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*Features of Female CEO in Family Firms Toward Sustainable
Development – a Grey System Approach*

Keywords: CEO woman; family firms; grey system approach

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Abstract

Theoretical background: The paper highlights the underrepresentation of women in CEO positions, particularly in family firms, despite their potential to enhance corporate social responsibility (CSR) and sustainable practices. Female CEOs are shown to prioritise non-financial aspects such as employee well-being, customer satisfaction, and environmental sustainability, which are crucial for long-term business success. The study integrates upper echelons theory, several social theories, and socio-emotional wealth (SEW) to explain how female leadership in family firms can drive sustainable development.

Purpose of the article: The study explores the role of female CEOs in family firms, focusing on their contributions to sustainable development through social, economic, and environmental dimensions.

Research methods: By employing a grey system approach, the research addresses three key questions: which social dimensions of sustainable development are key for female CEOs in family firms, which economic dimensions are prioritised and which environmental dimensions are most relevant?

Main findings: The findings reveal that female CEOs in family firms emphasise employee welfare, high-quality products and services, and environmentally friendly practices, aligning with their communal and empathetic leadership styles.

Introduction

Family firms are the most prevalent form of business organisation globally, playing a significant role in both emerging and developed economies. According to Villalonga et al. (2015), family businesses constitute between 80 and 98% of all businesses worldwide, contributing approximately 49% of global GDP and employing over 75% of the workforce. In the United States, family firms represent 33% of large publicly listed companies and about 90% of all businesses (Villalonga & Amit, 2006, 2010). Similarly, in Europe, family businesses are a cornerstone of the private sector, providing over 60 million jobs and representing between 55 and 90% of all companies, regardless of size (KPMG, 2015). The prevalence of family firms underscores their importance in the global economy, making them a critical area of study, particularly in understanding the dynamics of leadership and governance within these entities.

Despite the significant presence of family firms, the role of female CEOs within these organisations remains underexplored. Over the past few decades, there has been a growing emphasis on promoting gender diversity in the workplace, driven by stakeholders and policymakers aiming to enhance social and economic cohesion (ILO, 2022). The European Commission has also proactively fostered gender equality in the workplace (EC, 2000). Research suggests that women bring unique attributes, strengths, and experiences to leadership roles, adding significant value to board deliberations and management monitoring (Sarkar & Selarka, 2021). Women are frequently characterized by higher levels of communal orientation, empathy, and social sensitivity, traits that are associated with a greater propensity for prosocial behavior and heightened attentiveness to normative, ethical, and societal concerns (Loo, 2003; Yasser et al., 2017). These qualities are increasingly beneficial for corporate governance and sustainable business practices.

However, women remain significantly underrepresented in top executive positions, particularly in the CEO role. In the United States, for example, women comprise 46% of the workforce but held only 4% of CEO positions in 2015 (Hoobler et al., 2018). Although there has been some progress, with women now holding 10.4% of CEO positions in Fortune 500 companies, this figure remains disproportionately low (Women CEOs in America, 2024). The underrepresentation of women in CEO roles can be attributed to several factors, including societal gender roles, biases in leadership perceptions, and the challenges women face in balancing work and family responsibilities (Elsaid & Ursel, 2018). The “glass ceiling” phenomenon, which refers to the invisible barriers that prevent women from advancing to top leadership positions, continues to be a significant obstacle (Johns, 2013). Furthermore, even when women succeed in surpassing structural barriers to leadership advancement – commonly referred to as the “glass ceiling” – they are disproportionately appointed to precarious or high-risk leadership positions especially in times of crisis or organisational instability, increasing the likelihood of failure, a phenomenon known in literature as the “glass cliff” (Ryan & Haslam, 2005a).

Family firms, however, present a unique context for female leadership. These firms are often characterised by a strong sense of community, relationship-oriented governance, and a focus on long-term sustainability, which aligns well with the communal and empathetic leadership styles often associated with women (Chadwick & Dawson, 2018; Eddleston & Sabil, 2019). Despite this alignment, female leadership in family firms remains rare, partly due to traditional gender preferences favouring male successors (Bennedsen et al., 2007; Dahl & Moretti, 2008). Nevertheless, there is evidence that family firms increasingly recognise the value of gender diversity, with more women being appointed to board positions and leadership roles (Ahrens et al., 2015). Family firms often provide women with greater flexibility, higher salaries, and better job security, which can help them balance work and personal responsibilities (Meroño-Cerdán & López-Nicolás, 2017). Additionally, women in family firms who are also owners or family members often have a natural legitimacy that allows them to play a key role in the firm's governance and decision-making processes (Bauweraerts et al., 2022).

The role of female CEOs in family firms is particularly relevant in the context of sustainable development. The concept of the "triple bottom line" (TBL), introduced by Elkington (1997), emphasises the importance of balancing economic, social, and environmental dimensions in business operations. Female CEOs are often more risk-averse and conservative in their decision-making, which can lead to more sustainable business practices (Faccio et al., 2016; Palvia et al., 2015). Research has shown that women-led firms are more likely to engage in corporate social responsibility (CSR) activities, focusing on social welfare, environmental protection, and ethical business practices (Dawar & Singh, 2016; Post et al., 2011). Female leaders are also more likely to prioritise stakeholder interests, including employees, customers, and the community, which can enhance the firm's long-term sustainability (Mallin & Michelin, 2011; Rodríguez-Ariza et al., 2017).

Family firms, focusing on long-term sustainability and community-oriented governance, provide a unique context for female leadership. This paper aims to explore the role of female CEOs in family firms, focusing on their contributions to sustainable development through the lens of the TBL. By examining the social, economic, and environmental dimensions of sustainability, this study sheds light on the unique challenges and opportunities faced by female leaders in family firms.

The paper is structured as follows: first, the role of family firms in the economy was drawn. Subsequently, the issue of the underrepresentation of female CEOs in businesses in the overall context and exclusively in family businesses was explored. Next, the unique impact of female CEOs' features on sustainability was presented. Next, research methods and analysis procedures were detailed. Finally, results were presented and discussed, and conclusions, limitations and future research avenues were stressed.

Literature review

Family firms – a look

Family firms are the most prevalent business types in emerging and well-developed economies (Villalonga et al., 2015). Poza (2010) stated that family firms of businesses constitute 80–98% of the businesses in the worldwide free economy, create 49% of GDP and employ more than 75% of the workforce worldwide. In the United States (US) economy, family firms represent 33% of large publicly listed companies, 55% of all listed businesses (Villalonga & Amit, 2006) and about 90% of all businesses (Villalonga & Amit, 2010). In Europe, over 14 million family businesses provide over 60 million jobs in the private sector. In various European countries, family businesses represent 55 to 90% of all companies of any size (KPMG, 2015). According to Bloomberg Business Week, 35% of companies listed in the Fortune 500 are family firms (Ramadani & Hoy, 2015).

While family-owned enterprises may not align with the structural requirements of all sectors within a developing economy, they are particularly well-positioned to contribute to economic growth in specific industries. This is due to their distinctive combination of sociological and economic attributes – such as long-term orientation, relational governance, and embedded social capital – which render them especially effective during the early phases of economic development (Cucculelli, 2012). Family involvement may provide survivability capital for the firm (Sirmon & Hitt, 2003) and increase the stability of the economy, especially in scarce environments (Memili et al., 2015). In broader context, family firms are not only the developers of the local economy, but also can strongly stimulate the internationalization of surrounding industries (Qin et al., 2021).

Underestimation of female CEOs

Over the last decades, different stakeholders and policymakers have aimed to create a favourable environment that could boost social and economic cohesion and promote gender diversity in workplaces (ILO, 2022). Also, the European Commission strongly tries to promote and foster women in the working environment (EC, 2000). Empirical and theoretical literature indicates that women possess differentiated attributes, competencies, and experiential backgrounds relative to men, which can enhance the quality of board-level decision-making processes and strengthen the effectiveness of managerial oversight functions (Sarkar & Selarka, 2021). According to gender role theory (Eagly, 1987), societal structures impose differentiated normative expectations on individuals based on gender, prescribing distinct role-congruent behaviors for men and women. Within this framework, female leadership is generally characterized by a more communal orientation, as opposed to the agentic style more commonly associated with male leadership (Eddleston & Powell, 2008).

Empirical studies emphasize that women tend to exhibit stronger internalised moral norms (Loo, 2003; Yasser et al., 2017), heightened affective sensitivity, and greater empathetic concern, which collectively enhance their responsiveness to the needs and welfare of others. These characteristics are associated with a higher propensity for altruistic behaviour (Mallin & Michelon, 2011). Furthermore, women demonstrate a pronounced orientation toward social and ethical considerations (Loo, 2003; Yasser et al., 2017), including elevated engagement with issues of corporate social responsibility (Domańska et al., 2023; Eagly & Johannesen-Schmidt, 2001; Zhang et al., 2023). Moreover, women C-suit leaders are friendly, kind, unselfish, concerned with others, and expressive, increasing the board's sensitivity towards external stakeholders needs (Mallin & Michelon, 2011), which could be assessed as a business advantage.

Drawing on upper echelons theory (Hambrick, 2007; Hambrick & Mason, 1984), female CEOs are posited to embed their individual values, personality traits, and experiential backgrounds into strategic decision-making processes, thereby influencing corporate policy outcomes. Empirical evidence suggests that the inclusion of women in top executive roles contributes positively to entrepreneurial orientation and innovation within firms (Bauweraerts et al., 2022; Chen et al., 2016; Lyngsie & Foss, 2017). However, it is observed that due to the positive impact of females on top business positions on business performance, they are still underrepresented in such bodies. It refers primarily to C-suits in business entities. Statistical evidence indicates that women remain significantly underrepresented in CEO roles within large-scale corporations, reflecting a persistent gender disparity in top executive leadership (Elsaid & Ursel, 2018). For example, in the US, 46% of the workforce is women, while only 4% of CEOs were in 2015 (Hoobler et al., 2018). Currently, the share of females is higher. According to Women Business Collaborative (Women CEOs in America, 2024), women are 10.4% of Fortune 500, the same percentage as in 2023, 7.8% S&P 500 and 9.2% of Fortune 1,000 CEOs. Women make up 7.2% of private company CEOs over USD 1 billion in 2024; however, in 2023, only 3.3% of women were leading private companies. Conversely, based on the world's leading mid-market business survey, Grant Thornton marked a significant drop in the percentage of female CEOs to 19% in 2023 from 28% in the previous year (Grant Thornton, 2024). Undoubtedly, the representation of females as CEOs in the most significant companies has grown over time, but the average share in the US below 10% can still not be perceived as adequate. Also, the drop noticed generally in the world does not fill with optimism. Female CEOs expressed that their reasons for resignation are public pressure and responsibilities, and sometimes, they felt they needed to behave more like men in these roles (Elsaid & Ursel, 2018; Grant Thornton, 2024).

The underrepresentation of women in CEO roles may stem from two primary mechanisms: a lower appointment rate of women relative to men to chief executive positions, or a shorter tenure duration among female CEOs compared to their male counterparts (Elsaid & Ursel, 2018).

Referring to gender socialisation theory (Carter, 2014), gender roles and associated stereotypes are internalized during early childhood socialization processes, subsequently informing normative expectations regarding gender-appropriate behaviors and role allocations for males and females across social and organizational contexts (Elsaid & Ursel, 2018). The concept that males develop their understanding of masculinity through the adoption of behaviors that are perceived as “non-feminine” is a significant factor in the broader conceptualization of gender (Carter, 2014). Males are socialized to associate traits such as dominance, autonomy, and aggression with their gender identity, while females are typically raised in environments that encourage collectivism, expressiveness, and relational connectivity (Hazel & Oyserman, 1989), and it determines their adult roles in business.

With the social identity theory of leadership (Hogg, 2001; Hogg et al., 2012), favourable perceptions of male leaders than of female leaders are observed, and it is easier to lead effectively if you are male than female due to the roles of leader and manager are more closely aligned with stereotypically male traits. It may be expressed by the term “think manager think male” bias (TMTM), wherein most people associate the attributes of a “typical manager” with a “typical man” (Mulcahy & Linehan, 2020). As a result, both men and women are likely to perceive men as more suitable for leadership positions, with women facing increased scrutiny and criticism when assuming managerial roles (Elsaid & Ursel, 2018; Wang et al., 2019). Undoubtedly, females face several barriers that prevent them from moving up the corporate hierarchy, which is referred to as the glass ceiling phenomenon (Johns, 2013). Moreover, even if females go through glass ceiling, they are moving on a “glass cliff”, a term coined by Ryan and Haslam (2005a, 2005b) that refers to the situation that women in management face when they are appointed to top management and leadership positions that have a higher probability of failure.

In line with the concept of the glass cliff, Mulcahy and Linehan (2020) observed that women are disproportionately represented on the boards of companies facing uncertain economic conditions. In this context, Hurley and Choudhary (2016) argue that women’s leadership styles and characteristics may be more conducive to managing organizational challenges or crises, while, Ryan and Haslam (2005b) suggest that poor firm performance serves as the catalyst for the appointment of women to leadership roles, rather than being a consequence of their leadership. These findings led to the notion of “think crisis – think female” (Ryan & Haslam, 2007).

Additional factors hindering women’s advancement to top management positions include career disruptions due to motherhood, the absence of role models or mentors, and the deliberate choice to avoid the stress associated with balancing work and family responsibilities (Matsa & Miller, 2011). This contributes to the broader conclusion that women are either appointed to CEO positions at a lower rate than men or tend to have shorter tenures in these roles compared to their male counterparts. However, some studies present contradictory points related to the length of female tenure (Elsaid & Ursel, 2018).

Female CEOs in family businesses

Family businesses represent the most prevalent form of entrepreneurial ventures globally (Bauweraerts et al., 2022; Morck & Yeung, 2003). Family firms exhibit distinctive agency challenges stemming from their ownership structures, governance frameworks, management practices, motivational dynamics, objectives, and social systems (Pieper, 2010). Given this context, board directors in family firms may necessitate distinct strategies and competencies to effectively navigate the unique dynamics of these organizations (Anderson et al., 2003). Family firms are frequently characterized by a communal, relationship-centric approach, with a strong emphasis on stakeholder care, indicating that they provide a social environment conducive to female leadership styles (Chadwick & Dawson, 2018; Eddleston & Sabil, 2019). However, female leadership is still rare (Ahrens et al., 2015) due to general parental gender preferences in these firms. It was highlighted that fathers, in particular, still favour sons over daughters (Bennedsen et al., 2007; Dahl & Moretti, 2008; Schröder et al., 2011), and male successors are more likely to be selected than female successors (Skorodziyevskiy et al., 2024). Nevertheless, in recent years, there has been a notable increase in the representation of women on corporate boards (Ahrens et al., 2015), particularly in family firms, where gender diversity among board members is more pronounced compared to non-family firms (Barrett & Moores, 2011; Rodríguez-Ariza et al., 2017). There is no quota for female representation on boards, but international trends provide some pressure to increase female representation (Biswas et al., 2022). Family firms provide women with exceptional opportunities (Lerner & Malach-Pines, 2011) such as higher salaries, better jobs, as well as greater flexibility in scheduling and security at work to attend to personal needs such as child rearing, parental care and education (Meroño-Cerdán & López-Nicolás, 2017). By contrast, non-family firms tend to exhibit greater inclusivity, a stronger orientation toward long-term strategic goals, and a higher propensity to promote women into executive leadership positions (Eddleston & Sabil, 2019). It is evident if women are also one of the owners in the family business (Bauweraerts et al., 2022; Danes & Olson, 2003), have a natural legitimacy to play a key role within the firm (Abinzano et al., 2023) or if familial affiliation significantly influences the extent to which women's perspectives are acknowledged and incorporated into board-level decision-making processes (Bauweraerts et al., 2022). Family businesses tend to incorporate women more rapidly into leadership roles (Chadwick & Dawson, 2018), consider women as their next CEO (Hernández-Linares et al., 2023) and add the phrase "and daughters" to their business name (Vadnjaj & Zupan, 2011). The presence of women in firms' upper echelons (Hambrick, 2007; Hambrick & Mason, 1984) is typically found beneficial for entrepreneurship (Lyngsie & Foss, 2017). Hence, it is not surprising that family firms are making more progress in advancing women into leadership positions (Minichilli et al., 2010), especially if these firms may offer women a more favourable environment to lead than non-family firms (Chadwick & Dawson, 2018; Eddleston & Sabil, 2019). Women trigger higher inclusion levels, communica-

tion, communal values, and knowledge sharing (Eagly & Carli, 2003). The inclusion of female directors on the boards of family firms enhances the breadth of information and the quality of deliberation in strategic decision-making processes (Francoeur et al., 2008); promotes greater transparency through improved public disclosure practices (Srinidhi et al., 2011); and strengthens managerial oversight, thereby exerting a positive influence on financial performance and the quality of reported earnings (Sarhan, 2018). Post and Byron (2014) identified a positive association between female representation on corporate boards and the effective execution of boards' core functions – strategic oversight and managerial monitoring. The enhanced human capital typically possessed by female directors contributes to their capacity to positively influence board processes and organizational performance outcomes (Palvia et al., 2015; Sun et al., 2015).

On the other hand, women have features that undoubtedly are connected with family contexts and may be of special importance for women entrepreneurs. Literature suggests that work-life balance is a more complex and demanding task for women, involving family embeddedness as the main issue (Gundry et al., 2014). Female CEOs and CFOs are less likely to make acquisitions and less likely to issue debt than male-led firms (Huang & Kisgen, 2013), are more conservative (Palvia et al., 2015) and make less risky financing and investment decisions (Faccio et al., 2016). Moreover, family businesses consider reputational capital an important intangible asset (Miguel et al., 2020). This motivation can be even stronger in firms led by women as they are often concerned about harming their reputations (Gull et al., 2021). Female CEOs may exhibit a heightened sensitivity to the potential erosion of reputational capital, which can incentivize risk-averse behavior and a preference for maintaining the strategic *status quo* (Domańska et al., 2023).

CEO female features toward sustainability

Contemporary scholarship in business, management, and ethics increasingly adopts the framework proposed by Elkington (1997), who introduced the concept of the TBL, which evaluates a firm's performance based on its integrated impact across economic, social, and environmental dimensions (Rodríguez-Ariza et al., 2017). The economic dimension pertains to the firm's responsibility to maintain profitability, operational efficiency, and competitive advantage within the market (Hubbard, 2009). The social dimension encompasses a firm's engagement in philanthropic initiatives, the development of human and intellectual capital, the promotion of socio-economic well-being, and the upholding of human rights within the communities in which it operates (Hubbard, 2009). The environmental dimension pertains to the firm's stewardship of natural resources and the ecological externalities generated by its operations, including waste production, atmospheric emissions, and chemical by-products (Hubbard, 2009). Keeping the balance among these three pillars is oriented towards "development that meets the needs and aspirations of the present generation without

compromising the ability of future generations to meet their own needs” (Borowy, 2014). Recognizing that social, environmental, and economic challenges need not be resolved exclusively through governmental intervention, increasing scholarly attention has been directed toward the role of entrepreneurship. Researchers acknowledge that the strategic initiatives of economic agents can serve as catalysts for the transition toward more sustainable products and production processes (Domańska et al., 2022).

A significant body of research has highlighted a positive correlation between the representation of women on corporate boards and the firm’s commitment to CSR initiatives (Dawar & Singh, 2016; Post et al., 2011; Setó-Pamies, 2015; Zhang et al., 2013) and gender diversity for corporate boards and its positive effect on CSR (Boulouta, 2013; Dawar & Singh, 2016; Domańska et al., 2019, 2023; Margaretha & Isnaini, 2014; Orazalin & Baydauletov, 2020). Female CEOs are more risk-averse because of social and environmental influence (Bjuggren et al., 2018; Expósito et al., 2023; Puteri et al., 2025), and they are generally inclined to adopt more conservative approaches in funding and investment decisions, exhibiting a preference for lower-risk alternatives (Francis et al., 2015). Cross-market studies also indicate that gender is a key demographic in driving socially responsible investment (Cheah et al., 2011). Manner (2010) and Huang (2013) have addressed the effects of CEO characteristics, such as education, leadership style, tenure, and also gender, on CSR. According to the findings of Manner (2010), having a female CEO is positively and significantly related to proactive Corporate Social Performance (Manner, 2010). Gender diversity also influences mitigating fraud and emphasising charitable and corporate social responsibility (Adams et al., 2017; Bettinelli & Bosco, 2019). Such effects are primarily observable in business entities led by female directors or CEOs (Mallin & Michelon, 2011; Rodríguez-Ariza et al., 2017). If a female CEO leads the firm, the important impacts and value to the triple bottom line are observed (Lakhal et al., 2024; Mansour et al., 2024), and businesses can prioritise eco-friendly responsibilities without neglecting the economic bottom line (Hossain et al., 2023). Female CEOs demonstrate heightened awareness of stakeholder interests and play a pivotal role in advancing sustainability initiatives and strategic frameworks (Orazalin & Baydauletov, 2020; Romano et al., 2020). According to Mallin and Michelon (2011), female CEOs demonstrate heightened awareness of stakeholder interests and play a pivotal role in advancing sustainability initiatives and strategic frameworks. These factors converge into ethical dynamics that influence a range of ethical concerns within family businesses, including the moral development of family members, the organizational ethical climate, the normative framework of the family business, the ethical behavior of employees, and the ethical considerations of external stakeholders (Ramos-Hidalgo et al., 2021). While existing research has predominantly concentrated on non-family firms, there has been comparatively limited focus on the role of female CEOs within family-owned businesses (Cambrea et al., 2024). These organizations are typically distinguished by robust familial connections, a focus on long-term sustainability, and distinctive organizational dynamics and decision-making processes, which set them apart from non-family firms (Campopiano & De Massis,

2015). It results from the participation of the owner’s family, social-emotional wealth (SEW), and social interactions (Ramos-Hidalgo et al., 2021). To sum up, family firms assume a positive relationship between long-term added value and actions concerning CSR and show more concern for CSR (Déniz & Suárez, 2005). Nevertheless, studies present contradictory results. On the one hand, female directors can determine higher CSR strategy scores only in family firms (Cambrea et al., 2024). However, according to a study by Froide (2022), family businesses are male-dominant and male-centred, creating a system favouring males. As a result, the managerial independence of female top executives in these firms may be constrained by the dominant influence of the family in management and control, potentially diminishing the observable positive impact of female leadership on the corporate social responsibility performance of family businesses (Tran & Nguyen, 2022). Considering the above, this paper aims to isolate the dominant focuses on female CEOs in family firms towards economic, social and environmental dimensions of sustainability.

Thus, building upon the upper echelons theory (UET) and integrating it with gender role theory, gender socialisation theory, social identity theory of leadership and the socio-emotional wealth (SEW) approach (Abinzano et al., 2023), three research questions were formulated:

RQ1: Which social dimensions of sustainable development are key for female CEOs in family firms?

RQ2: Which economic dimensions of sustainable development are key for female CEOs in family firms?

RQ3: Which environmental dimensions of sustainable development are key for female CEOs in family firms?

Relationships that are subject of theoretical considerations were depicted in Figure 1.

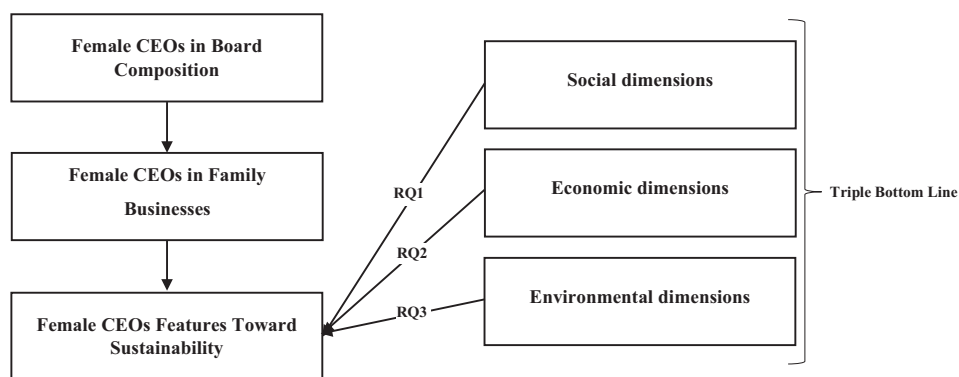


Figure 1. Theoretical model

Source: Author’s own study.

Research methods and results

Sampling procedure and sample characteristics

The study was conducted on the final sample of Polish private family firms run by female CEOs. The definition of a family firm selected for this research is based on a self-identification approach, which is particularly effective for analyzing the unique resources of family businesses and has been utilized in several prior studies (Domańska et al., 2023; Gallo et al., 2004; Zajkowski & Żukowska, 2020; Zellweger et al., 2012; Żukowska et al., 2021). The initial sample included the entities operating as commercial companies exclusively. Such an approach allows the isolation of businesses in which the company's assets are separated from the family's assets, and it is possible to extract precise determination of shares in the ownership and board composition (Żukowska et al., 2021). Primary data were collected from 4 May to 18 August using computer-assisted telephone interviews (CATI) and computer-assisted web interviews (CAWI) techniques. During data collection, 13,696 contacts with family businesses were initiated. 13,055 businesses refused to participate, and 41 resigned during the survey. Following initial and subsequent mail distributions, a total of 600 surveys were completed, yielding an initial response rate of 4.38%. After reducing non-completely filled questionnaires, the base sample totalled 547 items, which is transferred to the final response rate of 3.99%. Subsequently, only family firms with female CEOs participating in data collection were taken (subsample). Unfortunately, only 23 business entities meet this criterion. A limited number of observations have determined the analysis method (grey system approach – see in the further part of the paper). Considering the subsample, the average age of firms was 25 years; the youngest was 8 and the oldest 55. They employ 44 people (from 2 to 160), with an average share of females counted 16 (from 1 to 75). Family firms are controlled by families 94.8% on average. Only one entity reported that family members controlled 30% of shares. In the structure of shareholders of all family firms were representatives of the first and second generations of the family. The average number of board members totalled 2.8 members (from 1 to 5), with 1.9 family representatives (from 1 to 5) and 1.6 females (also from 1 to 5). All CEOs were family members.

Sustainable development dimensions

A CSR scale was used to measure sustainable dimensions, assuming that each organisation naturally focuses on the 17 Sustainable Development Goals established by the UN. The proposition of Gallardo-Vázquez et al. (2021) is that CSR and sustainable development have certain standard features and balance, complementing each other, even though they come from different theoretical perspectives. This

scale contains 35 variables and was adopted for the study. According to the report, the Sustainable Development Goals were divided into three dimensions: social, economic, and environmental (see Table 1).

Table 1. Dimensions of sustainable development

Social Dimension
1. We support the employment of people at risk of social exclusion
2. We value the contribution of disabled people to the business world
3. We are aware of the employees' quality of life
4. We pay wages above the industry average
5. Employee compensation is related to their skills and their results
6. We have standards of health and safety beyond the legal minimum
7. We are committed to job creation (fellowships, creation of job opportunities in the firm, etc.)
8. We foster our employees' training and development
9. We have human resource policies aimed at facilitating the conciliation of employees' professional and personal lives
10. Employees' initiatives are taken seriously into account in management decisions
11. Equal opportunities exist for all employees
12. We participate in social projects to the community
13. We encourage employees to participate in volunteer activities or in collaboration with NGOs
14. We have dynamic mechanisms of dialogue with employees
15. We are aware of the importance of pension plans for employees
Economic Dimension
16. We take particular care to offer high-quality products and/or services to our customers
17. Our products and/or services satisfy national and international quality standards
18. We are characterised as having the best quality-to-price ratio
19. The guarantee of our products and/or services is broader than the market average
20. We provide our customers with accurate and complete information about our products and/or services
21. Respect for consumer rights is a management priority
22. We strive to enhance stable relationships of collaboration and mutual benefit with our suppliers
23. We understand the importance of incorporating responsible purchasing (i.e. we prefer responsible suppliers)
24. We foster business relationships with companies in this region
25. We have effective procedures for handling complaints
26. Our economic management is worthy of regional or national public support
Environmental Dimension
27. We are able to minimise our environmental impact
28. We use consumables, goods to process, and/or processed goods of low environmental impact
29. We take energy savings into account in order to improve our levels of efficiency
30. We attach high value to the introduction of alternative sources of energy
31. We participate in activities related to the protection and enhancement of our natural environment
32. We are aware of the relevance of firms planning their investments to reduce the environmental impact that they generate
33. We are in favour of reductions in gas emissions and in the production of wastes and in favour of recycling materials
34. We have a positive predisposition to the use, purchase, or production of environmentally friendly goods
35. We value the use of recyclable containers and packaging

Source: (Gallardo-Vasquez et al., 2021).

Respondents were required to make a subjective assessment of individual statements using a Likert scale, where the number 1 indicated the option *strongly disagree*, while the number 5 – *strongly agree*.

Analytical procedure

Considering the small number of observations, applying typical statistical procedures was excluded. Extending the sample was impossible due to higher restrictions that “items” have to meet, i.e. female CEOs and respondents, respectively. Therefore, the grey relational analysis method (Liu & Lin, 2006; Mierziak & Więcek-Janka, 2015) was applied to solve this problem. Calculations were conducted separately for sustainable development’s social, economic and environmental dimensions. The procedure encompassing the following steps, due to the character of the data set (Liu & Lin, 2006, pp. 98–99):

$$X'_i = \frac{X_i}{\bar{X}_i} = (X'_i(1), X'_i(2), \dots, X'_i(k)) \bar{X} = \frac{1}{k} \sum_{k=1}^{23} X_i(k)$$

1. Find the average image of each sequence:

$$\Delta_i(k) = |X'_0(k) - X'_i(k)|$$

2. Find difference sequences:

$$M = \frac{\max}{i} \frac{\max}{k} \Delta_i(k), m = \frac{\min}{i} \frac{\min}{k} \Delta_i(k)$$

3. Find the minimum and maximum differences:

$$\gamma_{oi}(k) = \frac{m + \zeta M}{\Delta_i(k) + \zeta M}, \zeta = 0.5$$

4. Find incidence coefficients:

$$\gamma_{oi} = \frac{1}{k} \sum_{k=1}^{23} \gamma_{oi}(k)$$

5. Compute the degree of incidences:

Coefficients γ_{oi} allowed to order the social, economic and environmental aspects of sustainable development and isolation, which are most important for female CEOs in family firms. Results are presented in Figures 2–4.

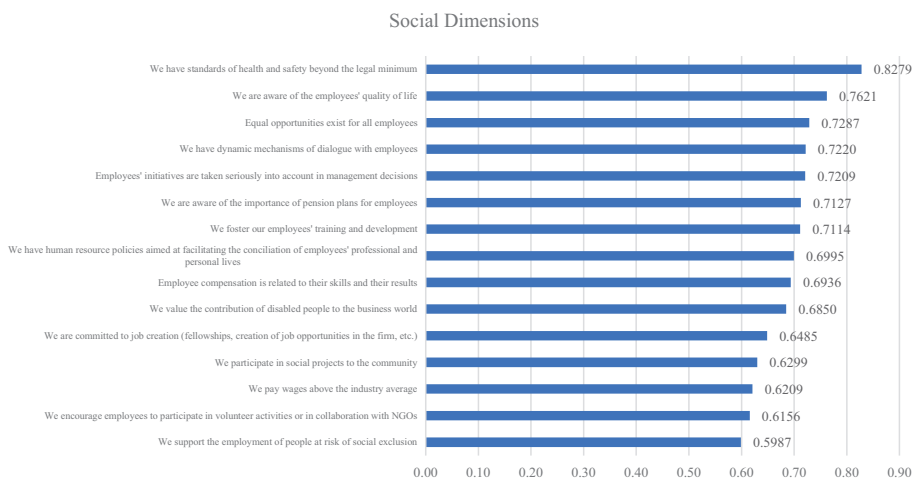


Figure 2. Ordering of social dimensions of sustainable development

Source: Author's own study.

Considering social aspects of sustainable development, female CEOs in family firms are primarily focused on the highest standards of health and safety that exceed legal minima, pay attention to employee's quality of life, provide equal opportunities for all employees, keep dynamic dialogue with employees, take employee opinions seriously while managerial decisions are taken, express attention of employees' pensions plans and foster employees' training and development. The results show that the most preferable dimensions of socially sustainable development are related to family firms' employees' welfare.

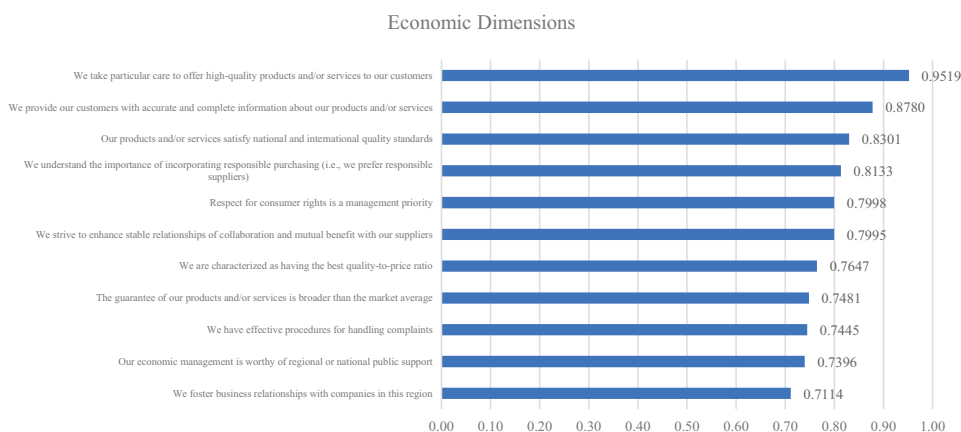


Figure 3. Ordering of economic dimensions of sustainable development

Source: Author's own study.

Female CEOs in family businesses prioritise economic sustainable dimensions starting from the care of high-quality products and/or services, providing accurate and complete information related to products and/or services to customers, ensuring that products and services meet national and international quality standards, focus on incorporating responsible purchasing and respect consumer rights within managerial processes. It boils down to the fact that female CEOs in family firms mainly focus on aspects related to products/services and purchasing procedures and meeting customers' needs in the best way.

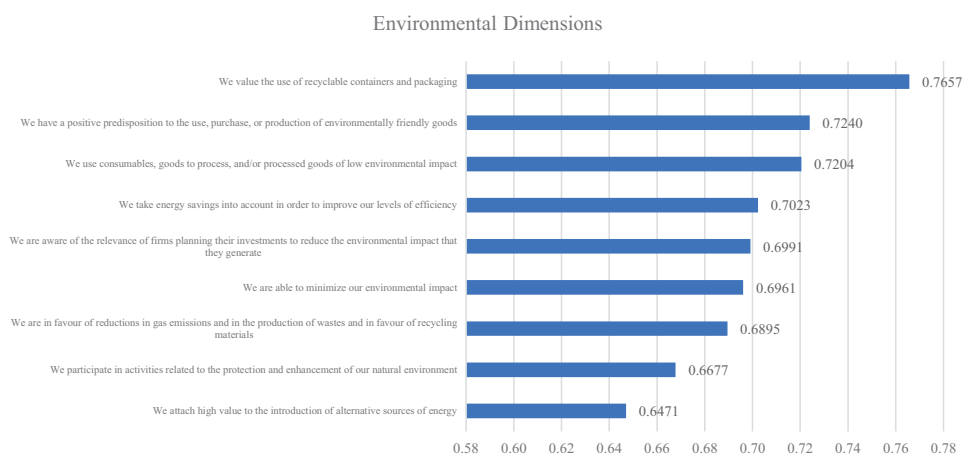


Figure 4. Ordering of environmental dimensions of sustainable development

Source: Author's own study.

In the sphere of environmental concerns, female CEOs in family firms take care to use recyclable containers and packaging, to use, purchase, or produce environmentally friendly goods, to use goods to process, and/or processed goods of low environmental impact and to save energy consumption in order to improve levels of business efficiency. Female CEOs seem to undertake activities that limit the determinantal impact on the environment.

Discussion

Analyses revealed that family firms run by female CEOs pay attention to the well-being of employees in terms of safety, quality of life, equal opportunities, open dialogue or development. These results aligned with other findings that non-financial benefits (Fan et al., 2021), protecting and building employee relations (Gala & Nicol, 2024) affecting employee satisfaction (Bauman & Skitka, 2012) are prioritised in firms with females as CEOs. In opposition to other studies (Hossain et al., 2023; Mallin & Michelon, 2011; Orazalin & Baydauletov, 2020; Ramos-Hidalgo et

al., 2021; Romano et al., 2020), these results showed that family businesses led by females are less keen to engage in social activities related to external shareholders as collaboration with NGOs, voluntary or social projects.

This study confirms that women in leadership positions, including CEOs, are often more collaborative and customer-focused than their male counterparts and tend to deliver value through high-quality products and services rather than solely on financial metrics (Krishnan & Park, 2005). They emphasise product innovation and service quality, which aligns with their generally higher levels of empathy and interpersonal skills (Eagly & Carli, 2015). Focusing on products, services, and customers may lead to improved customer relationships and long-term firm performance, as female leaders prioritise sustainable growth through service excellence (Dezsö & Ross, 2012).

There is abundant evidence that female CEOs are focused on corporate environmental policies, focusing solely on the environmental aspect (Puteri et al., 2025; Zhang et al., 2023) and are more aware of environmental issues and have a better understanding of their surroundings (Shaheen et al., 2023). Therefore, environmental matters may significantly drive environmental innovation in contemporary businesses (Nadeem et al., 2020). Cordeiro et al. (2020) highlight that the proactive orientation of female CEOs frequently drives them to formulate robust environmental strategies, encompassing sustainable investments, policies, and initiatives. This study revealed that female CEOs focus mainly on easily manageable actions such as using recyclable containers, producing environmentally friendly goods, or saving energy. Hence, they expressed an inner-oriented environmental attitude encompassing activities that could be introduced quickly and effects that can be observed in a short period.

Conclusions

This paper underscores the importance of female leadership in family firms for sustainable development. By focusing on social, economic, and environmental dimensions, female CEOs contribute to family businesses' long-term success and resilience, offering a model for inclusive and sustainable leadership. Female CEOs in family firms focus on employee welfare, including health and safety standards, quality of life, equal opportunities, and employee development. They prioritise internal social responsibilities over external social projects, such as NGO collaborations (Miguel et al., 2020). Female CEOs emphasise high-quality products and services, accurate customer information, and responsible purchasing. Their focus on customer satisfaction and product quality aligns with their risk-averse and conservative decision-making styles (Faccio et al., 2016; Palvia et al., 2015). Female CEOs are proactive in adopting environmentally friendly practices, such as using recyclable materials, reducing energy consumption, and minimising environmental impact. However, their environmental strategies tend to be more short-term and internally focused (Nadeem et al., 2020; Zhang et al., 2023).

The study contributes to the literature on gender diversity in leadership by highlighting the unique role of female CEOs in family firms. It suggests that future research should explore the intersection of gender, family business dynamics, and sustainable development (Bauweraerts et al., 2022; Eddleston & Sabil, 2019). Family firms should actively promote gender diversity in leadership positions, as female CEOs bring valuable perspectives that enhance CSR and sustainable practices. Policymakers and stakeholders should create supportive environments to encourage more women to take on CEO roles, particularly in family businesses (Elsaid & Ursel, 2018; Hoobler et al., 2018).

The study has several limitations, including a small sample size of 23 family firms with female CEOs, which restricts the generalizability of the findings. Additionally, the research is limited to Polish family firms, which may not fully represent the global context. While useful for small samples, the grey system approach may not capture the full complexity of the relationships studied (Liu & Lin, 2006). Future research should expand the sample size and include family firms from different cultural and economic contexts to validate the findings. Longitudinal studies could provide insights into how female CEOs' leadership styles evolve and their long-term impact on firm performance. Additionally, exploring the role of family dynamics and generational differences in shaping female leadership in family firms could offer deeper insights into the unique challenges and opportunities faced by women in these roles (Chadwick & Dawson, 2018; Ramos-Hidalgo et al., 2021).

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