

Master Thesis Business Administration

Radboud University



**Female Ownership and Entrepreneurs' Business
Performance: the Moderating Role of Egalitarianism**

*A quantitative study within emerging Eastern Europe on the relationship
between the female ownership and entrepreneurs' business performance,
moderated by country-level egalitarianism.*

Fleur Nachtegaal (s1043964)

Master: Strategic Human Resources Leadership
Master thesis circle topic: Female Entrepreneurship

Abstract

This study contributes to the theoretical understanding of gender-specific entrepreneurship by investigating the moderating role of egalitarianism on the relationship between female ownership and the business performance of entrepreneurial firms in Eastern Europe. Utilizing data from the World Enterprise Survey Data Bank, the analysis focuses on real annual sales growth, annual employment growth, and annual labor productivity growth as key indicators of business performance. Data of eight developing countries within Eastern Europe – Bosnia and Herzegovina, Bulgaria, Croatia, Estonia, Georgia, Hungary, North-Macedonia, and Romania – from 2013, 2019 and 2023 leads to 11919 firms being included in the sample. The findings reveal that female-owned businesses exhibit distinct performance patterns compared to male-owned businesses, with the influence of female ownership on business performance being significantly, and negatively moderated by the level of egalitarianism in society. While egalitarian practices generally enhance business performance, their positive effects are less pronounced for female-owned firms, suggesting that their business do not benefit from egalitarianism as expected. Therefore, egalitarianism mitigates some negative impacts on the relationship between female ownership and business performance, but does not fully counterbalance them. This highlights the importance of supportive cultural and political environments in fostering female entrepreneurship. This study offers practical insights for policymakers aiming to enhance gender equality in the entrepreneurial landscape and underscores the need for policies that provide equal access to resources and opportunities for female entrepreneurs. Limitations of the study include data, measurement, and generalizability constraints, suggesting avenues for future research such as incorporating qualitative research, an expanded geographical scope, and incorporating additional factors such as intersectionality, technology, and innovation.

Keywords

Business, Entrepreneurship, Female Ownership, Business Performance, Egalitarianism, Panel Data Regression Analysis

Paper Type

Master Thesis

Preface

Writing this thesis was the last part of my journey toward completing the Strategic Human Resources Leadership Master at Radboud University, Nijmegen. The overarching topic is Female Entrepreneurship, which immediately caught my attention and interest. Reflecting on this topic sparked a personal interest and inspired me to embark on this research, driven by a desire to explore and understand the dynamics of female entrepreneurship in organizational contexts. The motivation behind this study stems from a personal quest for validation and affirmation, that I, as a woman, possess the capability to make meaningful contributions to organizations and to realize my ambitions for the future.

Through rigorous research and analysis, this thesis aims to shed light on the complexities of female entrepreneurship. By delving into this subject, I hope to contribute to the growing body of knowledge on gender diversity in entrepreneurship, and to provide insights that can inform strategic HR practices and policies, which I can hopefully adopt myself within my future career.

At this point, I would like to thank some people who helped me through this process. Firstly, I am grateful for the support, guidance, and feedback of my supervisor, dr. Ali Ahmad, throughout this thesis project. Furthermore, I would like to especially thank two of my peer students of the thesis circle: Britt Rutten and Iris Colenbrander, who were my mainstay during this process. They were always there to hear my struggles and concerns, really helped me by sharing their strategies, insights, and work, and motivated and encouraged me when this was highly necessary. Finally, I want to thank my family, friends and boyfriend for being very supportive and believing in me, no matter what kind of setback I faced during the process.

I hope that this thesis not only contributes to academic discourse but also inspires further research and dialogue on the empowerment of women in entrepreneurship. I'm convinced that that through continued exploration, we can create more inclusive workplaces where every individual, regardless of gender, can thrive and contribute to organizational success.

Hopefully, you enjoy reading my thesis and like the topic as much as I did!

Fleur Nachtegaal

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1. Introduction

1.1 Background and Research Gap

In recent decades, the landscape of entrepreneurship has undergone a transformative shift, with female entrepreneurs being increasingly recognized for their decisive role in economic growth, innovation, and social development (Madhumadhi & Anand, 2022; Meyer, 2018). The global entrepreneurial scene has witnessed a sudden rise in the number of women establishing and leading their own businesses, contributing substantially to job creation and economic welfare (Welter & Smallbone, 2011). Emerging literature highlights women's crucial role in entrepreneurship and economic development (Yadav & Unni, 2016; Sarfaraz et al., 2014). However, female entrepreneurship remains a relatively young field of inquiry (McAdam, 2022; Minniti, 2009), and most entrepreneurship research is not gender specific, even though this could support the further development and improvement of female entrepreneurship (Meyer, 2018). It is acknowledged that gender does in fact matter with regard to entrepreneurial activity (McAdam, 2022; Jennings and Brush, 2013). Hence, the domain of female entrepreneurship is an emerging area, necessitating even more extensive and comprehensive scholarly inquiry to advance our understanding of this field.

The rise of female-led businesses has raised interest into the factors shaping their success. Women entrepreneurs significantly contribute to job creation, and therefore to economic growth and social progress worldwide (Madhumadhi & Anand, 2022; Meyer, 2018; Welter & Smallbone, 2011). However, female entrepreneurs' initiatives are rooted in a complex and multifaceted context. In consequence, gender dynamically interacts with many fields, especially politics and culture, which influences gender role expectations and identities, as well as the economic and social environment in which female entrepreneurship evolves (Bullough et al., 2022). Despite their importance, the interplay of female entrepreneurship with politics and culture are still relatively understudied areas of research, particularly in developing economies (Brush et al., 2018; Hechavarría et al., 2019; Muñoz-Fernández et al., 2019)

Besides, ownership is known as a key factor in the overall firm performance of SMEs (O'Regan et al., 2005). In addition to various ownership structures such as state-owned vs. private-owned (Chen et al., 2009), factors like gender, race, and ethnicity can also define ownership within an organization. Individual characteristics, particularly gender, play a significant role in decision-making processes (De Acedo Lizárrage et al., 2007). However, the

role of gender might vary among countries. Recent research suggests that different political, cultural, and institutional developments shape women's empowerment in society (Halaç et al., 2021). The political-cultural context influences the challenges and barriers for female owners and directors (Festing et al., 2015). Therefore, it is important to take into account the political-cultural aspect of egalitarianism within countries. Within this thesis, egalitarianism evaluates the extent to which democratic countries achieve equality among their citizens in political, cultural, social, and economic dimensions. It assesses how well a country upholds democratic principles, and ensures equal access to opportunities and resources for all its citizens (Sigman & Lindberg, 2018).

Firm ownership, particularly whether a business is owned and led by a female or male entrepreneur, has emerged as a key area of study (Chaudhuri et al., 2020; Halabisky, 2018). The complicated interplay between ownership nature in terms of gender and business performance, however, is a focal point in the literature on female entrepreneurship, because this is not fully understood yet (Bardasi et al., 2011). Thereby, the impact of egalitarianism on this relationship is a critical dimension, but has not been extensively inquired and fully understood yet. Previous studies have explored the impact of gender on entrepreneurship, highlighting differences in business strategies and performance (Verheul et al., 2012; Brush et al., 2009;). However, there is a lack of research that specifically addresses the relationship between the nature of firm ownership in terms of gender and business performance, taking egalitarianism as a moderator. By not considering the gender-specific aspects of ownership and political-cultural dynamics, the literature fails to provide a comprehensive understanding of how these factors collectively impact business performance (Terjesen, et al., 2009). Therefore, this master's thesis delves into these dynamics, seeking to unravel the complexities of how the female ownership influences entrepreneurs' business performance, moderated by egalitarianism.

The identified research gap is promising as it addresses the intersection of female ownership, egalitarianism, and business performance. Prioritizing this gap is essential as it seeks to contribute not only to gender-related entrepreneurship literature, but also to the broader understanding of how this political-cultural aspect of egalitarianism interacts with ownership dynamics within the entrepreneurial scene. Therefore, by addressing this gap, this study can provide valuable insights regarding business performance particularly for female entrepreneurs in different political-cultural settings, contributing to both academic knowledge and practical implications within the contemporary entrepreneurial business landscape.

1.2 Objectives and Research Question

Taking into account what is outlined in the above section, the main research question of this thesis is as follows: *How does egalitarianism moderate the relationship between female ownership and business performance of entrepreneurial firms in Eastern Europe?*

To answer the main research question, all components of the question should be answered. This is done based on two hypotheses, which are formulated within the theoretical framework. The first step is to understand the impact of female ownership on business performance because this is crucial for identifying gender-specific patterns in entrepreneurship. The objective is to examine the overall impact of gender-specific ownership on business performance, considering measures such as the growth of annual sales, annual employment, and annual labor productivity. Secondly, the moderating effect of egalitarianism is examined through the Egalitarian Democracy Index Score (World Bank, 2023a). The objective here is to explore how egalitarianism influences the relationship between ownership nature and performance. This is done by exploring whether a certain egalitarianism index score may enhance or hinder the business growth and performance of female entrepreneurs.

This approach provides a comprehensive understanding of the dynamics between female ownership and business performance, answering the main research question in distinct steps, facilitating a focused and detailed investigation. Understanding the impact of female ownership on business performance is crucial for understanding the difficulty of entrepreneurial success. Exploring the moderating role of egalitarianism in shaping the relationship between ownership nature in terms of gender and entrepreneurs' business performance adds an additional layer of complexity to this analysis. The nature of firm ownership, whether entrepreneurial businesses are led by women or men, has been shown to have significant implications for business outcomes. Research by Brush et al. (2018) indicates that gender diversity in ownership contributes positively to performance in entrepreneurial businesses. Female-owned businesses often demonstrate resilience and innovative approaches, positively impacting their business success. Moreover, the concept of egalitarianism is a valuable way for understanding how societal values might influence this relationship (Bullough et al., 2022). For example, egalitarian societies, with less rigid gender expectations, may enhance female-owned business performance compared to cultures with lower gender egalitarianism, where biases can hinder women's entrepreneurial success (Lyness & Judiesch, 2014).

1.3 Contributions

1.3.1 Theoretical Contributions

This research significantly contributes to the theoretical understanding of gender-specific entrepreneurship. Since research on entrepreneurship is often not gender-specific (Meyer, 2018), and the fact that emerging literature indicates that women can play a crucial role in the larger entrepreneurship phenomenon and economic development (Yadav & Unni, 2016; Sarfaraz et al., 2014), taking into account gender differences contributes to the more nuanced understanding of this concept. Brush (2009) states that only a tiny proportion of existing articles focuses on, or includes female entrepreneurs, particularly in the context of business performance. This research bridges this gap by offering theoretical insights into how female ownership within entrepreneurial businesses shapes performance and success. Therefore, this research could support the further development and improvement of the area of research on female entrepreneurship. Specifically, it addresses the gender gap in entrepreneurship literature by unraveling how ownership by women shapes business outcomes and performance of entrepreneurial firms.

Additionally, the investigation into egalitarianism as a moderator in the relationship between female ownership and business performance offers a valuable perspective. Existing entrepreneurship research often lacks a political-cultural lens, overlooking the impact of societal values on business outcomes. Integrating this dimension of egalitarianism therefore enriches the theoretical understanding of how the political-cultural context influences entrepreneurial decisions and success, offering a more comprehensive framework for analyzing gender-specific entrepreneurial dynamics (Shane, 2009). This theoretical contribution not only advances current academic knowledge, it also builds a foundation for future research exploring the intersectionality of gender, politics, and culture within the entrepreneurial landscape (Welter et al., 2017).

Lastly, this study advances the continuous discourse on gender and entrepreneurship by challenging traditional stereotypes and assumptions. By exploring the performance of female-owned entrepreneurial businesses, the ongoing narratives that may preserve gender biases and constraints, are being challenged. Theoretical frameworks that foster entrepreneurship studies can benefit from a more inclusive perspective, acknowledging the diversity of entrepreneurial experiences and outcomes (Farrokhnia et al., 2022).

1.3.2 Practical Contributions

The practical contributions of this research are especially relevant for female entrepreneurs in Eastern European countries, but it can be argued that it has an impact on society overall. This is because as previously mentioned, entrepreneurship is responsible for the creation of more jobs and, therefore contributes to economic growth and social progress worldwide (Madhumadhi & Anand, 2022; Meyer, 2018; Welter & Smallbone, 2011). Thereby, the main practical relevance of this study is for female company owners. The results could show female owners what the influence of the level of egalitarianism within their country is on their firm performance and therefore their business success.

Secondly, by exposing gender-specific nuances in business performance, this study may provide actionable insights for policymakers who aim to implement targeted interventions. Policymakers can utilize these findings to design policies that address the specific challenges faced by female entrepreneurs, such as access to funding, networks, informal connections, and mentorship, which promotes gender equality in entrepreneurial outcomes (Bullough et al., 2022; Marlow, 2019). Thus, by providing actionable insights derived from the findings, this study aims to contribute to organizational practices, empowering female entrepreneurs to maximize their impact on business performance (Hoobler et al., 2018).

1.4 Thesis Outline

This thesis is outlined as follows. After this introductory chapter, chapter two follows with the theoretical framework, which elaborates on and operationalizes the theoretical concepts of the female ownership, business performance, egalitarianism, and the relation between these concepts. Also, the hypotheses are developed and formulated, and the conceptual model is illustrated in chapter two. After that, chapter three contains the research methodology, which illustrates the research approach and design, data sources and research measurements, data analysis strategy, and the research quality and ethics. Chapter four contains the execution of the quantitative analysis, which leads to the results of the study. Finally, chapter five presents a discussion based on the findings from the results section, draws a comprehensive conclusion, and ends with some implications, limitations, and potential directions for future research.

2. Theoretical Framework

2.1 Female Ownership

Female ownership, particularly whether a business is owned and led by a female entrepreneur, has gathered significant attention in the entrepreneurship literature. Gender has been recognized as a significant factor influencing entrepreneurial behavior, strategies, and business outcomes (McAdam, 2022; Jennings & Brush, 2013). Female entrepreneurship, in particular, has emerged as a distinct field of research, focusing on the unique challenges, opportunities, and contributions of women in entrepreneurship. Research suggests that there are gender-specific barriers that female entrepreneurs often face, such as limited access to capital, funding, networks, and social support, which can negatively impact their entrepreneurial efforts (Chaudhuri et al., 2020; Guzmán & Kacperczyk, 2019; Bardasi et al., 2011; Terjesen et al., 2009). Within the context of this study, where female entrepreneurs are the focal point, the concept of female ownership encompasses various dimensions.

Gender-specific entrepreneurship recognizes the distinctive role, approach, and experiences of female entrepreneurs within the entrepreneurial business landscape (Brush et al., 2009). It entails not only the proportion and structure of female-owned businesses, but also leadership roles, decision-making authority, and challenges faced by female entrepreneurs (Terjesen et al., 2009). Understanding gender-specific entrepreneurship is crucial for the examination of the influence of the nature of firm ownership in terms of gender on business performance (Bardasi et al. 2011). The ownership structure represents the distribution of ownership among individuals within businesses. In the case of female-owned businesses, it entails the extent to which women hold ownership stakes and have control over the strategic direction and decision-making process of the enterprise (Verheul et al., 2012). Ownership structure leverages the degree of influence and autonomy of female entrepreneurs driving business outcomes, and determines the extent to which female entrepreneurs have control and influence over key strategic decisions and operational activities (Brush et al., 2009). Leadership dynamics shape the ability of female entrepreneurs to enact their vision and strategies, impacting business performance. Female-owned entrepreneurial firms are also characterized by the unique attributes, characteristics, skills, and strategies of their owners (Bardasi et al., 2011). Female entrepreneurs often have distinct perspectives, values, and approaches to management, which can influence organizational culture, innovation, and competitiveness (Verheul, 2005). In conclusion, gender is important to consider because it is mainly the approach of female

entrepreneurs that differs from that of their male counterparts. These approaches cause female ownership to influence business outcomes and performance, which makes it crucial to incorporate.

This research uses data from the World Enterprise Survey Data Bank (World Bank, 2023b), and therefore the variable of female ownership is conceptualized based on their questionnaire, which makes it possible to correctly measure and analyze it. The way it is measured in the World Bank's Enterprise Survey questionnaire is based on whether firms have female participation in ownership, looking at the exact percentage that female owners hold (World Bank, 2023b). Therefore, within this research, female ownership is being interpreted as follows. There can be spoken of female ownership when the majority of the ownership is held by females (> 50%). Male ownership is understood as the situation in which there is less than 50% female participation in ownership. In conclusion, the construct of female ownership represents whether the majority of business is owned by female entrepreneurs.

2.2 Business Performance

Business performance is a multidimensional construct that encompasses several aspects of a firm's operations, growth, and productivity, which is commonly assessed using various, mostly quantitative, metrics. There are multiple ways to measure performance, for example focusing on the financial aspects such as revenue growth, profitability margins, and return on assets and investments (ROA and ROI). These financial metrics provide insights into the firm's ability to generate revenue, manage costs, and generate returns for stakeholders (Ratnatunga & Montali, 2008). However, there are other metrics that can be used to assess a firm's business performance. This is because several factors influence business performance, from internal organizational dynamics to external market conditions (Zhang et al., 2023; Chang, 2023). The effective management of these determinants is crucial for achieving firm sustainability and enhancing business performance. High-performance firms are more likely to attract customers, talent, and investment, which leads to enhanced market share and profitability (Kwon & Rupp, 2012). Additionally, strong business performance fosters organizational resilience and adaptability, which enables firms to easier navigate through challenges and capitalize on opportunities in dynamic business environments (Pertheban et al., 2023).

Within this research, as already mentioned in the previous section, data is used from the World Enterprise Survey Data Bank (World Bank, 2023b). Therefore, the variable of business

performance is also being conceptualized based on their questionnaire, which makes it possible to correctly measure and analyze it. The way it is measured in the World Bank's Enterprise Survey questionnaire, and also commonly within other research, is through real annual sales growth, annual employment growth, and annual labor productivity growth, which are seen as prominent metrics to evaluate business performance (World Bank, 2023b; Ndiaye et al., 2018). Sales growth reflects the firm's ability to increase revenue over time (Kurniawati & Anggraini, 2023), while employment growth measures its capability to create jobs and contribute to economic development (Prasetyo, 2019). Labor productivity growth indicates the efficiency of resource utilization and production processes within the organization (Tarancón et al., 2018; Due, 2023).

2.2.1 Business Performance and Female Ownership

As highlighted earlier, many studies have found that female entrepreneurs face gender-specific barriers, such as limited access to capital, funding, networks, and social support, which can negatively impact their entrepreneurial efforts. This causes female entrepreneurs' business performance, generally, to be worse than that of male entrepreneurs (Chaudhuri et al., 2020). There are various factors to explain this underperformance of female entrepreneurs: fewer opportunities for growth, asymmetric access to capital, lower initial start-up capital, and discriminatory access to (financial) resources (Coleman, 2007; Watson, 2002).

On the other hand, there are also studies that found several dimensions that may implicate a positive impact of female ownership on business performance. Firstly, because female-owned businesses are often characterized by resilience and innovative approaches to management (Brush et al., 2018). Female entrepreneurs demonstrate adaptability and creativity when navigating through challenges and leveraging opportunities, which can contribute to enhanced business performance. Additionally, female entrepreneurs are good at identifying niche markets, consumer needs, and emerging trends, which enables them to differentiate their products and services in competitive markets (Brush et al., 2018). By focusing on niche segments and offering customized solutions, female-owned businesses may achieve higher profit margins and customer loyalty, leading to improved business performance. Also, female entrepreneurs are more likely to prioritize corporate responsibility, social impact, and environmental sustainability within their businesses (Terjesen et al., 2009). They often incorporate social and environmental objectives, which resonates with consumers and stakeholders who value ethical and sustainable practices, and can enhance reputation. This then

may positively influence business performance. In addition, Eagly and Karau (2002) pose that congruence between the entrepreneur's gender and the task at hand can influence business performance. Therefore, female-owned businesses may exhibit superior business outcomes in industries and contexts where feminine leadership styles are valued. These findings highlight the importance of considering gender-specific ownership dynamics in understanding its relation to business performance.

The nature of firm ownership in terms of gender can significantly influence business performance outcomes, including sales growth, employment growth, and labor productivity growth. Research suggests that female-owned businesses entail unique characteristics and strategies, that can impact their business performance differently from male-owned businesses (Bardasi et al., 2011). The main line of reasoning for this is that female entrepreneurs operate differently and apply a different approach than male entrepreneurs, which causes an impact on business performance (Verheul, 2005). Regarding annual sales growth, female-owned businesses may experience distinctive patterns of sales growth compared to male-owned businesses. These variations in sales growth rates can be caused by factors such as market positioning, customer demographics, and product/service offerings influenced by female entrepreneurial leadership (Davis et al., 2010; Gaskill et al., 1996). Secondly, the annual employment growth of female-owned businesses may reflect the firm's ability to create job opportunities and contribute to economic development. Female entrepreneurs tend to focus on social value aspects, such as workforce diversity, talent development, and employee satisfaction, which can impact employment growth rates and foster a positive organizational culture (Hechavarría et al., 2016; Terjesen et al., 2009). Lastly, labor productivity growth is a crucial determinant of firm efficiency and competitiveness. Female-owned businesses may adopt other innovative practices, technology adoption, and skill development initiatives than male-owned businesses which can influence labor productivity growth (Brush et al., 2018). Moreover, female entrepreneurs are likely to focus on gender-diverse teams and inclusive leadership styles, which can also contribute to improved productivity and performance outcomes (Ferrary & Déo, 2022). In conclusion, female ownership within entrepreneurial firms is expected to significantly influence business performance outcomes, including sales growth, employment growth, and labor productivity growth.

H1: Female ownership positively influences business performance.

2.3 Egalitarianism

Egalitarianism is a belief in political philosophy that focuses on equality. The egalitarian belief is based on the idea that all humans have the same basic worth or moral value (Arneson, 2013). Egalitarianism can take different forms because there are different types of equality that are seen as good. Egalitarianism overall relates to the extent that societies provide equal rights to people and stimulates norms and values that treat individuals as equal (Schwartz, 2013). Additionally, within egalitarian societies, abuses of power inequality are not likely to be tolerated (Schwartz, 2001). Besides, egalitarianism is closely related to the cultural and institutional level. Egalitarianism promotes the idea that all individuals deserve respect and recognition, regardless of their background, race, gender, or social status. This cultural aspect encourages a society where everyone has the opportunity to fully participate in social and public life, fostering a sense of community and shared identity. It strives to eliminate social hierarchies and discrimination, creating a more inclusive and cohesive society where everyone's contributions are equally valued (Anderson, 1999). Therefore, within this study, egalitarianism is seen as a political-cultural aspect. Politically, it advocates for policies that reduce economic inequalities and ensure fair treatment under the law. Culturally, it fosters values of mutual respect, inclusion, and equal opportunity. Together, these dimensions of egalitarianism stand for a society where all individuals are treated as equals both publicly and privately, promoting a more harmonious and fair community (Wolff, 2023).

In general, egalitarianism is seen as an important predictor of organizational performance. Research by Swaab and Galinsky (2015) suggests egalitarian countries to have performing organizations because of better talent levels. Societies with strong egalitarian institutions provide more opportunities to individuals, thereby provide chances to a larger and more diverse pool of talented individuals, including women. Egalitarianism, with its emphasis on equality and inclusion, can create an environment that supports female entrepreneurs. This is because, in societies with high levels of egalitarianism, there is often more emphasis on equal opportunities and support for women in business. This cultural and political support can help female entrepreneurs overcome some of the barriers they traditionally face, such as limited access to resources, such as capital and networks (Chaudhuri et al., 2020; Coleman, 2007; Watson, 2002). For example, egalitarian societies might have policies that ensure equal access to funding and business resources, mentorship programs, and networks that support female entrepreneurs (Bullough et al., 2022; Cannavale et al., 2022).

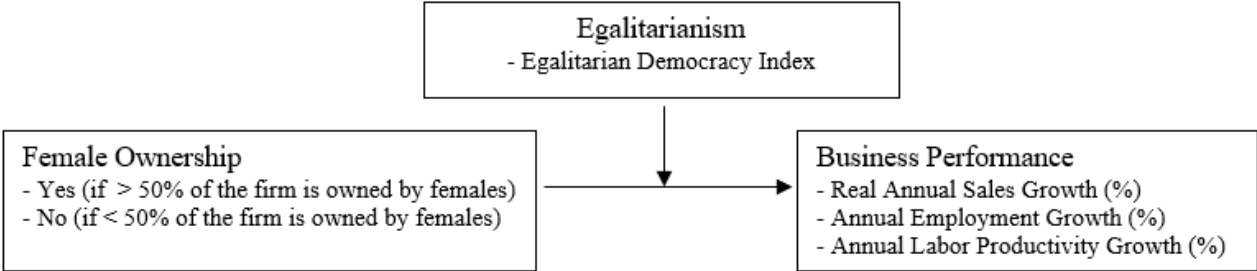
Research suggests that egalitarianism can increase the unique strengths of female entrepreneurs, such as their tendency to adopt innovative management practices and focus on social and environmental sustainability (Brush et al., 2018; Terjesen et al., 2009). These strengths can lead to better business outcomes in egalitarian societies, where such values are more likely to be appreciated and rewarded by consumers and other stakeholders. Furthermore, in an egalitarian context, there is likely to be a cultural acceptance and encouragement of female leadership, because of reduced gender biases and stereotypes that can hinder women's business success. This supportive cultural environment can encourage confidence and resilience among female entrepreneurs. On the contrary, in societies with low levels of egalitarianism, female entrepreneurs may face more significant obstacles and less support, which can hinder their business performance. Gender biases, discriminatory practices, and a lack of supportive policies can create an environment that is less favorable to the success of female-owned businesses. This can result in lower sales growth, employment growth, and labor productivity growth and therefore worse business performance for female entrepreneurs in such contexts (Goorha, 2021; Bullough et al., 2022). Consequently, the positive impact of female ownership on business performance is expected to be even more outspoken in egalitarian societies compared to less egalitarian ones (Hechavarría & Brieger, 2020). In conclusion, the level of egalitarianism in a society is expected to play a positive moderating role in the relationship between female ownership and business performance.

H2: Egalitarianism positively moderates the relationship between female ownership and business performance.

2.4 Conceptual Model

The conceptualization of this thesis is as follows:

Figure 1
Conceptual Model



3. Methodology

3.1 Research Approach and Design

This study employs a quantitative research approach, utilizing secondary data from datasets. Quantitative methods are often chosen for their ability to provide numerical data, allowing for statistical analysis and hypothesis testing. Within this study, a hypothetical-deductive approach is adopted, since the hypotheses are derived from existing theory (Symon & Cassell, 2012). A hypothesis is therefore not a ‘guess’, but a theory-driven effort to explain observed, but still untested, phenomena (Field, 2018). The hypotheses are formulated based on theoretical frameworks of female entrepreneurship, business performance metrics, and egalitarianism. By testing these hypotheses with quantitative data, the aim is to derive generalizable knowledge (Symon & Cassell, 2012). Quantitative data analysis allows for the rigorous testing of hypotheses by gathering a large amount of data and subjecting it to statistical analysis (Field, 2018). Through this process, hypotheses are either accepted or rejected based on the evidence provided by the data. This enhances the reliability and validity of the findings because statistical techniques can assess the strength of relationships between variables.

3.2 Data Sources and Sample Description

The dataset is a combination of data retrieved from several sources. Data on the independent variable, female ownership, and the independent variable, business performance, is retrieved from the World Bank through their Entrepreneurial Survey Data Questionnaire (World Bank, 2023b). Data on the moderator variable, egalitarianism, is also retrieved from the World Bank, but through their Prosperity Data360 platform on the Egalitarian Democracy Index (World Bank, 2023a). The use of secondary data provides a big and diverse amount of data, enhancing the generalizability of findings to the broader population of female entrepreneurs. Additionally, the use of secondary data from reputable sources as used in this research adds to the credibility of the study. These datasets have been rigorously collected and validated, which provides a robust foundation for the research analysis.

This thesis utilizes a sample of eight Eastern European, developing countries; Bosnia and Herzegovina, Bulgaria, Croatia, Estonia, Georgia, Hungary, North-Macedonia, and Romania. Most studies provide insights into the gender and business performance relationship in developed countries, while there are few insights regarding gender characteristics and business performance relationships in developing countries (Assenga et al., 2018). To reduce

the sample of all developing countries within the world, and to avoid sample bias, countries were randomly selected from the World Bank database based on the availability of appropriate datasets in the World Enterprise Survey database. The main criterion was having data from at least three different years, both before and after the COVID-19 pandemic, but no earlier than 2013. The chosen countries were the only ones meeting this requirement, with datasets from 2013, 2019, and 2023, leading to 11919 observations being included in the analysis. An overview of the number of firms per country per year is in Appendix 1. Since there is no firm ID given, it is not possible to find out whether firms participated multiple years in the survey, so it cannot be guaranteed that the total number of firms actually represents the number of different firms. Finally, the eight countries exhibit significant variations in the Egalitarian Democracy Index score, allowing for a comprehensive analysis of the moderating effect of egalitarianism on the relationship between female ownership and business performance.

3.3 Research Measurements

3.3.1 Dependent Variable

The dependent variable within this study is business performance, which is measured through real annual sales growth, annual employment growth, and annual labor productivity growth. These metrics are used in existing research and are extracted from the questionnaire of the World Enterprise Survey Data Bank, which uses four performance indicators in their survey. An overview of the questions for each indicator can be found in Appendix 2. Real annual sales growth is represented by indicators “PerfD2” and “PerfN3” and reflects the firm's ability to increase revenue over time, serving as a key indicator of financial success and market competitiveness (Kurniawati & Anggraini, 2023). “Real annual sales growth is measured as a percentage change in sales between the last completed fiscal year and a previous period” (World Bank, 2023b, p. 204). Annual employment growth is represented by indicators “PerfL1” and “PerfL2” and measures the firm's capacity to create jobs and contribute to economic development, reflecting its impact on employment opportunities and labor market dynamics (Prasetyo, 2019). “Annual employment growth is the change in full-time employment reported in the current fiscal year from a previous period” (World Bank, 2023b, p. 205). Annual labor productivity growth is represented by indicators “PerfD2”, “PerfN3”, “PerfL1”, and “PerfL2” and assesses the efficiency of resource utilization and production processes within the organization, indicating its operational effectiveness and productivity levels (Tarancón et al., 2018; Due, 2023). “Annual labor productivity growth is measured by a percentage change in

labor productivity between the last completed fiscal year and a previous period, where labor productivity is sales divided by the number of full-time permanent workers” (World Bank, 2023b, p. 206).

3.3.2 Independent Variable

The independent variable within this study is female ownership, indicating whether females own a majority or minority of a business. This variable is constructed using the World Enterprise Survey Data Bank’s indicators B.4: ‘Amongst the owners of the firm, are there any females?’ and B.4a: ‘What percentage of the firm is owned by females?’. Unlike most studies that define female ownership based on a 'yes' answer to B.4 (Bastos & Pavlik, 2024; Fu et al., 2020), this study requires at least 50% female ownership to qualify as female-owned. If B.4 is 'no' or B.4a is less than 50%, ownership is considered male (0). If B.4 is 'yes' and B.4a is 50% or more, ownership is considered female (1). Therefore, this variable is used as a dichotomous variable within the multiple regression analysis of this study, to examine the influence of female ownership on business performance. By categorizing firms based on the predominant gender in ownership, the study aims to explore the relationship between female entrepreneurship and business outcomes, highlighting the impact of gender representation in ownership on organizational success (Brush et al., 2009; Orser et al., 2004).

3.3.3 Moderator Variable

Egalitarianism is included as a moderator variable within this study. This aspect captures the level of egalitarianism within a country through the Egalitarian Democracy Index score, providing insights into how this certain score influences the relationship between female ownership and business performance. The Egalitarian Democracy Index Score ranges from 0 to 1, and scores for each country are retrieved through the World Bank’s Prosperity Data360 platform (The World Bank, 2023a). Egalitarian democracy has three main conditions. First, the protection of rights and freedoms of individuals has to be equal across all social groups; second, resources must be distributed equally across all social groups; and third, groups and individuals must have equal access to power (Bruhn, 2021). In this study, the different societies that are examined on the Egalitarian Democracy Index are: Bosnia and Herzegovina, Bulgaria, Croatia, Estonia, Georgia, Hungary, North-Macedonia, and Romania. Egalitarianism reflects the degree of equality and acceptance of equal opportunities within a society, influencing attitudes towards female entrepreneurship and leadership roles (Javadian & Singh, 2012), with a score closer to 1 representing a highly egalitarian society and a score closer to 0 representing a less egalitarian

society. Incorporating egalitarianism as a moderator variable allows for a nuanced understanding of how specific levels of egalitarianism influence the relationship between female ownership and business performance. By examining this, the study contributes to the understanding of the contextual factors that shape the outcomes of female entrepreneurship and organizational success.

3.3.4 Control Variables

To ensure a comprehensive analysis of the relationship between female ownership, business performance, and egalitarianism as a moderator, several control variables are considered to mitigate bias and improve the study's reliability and validity. These control variables help account for other factors influencing business performance, providing a more nuanced understanding of the relationships under investigation.

The first control variable is *industry type*, as the industry in which a firm operates significantly impacts its business performance (Hanson et al., 2016). Different industries have unique market dynamics, competitive landscapes, and regulatory environments that affect profitability and growth prospects. Including industry type as a control variable captures these differences and accounts for industry-specific factors influencing financial outcomes. Most of the World Enterprise Survey data has three industry types; manufacturing, retail, and services. However, in some of the datasets, more categories are used. For this research, these are categorized into the three main types, with details provided in Appendix 3.

The second control variable is *firm size*, because this thesis investigates entrepreneurial firms in general and does not distinguish between small, medium, and large firms (Zahra et al., 1999). Larger firms may benefit from increased market presence, benefits of scale, and better access to resources such as human capital, which can positively influence performance outcomes (Shefer & Frenkel, 2005). Controlling for firm size helps to account for variations in operational capacity that may affect business performance, irrespective of ownership nature and egalitarianism. Within this thesis firm size categories are the same as used by the World Bank: 5-19 (small), 20-99 (medium), and 100+ employees (large) (The World Bank Group, 2022).

The third control variable is *firm age*. Research suggests that firm age can impact various aspects of business operations, such as innovation capability, market penetration, and

access to resources (Nanda & Rhodes-Kropf, 2013). Older firms may have established customer bases and brand recognition, which could positively influence financial performance. Conversely, younger firms may face greater uncertainty and resource constraints, potentially affecting their profitability and growth prospects (Ng et al., 2024).

The fourth control variable is *legal structure*. Including legal structure as a control variable is essential for understanding how the structural and liability framework of firms influences their financial performance. Different legal structures have varying impacts on governance, risk exposure, access to capital, and regulatory compliance. For example, publicly traded companies may have greater access to external funding and face stricter regulatory requirements compared to sole proprietorships (Affes & Jarboui, 2023; Oto-Peralías & Romero-Ávila, 2017).

The fifth and final control variable is entrepreneurial experience, measured by the top manager's years of experience. Greater entrepreneurial experience contributes to business performance through valuable skills, knowledge, and networks (Ucbasaran et al., 2009).

3.4 Data Analysis Strategy

The data analysis strategy for this study involved conducting a panel data regression analysis, which is an extension of multiple regression analysis. While multiple regression analysis examines the relationship between a dependent variable and multiple independent variables within a single cross-section or at one point in time, panel data regression analysis extends this by incorporating data that varies across both time and units, in this research countries (Hsiao, 2022). The analysis was executed using Rstudio. Regression analysis is a widely used statistical technique that allows for the examination of the relationship between a dependent variable and two or more independent variables, which can include a moderating variable (Bhandari, 2023; Field, 2018). In this case, the dependent variable is business performance, measured by real annual sales growth, annual employment growth, and annual labor productivity growth. The independent variable of interest is the female ownership, indicating whether the majority of a firm is owned by female entrepreneurs or not. Lastly, egalitarianism is included as a moderator in the model.

The data analysis began with data preparation, including cleaning (handling missing values and ensuring consistency), variable computation, and transformation (converting categorical variables to numeric factors), documented in Appendix 4. Next, regression analysis assumptions were tested: linearity, multicollinearity, homoscedasticity, and normality of residuals (Hair et al., 2018). Dummy variables were created for categorical variables with three or more categories and were added to the model. Correlation analysis followed to examine correlation between variables. This was followed by the first panel regression model, to examine the direct relationship between female ownership and business performance. Subsequently, egalitarianism was introduced as a moderator variable to assess its impact on the relationship between female ownership and business performance. This step involved looking the statistical significance of the model with the inclusion of egalitarianism to determine whether this influences business performance. Furthermore, an interaction term between female ownership and egalitarianism was created to test for specific moderation effects, which clarifies whether egalitarianism influences the strength and direction of the relationship between female ownership and business performance differently across countries with varying political-cultural contexts.

3.5 Research Quality and Ethics

Ensuring quality, acknowledging limitations, and maintaining ethical conduct are crucial for the study's integrity and credibility. Validity, reliability, and generalizability are important notions to address. Validity refers to the accuracy and truthfulness of the research findings, while reliability is about the consistency and stability of the results. Generalizability refers to the extent to which the findings can be applied to other populations or contexts (Vennix, 2016). Validity is addressed by using multiple sources of data, including the World Bank's Enterprise Survey Questionnaire and Egalitarian Index Score. By triangulating data from different sources, the study aims to verify findings and increase the robustness of the results. Reliability, the consistency of results, is ensured through rigorous data analysis techniques, including panel regression analysis using Rstudio software, following established guidelines to minimize errors and biases (Hair et al., 2018; Field, 2018). Generalizability is addressed by randomly picking the European countries for the sample. These cover the geographic range of Eastern Europe, as well as diverse levels of the political-cultural dimension of egalitarianism.

Ethical considerations are paramount to ensure the legitimacy and integrity of the study, and are carefully considered throughout this research. Firstly, the principle of avoiding harm is incorporated, following the guidelines of research ethics (Haggerty, 2004). Furthermore, the research was conducted in accordance with ethical principles like honesty, objectivity, integrity, and confidentiality (Resnik, 2015). Every effort was made to maintain the highest standards of integrity and objectivity in data collection, analysis, and reporting. Reflexivity, which is the awareness of the researcher's role and potential biases, was taken into account (Symon & Cassell, 2012). The researcher remained mindful of her role throughout the study and minimized any potential influence on the research process or outcomes. Additionally, research integrity was addressed by relying on factual data for interpretation rather than personal experiences or biases (Anderson, 2013). The study utilizes quantitative data, ensuring that conclusions are based on empirical evidence rather than subjective perspectives. Finally, the results are reviewed by a supervisor to enhance the integrity of the research findings.

4. Results

4.1 Data descriptives

This section provides context to the data before executing the regression analysis. Within Table 1, all variables and their descriptive values are shown. These twelve variables consist of seven main variables; four on the dependent variable performance, one on the independent variable female ownership, and one on the moderator variable egalitarianism. The five control variables as explained in Chapter 3 are also included to clarify interpretation.

Table 1

Descriptive Statistics

Variable	N	N Miss	% Miss	Mean	St. Deviation	Median	Min.	Max.	Sk.	Kurt.
PerfD2	11919	741	6,22	3.000.000.000	80.000.000.000	9.000.000	0	6.000.000.000.000	59,7	4.207,5
PerfN3	11919	1651	13,85	1.000.000.000	20.000.000.000	5.000.000	0	1.000.000.000.000	57,5	3702,4
PerfL1	11919	37	0,31	100	800	20	1	80.000	76,4	6975,7
PerfL2	11919	621	5,21	70	200	20	0	8.000	14,9	399,1
FemaleOwn	11919	313	2,63	0,2	0,4	0	0	1	1,3	-0,3
EgalitarianIndex	11919	0	0,00	0,5	0,1	0,5	0,3	0,8	0,7	0,2
IndustryType	11919	3	0,03	2	0,9	2	1	3	0,3	-1,6
FirmSize	11919	3	0,03	2	0,8	2	1	3	0,3	-1,2
FirmAge	11919	25	0,22	20	10	20	2	210	3,4	24,9
LegalStruc	11919	154	1,29	2	0,8	2	1	5	2,1	5,1
ManagerExp	11919	265	2,22	20	20	20	1	2.006	71,7	6745,0

Table 1 displays the exact percentages of missing values, with particular attention given to "PerfN3," which has a missing value rate of 13.85%, exceeding the recommended threshold of 10% (Field, 2018). A missing value analysis was conducted to assess the impact of these missing data points before proceeding with further analysis (Field, 2018). The results, detailed in Appendix 5, indicated that the dataset's missingness did not align with the assumption of missing completely at random (MCAR), as evidenced by a significant Chi-square test ($p < 0.05$). To address this issue, Multivariate Imputation by Chained Equations (MICE) was executed as a robust technique for handling this kind of missing data. MICE iteratively imputes missing values using a specified set of predictor variables, thereby reducing bias, improving parameter estimates' precision, and maintaining statistical power by incorporating cases with missing data (van Buuren, 2018). This approach effectively manages the uncertainty introduced by imputation.

Before continuing with the analysis, four performance variables were computed. “PerfD2” and “PerfN3” measure total annual sales in different fiscal years and were combined into a single variable “PerfD2.N3” by averaging their scores. Similarly, “PerfL1” and “PerfL2”, which measure the number of full-time employees in different fiscal years, were averaged to create “PerfL1.L2”. Thus, the analysis now focuses on two performance variables: one for sales and one for labor productivity. These variables will be used as dependent variables in the panel data regression analysis to assess overall business performance in terms of annual sales growth, employment growth, and labor productivity growth.

4.2 Testing assumptions

Since panel data regression analysis is an extension of multiple regression analysis, there was tested for multicollinearity, homoscedasticity, normality, and linearity. However, since panel data regression analysis is slightly different than a regular multiple regression analysis, it is not problematic when not all these assumptions are met (Field, 2018).

To evaluate the presence of multicollinearity among the predictor variables, the Variance Inflation Factor (VIF) test was executed. The VIF test in Appendix 6 shows all variables have acceptable VIF values below the threshold of 5 (Akinwande et al., 2015). This finding indicates that multicollinearity is not a significant concern within the regression model. Consequently, the predictor variables exhibit relatively low intercorrelation and do not unduly influence each other's effects on the outcome variable. Thus, this assumption is met, which ensures robustness of the model and enhances validity of the study's findings.

Appendix 6 shows the results of the Breusch-Pagan test for homoscedasticity, with p-values of 0.1271 for performance in terms of sales and 0.6157 for performance in terms of labor productivity, indicating no evidence of heteroscedasticity ($p > 0.05$). Consequently, it can be concluded that the assumption of homoscedasticity is met, which suggests that the variance of the residuals remains constant across all levels of the predictor variables. This enhances the validity of the statistical inferences drawn from the regression analysis and underscores the robustness of the model (Kutner et al., 2005).

For normality, the Anderson-Darling in appendix 6 test indicated a p-value < 0.05 , suggesting the data deviates from normal distribution (Nelson, 1998). Consequently, it can be

inferred that the assumption of normality is not met within the dataset. However, while the absence of normality may limit the generalizability of the findings to some extent, it does not undermine the validity or reliability of the panel data regression analysis. Panel data regression models are robust to normality violations due to their focus on within-group variations, are less sensitive to the distributional assumptions of the error terms, and accommodate individual-specific effects and time-specific trends, which can mitigate the impact of non-normality in the data (Torres-Reyna, 2007).

To evaluate linearity, scatterplots in Appendix 6 indicated a lack of linearity due to the dichotomous nature of the independent variable, taking on only two possible values: 0 or 1. This binary nature of the independent variable inherently limits the potential for observing a continuous linear relationship. Linearity is not as stringent a requirement in the context of panel data regression, especially with a binary independent variable. Panel data regression techniques can handle various types of data distributions and relationships, including those involving binary variables. These models focus on capturing within-group variations and are robust to deviations from linearity in the predictors. Therefore, the analysis remains valid despite the observed lack of linearity (Wooldridge, 2010).

4.3 Correlation analysis

A correlation matrix analysis is a statistical tool used to evaluate the strength and direction of linear relationships between multiple variables simultaneously (Dancey & Reidy, 2004). Table 2 presents a correlation matrix, illustrating how variables of this study such as firm ownership, performance metrics, egalitarianism, and control variables interact and collectively influence business performance. This analysis is crucial for identifying associations and understanding complex relationships within the dataset (Field, 2018). There is a debate among statisticians about the threshold levels for the correlation coefficient. Most statisticians agree that correlation coefficients above 0.8 indicate problematic collinearity, with some suggesting caution at values above 0.5 (Field, 2018; Nettleton, 2014). This confirms that the study's assumption of no multicollinearity is met.

Table 2.
Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<i>PerfD2.N3 (1)</i>														
<i>PerfL1.L2 (2)</i>	0.039***													
<i>FemaleOwn (3)</i>	-0.012	-0.045***												
<i>Egalitarian Index (4)</i>	-0.031***	0.002	0.028**											
<i>Dummy_Industry_Retail (5)</i>	-0.005	-0.014	0.120***	0.040***										
<i>Dummy_Industry_Services (6)</i>	-0.009	-0.025**	-0.065***	0.023*	-0.389**									
<i>Dummy_Size_Medium (7)</i>	-0.012	-0.048***	-0.017	-0.003	-0.033***	-0.056***								
<i>Dummy_Size_Large (8)</i>	0.059***	0.240***	-0.109***	-0.025**	-0.119***	-0.026**	-0.338**							
<i>FirmAge (9)</i>	0.013	0.050***	-0.016	0.042***	0.028**	-0.104***	0.023*	0.184***						
<i>Dummy_Legal_Private Shareholding (10)</i>	0.008	0.002	0.030**	-0.001	-0.008	0.016	0.028**	-0.044***	-0.049***					
<i>Dummy_Legal_Sole Proprietorship (11)</i>	-0.004	-0.030**	-0.009	0.024**	0.005	0.010	-0.016	-0.046***	-0.078***	-0.747**				
<i>Dummy_Legal_Partnership (12)</i>	-0.003	-0.002	0.021*	-0.030**	0.055***	-0.020*	0.002	-0.016	0.037***	-0.181***	-0.049***			
<i>Dummy_Legal_Limited Partnership (13)</i>	-0.008	-0.011	0.001	-0.037***	0.035***	-0.046***	-0.012	-0.005	0.008	-0.360***	-0.098***	-0.024**		
<i>Manager Exp (14)</i>	0.001	0.006	-0.000	-0.024**	-0.022*	-0.019*	0.026**	0.026**	0.132***	-0.017	0.015	0.004	-0.003	

Computed correlation used pearson-method with listwise-deletion.

The results indicate that larger firms tend to generate higher revenues, as evidenced by the significant positive correlation between the large firm size variable and the two performance variables. Additionally, large firm size shows significant positive correlations with performance at the annual sales level at 0.059*** and Manager Experience at 0.026**. There is a significant negative correlation between egalitarianism and performance at the annual sales level, with a coefficient of -0.031***. Higher levels of egalitarianism within a country may be associated with lower business performance on these levels. Lastly, the negative correlation between female ownership and the two performance variables suggests that there may be substantial evidence of significant gender-related effects on performance. However, this requires further investigation to understand the gender dynamics in Eastern European entrepreneurship, which is provided by executing the panel regression analysis within the next section.

4.4 Regression analysis

This section presents the results of the panel regression analysis, a robust method for examining longitudinal data across multiple countries, essential for understanding the interactions between the main variables over time (Hsiao, 2022). By combining cross-sectional and time-series data, the analysis allows for a comprehensive examination of how variations in egalitarian values influence the business outcomes of female entrepreneurs.

First, the Hausman test was performed to check whether to use fixed-effects or random-effects models. The Hausman test was performed twice, for each dependent variable separately, of which the exact results are illustrated within Appendix 7. With p-values (< 0.05) the test indicated that the random-effects model is inconsistent, and therefore, the fixed-effects model is preferred. Theoretically, this makes sense, because it allows to control for all time-invariant differences between countries, including the effects of egalitarianism, while also accounting for variability over time.

Next, logistic (log) variables for both dependent variables were created (“LogPerfD2.N3” and “LogPerfL1.L2”). Creating a log variable for panel regression analysis is common particularly when dealing with economic variables, such as performance and sales. Log variables can handle skewed data, making distributions more symmetric and closer to normal (Wooldridge, 2010). It also compresses large ranges of data, simplifying analysis (Gujarati & Porter, 2009), and reduces the influence of outliers, leading to more robust estimates (Verbeek, 2017).

After this, panel data regression analysis was executed twice: first, for performance in terms of sales, with results in Table 3; and second, for performance in terms of labor productivity, with results in Table 4. Each analysis evaluated three models to explore the relationship between female ownership, business performance, and egalitarianism.

Table 3*Panel Regression Table for Dependent Variable Performance Sales*

Panel Regression Results Dependent Variable Performance Sales			
	<i>Dependent variable:</i>		
	LogPerfD2.N3		
	(1)	(2)	(3)
FemaleOwn	-0.703*** (0.044)	-0.308*** (0.032)	0.156 (0.123)
EgalitarianIndex		2.427*** (0.297)	2.650*** (0.302)
Dummy_IndustryType_Retail		0.099*** (0.032)	0.099*** (0.032)
Dummy_IndustryType_Services		0.275*** (0.034)	0.279*** (0.034)
Dummy_FirmSize_Medium		1.706*** (0.031)	1.701*** (0.031)
Dummy_FirmSize_Large		3.634*** (0.037)	3.632*** (0.037)
FirmAge		0.001 (0.001)	0.001 (0.001)
Dummy_LegalStruc_PrivateShareholding		-0.381*** (0.070)	-0.375*** (0.070)
Dummy_LegalStruc_SoleProprietorship		-0.582*** (0.077)	-0.576*** (0.077)
Dummy_LegalStruc_Partnership		-0.197 (0.140)	-0.197 (0.140)
Dummy_LegalStruc_LimitedPartnership		0.201** (0.093)	0.200** (0.093)
ManagerExp		0.001 (0.001)	0.001 (0.001)
FemaleOwn:EgalitarianIndex			-0.937*** (0.241)
Observations	11,919	11,919	11,919
R ²	0.021	0.496	0.497
Adjusted R ²	0.020	0.496	0.496
F Statistic	254.805*** (df = 1; 11910)	977.707*** (df = 12; 11899)	904.737*** (df = 13; 11898)

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 4*Panel Regression Table for Dependent Variable Performance Labor Productivity*

Panel Regression Results Dependent Variable Performance Labor Productivity			
	<i>Dependent variable:</i>		
	LogPerfL1.L2		
	(1)	(2)	(3)
FemaleOwn	-0.460*** (0.030)	-0.107*** (0.016)	0.001 (0.062)
EgalitarianIndex		2.891*** (0.150)	2.943*** (0.153)
Dummy_IndustryType_Retail		-0.197*** (0.017)	-0.196*** (0.017)
Dummy_IndustryType_Services		-0.131*** (0.016)	-0.131*** (0.016)
Dummy_FirmSize_Medium		1.317*** (0.016)	1.316*** (0.016)
Dummy_FirmSize_Large		2.894*** (0.019)	2.893*** (0.019)
FirmAge		0.005*** (0.001)	0.005*** (0.001)
Dummy_LegalStruc_PrivateShareholding		-0.068*** (0.036)	-0.067*** (0.036)
Dummy_LegalStruc_SoleProprietorship		-0.166*** (0.039)	-0.165*** (0.039)
Dummy_LegalStruc_Partnership		-0.053 (0.071)	-0.052 (0.071)
Dummy_LegalStruc_LimitedPartnership		-0.159*** (0.047)	-0.159*** (0.047)
ManagerExp		0.001*** (0.0003)	0.001*** (0.0003)
FemaleOwn:EgalitarianIndex			-0.218*** (0.122)
Observations	11,919	11,919	11,919
R ²	0.020	0.715	0.715
Adjusted R ²	0.019	0.714	0.715
F Statistic	242.006*** (df = 1; 11910)	2,486.503*** (df = 12; 11899)	2,295.906*** (df = 13; 11898)

Note:

*p<0.1; **p<0.05; ***p<0.01

Model 1

For dependent variable performance in terms of sales, the first model is performed to assess the main relationship between female ownership and performance in terms of total annual sales. The effect is negatively significant (coefficient = -0.703^{***}), which means that female-owned firms tend to perform worse in terms of sales. The $R^2 = 0.021$ within this model, which means that 2.1% of the variation in the dependent variable performance in terms of annual sales is explained by the independent variable within each individual unit over time. For dependent variable performance in terms of labor productivity, the first model is performed to assess the main relationship between female ownership and performance in terms of labor productivity growth. The effect is negatively significant (coefficient = -0.460^{***}), which means that female-owned firms tend to perform worse in terms of employment and labor productivity. The $R^2 = 0.020$ within this model, which means that 2.0% of the variation in the dependent variable performance in terms of labor productivity is explained by the independent variable within each individual unit over time. In summary, the highly significant negative coefficients (-0.703^{***} and -0.460^{***}) indicate that female ownership is associated with a statistically significant decrease in business performance, contrary to hypothesis H1.

Model 2

For dependent variable performance sales, the second model is performed to add the effect of egalitarianism on business performance in terms of annual sales, and incorporate control variables to mitigate the influence of other factors that can influence business performance, which provides a more nuanced understanding of the relationships under investigation. The effect of the moderator variable is positively significant (coefficient = 2.427^{***}), which means that egalitarianism itself has a positive and significant effect on performance in terms of annual sales. The $R^2 = 0.496$ within this model, which means that 49.6% of the variation in the dependent variable performance in terms of sales is explained by the independent variables of this model, within each individual unit over time. For dependent variable performance labor productivity, the second model is performed to add the effect of egalitarianism on business performance in terms of labor productivity and incorporate control variables to mitigate the influence of other factors that can influence business performance. The effect of the moderator variable is positively significant (coefficient = 2.891^{***}), which means that egalitarianism itself has a positive and significant effect on business performance in terms of labor productivity. The $R^2 = 0.715$ within this model, which means that 71.5% of the variation in the dependent variable performance in terms of labor productivity is explained by the independent variables of this

model, within each individual unit over time. In summary, the negative coefficients for female ownership (-0.308*** and -0.107***) suggest that, in the absence of an interaction term, female ownership alone is again associated with decreased performance. The significant positive coefficient for egalitarianism (2.427*** and 2.891***) indicates that egalitarianism independently boosts performance. However, the direct moderating effect (interaction term) is not assessed here. To fully test H2, an interaction term between female ownership and egalitarianism should be examined. This is done within model 3.

Model 3

For dependent variable performance sales, the third model includes an interaction term between female ownership and egalitarianism and is performed to assess the moderating effect of egalitarianism on the main relationship between independent variable female ownership and business performance in terms of annual sales. The interaction term between female ownership and egalitarianism has a coefficient of -0.937***. This significant negative coefficient indicates that the main effect of female ownership and business performance in terms of annual sales is even more weakened when egalitarianism is high. The $R^2 = 0.497$ within this model, which means that 49.7% of the variation in the dependent variable performance in terms of annual sales is explained by the independent variables of this model, within each individual unit over time. For dependent variable performance labor productivity, the third model includes an interaction effect between female ownership and egalitarianism and is performed to assess the moderating effect of egalitarianism on the main relationship between independent variable female ownership and business performance in terms of labor productivity. The interaction term between female ownership and egalitarianism has a coefficient of -0.218*, which is slightly less significant, but still statistically significant at the $p < 0.1^*$ level. Therefore, this significant negative coefficient indicates that the main effect of female ownership on business performance in terms of labor productivity is even more weakened when egalitarianism is high. The $R^2 = 0.715$ within this model, which means that 71.5% of the variation in the dependent variable performance in terms of labor productivity is explained by the independent variables of this model, within each individual unit over time. In summary, the significant positive coefficients for EgalitarianIndex (2.650*** and 2.943***) show that higher levels of egalitarianism are associated with better business performance overall. The interaction terms (FemaleOwn:EgalitarianIndex with coefficients of -0.937*** and -0.218*) are significant and negative, indicating that while egalitarianism generally boosts performance, this boost decreases in female-owned businesses. This contradicts hypothesis H2, which posited that

egalitarianism would positively moderate the relationship between female ownership and business performance. Therefore, these findings do not support the hypothesis H2. Instead of a positive moderation effect, egalitarianism appears to mitigate the impact of female ownership on business performance negatively. While egalitarianism independently boosts business performance, its presence reduces the positive impact of female ownership. These results highlight a complex interaction that requires further investigation.

Hypotheses

The first hypothesis, predicting a positive effect of female ownership on business performance, although theoretically supported, could not be supported by the data used within this thesis. Instead of a positive effect, female ownership is associated with a statistically significant decrease in overall business performance, leading to the rejection of H1. The second hypothesis, expecting egalitarianism to positively moderate the relationship between female ownership and business performance, although theoretically supported, could neither be supported by the data because of a complex interaction term. Contrary to expectations, egalitarianism negatively influenced this relationship, leading to the rejection of H2.

Table 5

Overview of Hypotheses Results

Hypothesis	Accepted
H1: Female ownership positively influences business performance	No
H2: Egalitarianism positively moderates the relationship between female ownership and business performance	No

4.5 Validation of results

This study's robustness is strengthened by using two distinct performance indicators, each measuring a distinct aspect of performance. By incorporating multiple dependent variables measuring different aspects of, in this case performance, this research offers a more comprehensive understanding of the phenomena under investigation (Neumayer & Plümper, 2017). The use of diverse metrics not only allows for a multifaceted evaluation but also serves to mitigate potential biases inherent in relying solely on a single measure. This approach enhances the credibility and reliability of the findings, ensuring a more thorough and nuanced analysis of performance within the scope of the study.

5. Discussion and Conclusion

5.1 Discussion

The results of this study provide interesting insights into the relationship between female ownership, business performance, and the moderating role of egalitarianism of entrepreneurial firms in Eastern Europe. The results of the panel regression analysis revealed a significant, negative association between female ownership and business performance, which contradicts the initial hypothesis (H1) that female ownership positively influences business performance, which was particularly based on existing theory, and highlights the distinct approach in terms of strategies and focus caused by the specific characteristics, skills, experiences, and attributes of female entrepreneurs within the entrepreneurial business landscape (Bardasi et al., 2011; Brush et al., 2018; Brush et al., 2009; Ferrary & Déo, 2022; Hechavarría et al., 2016; Terjesen et al., 2009; Verheul, 2005). However, this contradicting finding does align with existing theory emphasizing the unique challenges faced by female entrepreneurs that they seem to inevitably not be able to overcome, such as limited access to capital, networks, and social support (Coleman, 2007; Chaudhuri et al., 2020; Guzmán & Kacperczyk, 2019). These barriers seem to persist in the developing scenery of Eastern Europe, which could be a theoretical explanation behind the contradictory significant negative impact on the performance outcomes of female-owned businesses.

However, when examining the moderating effect of egalitarianism, the results were more complicated. Egalitarianism generally showed a positive impact on business performance, which is in line with the reasoning within research of Swaab & Galinsky (2015). However, the interaction effect with female ownership revealed a nuanced effect. Specifically, the negative interaction term between female ownership and egalitarianism indicates that the benefits of an egalitarian society do not extend to female-owned businesses, which contradicts hypothesis (H2). This result challenges existing literature suggesting that egalitarian societies provide a more supportive environment for female entrepreneurs, potentially enhancing their business performance (Brush et al., 2018; Bullough et al., 2022; Cannavale et al., 2022; Goorha, 2021; Hechavarría & Brieger, 2020; Terjesen et al., 2009).

While egalitarianism may mitigate some barriers female entrepreneurs face through a supportive and encouraging environment, it does not appear to be enough. This outcome suggests that even in societies that promote equal opportunities and support, there may be

underlying structural and cultural factors that continue to disadvantage female entrepreneurs. For example, the cultural dimensions of egalitarianism might not fully address the specific needs and challenges of female entrepreneurs. While egalitarian policies might ensure formal equality, they might not effectively tackle the informal societal norms and expectations that continue to disadvantage women in business. Female entrepreneurs often have to balance entrepreneurial activities with traditional gender roles, which can limit their ability to engage fully in business opportunities (Verheul et al., 2012). Moreover, egalitarian policies might primarily benefit male entrepreneurs who are better positioned to take advantage of these policies due to existing advantages such as stronger networks and greater access to resources. This disparity means that female entrepreneurs might not reach that level of opportunity and support, even in an egalitarian context (Chaudhuri et al., 2020; Guzmán & Kacperczyk, 2019).

This study contributes to the understanding of gender, entrepreneurship, and business performance in Eastern Europe in several ways. Firstly, it provides empirical evidence that female-owned businesses in this region underperform compared to male-owned businesses. This adds to the literature on gender-specific barriers in entrepreneurship, emphasizing the persistence of these challenges within Eastern Europe, despite varying levels of societal egalitarianism. Secondly, the study's exploration of the moderating role of egalitarianism offers a more complex understanding of how societal values interact with gender dynamics in entrepreneurship. While egalitarianism positively influences overall business performance, the negative interaction with female ownership suggests that additional factors must be considered to fully understand and address the performance disparities between male and female entrepreneurs. This nuanced finding extends current literature by highlighting that egalitarian policies alone may not be enough to overcome the deeply rooted disadvantages faced by female entrepreneurs. Lastly, by employing panel regression analysis with comprehensive, objective, and high-quality data from the World Enterprise Survey Data Bank, the study ensures robust and reliable findings that accurately reflect the entrepreneurial landscape in Eastern Europe.

5.2 Conclusion

This study aimed to investigate the moderating role of egalitarianism on the relationship between the nature of firm ownership and business performance within entrepreneurial firms in Eastern Europe, addressing the research question: *How does egalitarianism moderate the relationship between female ownership and business performance of entrepreneurial firms in*

Eastern Europe? Using panel data regression analysis, three models were developed: one for the direct relationship, one including egalitarianism as a moderator, and one with an interaction effect, to be able to further analyze the moderation effect. The results from the analysis provided nuanced insights into this complex relationship.

Contrary to theory and initial hypothesis H1, that female ownership positively influences business performance, the findings revealed a significant but negative impact of female ownership on business performance in Eastern Europe. This leads to rejecting H1 and suggests that female entrepreneurs in Eastern Europe might face systemic challenges that outweigh the potential advantages of their different approaches, such as barriers to accessing resources, societal biases, and additional burdens related to balancing business and family responsibilities, which collectively detract from business performance.

Similarly, the hypothesis (H2) that egalitarianism positively moderates this relationship was also unexpectedly rejected. Instead, egalitarianism was found to negatively moderate the relationship, indicating that while it generally enhances business performance, it may inadvertently diminish the contributions of female-owned businesses, leading to rejecting H2. This challenges the prevailing theoretical assumption that egalitarian policies uniformly benefit female entrepreneurs.

In summary, the research question can be answered as follows: egalitarianism does moderate the relationship, but not in the anticipated positive direction. While egalitarian practices generally enhance business performance, its benefits are less pronounced for female-owned firms, suggesting that their business do not benefit from egalitarianism as expected. Thus, egalitarianism alone is insufficient to contribute to better business performance, indicating the need for additional supportive measures tailored to female entrepreneurs.

5.3 Implications

5.3.1 Theoretical Implications

This research significantly enhances the theoretical understanding of gender-specific entrepreneurship. By focusing on female ownership and its impact on business performance, this study addresses a gap in the literature where entrepreneurial research often lacks gender specificity (Meyer, 2018). The findings challenge the traditional narrative that often overlooks

gender-specific factors in entrepreneurial success. The study reveals that female-owned businesses exhibit distinct performance characteristics that can be attributed to the unique strategies and approaches employed by female entrepreneurs but are threatened by the ever-existing challenges faced by female firm owners which they inevitably are not able to overcome, such as limited access to capital, networks, and social support (Chaudhuri et al., 2020; Coleman, 2007; Watson, 2002). This enriches existing entrepreneurial theories by incorporating gender-specific dimensions, thereby providing a more comprehensive understanding of entrepreneurial dynamics.

This study also advances the theoretical discourse on the moderating role of societal values, specifically egalitarianism, in the relationship between business performance and female ownership. The results suggest that the broader societal environment plays a crucial role in shaping entrepreneurial outcomes. The incorporation of egalitarianism into the analysis offers a new perspective on how political-cultural values and norms within society can influence the outcomes of business performance both in general and of female entrepreneurs, providing a richer theoretical framework.

Additionally, the research challenges the assumption of uniform entrepreneurial success across different contexts. It reveals that egalitarianism can both enhance and hinder business performance, indicating that the interaction between gender and societal values is complex. This complexity adds depth to theoretical models of entrepreneurship, emphasizing the need to consider a broader range of factors in analyzing entrepreneurial success.

5.3.2 Practical Implications

This study has significant practical implications for policymakers, practitioners, and female entrepreneurs, particularly in Eastern Europe. The results indicate that fostering an egalitarian societal environment does not necessarily strengthen the success of female-owned businesses. Policymakers should therefore focus on creating and promoting policies that genuinely enhance gender equality and support female entrepreneurship. This includes not only formal measures such as ensuring equal access to funding, networks, and mentorship, but also addressing informal societal norms that may hinder female entrepreneurs. By doing so, policymakers aim to create a more supportive environment that actually leverages the unique strengths of female entrepreneurs.

For female entrepreneurs, the findings provide actionable insights into how the level of egalitarianism in their country can affect their business performance. Understanding that an egalitarian environment can enhance business success, female entrepreneurs can advocate for policies and practices that further promote gender equality within their local contexts. They can also seek out a more diverse range of networks and resources, thereby enhancing their entrepreneurial strategies and outcomes.

For practitioners, the study highlights the importance of supporting female entrepreneurs through targeted interventions, focusing on creating inclusive programs that address the specific challenges faced by female entrepreneurs. This can include offering tailored mentorship, access to resources and capital, and training programs designed to empower female business owners. By recognizing and addressing female entrepreneurs' unique needs, practitioners can contribute to diminishing the gender gap in entrepreneurship and foster a more inclusive business environment.

5.4 Limitations

While this study offers valuable insights into the relationship between female ownership, business performance, and the moderating role of egalitarianism in Eastern Europe, several limitations should be acknowledged, starting with some methodological issues. Even though using secondary data has many advantages, limitations of using this method also need to be incorporated. The reliance on secondary data from the World Bank, despite its comprehensive nature, presents limitations in data quality and completeness. This data was not collected specifically for this research, meaning there was no control over the data collection process. Definitions and measurements used in the original data might not perfectly align with the current research objectives, potentially introducing measurement errors, biases, and limitations. Additionally, using aggregated, country-level data may overlook within-country variations, potentially affecting the accuracy of the findings.

Secondly, measurement constraints also exist. The constructs of female ownership and business performance, while carefully operationalized, may still lack some nuance. Female ownership is defined as a majority ownership (>50%) held by women, which does not account for the diversity in ownership structures or the roles women play within these firms. Business

performance is measured using real annual sales growth, annual employment growth, and annual labor productivity growth, but these metrics may not fully capture its multifaceted nature, which includes other metrics like revenue generation, cost management, and stakeholder returns (Ratnatunga & Montali, 2008). Egalitarianism, measured by the Egalitarian Democracy Index score, is a broad construct but may not capture all the political-cultural and social nuances influencing female entrepreneurship. Other cultural attitudes towards gender roles, local business practices, and informal support networks may vary significantly, even within countries. These factors may play a crucial role but are not fully accounted for. Also, qualitative aspects such as innovation, customer satisfaction, and social impact might also be critical.

Thirdly, the study's focus on Eastern European countries, while providing a valuable regional perspective, limits the generalizability of the findings to other regions or contexts. Socio-economic and cultural contexts vary widely and the influence of egalitarianism on the relationship between female entrepreneurship and business performance may manifest differently in other parts of the world. This should be taken into account when extrapolating these results to other geographical or cultural settings. Additionally, the broad country-level measure of egalitarianism overlooks significant intra-country variations (Arneson, 2013), which could affect the business environment for female entrepreneurs differently within a country.

Lastly, the absence of firm IDs in the dataset prevents determining whether firms participated once or multiple times. This limitation introduces slight potential bias, as repeated participation by some firms might skew results and affect the findings' generalizability.

5.5 Directions for Future Research

Building on the insights and address the limitations of this study, several future research directions are recommended. Methodologically, incorporating more years into longitudinal designs would allow for a more dynamic analysis of business growth stages and economic cycles, helping to establish causal relationships and observe the long-term impact of egalitarian policies on female entrepreneurship. Additionally, employing a mixed-methods approach, including qualitative methods such as interviews and case studies, could provide deeper insights into the lived experiences of female entrepreneurs. This would uncover factors not captured by quantitative measures, enhancing the understanding of their challenges and strategies.

Secondly, future research should expand the geographical focus beyond the eight Eastern European countries studied to include regions with varying levels of egalitarianism and economic development. Comparative studies across different areas can provide a more comprehensive understanding of how cultural, political, and economic environments influence female entrepreneurship and test the generalizability of these findings and reveal region-specific dynamics. Additionally, examining specific industries is recommended, as different sectors may present unique opportunities and challenges for female entrepreneurs. Industry-specific studies could highlight these nuances and help identify potential best practices and sector-specific strategies for female entrepreneurs to enhance business performance.

Thirdly, future research could broaden the scope of this study by adopting additional factors. First, expanding performance metrics beyond sales, employment, and productivity growth, by including innovation, customer satisfaction, social impact, and sustainability, would provide a more holistic view of business success and align with the unique strengths of female entrepreneurs. (Brush et al., 2018; Eagly & Karau, 2002; Ferrary & Déo, 2022; Terjesen et al., 2009). Additionally, considering intersectionality by examining how gender intersects with race, ethnicity, age, and socioeconomic status can offer a more inclusive understanding of female entrepreneurship. Lastly, exploring the role of technology and innovation in moderating the relationship between female ownership and business performance could reveal how digital tools and innovative business models help overcome barriers faced by female entrepreneurs. Understanding how technology influences business outcomes in female-owned firms would be valuable for both researchers and practitioners, especially in today's technology-driven society.

A final suggestion for future research is to explore why exactly egalitarianism negatively moderates the business performance of female-owned firms. While this study found a significant negative interaction, the exact reasons behind this contradicting remain unclear. Future studies could incorporate qualitative methods, such as in-depth interviews, to understand how female entrepreneurs perceive egalitarian policies and cultural norms. Additionally, investigating specific aspects of egalitarianism that differently impact female-owned businesses could provide a more nuanced understanding of this relationship and help identify targeted interventions to support female entrepreneurs more effectively.

References

- Affes, W., & Jarboui, A. (2023). The impact of corporate governance on financial performance: a cross-sector study. *International Journal of Disclosure and Governance*, 20(4), 374–394. <https://doi.org/10.1057/s41310-023-00182-8>
- Akinwande, M. O., Dikko, H. G., & Samson, A. (2015). Variance Inflation Factor: As a Condition for the Inclusion of Suppressor Variable(s) in Regression Analysis. *Open Journal of Statistics*, 05(07), 754–767. <https://doi.org/10.4236/ojs.2015.57075>
- Anderson, E. S. (1999). What is the point of equality? *Ethics*, 109(2), 287–337. <https://doi.org/10.1086/233897>
- Anderson, V. (2013). *Research methods in human resource management*. London, England: CIPD.
- Arneson, R. (2013). "Egalitarianism", *The Stanford Encyclopedia of Philosophy (Summer 2013 Edition)*, Edward N. Zalta (ed.), <https://plato.stanford.edu/archives/sum2013/entries/egalitarianism/>
- Assenga, M., Aly, D., & Hussainey, K. (2018). The impact of board characteristics on the financial performance of Tanzanian firms. *Corporate Governance*, 18(6), 1089–1106. <https://doi.org/10.1108/cg-09-2016-0174>
- Bardasi, E., Sabarwal, S., & Terrell, K. (2011). How do female entrepreneurs perform? Evidence from three developing regions. *Small Business Economics*, 37(4), 417–441. <https://doi.org/10.1007/s11187-011-9374-z>.
- Bastos, J. P., & Pavlik, J. B. (2024). Female ownership of firms and regulation experience. *Journal of Development Studies*, 1–23. <https://doi.org/10.1080/00220388.2024.2348552>
- Bhandari, P. (2023, June 22). *Mediator vs. Moderator Variables | Differences & Examples*. Scribbr. Retrieved March 20, 2024, from <https://www.scribbr.com/methodology/mediator-vs-moderator/>
- Bruhn, M. M. (2021, June 15). *Egalitarian Democracy*. V-Dem. Retrieved June 2, 2024, from https://v-dem.net/weekly_graph/egalitarian-democracy
- Brush, C. G. (2009). Women Entrepreneurs: A Research Overview. In *Oxford University Press eBooks* (pp. 611–628). <https://doi.org/10.1093/oxfordhb/9780199546992.003.0023>
- Brush, C. G., De Bruin, A., & Welter, F. (2009). A gender-aware framework for women's entrepreneurship. *International Journal of Gender and entrepreneurship*, 1(1), 8–24. <https://doi.org/10.1108/17566260910942318>
- Brush, C., Edelman, L. F., Manolova, T., & Welter, F. (2018). A gendered look at entrepreneurship ecosystems. *Small Business Economics*, 52(3), 393–408. <https://doi.org/10.1007/s11187-018-9992-9>
- Bullough, A., Guelich, U., Manolova, T. S., & Schjoedt, L. (2022). Women's entrepreneurship and culture: gender role expectations and identities, societal culture, and the entrepreneurial environment. *Small Business Economics*, 58(2), 985–996. <https://doi.org/10.1007/s11187-020-00429-6>
- Cannavale, C., Riviuccio, G., Claudio, L., & Nadali, I. Z. (2022). The impact of gender egalitarianism on entrepreneurial cognition: a multilevel analysis. *Quality and Quantity*, 57(5), 4803–4826. <https://doi.org/10.1007/s11135-022-01572-w>
- Chang, C. (2023). The impact of quality of institutions on firm performance: A global analysis. *International Review of Economics & Finance*, 83, 694–716. <https://doi.org/10.1016/j.iref.2022.10.002>
- Chaudhuri, K., Sasidharan, S. & Raj, R.S.N. (2020). Gender, small firm ownership, and credit access: some insights from India. *Small Bus Econ*, 54, 1165–1181. <https://doi.org/10.1007/s11187-018-0124-3>

- Chen, G., Firth, M., & Xu, L. (2009). Does the type of ownership control matter? Evidence from China's listed companies. *Journal of Banking and Finance*, 33(1), 171–181. <https://doi.org/10.1016/j.jbankfin.2007.12.023>
- Coleman, S. (2007). The role of human and financial capital in the profitability and growth of Women-Owned small firms. *Journal of Small Business Management*, 45(3), 303–319. <https://doi.org/10.1111/j.1540-627x.2007.00214.x>
- Dancey, C. P., & Reidy, J. (2007). *Statistics without maths for psychology*. Pearson education.
- Davis, P. S., Babakus, E., Englis, P. D., & Pett, T. (2010). The influence of CEO gender on market orientation and performance in service small and medium-sized service businesses. *Journal of Small Business Management*, 48(4), 475-496. [10.1111/j.1540-627X.2010.00305.x](https://doi.org/10.1111/j.1540-627X.2010.00305.x)
- De Acedo Lizárraga, M. L. S., De Acedo Baquedano, M. T. S., & Cardelle-Elawar, M. (2007). Factors that affect decision making: gender and age differences. *International Journal of Psychology and Psychological Therapy*, 7(3), 381–391. <https://dialnet.unirioja.es/descarga/articulo/2482905.pdf>
- Due. (2023, June 19). *Labor productivity - due*. <https://due.com/terms/labor-productivity/>
- Eagly, A. H., & Karau, S. J. (2002). Role congruity theory of prejudice toward female leaders. *Psychological Review*, 109(3), 573–598. <https://doi.org/10.1037/0033-295x.109.3.573>
- Farrokhnia, M., Baggen, Y., Biemans, H., & Noroozi, O. (2022). Bridging the fields of entrepreneurship and education: The role of philosophical perspectives in fostering opportunity identification. *The International Journal of Management Education*, 20(2), 100632. <https://doi.org/10.1016/j.ijme.2022.100632>
- Ferrary, M., & Déo, S. (2022). Gender diversity and firm performance: when diversity at middle management and staff levels matter. *International Journal of Human Resource Management*, 34(14), 2797–2831. <https://doi.org/10.1080/09585192.2022.2093121>
- Festing, M, Knappert, L. & Kornau, A. (2015). Gender-specific preferences in global performance management: an empirical study of male and female managers in a multinational context. *Human Resource Management*, 54(1), 55 – 79. <https://doi.org/10.1002/hrm.21609>
- Field, A. (2018). *Discovering Statistics Using IBM SPSS Statistics* (4th ed.). Thousand Oaks, Canada: SAGE Publications.
- Fu, Y., Liu, R., Yang, J., Jiao, H., & Jin, Y. (2020). “Lean in”: the moderating effect of female ownership on the relationship between human capital and organizational innovation. *Journal of Intellectual Capital*, 22(4), 792–814. <https://doi.org/10.1108/jic-10-2019-0236>
- Gaskill, L., Jasper, C., BastowShoop, H., Jolly, L., Kean, R., Leistriz, L., & Sternquist, B. (1996). Operational planning and competitive strategies of male and female retailers. *International Review of Retail, Distribution and Consumer Research*, 6(1), 76-96. <https://doi.org/10.1080/09593969600000004>
- Goorha, S. (2021, September 21). Overcoming some of the barriers to women entrepreneurship. *Forbes*. <https://www.forbes.com/sites/forbesbusinesscouncil/2021/09/21/overcoming-some-of-the-barriers-to-women-entrepreneurship/?sh=71810c362780>
- Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics*. McGraw-hill.
- Guzmán, J., & Kacperczyk, A. (2019). Gender gap in entrepreneurship. *Research Policy*, 48(7), 1666–1680. <https://doi.org/10.1016/j.respol.2019.03.012>
- Haggerty, K. D. (2004). Ethics creep: Governing social science research in the name of ethics. *Qualitative Sociology*, 27(4), 391–414. <https://doi.org/10.1023/b:quas.0000049239.15922.a3>
- Hair, J. F., Black, W. C., & Babin, B. J. (2018). *Multivariate data analysis*.

- Halabisky, D. (2018), "Policy Brief on Women's Entrepreneurship", *OECD SME and Entrepreneurship Papers*, No. 8, OECD Publishing, Paris, <https://doi.org/10.1787/dd2d79e7-en>.
- Halaç, D. S., Erdener-Acar, E., & Karaibrahimoglu, Y. (2021). Ownership and corporate social responsibility: "The power of the female touch." *European Management Journal*, 39(6), 695–709. <https://doi.org/10.1016/j.emj.2021.01.008>
- Hanson, D., Hitt, M. A., Ireland, R. D., & Hoskisson, R. E. (2016). *Strategic management: Competitiveness and globalisation*. Cengage AU.
- Hsiao, C. (2022). *Analysis of panel data* (No. 64). Cambridge university press.
- Hechavarría, D. M., & Brieger, S. A. (2020). Practice rather than preach: cultural practices and female social entrepreneurship. *Small Business Economics*, 58(2), 1131–1151. <https://doi.org/10.1007/s11187-020-00437-6>
- Hechavarría, D., Bullough, A., Brush, C., & Edelman, L. (2019). High growth women's entrepreneurship: fueling social and economic development. *Journal of Small Business Management*, 57(1), 5–13. <https://doi.org/10.1111/jsbm.12503>
- Hechavarría, D., Terjesen, S., Ingram, A., Renko, M., Justo, R., & Elam, A. B. (2016). Taking care of business: the impact of culture and gender on entrepreneurs' blended value creation goals. *Small Business Economics*, 48(1), 225–257. <https://doi.org/10.1007/s11187-016-9747-4>
- Hoobler, J. M., Masterson, C. R., Nkomo, S. M., & Michel, E. J. (2018). The business case for women leaders: Meta-analysis, research critique, and path forward. *Journal of management*, 44(6), 2473-2499. <https://doi.org/10.1177/0149206316628643>
- Javadian, G., & Singh, R. P. (2012). Examining successful Iranian women entrepreneurs: an exploratory study. *Gender in Management*, 27(3), 148–164. <https://doi.org/10.1108/17542411211221259>
- Jennings, J. E., & Brush, C. G. (2013). Research on women entrepreneurs: Challenges to (and from) the broader entrepreneurship literature? *The Academy of Management Annals*, 7(1), 663–715. <https://doi.org/10.1080/19416520.2013.782190>
- Kurniawati, T., & Anggraini, D. J. (2023). The Impact of Sales Growth and Profitability on Firm Value During The Covid-19 Pandemic. In *Ninth Padang International Conference On Economics Education, Economics, Business and Management, Accounting and Entrepreneurship (PICEEBA 2022)* (pp. 633-641). Atlantis Press. [10.2991/978-94-6463-158-6_55](https://doi.org/10.2991/978-94-6463-158-6_55)
- Kutner, M. H., Nachtsheim, C. J., Neter, J., & Li, W. (2005). *Applied linear statistical models*. McGraw-hill.
- Kwon, K., & Rupp, D. E. (2012). High-performer turnover and firm performance: The moderating role of human capital investment and firm reputation. *Journal of Organizational Behavior*, 34(1), 129–150. <https://doi.org/10.1002/job.1804>
- Lyness, K. S., & Judiesch, M. K. (2014). Gender egalitarianism and work–life balance for managers: Multisource perspectives in 36 countries. *Applied Psychology: An International Review*, 63(1), 96–129. <https://doi.org/10.1111/apps.12011>
- Madhumadhi, M. G., & Anand, R. (2022). A Study On Leadership Style Evaluation Among Women Entrepreneurs In Salem District. *Journal of Positive School Psychology*, 6(9), 4267-4276.
- Marlow, S. (2019), "Gender and entrepreneurship: past achievements and future possibilities", *International Journal of Gender and Entrepreneurship*, 12(1), 39-52. <https://doi.org/10.1108/IJGE-05-2019-0090>
- McAdam, M. (2022). *Women's Entrepreneurship* (2nd ed.). Routledge.
- Meyer, N. (2018). Research on female entrepreneurship: Are we doing enough?. *Polish Journal of Management Studies*, 17(2), 158-169. [10.17512/pjms.2018.17.2.14](https://doi.org/10.17512/pjms.2018.17.2.14)

- Minniti, M. (2009). Gender issues in entrepreneurship. *Foundations and Trends® in Entrepreneurship*, 5(7–8), 497–621. <http://dx.doi.org/10.1561/0300000021>
- Muñoz-Fernández, Á., Assudani, R., & Khayat, I. (2019). Role of context on propensity of women to own business. *Journal of Global Entrepreneurship Research*, 9(1). <https://doi.org/10.1186/s40497-019-0160-8>
- Nanda, R., & Rhodes–Kropf, M. (2013). Investment cycles and startup innovation. *Journal of Financial Economics*, 110(2), 403–418. <https://doi.org/10.1016/j.jfineco.2013.07.001>
- Ndiaye, N., Razak, L. A., Nagayev, R., & Ng, A. (2018). Demystifying small and medium enterprises' (SMEs) performance in emerging and developing economies. *Borsa Istanbul Review*, 18(4), 269–281. [10.1016/j.bir.2018.04.003](https://doi.org/10.1016/j.bir.2018.04.003)
- Nelson, L. S. (1998). The Anderson-Darling test for normality. *Journal of Quality Technology*, 30(3), 298–299. <https://doi.org/10.1080/00224065.1998.11979858>
- Nettleton, D. F. (2014). Commercial Data Mining: Processing, analysis and modeling for predictive analytics projects. *ResearchGate*. https://www.researchgate.net/publication/259444229_Commercial_Data_Mining_Processing_Analysis_and_Modeling_for_Predictive_Analytics_Projects
- Neumayer, E., & Plümper, T. (2017). *Robustness tests for quantitative research*. <https://doi.org/10.1017/9781108233590>
- Ng, Y. L., Lau, W. T., Soh, W. N., & Razak, N. H. A. (2024). Financial Constraints on Firm Growth: The role of Firm Age in the ASEAN–6. *Comparative Economic Research*, 27(1), 93–111. <https://doi.org/10.18778/1508-2008.27.05>
- O'Regan, N., Sims, M. A., & Ghobadian, A. (2005). High performance: ownership and decision-making in SMEs. *Management Decision*, 43(3), 382–396. <https://doi.org/10.1108/00251740510589760>
- Orser, B., Riding, A., & Townsend, J. (2004). Exporting as a means of growth for women-owned Canadian SMEs. *Journal of Small Business & Entrepreneurship*, 17(3), 153–174. <https://doi.org/10.1080/08276331.2004.10593317>
- Oto-Peralias, D., & Romero-Ávila, D. (2017). *Legal Reforms and Economic Performance: Revisiting the Evidence*. (BACKGROUND PAPER for the World Development Report 2017). The World Bank. [10.1596/26213](https://doi.org/10.1596/26213)
- Pertheban, T. R., Ramayah, T., Marimuthu, A., Venkatachalam, K., Annamalah, S., Paraman, P., & Hoo, W. C. (2023). The impact of proactive Resilience Strategies on organizational performance: Role of ambidextrous and dynamic capabilities of SMEs in manufacturing sector. *Sustainability*, 15(16), 12665. <https://doi.org/10.3390/su151612665>
- Prasetyo, P. E. (2019). The reliability of entrepreneurial productivity as driver of economic growth and employment. *International Journal of Entrepreneurship*, 23(4), 1–15.
- Ratnatunga, J., & Montali, L. (2008). Performance management measures that enhance organisational value: A review. *Journal of Applied Management Accounting Research*, 6(2), 1.
- Resnik, D. B. (2015). What is Ethics in Research & Why is it Important? *U.S. National Institute of Environmental Health Sciences*.
- Sarfaraz, L., Faghih, N., & Majd, A. A. (2014). The relationship between women entrepreneurship and gender equality. *Journal of Global Entrepreneurship Research*, 2(1), 1–11. <https://doi.org/10.1186/2251-7316-2-6>
- Schwartz, S. H. (2013). Rethinking the concept and measurement of societal culture in light of empirical findings. *Journal of Cross-cultural Psychology*, 45(1), 5–13. <https://doi.org/10.1177/0022022113490830>
- Schwartz, S.H. (2001). Egalitarianism. In S. Lipset (Ed.), *Political philosophy: Theories, thinkers and concepts* (pp. 64–71). Washington: Congressional Quarterly Inc.

- Shane, S. (2009). Why encouraging more people to become entrepreneurs is bad public policy. *Small business economics*, 33, 141-149. <https://doi.org/10.1007/s11187-009-9215-5>
- Shefer, D., & Frenkel, A. (2005). R&D, firm size and innovation: an empirical analysis. *Technovation*, 25(1), 25–32. [https://doi.org/10.1016/s0166-4972\(03\)00152-4](https://doi.org/10.1016/s0166-4972(03)00152-4)
- Sigman, R., & Lindberg, S. I. (2018). Democracy for All: Conceptualizing and measuring egalitarian democracy. *Political Science Research and Methods*, 7(3), 595–612. <https://doi.org/10.1017/psrm.2018.6>
- Swaab, R. I., & Galinsky, A. D. (2015). Egalitarianism makes organizations stronger: Cross-national variation in institutional and psychological equality predicts talent levels and the performance of national teams. *Organizational Behavior and Human Decision Processes*, 129, 80–92. <https://doi.org/10.1016/j.obhdp.2014.05.002>
- Symon, G., & Cassel, C. (2012). *Qualitative Organizational Research*. Sage Publications.
- Tarancón, M. Á., Gutiérrez-Pedrero, M. J., Callejas, F. E., & Martínez-Rodríguez, I. (2018). Verifying the relation between labor productivity and productive efficiency by means of the properties of the input-output matrices. The European case. *International Journal of Production Economics*, 195, 54-65. <https://doi.org/10.1016/j.ijpe.2017.10.004>
- Terjesen, S., Sealy, R., & Singh, V. (2009). Women directors on corporate boards: A review and research agenda. *Corporate Governance: An International Review*, 17(3), 320-337. <https://doi.org/10.1111/j.1467-8683.2009.00742.x>
- Torres-Reyna, O. (2007). Panel data analysis fixed and random effects using Stata (v. 4.2). *Data & Statistical Services, Princeton University*, 112(1), 1-40.
- Ucbasaran, D. & W. P. & W. M. (2009). The extent and nature of opportunity identification by experienced entrepreneurs. *ideas.repec.org*. <https://ideas.repec.org/a/eee/jbvent/v24y2009i2p99-115.html>
- Van Buuren, S. (2018). *Flexible imputation of missing data*. CRC press.
- Vennix, J. A. M. (2016). *Onderzoeks-en interventiemethodologie*. Pearson.
- Verbeek, M. (2017). *A guide to modern econometrics*. John Wiley & Sons.
- Verheul, I. (2005). *Is there a (fe)male approach? : understanding gender differences in entrepreneurship = Is er een vrouwelijke benadering? : studies naar de verschillen tussen mannelijke en vrouwelijke ondernemers* [Dissertation]. Erasmus Research Institute of Management. <https://www.researchgate.net/publication/254805532>
- Verheul, I., Thurik, R., Grilo, I., & Van der Zwan, P. (2012). Explaining preferences and actual involvement in self-employment: Gender and the entrepreneurial personality. *Journal of economic psychology*, 33(2), 325-341. <https://doi.org/10.1016/j.joep.2011.02.009>
- Watson, J. (2002). Comparing the performance of Male-and Female-Controlled Businesses: Relating Outputs to inputs. *Entrepreneurship Theory and Practice*, 26(3), 91–100. <https://doi.org/10.1177/104225870202600306>
- Welter, F., Baker, T., Audretsch, D. B., & Gartner, W. B. (2017). Everyday entrepreneurship—a call for entrepreneurship research to embrace entrepreneurial diversity. *Entrepreneurship Theory and Practice*, 41(3), 311-321. <https://doi.org/10.1111/etap.12258>
- Welter, F., & Smallbone, D. (2011). Institutional perspectives on entrepreneurial behavior in challenging environments. *Journal of Small Business Management*, 49(1), 107-125. <https://doi.org/10.1111/j.1540-627X.2010.00317.x>
- Wolff, J. (2023). *An introduction to political philosophy*. Oxford University Press.
- Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT press.

- World Bank. (2023a). *Egalitarian democracy index* | *Indicator Profile*. The World Bank | Prosperity Data360. Retrieved June 3, 2024, from https://prosperitydata360.worldbank.org/en/indicator/VDEM+CORE+v2x_egaldem
- World Bank. (2023b). *ENTERPRISE SURVEYS INDICATOR DESCRIPTIONS*. <https://www.enterprisesurveys.org/content/dam/enterprisesurveys/documents/methodology/Indicator-Description.pdf>
- Yadav, V., & Unni, J. (2016). Women entrepreneurship: research review and future directions. *Journal of Global Entrepreneurship Research*, 6, 1-18. <https://doi.org/10.1186/s40497-016-0055-x>
- Zahra, S. A., Nielsen, A. P., & Bogner, W. C. (1999). Corporate entrepreneurship, knowledge, and competence development. *Entrepreneurship Theory and Practice*, 23(3), 169–189. <https://doi.org/10.1177/104225879902300310>
- Zhang, W., Zeng, X., Liang, H., Xue, Y., & Cao, X. (2023). Understanding how organizational culture affects innovation Performance: A Management Context Perspective. *Sustainability*, 15(8), 6644. <https://doi.org/10.3390/su15086644>

Appendices

Appendix 1: Overview of the number of firms included in the sample per country per year

Country	Number of firms in sample in 2013	Number of firms in sample in 2019	Number of firms in sample in 2023	Total number of firms included in sample within three years
Bosnia and Herzegovina	360	362	351	1073 (9,00%)
Bulgaria	293	772	710	1775 (14,89%)
Croatia	360	404	474	1238 (10,39%)
Estonia	273	360	351	984 (8,26%)
Georgia	360	581	592	1533 (12,86%)
Hungary	310	805	831	1946 (16,32%)
North-Macedonia	360	360	354	1074 (9,01%)
Romania	540	809	947	2296 (19,26%)
Total	2856	4453	4610	11919

Appendix 2: Questions of the Performance Indicators from the World Enterprise Survey

Indicator	Measurement Question
PerfD2	In fiscal year [Insert last complete fiscal year], what were this establishment's total annual sales for all products and services?
PerfN3	Looking back to fiscal year [Insert last complete fiscal year minus two], what were total annual sales for this establishment?
PerfL1	At the end of fiscal year [Insert last complete fiscal year], how many permanent, full-time individuals worked in this establishment? Please include all workers and managers.
PerfL2	Looking back, at the end of fiscal year [Insert last complete fiscal year minus two], how many permanent, full-time individuals worked in this establishment? Please include all workers and managers.

Appendix 3: Categorization of the industries

Manufacturing	Retail	Services
Basic Metals	Retail	Construction
Chemicals	Wholesale	Hotel
Communication equipment		Hotel & Restaurants
Coke & Refined petroleum		IT
Electronics		Other services
Fabricated Metal Products		Post & Telecommunications
Food		Publishing, Printing & Recorded media
Furniture		Recycling
Garments		Services of motor vehicles
Machinery & Equipment		Supporting transport activities
Motor vehicles		Transport
Non-metallic mineral products		
Office machinery		
Other manufacturing		
Paper & Paper products		
Plastics & Rubber		
Precision instruments		
Tanning & Leather		
Textiles		
Wood		

Appendix 4: Documentation numbers of categorical variables

Country: 1=Bosnia
2=Bulgaria
3=Croatia
4=Estonia
5=Georgia
6=Hungary
7=North-Macedonia
8=Romania

FemaleOwn: 0=No
1=Yes

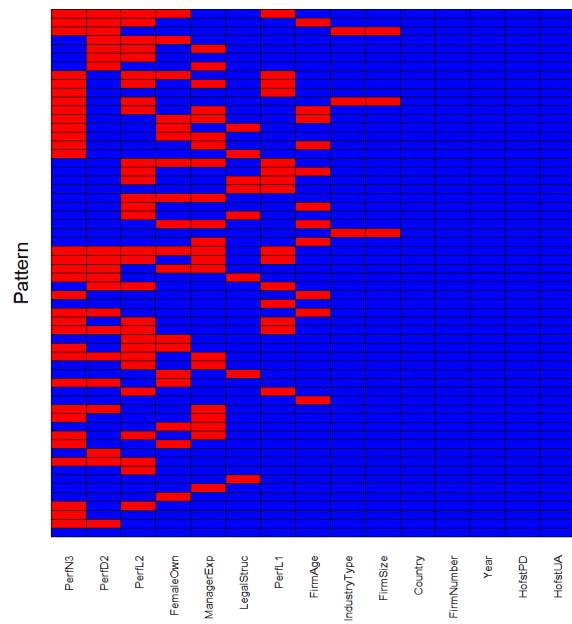
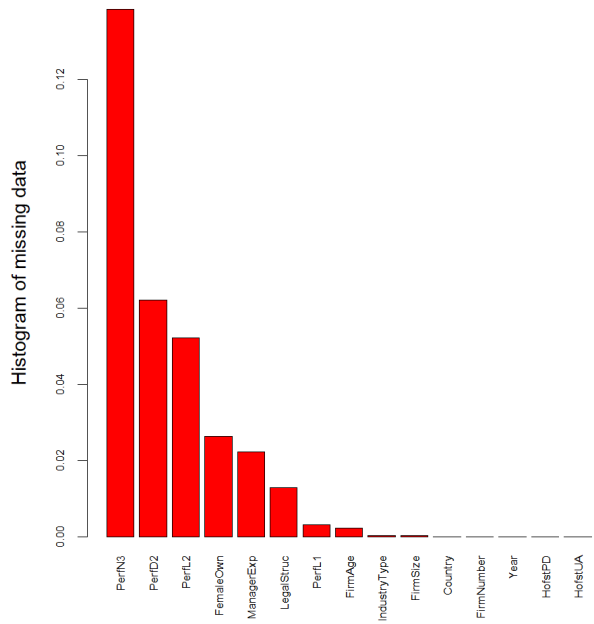
IndustryType: 1=Manufacturing
2=Retail
3=Services

FirmSize: 1=Small
2=Medium
3=Large

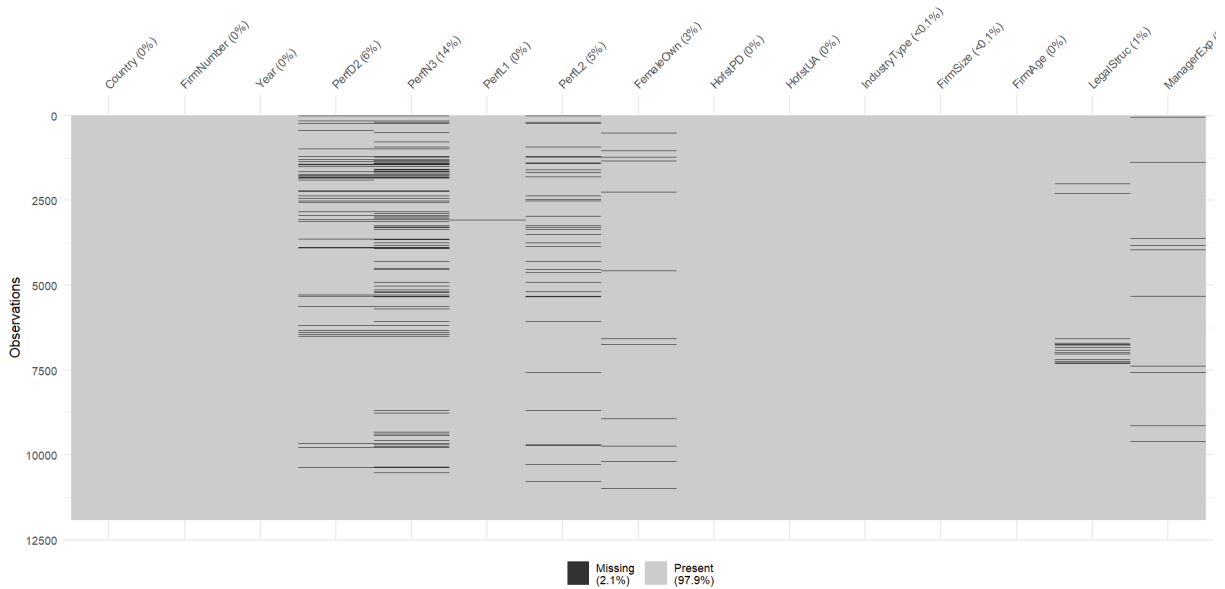
LegalStruc: 1=Shareholding company with shares trade in the stock market
2=Shareholding company with non-traded shares or shares traded privately
3=Sole proprietorship
4=Partnership
5=Limited partnership

Appendix 5: Missing Value Analysis

Plot Zoom



Plot Zoom



Appendix 6: Assumptions testing

Assumption 1: Checking Multicollinearity:

VIF-scores for checking multicollinearity between dependent variable PerfD2.N3 and all other variables

```
> vif_values <- vif(fixed_effects_model)
> print(vif_values)
      FemaleOwn EgalitarianIndex IndustryType FirmSize FirmAge
      1.016902      1.007359      1.028893      1.083352      1.073048
      LegalStruc      ManagerExp
      1.014227      1.018984
```

VIF-scores for checking multicollinearity between dependent variable PerfL1.L2 and all other variables

```
> vif_values <- vif(fixed_effects_model2)
> print(vif_values)
      FemaleOwn EgalitarianIndex IndustryType FirmSize FirmAge
      1.016902      1.007359      1.028893      1.083352      1.073048
      LegalStruc      ManagerExp
      1.014227      1.018984
```

Conclusion → There is no multicollinearity among the variables, because no VIF-score is higher than 5.

Assumption 2: Checking Homoscedasticity:

Breusch-Pagan test for dependent variable PerfD2.N3

```
> bp_test <- bptest(modelPerfD2.N3)
> print(bp_test)
```

studentized Breusch-Pagan test

```
data: modelPerfD2.N3
BP = 11.273, df = 7, p-value = 0.1271
```

Breusch-Pagan test for dependent variable PerfL1.L2

```
> bp_test <- bptest(modelperfL1.L2)
> print(bp_test)
```

studentized Breusch-Pagan test

```
data: modelperfL1.L2
BP = 5.3637, df = 7, p-value = 0.6157
```

Conclusion → Since the Breusch-Pagan test is not significant ($p > 0.05$) there is no heteroscedasticity, thus there is homoscedasticity.

Assumption 3: Checking Normality:

```
> ad.test(Egalitarian_data_imp$PerfD2.N3)
```

```
Anderson-Darling normality test
```

```
data: Egalitarian_data_imp$PerfD2.N3  
A = 4385.5, p-value < 2.2e-16
```

```
> ad.test(Egalitarian_data_imp$PerfL1.L2)
```

```
Anderson-Darling normality test
```

```
data: Egalitarian_data_imp$PerfL1.L2  
A = 3115.1, p-value < 2.2e-16
```

```
> ad.test(Egalitarian_data_imp$FemaleOwn)
```

```
Anderson-Darling normality test
```

```
data: Egalitarian_data_imp$FemaleOwn  
A = 3005.2, p-value < 2.2e-16
```

```
> ad.test(Egalitarian_data_imp$EgalitarianIndex)
```

```
Anderson-Darling normality test
```

```
data: Egalitarian_data_imp$EgalitarianIndex  
A = 294.89, p-value < 2.2e-16
```

```
> ad.test(Egalitarian_data_imp$IndustryType)
```

```
Anderson-Darling normality test
```

```
data: Egalitarian_data_imp$IndustryType  
A = 1156.6, p-value < 2.2e-16
```

```
> ad.test(Egalitarian_data_imp$FirmSize)
```

```
Anderson-Darling normality test
```

```
data: Egalitarian_data_imp$FirmSize  
A = 1185.8, p-value < 2.2e-16
```

```
> ad.test(Egalitarian_data_imp$FirmAge)
```

```
Anderson-Darling normality test
```

```
data: Egalitarian_data_imp$FirmAge  
A = 350.74, p-value < 2.2e-16
```

```
> ad.test(Egalitarian_data_imp$LegalStruc)
```

```
Anderson-Darling normality test
```

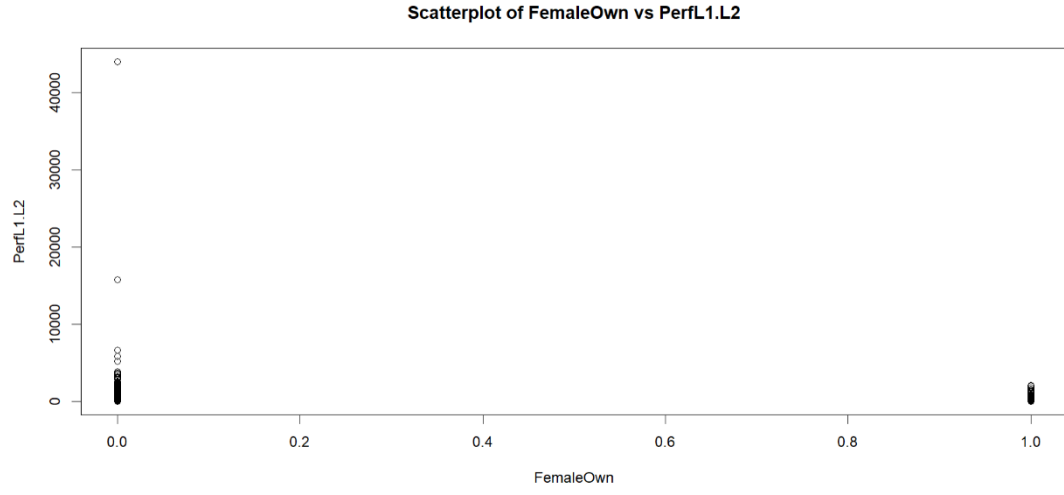
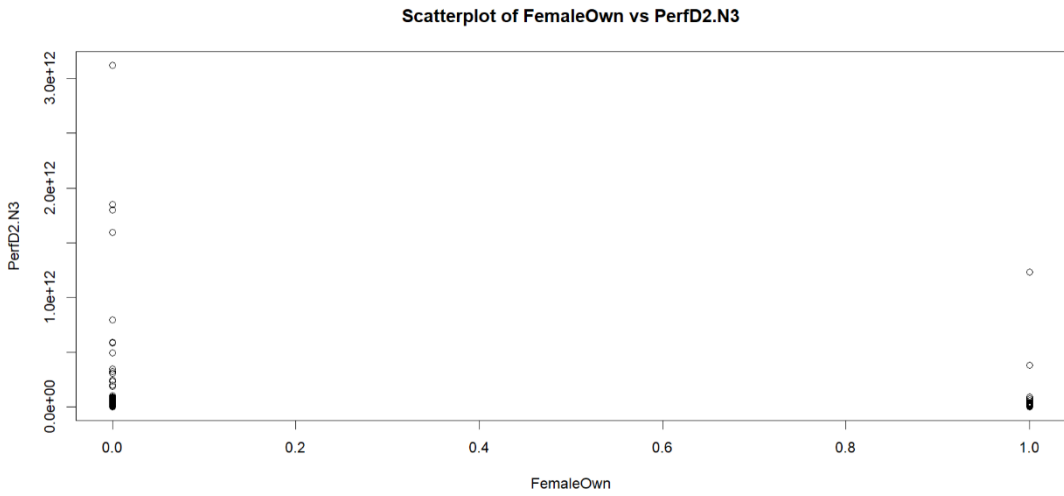
```
data: Egalitarian_data_imp$LegalStruc  
A = 2039.6, p-value < 2.2e-16
```

```
> ad.test(Egalitarian_data_imp$ManagerExp)
```

```
Anderson-Darling normality test
```

```
data: Egalitarian_data_imp$ManagerExp  
A = 1012.7, p-value < 2.2e-16
```

Assumption 4: Checking Linearity:



Appendix 7: Hausman Test for Fixed-Effects versus Random-Effects models in Panel Data Regression Analysis

```
> phptest(fixed_effects_model_PerfD2.N3, random_effects_model_PerfD2.N3)
```

Hausman Test

```
data: LogPerfD2.N3 ~ FemaleOwn + EgalitarianIndex + IndustryType + ...
chisq = 239.41, df = 2, p-value < 2.2e-16
alternative hypothesis: one model is inconsistent
```

```
> phptest(fixed_effects_model_PerfL1.L2, random_effects_model_PerfL1.L2)
```

Hausman Test

```
data: LogPerfL1.L2 ~ FemaleOwn + EgalitarianIndex + IndustryType + ...
chisq = 379.02, df = 2, p-value < 2.2e-16
alternative hypothesis: one model is inconsistent
```