PRACE NAUKOWE
Uniwersytetu Ekonomicznego we Wrocławiu

RESEARCH PAPERS
of Wrocław University of Economics

Nr 441

Global Challenges of Management Control and Reporting

Publishing House of Wrocław University of Economics
Wrocław 2016

Copy-editing: Marcin Orszulak
Layout: Barbara Łopusiewicz
Proof-reading: Barbara Cibis
Typesetting: Agata Wiszniowska
Cover design: Beata Dębska

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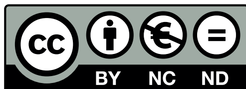

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Wrocław 2016

ISSN 1899-3192
e-ISSN 2392-0041

ISBN 978-83-7695-596-4

The original version: printed

Publications may be ordered in Publishing House:
Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu
ul. Komandorska 118/120, 53-345 Wrocław
tel./fax 71 36-80-602; e-mail: econbook@ue.wroc.pl
www.ksiegarnia.ue.wroc.pl

Printing: TOTEM

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Introduction

Contemporary management control and reporting both face challenges. Consequently, a new and more sophisticated scientific approach is needed. From one point of view, interdisciplinary studies and theories are necessary. From another point of view, empirical research and practical issues call for a more specific and specialized approach. This complexity is reflected by the content of this book, which covers topics that emerge from present world's complexity. Therefore, the authors focus on ever-important issues (such as the strategic approach and its support by management control and reporting, survival of companies), and more modern issues (e.g. cultural aspects, measurement and reporting adjusted to branches, spheres and organizations and specific issues of management control and reporting).

The strategic approach to managerial control and financial statements and their role for company's survival is presented in papers by J. Dyczkowska (who addresses the question whether annual reports communicate strategic issues and focuses her study on reporting practices of high-tech companies), A. Bieńkowska, Z. Kral, A. Zabłocka-Kluczka (who explain the role of responsibility centers in strategic controlling), P. Kroflin (who explores the value-based management and management reporting examining impacts of value reporting on investment decisions and company value perception) and A. Reizinger-Ducsai (who discusses bankruptcy prediction and financial statements). The problems of management control and reporting and their adjustment to specific conditions and organizations are undertaken by T. Dyczkowski (who introduces his NGO performance model), Z. Kes and K. Nowosielski (who present the case study of the process of cost assignment in a local railway company providing passenger transportation services), S. Łęgowik-Świącik, M. Stępień, S. Kowalska and M. Łęgowik-Małolepsza (who analyse the efficiency of the heat market enterprise management process in terms of the concept of the cost of capital), and M. Pietrzak and P. Pietrzak (who discuss the problem of performance measurement in the public higher education). The cultural aspect of managerial control and reporting is explored in papers written by M. Nowak (who presents cultural determinants of accounting, performance management and costs problems showing the issue from Polish perspective using G. Hofstede and GLOBE cultural dimensions) and P. Bednarek, R. Brühl and M. Hanzlick (who provide a literature overview of planning and cross-cultural research). The specific problems and concepts of managerial control and reporting are investigated by M. Ciołek (who discusses the lean thinking and overhead costs), E. Nowak (who analyses the role of costs control role in controlling company operation), Ü. Pärl, R. Koyte,

S. Näsi (who examine middle managers' mediating role in MCS implementation), R.L. Sichel (who discusses the relevance of intellectual property for management control), J. Paranko and P. Huhtala (who analyse the productivity measurement at the factory level).

Marta Nowak

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RESEARCH PAPERS OF WROCŁAW UNIVERSITY OF ECONOMICS nr 441 • 2016

Global Challenges of Management Control and Reporting ISSN 1899-3192
e-ISSN 2392-0041

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VALUE-BASED MANAGEMENT AND VALUE REPORTING. IMPACT OF VALUE REPORTING ON INVESTMENT DECISIONS AND COMPANY VALUE PERCEPTION

ZARZĄDZANIE WARTOŚCIĄ A RAPORTOWANIE WARTOŚCI. WPŁYW RAPORTOWANIA WARTOŚCI NA DECYZJE INWESTYCYJNE I POSTRZEGANIE WARTOŚCI PRZEDSIĘBIORSTWA

DOI: 10.15611/pn.2016.441.07
JEL Classification: G11, G14, G31, G32

Summary: To sustainably tie shareholders to a company, the information asymmetry between managers and capital providers must be reduced. Value reporting becomes a value driver by itself. The objective of this paper is to verify this assumption and to extend the value reporting research to non-US investors' behavior. Therefore, this paper analyses the effects of value-based management systems in Germany, known for its bank- and insider-oriented governance system, its weak shareholder protection and accounting conservativism. The novelty of the present research consists also in the used methodology. It is an empirical analysis of potential shareholders' attention during financial statement analysis on the basis of eye movement observation, also known as eye tracking. The results of the present research question prior findings. Value reporting sections were not given special attention and were not referred to in the overall evaluation of a company's attractiveness by the test persons.

Keywords: shareholder value, value based management, value reporting, investor relations, Germany.

Streszczenie: Trwałe przywiązanie akcjonariuszy do przedsiębiorstwa wymaga zmniejszenia asymetrii informacyjnej między menedżerami a dawcami kapitału. Raportowanie wartości samo w sobie staje się zatem czynnikiem wzrostu wartości. Celem artykułu jest weryfikacja tej tezy oraz poszerzenie badań na temat raportowania wartości o weryfikację zachowań inwestorów spoza USA. Opracowanie analizuje zatem skutki zarządzania wartością w Niemczech, znanych ze swojego systemu zarządzania zorientowanego na potrzeby banków oraz interesariuszy wewnętrznych, ze słabej ochrony interesariuszy oraz z konserwatyzmu w rachunkowości. Nowatorski charakter niniejszego badania odnosi się także do zastosowanej metody badawczej. Jest nią empiryczne badanie uwagi potencjalnych inwestorów, podczas

gdy analizują oni sprawozdania finansowe, z wykorzystaniem obserwacji ruchu oczu zwanej śledzeniem wzroku. Wyniki przeprowadzonego badania stawiają w wątpliwość wcześniejsze wnioski. Sekcje raportów związane z wartością nie skupiły na sobie szczególnej uwagi uczestników testu i nie okazały się być powiązane z ogólną oceną atrakcyjności przedsiębiorstwa.

Słowa kluczowe: wartość dla akcjonariuszy, zarządzanie wartością, relacje inwestorskie, Niemcy.

1. Introduction

Today, the shareholder value concept is discussed from different perspectives. On the one hand, the shareholder value orientation with its strict orientation at investors' wealth seems to be a recent and widely accepted management philosophy. On the other hand, the lack of stakeholder orientation and sustainability focus gives room for criticism.

Satisfied shareholders are a key prerequisite for a company's success. Attracting new potential investors is equally important as the supply of satisfactory information for existing shareholders within managers' tasks.

Shareholder value oriented management uses value-based key performance indicators communicated to shareholders in financial disclosures, typically the annual report which is one of the most important sources of information supplied to shareholders. If shareholders do pay attention to value information and refer to this knowledge in their investment decisions, these reports are value drivers.

Hence, this assumption lacks empirical evidence. The present research tries to empirically verify this assumption.

My study uses annual reports of two companies which describe themselves as value oriented. With the help of the eye tracking technology test participants are observed when analyzing the two annual reports. Additionally, questionnaires were handed out to the test participants after the eye tracking analysis to help to verify the observed behavior.

The research questions answered in this article are:

1. What is the effect of the implementation of shareholder value-based management systems in companies on (potential) German shareholders?

2. Are German investors influenced by disclosed value information in financial statements to make their investment decisions?

In more detail, the present analysis covers the effects that value oriented financial figures have on German nonprofessional shareholders, the role of such figures within investment decisions, their presentation within annual reports and the importance that they are given compared to traditional key indicators.

2. Value management and value reporting: development and background

2.1. The intentional usage of the term ‘shareholder value’

The term ‘shareholder value’ has drawn attention in the literature for more than three decades. Hence, it seems worth demonstrating the emergence of the term and its impact on corporate strategy.

In the 1980s shareholder value firstly appeared in managerial textbooks. Only later, the concept of shareholder value has been academically assessed and its effect on macroeconomic trends analyzed. Many of these articles accuse the concept of manipulating managers in the sense of blindly promoting shareholder interests while at the same time ignoring or even harming employees [Chassagnon, Hollandts 2014; Lazonick 2010].

Obviously corporations underwent dramatic changes during the last decades. Macroeconomic parameters might reflect these changes. But empirical evidence is not delivered whether the shareholder value concept has triggered these changes or whether the two trends went in parallel without causing each other. Indeed, theoretical contributions to this interdependency are rather narrative and pithy. This makes the linking up of macro-economic changes and the implementation of shareholder value management thinking in organizations a rather risky assumption.

Consequently, I concentrate on the analyses of the usage of the term shareholder value in corporate communication and in annual reports.

2.2. The usage of the term ‘shareholder value’ in corporate communication and annual reports

This section rather focuses on the historical observation of companies’ practices of integrating value figures or verbal statements about shareholder value creation in their annual reports. Only by establishing the emergence of the shareholder value concept it is possible to investigate whether a growth in the concept’s popularity might have changed managers’ preferences for shareholding versus other orientations and whether those strategic moves were reflected by financial results.

Most historical overviews or investigations are rather narrative and lack empirical evidence. As an example Lazonick [2010, p. 677] argues that the shareholder concept emerged in the late twentieth century as a response to the old overaged “old-economy business model” beginning to break down, moving managers’ focus from retaining profit for investments to downsizing and profit distribution. Overall, share-holder value orientation seemed to favor short-term shareholders at the expense of all other stakeholders. In parallel, it seems obvious that corporations changed the way they attached to their shareholders, e.g. by returning 42% of their net income to shareholders and by rising this proportion to 75% in 1990 [Taylor 2015]. Of course, this trend evokes

the idea that management decisions might have caused this change – but indeed there is no explicit study on this connection.

Hence, the present study uses Taylor's [2015] investigation of US financial statements over time as one of its limited empirical foundations. Taylor analyses the use of the term 'shareholder value,' 'shareowner value' and 'stockowner value' in the annual reports using ProQuest Database fist, and for a more contextual analysis he concentrates on the reports of Coca-Cola Company, General Electric Company (GE) and Johnson and Johnson (JNJ).

His findings are that the first rather "incidental" [Taylor 2015, p. 12] use of the term 'shareholder value' occurred in 1965 with a spare usage before 1983. Examples are Bendix and Boise Cascade Corporation with the usage of the term in the context of growth and overall stability. In the 1980s the term's popularity and usage increased sharply reaching a usage proportion of around 30% until 1993. It can be demonstrated that the earlier use of the term rather described the general financial situation of the firm as a reflection of overall welfare and not as an instrument for short-term earning proliferation. This restrictive use before the early 1990s supports Taylor's idea that it was not a generally accepted management concept by that time and it therefore can hardly explain the downsize and distribute routines in the 1980s.

During the second wave from 1993 to 2000 the usage frequency augmented to at least 40%. In parallel Taylor [2015] identifies a dramatic increase in the usage frequency of the term between 1992 and 1997 marking its extensive use. In this period the assumption that managers prefer shareholders over other stakeholders by downsizing and redistributing profit instead of retaining and reinvesting earnings inside the company does not seem far to seek. Even though Taylor finds more deliberate definitions of shareholder value and a more central position of it in corporate strategy statements and in investor communication, partly even a more market oriented conception, he finds little evidence that the corporations' usage of the term also indicates an increased attention paid to shareholders and less to other stakeholders over time. Also, his analysis of financial indicators does not give clear empirical evidence to an altered behavior in terms of profit distribution or profit retention and reinvestment.

Changes in corporate strategy and decision making are often traced back to the pursuance of shareholder value concepts in the literature [Rappaport 1981; Rappaport 1998; Ryan, Trahan 2007; Stern et al. 1995]. But this direct link could not be demonstrated on the basis of empirical data until now.

2.3. Shareholder value management systems as an indicator of a favorable treatment of shareholders

Also, many academics underline the increasing acceptance of shareholder value principles demonstrated through their translation into value-based management systems [Lewis 1995; Lueg 2010; Mc Taggert et al. 1994; Ryan, Trahan 2007]. But the implication of such systems on firm performance in general and on the wealth creation for shareholders is rather limited.

Rapp et al. [2010] found that between 2002 and 2008 the implementation of value-based management systems (VBM) in German Listed Companies rose from 25% to 42%. This research provides evidence that also outside the US, the adoption of VBM systems in less shareholder oriented settings could be observed. Also, size seems to play an important role here. The larger corporations are, the higher the probability for value-based management system use. As many as 87% of the DAX[1] firms, i.e. the 50 most important German Corporations, are adopters whereas only 17% of the TecDax[2] firms.

Their most relevant finding for the current paper is that firms adopting VBM systems earn superior stock market returns during the initial implementation phase. These returns are robust in the subsequent phases.

Therefore, shareholders seem to consider the adoption of value-based management systems as a reliable and trustworthy signal that corporation's management consequently focuses on shareholder interests and finally that those systems increase shareholder value.

The next step in the present research consequently concentrates on how to communicate the implementation and usage of value-based management systems to shareholders to deliver the necessary information to them to increase their trust in corporations' management and hence to increase the perceived value of held or potentially owned shares?

3. Relevance of value reporting in the context of investor relations

The role of value reporting[3] has reached importance as a logical consequence of different studies having demonstrated the impact of value-based management on company value and company value perception.

Different well known key performance indicators (KPI) have been identified as being important in this context and new KPI have been developed to visualize management's contribution to increased shareholder value.

3.1. Measuring and reporting shareholder value

Classical monetary value drivers being measured and reported are based on accounting information [Copeland 1996, Lewis 1995; Rappaport 1998]. Widely accepted KPIs are:

---

[1] Deutscher Aktien Index, the most prominent German Shareprice Index.

[2] Technology Dax (German Shareprice Index for Technology Oriented Firms, also Start Ups).

[3] The ValueReporting™ Framework (VFR) has been developed by PriceWaterhouseCoopers for measuring and managing corporate performance and for structuring communication about that performance. It consists of four categories of information: market overview, strategy, value creating activities and financial performance. Investors shall be given a much broader understanding of the company's long-term performance than a classical financial statement can deliver. In this study, value reporting stands for all – sometimes company specific – efforts to complement existing disclosures with value based information.

Value increase: Net Cash-flow/*cc,*
CFROI: Value increase/C * 100.

C – invested capital, i.e. interest bearing debt plus equity,
cc – cost of capital, i.e. dividends and interests.

Most often the value increase stands at the top of the hierarchical system of dependent ratios which, as a whole, constitutes the financial or monetary value drivers on company value. Nevertheless, it is obvious that financial indicators alone are insufficient to explain changes in company value in a satisfactory manner.

Another widely accepted and less complicated concept for the measurement of value increase is the "Economic Value Added" [Stern et al. 1999; Stern et al. 2001]. It is calculated as follows:

$$EVA_t = C^* [ROCE_t - WACC_t] = C^*r_t - C^*c_t$$

C – interest bearing debt plus equity; r – return of the year; cc – cost of equity and interests,
$WACC$: weighted average cost of capital.

Even though the calculation of EVA requires some effort, the concept has reached a high acceptance among international corporations. Even though the concept poses some questions in risk avoiding environments and conservative accounting routines like in Germany, its complexity is lower than formerly used discounted cash flow calculations and its understandability among employees and shareholders seems to be comparably high. Hence, the concept of EVA plays an important role in value reporting [Eccles et al. 2001]. The higher the market capitalization of corporations, the stronger the need to communicate value information to shareholders – which is often not the case in the traditionally disclosed formats and their conservative, tax influenced or lender oriented philosophies. Germany has traditionally performed a conservative and lender focused accounting approach and even though the implementation of the IFRS standards for listed corporations has set some limits to German conservatism this routine is still in place [Fischer, Klöpfer 2006].

Additionally, as a consequence of an increase in M&A activity, more attention is paid to intangible assets and more importance is given to human capital and fair values of tangible assets. The Balanced Scorecard [Kaplan, Norton 1992, 1996a, 1996b, 2000] is seen as a means to systematically integrate financial and non-financial indicators.

At the beginning of this century, investors seem to have turned into "homo investicus" [Kaub & Schäfer 2002] and therefore ask for more transparent and usable information to reduce investment risk. Value reporting seems to set an appropriate standard. The new rule is to take good actions for good investors and to talk about these actions. Hence, value reporting represents the consequent disclosure of strategies, targets and target achievement with the objective to increase company value. In many cases, managers perceive their company's market value as too low. The reduction of information asymmetries between managers and investors shall be reduced and

(potential) investors shall be able to optimize their risk-return situations and align their value perception to the real earning power of companies.

A changed – or improved – more shareholder oriented form of reporting is seen as a real value driver by itself.

3.2. Application of value reporting in Germany

In parallel to the development and wide acceptance of Value Reporting in academic discussions different empirical studies on the status of its implementation in German listed companies and on its prominence among German investors have been realized. In their questionnaire study among 81 companies and 77 addressees, Fischer & Wenzel [2003] found out that 61% of the addressees understand value reporting as a more future oriented system of KPIs than the classical financial reporting. This is even more pronounced among external addressees (investors, analysts, auditors, others) than among the reporting units' staff. The external addressees criticize value reports of German corporations because of their lack of future oriented information, a low level of standardization and understandability. Among the reporting staff of corporations, 84% of the interviewees respond that they find value reporting very important. They use the financial report as their main information platform followed by different publication forms on the Web. Also, the external addressees focus on the obligatory elements of financial reports (e.g. EBIT, EAT, NOPAT, returns, free cash flow, working capital, leverage etc.) to gather value relevant information and do not put much emphasis on value added reporting, total return reporting or on strategic reporting. This contradicts academic assessments on the popularity of extended value reporting and shareholders' demand for more extended voluntary value oriented disclosed information.

Table 1. Usage of KPIs in German corporations' value reports

Basic assumption	Value contribution	Return	Frequency
Profit/Result	e.g. EVA: frequency: 11	e.g. ROCE frequency: 19	30
Cash movements	e.g. CFVA frequency: 2	CFROI Frequency: 1	3
Frequency	13	20	33

Source: Steinhaus and Kraft 2013a.

Nevertheless Fischer and Wenzel [2003] predicted and extended usage of nonobligatory value information being published in financial statements. Rapp et al. [2010] demonstrated the realism of this prediction. In 2008, 42% of their sample firms had implemented such systems. More recent studies analyze the extent and content of value reporting in German Dax30 corporations [Steinhaus, Kraft 2013a; Laier, Quick 2012]. In their empirical analysis of financial reports [Steinhaus, Kraft 2013a, p. 9]

they analyze financial reports and evaluate which concepts are most widely employed. Their findings demonstrate dominance of profit-based concepts over cash oriented concepts. Also, return concepts (e.g. ROCE) are still more popular and are still a little bit more widely employed than value concepts (EVA).

Also, they conclude that non-integrated, single KPI-based systems dominate in German corporations over more integrated value bases systems like the Balanced Scorecard or value-driver trees. It has also been demonstrated that concepts having been developed in theoretical contexts have been adapted to practical needs. Hence they do not always correspond to the intentions of their developers. As a consequence, the disclosed simplified concepts do not always support managers in their quest for increased company value and underline the need for improved and more integrated value reporting systems.

Empirical interview-based studies of Laier [2011] and Laier and Quick [2012] address investor relations managers of DAX30 corporations. The investor relations managers have been asked for the internal relevance of value reports and for their perception of investors' attention to value reports for their investment decisions. Their findings are that internally value-based KPIs play a more important role than for external addressees' decision making. The intended effect of value reporting is to signal management's focused orientation at value contribution. Still, financial statements seem to be the dominant medium to communicate value relevant information. According to the German investor relations managers, institutional investors are the main addressees of value reporting. The latter expect such data to be published – but they do not discuss or reflect these with the investor relations staff. Private investors and lenders are only secondary addressees of value reporting since they do not seem to benefit from such information. Some interviewees even claim that the reduction of value reporting would not impact investor relations negatively. Value reporting is rather seen as a means to demonstrate the professionalism of managers but not as a means to influence (private) shareholders' investment decisions. These findings question theoretical statements about the link between value reports and shareholders value perception as a basis for their investment decision.

In German corporations, value reporting as a demonstration of value-based management is rather interpreted as a visualization of professional, state of the art management than as a means to decrease information asymmetry between managers and investors. Obviously, value reporting does not seem to constitute as a value driver itself.

4. Explaining impacts of value reporting on investors' decisions and on market value

While from a theoretical standpoint properly designed value management systems and value reports seem to constitute a promising groundwork for value-enhancing management and strategy work, the question whether the adoption of such a system and its communication via value reporting has to be analyzed empirically. Still such

empirical research is scarce which is astonishing given the fact that the explicit objective of the shareholder value approach is to create superior long-term value for shareholders [Stern et al. 1995].

Athanassakos [2007] examined Canadian firms and found that firms with value-based management systems earn higher stock market returns. Ryan and Trahan [2007] analyze US firms after the adoption of a value-based management system and found a significant improvement of firm performance.

Rapp et al. [2010] undertook an empirical study with 1,083 German listed firms using value-based management. Their result is that shareholders consider the adoption of value-based management systems as a credible signal that management will focus on shareholder interests and that such systems actually increase shareholder value. They found that firms with value-based management systems earn statistically significant and economically substantial abnormal stock returns within a two-year adoption phase. Their analysis is based on disclosed financial statement data and demonstrates the positive effect of the implementation of value-based management systems on stock market performance. Thus, it does not take deliver evidence on the importance of value reporting on stock market performance as a consequence of reduced information asymmetry.

My study is a first step towards bridging questionnaire-based research with a relatively recent empirical data gathering methodology on individual attention and attraction. It shall test whether eye tracking can be used to test theoretical assumptions or questionnaire-based data about investors' assumptions and thus tries to minimize standard selection bias problems and standard endogeneity.

5. Methodology

5.1. Eye tracking research

The study of eye movements with more invasive techniques dates back by the 1990s. Less invasive use and eye tracking research flourished in the 1970s with great advances in both eye tracking technology and psychological theory to link eye tracking data to cognitive processes. Much of these early works focused on research in psychology and physiology and explored how the human eye operates and what this can reveal perceptual and cognitive processes (e.g. [Monty, Senders (Eds.) 1976; Fisher et al. (Eds.) 1981]). Still, the number and extent of publications did not increase due to the effort with data collection and data analysis [Jacob, Karn 2003]. Monty [1975] expressed that problem as follows: "It is not uncommon to spend days processing data that took only minutes to collect" [pp. 331–332].

Recently, eye tracking in human-computer interaction has gained some prominence both as a means to study the usability of computer interfaces and as a means to answer questions about usability [Ellis et al. 1998].

In marketing and consumer research, eye tracking has reached a wider acceptance with the use of remote devices.

In the context of financial statement analysis, the use of eye tracking is relatively uncommon. A recently published study analyses the design of information in financial reports [Eisl et al. 2015]. It demonstrates that financial reports are designed according to perception principles and that visualization is widely used by firms and perceived by readers. For the current study, Eisl et al. [2015] give evidence that Web-published financial statements are suitable objects of eye tracking studies to demonstrate whether investors are attracted by value reports and whether they consciously consider and understand what they perceive.

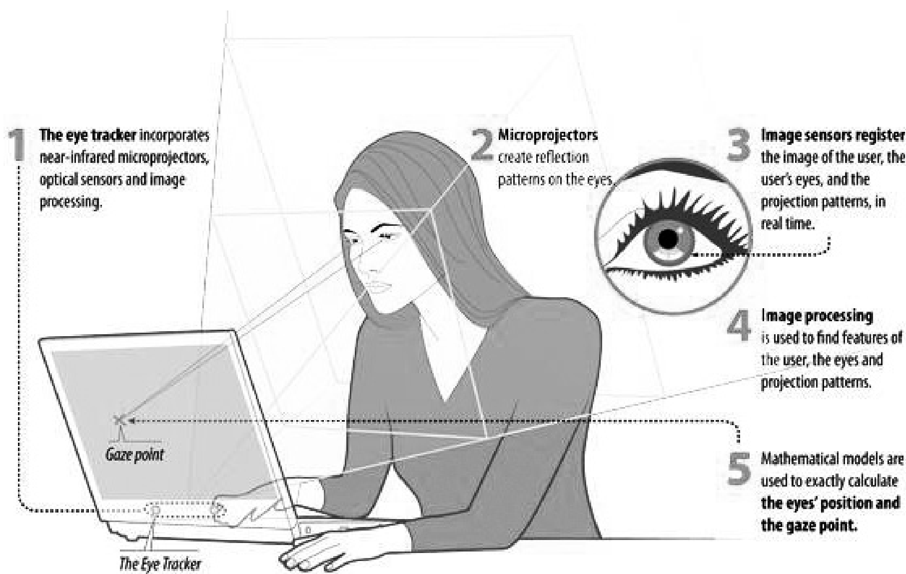

Figure 1. The eye tracking process

Source: https://gigaom.com/wp-content/uploads/sites/1/2013/12/tobii-eye-tracking-step-by-step-web-573.jpg?quality=80&strip=all (date of access: 14.10.2015).

For our study, two Web published financial reports were chosen. Fifteen test participants were asked to put themselves into the role of a potential investor and analyze the annual reports of two potential investment objects. A remote eye tracking device was used. Test persons had 30 minutes time per report.

5.2. Questionnaire study

To cross-check the eye tracking data and to find out whether conscious of non-conscious attention was paid to value reporting the test participants were asked to fill in a questionnaire directly after having participated in the eye tracking study. The objective of the questionnaire was to find out whether the test participants remember the information they had directed their eyes on and whether they have understood it.

The questionnaire study lasted for 30 minutes and was structured into four blocks:

Bloc 1: Investment decision, e.g. "As an investor, would you buy the … shares?"

Bloc 2: General impression about company, e.g. "How would you assess company…?"

Bloc 3: Quality of disclosed information: "How do you like the annual report of company …?"

Bloc 4: Specifically analyzed financial criteria: "Which KPIs did you consider?"

5.3. Choice of samples

As a preparation of the empirical test, two German speaking financial statements have been chosen for the research. The choice considered the following aspects:

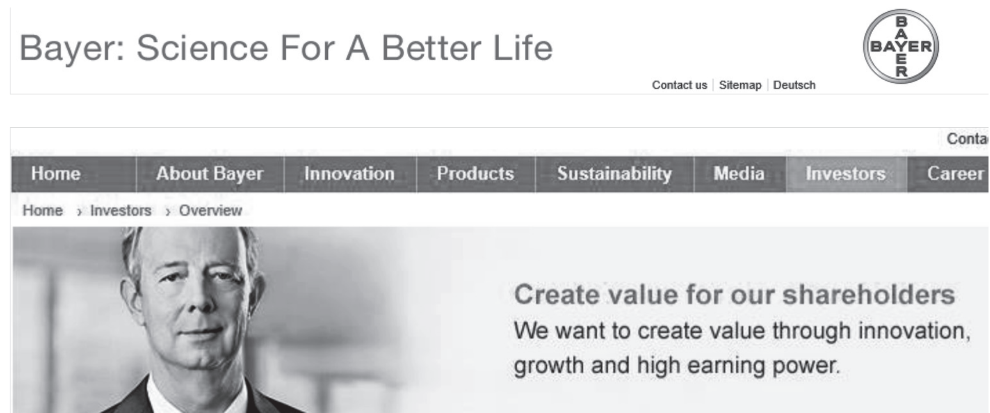

Figure 2a. Bayer AG investor relations section

Source: http://www.investor.bayer.de/en/overview/ (date of access 14.10.2015).

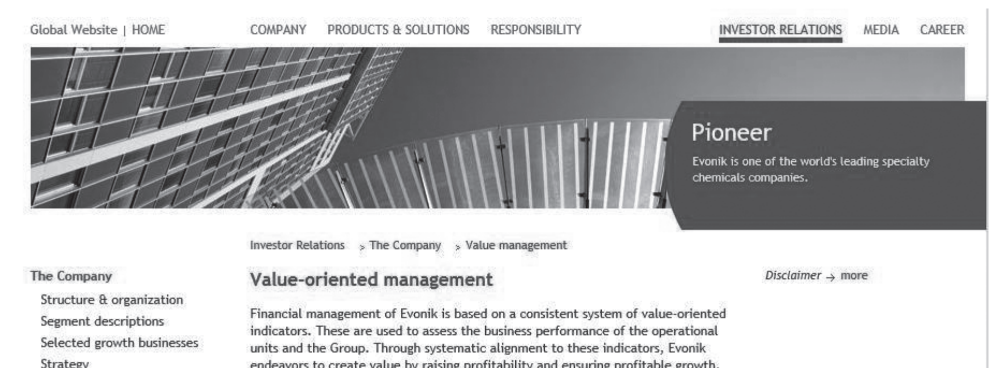

Figure 2b. Evocic Industries investor relations section.

Source: http://corporate.evonik.de/en/investor-relations/company/value-management/pages/default.aspx (date of access: 14.10.2015).

- an explicit link to shareholder value is made in the strategy section of the firms' annual report;
- the selected companies have implemented a shareholder value management system – being reflected in shareholder value oriented incentives and the disclosure of value based KPIs;
- a special section in the financial statement is dedicated to value reporting.

The chosen firms were Bayer AG and Evocic Industries (see Figures 2a and 2b).

5.4. Data analysis

After the eye tracking study, the gathered data had to be interpreted and evaluated to make it available for interpretation. For this reason, the data were first visualized with attention paths and subsequently analyzed with time recording.

Figure 3. The attention paths

Source: http://static-content.springer.com/image/art%3A10.1007%2Fs12642-010-0039-2/MediaObjects/12642_2010_39_Fig5_HTML.jpg (date of access 14.10.2015).

The time, each test person paid attention to certain value-based KPIs was recorded and compared to other test participants' results. For each section of the annual report attention data were gathered and the most observed KPI was identified. In the end, the KPIs with the highest and lowest attention were identified.

The questionnaire study was used to exclude unconscious eye movements and to control to which extent eye movements go along with conscious analysis of the con-tents.

6. Results

The subsequent chapter is dedicated to the presentation of the data, gathered during my research. It reveals the most considered indicators in the financial statements of the chosen companies and compares the length of attention of each. Table 2 shows these findings.

Table 2. Result of the eye tracking study

Section	Most observed	Length of attention	
		Bayer	Evonic
Financial ratio overview (table)	EBIT/EBITDA	4.5	7.5
Financial market information (text & chart)	Share price (developt.)	21.5	8.3
Strategic information (text)	Financial targets	9.5	26.5
Profitability & financial situation (table)	Cash flow	11.5	11.3
Value oriented figures (table)	EVA/rating	0/0	0/10
Chances & risks (text)	Branch growth	12	14
Financial position (table)	Cash flow	7.5	35.5

Source: own elaboration.

The result of the questionnaire study which was performed directly after the eye tracking study reveals the following findings:

Investment decisions of our test participants are mainly based on the analysis of:

- EBITDA,
- sales,
- share price development,
- dividend payment,
- CF,
- strategic behavior,
- credit rating,
- financial leverage.

The highest memorable information for the test persons were:

- revenue and profit,
- color and structure of the report,
- share price compared to indices.

None of the test participants remembered any explicit pronouncements about shareholder value, nor has any test person tried to gather such information to make an investment decision.

7. Discussion and reflection

After having presented the empirical data revealed by my study, the present section aims to reflect and interpret these findings in the context of the above developed research questions and their theoretical background.

The present study revealed that:

- Low attention is paid to the section value reporting by the German test participants.
- Share price development is given the highest attention in the Bayer statement and cash flow in the Evonic statement.
- More attention is paid to verbal strategic information than to value KPIs.
- EBIT/EBITDA and CF are the most observed KPIs.

The presented data support the research of Fischer and Wenzel [2003], Laier [2011] as well as Laier and Quick [2012], who question the role of value reporting for nonprofessional investors' decisions.

The test participants did not focus on the section of value reporting but concentrated heavily on the traditional elements of financial reporting. Test participants do not actively consider shareholder value in the value reporting section but rather concentrate on past financial performance and on the financial position as well as on past share price development. Of course, these KPIs do have influence on the perceived shareholder value. Thus, the non-financial value drivers seem to play a subordinate role in nonprofessional investment decisions which questions the role of value reporting as an important instrument of investor relation management.

Given these results, the positive correlation between market performance and value reporting in cannot be empirically proved in the group of German nonprofessional investors.

8. Limitations and future outlook

The present study is not without limitations. For more representative data, more test participants and a wider variety of financial reports should be included into the study.

Future studies should also consider demographic aspects of test participants and should not select test participants in a random based manner. It might be interesting to find out whether the professional background, the financial endowment and the investment experience might play an important role.

Nevertheless, the usage of the eye tracking technology in the context of investor behavior might reveal interesting findings both to improve investor relations and the communication format of financial disclosures and to actively work on the minimization of information asymmetries between mangers and shareholders.

References

Athanassakos G., 2007, *Value-based management, EVA and stock price performance in Canada*, Journal of Management Decisions, vol. 45, pp. 1397–1411.

Chassagnon V., Hollandts X., 2014, *Who are the Owners of the Firm: Shareholders, Employees, or No One?*, Journal of Institutional Economics, vol. 10, no. 1, pp. 47–69.

Copeland H., 1996, *Taking shareholder value on board*, Euromoney, issue 329, pp. 231–234.

Copeland T., Collin T., Murrin J., 2000, *Valuation. Measuring and Managing the Value of Companies*, New York.

Eccles R.G., Herz R.H., Keegan E.M., Phillips D.M.H., 2001, *The Value Reporting™ Revolution*, Wiley, New York.

Ellis S., Candrea R., Misner J., Craig C.S., Lankford C.P., Hutshinson T.E.,1998, *Windows to the soul? What eye movements tell us about software usability*, Proceedings of the Usability Professionals' Asssociation Conference 1008, pp. 151–178.

Heilbron J., Verhuel J., Sander Q., 2014, *The origins and early diffusion of "shareholder value" in the United States*, Theory and Society, vol. 43, pp. 1–22.

Eisl C., Losbichler H., Beyhs O., Link R., 2015, *Information Design in den Geschäftsberichten der Dax 30-Unternehmen*, KPMG.

Fischer T.M., Klöpfer E., 2006, *Entwicklung und Perspektiven des Value Reporting*, ZfCM Controlling & Management, Sonderheft 3.

Fischer T.M., Klöpfer E., 2006, *Bilanzpolitisches Gestaltungspotenzial bei der Umstellung der Rechnungslegung von HGB auf IFRS*, München.

Fischer T.M., Wenzel J., 2003, *Wertorientierte Berichterstattung [Value Reporting] in deutschen börsennotierten Unternehmen. Ergebnisse einer empirischen Studie*, Universität Eichstädt, Online Publikation.

Fisher D.F., Monty R.A., Senders, J.W. (Eds.), 1981, *Eye Movements. Cognition and Visual Perception*, Lawrence Erlbaum, Hillsdale.

Jacob R.J.K., Karn K.S., 2003, *Eye tracking in human-computer interaction and usability research: Ready to deliver the promises*, [in:] Hyona J., Rachach R., Deubel H. (Eds.), *The Mind's Eye: Cognitive and Applied Aspects of Eye Movement Research*, Elsevier Science BV, Oxford.

Kaplan R.S., Norton D.P., 1992, *The Balanced Scorecard: Measures that drive performance*, Harvard Business Review, vol. 92105, pp. 71–79.

Kaplan R.S., Norton D.P., 1993, *Putting the Balanced Scorecard to work*, Harvard Business Review, vol. 93505, pp. 1–15.

Kaplan R S., Norton D.P., 1996a, *The Balanced Scorecard: Translating Strategy into Action*, Boston, HBS Press.

Kaplan R.S., Norton D.P., 1996b, *Using the Balanced Scorecard as a Strategic Management System*, Harvard Business Review, vol. 96107, pp. 75–85.

Kaplan R.S., Norton D.P., 2000, *The Strategy-Focused Organization: How Balanced Scorecard Companies Thrive in the New Business Environment*, Harvard Business School Press.

Kaub M., Schäfer M., 2002, *Wertorientierte Unternehmensführung. Einführung in das Konzept*, Hans Böckler Stiftung, Berlin.

Laier R., 2011, *Value Reporting: Analyse von Relevanz und Qualität der wertorientierten Berichterstattung von DAX-30 Unternehmen*, Wiesbaden, Gabler.

Laier R., Quick R., 2012, *Zur Relevanz der wertorientierten Berichterstattung: Erkenntnisse aus Experteninterviews mit Leitern der Investor-Relations-Abteilungen der DAX 30 Konzerne*, Die Wirtschaftsprüfung, 65. Jahrgang, vol. 5, pp. 264–271.

Lazonick W., 2010, *Innovative Business Models and Varieties of Capitalism: Financialization of the US Corporation*, Business History Review, vol. 84, pp. 675–702.

Lazonick W., O'Sullivan M., 2000, *Maximizing shareholder value: A new ideology for corporate governance*, Economy and Society, vol. 29(1), pp. 13–35.

Lewis T.G., 1995, *Steigerung des Unternehmenswertes – Total Value Management*, Landsberg/Lech, Verlag Moderne Industrie.

Lueg, R., 2010, *Shareholder Value and Value-based Management [VBM]: Wie steuern die HDAX Unternehmen? Ergebnisse einer empirischen Studie*, Controlling, vol. 27, p. 337-344.

Mc Taggert J.M., Kontes P.W., Mankins M.C., 1994, *The Value Imperative – Managing for Superior Shareholder Returns*, The free press, New York.

Monty R.A., 1975, *An advanced eye-movement measuring and recording system*, American Psychologist, vol. 30, pp. 331–335.

Monty R.A., Senders J.W. (Eds), 1976, *Eye Movements and Psychological Processes*, Lawrence Erlbaum, Hillsdale NJ.

Rapp M.S., Schellong D.A., Schmidt A., Wolf M., 2010, *Considering the Shareholder Perspective: Value-based Management Systems and Stock Market Performance*, CEFS working paper series, No. 2010-09.

Rappaport A., 1981, *Selecting strategies that create shareholder value*, Harvard Business Review, vol. 59, pp. 139–149.

Rappaport A., 1998, *Creating Shareholder Value – A guide for managers and investors*, Second Edition, The free Press, New York.

Ruhwedel S., Schutlze W., 2006, *Value Reporting and Conceptual Framework Practical Application in the German DAX 100.*, Schmalenbachs Zeitschrift für betriebswirtschaftliche Forschung [ZfbF], vol. 54, pp. 602–632.

Ryan H.E., Trahan E.A., 2007, *Corporate financial control mechanisms and firm performance: The case of value-based systems*, Journal of Business Finance & Accounting, vol. 34, pp. 111–135.

Steinhaus H., Kraft S., 2013a, *Wertorientierte Unternehmensführung – Einführung in das Konzept*, Heinz Böckler Stiftung: Mitbestimmungsförderung, Information November 2013.

Steinhaus H., Kraft S., 2013b, *Wertorientierte Unternehmensführung – Ausgewählte Studien*, Heinz Böckler Stiftung: Mitbestimmungsförderung. Information November 2013.

Stern J.M, Stewart G., Chew D., 1995, *The EVA management system*, Journal of Applied Corporate Finance, vol. 8, pp. 32–46.

Stern J.M., Stewart G., Trahan E.A., 1999, *The EVA financial management system*, Journal of Applied Corporate Finance, vol. 8, pp. 32–46.

Stern J.M., Shiely J.S., Ross I., 2001, *The EVA Challenge: Implementing Value Added Change in an Organization*, Maidenhead.

Stout L., 2012, *How Putting Shareholders First Harms Investors,Corporations and the Public*, Berett-Koehler Publishers, San Francisco.

Taylor B.E., 2015, *Reconsidering the Rise of 'Shareholder Value' in the United States*, 1960–2000, LSE, Economic History Working Papers No. 215/2015.

Ulmer M., 2006, *Wertorientierte Unternehmensführung. Management im Spannungsfeld von Kapitalmarkt und Gesellschaft*; Tagungsband zum 3. DocNet-Management-Symposium, Bern, Stuttgart, Wien, Haupt.

Weber J., Bramsemann U., Heineke C., Hirsch B., 2004, *Wertorientierte Unternehmenssteuerung. Konzepte – Implementierung-Praxisstatements*, Wiesbaden, Gabler.