2011	BYTOM	2.65%	5.47%	-13.44%	-22.54%	2.11%	3.57%	-9.08%	-18.18%
2012	LPP	18.32%	29.23%	26.78%	17.75%	13.42%	18.46%	17.69%	8.66%
2012	CCC	10.87%	20.11%	17.39%	7.87%	9.65%	16.30%	14.64%	5.12%
2012	REDAN	1.92%	3.68%	4.53%	-5.52%	1.79%	3.26%	4.17%	-5.88%
2012	VISTULA	-13.36%	-57.08%	-38.99%	-49.13%	-9.63%	-21.48%	-16.69%	-26.83%
2012	GINO ROSSI	2.63%	6.25%	5.82%	-4.45%	2.23%	4.39%	4.40%	-5.87%
2012	WOJAS	2.02%	6.03%	6.85%	-2.18%	1.63%	3.50%	5.23%	-3.80%
2012	SOLAR	9.96%	10.66%	10.37%	0.94%	7.88%	8.31%	8.13%	-1.30%
2012	BYTOM	-10.59%	-25.77%	-20.93%	-30.03%	-8.67%	-16.73%	-14.19%	-23.29%
2013	LPP	17.37%	28.92%	28.78%	19.75%	12.72%	17.98%	18.87%	9.84%
2013	CCC	11.18%	21.16%	17.16%	7.64%	10.11%	17.62%	14.92%	5.40%
2013	REDAN	1.65%	6.45%	4.68%	-5.37%	1.28%	3.02%	2.74%	-7.31%
2013	VISTULA	7.20%	10.99%	5.09%	-5.05%	6.59%	9.63%	4.60%	-5.54%
2013	GINO ROSSI	1.09%	2.92%	5.92%	-4.35%	0.91%	1.90%	4.47%	-5.80%
2013	WOJAS	7.29%	15.67%	7.49%	-1.54%	5.64%	9.63%	5.50%	-3.53%
2013	SOLAR	2.04%	2.18%	2.08%	-7.35%	1.69%	1.78%	1.72%	-7.71%
2013	BYTOM	2.05%	4.79%	4.58%	-4.52%	1.51%	2.60%	2.58%	-6.52%

Source: Author's own study.

Table 4 presents averages of profitability ratios and economic value margin, standard and modified, for the analysed companies, for the period 2010-2013 and their ranking, according to achieved results in respect to a given ratio.

As it is evident from Table 4, the inclusion of brand value into calculation of profitability ratios and economic profits, worsens the results of analysed companies, unless they generate a negative income⁵. This observation is obvious, since brand value increases the denominator of the ratio, while numerator remains on the same level. What is worth noting, is the change in relative position of companies in reference to various ratios, although these changes are rather minor. In case of return on assets

⁵ For companies with negative operating or net income, inclusion of the brand value into profitability ratios improves results, because a given level of loss is related to higher base.

Table 4. Average standard and modified profitability ratios

Variable	COMPANY NAME							
	LPP	CCC	REDAN	VISTULA	GINO ROSSI	WOJAS	SOLAR	BYTOM
ROA	15.50%	13.00%	1.00%	-0.20%	0.50%	17.70%	4.80%	-17.80%
Rank ROA	2	3	5	7	6	1	4	8
Brand ROA	11.40%	11.51%	0.83%	0.21%	0.39%	13.65%	3.96%	-12.02%
Rank brand ROA	3	2	5	7	6	1	4	8
ROE	26.60%	23.50%	2.70%	-8.60%	0.60%	27.10%	8.30%	-178.00%
Rank ROE	2	3	5	7	6	1	4	8
Brand ROE	16.45%	19.03%	1.69%	-1.32%	0.43%	18.26%	6.07%	-29.32%
Rank brand ROE	3	1	5	7	6	2	4	8
ROIC	24.80%	18.20%	4.30%	-4.30%	5.70%	21.80%	7.70%	-51.50%
Rank ROIC	1	3	6	7	5	2	4	8
Brand ROIC	16.23%	15.41%	3.54%	-0.45%	4.23%	16.24%	6.01%	-21.20%
Rank brand ROIC	2	3	6	7	5	1	4	8
EP	15.80%	8.60%	-5.80%	-14.40%	-4.50%	12.80%	-1.70%	-60.60%
Rank EP	1	3	6	7	5	2	4	8
Brand EP	7.20%	5.89%	-6.51%	-10.59%	-6.04%	7.21%	-3.42%	-30.30%
Rank brand EP	2	3	5	7	6	1	4	8

Source: Author's own study.

ratio, inclusion of the brand value causes a swap of companies ranked at positions 2 and 3. For the return on equity ratio, its modification results in shift of the CCC company from the third to first place in rank, while for return on invested capital (as well as for economic profit margin) – Wojas company replaces LPP as a leader in the category. These results confirm, that proposed modification may influence relative assesment of achieved results by companies, therefore supporting hypothesis 1.

Table 5 presents correlation coefficients between the standard and modified profitability ratios and economic profit, and shareholder value indicator – price book value coefficient.

As shown in Table 5, ROE and ROIC modified profitability ratios, as well as the EP margin are more strongly correlated with the P/BV coefficient than the standard ratios. In case of ROA ratio the correlation is on a simmilar level. However, the

Table 5. Pearson correlation coefficient between P/BV and standard and modified profitability ratios

Type of ratio	ROA	ROE	ROIC	EP margin
Standard	0.72	0.60	0.63	0.64
With brand	0.71	0.66	0.67	0.69

Source: Author's own study

differences between the correlation coefficients are not statistically significant. This observation indicates, that modified with brand value ratios, are not better indicators of shareholder value creation in respect to P/BV coefficient, than the standard ratios. This finding fails to support hypothesis 2.

6. Conclusion

The aim of this article was to present a proprietary methodology for estimation of profitability ratios, with brand value inclusion as a part of company's economic assets. The main theme behind this proposal is the notion, that standard profitability ratios can be misleading for evaluation of company's performance, especially for the companies which built their value on the off-balance sheet intangible assets.

Inclusion of brand value in ratios calculation is associated with several challenges. One of them is the determination of brand value „in use”, which is unobservable even for brands for which income capitalization value is known. The approach presented in this paper addresses several theoretical, as well as technical issues connected with the calculation of the modified profitability ratios. Conducted analysis indicates that proposed modification of profitability ratios can make a difference, in relative evaluation of the company's present performance. However, modified ratios seem not to be better indicators of shareholder value than the standard ratios.

Findings of this study are far from conclusive, due to its several limitations. These are small number of companies included in the analysis, only one industry covered and short time horizon. Submitted proposals should be treated as Author's contribution to the discussion on the evolution of company performance in the age of new economy, when majority of value creation factors are not recordable on corporate balance sheets. Future research on the subject ought to include higher number of companies and cover a longer period of time.

References

- Aaker D., 1991, *Managing Brand Equity*, The Free Press, New York.
 Anklewicz M., 2011, *The Rank of the Most Valuable Polish Brands*, Rzeczpospolita Daily, 7 December, pp. 11-17.

- Anklewicz M., 2013, *The Rank of the Most Valuable Polish Brands*, Rzeczypospolita Daily, 4 December, pp. 11-17.
- Bastos W., Levy J., 2012, *A History of the Concept of Branding: Practice and Theory*, Journal of Historical Research in Marketing, vol. 4, No. 3, pp. 347-368.
- Choong K., 2013, *Understanding the Features of Performance Measurement System: a Literature Review*, Measuring Business Excellence, Vol. 17, No. 4, pp. 102-121.
- Conchar M., Crask M., Zinkhan G., 2005, *Market Valuation Models of the Effect of Advertising and Promotional Spending: A Review and Meta-Analysis*, Journal of the Academy of Marketing Science, vol.33, No.4, pp. 445-460.
- Gerzema J., Lebar E., 2009, *The danger of a 'brand bubble'*, Market Leader, Quarter 4, pp. 11-16.
- International Valuation Standards Committee, 2007, *Determination of Fair Value of Intangible Assets for IFRS Reporting Purposes*, discussion paper, www.ivsc.org_(10.03.2015).
- Kerin R., Sethuraman R., 1998, *Exploring the Brand Value – Shareholder Value Nexus for Consumer Goods Companies*, Journal of the Academy of Marketing Science, vol. 26, No. 4, pp. 260-273.
- Koller T., Goddard M., Wessels D., 2005, *Valuation: Measuring and Managing the Value of Companies*, Wiley, Hoboken.
- Lindemann J., 2010, *The Economy of Brands*, Palgrave MacMillan, New York.
- Madden, T., Fehle F., Fournier S., 2006, *Brands Matter: An Empirical Demonstration of the Creation of Shareholder Value Through Branding*, Journal of the Academy of Marketing Science, vol. 34, pp. 224-235.
- Mizik N., Jacobsen R., 2005, *Talk About Brand Strategy*, Harvard Review Business, September, pp. 24-25.
- Murphy J., 1990, *Brand Strategy*, Prentice Hall, New York.
- Salinas G., 2009, *The International Brand Valuation Manual*, Wiley, Chichester.
- Shultz D., Schultz H., 2003, *IMC The Next Generation – Five Steps for Delivering Value and Measuring Returns Using Marketing Communication*, McGraw Hill, Boston.
- Srivastava R., Shervani T., Fahey L., 1998, *Market Based Assets and Shareholder Value: A Framework for Analysis*, Journal of Marketing, January, pp. 2-18.
- Young D., O'Byrne S., 2000, *EVA and Value-based Management*, McGraw-Hill, New York.