Economics Ekonomika
Management Management
Innovation Inovace

EMI, Vol. 15, Issue 2, 2023
ISSN: 1804-1299 (Print), 1805-353X (Online)
www.emijournal.cz

GENDER DIVERSITY IN TOP MANAGEMENT TEAMS: INDICATORS OF COMPANY FINANCIAL PERFORMANCE LITERATURE REVIEW

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Abstract:

Gender diversity in management has been a topic for the last decades. Currently, women are still not represented to a sufficient extent, however, it is already possible to observe the potential dependence of the financial performance of companies and the number of women in managerial positions. Nevertheless, this dependence is still not clearly defined. One reason may be that studies use different indicators to measure financial performance and gender diversity in management and determine the effect of gender diversity in management on these indicators. This study aims to provide an overview of the indicators used to measure financial performance in studies examining the impact of gender diversity in top management (TMT) on financial performance. Indicators are identified using a literature review of available sources. A total of 19 studies from the period 2015 to 2023 were collected for the research. These studies were obtained from the Web of Science and Scopus databases. The results of the work show that the most frequently chosen indicator for measuring financial performance is return on assets, return on total invested capital, return on equity, return on sales and return on investment. Together with these indicators, Tobin's q is also often used. The analyzed studies do not clearly determine the influence of gender diversity on most indicators.

Key words: Gender, diversity, management, financial performance, gender diversity

JEL: G39, M21, M12

1 Introduction

Over the past few decades, the glass ceiling that prevented not only women, but also other minorities from moving up the career ladder to managerial positions, has gradually begun to break, leading to frustration. However, despite the fact that women are gradually entering leadership positions, they still remain underrepresented (Maume, 2004). Since 2006, the World Economic Forum has regularly published The Global Gender Gap Report, in which based on the calculation of the index, it deals with mitigating differences, or persistent gaps, between men and women in various areas. Among the monitored areas is also economic participation and opportunity, the indicator of which is, among other things, the ability of women to achieve leadership positions. The 2021 report says there is still a shortage of women in leadership positions. Only 27% of all managerial positions are occupied by women.

Studies suggest that the presence of women in leadership positions brings new approaches to management teams and allows to improve the performance of teams and the whole company (e.g. Fernando et al., 2020), but at the same time, gender diversity can cause conflicts in teams, thereby reducing the positive effect (e.g. Joshi et al., 2020).

In connection with the representation of women in management, the term "Glass ceiling" is often used. The "glass ceiling" represents an invisible barrier that prevents women from rising to senior management. It marks the highest point that women in leadership can reach, however the top is still above

Paper received: 23.05.2023 Paper revised:13.10.2023 Paper accepted:8.11.2023

them and they can see it through a transparent barrier In the last few decades, this barrier has been broken, but despite this, women are still generally underrepresented in leadership roles (Maume, 2004). Ryan and Haslam (2008) extend the metaphor of the glass ceiling further to include a glass cliff on which women are elevated but also dangerously exposed. Women who break through the glass ceiling and find themselves in leadership positions are associated with organizational units that are in crisis. The presence of women on boards is preceded by poor company performance (glass cliff) (Haslam, et al., 2010).

Theories focused on leadership are often built primarily on masculine qualities, however, feminine qualities such as cooperation, collaboration and mentoring are equally important for leadership. Male leadership style is seen as transactional – task-oriented, dominant and hierarchical, female leadership style is more transformational, people-oriented, interpersonal, democratic and supportive of subordinates. Feminine approaches prefer cooperation over competition and equality over command and control (Eagly, & Carli, 2003). These qualities characterize women as agents of change (Hambrick et al., 1996). Feminine decision-making, worldview, and leadership style offer gender-diverse teams a managerial advantage compared to homogenously male teams, which TOP management teams typically are (Fernando et al., 2020).

Studies have found that gender-diverse management teams have an impact on financial performance. This influence can be positive (e.g., Bennouri et al., 2018; Baldrich, 2019), negative (Amore, & Garofalo, 2016), or neutral (Dezsö, & Ross, 2012).

The nature of women's influence as CEOs may also be influenced by specific conditions. For example, in family firms, it is not only the gender of the manager that determines whether she comes from a family background or from an external environment. In this case, female directors coming to the firm from an external background affect firm performance positively, while female directors from a family background affect firm financial performance negatively (González et al., 2018).

Although studies have largely confirmed the positive relationship between female representation in management and firm performance, there is a possibility that there is reverse causality at work and better firm performance leads to more women in top management (Meyer, & Rowan, 1977). The representation of women in management positions will depend on the recent performance of the firm (Dezsö, & Ross, 2012).

Published studies have measured financial performance primarily using accounting ratios (ROA) (e.g., Amore, Garofalo, 2016; Dezső, & Ross, 2012; Baldrich, 2019) and market-based ratios (Tobin's q) (e.g., Gordini, & Rancati, 2017; Ahern, & Dittmar, 2012; Bennouri et al., 2018). Fernando et al. (2020) criticize the use of these ratios as a reason for the different results of measuring the dependence of firm performance on gender diversity in management. They explain that accounting indicators may be affected by potential manipulation and market-based indicators may reflect current performance and future expectations. Further, most studies focus only on gender diversity in the board of directors, not in top management teams (e.g., Chijoke-Mgbame et al., 2020, Duppati et al., 2020).

The purpose of this study is to provide an overview of the indicators used to measure financial performance in studies examining the impact of gender diversity in top management (TMT) on financial performance. To achieve the objective, research questions were identified.

The first research question is:

RQ1 - What indicators have been used to measure financial performance in studies examining the impact of gender diversity in TMTs on financial performance?

The second research question is:

RQ2 - What is the impact of gender diversity on these indicators?

Paper received: 23.05.2023 Paper revised:13.10.2023 Paper accepted:8.11.2023

EMI, Vol. 15, Issue 2, 2023
ISSN: 1804-1299 (Print), 1805-353X (Online)
www.emijournal.cz

2 Theoretical background

2.1 Gender diversity in management and financial performance

The literature in this area is inconclusive (Pletzer et al., 2015), but most studies suggest a positive significant effect of gender diversity in firm leadership and financial performance as expressed by accounting ratios (Duppati et al., 2020; Bouteska & Mili, 2021). Hoobler et al. (2018) report that the presence of a woman as CEO is likely to have a positive effect on the financial performance of firms, especially in more gender egalitarian cultures. Chijoke-Mgbame et al. (2020) agree with this assertion, suggesting that female representation on the board of directors, specifically on the board of directors, has a significant positive effect on firm financial performance, especially in firms with two or more female managers; this effect on ROA and ROE is also evident when the chairperson is female (Cavero-Rubio et al., 2019). A significant effect of the proportion of women on ROA was also found by Rodríguez-Ruiz et al. (2016). The presence of women in management significantly increases ROA and ROE, but also significantly reduces Tobin's Q (Bennouri et al., 2019) or does not affect this indicator at all (Duppati et al., 2020). In contrast, Gordini and Rancati (2017) report that gender diversity, which they measured using the percentage of women on the board and the Blau and Shannon index, has a significant and positive effect on Tobin's Q, but the presence of women on the board does not have a significant effect on the firm's financial performance. Amore and Garofalo (2016), using a large sample of US banking institutions, find that women directors in leadership positions in less competitive markets have lower risk and also lower ROA. González et al. (2020) find a positive effect on family firm financial performance for female directors who come from outside the firm, but the opposite effect for female directors who come from a family background.

When the presence of women on the board is at a medium level, Rodríguez-Domínguez et al. (2012) found a positive effect on Tobin's Q, ROA and ROS, when the presence of women is at a high level, the effect on Tobin's Q is negative, however, this result is not statistically significant. Nakagawa and Schreiber (2014) report that there is a strong and significant positive relationship between Tobin's Q and the ratio of female managers, and this relationship is non-linear, the contribution decreases as the proportion of women in managerial positions increases.

Carter et al. (2010) research did not find a significant relationship between board gender diversity and firm financial performance as measured by ROA. Chen et al. (2021) found a negative effect on firm financial performance in the case of gender diversity in executive management teams and no effect in the case of board gender diversity. According to Dezső and Ross (2012), female-led companies have better performance, but hiring women as CEOs leads to a negative stock price reaction. ROS is increasing when the representation of women in the boardroom is between 60.1 - 80%. In case of higher representation, the indicator decreases (Hedija, & Nemec, 2022). Dankwano and Hassan (2018) report that increasing the number of female directors has a significant negative impact on ROA and a positive significant impact on ROE. This claim is partially contradicted by research conducted by Egerová and Nosková (2019), who find that companies with women in their top management teams perform better on average not only on ROA but also on ROE compared to firms without women in top management. A similar result is reached by Moreno-Gómez et al. (2018), who find that gender diversity in the top management team has a positive effect on ROA and female board representation on ROE.

Gender diversity in the boardroom also has a positive effect on ROI (Hoobler et al., 2018). Sanan (2016) found a neutral effect of gender diversity in the boardroom on ROCE.

2.2 Definition of top management teams (TMT)

Today, top management teams (TMTs) are one of the key elements for the success of an organisation, but there is no clear definition of its composition. In a study conducted by Daellenbach et al. (1999), TMTs are defined as being made up of only corporate officers who are also members of the board

Paper received: 23.05.2023 Paper revised:13.10.2023 Paper accepted:8.11.2023

of directors, while defining the teams based on the definition used by Finkelstein and Hambrick (1990), according to whom TMTs include all managers of a company who were also members of the board of directors. Similarly, TMTs are further defined by, for example, Tulung and Ramdani (2016), who state that the members of a TMT consist of the board of commissioners and the board of directors.

The TMT is composed of top managers involved in strategic decision making (Knockaert et al, 2015, Chenli, 2022), having a direct influence on the formulation of corporate strategy (Nielsen, 2010), and working together to influence the strategic direction and actions of the firm in the area of human resources through various internal and external processes (Chenli et al., 2019), and is characterized by a desire to adapt to a complex work environment (Chenli, 2022). In addition, Smith et al. (2006) state that it is a smaller circle of managers rather than an extended group, but never meaning the board of directors. In some studies, these managers involved in strategy decision-making and implementation are identified directly by the CEO (e.g., Li et al., 2016; West and Anderson, 1996; Chen et al., 2021; Ramos-Garza, 2009). The TMT is a relatively small group of the most influential executives at the top of the organization, typically the chief executive officer (CEO) and the managers directly reporting to him (Finkelstein et al., 2009).

Ridge and Ingram (2017), like Hambrick et al. (1996), include those with titles of vice president and above in the TMT. Yi et al. (2018) identified the CEO and other senior managers such as the Chief Financial Officer (CFO), Chief Operating Officer (COO) and Senior Vice Presidents (SVPs) as members of the TMT. Other definitions suggest that the TMT always includes the CEO and may also include COOs, SVPs, Senior Vice Presidents and potential Vice Presidents (Carmeli et al., 2011). In some studies, TMTs are further expanded to include the Chief Information Officer (CIO), Chief Marketing Officer (CMO) and Chief Strategy Officer (CSO) (Menz, 2012). According to Cai et al. (2021), TMTs consist of more than two senior managers who are in charge of formulating the organization's strategy and include the CMO, COO and Chief Technology Officer (CTO).

3 Methods

A systematic literature review (SLR) method was used to answer the research questions. The SLR procedure was adopted from a study conducted by Cavalcanti et al. (2022). The data for the literature search was obtained from Scopus and Web of Science databases during April 2023 based on the keywords gender diversity, financial performance and Top management teams. These keywords were taken from previous studies (e.g., Egerová, Nosková, 2019, Chijoke-Mgbame et al. 2020). For detailed search results, the logical operators (gender diversity OR women in management) AND (financial performance) AND (top management teams OR TMTs) were used.

Only articles from 2015 to 2023 were included in the study. The sources of baseline data selected during the initial research were journals, articles, conferences and books. A total of 273 publications were identified based on these criteria. These results were further refined.

During the first screening, articles that the author did not have access to were discarded, leaving only publications focused on business and management. After screening, 164 publications were retained.

In the second screening, review articles, meeting papers, book chapters and articles written in a language other than English were excluded. 150 publications were retained for final screening.

In the final investigation, articles were analysed on the basis of abstracts. Articles outside the context of the study, articles that did not deal with TMT but with the Board of Directors, and conference papers were excluded. Thirty-two articles were retained for final in-depth analysis.

The final in-depth analysis was performed using the NVivo analysis software. NVivo is a software designed for qualitative and mixed data analysis. The articles for in-depth analysis were first loaded into this software. Attributes were added to these articles and a classification sheet was created. Then Purpose, Impact of gender diversity, Indicator and Method codes were created. After the first round of coding, a total of 12 articles were excluded in which TMT was defined as a board of directors. In the

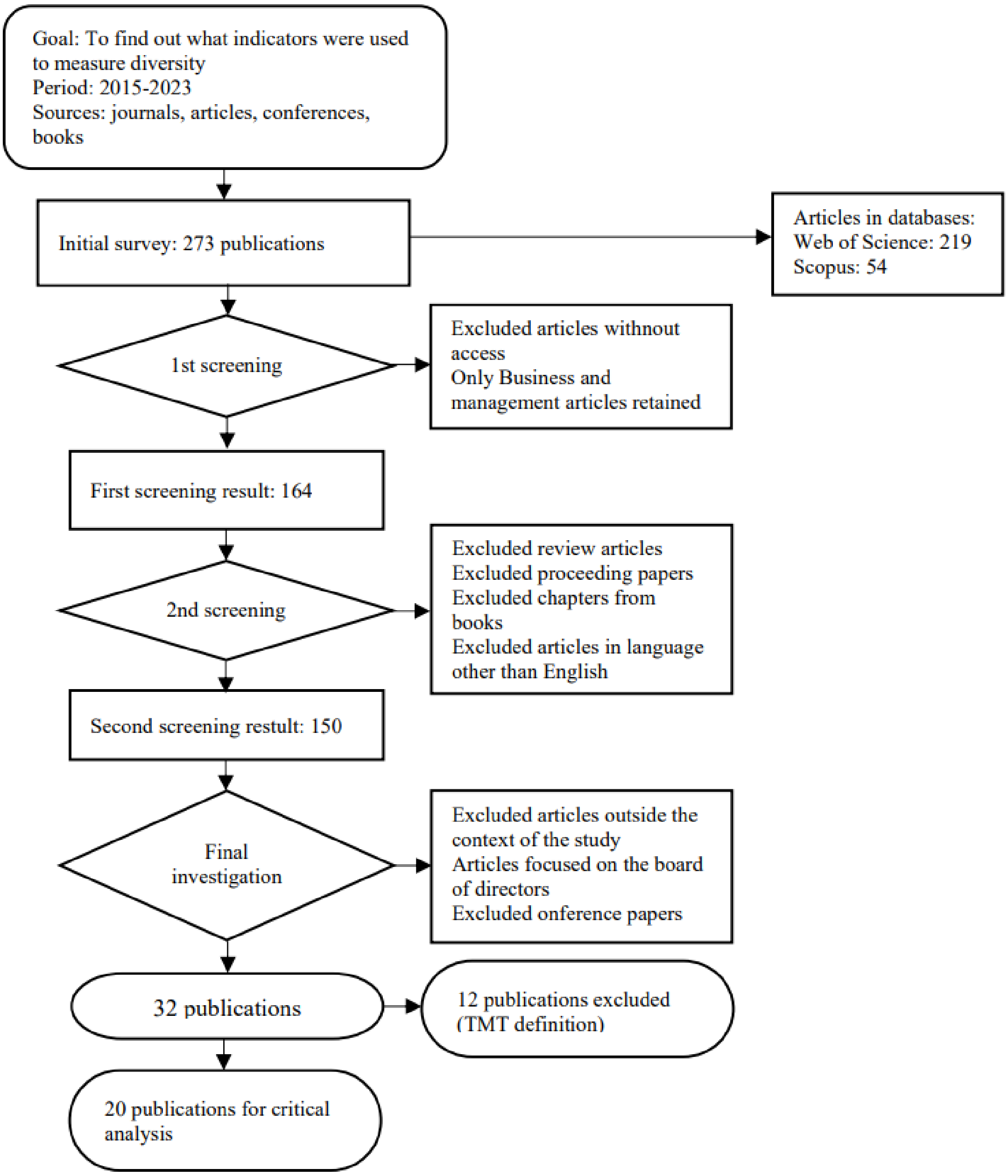
Paper received: 23.05.2023 Paper revised:13.10.2023 Paper accepted:8.11.2023

EMI, Vol. 15, Issue 2, 2023
ISSN: 1804-1299 (Print), 1805-353X (Online)
www.emijournal.cz

remaining 20 articles, a second coding exercise was conducted during which parent codes were created specifying a particular indicator.

A schematic of the study is shown in Figure 1.

Figure 1: Study scheme



Source figure: Own proceedings, 2023

The table1 with results of the literature review find in below.

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Tab. 1: Studies

Author (year)	Purpose	Indicator	Method	Impact of GD
Adusei, Akomea, & Poku (2017)	Explore issues of gender diversity in the boards and management of microfinance institutions	ROA, OSS	Hausman Test	There is no significant relationship between women in management and financial performance of MFIs unless 50% or more women are appointed to the management, in which case MFIs can benefit from gender diversity.
Bouteska, & Mili (2022)	The impact of the presence of women on the board of directors and executive positions on bank profitability	ROA, ROE	Regression, paired sample t-test	The proportion of female directors has a positive effect on ROA and ROE ratios.
Carmen-Trianna, Richard, & Su (2019)	The impact of gender diversity in senior management on strategic change and firm performance	Tobin´s q	GLS	Gender diversity in TMT has a positive effect on strategic change, which positively impacts firm performance.
Cunha, Moura, & Cruz (2022)	The impact of women serving on the board of directors or as executive directors and the presence of an ethics and compliance committee on firm value and financial performance	ROA	GMM estimator	The presence of a woman on the board of directors or in an executive function increases the value and performance of firms.
Egerova, & Noskova (2019)	The impact of women's participation in top management teams on a company's financial performance under the upper echelons theory.	ROA, ROE	Correlation analysis, k-means method	There is a positive relationship between the presence of women in top management and ROA and ROE.
Hernandez-Nicolas, Martín-Ugedo, & Mínguez-Vera (2015)	The impact of women in managerial roles on some financial decisions	DEBT, COSTD	3SLS	Women-led companies will have lower debt and lower cost of debt.
Chen, Cehxuan, Hassan, & Abeer (2022)	The relationship between management compensation and gender diversity and financial performance in GEM firms.	Tobin´s q	Correlation analysis, Multiple linear regression	Female management participation has a negative impact on firm performance.
Naciti, Noto, Vermiglio, & Barresi (2022)	The impact of women's representation in management at all levels and performance in public hospitals.	LI, ROS	OLS	There is a positive and significant relationship between percentage of women in lower level management and ROS and a positive relationship between higher percentage of women in top management and LI.
Prosvirkina, & Wolfs (2021)	The impact of gender diversity in top management on bank performance.	NIPE, ROA, ROE, ROI	Regression	Gender diversity in management has a negative effect on ROA and ROE.
Repetti (2020)	The financial implications of diversity in management positions and an assessment of female representation.	EBIT, EBITDA, PM	ANOVA, t-test	The research shows that earnings before interest, tax, depreciation and amortisation are significantly higher at 15-30% diversity and even higher at 30-50% diversity.
Ullah, Fang, & Jebran (2009)	To find out whether gender diversity among directors can affect firm value in the Pakistani market.	Tobin´s q, ROA, ROE	Regression	Women's representation in management is significantly positively related to Tobin's q ROE and ROA
Hassan, & Marimuthu (2018)	To investigate whether gender diversity in top management of Islamic firms has an impact on firm financial performance or whether other characteristics contribute to financial performance.	ROA, ROE, Tobin´s q	OLS regression	Ethnic women in management have negative and significant effect on firm financial performance
Mohammad, Abdullatif, & Zakzouk (2018)	Determine whether the proportion of women on boards of directors and in top and middle executive management positions has an impact on the financial performance of banks.	ROA	Multiple regression model	There is no statistically significant relationship between the proportion of women in top and middle management positions and financial performance.
Jeong, & Harrison (2017)	Conduct a comprehensive synthesis of research on whether the representation of women in organizations at senior levels can affect business performance.	ROA, ROE, ROS, Tobin´s q	Meta analysis	The representation of women in senior management positions is weakly but positively associated with long-term financial performance, but negatively and weakly associated with short-term stock market returns.

Paper received: 23.05.2023 Paper revised:13.10.2023 Paper accepted:8.11.2023

EMI, Vol. 15, Issue 2, 2023
ISSN: 1804-1299 (Print), 1805-353X (Online)
www.emijournal.cz

Hoobler, Masterson, Nkomo, & Michel (2018)	Investigate the direct effect of women CEOs, TMTs and boards on the financial performance of firms.	ROA, ROE, ROS, ROI	Meta analysis	The presence of women in management (specifically CEOs) has a positive impact on the financial performance of companies in countries where there are equal opportunities for both men and women.
Hedija, & Němec (2020)	The effect of gender composition of the executive team on corporate financial performance and financial health.	ROA, ROS	Regression	Executive gender diversity does not have a statistically significant effect on a firm's financial performance.
Hassan, Marimuth, Tariq, & Aqeel (2017)	The relationship between demographic diversity (gender and ethnic diversity) in top management and firm financial performance	ROA, ROE	Regression, correlation	Gender diversity has a positive effect on ROE in both TMT and BoD perspectives.
Hansen, Conroy, Toppinen, Bull, Kutnar, & Panwar (2016)	Focus on the link between gender diversity in top management and financial performance of firms.	EBITDA	Correlation, OLS regression	More gender-diverse TMTs are associated with higher financial performance; the level of gender diversity in BoD is unrelated to firm financial performance.
Galletta, Mazzú, Naciti, & Vermiglio (2021)	To investigate the relationship between gender diversity in top and middle management and financial, social and environmental performance.	ROA	OLS, probit regression	Women's representation in management improves financial and environmental performance.
Chen, Chen, Kot, Zhu, & Wu (2021)	The impact of executive gender diversity and board gender diversity on financial performance in the hotel industry	ROA, ROE, Tobin´s q	SYS-GMM	When 40% executive gender diversity is reached, the positive effect on ROE is strongest; no significant relationship with Tobin's q was identified.

Source table: Own proceedings, 2023

4 Paper results and discussion

Using NVivo analysis, a total of 14 financial performance indicators were identified and used by the studies.

These indicators are listed by frequency of use in Table 2.

Tab. 2.: Frequency of indicators

Indicator	Abbreviation	Percentage representation
Rentability of Assets	ROA	35,3%
Rentability of Equity	ROE	17,6%
Tobin´s q	Tobin´s q	14,7%
Rentability of Sales	ROS	5,9%
Rentability of Investment	ROI	5,9%
Profit Margin	PM	2,9%
Operational self-sufficiency	OSS	2,9%
Liquidity Index	LI	2,9%
Debt of company	DEBT	2,9%
Net Income per Employee	NIPE	2,9%
Earnings before Interest, Taxes, Depreciation and Amortization	EBITDA	2,9%
Cost of Debt	COSTD	2,9%

Source table: Own proceedings, 2023

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4.1 What indicators for measuring financial performance have been used in studies on the impact of gender diversity in TMT on financial performance?

The review summarizes the available articles that deal with the impact of gender diversity in TMT on firm financial performance in order to identify the indicators used by the authors to measure financial performance. The study shows that accounting ratios (ROA, ROS, ROI and ROE) together with market ratios (Tobin's q) are the most used accounting ratios even in recent years, which is consistent with the results reached by Russen et al. (2021) in their literature search. This trend persists despite the fact that some authors (e.g. Fernando et al., 2020) criticize the use of these indicators as a reason for the divergent results measuring the dependence of firm performance on gender diversity in management. They explain this by the fact that accounting indicators can be affected by potential manipulation and market-oriented indicators may reflect current performance as well as future expectations. In addition to these indicators, the indicators focused on the debt of the company, DEBT and COSTD, the profit and loss, EBITDA and EBIT, as well as the liquidity, measured by liquidity index (LI), defined as ratio between short-term assets and short-term liabilities and the operational self-sufficiency (OSS), which is defined as portfolio revenues divided by operational expenses, profit margin (PM) and net income per employee (NIPE), which is defined as net income divided by the number of employees in organization,   indicators were minorities.

4.2 What impact does gender diversity have on these indicators?

The analysis shows that return on assets (ROA) and return on equity (ROE) were the most commonly used indicators to measure firm performance. Egerová and Nosková (2019) using correlation analysis found a positive relationship between the presence of women in management and ROA and ROE. This finding is further agreed by Bouteska and Mili (2022) who based on the findings of regression analysis, found the proportion of women within TMT positions has a positive effect on ROA and ROE and Hassan et al. (2017) who using regression and correlation analysis found that not only diversity in TMT but also diversity in boards of directors has a positive effect on ROE. According to Galletta et al. (2021), female representation in management improves financial performance as measured by ROA. However, this is disagreed by Mohammad et al. (2018) who failed to find a statistically significant relationship between the proportion of women in TMT and middle management positions and financial performance as expressed by ROA. Hedija and Nemec (2020) used Return on Sales (ROS) in addition to ROA to analyze financial performance. Regression analysis in this research did not show a statistically significant effect of executive gender diversity on financial performance. Adusei et al. (2017) did not find a significant effect between female executives and financial performance as measured by ROA and OSS unless at least 50% diversity is achieved. Prosvirkina and Wolfs (2021) used net profit per employee (NIPE) and return on investment (ROI) in addition to ROA and ROE to measure financial performance. Using regression analysis, they were able to show a negative effect of gender diversity in management on NIPE, ROA and ROE, but positive effect on ROI. Hoobler et al. (2018) analyzed financial performance measured by ROA, ROE, ROI and ROS. In their research, they were able to find that the presence of women in leadership (specifically CEO) has a positive effect on financial performance, with the condition that it must be in countries where there are equal opportunities for both men and women. Cunha et al. (2022) found a positive impact of women on boards and in executive management roles on firm performance as measured by ROA.

Jeong and Harrison (2017) conducted similar research with ROA, ROE, ROS and Tobin's q. According to the authors, the representation of women in senior management positions is weakly but positively associated with long-term financial performance, but also weakly and negatively associated with short-term stock market returns. Ullah et al. (2019) using regression analysis found a positive effect of female representation in management on Tobin's q, ROE and ROA. This is partially disagreed by Chen et al. (2021), who found a strong positive effect on ROE when 40% executive gender diversity is achieved, but failed to identify a significant relationship with Tobin´s q. The presence of women in corporate management may have a negative impact on Tobin´s q (Chen et al., 2022).

Paper received: 23.05.2023 Paper revised:13.10.2023 Paper accepted:8.11.2023

EMI, Vol. 15, Issue 2, 2023
ISSN: 1804-1299 (Print), 1805-353X (Online)
www.emijournal.cz

According to Naciti et al. (2022), there is a significant and positive relationship between the percentage of women in junior management and ROS and a positive relationship between a higher percentage of women in TMT and liquidity index (LI). A higher percentage of women in TMT had a statistically significant positive effect on LI but negative on ROS. Companies with more diversified TMTs also have higher financial performance as measured by EBITDA, and the level of gender diversity on the board is not related to the financial performance of the firm (Hansen et al., 2016). This is consistent with research conducted by Repetti (2020), who found that EBIT and EBITDA are significantly higher when TMT diversity is 15-30% and higher when diversity is 30-50%. Hernandez-Nicolas et al. (2015) report that women-led firms have lower debt and lower cost of debt. Adusei et al. (2017) used an indicator of ROA and OSS but failed to show a significant effect of gender diversity in management unless at least 50% of women in management are achieved, in which case the relationship is positive.

5 Conclusions

The main objective of this study is to provide an overview of the indicators used to measure financial performance used in studies examining the impact of gender diversity in TMT on financial performance. A systematic literature review method was used to obtain this review.

Based on a literature review of studies about the impact of gender diversity in TOP management on the financial performance of the company published 2015-2023, an overview of indicators used to measure financial performance was created and the impact of the representation of women in management on these indicators was described.

From the literature search conducted, it was found that the most commonly used indicator was the profitability of assets (ROA), along with profitability of equity (ROE), profitability of sales (ROS) and profitability of investments (ROI). These indicators were very often used together with Tobin's q. In the analysed studies, the effect of gender diversity in TMT on these indicators was not clearly specified. Most of the reviewed articles found a positive relationship between the representation of women in management and indicators of firm financial performance. However, some articles did not find a significant effect of gender diversity (e.g. Hedija, & Nemec, 2020) and some reported that gender diversity has a negative effect on the indicators. These indicators may be limited in capturing the impact of diversity on performance due to, for example, potential manipulation of accounting ratios and capturing not only actual performance but also future expectations of market-based measures (Fernando et al., 2020).

The liquidity index, operational self-sufficiency, and net income per employee also appeared in the analysed articles.

Future research should focus on investigating the impact of gender diversity in management on financial performance using more appropriate indicators that would eliminate the aforementioned limitations of accounting and market-based indicators and provide a clearer perspective on this issue.

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Paper received: 23.05.2023 Paper revised:13.10.2023 Paper accepted:8.11.2023

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www.emijournal.cz

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