

Value Creation and Women on Boards

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ABSTRACT

Value creation is a major claim of most companies. Mahajan (2017) argues that “value and value creation are natural to and basic in human behaviour and endeavour”, nevertheless women are often marginalized and impeded in their advancement towards leadership positions, where they could shape and influence the process of value creation. The present article looks at the companies of EURO STOXX 50 index in the year 2015 and offers an overview of women representation on the boards of these 50 companies. The paper tries to establish whether the success of these companies can be related to the percentage of female members in supervisory positions. The findings reveal the existence of a weak correlation between Earning before Taxes (EBT) and the proportion of women on the boards of the EURO STOXX 50 companies.

KEYWORDS

Value creation, women on supervisory boards, key performance indicators, gender quota, earnings before taxes.

1. Introduction

Value creation is a major claim of most companies and when leafing through the annual reports of companies one encounters expressions such as “value to our shareholders”, “we provide value for our customers”, “we create value for our employees, shareholders, business partners, neighbours and the public”, etc. While it seems to be clear for whom value is created, the concept of “value” itself is subjected to various interpretations and is regarded in the literature as ambiguous (Lepak, Smith and Taylor, 2007; Marinova, Larimo and Nummela, 2017). Mahajan (2017) argues that “value and value creation are natural to and basic in human behaviour and endeavour”, nevertheless women are often marginalized and impeded in their advancement towards leadership positions, where they could shape and influence the process of value creation. The urge to better use the talent pool represented by women was voiced by many actors: OECD (2016) for example emphasized that women “can provide society with different perspectives and approaches to management, organisation and business issues”. In order to change the organizational culture of all-male boards, positive actions such as gender quotas were introduced in many European countries.

The present paper looks at the companies of EURO STOXX 50 index in the year 2015 and offers an overview of women representation on the boards of these 50 companies, the index being described as a “Blue-chip representation of supersector leaders in the Eurozone” (stoxx.com). The paper tries to establish whether the success of these companies can be related to the percentage of female members in supervisory positions. The findings reveal the existence of a weak correlation between Earning before Taxes (EBT) and the proportion of women on the boards of the EURO STOXX 50 companies.

This paper replicates the study of Binder, Alonso-Almeida and Bremser (2016) which analysed the relationship between female’s representation in the management board (executive board) and firm performance (measured by EBT) of the EURO STOXX 50 companies in 2014.

The author of this paper deems the presence of women on corporate boards as valuable in itself and argues that images such as the “white, heterosexual, western, middle/upper class, able man” (Zanoni et al., 2010, p. 13) ought to be challenged in international business.

2. Value creation in annual reports

The centrality of value creation is uncontested for companies and management and organizational scholars alike. While agreeing that “there is little consensus on what value creation is or on how it can be achieved” (Lepak, Smith, Taylor, 2007, p. 180) this paper does not seek to coin a new definition of value creation. It examines companies’ understanding of the world “value” and “value creation”, it presents shortly the management approach which places value creation at the core of a company’s strategy, namely value-based management (VBM), and it focuses on the presence of women in supervisory board by trying to establish whether there is a relationship between the percentage of women on board and companies’ performance as measured by earnings before taxes (EBT). Before embarking on the quest of finding the meanings of “value” and “value creation” as understood by the companies of EURO STOXX 50 index, it is, however, important to adopt a definition of value creation from the existing body of literature.

Value is seen to positively impact the stakeholders, employees, customers, partners and CEOs, society, companies and shareholders (Mahajan, 2016). The author acknowledges the significance of the monetary component of value creation, as it becomes apparent also from the definition offered by Lepak, Smith and Taylor: “value creation depends on the relative amount of value that is subjectively realized by a target user (or buyer) who is the focus of value creation – whether individual, organization, or society – and that this subjective value realization must at least translate into the user’s willingness to exchange a monetary amount for the value received” (2007, p. 182). Value destruction should be avoided by the CEO by focussing on the customer and using financial and non-financial assets and measures (Mahajan, 2016, p. 69).

The paper draws on existing literature in the field of key performance indicators (KPIs), diversity management, women quota and supervisory boards and it is structured as follows: in a first step, value and value creation is described on the basis of the annual reports of the 50 EURO STOXX companies. By reading the annual reports it also became evident, that some of the companies employ the value-based management approach, and therefore, one section is dedicated to this aspect. In a second step the presence of women on the supervisory board as a relevant resource is examined and here evidence from literature is brought into light. Finally, a correlation analysis is conducted in order to see, whether there is a relationship between the number of women on supervisory boards and

financial performance of the companies under scrutiny. The last sections is dedicated to the findings and it also shows the limitations of this study and offers suggestions for future research.

Most of the companies of the EURO STOXX 50 index use in their annual reports the word “value”, be it in the sense of monetary worth, importance in the eyes of someone, or principle or belief. The Belgian company Anheuser-Busch InBev for instance employs the word “value” in the following contexts: “The total transaction is valued at 12 billion US dollar and is conditional on completion of the Combination” (Anheuser-Busch InBev, 2015, p. 2).

The French company Essilor states strongly to have five values, which are “expressed every day in the way teams around the world work together” (Essilor, 2015, p. 59). These values are respect and trust, diversity, entrepreneurial spirit, working together and innovation (Essilor, 2015, p. 61).

Airbus focuses on delivering value for shareholders as in “value to our shareholders through our share buybacks, with an additional €1 billion launched in October 2015” (Airbus Group, 2015, p. 19). Airbus also claims to “recognize the value that diversity brings” and therefore “is committed to advancing women in the workplace and developing female talent” (Airbus Group, 2015, p. 26). This claim is, however, doubtful: Denis Ranque, the chairman of the board, speaks about the existence of a “more appropriate level of gender diversity”, though as of 1st January 2016, there were two women on the board of directors of Airbus.

Moreover, it has to be pointed out that there is often a tendency of using words in a loose or even misleading manner. Fresenius for example had at the end of 2015 an all-male supervisory board, being actually the only company of the EURO STOXX 50 index in this situation. Yet, in its annual report it is mentioned that “Fresenius values a culture of **diversity**¹. The interplay of a wide range of views, opinions, cultural backgrounds, experiences, and values help us to achieve our full potential and contributes to our success” (Fresenius, 2015, p. 27).

Other companies of the EURO STOXX 50 index claim in their annual reports to being committed to value creation. Nokia states for example the following: “We aim for all our

¹ Original emphasis.

business groups to be innovation leaders, drawing on our frontline R&D capabilities to deliver leading products and services for our customers, and ultimately ensure the company's long-term value creation" (Nokia, 2015, p. 40).

Social and economic value creation is the aim of the Spanish company Inditex (Industria de Diseno Textil SA): "To create value for society while creating value for the business is the fundamental target of Inditex " (Inditex, 2015, p. 98).

Philips, ING, and Eni offer in their annual reports a detailed description of the process of value creation, though none of them claim to use VBM. Philips draws on "six different forms of capital to drive value in the short, medium and long term" – human, intellectual, financial, manufacturing, natural and social capital (Philips, 2015, pp. 12-13).

Eni goes one step further than Philips, and presents the effects of the capitals employed (financial, productive, intellectual, human, social and relationship, and natural capital) on the company itself, but also on the company's stakeholders.

ING too provides the reader with a value creation model in its annual report, mentioning that "as a financial institution, our input is mainly in the areas of financial, intellectual, and human capital, whereas we impact society across all the capital outputs defined in the International Integrated Reporting Council (IIRC) value creation framework" (ING, 2015, p. 6).

It should be clear by now the words "value" and "value creation" appear in most annual reports of the companies of EURO STOXX 50 index, and as already mentioned some of these companies also employ a VBM metric. The next section of this paper gives a short overview on VBM and on the of the EURO STOXX 50 companies using this approach.

3. VBM and the EURO STOXX 50 companies

The following table shows the eight companies of the EURO STOXX 50 index, which according to their annual reports were using VBM in 2015.

No.	Company name	Country	Sector	VBM
1	Airbus Group SE	FR	Industrial Goods and Services	✓
2	BASF	DE	Chemicals	✓
3	Bayer	DE	Chemicals	✓
4	BMW	DE	Automobiles and Parts	✓
5	Daimler	DE	Automobiles and Parts	✓
6	Deutsche Telekom	DE	Telecommunications	✓
7	SAP	DE	Technology	✓
8	Unicredit	IT	Banks	✓

Figure 1. Overview of the EURO STOXX companies using VBM in 2015 (Source: own representation based on the information provided in the annual reports of all 50 EURO STOXX companies)

One can find many definitions of VBM in the literature. According to Firk, Schrapf and Wolff (2016, p. 42) “VBM is a holistic managerial approach that aims to align corporate action with value creation”. The driving philosophy of companies using VBM is to “maximize shareholder value by producing returns in excess of the cost of capital” (Simms, 2001). In order to maximize shareholder value “VBM links the company’s strategic objectives to a coherent set of performance measures through cause-and-effect chains (‘value drivers’) that include all relevant processes and all pertinent information systems across a company” (Burkert and Lueg 2013, p. 5). Among the most known metrics associated with VBM are economic value added (EVA), discounted cash flow (DCF) and cash flow return on investment (CFROI).

EVA is the most common method, and a registered trademark of Stern Stewart & Company. To calculate the EVA, capital losses are deducted from capital profit. It is considered a simple method, which can be advantageous. However, the existence of a market and book value in the calculation of the EVA can lead to a lack of transparency. Capital profit in opposition to the profit from a balance sheet, is a KPI that describes the profit with interest rates. Capital losses are calculated from the capital multiplied with the capital margin. Yet, only figures taken out from the profit and loss statement or the balance sheet are not sufficient for doing VBM, and calculating the EVA.

When using the DCF method cash flow becomes the central KPI and an equity or an entity approach can be here employed. Discounted rates and the net present value are for the calculation essential. The advantage of the DCF is its acceptance internationally; it is often employed e.g. in mergers and acquisitions valuations. Disadvantages of the DCF-method are that the expected cash flows are uncertain and can change yearly or even during the year.

Companies sometimes use the CFROI method for VBM as well. Developed by the Boston Consulting Group, KPIs like the cash value added (CVA), free cash flow, weighted average costs of capital (WACC) and the gross investments are used for calculating the CFROI. Advantages are that cash flow values can be internally or externally calculated and used by managers and investors to indicate liquidity and solvency. The disadvantages of the CFROI-method are the slightly more complex formulas for calculation.

VBM is, however, ‘not just about the numbers’ as Haspeslagh, Noda and Boulos (2001) noted: “A successful VBM program is really about introducing fundamental changes to a big company’s culture. And therein lies the reason for most of the failures: Transforming beliefs in a large organization is arguably the most difficult of all managerial challenges”. In the following paragraphs the understanding of VBM as described in the annual reports of the EURO STOXX companies using this approach is presented.

Airbus states that “among other indicators, the Group uses a Value Based Management approach in order to guide the Company towards sustainable value creation by generating financial returns above the cost of capital” (Airbus, 2015, p. 61). The KPIs employed by Airbus are Return on Capital Employed (RoCE), EBIT pre-goodwill impairment and exceptionals and free cash flow.

The German company BASF considers VBM an essential part of its strategy: the company’s slogan “We add value as one company” is regarded as one of the four principles which contribute to the company’s “We create chemistry” strategy (BASF, 2015, p. 30). The annual report describes VBM as a holistic approach, implemented at all levels of the company: “According to our value-based management concept, all employees can make a contribution in their business area to help ensure that we earn the targeted premium on our cost of capital. We pass this value-based management concept on to our team around the world through seminars and training events, thereby promoting entrepreneurial thinking at

all levels within BASF” (BASF, 2015, p. 30). As a steering parameter BASF uses EBIT after cost of capital (BASF, 2015, p. 30).

Bayer is another German company of EURO STOXX index which uses VBM (six out of the eight companies employing VBM are German). According to the annual report, “one of the prime objectives of the Bayer Group is to steadily increase enterprise value” (Bayer, 2015, p. 55). The steering parameters involved in reaching this objective are CVA and CFROI: “These indicators support management in its decision-making, especially in the areas of strategic portfolio optimization and the allocation of resources for acquisition and capital expenditures” (Bayer, 2015, p. 55).

BMW writes that “the business management system applied by the BMW Group follows a value-based approach, with a clear focus on achieving profitable growth, increasing the value of the business for the capital providers and safeguarding jobs” (BMW, 2015, p. 20). While declaring that the KPIs engaged in measuring value creation are defined for each controlling level, BMW employs not only financial indicators, such as RoCE, and return on equity (RoE), but also non-financial indicators, such as the size of the Group’s workforce (BMW, 2015, pp. 20-21).

Daimler too uses KPIs which are oriented “toward our investors’ interests and expectations and provide the foundation of our value-based management” (Daimler, 2015, p. 77). At the core of Daimler’s performance measurement system is value added which is “calculated as the difference between operating profit and the cost of capital of average net assets” (Daimler, 2015, p. 77).

Deutsche Telekom states that in order to “set and achieve [its] strategic goals more effectively” (Daimler, 2015, p. 64) a value management approach is pursued. According to the information from the annual report, the Group has a code of conduct which “defines how employees and management should practice value-based and legally compliant conduct in their daily business activities” (Daimler, 2015, p. 46), and the Group’s corporate governance is value-oriented (Daimler, 2015, p. 63). Among the KPIs employed by Deutsche Telekom are RoCE, EBIT, and free cash flow.

Dedicated to “creat[ing] long-term value by addressing future needs” SAP uses VBM and it concentrates on two different goals: “We use various performance measures to help manage our performance with regard to our primary financial goals, which are growth and

profitability, and our primary non-financial goals, which are customer loyalty and employee engagement” (SAP, 2015, p. 59).

The Italian company Unicredit describes in its annual report its “principles of value creation and capital allocation” (Unicredit, 2015, p. 36). The main performance indicator used by Unicredit is the EVA.

From the excerpts of the annual reports it becomes apparent that the companies implementing VBM systems do have slightly different understandings, approaches, and KPIs in use. However, as all companies of EURO STOXX 50 index do claim to create value, in the next step of the paper the author analyses the degree to which these companies concentrate not only on organizational growth, but also on organizational sustainability. Sustainability could be achieved if women too were given the chance to be in top positions. The next section contains a literature review with regard to the presence of women on boards and women quota and it introduces the hypothesis of this paper.

4. Women on boards and women quota – a literature review

A controversial issue during the past decades was women’s presence in supervisory boards. Women are still the exception in German supervisory boards but their representation increased gradually (Holst and Kirsch, 2014). It can be seen that more women are integrated in supervisory boards in Northern Europe (e.g. Norway, Iceland, Latvia, Finland and Sweden to mention the top 5 countries with the highest women quota). It depends on the examined countries if a study can find a significant link between firm performance and the women quota in supervisory boards. On the one hand, it was shown e.g. for Denmark that a higher women quota in supervisory boards can determine a better company performance (Lückerath-Rovers, 2011) but on the other hand, this finding could not be verified for the same country by other studies (Rose, 2007).

Beaufort and Summers (2013) identified at European level a 1.5% change of women representation in mainly male supervisory boards between 2009 and 2013. If women were already member in a supervisory board, the women quota was likely to increase further. When one woman was a board member, the women quota stood at 3.2%; by already 3 women in the supervisory board, the women quota increased to 3.7%. According to the above study the average women quota in supervisory boards in Europe in 2013 was 7.9%. France stood out as a positive example with a women quota of 28.1% in 2013.

Another study on women in European listed companies suggests positive effects of diverse boards on corporate governance and even on firm performance (Buchwald and Hottenrott, 2014). A similar result was registered by a Catalyst study which examines the relationship between women on corporate boards and their companies' financial performance in the United States (Catalyst, 2007). The study "Women matter. Gender diversity, a corporate performance driver" shows that companies with a higher proportion of women in top management perform better (McKinsey, 2007). Other authors signal rather the lack of evidence that female representation in supervisory boards improves profitability (Ferreira, 2014). It is suggested that rather benefits for the society should be measured when women occupy supervisory board positions. In a study with 108 German large corporations which took place between 2009 and 2013, there was not enough evidence to indicate a significant relationship between gender diversity and firms' financial performance (Dick, 2015).

There are however, institutional factors driving gender quotas in supervisory boards such as e.g. welfare provision for state-owned enterprises, political coalitions and a legacy of initiatives (Terjesen, Aguilera and Lorenz, 2015). It is more likely to establish a high gender quota in supervisory board with left-leaning governments. In a survey of 201 Norwegian firms the positive effect of the women quota in supervisory boards is seen in increased board development activities and in a decreased level of conflict (Nielsen, 2010). Another exhaustive study, in which 2.360 companies from the Morgan Stanley Capital International All Country World Index (MSCI ACWI) were observed over a period of 6 years by the Credit Suisse Research Institute (2012) shows as a result a better mix of leadership skills, a wider pool of talent and a better risk aversion, the higher the women quota in supervisory boards in the companies is (Kersley and O'Sullivan, 2012).

Many studies (e.g. Bilimoria, 2006; Terjesen, Sealy and Singh, 2009) suggest also a positive relationship between female supervisory board members and the number of women officers in management.

What needs to be acknowledged is the fact that gender balance became a priority and diversifying corporate supervisory boards often represent a target to be achieved. Small improvements can be seen with a law instituted quota for women in supervisory boards (Corkery and Taylor, 2012). In Norway, Italy, France, Spain and starting with 2016 also in Germany binding gender quota exist (Sullivan, 2015). Norway was the first country to legislate board quotas in 2004 and many countries followed with law determined or

optional women quotas in supervisory boards, however, less than 10 % of the board members consist of women (Dizik, 2015).

Moreover, men in supervisory boards have often better networks and for this reason the male supervisory board managers often recruit male followers which minimizes the women quota in supervisory boards on the long run (Terjesen, Aguilera and Lorenz, 2015). Rosa, Carter and Hamilton (1996) analysed the impact of gender on small business performance in the United Kingdom (UK) and concluded that there are “some considerable differences by sex in quantitative economic and financial performance measures” (p. 476).

Kalleberg and Leicht (1991) examined organizational performance in terms of survival and success and according to the results of their study, companies that have a high women quota in supervisory boards are not more likely to go bankrupt than those with a high male quota, because both men and women are equally successful with regard to earnings growth.

Another study with reversed causality shows that in over 3,876 public companies the presence of independent female directors is necessary in supervisory boards to contribute best to the firms’ performance (Terjesen, Couto and Francisco, 2015). This means that, when no women are included as supervisory board members, the companies’ results are lower (measured by Tobin’s Q and shown by the Return on assets ROA). Finally, another study with reversed causality about 151 of the capital market listed German firms shows that only after a critical mass of about 30% (e.g. 3 women in absolute positions) is attained, then a higher firm performance can be reached (Joecks, Pull and Vetter, 2012).

The present research focuses on the companies of the EURO STOXX 50 index, and aims at exploring whether there is a link between the EBT of these successful European companies and the number of women in supervisory boards. It has to be noted that the relationship between the EBT and the women quota in management boards was analysed thoroughly by Binder, Alonso-Almeida und Bremser (2016), however, the focus of this article lies on the supervisory board and especially on the link between firms’ performance measured by EBT and the proportion of women on the supervisory boards. The following hypothesis are formulated and will be tackled in the following sections:

H1: Enterprises which have a higher gender quota in supervisory boards are more successful and achieve a higher EBT.

H2: Enterprises of technologically more innovative sectors require more women in supervisory board functions in order to achieve success.

H3: Enterprises of traditional sectors often don't see an impact on their companies and refuse to promote more women in supervisory board positions.

H4: Country or sector specific gender quotas in supervisory boards for the EURO STOXX 50 companies lose their relevance concerning Europe as a whole.

5. Methodology

The EURO STOXX 50 Index was selected to represent the performance of the 50 largest companies among 19 supersectors in the year 2015. There are enterprises of seven Eurozone countries which are integrated in this index. This index has a fixed number of components and is part of the STOXX blue-chip index family. Moreover, EURO STOXX 50 index is one of the most liquid indices for the Eurozone and serves for benchmarking purposes. The index is a financial control index which ensures stable and up-to-date figures. It represents the performance of only the largest and most liquid companies in a sector (STOXX Limited, 2016). The EURO STOXX 50 Index was chosen in this publication as value and value creation was not analyzed before for these 50 companies.

The following table gives an overview of the 50 companies which are part of the EURO STOXX index, their sector of activity, country of origin, the percentage of women on their supervisory boards, as well as information on whether these companies use VBM.

No.	Company name	Sector	Country	Representation of women on board	Value based
1	Air Liquide	Chemicals	FR	41,7%	✗
2	AIRBUS GROUP SE	Industrial Goods & Services	FR	16,7%	✓
3	ALLIANZ	Insurance	DE	30,8%	✗
4	ANHEUSER-BUSCH INBEV	Food & Beverage	BE	14,3%	✗
5	ASML HLDG	Technology	NL	33,3%	✗
6	ASSICURAZIONI GENERALI	Insurance	IT	40,0%	✗
7	AXA	Insurance	FR	35,7%	✗
8	BASF	Chemicals	DE	25,0%	✓
9	BAYER	Chemicals	DE	20,0%	✓
10	BCO BILBAO VIZCAYA ARGENTARIA	Banks	ES	25,0%	✗
11	BCO SANTANDER	Banks	ES	36,4%	✗
12	BMW	Automobiles & Parts	DE	30,0%	✓
13	BNP PARIBAS	Banks	FR	50,0%	✗
14	CARREFOUR	Retail	FR	25,0%	✗
15	DAIMLER	Automobiles & Parts	DE	25,0%	✓
16	DANONE	Food & Beverage	FR	38,5%	✗
17	DEUTSCHE BANK	Banks	DE	31,8%	✗
18	DEUTSCHE POST	Industrial Goods & Services	DE	35,0%	✗
19	DEUTSCHE TELEKOM	Telecommunications	DE	40,0%	✓
20	E.ON	Utilities	DE	16,7%	✗
21	ENEL	Utilities	IT	33,3%	✗
22	ENGIE	Utilities	FR	57,9%	✗
23	ENI	Oil & Gas	IT	20,0%	✗
24	ESSILOR INTERNATIONAL	Health Care	FR	18,8%	✗
25	FRESENIUS	Health Care	DE	0,0%	✗
26	GRP SOCIETE GENERALE	Banks	FR	50,0%	✗
27	IBERDROLA	Utilities	ES	38,5%	✗
28	Industria de Diseno Textil SA	Retail	ES	25,0%	✗
29	ING GRP	Banks	NL	25,0%	✗
30	INTESA SANPAOLO	Banks	IT	26,3%	✗
31	L'OREAL	Personal & Household Goods	FR	40,0%	✗
32	LVMH MOET HENNESSY	Personal & Household Goods	FR	23,5%	✗
33	MUENCHENER RUECK	Insurance	DE	40,0%	✗
34	NOKIA	Technology	FI	25,0%	✗
35	ORANGE	Telecommunications	FR	40,0%	✗
36	PHILIPS	Industrial Goods & Services	NL	33,3%	✗
37	SAFRAN	Industrial Goods & Services	FR	23,5%	✗
38	SAINT GOBAIN	Construction & Materials	FR	40,0%	✗
39	SANOFI	Health Care	FR	35,7%	✗
40	SAP	Technology	DE	22,0%	✓
41	SCHNEIDER ELECTRIC	Industrial Goods & Services	FR	38,5%	✗
42	SIEMENS	Industrial Goods & Services	DE	30,0%	✗
43	TELEFONICA	Telecommunications	ES	11,0%	✗
44	TOTAL	Oil & Gas	FR	33,3%	✗
45	UNIBAIL-RODAMCO	Real Estate	FR	36,4%	✗
46	UNICREDIT	Banks	IT	20,0%	✓
47	UNILEVER NV	Personal & Household Goods	NL	54,6%	✗
48	VINCI	Construction & Materials	FR	40,0%	✗
49	VIVENDI	Media	FR	42,9%	✗
50	VOLKSWAGEN PREF	Automobiles & Parts	DE	15,0%	✗

Figure 2. Overview of the 50 EURO STOXX companies from 2015 (Source: own representation based on the information from: <https://www.stoxx.com/index-details?symbol= SX5E> and the annual reports of the res, retrieval date: 03/03/2017)

The research was conducted for the first time at the beginning of the year 2016 and it was carried on in the year 2017. The original study published in 2016 tackled the relationship between EBT and the women quota of executive boards, relying on data extracted from the 2014 annual reports of the fifty EURO STOXX companies and financial websites.

The current study looks at the number of women in supervisory boards as presented in the 2015 annual reports of the fifty EURO STOXX companies, and data regarding the EBT of each of the fifty companies was collected similarly to the research from 2016, via financial websites.

The composition of EURO STOXX index in 2015 changed slightly in comparison to the year before. Two new companies were included in the EURO STOXX index: Fresenius (Germany) and Safran (France) replaced Repsol (Spain) and REWE (Germany), a change which became effective on September 2015 (STOXX Limited, 2015). The composition change of the index takes place once a year, in September, when only the biggest companies are maintained on the basis of their market capitalization and their price index. Out of the 50 EURO STOXX companies four have e.g. the highest index weights: Total (France) with 4.78%, Sanofi-Aventis (France) with 4.39 %, Bayer (Germany) with 4.29 %, and Anheuser-Busch InBev (Belgium) with 4.11 %.

In order to examine how successful these companies are, the EBT was chosen as being a relevant KPI, taking thus into consideration the fact that companies may face different tax rates in different states. In other words, the lack of a harmonized taxation system across the Eurozone will not affect the results of this study, the EBT making possible a comparison of the 50 EURO STOXX companies at European level.

6. Findings

Figure 2 has already offered an overview of the 50 EURO STOXX companies, the sector in which they are active, and their country of origin. In the next figure it can be seen that the 50 EURO STOXX companies in Europe are located only in 7 countries. The allocation to different sectors can be seen for each country of EURO STOXX 50 index in figure 3.

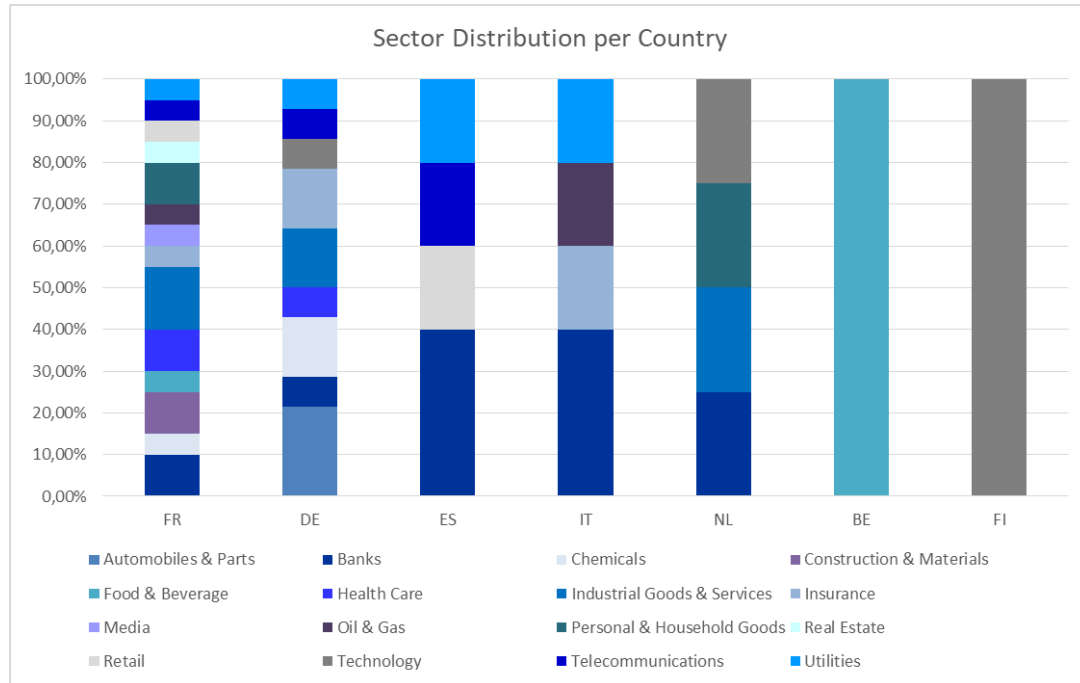


Figure 3. The 50 EURO STOXX countries in Europe and their sectors (Source: own representation based on the information from: <https://www.stoxx.com/index-details?symbol=SX5E>, retrieval date: 03/03/2017)

Hypothesis H2 (Enterprises of technologically more innovative sectors require more women in supervisory board functions in order to achieve success) and hypothesis H3 (Enterprises of traditional sectors often don't see an impact on their companies and refuse to promote more women in supervisory board positions) could not be verified in the sector specific analysis. It could be seen that the women quota is not much higher in technologically more innovative sectors like e.g. Media (42,86%) compared to traditional sectors like e.g. Construction & Materials (40,0%) and e.g. Personal & Household Goods (39,36%). Therefore, these two hypotheses could not be confirmed.

Figure 4 shows the number of companies that each country has in EURO STOXX 50 index. Most EURO STOXX companies are located in France (20) followed by Germany (14), Spain (5) and Italy (5). The Netherlands has four companies in the EURO STOXX index, while Belgium and Finland have only one big company.

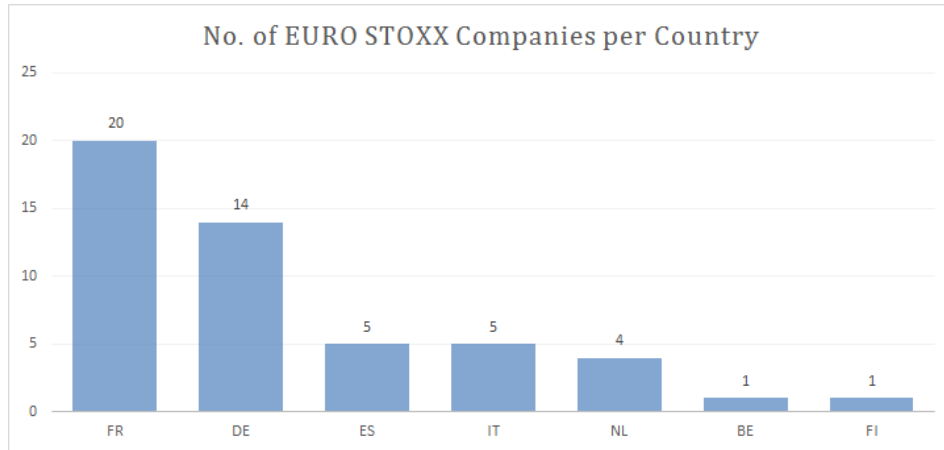


Figure 4. Number of EURO STOXX 50 companies per country (Source: own representation based on the information from: <https://www.stoxx.com/index-details?symbol=SX5E>, retrieval date: 03/03/2017)

In order to test the raised hypothesis (H1: Enterprises which have a higher gender quota in supervisory boards are more successful and achieve higher EBT), two steps are necessary. In a first step, the EBT of the EURO STOXX index should be examined. In a second step, the gender quota per sector and in total should be analyzed for supervisory boards and the findings should be brought together.

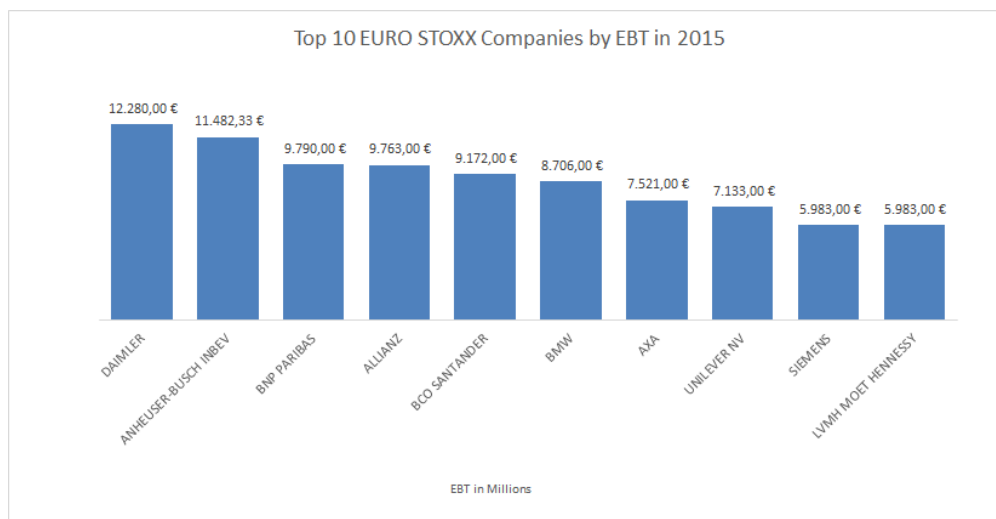


Figure 5. Top 10 EURO STOXX companies by EBT with figures of 2015 in million EUR (Source: own representation – the EBTs of all the 50 companies were taken from <http://www.finanzen.net/> - retrieval date: 03/03/2017)

Figure 5 shows a top 10 ranking of the EURO STOXX companies according to their achieved EBT in 2015. On the first place in 2015 was Daimler (Germany) with an EBT of €12.3 million. Daimler has overtaken Volkswagen (Germany), which was on the first place in 2014 with €10.8 million, but it suffered a serious draw back in 2015 due to the emissions scandal. Daimler is followed in the 2015 EBT-ranking by Anheuser-Busch InBev (Belgium) with €11.5 million and BNP Paribas (France) with € 9.8 million.

While in the 2014 EBT-ranking one could find Deutsche Bank (Germany), E-On (Germany), Enel (Italy) or Eni (Italy), in 2015 these four companies are no longer among the most powerful companies by EBT. Deutsche Bank e.g. suffered in 2015 claims for compensation and the energy sector went through a critical situation which caused in all cases lower EBTs for these companies.

When considering hypothesis 1 (Enterprises which have a higher gender quota in supervisory boards are more successful and achieve a higher EBT) it could be observed that a higher gender quota is not explicitly necessary for achieving a higher EBT. Daimler achieves the highest EBT but has a relatively small women quota (25,0%). The same can be said e.g. for Anheuser Busch Inbev which has the second highest EBT but has a women quota of only 14,3%. For this reason the first hypothesis could not be supported.

If by now the focus was on offering a broad insight on the EURO STOXX companies and the KPI EBT, in the following section the emphasis will be on completing this insight by introducing also the information on gender quotas in supervisory boards as found in the annual reports of the EURO STOXX companies. Figure 6 shows the percentage of women in supervisory boards in each of the 7 countries, as given by the EURO STOXX companies.

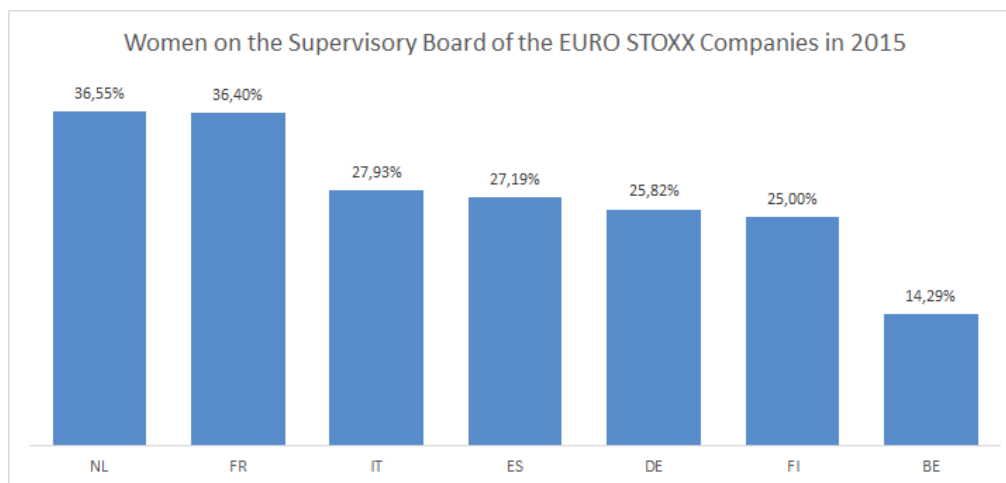


Figure 6. Number of women on the supervisory board of EURO STOXX companies in 2015 in different countries. (Source: own representation – the information with regard to the number of women on the supervisory board was extracted from the 2015 annual reports of the respective companies)

In six out of the seven countries the women quota in supervisory boards in 2015 is higher than 25% in average. In contrast only in two countries the women quota in management boards in the year 2014 was higher than 25%: This shows that there are more women in supervisory boards than in management boards. The highest women quota in supervisory boards has Netherland with 36.6% followed by France with 36.4%. Figure 6 shows that the expected women quota of 30 – 40% is not yet achieved by EURO STOXX companies.

Due to the fact that the countries Germany and France have the highest number of companies in EURO STOXX 50 index and the highest EBT per company and per employee these two countries are examined more closely.

By constructing a frequency distribution (figure 7), one can see that in France, most of its EURO STOXX companies have in the supervisory board a 40% women representation. Only one French company (Engie with 57%) has a women quota of up to 60% in the supervisory boards and four French enterprises have a women quota up to and including 50%: BNP Paribas, GRP Société Générale, Vivendi and Air Liquide.

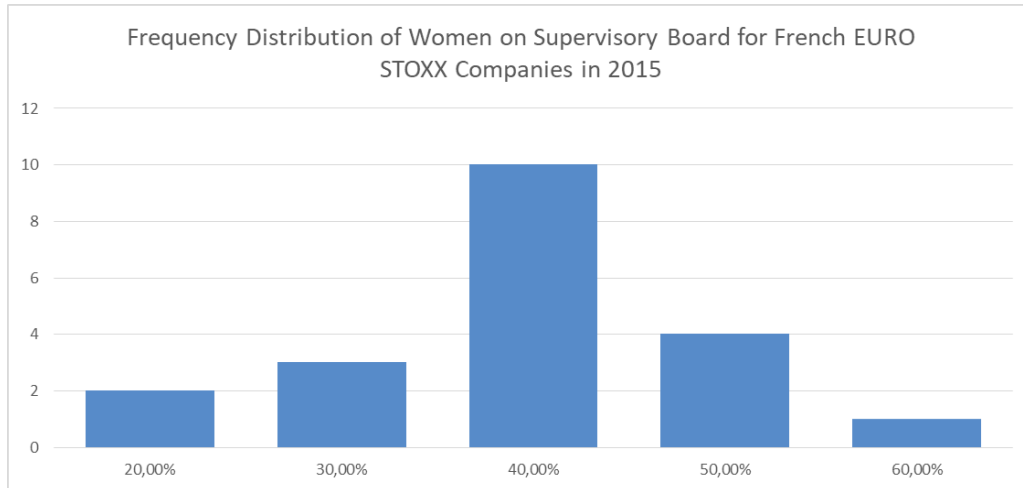


Figure 7. Frequency distribution of women on the supervisory board of French EURO STOXX companies in 2015 (Source: own representation – the information with regard to the number of women on the supervisory board was extracted from the 2015 annual reports of the respective companies)

The classes into which women from the supervisory boards of German companies could be divided are different in comparison with those of the French companies. There is no German company which reached a women quota in supervisory boards of 50% or up to 60%. The highest women quota in supervisory boards for German enterprises is that of maximum 40%. Enterprises that have such a high women quota are Deutsche Telekom and Münchener Rück (each with 40%), Deutsche Post (35%) and Deutsche Bank (32%) (see figure 7).

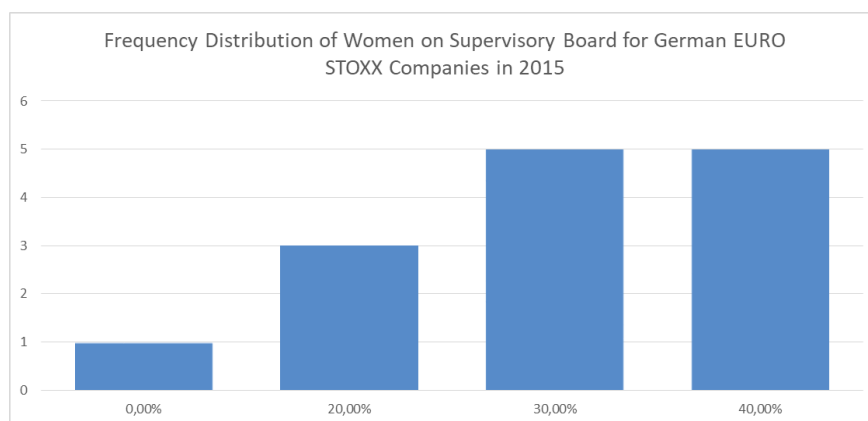


Figure 8. Frequency distribution of women on the supervisory board of German EURO STOXX companies in 2015. (Source: own representation – the information with regard to the number of women on the supervisory board was extracted from the 2015 annual reports of the respective companies)

As it can be observed, the companies having the highest women quota are not part of the top 10 ranked companies by EBT (BNP Paribas is the only exception here). When all French companies are considered and a correlation analysis is drawn between the percentage of women and the EBT of these companies, only a weak relationship between these two variables can be seen ($r=0.01$).

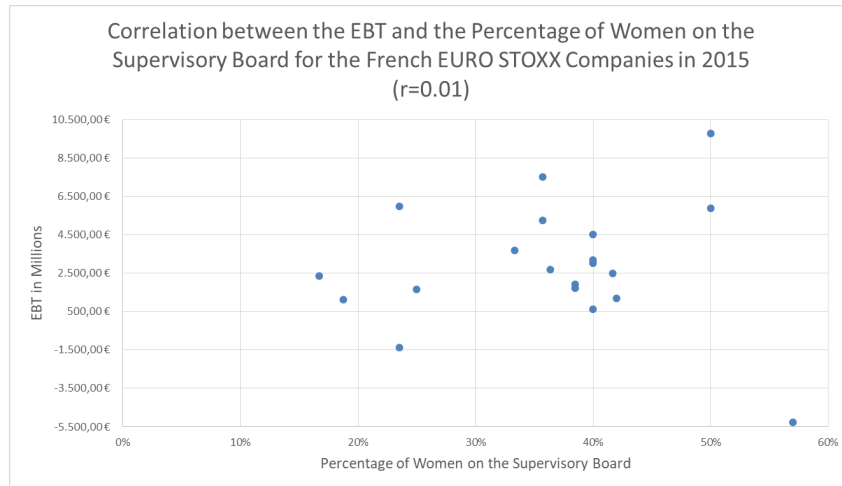


Figure 9. Correlation between EBT and women quota in supervisory boards of the French EURO STOXX companies in 2015 (Source: own representation – the information with regard to the number of women on the supervisory board was extracted from the 2015 annual reports of the respective companies)

A similar result was found also in the case of German companies after running a correlation for the EBT and the percentage of women on the supervisory board (see figure 10). An increasing women quota in the German companies seems to cause an increasing EBT.

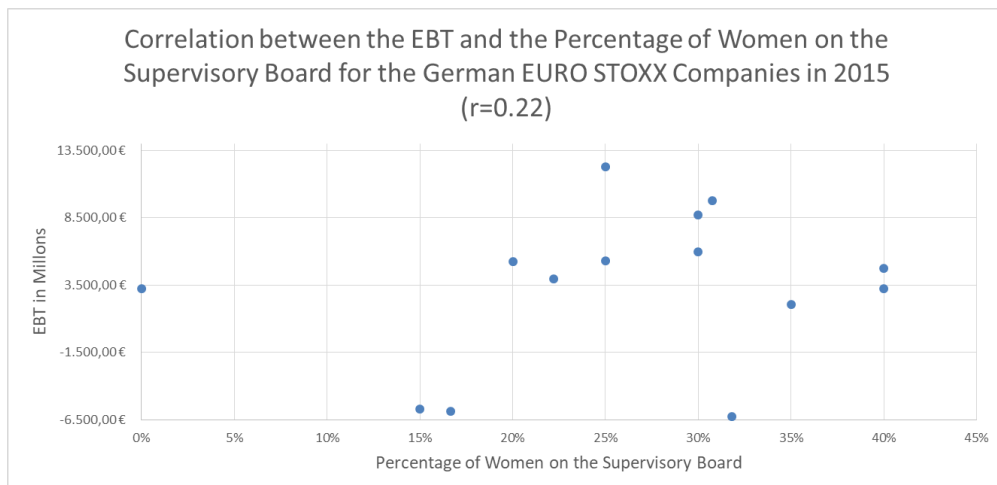


Figure 10. Correlation between the EBT and women quota in supervisory boards of the German EURO STOXX companies in 2015 (Source: own representation – the information with regard to the number of women on the supervisory board was extracted from the 2015 annual reports of the respective companies)

7. Discussion of results and conclusion

As the statistical analysis of the previous section has shown, hypothesis 1 (H1: Enterprises which have a higher gender quota in supervisory teams are more successful and achieve a higher EBT) cannot be supported. A recommendation for future research would be to repeat the analysis using another sample, not to choose the EURO STOXX 50 Index but another index.

Neither Hypothesis 2 (H2: Enterprises of technologically more innovative sectors require more women in supervisory board functions in order to achieve success), nor hypothesis 3 (H3: Enterprises of traditional sectors often don't see an impact on their companies and refuse to promote more women in supervisory board positions) could be verified. Finally hypothesis 4 (H4: Country or sector specific gender quotas in supervisory boards for the EURO STOXX 50 companies lose their relevance concerning Europe as a whole) can be seen as realistic because country-specific laws regulate the women quota in a unique way. Due to the fact that there are no laws at European level to regulate consistently the women quota on supervisory boards, country-specific laws are still relevant, determining different women quotas for different countries. This is the reason why the findings concerning EURO STOXX 50 index companies are not generalizable.

Nevertheless, these findings should be treated cautiously. They do not imply that women in supervisory positions are less effective than men. The success of a company is influenced by the entire supervisory board, male and female alike.

Moreover, a successful result in the form of EBT is generated mainly by the management board and not by the supervisory board only.

Furthermore, another type of information should be included in future research, such as women qualification, experience, educational background, etc. All these aspects could provide a more realistic image regarding the role of women in supervisory boards and company performance.

The quota of women in the supervisory boards is shown in this article on basis of the year 2015. However, the development of the women quota in supervisory boards remains to a certain degree constant over a period of time. The reason is that the term of office of supervisory board members is fixed via contracts for a certain time span – e.g. five years. For this reason no massive change of the women quota in supervisory boards can be expected. Additional research is needed to shed more light on this issue.

Moreover, as presented in the literature review, female participation in supervisory boards shows mixed results with regard to company performance. Therefore, a more holistic approach is needed, researching not only the number of women on board but also considering women participation in total workforce, industry' sectors, management, subsidiaries, etc.

In the same time EBT as a performance indicator provides only a rough approximation of company success, a combination of indicators could provide better results. Even the consequent measurement of the KPI EBT per employee in all cases as relative figure brings additional insights.

Moreover, depending upon the country of residence of the company, the board structure differs (Anglo-Saxon one-tier board versus German two-tier board system). Thus, a comprehensive indicator should be found, one which identifies only those women, which are actually able to influence company decisions. A long term research could bring more results and appropriate solutions to improve the situation of women on the boards of companies.

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