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## **FINANCIAL EFFICIENCY OF COOPERATIVE BANKS LED BY WOMEN IN POLAND**

### *EFEKTYWNOŚĆ FINANSOWA BANKÓW SPÓŁDZIELCZYCH W POLSCE KIEROWANYCH PRZEZ KOBIETY*

**Key words: cooperative bank, financial performance, chairperson of the board**

*Słowa klucze: bank spółdzielczy, wyniki finansowe, prezes zarządu*

*JEL codes: G33, G32, C20*

**Abstract.** The main objective of the study was to determine whether the fact that the chairpersons of the boards of cooperative banks in Poland are women, it affects the financial performance of these banks. The study used data for the years 2010-2014 from 40 cooperative banks in Poland. In the course of the study, it was found that the banks managed by women are significantly smaller than men's managed banks, and hence the financial result is generally lower. However, the financial performance ratios in these banks were generally higher. Smaller banks are generally in rural areas, and banks with a larger total balance sheet are usually located in urban areas.

### **Introduction**

In the recent years the issue of differentiating statutory entities – in this case financial entities – with regard to gender and the performance of financial institutions has become relatively popular in Poland [Balina 2015, p. 34-40]. One of the reasons for this attention is the widely considered observation regarding the low membership of women in the highest statutory corporate entities. In many countries around the world, the participation of women in high management positions in corporations continues to lag behind the numbers of men [Amin, Islam 2014, p. 213-228]. Over the years this condition has incurred change as more women were appointed to management positions. This change has been a result of certain societal shifts which encouraged modifying women's status in the contemporary world. These changes are introduced on the conviction that women's presence in corporate management will have a positive influence on management operations [Adams, Ferreira 2009, p. 291-309]. Others indicate that women's presence in key positions will lead to a better understanding of markets and clientele [Robinson, Dechant 1997, p. 21-30]. They further indicate that corporations will also experience greater creativity and innovation. Nina Smith et al. [2006, p. 569-593] point to the gains in efficient problem solving, and above all, point out that with women in management, the corporate image improves in the eyes of clientele and stakeholders [Ryan, Haslam 2007, p. 547-572].

Besides the benefits of women's participation in management, literature shows there is a detrimental aspect of this condition. Christopher Earley and Elaine Mosakowski [2000, p. 26-49] point out that one-gender bodies tend to communicate in straight-forward fashion and agree to a consensus more quickly – a most important quality when making decisions. Furthermore, we can observe that 'male only' groups are more inclined to cooperation and less frequently suffer conflicts. Many studies show that balanced gender make-up of corporate bodies generate higher friction. Jerry Goodstein et al. [1994, p. 241-250], extends decision making and significantly interferes with reaching compromise [Knight et al. 1999, p. 445-465], and probably induce into higher corporate costs. Dora Lau and Keith Murnighan [1998, p. 325-340] show that mixed corporate bodies have a negative impact on performance – a result of procrastination during

decision-making. Not less frequent are benefit/liability studies of women statutory corporate bodies and literature abounds with studies considering gender-varied management and boards of directors' impact on financial performance where contrasting voices find their venue. A number of studies point to a positive correlation gender-varied corporate management and financial performance. Niclas Erhardt et al. [2003, p. 102-111] determined that those American corporations where decision making is dominated by women show better ROA and ROI performance than those dominated by men. A study on the group of the largest American corporations (638) indicated a positive correlation between women's presence in management and profitability of total assets, and Tobin's 'q' indicator. Kevin Campbell and Antonio Minguez-Vera [2008, p. 435-451] confirmed the positive correlation between women's management membership and corporate performance measured Tobin's 'q' for corporations in Spain. In Poland, Leszek Bohdanowicz [2011, p. 105-118], among others, identified a correlation between gender-varied statutory entities and levels of ROA and ROE. Other studies indicate a negative relation between women's participation in corporate management and the level of performance. For example, Keneth Ahern and Amy Dittmar [2012, p. 137-197], Øyvind Böhren and Øystein Ström [2010, p. 1281-1308] demonstrated a negative correlation between women in corporate management and Tobins 'q' indicator. Still other studies indicate absolutely no correlation between corporate performance and gender ratios in management, as in Trond Randøy et al. [2006], Caspar Rose [2007, p. 404-413]

The analysis of international material for this article indicates that the issue of women in bank management and their influence on a bank's performance is an issue that has seen scant attention. That's why the main purpose of this paper is to examined if is any relationship between gender of the chairperson of the board and the performance and size of polish cooperative banks.

### Study methodology

The study took an advantage of data for the years 2010 to 2014, of 40 operating co-op banks in Poland in municipalities of populations less than 50,000 residents, in which in years 2010-2014 management board wasn't changed. The study period was chosen to cover the data after the financial crisis. The data was collected in the second half of 2015, during direct interviews with the chairpersons of the selected banks. Gained information from the interviews was incorporated into the published bank reports in open-access data banks so as to avoid errors and missing data. To test the relationship between the gender of the chairperson and the performance of a co-op bank, the following data was used: gender of chairperson (0 – male, 1 – female); net profit (thousands PLN); result of bank activity (thou. PLN); total balance (thou. PLN); non-financial sector total deposits (thousands PLN); non-financial sector total loans (thou. PLN); total own funds (thou. PLN); number of clients; number of bank membership; ROE (%); ROA (%); C/I (%); NPL (%). In order to determine the differential significance between average co-op bank performance levels relative to chairperson of the board's gender, the 't' test was applied to independent groups using the following statistical test formula [Zimmerman 1997, p. 349-360, Balina, Nowak 2015, p. 33-38]:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{(n_1 - 1)sd_1^2 + (n_2 - 1)sd_2^2}{(n_1 + n_2 - 2)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}} \quad (1)$$

where:  $\bar{x}_1, \bar{x}_2$  = average for 1st and 2nd test,  $n_1, n_2$  = number of 1st and 2nd test,  $sd_1^2, sd_2^2$  = variation between 1st and 2nd test.

The hypothesis,  $H_0: \bar{x}_1, \bar{x}_2 = 0$ .  $H_1: \bar{x}_1, \bar{x}_2 \neq 0$ , will be applied. The set of the statistical test values with the appropriate critical value resulting from Student's 't' test where degrees  $n_1 + n_2 - 2$  variation and materiality level  $\alpha$  makes possible to confirm whether average varia-

tion of the studied populations are significant [George et al. 2005, p. 321-451]. If the absolute value of Student's 't' empirical statistics is higher than the corresponding critical value, then Hypothesis H1 is rejected, indicating, at the same time, average materiality levels between studied populations.

### Study results and discussion

Initially a differentiation assessment regarding the sizes of the studied co-op banks in terms of the gender of the person filling the function of chairperson of the board. The results of the analysis showed that women managed decidedly smaller institutions e.g. the total average balance for a bank managed by a woman was close to 211 mln PLN in contrast to 451 mln PLN in a bank managed by a man. The same tendency is observed with regard to amounts of deposits and credits for the non-financial sector in the considered banks i.e. banks managed by women, on average, over 176 mln PLN in deposits and 158 mln in credits where banks managed by men showed 390+ mln PLN and 293 mln PLN. respectively.

Furthermore, women filled the most important statutory positions in banks that had only 40% the clientele or membership than banks managed by men. It bears noticing that not only the average values describing the bank aggregate varied, but also the minimum and maximum levels of the discussed characteristics were higher for banks managed by men and lower for women (see tab. 1 and 2).

The differentiation relevance regarding the sizes of banks managed by women and men was also confirmed by the t-test which indicates the validity of average differences in the two populations. Comparing the empirical values of the 't' statistics referenced against critical values, it was apparent that in the cases of total balances, non-financial sector deposits, non-financial sector credits, and clientele and membership numbers, the critical values were lower than the

Table 1. Characteristics of the cooperative banks managed by women

*Tabela 1. Charakterystyka banków spółdzielczych zarządzanych przez kobiety*

Specification/ <i>Wyszczególnienie</i>	Women/ <i>Kobiety</i>			
	average/ <i>średnia</i>	minimum	maximum	standard deviation/ <i>odchylenie standardowe</i>
Net profit [thous. PLN]/ <i>Zysk nett [tys. zł]</i>	2 731.8	895.0	6971.5	1 721.6
Result for bank activity [thous. PLN]/ <i>Wynik działalności bankowej [tys. zł]</i>	10 509.6	2 967.0	23 019.5	5 907.1
Total assets [thous. PLN]/ <i>Aktywa ogółem [tys. zł]</i>	211 830.1	41 069.0	583 779.5	15 479.5
Total deposits non-financial sector [thous. PLN]/ <i>Depozyty ogółem sektora niefinansowego [tys. zł]</i>	176 746.3	29 424.0	500 425.5	137 561.3
Total credits non-financial sector [thous. PLN]/ <i>Kredyty ogółem sektora niefinansowego [tys. zł]</i>	158 213.9	31 986.0	509 003.0	123 801.2
Total own funds [thous. PLN]/ <i>Fundusze własne ogółem [tys. zł]</i>	20 644.4	5 784.0	48 833.5	12 325.7
Number of clients/ <i>Liczba klientów</i>	18 232.6	6 154.0	35979.0	9542.4
Number of members/ <i>Liczba udziałowców</i>	14 44.0	487.0	2698.0	701.3
ROE [%]	16.12	6.23	23.95	3.32
ROA [%]	1.75	0.80	3.00	0.50
C/I [%]	60.95	52.90	67.56	3.73
NPL [%]	1.84	0.08	6.56	1.60

Source: own research

*Źródło: badania własne*

Table 2. Characteristics of the cooperative banks managed by men  
 Tabela 2. Charakterystyka banków spółdzielczych zarządzanych przez mężczyzn

Specification/ <i>Wyszczególnienie</i>	Men/ <i>Mężczyźni</i>			
	average/ <i>średnia</i>	minimum	maximum	standard deviation/ <i>odchylenie standardowe</i>
Net profit [thous. PLN]/ <i>Zysk nett [tys. zł]</i>	4 368.8	895.0	23 363.0	4 009.9
Result for bank activity [thous. PLN]/ <i>Wynik działalności bankowej [tys. zł]</i>	20 414.9	5 848.0	105 118.5	19 777.8
Total assets [thous. PLN]/ <i>Aktywa ogółem [tys. zł]</i>	45 166.9	114 447.3	2 451 051.0	50 388.0
Total deposits non-financial sector [thous. PLN]/ <i>Depozyty ogółem sektora niefinansowego [tys. zł]</i>	39 057.1	98 734.3	2 079 873.0	43 872.0
Total credits non-financial sector [thous. PLN]/ <i>Kredyty ogółem sektora niefinansowego [tys. zł]</i>	29 170.6	64 609.0	1 523 954.5	32 580.4
Total own funds [thous. PLN]/ <i>Fundusze własne ogółem [tys. zł]</i>	37 108.6	9 406.0	177 964.0	39 627.5
Number of clients/ <i>Liczba klientów</i>	42 126.7	14 849.7	176 410.0	36 096.5
Number of members/ <i>Liczba udziałowców</i>	3 823.6	391.0	34 573.5	7 895.9
ROE [%]	15.18	6.87	27.30	4.43
ROA [%]	1.30	0.65	2.21	0.34
C/I [%]	63.49	45.04	80.38	8.70
NPL [%]	3.98	0.31	10.56	2.77

Source: own research

*Źródło: badania własne*

empirical values for the ‘t’ statistics, which allowed rejection of the null hypothesis (see Table 3). Therefore it remains to accept as valid the notion that the size of the bank dictates the gender of the person managing said bank. This may be a consequence of the still functioning stereotype that only men are predestined to fill the highest functions in financial institutions. Regardless of the study results of Poland’s co-op banks that women manage smaller banks, the question remains regarding the performance of banks managed by men, and women. Reviewing the relative values which allow establishing bank performance, it was found that women, in comparison to men, attained higher average return (almost one percentage point) on equity capital, and higher average return (in total 0.45 percentage point) on total assets. The ‘t’ test was carried out to determine the statistical significance of these differences, and regarding ROA, the difference was found to be significant; whereas in the case of ROE, insignificant. Nevertheless, the study results indicate that women managers, considering bank performance, managed banks more efficiently as ‘their’ average returns were generally higher than those banks managed by men.

Analyzing cost effectiveness in the studied banks, the difference in the C/I indicator for banks managed on the basis of the bank chairperson’s gender was not great – it was 2.54 percentage points. The ‘t’ test indicated that this difference had no statistical significance. This may have been the consequence of requirements of administrative entities, oversight entities and demands of clientele regardless of management gender. In connection with this, even though the banks managed by women had better performance results, fulfilling these requirements, the women led banks were burdened with substantial expenditures which, in turn, lowered cost efficiency.

The average value of the C/I indicator for the studied banks led by women gained higher cost efficiency levels than the banks led by men. The last of the factors analyzed was the level of non-performing loans (NPL), which to a certain degree may be treated as a risk assessment and its effectiveness as an index. The analysis results indicates that banks led by women had

a markedly lower NPL index (1.84%) as compared to men led banks (3.98). Further analysis confirming these results were of statistical significance indicating that the banks led by women generated notably lower levels of risk associated with credit operations than the banks led by men. What is important the lower risk index of the women led banks did not affect the bank's performance index since the average values of ROE, ROA, and C/I in said banks were all higher than those led by men.

### Conclusions

This study's objective was to assess the performance and the size of Poland's cooperative banks based on the bank chairperson's gender.

1. In the course of the study it became apparent that in co-op banks, where the chairperson was a woman, those banks had a performance index levels than those banks managed by men. The difference was especially noted in total return on assets, net profits, and non-performing loans indicator where the differential between analyzed groups was statistically significant.
2. In case of profits generated by own funds and the C/I indicator, the nominal terms between banks managed by men or women, the differences were statistically insignificant.
3. The study confirmed that a differential in bank performance exists in the selected co-op banks regarding the gender of a bank's chairperson.
4. Additionally was confirmed that in Poland's sector of cooperative banking, the banks managed by women are decidedly smaller than the banks managed by men. It's important that smaller co-op banks are usually on rural areas. These differences were evident across the board – from total assets, through total deposits and ending with total membership and clientele.

Table 3. The results of the t-test of cooperative banks whether they are managed by women or men

*Tabela 3. Wyniki testu t-Studenta banków spółdzielczych z uwzględnieniem tego czy są zarządzanie przez kobiety czy mężczyzn*

Specification/Wyszczególnienie	t-statistics/ Statystyka t
Net profit [thous. PLN]/Zysk nett [tys. zł]	-6.67
Result for bank activity [thous. PLN]/ Wynik działalności bankowej [tys. zł]	-12.22
Total assets [thous. PLN]/Aktywa ogółem [tys. zł]	-8.02
Total deposits non-financial sector [thous. PLN]/Depozyty ogółem sektora niefinansowego [tys. zł]	-8.94
Total credits non-financial sector [thous. PLN]/Kredyty ogółem sektora niefinansowego [tys. zł]	-7.27
Total own funds [thous. PLN]/Fundusze własne ogółem [tys. zł]	-3.6
Number of clients/Liczba klientów	-12.23
Number of members/Liczba udziałowców	-94.40
ROE [%]	1.3
ROA [%]	7.54
C/I [%]	-3.25
NPL [%]	-5.08

Source: own research  
Źródło: badania własne

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### Streszczenie

Celem głównym badań było ustalenie, czy fakt, że prezesami zarządów banków spółdzielczych w Polsce są kobiety, wpływa na efektywność finansową tych banków. W badaniu wykorzystano dane za lata 2010-2014 z 40 banków spółdzielczych w Polsce. W toku badań ustalono, że banki zarządzane przez kobiety są zdecydowanie mniejsze niż banki zarządzane przez mężczyzn, stąd i wynik finansowy jest na ogół mniejszy. Jednak wskaźniki efektywności finansowej w tych bankach były na ogół wyższe. Mniejsze banki znajdują się zazwyczaj na terenach typowo wiejskich, a banki o większej sumie bilansowej mają siedzibę na terenach miejskich.

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