Gender Diversity in the Boardrooms of Public Companies in Poland: Changes and Implications

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ABSTRACT
Gender diversity in management became one of the “hot topics” in recent years. The literature reports examples of research proving all possible effects (i.e. both positive and negative together with lack of influence) of gender diversity among top managers to the company performance. (Research Aims). Therefore, the aim of our research is to find out the women share on boards of companies listed on the Warsaw Stock Exchange in the years 2010-2016, and to check how the changes in the gender structure of the management boards influence the company performance. (Research hypothesis). There is no essential gender diversity on the boards of Polish public companies, and change in the management structure does not affect the situation of the companies. (Method). In our investigation we use data provided by Notoria Serwis, and apply taxonomic measures together with dynamic and correlation analysis. (Conclusions). Our results show that it would be impossible to obtain the 40% parity level on boards till 2020 since increasing tendency of women representation in upper management is rather slow. There is no significant positive correlation between changes in the women share on boards and financial performance of companies, we observe only single negative significant relations.

INTRODUCTION AND BACKGROUND
The phenomenon of the gender and ethnic diversity of corporate boards encompasses at least two significant, and interrelated, propositions. The first viewpoint holds that those competent women and ethnic minorities with the human capital, external networks, information, and other characteristics of importance to the corporation deserve opportunities to serve on corporate boards and in upper management. The second proposition suggests that gender and ethnic diversity of directors results in better governance which causes the business to be more profitable. Karen J. Curtin, a former executive vice president of Bank of America, describes the interaction of the two propositions of board diversity in the following statement, “There is real debate between those who think we should be more diverse because it is the right thing to do and those who think we should be more diverse because it actually enhances share- holder value. Unless we get the sec-
In order to ensure sustainable functioning of the capital market, European Commission (EC) adopted the proposal of a directive about gender parity among non-executive directors of publicly listed companies with the exception of small and medium size enterprises. Similar regulations have been already existing in France, Spain, Norway and Germany, Belgium, Italy and the Netherlands, while for state-owned companies only - in Austria and Greece. However, there are different opinions about this legislative solution. The supporters underline that the men who dominate corporate boards promote people like themselves and ignore women therefore it is necessary to force changes by law. The opponents argue that in the majority of European countries sexism is no longer the main obstacle to women's careers and women themselves resign because for them family is more important than career. Therefore, most of female employees take career breaks to look after their children. Also being manager (especially senior manager) requires spending more time at work, attending evening meetings, travelling or even working in more than one country, and such requirements disrupt families thus many women turn managerial positions down.

Employment of women in listed companies in Poland has been growing systematically. Therefore, it is worth asking, especially in the light of the EC directive, the following questions.

- What is the women's engagement level in executive and supervisory boards of companies from the Polish capital market?
- Is the women's employment in senior management of various segments of the Polish capital market comparable to the capital markets in other states?
- How advanced is the implementation of the EC directive?
- How changes in the gender structure of the management boards influence the company performance?

The aim of the paper is to answer the above mentioned questions on the basis of research conducted for the companies listed on The Warsaw Stock Exchange in the years 2010-2016. In our investigation we use data provided by Norotia Serwis, and apply multidimensional statistical analysis, namely taxonomic measures together with dynamic and correlation analysis methods.

1. WOMEN IN BOARDROOMS WORLDWIDE

The increase of women participation in the management of enterprises and institutions became a “hot” topic among politicians, economists and researchers. There is a significant body of literature on gender diversity within senior management, see (Richard, Barnett, Dwyer & Chadwick, 2004; Campbell & Minguez-Vera 2008; Carter, D’Souza, Simkins & Simpson, 2010; Joecks, Pull & Vetter, 2013; McPhail, 2010) among others. However, the opinions concerning the role of women directors and benefits for the company performance from the increase of the gender diversity in boards are diversified. There are researchers who find advantages from the increasing number of women in management, especially positive effects on firm performance, for example (Bear, Rahman & Post, 2010; Catalyst, 2004; Desvaux, Devillard-Hollinger & Baumgarten 2007; Devillard, Graven, Lawson, Paradise and Sancier-Sultan, 2012; Curtis, Schmid & Struber 2012; Lenard, Yu, York & Wu, 2014; Lisowska, Zachorowska, Sznajder & Grabowska, 2014, p. 4 and 21-29; McKinsey, 2007; Smith, Smith & Verner, 2006). These authors claim that more women at the top managerial positions is supposed to be good not only for women but also for corporations because:

- the companies faster improve results and are more profitable,
- the stability of the company increases since women are less likely to risk,
- the price of the company shares rises more rapidly,
- it increases the firms’ corporate social responsibility ratings,
- the employees are more satisfied with their work, and more productive.
However, some authors show that there is no significant relation between gender diversity and economic performance (see results obtained by: Carter et al, 2010; Farrel and Hersch, 2005; Wang and Clift, 2009; Kompa et al, 2016). Adams & Ferreira, 2009 claim that average effect of gender diversity on firm performance is negative. Lee and James (2007) and Adams, Gupta & Leeth, (2009) documented a negative short-run market reaction to the appointment of female CEOs. Whereas Ahern and Dittmar (2012), examining the influence of 40% quotas in the boards of directors of Norwegian companies, find that quota caused a significant drop in the stock price and large decline in Tobin’s Q over the following years. Bertrand, Black, Jensen & Lleras-Muney (2014) claim that in the short run quota in Norway had very little discernable impact on women in business beyond its direct effect on the newly appointed female board members.

In fact, the impact of gender diversity at upper management is not uniform since it depends on the region, industry, size of company, etc. (Whittaker, 2014, p. 5). It also depends on the general situation of the company (see Triana et al, 2013) and applied methodology since empirical findings on the link between gender diversity and performance have been inconsistent (Ali et al, 2011).

Table 1. Representation of women on the boards of large listed companies in the EU in the years 2010-2015

| Year    | Share of women | Action taken by European Commission                                                                 |
|---------|----------------|-------------------------------------------------------------------------------------------------------|
| Oct. 2010 | 11.9%          | Sept. 2010, Strategy for Equality between Women and Men (2010-2015)                                   |
| Oct. 2011 | 13.7%          | Mar. 2011, Call for self-regulation: Women on the Board Pledge for Europe                             |
| Jan. 2012 | 13.8%          | Mar. 2012, Progress report: self-regulation not working                                               |
| Oct. 2012 | 15.8%          | Nov. 2012, Legislative proposal                                                                      |
| Apr. 2013 | 16.6%          |                                                                                                      |
| Oct. 2013 | 17.8%          | Nov. 2013, European Parliament backs proposal                                                         |
| Apr. 2014 | 18.6%          | Linear trend function estimated for semiannual data 2010-2015:                                       |
| Oct. 2014 | 20.2%          | \( y = 0.97 + 10.12; R^2 = 0.9681 \) and both statistically (at the level \( \alpha = 0.05 \))     |
| Apr. 2015 | 21.5%          | parameters significant                                                                               |

Source: Own calculation on the basis of (EU, 2014, p. 3, and 2016, p. 2).

The European Union Commission improving the gender balance in company boardrooms proposed in 2012 legislation with the aim of attaining a 40% objective of the under-represented sex in non-executive board-member positions in publicly listed companies, employing more than 250 employees with a turnover of 50 million € or total assets of over 43 million €. By 2020, in these companies the 40% women employment quota in the above mentioned positions is to be obtained. It is worth mentioning that quota (in Table 2 countries with quotas in place are denoted by *) is an administrative way which strongly affects decisions made in companies and it may cause unwanted situations such as this same women in the boards of many companies.

In November 2012, boards are dominated by one gender: 85% of non-executive board members and 91.1% of executive board members were men. Changes in the women representation on the boards of large listed companies in the EU in the years 2010-2015 and action taken by the European Commission is presented in Table 1. According to the estimated linear trend in the period from October 2010 to April 2015, the share of women on the boards was increasing by one percent every half a year. It means that in October 2020 there will be 31.5% women in boardrooms of EU companies, and suggested 40% quotas will be obtained in April 2025.

The situation in EU member states essentially differ, and has been changing (Table 2). In three years from October 2010 to October 2013 the share of women on boards increased in 22 of the 28 EU member states. The biggest increase was observed in France by 17.4 pp, Slovenia 11.8 pp, the Netherlands 10.2 pp and Germany 8.8 pp. While in Romania it decreased by 13.5 pp, in Hungary by 2.3 pp, in Czech Republic by 1 pp. In 2013 the average share of women on boards EU-28 was 21.5%.
17.8% but in Poland this share equaled 12.3% (in Finland and France nearly 30%, and in Latvia - 29%). In Oct. 2013 women represent 11.8% of executives and 18.8% of non-executives. 2.8% of CEOs were women.

Table 2. Share of women on the boards of large listed companies in the EU member states

| EU States | Share of women on the boards | Changes |
|-----------|------------------------------|---------|
|           | October 2013 | April 2015 |
| Finland   | FI            | 29.8% | 32.8% | 10.1% |
| France*   | FR            | 29.7% | 29.5% | -0.7% |
| Latvia    | LV            | 28.6% | 32.3% | 12.9% |
| Sweden    | SE            | 26.5% | 29.4% | 10.9% |
| Netherlands* | NL          | 25.1% | 23.8% | -5.2% |
| Slovakia  | SK            | 24.0% | 13.6% | -43.3% |
| Denmark   | DK            | 22.9% | 25.8% | 12.7% |
| Slovenia  | SI            | 21.6% | 22.2% | 2.8% |
| Germany*  | DE            | 21.5% | 25.4% | 18.1% |
| United Kingdom | UK       | 21.0% | 25.8% | 22.9% |
| Belgium*  | BE            | 16.7% | 23.4% | 40.1% |
| Bulgaria  | BG            | 16.7% | 17.6% | 5.4% |
| Lithuania | LT            | 16.1% | 16.3% | 1.2% |
| Croatia   | HR            | 15.1% | 20.3% | 34.4% |
| Italy*    | IT            | 15.0% | 25.8% | 72.0% |
| Spain*    | ES            | 14.8% | 16.8% | 13.5% |
| Austria*  | AT            | 12.6% | 17.8% | 41.3% |
| Poland    | PL            | 12.3% | 17.6% | 43.1% |
| Luxemburg | LU            | 11.3% | 11.1% | -1.8% |
| Czech Rep. | CZ         | 11.3% | 11.6% | 2.7% |
| Hungary   | HU            | 11.3% | 11.1% | -1.8% |
| Ireland   | IE            | 11.1% | 13.2% | 18.9% |
| Portugal  | PT            | 8.8%  | 10.7% | 21.6% |
| Greece*   | EL            | 8.4%  | 10.3% | 22.6% |
| Romania   | RO            | 7.8%  | 11.3% | 44.9% |
| Estonia   | EE            | 7.3%  | 8.0%  | 9.6% |
| Cyprus    | CY            | 7.3%  | 8.4%  | 15.1% |
| Malta     | MT            | 2.1%  | 2.5%  | 19.0% |
| EU average | FI          | 17.8% | 21.2% | 19.1% |

Note: * denotes countries with quotas in 2013
Source: Own elaboration on the basis of (EU, 2014, p. 4-6 and 2016 p. 6-7).

In April 2015 European Commission reported 7.1% of women among board chairs and only 3.6% among CEOs. It is also documented that in comparison to October 2010 women representation on boards of large listed companies increased in 24 EU states. Italy, which increased female representation the most, recorded 21.2 pp. rise and the second is France (20.5pp). Slovenia, United Kingdom, Germany and Belgium reported increase from 12.4pp. to 12.9pp. Czech Republic, Hungary, Slovakia and Romania experienced decrease from 0.7pp to 10 pp., respectively. One may also notice significant changes which took place in 2015 in comparison to 2013 – huge increase (by 72%) in Italy, significant rise (40%-45%) in Poland, Romania, Austria and Belgium, and moderate increase (21%-34%) in UK, Croatia, Greece and Portugal. Although the significant decrease of over 40% is observed in Slovakia.

The factors which influence women participation in managerial bodies in different countries are connected with tradition, culture, religion and education. Table 3 shows the women representation in managerial bodies in 44 countries grouped geographically in the years 2011-2013. As one may notice, the Scandinavian countries are the leaders followed by Israel, South Africa, USA, Canada and some UE member states. Arabic countries as Saudi Arabia, Qatar, etc. together with Japan and S. Korea are on the opposite side with very small representation of female managers.
Table 3. Global board seats held by women [%%]

| Country       | 2011 | 2012 | 2013 |
|---------------|------|------|------|
| **Europe**    |      |      |      |
| Austria       | 7.5  | 7.5  | 11.3 |
| Belgium       | 7.7  | 7.7  | 9.2  |
| Denmark       | 13.9 | 13.9 | 17.2 |
| Finland       | 24.5 | 24.5 | 26.8 |
| France        | 12.7 | 12.7 | 18.3 |
| Germany       | 11.2 | 11.2 | 14.1 |
| Greece        | 8.8  | 8.8  | 7.0  |
| Ireland       | 9.5  | 9.5  | 8.7  |
| Italy         | 3.7  | 3.7  | 8.2  |
| Netherlands   | 14.0 | 14.0 | 17.0 |
| Norway        | 39.5 | 40.1 | 40.5 |
| Poland        | 10.8 | 10.8 | 13.6 |
| Portugal      | 2.3  | 2.3  | 3.7  |
| Russia        | 5.9  | 5.9  | 4.8  |
| Spain         | 9.3  | 9.3  | 9.5  |
| Sweden        | 27.3 | 27.3 | 27.0 |
| Switzerland   | 8.7  | 8.7  | 10.0 |
| Turkey        | 10.8 | 10.8 | 12.7 |
| UK            | 12.5 | 15.0 | 20.7 |
| **South America** |    |      |      |
| Brazil        | 5.1  | 5.1  | 7.7  |
| Chile         | 1.9  | 1.9  | 2.8  |
| Australia     | 8.4  | 8.4  | 12.3 |
| New Zealand   | 9.3  | 7.5  | 7.5  |
| **Asia: Middle and Far East** | | | |
| China         | 8.5  | 8.5  | 8.1  |
| Hong Kong     | 8.9  | 9.0  | 9.6  |
| India         | 5.3  | 5.3  | 4.8  |
| Indonesia     | 4.5  | 4.5  | 6.0  |
| Japan         | 0.9  | 0.9  | 1.1  |
| Malaysia      | 6.3  | 7.8  | 7.8  |
| Singapore     | 7.3  | 6.9  | 7.9  |
| South Korea   | 1.9  | 1.9  | 1.9  |
| Taiwan        | 6.1  | 6.1  | 4.4  |
| Thailand      | 8.7  | 8.7  | 9.7  |
| **Asia: Near East** | | | |
| Israel        | 15.0 | 15.0 | 16.6 |
| Bahrain       | 1.0  | 1.0  | 1.7  |
| Kuwait        | 2.7  | 2.7  | 1.7  |
| Oman          | 2.3  | 2.3  | 1.8  |
| Qatar         | 0.3  | 0.3  | 0.3  |
| Saudi Arabia  | 0.1  | 0.1  | 0.1  |
| UAE           | 0.8  | 0.8  | 1.2  |
| **North America** | | | |
| Canada        | 10.3 | 10.3 | 12.1 |
| United States | 15.7 | 16.1 | 16.9 |
| Mexico        | 6.8  | 6.8  | 5.8  |
| **South Africa** | | | |
| South Africa  | 15.8 | 15.8 | 17.1 |

Source: Own elaboration on the basis on (Catalyst, 2011, 2012, 2014).

Table 4. Percentage shares of the board chairwomen

| Country       | 2011 | 2012 | 2013 |
|---------------|------|------|------|
| Turkey        | 11.1 | 11.1 | 11.8 |
| South Africa  | 5.3  | 5.3  | 5.5  |
| Philippines   | 0.0  | 0.0  | 5.3  |
| Italy         | 3.8  | 3.8  | 5.2  |
| Israel        | 5.0  | 5.0  | 5.0  |
| New Zealand   | 0.0  | 4.0  | 5.0  |
| Poland        | 6.7  | 6.7  | 4.8  |
| Sweden        | 2.5  | 2.5  | 4.5  |
| Belgium       | 4.2  | 4.2  | 4.2  |
| Denmark       | 0.0  | 0.0  | 4.2  |
| Mexico        | 4.3  | 4.3  | 4.2  |
| Canada        | 3.2  | 3.6  | 4.1  |
| China         | 3.1  | 4.1  | 4.0  |
| Brazil        | 5.4  | 5.4  | 3.9  |
| Indonesia     | 4.3  | 4.3  | 3.1  |
| **United States** | | | |
| Australia     | 2.5  | 2.5  | 3.0  |
| Singapore     | 2.0  | 3.0  | 2.7  |
| Spain         | 0.0  | 0.0  | 2.3  |
| Germany       | 1.2  | 1.2  | 2.2  |
| Hong Kong     | 2.4  | 2.4  | 2.1  |
| France        | 2.0  | 2.0  | 2.0  |
| India         | 0.0  | 2.0  | 2.0  |
| Malaysia      | 0.0  | 2.0  | 2.0  |
| South Korea   | 3.3  | 3.3  | 1.9  |
| Taiwan        | 1.2  | 1.2  | 1.9  |
| United Kingdom| 2.0  | 1.0  | 1.0  |
| Ireland       | 5.3  | 5.3  | 0.0  |
| Russia        | 3.8  | 3.8  | 0.0  |
| Switzerland   | 1.9  | 1.9  | 0.0  |

Source: Own elaboration on the basis on (Catalyst, 2011, 2012, 2014).

Regardless the share of women in the boards of directors there is still very small representation of women as a board chair. Table 4 contains percentage shares of chairwomen of management boards by countries ordered according to the women representation observed in 2013. It is worth noticing that the situation in Europe seems to be rather bad although the first place in this ranking is kept by Turkey, which being classified as European states is in fact Near East and Islamic country. Poland keeps the second position in this ranking in the years 2011 and 2012. We
would like to mention that the percentage participation of women CEOs in Austria, Czech Rep., Finland Greece, Hungary, Netherlands, Norway and Portugal was 0.0 (taking into account this level of accuracy). Comparison of data presented in tables 3 and 4 shows that there is no simple relation between representation of women as a board chairs and the share of women in boards and quotas.

2. WOMEN IN BOARDS OF PUBLICLY LISTED COMPANIES IN POLAND

Analysis of women representation in the supervisory and executive boards and as chairs in the years 2010-2016 is provided for the whole capital market in Poland, the main market of the Warsaw Stock Exchange (WSE) and NewConnect (NC). We also investigate situation in companies which are state owned at least in 25%. In our study we compare the situation in boards in June of following years, applying data concerning all companies listed on the Warsaw Stock Exchange available in Notoria Serwis.

Table 5. Percentage share of women on the executive and supervisory boards of companies listed on the Warsaw Stock Exchange - Market type perspective

| Year | Women on the executive boards | Women as Presidents |
|------|-------------------------------|---------------------|
|      | Total | WSE | NC | Total | WSE | NC |
| 2010 | 11.1  | 10.8| 11.0| 7.1   | 6.3 | 9.6 |
| 2011 | 11.9  | 10.6| 14.2| 7.9   | 6.8 | 10.7|
| 2012 | 13.0  | 12.0| 14.1| 7.3   | 6.5 | 8.3 |
| 2013 | 12.5  | 11.5| 14.5| 7.9   | 6.7 | 9.2 |
| 2014 | 12.7  | 12.0| 14.0| 7.2   | 7.5 | 6.8 |
| 2015 | 12.4  | 11.6| 14.0| 7.4   | 7.6 | 7.3 |
| 2016 | 12.0  | 11.1| 13.8| 7.0   | 6.9 | 7.2 |

| Year | Women on the supervisory boards | Chairwomen |
|------|--------------------------------|------------|
|      | Total | WSE | NC | Total | WSE | NC |
| 2010 | 12.1  | 10.7| 17.9| 11.7  | 9.1 | 21.3|
| 2011 | 11.8  | 10.6| 15.3| 10.2  | 8.2 | 15.3|
| 2012 | 14.5  | 11.2| 19.8| 12.8  | 8.5 | 18.5|
| 2013 | 14.5  | 11.4| 18.9| 12.5  | 8.9 | 16.7|
| 2014 | 17.0  | 13.3| 21.5| 12.8  | 9.1 | 16.9|
| 2015 | 18.0  | 14.2| 22.3| 13.3  | 9.9 | 17.1|
| 2016 | 18.8  | 15.1| 23.5| 11.7  | 7.8 | 17.1|

Note: WSE denotes WSE main market while NC denotes WSE NewConnect
Source: own calculation on the basis of data from Notoria Serwis

In the supervisory boards of listed companies men are dominating and there are no significant changes in the period of research. There are from 10.7% to 23.5% of women in boardrooms. Companies listed on NewConnect are often family business and the women representation in management is essentially bigger there than on the main market (Table 5). Similar situation is observed when women senior managers of companies listed is taken into consideration although the share of women CEOs is significantly smaller, i.e. from 6.1% to 10.7% whereas chairwomen of supervisory boards are from 7.8% to 21.3%. It may be also noticed that there are more women in the supervisory than in executive boards.

To answer the question if it is possible to reach the level of 40% women in supervisory boards of public companies we estimated (on annual data) trend functions for all companies and the ones from the main market.
Both trend functions well describe changes of the women representation in boardrooms since determination coefficients are high, and all parameters essentially differ from zero. From obtained parameter estimates, assuming \textit{ceteris paribus}, we conclude that the level of 40% women in supervisory boards will be obtained for the total market in 2033 and the main market not earlier than in 2047. However, one should realize that we consider all companies, also these medium and small size.

Table 6. Percentage share of women on different positions in the executive and supervisory boards of companies listed on the Warsaw Stock Exchange - Market type perspective

| Year | Executive boards | | | Supervisory boards | |
|------|------------------|------------------|------------------|------------------|------------------|
|      | President        | Vice-President   | Member           | Chairwomen       | Vice-Chairwomen  | Member           |
| 2010 | 7.1              | 10.0             | 16.1             | 11.7             | 9.1              | 21.3             |
| 2011 | 7.9              | 11.2             | 16.8             | 10.2             | 8.2              | 15.3             |
| 2012 | 7.3              | 13.9             | 18.7             | 12.8             | 8.5              | 18.5             |
| 2013 | 7.9              | 12.4             | 18.1             | 12.5             | 8.9              | 16.7             |
| 2014 | 7.2              | 12.4             | 19.8             | 12.8             | 9.1              | 16.9             |
| 2015 | 7.4              | 12.3             | 18.5             | 13.3             | 9.9              | 17.1             |
| 2016 | 7.0              | 11.6             | 18.3             | 11.7             | 7.8              | 17.1             |
| 2016/2010 | -1% | 16% | 14% | 0% | -14% | -20% |

Table 7. Percentage share of women on the executive and supervisory boards of companies listed on the WSE - Warsaw Stock Exchange indexes and sector perspectives

| Year | WIG20 | mWIG40 | sWIG80 | WIG20 | mWIG40 | sWIG80 |
|------|-------|--------|--------|-------|--------|--------|
| 2014 | 5.3   | 12.1   | 11.5   | 17.6  | 10.3   | 11.3   |
| 2015 | 11.8  | 7.2    | 11.9   | 19.9  | 12.3   | 11.8   |
| 2016 | 12.6  | 6.7    | 11.3   | 18.3  | 11.2   | 14.2   |

| Year | Industry | Finance | Services | Industry | Finance | Services |
|------|----------|---------|----------|----------|---------|----------|
| 2014 | 10.5     | 15.1    | 13.0     | 16.5     | 14.8    | 18.9     |
| 2015 | 9.5      | 15.1    | 13.2     | 18.0     | 15.7    | 18.7     |
| 2016 | 9.3      | 14.4    | 12.4     | 18.5     | 15.3    | 20.5     |

Source: own calculation on the basis of data from Notoria Serwis

Table 6 contains data concerning women participation in different positions in managerial bodies. The smallest shares are observed among presidents and the biggest among members of executive and supervisory boards i.e. the leaking pipeline phenomenon is observed. The last row contains dynamic measure describing changes that took place during analyzed years which show that there is no improvement since in 2016 there is even less presidents than in 2010, and no change among chairwomen, and in general there are less women in supervisory boards.

Analysis is provided also for main WSE indexes and for three main sectors (Table 7). It is visible that, if the situation in 2016 is compared to 2014, there is an increase of women share in the supervisory boards and in the executive boards of the biggest companies included to the index
WIG20. But for medium and small size companies (from the indexes mWIG40 and sWIG80, respectively), together with all sectors the decrease of women participation in executive boards is observed. Investigation shows slight increase of the share of women in boardrooms in different economic sectors. Higher feminization in finance is visible.

The last comparison (Table 8) is made according to the essential changes in boards of state owned companies which started at the end of 2015 (after the last parliament election in Poland) and is called “good change” by politicians of victorious party. And it is hard to claim that there is any change.

Table 8. Women representation in boardrooms in new political situation “good change”

| Year | Women in the executive boards [%] | Women in the supervisory boards [%] |
|------|----------------------------------|-------------------------------------|
| 2015 | 3 (3.3%)                         | 22 (22.2%)                          |
| 2016 | 5 (5.4%)                         | 18 (17.6%)                          |

Number of companies with women on senior managerial positions

| Year | Number of companies |
|------|---------------------|
| 2015 | 230                 |
| 2016 | 225                 |

Source: own calculation on the basis of data from Notoria Serwis

Comparing the share of women on boards in companies creating the main stock indexes (Table 9) in the world wide capital market we notice that in 2014 Poland was ranked at the end of the list however the situation in 2016 diametrically changed (see Table 7) since this share was doubled in comparison to 2014.

Table 9. Women’s share of board seats at main index companies in 2014

| Country      | Stock index | % share |
|--------------|-------------|---------|
| West and North Europe |            |         |
| Norway       | OBX         | 35.5    |
| Finland      | OMXH25      | 29.9    |
| France*      | CAC40       | 29.7    |
| Sweden*      | OMXS30      | 28.8    |
| Belgium*     | BEL20       | 23.4    |
| UK           | FTSE100     | 22.8    |
| Denmark*     | OMXC20      | 21.9    |
| Netherlands* | AEX         | 21.0    |
| Germany*     | DAX         | 18.5    |
| Spain*       | IBEX35      | 18.2    |
| Switzerland  | SMI         | 17.0    |
| Ireland      | ISEQ       | 10.3    |
| Portugal     | PS20        | 7.9     |

| Country  | Stock index | % share |
|----------|-------------|---------|
| Central and East Europe |            |         |
| Slovenia | SBITOP      | 17.1    |
| Austria* | ATX         | 13.0    |
| Czech Rep. | PX      | 8.3     |
| Poland   | WIG20       | 5.1     |
| Hungary  | BUX         | 4.4     |

| North America |            |         |
|---------------|-------------|---------|
| Canada        | S&P/TSX 60  | 20.8    |
| USA           | S&P 500     | 19.2    |

| Asia-Pacific |            |         |
|--------------|-------------|---------|
| Australia    | S&P/ASX200  | 19.2    |
| Hong Kong    | Hang Seng   | 10.2    |
| Indie        | BSE200      | 9.5     |
| Japan        | TOPIX30     | 3.1     |

Source: Own elaboration on the basis of Catalyst (2014)

3. HOW WOMEN PARTICIPATION ON BOARDS INFLUENCES FINANCIAL PERFORMANCE OF COMPANIES

The question if gender of upper management or gender diversity in boards influences the firm performance is one of the main ones which should be asked before quota directive become a law. The problem is not trivial because it is very difficult to separate different factors affected economic
situation of the enterprise and to determine time span which is necessary to observe the effects of the manager decisions. Another problem is how to measure the firm performance (using ROE, ROA, Tobin’s Q, etc.) and “diversity” (i.e. - all manager boards, only supervisory or executive boards, or maybe CEOs).

We investigate situation of companies listed on the main market of Warsaw Stock Exchange. In fact, we use data concerning nearly 86% of companies quoted in the years 2010-2014 since companies (in different years) with lacking observations or outliers were excluded from our analysis. In total 1448 cases - companies classified to 16 economic sectors are investigated described in Table 10.

Table 10. The distinguished sectors

| Sectors                          | Sectors                           |
|----------------------------------|-----------------------------------|
| A Banks                          | I Wood and paper, light industry  |
| B Construction                   | J Electro-engineering & automobiles|
| C Developers                     | K Energy, oil and gas             |
| D Capital market, finance others | L Building materials               |
| E Retails                        | M Metals                           |
| F Wholesale                      | N Food                             |
| G IT                              | O Telecom and media                |
| H Chemicals, pharmaceutical, plastic materials | P Hotels and restaurants, services-others |

Note: Count of companies from the sectors A-O: 337 (87.76%) in 2010; 368 (86.79%) in 2011; 369 (84.83%) in 2012; 374 (84.42%) in 2014.
Source: own elaboration on the basis of WSE sectors

Table 11 contains information about female representation in boards in all analyzed sectors and years separately for executive and supervisory boards and women on the top positions i.e. president of the executive boards and chair in the supervisory boards. We consider women CEOs because it seems that the management decisions affecting financial performance are made only by them. In the analyzed period the biggest increase is observed in developers’ sector (by 78% in the executive boards and 433% in the supervisory boards) and the biggest decrease for building materials sector (by 37% in the executive boards and 19% in the supervisory boards) in 2013 in comparison to 2010. It is worth mentioning that, at least in one year, there is no woman president of the executive board in 8 sectors, and no chairwoman of the supervisory board in 6 sectors, and there are 4 sectors without women CEOs in all four years of analysis.

In our analysis we ask the question if annual changes in the gender structure of upper management in companies belonging to the sectors B-O are correlated with the changes of the financial situation of these sectors. Banks were excluded from this investigation (because they are considered individually) thus the number of investigated companies was reduced to 1393.

To evaluate the annual changes in female representation in:
- supervisory and executive boards,
- presidents of the executive boards, and
- chairs of the supervisory boards
we calculate the relative growth rates year by year for the period 2010-2013, thus increase of the women share is denoted by positive numbers while decreasing by negative ones.
Table 11. Share of women on executive and supervisory boards and chairwomen

| Sectors | Bodies                        | Share of women on boards | Share of women as chairs |
|---------|-------------------------------|--------------------------|--------------------------|
|         |                               | 2010  | 2011  | 2012  | 2013  | 2010 | 2011 | 2012 | 2013 |
| A       | Executive                     | 12.79 | 12.36 | 9.18  | 13.13 | 18.18| 9.09 | 7.69 | 6.67 |
|         | Supervisory                   | 7.62  | 6.60  | 10.43 | 14.17 | 7.69 | 7.69 | 7.14 | 13.33 |
| B       | Executive                     | 10.08 | 7.76  | 9.52  | 10.75 | 12.50| 6.25 | 3.45 | 11.11 |
|         | Supervisory                   | 12.21 | 15.10 | 14.59 | 15.68 | 6.06 | 8.82 | 3.23 | 3.45 |
| C       | Executive                     | 8.70  | 8.33  | 13.04 | 15.49 | 7.69 | 11.76| 21.05| 19.05 |
|         | Supervisory                   | 1.19  | 4.90  | 5.08  | 6.34  | 0.00 | 5.26 | 4.76 | 9.52 |
| D       | Executive                     | 18.75 | 22.09 | 21.25 | 20.88 | 20.33| 12.50| 12.90| 16.67 |
|         | Supervisory                   | 17.32 | 13.53 | 14.02 | 13.09 | 0.00 | 3.23 | 3.23 | 3.03 |
| E       | Executive                     | 14.71 | 11.67 | 10.34 | 11.54 | 5.00 | 0.00 | 0.00 | 5.26 |
|         | Supervisory                   | 9.00  | 12.15 | 12.75 | 8.91  | 0.00 | 0.00 | 0.00 | 0.00 |
| F       | Executive                     | 18.80 | 19.33 | 18.62 | 19.05 | 12.50| 15.38| 16.00| 11.54 |
|         | Supervisory                   | 6.72  | 7.69  | 7.55  | 6.86  | 0.00 | 0.00 | 3.70 | 3.70 |
| G       | Executive                     | 10.07 | 8.72  | 10.27 | 13.48 | 18.52| 7.41 | 11.54| 20.00 |
|         | Supervisory                   | 20.75 | 14.75 | 16.07 | 13.33 | 15.79| 20.53| 10.53| 10.00 |
| H       | Executive                     | 9.71  | 11.93 | 11.71 | 11.38 | 10.53| 11.11| 10.53| 15.00 |
|         | Supervisory                   | 7.14  | 7.32  | 9.76  | 6.25  | 0.00 | 0.00 | 0.00 | 0.00 |
| I       | Executive                     | 12.22 | 14.89 | 17.39 | 12.64 | 11.76| 11.11| 11.76| 6.25 |
|         | Supervisory                   | 9.52  | 10.00 | 10.99 | 8.33  | 0.00 | 0.00 | 0.00 | 0.00 |
| J       | Executive                     | 15.13 | 14.38 | 12.99 | 13.90 | 7.41 | 7.41 | 3.45 | 7.14 |
|         | Supervisory                   | 10.17 | 10.45 | 5.71  | 11.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| K       | Executive                     | 11.22 | 13.51 | 13.85 | 15.57 | 0.00 | 0.00 | 12.50| 18.75 |
|         | Supervisory                   | 17.50 | 9.76  | 11.63 | 11.11 | 14.29| 12.50| 6.67 | 11.76 |
| L       | Executive                     | 14.10 | 12.22 | 9.47  | 11.46 | 0.00 | 0.00 | 0.00 | 5.56 |
|         | Supervisory                   | 8.11  | 6.98  | 7.32  | 6.38  | 12.50| 11.76| 11.11| 10.53 |
| M       | Executive                     | 13.58 | 13.64 | 14.43 | 13.59 | 18.75| 17.65| 17.65| 21.05 |
|         | Supervisory                   | 7.02  | 8.06  | 9.26  | 9.52  | 0.00 | 0.00 | 0.00 | 5.00 |
| N       | Executive                     | 8.57  | 11.02 | 11.21 | 10.26 | 0.00 | 5.26 | 5.88 | 3.03 |
|         | Supervisory                   | 6.38  | 13.46 | 10.71 | 9.23  | 0.00 | 5.56 | 5.00 | 10.00 |
| O       | Executive                     | 10.42 | 11.01 | 11.02 | 14.52 | 12.50| 11.11| 11.01| 11.76 |
|         | Supervisory                   | 14.71 | 16.25 | 13.00 | 13.46 | 8.70 | 3.57 | 0.00 | 0.00 |
| P       | Supervisory                   | 14.07 | 17.92 | 18.05 | 13.53 | 13.04| 11.54| 11.76| 12.50 |

Source: Own elaboration on the basis of Samorajczyk 2014, pp. 43-68.

Financial performance changes are measured by annual changes of the positions in the ranking of these sectors, provided according to synthetic indicators. The evaluation of the financial situation is made using the multidimensional comparable analysis. We construct financial indicators applying three taxonomic measures (Kompa, Witkowska, 2015): (a) the synthetic measure of development, following Hellwig idea (1968), (b) relative development indicator (Łuniewska and Tarczyński, 2006, p. 54) and (c) vector taxonomic measure, following Nermend works (2009, p. 63-89).

Construction of each measure is based on five financial ratios: (1) return on equity (ROE), (2) return on assets (ROA), (3) Cash Flow per share, (4) EBIDTA per share, and (5) equity to assets ratio. According to the values of three synthetic indicators, the ranking of sectors for each considered year is made, and then - since applying different taxonomic measures the ranking may differ - we averaged the ranking and present it in Table 12. The best position in the ranking is denoted by one.

It is visible (Table 12) that positions of the sectors are not stable in time therefore we evaluate the changes of the financial situation of sectors as the difference between the positions kept by each sector in the neighboring years. In such a case we obtain differences in rankings for each sector in the years 2011-2013 which are denoted by positive numbers if the position was improved and by negative otherwise. In the last step of our investigation we calculate Pearson coeff-
cient to find out if there is linear correlation between changes observed in the women shares on boards and the sector positions. As it was already mentioned, changes of senior managers or structure of boards do not cause immediate effects. Therefore, it is difficult to determine the length of the time span between being appointed to the manager position and effects observed as the financial performance of the company. Therefore, in our analysis we look for the relations observed between gender board diversity and company performance in the same year and a year after. Correlation coefficients are calculated for all analyzed years i.e. for:

- the years 2011-2013 as relation between concurrent phenomena,
- the years 2011-2013 as relation between current changes in the positions of the sectors and lagged by one year changes of the gender diversity,
- each year separately i.e. for the years 2011, 2012 and 2013 as relation between concurrent phenomena,
- the pair of years 2011-2012, 2012-2013 as relation between current changes in the positions of the sectors and lagged by one year changes of the women’s representation in upper management.

Table 12. Ranking of sectors according to their financial situation

| Sectors | 2010 | 2011 | 2012 | 2013 |
|---------|------|------|------|------|
| B Construction | 7 | 13 | 11 | 15 |
| C Developers | 6 | 4 | 14 | 12 |
| D Capital market, finance others | 10 | 8 | 7 | 5 |
| E Retails | 3 | 11 | 2 | 1 |
| F Wholesale | 14 | 14 | 12 | 13 |
| G IT | 9 | 9 | 5 | 7 |
| H Chemicals, pharmaceutical, plastic materials | 12 | 3 | 10 | 14 |
| I Wood and paper, light industry | 15 | 15 | 15 | 11 |
| J Electro-engineering and automobiles | 8 | 2 | 4 | 8 |
| K Energy, oil and gas | 1 | 1 | 1 | 10 |
| L Building materials | 5 | 10 | 13 | 2 |
| M Metals | 4 | 5 | 6 | 9 |
| N Food | 2 | 6 | 3 | 3 |
| O Telecom and media | 11 | 7 | 8 | 4 |
| P Hotels and restaurants, services-others | 13 | 12 | 9 | 6 |

Source: Own elaboration on the basis of Samorajczyk 2014, pp. 69-70.

Analyzing values of the Pearson coefficients (Table 13) and statistical significance of correlation coefficients, we notice that although there are some positive values, all these relations are statistically insignificant. Correlations which allow us to reject null hypothesis about lack of influence of the gender structure of boards and CEOs and financial performance of analyzed sectors are negative. In other words, the increase of women share on boards causes worsening of the financial performance of sectors in:

- 2012 and 2013 for the executive boards when current relations are considered,
- 2011-2013 and 2012 for supervisory boards when lagged relations are considered,
- 2012 for presidents of executive boards when lagged relations are considered,
- 2013 for chairwomen of supervisory boards when current relations are considered.

However, the results for women CEOs are obtained for small number of observations thus they should be treated rather as illustration although they acknowledge the results obtained by (Kompa, 2018) who evaluated correlation between financial standing of sectors, defined by the values of all three taxonomic measures, and women representation on senior positions.
Table 13. Values of Pearson coefficients between changes of the women representation on boards and changes of the sector’s position in the ranking

| Years | Type of relation | 2011-2013 | 2011 | 2012 | 2013 | 2012 | 2013 |
|-------|-----------------|-----------|------|------|------|------|------|
|       |                 | current   | lagged | current | current | lagged | lagged |
|       | No. of observations | 45 | 30 | 15 | 15 | 15 | 15 | 15 |
| Executive | -0.191 | 0.184 | 0.327 | -0.492 | -0.516 | 0.090 | 0.327 |
| Supervisory | 0.040 | -0.397 | 0.067 | 0.277 | -0.089 | -0.546 | -0.160 |
|       | No. of observations | 21 | 14 | 7 | 7 | 7 | 7 | 7 |
| President | 0.017 | -0.332 | 0.595 | -0.376 | -0.290 | -0.909 | 0.1132 |
|       | No. of observations | 27 | 18 | 9 | 9 | 9 | 9 | 9 |
| Chair | -0.236 | 0.133 | -0.208 | 0.275 | -0.589 | -0.210 | 0.392 |

Source: own calculations. Italic letters denoted significant relations at the level $\alpha = 0.05$.

CONCLUSIONS

Investigation on the gender structure of employment in companies quoted in the Warsaw Stock Exchange shows that listed companies, having more than 2500 employees, employ more women than men, and that finance sector is the most feminized one. However, the share of women on boards is much smaller than men. During 7 years of investigation no essential changes are visible. There are only 7-8% presidents – women. The situation in NewConnect is slightly better than in the main market. However, everything seems to indicate that even if women participation in the management bodies of companies has been slowly growing, there is no chance to obtain the 40% women parity level in the boardrooms till 2020 by “natural way”. Due to linear trend, without legislative regulations and ceteris paribus, this level might be obtained from 13 to 27 years later if all companies are taken into consideration.

Our preliminary investigation does not prove that there is positive correlation between the increase of the women share in boards and financial performance of companies. In contrary, we obtain statistically significant negative correlation between both phenomena for 6 among 28 variants of possible measurements. However, our results may be biased by the length of the samples, and small share of women in boards of Polish enterprises.

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