Scientific Research Publishing

Financial Ratios in Women-Owned and Men-Owned Small Firms: Evidence from Finland

Erkki K. Laitinen, Teija Laitinen*

School of Accounting and Finance, University of Vaasa, Vaasa, Finland
Email: *erkki.k.laitinen@uwasa.fi, *teija.laitinen@uwasa.fi

Abstract

The aim of this study is to show how the key ratios of financial statement analysis differ in companies owned by women and men. In the study, nine hypotheses are derived based on previous studies. The central starting point for the hypotheses concerning the differences in key ratios is the first hypothesis that women-owned companies are more labor-intensive than men-owned companies due to women's personal factors. It follows from this hypothesis that the cost structures and the balance sheet structures of companies owned by women and men are different, which leads to differences in key figures. In addition to labor intensity, the derived hypotheses concern three ratios of profitability, two ratios of solvency and three ratios of liquidity. The hypotheses are tested with data consisting of 6951 women-owned and 30,916 men-owned small and medium-sized Finnish companies from the year 2020. In these companies, the owner is the global Ultimate owner (GUO) who is at the top of the company's ownership structure. Financial ratios are compared to each other in a non-controlled situation and in a controlled situation where control variables are used. The results of the study mostly support the derived hypotheses.

Keywords

Woman-Owned Companies, GUO, Financial Ratios, Labour-Intensity, Finnish SMEs

1. Introduction

The financial operating conditions of companies are evaluated with the help of financial key figures, financial ratios. Traditional financial ratios have been used

by companies since the end of the 19th century (Horrigan, 1968; Foulke, 1968: Chapter 1; Lev, 1974). So, over the course of 150 years, the use of financial ratios has become so common that practically all financiers and (larger) companies use them in their financial decision-making. Consequently, financial statement analysis has been widely used in scientific research to assess the financial performance of business firms (Subramanyam, 2014). It has been also employed as a tool to compare financial performance in women-owned and men-owned firms. However, the effect of women ownership versus men ownership on performance has still been studied relatively little (Fairlie & Robb, 2009). Thus, relatively little is known about how and why women-owned businesses might underperform men-owned businesses. Moreover, only a small number of previous studies apply financial statement analysis on business-level data to study the outcomes of women-owned companies (Gatewood, Carter, Brush, Greene, & Hart, 2003). This study aims to fill this gap in scientific research on women-owned companies.

The fair comparison of financial performance between women- and men-owned firms is not straightforward, since comparison can only be made effectively if the companies are mutually comparable. This comparability is most strongly influenced by the company's age, size and industry, but there are other factors as well. The proper interpretation of the results of the ratio analysis is difficult or impossible if the companies being compared are of different ages, different sizes or represent different industries with their own characteristics. For this reason, financiers usually treat these groups separately in their analyses. For example, a combined bankruptcy probability measure developed from key financial ratios for larger and established industrial companies does not work at all, or at least not effectively, in young and small service or trade companies (Altman & Sabato, 2007; Altman, Sabato, & Wilson, 2010). If women- and men-owned businesses differ with respect to these factors, the effect of ownership cannot be directly measured by financial statement analysis, without considering comparability.

Comparability is a central factor in financial comparisons between women- and men-owned companies. If the comparability is neglected and the financial ratios in these groups are directly compared with each other, the differences can be significant. However, the differences may appear due to the fact that the groups are mutually incomparable. If the results are controlled for the comparability factors (for example, age, size and industry), these differences can considerably diminish or disappear. For example, Watson (2003) showed that while women-owned companies do have higher failure rates compared to men-owned companies, the difference is not significant after controlling for the effects of industry. In this study, the purpose is to assess the effect of ownership on financial ratios controlling for the main comparability factors. In this way, it can be roughly assessed how the women-ownership in comparable firms affects the value of the financial ratios under consideration.

The crucial question in an ownership study is to think why the values of financial ratios in women-owned companies should be different than in men-owned companies. These differences are typically justified by the differences in personality and, consequently, behavior of women and men. The personality differences between women and men have been found to be significant (Feingold, 1994; Del Giudice, Booth, & Irwing, 2005). Furthermore, these differences also tend to have a considerable impact on business behavior, financing, and thus financial indicators (Constantinidis, Cornet, & Asandei, 2006). From this point of view, the most noticeable difference in the personality of women and men is that women are more risk-averse than men, which affects the investments, growth, size and riskiness of financing of women-owned companies. If these differences in financial behavior and, consequently, in financial ratios, are (in terms of comparability) real, they have considerable significance for the decision-making of investors and financiers.

In summary, the purpose of this study is to show how the indicators of financial management (financial ratios) differ in companies owned by women and men, when the main factors affecting comparability are controlled. The research report is divided into five sections. In the first section, the introduction, the background of the study was highlighted and the goal of the study was set. The second section briefly discusses the differences between women and men and the companies they own and develops research hypotheses that are tested in the empirical part. The third section of the study discusses the sample of the study that consists of Finnish companies that have a so-called GUO (global ultimate owner). The sample includes a total of 30,916 men-owned and 6951 women-owned (GUO) Finnish companies. The third section of the study also presents the statistical methods used in the comparison of company groups. The fourth chapter presents the empirical results of the study got from testing the hypotheses, and the last section gives a short discussion of the conclusions and evaluates the significance of the results.

2. Framework of the Analysis

2.1. Prior Studies on Women-Owned Firms

The aim of this study is to analyze the differences in the key figures, calculated from the financial statements, between women and men-owned (GUO) companies. There have been a lot of studies on the differences between women- and men-owned companies in the past. Many studies have examined, for example, the importance of women's ownership or the share of women in the company's management on the company's performance. This study compares companies where a woman or a man is the global ultimate owner (GUO), who is at the top of the company's ownership structure. In this context, an ultimate owner is defined as a shareholder who has determining voting rights in the firm and who is not controlled by anyone else (Haw, Hu, Hwang, & Wu, 2004: p. 437; Staszkiewicz, & Szelagowska, 2019: p. 3795). Thus, the GUO perspective is sufficient for

defining the ownership and control structures in the company. Because the goals of business management and owners may be conflicting, the results of studies of women-owned businesses may differ significantly from those of women-led businesses. These differences can be significant, especially in public and larger companies, where ownership and management are not in the same hands. In this study, the object of analysis is very small and private companies, where the owner usually also manages the company. In such a situation, the qualities of women as leaders and owners come out very well.

The differences between companies owned or managed by women and men are explained in different ways in previous studies (Meier-Pesti & Penz, 2008: p. 181). First of all, the differences are explained by biological reasons, in which case we talk about sex differences, which are influenced by hormones and genes. Secondly, the differences between companies are explained by social and psychological theories, in which case sex-specific socialization is considered to be the cause of the observed differences. In these theories, the differences are called gender differences. In practice, however, it is difficult or impossible to assume that any differences between men and women can be explained by either biological or social reasons, because both effects interact and can hardly be disentangled (Meier-Pesti & Penz, 2008). Studies usually do not explicitly distinguish between biological sex (female and male) and gender (feminine and masculine). In many studies, biological sex is not necessarily a determining factor, but the focal point is the owner's or manager's feminine or masculine straits and their influence on the differences between companies. In this study, companies are grouped into companies owned by a woman and a man based on biological sex, as no other information about the owner's background or personality is available.

There are many studies on the statistical differences between companies owned by women and men. A recent and representative statistical analysis of these differences has been made in Canada by Huang and Rivard (2021) using cross-sectional data from 2017. The research analyzes the differences observed in small and medium-sized companies (SMEs with 1 - 499 employees) so that a woman-owned company is considered a company where women comprise more than 50% of ownership. A company owned by men is defined in the same way (men comprise more than 50% of ownership). The survey shows that women are under-represented among business owners, since only in 15.6% of Canadian SMEs, the majority is owned by women. This proportion has remained roughly unchanged since 2000. Companies owned by women and men also focus on different industries. Women-owned companies often operate in the retail, health care and social assistance, accommodation and food services, and personal and laundry services industries. However, men-owned companies operate more often in the construction, manufacturing, and transportation and warehousing industries. In addition, statistics show that women-owned firms tend to be smaller and younger (Huang & Rivard, 2021). About 60.7% of women-owned firms have 1 to 4 employees, compared with 53.9% of men-owned firms. Wom-

en-owned firms are less likely to be medium-sized enterprises than men-owned firms. Women-owned firms are also more likely to be start-ups and less likely to be well established (older than 20 years). Thus, in terms of financial ratio analysis, women-owned companies are not comparable with men-owned companies. If we want to extract the real differences in the ratios between these groups of firms, we will need variables to control the effects of size, industry, and age.

Women ownership can have a statistically significant effect on company performance, which has, however, been studied relatively little. Fairlie & Robb (2009) state that less well documented and researched is whether women-owned firms underperform men-owned firms. Furthermore, they state that relatively little is known about why women-owned businesses might underperform men-owned businesses. Only a small number of previous studies use business-level data to study the outcomes of women-owned firms (Gatewood, Carter, Brush, Greene, & Hart, 2003). However, scarce empirical research suggests that there are gender differences associated with access to and use of financing. For example, women-owned firms are more likely than men-owned firms to use personal or internal financing (Coleman & Robb, 2009), to have less start-up capital (Fairlie & Robb, 2009) and to face tighter credit availability (Bellucci, Borisov, & Zazzaro, 2010). Huang & Rivard (2021) showed that women-owned companies are more likely than men-owned firms to be discouraged (as borrower firms that did not request financing because of expectations that the request would be turned down). However, their results also suggest that women-owned SMEs receive higher proportions of debt financing requested than men-owned SMEs. In general, previous studies on differences in firm performance by gender have revealed that women-owned firms are more likely to close, and have lower levels of sales, profits, and employment (Rosa, Carter, & Hamilton, 1996; Robb, 2002; Robb & Wolken, 2002; Kalleberg & Leicht, 1991). However, the difference in failure rates between women-owned and men-owned companies may not usually be significant after controlling for the effects of industry (Watson, 2003). For new companies, the survival rate of women-owned companies has even reported to exceed that of men-owned startups (Boden & Nucci, 2000).

The results of previous empirical studies on the relationship between management diversity (the proportion of women among the highest-ranking CEOs in firms and on boards of directors) and firm performance are ambiguous mainly due to the different uses of control variables (Smith, Smith, & Verner, 2006). For U.S. companies, Kochan, Bezrukova, Ely, Jackson, Joshi, Jehn, Leonard, Levine & Thomas (2003) did not find positive relations between gender diversity in management and firm performance whereas Catalyst (2004) and Adler (2001) found. For a sample of Swedish companies, Du Rietz and Henrekson (2000) found that if not controlling for firm size and sectors, firms with women on the board seem to under-perform. However, when controlling for these factors, the underperformance hypothesis could not be confirmed. For Norwegian firms, Böhren and Ström (2005) found a significantly negative relationship between

gender diversity and firm performance (measured by Tobin's Q). For Denmark, Rose (2004) found a negative, but insignificant relationship between the percentage of women on the boards of directors and firm performance.

For the 2500 largest Danish firms, Smith, Smith & Verner (2006) estimated various panel data models of firm performance and controlled for factors that are traditionally found to affect firm performance (age, size, sector, export orientation). They found that after controlling for these factors, the proportion of women among top executives and on boards of directors tends to have a significantly positive effect on firm performance. They measured performance using four financial ratios, gross profit/net sales, contribution margin/net sales, operating income/net assets, and net income after tax/net assets. For a sample of 2500 Finnish limited liability companies with more than 10 employees, Kotiranta, Kovalainen, & Rouvinen (2007) showed that a company led by a woman CEO is on average slightly more than a percentage point more profitable than a corresponding company led by a male CEO. This observation holds even after considering size differences and a number of other control variables affecting profitability. The authors measured profitability using an adjusted return on assets ratio. Thus, also this evidence emphasizes the importance of control variables (comparability) in financial comparisons.

Previous studies on personality show that personality in general and personality differences between women and men in particular have an impact on people's financial behavior and success (Bowles, Gintis, & Osborne, 2001; Borghans, Duckworth, Heckman, & ter Weel, 2008). Feingold (1994) showed in his meta-study that males were found to be more assertive and had slightly higher self-esteem than females. Females were higher than males in extraversion, anxiety, trust, and, especially, tender-mindedness (nurturance). However, there were no significant sex differences in social anxiety, impulsiveness, activity, ideas (reflectiveness), locus of control, and orderliness. Del Giudice, Booth, & Irwing (2005) found that the biggest differences between women and men are found in sensitivity, warmth, and apprehension (higher in females), and emotional stability, dominance, rule-consciousness, and vigilance (higher in males). According to Costa Jr., Terracciano, & McCrae (2001) women reported themselves to be higher in neuroticism, agreeableness, warmth, and openness to feelings, whereas men were higher in assertiveness and openness to ideas. In studies of people's financial behavior, it has been shown that women are more risk averse than men (Borghans, Golsteyn, Heckman, & Meijers, 2009). As a result, women invest in general less and in less risky items than men. Hence, it is clear that sex differences in personality and especially in risk aversion have a significant impact on the company type and also how successful companies owned by women and men are.

2.2. Hypotheses of the Study

Statistical and scientific research on women-owned companies provides a strong

basis for deriving hypotheses about these companies. The hypotheses derived here are connected to the characteristics of key figures calculated from the company's financial statements, which has not been done systematically before. The clear differences in personality between women and men provide a natural starting point for deriving hypotheses. Women are more risk averse than men, so they usually invest quantitatively less and in less risky items, such as a business company. As a result, there are significantly fewer companies owned by women than companies owned by men. In addition, these women-owned companies are typically smaller and operate more often in lower-risk industries. In women's personality, in addition to risk avoidance, extraversion, tender-mindedness (nurturance), sensitivity, and warmth are significantly emphasized as character traits. Because of this, women are often enthusiastic about working in a close relationship with customers, serving and also taking care of people who need help. Therefore, women-owned companies can be found in abundance in industries such as retail, health care and social assistance, accommodation and food services, and personal and laundry services industries. All these industries have in common that they are labor-intensive, in which case a large workforce or a large amount of work in relation to output is needed. Men, on the other hand, prefer to work as entrepreneurs in technical, capital-intensive sectors, such as manufacturing and construction, where the size of the companies and also the risks are often greater. The first hypothesis of the study thus deals with labor-intensity as follows:

Hypothesis 1 (H1): Companies owned by women are more labor-intensive than companies owned by men.

The following hypotheses are subordinate to the validity of the first hypothesis (H1). There are strong grounds for the validity of hypothesis H1, as it, at the level of industries, is based on statistical data from companies owned by women. Since, according to hypothesis H1, women-owned small businesses are more labor-intensive than men-owned businesses, they have more labor costs relative to revenues. In general, ordinary labor costs generate income almost immediately, reflecting a very short revenue lag. In addition to that, many other current expenses are connected to labor costs, which make the cost structure of women-owned companies very current. In labor-intensive companies owned by women, potential profits are therefore accumulated quickly and further reduce the business risk and anxiety focusing on future threats or negative events. Because these companies tend to have a lot of current expenses in relation to revenue, their earnings before interest, taxes, depreciation, and amortization (EBITDA) in relation to revenue (EBITDA margin) is typically lower than that ratio in companies owned by men. EBITDA margin is widely used measure of profitability. However, companies are not comparable with respect to EBITDA margin if their cost structures differ from each other due to industry or sector differences, for example. Therefore, profitability can be better measured by the profit after current and fixed expenses in relation to revenue, i.e. by the ratio EBT (earnings

before tax) divided by revenue, known as profit margin. That key indicator is not significantly affected by the differences in the cost or expense structure of the companies. Since women-owned companies are more labor-intensive than men-owned companies, but there are no clear grounds to assume that their profitability is worse, the following two hypotheses are presented:

Hypothesis 2 (H2): EBITDA margin is lower in companies owned by women than in companies owned by men.

Hypothesis 3 (H3): There is no difference in profit (EBT) margin between companies owned by women and men.

In studies evaluating the relative performance of women-owned companies, performance has usually been measured by Tobin's q indicator (the market value of a company divided by its assets' replacement cost) or by the traditional return on investment (assets or capital) ratio. In this study, almost all companies in the sample are private companies, and the key figure Tobin's q cannot be used. Instead, performance is evaluated by the return on total assets ratio, which is obtained by dividing EBT by total assets in the balance sheet. This financial ratio, return on total assets is the most widely used measure of profitability. It measures a company's ability to generate profits relative to the amount of assets (or capital) tied up in operations. If the hypothesis H3 is correct, and there is no difference in the profit margin indicators of companies owned by women and men, there will be differences between the company groups in the indicator return on total assets, depending on how much their operations tie up assets. Since the companies owned by women are labor-intensive and the revenue their expenditures generate accumulates quickly, the assets on their balance sheets remain relatively small. Companies owned by men are more capital intensive, so they have plenty of fixed assets on the balance sheet. For this reason, profitability measured by the key figure return on total assets is expected to be higher in companies owned by women. Based on this, the fourth hypothesis can be presented as follows:

Hypothesis 4 (H4): Return on total assets ratio is in women-owned companies higher than in men-owned companies.

Research on women-owned companies shows that they have less start-up capital than men-owned firms although they receive higher proportions of debt financing requested. However, since women-owned companies are small and more labor-intensive, their need for start-up capital is lower than that of men-owned companies. Capital-intensive companies owned by men have a significantly greater need for non-current capital. On the contrary, labor-intensive companies owned by women usually have little non-current capital on the balance sheet. Companies owned by men invest more in long-term assets and need more long-term financing, especially debt capital, for their operations. If you calculate the ratio shareholders funds divided by non-current liabilities, it is expected that it will be higher in companies owned by women, because they tend to have very little non-current liabilities. This indicator measures the structure of

the company's long-term financing and is called the shareholders liquidity ratio. The higher the ratio, the more equity the company's owners have in relation to long-term debt (liabilities). The situation in comparison between company groups changes if the capital structure is examined using the solvency ratio indicator, where shareholders funds is divided by total assets. Solvency ratio is an important ratio being in many cases the most reliable measure for predicting failure. Since companies owned by women have less start-up capital (equity), but as labor-intensive companies also have less assets on the balance sheet, the differences between company groups, measured by the solvency ratio, decrease significantly and may vanish. For these reasons, the following hypotheses can be presented for testing:

Hypothesis 5 (H5): Shareholders liquidity ratio is in companies owned by women higher than in companies owned by men.

Hypothesis 6 (H6): There is no difference in solvency ratio between companies owned by women and men.

The personality traits of women have an impact also on liquidity. Since women tend to avoid risk and ambiguity more strongly than men, it can be thought that companies owned by women prepare for a potential liquidity crisis with a larger buffer of current assets (financial assets and inventories) than companies owned by men. The liquidity buffer has traditionally been estimated using one of the oldest used indicators, current ratio or, also called, liquidity ratio. In this key figure, current assets are divided by current liabilities, in which case the general target value for this key figure is 2. Since women-owned labor-intensive companies generally have in their debt structure few non-current liabilities, they tend to have more current liabilities, respectively. Therefore, the differences in liquidity buffer between women-owned and men-owned companies are expected to be quite small. However, since women more strongly try to avoid financial risk, it can be expected that the liquidity buffer, in terms of current ratio, exceeds the corresponding buffer in companies owned by men. Furthermore, financial risk aversion is also expected to affect collection and credit periods in woman-owned companies. These companies try to collect accounts receivable faster, because the risk increases as the collection period lengthens which makes accounts receivable more uncertain or risky. Consequently, it is expected that the collection period is in women-owned companies shorter that in men-owned companies. The average annual collection period (in days) is calculated by dividing accounts receivable by operating revenue and multiplying the ratio by the number of days (360 or 365). In addition, because of stronger financial risk aversion, women-owned companies tend to pay debt back faster, since debt reflects risk and uncertainty. Thus, it can be expected that the average credit period in women-owned companies is shorter that in men-owned companies. The average credit period is calculated by dividing accounts payable by operating revenue and multiplying the ratio by 360 or 365. With these criteria, the following hypotheses can be presented:

Hypothesis 7 (H7): Current ratio, i.e. liquidity ratio, is in companies owned by women higher than in companies owned by men.

Hypothesis 8 (H8): Average collection period is in companies owned by women shorter than in companies owned by men.

Hypothesis 9 (H9): Average credit period is in companies owned by women shorter than in companies owned by men.

Thus, the present set of nine research hypotheses assumes that women-owned companies are more labor-intensive than men-owned companies leading to differences in several profitability ratios. Since women are also assumed more risk-averse than men, it is expected that differences can be found also in liquidity and solidity ratios. However, it is expected that profit-margin ratio and solvency ratio are equal in women- and men-owned companies. In all, it is assumed that five out of eight financial ratios are better in women-owned companies that in men-owned companies. Table 1 presents a summary of the nine hypotheses.

3. Data and Statistical Methods

The financial statement data for the study were collected from the ORBIS database maintained by Bureau van Dijk (BvD), using a random sampling of the 2020 financial statements of Finnish companies. In this cross-sectional sample, no restrictions were placed on the industry or size of the companies, so the financial statement data contain a large number of small companies of different industries and fewer medium-sized and large companies, corresponding to the skewed size distribution of the base population. There are in total 37,867 companies in the sample, of which 6951 are women-owned (GUO) companies and

Table 1. Summary of the nine research hypotheses.

Hypothesis 1 (H1): Companies owned by women are more labor-intensive than companies owned by men.

Hypothesis 2 (H2): EBITDA margin is lower in companies owned by women than in companies owned by men.

Hypothesis 3 (H3): There is no difference in profit margin between companies owned by women and men.

Hypothesis 4 (H4): Return on total assets ratio is in women-owned companies higher than in men-owned companies.

Hypothesis 5 (H5): Shareholders liquidity ratio is in companies owned by women higher than in companies owned by men.

Hypothesis 6 (H6): There is no difference in solvency ratio between companies owned by women and men.

Hypothesis 7 (H7): Current ratio, i.e. liquidity ratio, is in companies owned by women higher than in companies owned by men.

Hypothesis 8 (H8): Average collection period is in companies owned by women shorter than in companies owned by men.

Hypothesis 9 (H9): Average credit period is in companies owned by women shorter than in companies owned by men.

30,916 are men-owned (GUO) companies. However, there are missing data in the financial statements of many companies, so the calculation of individual key figures usually is based on a different number of observations. For example, only 18,530 companies have reported the number of employees. The size distribution of these firms is highly skewed. The average number of employees is 9.06 employees while the median is only 2 employees. In the same way, the average of the balance sheet total of companies is 1365.50 thousand euros whereas the median is only 158.00 thousand euros. The average sales of the companies is 1 798.03 thousand euros, while the median is as low as 192.00 thousand euros. Of the companies in the research sample, 7.35% are industrial companies, 16.79% are construction companies, 3.27% are hotel and restaurant companies, and 16.03% are trade (whole-sale or retailing) companies. In Orbis, GUO is defined as a "global ultimate owner" (GUO) being the individual or entity at the top of a corporate ownership structure. In this study, we will contrast the key figures of the companies, where GUO is a woman, with those having a man as GUO.

The nine research hypotheses presented in Table 1 are statistically tested using the cross-sectional sample described above. In testing these hypotheses, we use the following key financial indicators, which are extracted from the ORBIS database:

1) H1: Labor intensity
2) H2: EBITDA margin (%)
3) H3: Profit margin (%)
4) H4: Return on total assets (%)
5) H5: Shareholders liquidity ratio
6) H6: Solvency ratio (%)
7) H7: Current ratio (Liquidity ratio)
8) H8: Collection period (days)
9) H9: Credit period (days)

Labor intensity is measured by the share (%) of labor costs in operating revenues. In addition to this variable, eight financial key ratios are used to test the hypotheses. Key figures measure profitability from different perspectives (EBITDA margin, profit margin and return on total assets ratio), solvency (shareholders liquidity ratio and solvency (equity) ratio), liquidity (current ratio) and financial behavior factors affecting liquidity (collection period of accounts receivable and credit period of accounts payable). In Finland, the formulas for calculating key figures are established, and there are no major deviations in their use. However, since the goal of the ORBIS database is that financial statements are internationally comparable, there are small differences in them compared to Finnish practice. For this reason, **Appendix 1** shows the formulas that are used in the ORBIS database to calculate key figures. Potential differences in calculations compared to Finnish practice have no effect on the main results of the study. It should be noted that due to the considerable number of missing values for the research variables, the number of observations may significantly alter in

different statistical runs.

The differences in the indicators of companies owned by women and men are studied in two different stages. Firstly, the differences are analyzed by comparing the averages and medians of the indicators in these groups without using control variables (uncontrolled comparison). Since the distributions of the indicators are generally skewed, the medians describe the distribution of the indicators better than the averages. Therefore, the statistical significance of the differences between company groups is tested using the median test. The median test is a non-parametric test that is used to test whether two (or more) independent groups have been drawn from a population with the same median. The null hypothesis in the comparison is that the groups are drawn from populations with the same median. The alternative hypothesis can be either that the medians in the groups are different (two-tailed test) or that one median is greater than the other (one-tailed test). Secondly, the differences between company groups in key figures are tested with the linear regression analysis (OLS), which makes use of control variables (controlled comparison). In that case, the comparison reveals the difference between the company groups when the factors measured by the control variables are taken into account and, so the groups are better comparable to each other (comparability). The form of the regression equations used is generally as follows:

$$R = a + W + c \cdot C + D + \varepsilon \tag{1}$$

In this formula, R is the indicator (ratio, key indicator) to be studied, a is the constant coefficient (intercept) of the equation, C is the set of continuous control variables used, c is the set of regression coefficients of these control variables, D is the set of binary control variables (dummies), ε is a random variable, and W is a binary variable that takes the value 1, when the company owner (GUO) is a woman and the value 0 when the owner (GUO) is a man. If the binary variable W is statistically significant in the equation, women ownership has a statistically significant effect on the value of the indicator. The sign of the variable W tells whether the ratio R in companies owned by women is higher (plus) or lower (minus) than in companies owned by men. If W is not significant, women ownership does not affect the indicator at hand. The significance of W is tested using the standard t-test. In regression equations, the study makes use of both continuous and binary control variables. Continuous control variables are company size (logarithm of balance sheet assets) and company age (logarithm of company age). Binary variables refer to industry according to which the company belongs to the industry in question or does not belong (manufacturing, construction, hotel and restaurant industry, and wholesale and retail trade). In general, these variables are the most clearly affecting comparability between companies.

For the comparability of company groups to be successful, it is important that the selected control variables (company age, size and industry) correlate with the predictor variable, but not with each other. If the variables are correlated with each other, multicollinearity occurs in the regression equation and the coeffi-

cient of the tested gender variable and its significance may be unreliable. Multicollinearity is measured in this study using the Variance Inflation Factor (VIF), which is based on the unadjusted coefficient of determination for regressing the independent variable on the remaining ones. If the VIF value for any variable exceeds the value 5, the equation may suffer from multicollinearity. Multicollinearity can also be measured with the factor tolerance, which is the reciprocal of VIF. Thus, a value of tolerance below 0.20 may indicate multicollinearity. The VIF and tolerance values are reported in connection with the regression equations, and they do not show multicollinearity in any equation for any variable (in all cases the VIF is close to the value 1).

The overall significance of the equations is measured using the F-test. The test compares two models, a model without independent variables (intercept-only model) and an estimated regression equation. In testing, the null hypothesis is that the intercept-only model and the estimated regression equation are equal. The counter hypothesis is that the fit of the intercept-only model is significantly reduced compared to the regression model. The F-test of all nine regression equations is presented in **Appendix 2**. The highest F-test values are related to labor intensity and three profitability indicators (EBITDA margin, profit margin, and return on total assets ratio). All equations differ from the intercept-only model in a highly statistically significant way.

4. Empirical Results of the Study

4.1. Comparison of Medians: Uncontrolled Differences

Table 2 shows the average figures (in terms of mean and median) and the significance levels of the median test (p-value) for the differences in the key indicators of companies owned by women and men. The table also shows the differences in size, age, and industry between the company groups. These differences indicate that companies owned by women are statistically significantly smaller in all three measures of size (number of employees, total assets and net sales). Companies owned by women employ on average only 4.8 employees, while the corresponding number in companies owned by men is 10.6 employees. The skewness of the size distribution is shown by the fact that in companies owned by women, the median number of employees is only 1 employee, and even in companies owned by men, only 2 employees. The average size of the companies in the sample is therefore very small. More than 50% of businesses owned by women (GUO) are factually sole proprietorships. The median net sales in companies owned by women and men are 95.0 and 137.0 thousand euros, respectively. The size of the companies measured in terms of total assets, is also very small on average: the median balance sheet assets in companies owned by women is only 59.0 thousand euros while is in companies owned by men 177.0 thousand euros. Thus, size distributions indicate that most of the companies in the sample are micro companies. Companies owned by women are on average two years younger than companies owned by men. The median age of companies

owned by women is 11.0 years, whereas in companies owned by men it is 13.0 years. There are also differences in industrial distributions between the company groups. Compared to companies owned by men, significantly fewer of the companies owned by women operate in manufacturing or construction, but clearly more operate in the hotel and restaurant industry, which is a labor-intensive industry. The differences in size, age, and industry between the company groups are all highly significant. These differences are in line with the previous studies.

Table 2. Statistics of financial ratios and control variables in the companies owned by women and men.

Variable	Woman GUO (n = 6951)[a]		Man GUO (n = 30,916)[a]		p-value[b]
	Mean	Median	Mean	Median	
Financial ratios					
Labor expenses/Operating revenue (%)	38.795	36.842	33.903	31.164	0.000
EBITDA margin (%)	13.188	9.797	15.325	11.735	0.001
Profit margin (%)	8.622	5.556	9.399	6.276	0.002
Return on total assets (%)	7.748	8.333	7.374	7.284	0.003
Shareholders liquidity ratio	10.830	0.717	11.330	1.200	0.001
Solvency ratio (%)	55.952	66.667	56.204	64.135	0.010
Current ratio	5.179	1.873	5.021	1.779	0.083
Collection period (days)	23.648	6.606	28.359	12.350	0.000
Credit period (days)	13.609	3.229	16.643	5.441	0.000
Company size					
Number of employees	4.830	1.000	10.610	2.000	0.001
Total assets, thousands of euro	319.798	59.000	1019.535	117.000	0.000
Net sales, thousands of euro	446.640	95.000	1358.880	137.000	0.000
Company age					
Age of the company (years)	14.720	11.000	16.810	13.000	0.000
Control variables					
Manufacturing (industry)	0.041	0.000	0.081	0.000	0.000
Construction (industry)	0.052	0.000	0.194	0.000	0.000
Hotels and restaurants (industry)	0.059	0.000	0.027	0.000	0.000
Wholesale and retail trade (industry)	0.173	0.000	0.158	0.000	0.002
Logarithm of total assets (size)	3.992	4.094	4.666	4.779	0.000
Logarithm of company age (age)	2.452	2.398	2.591	2.565	0.000

[a]Maximum number of firms (missing values neglected); [b]p-value of the median test.

Table 2 also shows the mean and median of the share (%) of employee expenses in operating revenue. In companies owned by women, the average and median share are higher than in companies owned by men. The median share of employee expenses is 36.8% in companies owned by women and 31.2% in companies owned by men. The difference is statistically very significant. The (uncontrolled) results of the study thus support the first hypothesis (H1) that companies owned by women are more labor-intensive than companies owned by men. The second hypothesis of the study (H2) is also confirmed, as the median EBITDA percentage in companies owned by men is clearly higher than in companies owned by women. In companies owned by women, the median EBITDA margin (%) is only 9.8%, while it is 11.7% in companies owned by men. In the same way, the average figures of the profit margin (%) are statistically significantly lower in companies owned by women than in companies owned by men, which contradicts with the third hypothesis (H3). In companies owned by women, the median profit margin is 5.6% while in companies owned by men it is 6.3%.

However, measured by the return on total assets (%), companies owned by women are on average more profitable than companies owned by men, which supports the fourth hypothesis (H4) presented. In companies owned by women, the median return on total assets is 8.3%, while it is 7.3% in companies owned by men. The uncontrolled differences do not support the fifth research hypothesis (H5), according to which the shareholders' liquidity ratio is higher in companies owned by women than in companies owned by men. The median ratio is 1.20 in companies owned by men and only 0.72 in companies owned by women. The difference is statistically very significant ($p = 0.001$). Furthermore, the sixth hypothesis (H6) assumes that there is no difference in the solvency (equity) ratios (%) between companies owned by women and men. However, this hypothesis is not supported by the empirical results either. The median solvency ratio in women-owned companies is significantly higher ($p = 0.01$) than that in men-owned companies. However, the differences in the means of the solvency ratio are slightly the other way around. In companies owned by women and men, the median solvency ratios are 66.7% and 64.1%, respectively. However, the means of the ratios in these company groups are 56.0% and 56.2%. Thus, the difference in means between the company groups is negligible (not significant).

The seventh research hypothesis (H7) assumes that the current (liquidity) ratio is higher in companies owned by women than in companies owned by men. This hypothesis is not supported by the uncontrolled results, as the differences between the company groups are not statistically significant ($p = 0.083$). The median current ratio is 1.87 in companies owned by women and 1.78 in companies owned by men. Instead, the results support the eighth hypothesis (H8), according to which the payment period for accounts receivable (collection period) is shorter in companies owned by women than in companies owned by men. In companies owned by women, the median collection period is only 6.6 days,

while it is 12.4 days in companies owned by men. The results also support the ninth hypothesis (H9), according to which the payment period for accounts payable is shorter in companies owned by women than in companies owned by men. In companies owned by women, the median of the credit period is only 3.2 days, but in companies owned by men 5.4 days. Thus, the differences in both payment periods (collection and credit) between the company groups are statistically very significant.

4.2. Regression Analysis Results: Controlled Differences

The size, age and industry of the companies could have influenced the uncontrolled differences (medians) of the key figures, in which case the company groups have not been comparable. A more reliable picture of the differences in key figures between companies owned by women and men can be obtained with the help of regression analysis. Table 3 shows the results of the regression analysis for the share of labor expenses in operating revenue. The share of labor expenses is most significantly explained by the company's total assets (balance sheet total), measured by the logarithm, and the company's main industry of wholesale and retail trade, where operating revenue in relation to labor cost generally is relatively high. The table shows that the coefficient of the dummy variable measuring female ownership is positive and statistically significant. Female ownership seems to increase the share of labor expenses by approximately 1.88 percentage points. The result supports the first hypothesis (H1) that in companies owned by women, the share of labor expenses in operating revenue is higher than in companies owned by men. These results indicate that even after controlling for industry, the labor-intensity is higher in women-owned companies that in men-owned companies.

Table 4 shows the results of the regression analysis for the EBITDA margin. The level of the EBITDA margin is statistically influenced by several different

Table 3. Regression results for labor expenses/operating revenue (Labor intensity).

Variable in regression equation	Coefficient	Standard deviation	t-test	p-value	Tolerance	VIF
Intercept	55.212	0.564	97.840	0.000		
Woman GUO (dummy)	1.883	0.325	5.795	0.000	0.925	1.082
Logarithm of total assets	−3.696	0.076	−48.586	0.000	0.919	1.088
Logarithm of company age	0.478	0.180	2.655	0.008	0.935	1.069
Manufacturing (dummy)	−4.468	0.466	−9.589	0.000	0.912	1.097
Construction (dummy)	−2.657	0.328	−8.100	0.000	0.870	1.150
Hotels and restaurants (dummy)	−7.947	0.685	−11.600	0.000	0.967	1.034
Wholesale and retail trade (dummy)	−15.302	0.353	−43.392	0.000	0.891	1.123

factors (company size, age and industry), but also the negative coefficient of the dummy variable of women ownership in the company is statistically significant. Thus, according to the results, the EBITDA margin in companies owned by women is on average about 1.68 percentage points lower than in companies owned by men. Therefore, the results support the second research hypothesis of the study (H2). Table 5 shows the results for the profit margin. These results indicate that women ownership does not have a statistically significant effect on the operating profit percentage ($p = 0.809$). The most significant effects are found for the size of the company but the effects of age and industry are also significant. Thus, the empirical results support the third hypothesis (H3) according to which there is no difference in profit margin between companies owned by women and men. However, the regression results presented in Table 6

Table 4. Regression results for EBITDA/operating revenue (EBITDA margin (%)).

Variable in regression equation	Coefficient	Standard deviation	t-test	p-value	Tolerance	VIF
Intercept	9.263	0.723	12.815	0.000		
Woman GUO (dummy)	−1.681	0.426	−3.949	0.000	0.945	1.058
Logarithm of total assets	3.302	0.098	33.590	0.000	0.928	1.078
Logarithm of company age	−2.707	0.219	−12.365	0.000	0.937	1.067
Manufacturing (dummy)	−7.096	0.533	−13.321	0.000	0.907	1.102
Construction (dummy)	−7.490	0.385	−19.470	0.000	0.860	1.163
Hotels and restaurants (dummy)	−9.847	0.791	−12.448	0.000	0.958	1.044
Wholesale and retail trade (dummy)	−10.515	0.434	−24.201	0.000	0.885	1.129

Table 5. Regression results for P/L before tax/operating revenue (Profit margin (%)).

Variable in regression equation	Coefficient	Standard deviation	t-test	p-value	Tolerance	VIF
Intercept	3.709	0.649	5.714	0.000		
Woman GUO (dummy)	0.093	0.382	0.242	0.809	0.941	1.062
Logarithm of total assets	3.287	0.084	39.040	0.000	0.941	1.063
Logarithm of company age	−2.619	0.210	−12.476	0.000	0.949	1.054
Manufacturing (dummy)	−6.665	0.558	−11.946	0.000	0.927	1.079
Construction (dummy)	−7.772	0.397	−19.584	0.000	0.891	1.123
Hotels and restaurants (dummy)	−10.242	0.803	−12.762	0.000	0.971	1.029
Wholesale and retail trade (dummy)	−7.144	0.409	−17.448	0.000	0.908	1.102

indicate that women ownership has a statistically significant positive effect on the company's return on total assets. Thus, the results strongly support the fourth hypothesis (H4). The coefficient of the women ownership dummy indicates that the return on total assets in companies owned by women is on average about 2.0 percentage points higher than in similar companies owned by men. The logarithmic size of the company has most significant effect on this profitability indicator. In fact, company size has the most significant effect on each of the three profitability ratios considered (and also on labor intensity).

Table 7 shows the results of the regression analysis for the shareholders liquidity ratio. These results show that women ownership has a statistically significant

Table 6. Regression results for P/L before tax/total assets (Return on total assets (%)).

Variable in regression equation	Coefficient	Standard deviation	t-test	p-value	Tolerance	VIF
Intercept	2.020	0.623	3.241	0.001		
Woman GUO (dummy)	2.013	0.367	5.478	0.000	0.947	1.056
Logarithm of total assets	3.254	0.080	40.692	0.000	0.951	1.052
Logarithm of company age	−3.843	0.200	−19.206	0.000	0.955	1.047
Manufacturing (dummy)	−1.462	0.540	−2.709	0.007	0.933	1.071
Construction (dummy)	−0.893	0.384	−2.323	0.020	0.901	1.110
Hotels and restaurants (dummy)	−5.649	0.782	−7.229	0.000	0.974	1.027
Wholesale and retail trade (dummy)	−1.087	0.394	−2.760	0.006	0.915	1.093

Table 7. Regression results for shareholders funds/non-current liabilities (Shareholders liquidity ratio).

Variable in regression equation	Coefficient	Standard deviation	t-test	p-value	Tolerance	VIF
Intercept	−19.375	2.043	−9.482	0.000		
Woman GUO (dummy)	3.449	1.266	2.724	0.006	0.947	1.056
Logarithm of total assets	4.378	0.248	17.671	0.000	0.946	1.057
Logarithm of company age	3.293	0.643	5.121	0.000	0.955	1.047
Manufacturing (dummy)	−5.805	1.601	−3.626	0.000	0.914	1.094
Construction (dummy)	−1.154	1.192	−0.968	0.333	0.881	1.135
Hotels and restaurants (dummy)	−3.718	2.290	−1.623	0.105	0.957	1.044
Wholesale and retail trade (dummy)	−1.913	1.262	−1.516	0.130	0.894	1.119

positive effect on the indicator, which supports the fifth hypothesis (H5). The coefficient of the women ownership dummy indicates that the indicator is on average about 3.4 units higher in companies owned by women than in similar companies owned by men. This ratio is also strongly affected by the size and age of the company, which have the highest t-test values in the regression. However, of the industries, only manufacturing has a significant impact on the indicator. Table 8 shows the regression results for the solvency ratio. The results clearly indicate that women ownership does not have a statistically significant effect on the indicator ($p = 0.966$). The empirical results thus support the presented sixth hypothesis (H6) assuming that the solvency ratio in women-owned companies does not differ from that in men-owned companies. The indicator is most significantly affected by the age and industry of the company.

Table 9 shows the results of the regression analysis for the current (liquidity) ratio. The key figure is most significantly affected by the company's size and industry. Female ownership has a positive effect on the ratio indicating that the ratio is on average about 0.274 units higher in women-owned companies than in men-owned companies. However, the coefficient of the dummy is not statistically significant ($p = 0.066$). Thus, the results provide only weak support for the seventh hypothesis (H7). Table 10 shows the results of the regression analysis for the average payment period of accounts receivable (collection period). This key figure is most significantly affected by the company's size and industry (hotels and restaurants and wholesale and retail trade). Women ownership has a statistically significant negative effect on the indicator ($p = 0.004$). In companies owned by women, the collection period is about 2.4 days shorter than in similar companies owned by men. Thus, the empirical results give support to the eighth research hypothesis (H8).

Table 11 shows the results of the regression analysis for the average payment

Table 8. Regression results for shareholders funds/total assets (Solvency ratio (%)).

Variable in regression equation	Coefficient	Standard deviation	t-test	p-value	Tolerance	VIF
Intercept	45.353	0.932	48.655	0.000		
Woman GUO (dummy)	0.024	0.551	0.043	0.966	0.949	1.054
Logarithm of total assets	0.204	0.118	1.719	0.086	0.952	1.050
Logarithm of company age	5.403	0.300	18.035	0.000	0.957	1.045
Manufacturing (dummy)	−8.092	0.813	−9.951	0.000	0.933	1.072
Construction (dummy)	−7.255	0.573	−12.652	0.000	0.902	1.109
Hotels and restaurants (dummy)	−21.227	1.188	−17.861	0.000	0.975	1.026
Wholesale and retail trade (dummy)	−9.830	0.593	−16.587	0.000	0.915	1.093

Table 9. Regression results for current assets stocks/current liabilities (Current or Liquidity ratio).

Variable in regression equation	Coefficient	Standard deviation	t-test	p-value	Tolerance	VIF
Intercept	3.365	0.249	13.532	0.000		
Woman GUO (dummy)	0.274	0.149	1.839	0.066	0.944	1.060
Logarithm of total assets	0.468	0.032	14.855	0.000	0.944	1.059
Logarithm of company age	0.168	0.081	2.071	0.038	0.948	1.055
Manufacturing (dummy)	−2.177	0.216	−10.066	0.000	0.927	1.078
Construction (dummy)	−1.898	0.154	−12.329	0.000	0.893	1.120
Hotels and restaurants (dummy)	−3.237	0.310	−10.448	0.000	0.971	1.029
Wholesale and retail trade (dummy)	−2.578	0.158	−16.313	0.000	0.908	1.102

Table 10. Regression results for 360 · debtors/operating revenue (Collection period).

Variable in regression equation	Coefficient	Standard deviation	t-test	p-value	Tolerance	VIF
Intercept	15.806	1.396	11.320	0.000		
Woman GUO (dummy)	−2.367	0.825	−2.868	0.004	0.941	1.062
Logarithm of total assets	1.962	0.179	10.955	0.000	0.943	1.060
Logarithm of company age	1.815	0.451	4.023	0.000	0.951	1.052
Manufacturing (dummy)	1.212	1.207	1.004	0.315	0.929	1.076
Construction (dummy)	−1.161	0.857	−1.354	0.176	0.894	1.118
Hotels and restaurants (dummy)	−19.528	1.744	−11.198	0.000	0.972	1.028
Wholesale and retail trade (dummy)	−6.849	0.882	−7.765	0.000	0.910	1.098

Table 11. Regression results for 360 · creditors /operating revenue (Credit period).

Variable in regression equation	Coefficient	Standard deviation	t-test	p-value	Tolerance	VIF
Intercept	8.376	1.146	7.308	0.000		
Woman GUO (dummy)	-1.917	0.672	-2.854	0.004	0.940	1.064
Logarithm of total assets	0.845	0.150	5.651	0.000	0.939	1.065
Logarithm of company age	0.935	0.367	2.547	0.011	0.946	1.057
Manufacturing (dummy)	4.289	0.970	4.421	0.000	0.927	1.079
Construction (dummy)	1.707	0.692	2.465	0.014	0.890	1.124

Continued

Hotels and restaurants (dummy)	1.212	1.396	0.869	0.385	0.971	1.030
Wholesale and retail trade (dummy)	5.257	0.715	7.355	0.000	0.907	1.102

period of accounts payable (credit period). According to the results, the credit period is most significantly affected by the size and the industry (wholesale and retail trade) of the company. The credit period is also statistically significantly affected by women ownership, which has a negative effect ($p = 0.004$). The coefficient indicates, that, in companies owned by women, the credit period is about 1.9 days shorter than in similar companies owned by men. The results thus provide support for the ninth hypothesis.

In summary, the empirical results of controlled comparison gave support to all nine hypotheses, although the seventh hypothesis about current (liquidity) ratio differences received only weak support. The study showed that compared to companies owned by men, small and medium-sized companies owned by women (in Finland) are on average more labor-intensive (H1), report a lower EBITDA margin (H2), an equal profit margin (H3), a higher return on total assets ratio (H4), higher shareholders liquidity ratio (H5), equal solvency ratio (H6), higher current ratio (only weakly supported) (H7), shorter collection period (H8), and, finally, shorter credit period (H9). However, in a direct uncontrolled comparison based on medians, four of the nine (4/9) hypotheses were rejected in statistical testing. Compared to companies owned by men, women-owned companies report a higher profit margin (H3), a lower shareholders liquidity ratio (H5), a higher solvency ratio (H6), and an equal current ratio (H7), contrary to the present hypotheses. The results produced by an uncontrolled comparison and a controlled comparison therefore differ substantially from each other. Since the principle of financial statement analysis is to compare only comparable companies, the results produced by a controlled comparison are more usable.

5. Conclusion

The aim of this study was to compare key variables (ratios) calculated from financial statements in Finnish companies (SMEs) owned by women and men. The task was not straightforward, as several factors (for example company size, age and industry) affect comparability between companies. Traditionally, financial statement analysis can only be effectively used for comparing companies and groups of companies that are comparable to each other. Previous empirical studies on women-owned companies show that these companies are generally smaller than men-owned companies, are on average younger, and operate in different industries than men-owned businesses. The differences in the personality of women compared to men lead to the fact that women apply to different

companies, in which case the companies owned by women and men are not directly comparable. From the point of view of financial statement analysis, an important difference between women and men is that women tend to avoid financial risk more strongly than men and are more interested in working with people rather than machines and equipment. Because of this, regardless of industry, women-owned companies are usually smaller and more labor-intensive than men-owned companies.

The results of the study imply that direct and controlled comparisons of financial statement variables in companies owned by women and men produce clearly different results. When evaluating the differences between the results produced by the prior studies, it is important to find out how the factors affecting the comparability of the companies have been controlled. Differences in control variables and their use may explain why the results produced by the studies are mixed. The controlled results in this study show that there is no significant difference in the profit margin indicators of women- and men-owned companies. However, women-owned labor-intensive companies typically have fewer fixed assets, so their return on total assets ratios is higher. This is important, since the efficient capital allocation to businesses is based on this ratio. In the controlled evaluation, there is no difference in the solvency ratio between the company groups, and the differences in the current ratio are not statistically very significant either. These results may explain why the bankruptcy risk of women-owned and men-owned firms is of the same height, after controlling for the result. According to the results obtained in this study, companies owned by women collect their accounts receivable faster and also pay their own accounts payable faster than companies owned by men. This may please the providers of debt capital, which may explain the fact that women-owned companies receive higher proportions of debt financing requested than men-owned companies.

This research has produced many interesting results. However, the study has limitations that can be removed in future studies. The company material of the study consists only of Finnish companies. Although the results of the research on women-owned companies are remarkably similar in different countries, in the future it is necessary to include companies from different countries in the sample for the sake of comparison and generalization. The observational material of this study only covers the 2020 financial statements and is therefore a cross-sectional study. In future studies, however, it is good to include several years of financial statements in the sample, in which case such panel data can be used, for example, to find out causal relationships. In this study, company size, age and industry were used to control the financial statement comparisons. These are the most important factors affecting comparability between companies, but other variables can also be included in the analysis as well. The controlled outcomes obtained in this study were derived using ordinary regression analysis (OLS). In the future, other statistical methods can be applied in the comparison.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Adler, R. D. (2001). Women in the Executive Suite Correlate to High Profits. *Harvard Business Review, 79,* 30-32.

Altman, E. I., & Sabato, G. (2007). Modelling Credit Risk for SMEs: Evidence from the US Market. *Abacus, 43,* 332-357. https://doi.org/10.1111/j.1467-6281.2007.00234.x

Altman, E. I., Sabato, G., & Wilson, N. (2010). The Value of Non-Financial Information in Small and Medium-Sized Enterprise Risk Management. *Journal of Credit Risk, 6,* 95-127. https://doi.org/10.21314/JCR.2010.110

Bellucci, A., Borisov, A., & Zazzaro, A. (2010). Does Gender Matter in Bank-Firm Relationships? Evidence from Small Business Lending. *Journal of Banking & Finance, 34,* 2968-2984. https://doi.org/10.1016/j.jbankfin.2010.07.008

Boden, R. J., & Nucci, A. R. (2000). On the Survival Prospects of Men's and Women's New Business Ventures. *Journal of Business Venturing, 15,* 347-362. https://doi.org/10.1016/S0883-9026(98)00004-4

Böhren, Ö., & Ström, R. Ö. (2005). *Aligned, Informed, and Decisive: Characteristics of Value-Creating Boards.* Working Paper, Norwegian School of Management BI, September 2005.

Borghans, L., Duckworth, A. L., Heckman, J. J., & ter Weel, B. (2008). The Economics and Psychology of Personality Traits. *Journal of Human Resources, 43,* 972-1059. https://doi.org/10.1353/jhr.2008.0017

Borghans, L., Golsteyn, B. H. H., Heckman, J. J., & Meijers, H. (2009). Gender Differences in Risk Aversion and Ambiguity Aversion. *Journal of the European Economic Association, 7,* 649-658. https://doi.org/10.1162/JEEA.2009.7.2-3.649

Bowles, S., Gintis, H., & Osborne, M. (2001). The Determinants of Earnings: A Behavioral Approach. *Journal of Economic Literature, 39,* 1137-1176. https://doi.org/10.1257/jel.39.4.1137

Catalyst (2004). *The Bottom Line: Connecting Corporate Performance and Gender Diversity.* https://www.catalystwomen.org/

Coleman, S., & Robb, A. (2009). A Comparison of New Firm Financing by Gender: Evidence from the Kauffman Firm Survey. *Small Business Economics, 33,* 397-411. https://doi.org/10.1007/s11187-009-9205-7

Constantinidis, C., Cornet, A., & Asandei, S. (2006). Financing of Women-Owned Ventures: The Impact of Gender and Other Owner- and Firm-Related Variables. *Venture Capital, 8,* 133-157. https://doi.org/10.1080/13691060600572557

Costa Jr., P. T., Terracciano, A., & McCrae, R. R. (2001). Gender Differences in Personality Traits across Cultures: Robust and Surprising Findings. *Journal of Personality and Social Psychology, 81,* 322-331. https://doi.org/10.1037/0022-3514.81.2.322

Del Giudice, M., Booth, T., & Irwing, P. (2005). The Distance between Mars and Venus: Measuring Global Sex Differences in Personality. *British Journal of Psychology, 96,* 505-524.

Du Rietz, A., & Henrekson, M. (2000). Testing the Female Underperformance Hypothesis. *Small Business Economics, 14,* 1-10. https://doi.org/10.1023/A:1008106215480

Fairlie, R. W., & Robb, A. M. (2009). Gender Differences in Business Performance: Evidence from the Characteristics of Business Owners Survey. *Small Business Economics, 33,* 375-395. https://doi.org/10.1007/s11187-009-9207-5

Feingold, A. (1994). Gender Differences in Personality: A Meta-Analysis. *Psychological Bulletin, 116,* 429-456. https://doi.org/10.1037/0033-2909.116.3.429

Foulke, R. A. (1968). *Practical Financial Statement Analysis* (6th ed.). McGraw-Hill Company.

Gatewood, E., Carter, N. M., Brush, C. G., Greene, P. G., & Hart, M. M. (2003). *Women Entrepreneurs, Their Ventures, and the Venture Capital Industry: An Annotated Bibliography.* ESBRI.

Haw, I.-M., Hu, B., Hwang, L.-S., & Wu, W. (2004). Ultimate Ownership, Income Management, and Legal and Extra-Legal Institutions. *Journal of Accounting Research, 42,* 423-462. https://doi.org/10.1111/j.1475-679X.2004.00144.x

Horrigan, J. O. (1968). A Short History of Financial Ratio Analysis. *The Accounting Review, 43,* 284-294.

Huang, L., & Rivard, P. (2021). Financing of Women-Owned Small and Medium-Sized Enterprises in Canada. In *Innovation, Science and Economic Development Canada.*

Kalleberg, A., & Leicht, K. (1991). Gender and Organizational Performance: Determinants of Small Business Survival and Success. *Academy of Management Journal, 34,* 136-161. https://doi.org/10.2307/256305

Kochan, T., Bezrukova, K., Ely, R., Jackson, S., Joshi, A., Jehn, K., Leonard, J., Levine, D., & Thomas, D. (2003). The Effects of Diversity on Business Performance: Report of the Diversity Network. *Human Resource Management, 42,* 3-21. https://doi.org/10.1002/hrm.10061

Kotiranta, A., Kovalainen, A., & Rouvinen, P. (2007). *Female Leadership and Firm Profitability.* EVA Analysis No. 3. https://www.eva.fi/wp-content/uploads/files/2133_Analyysi_no_003_eng_FemaleLeadership.pdf

Lev, B. (1974). *Financial Statement Analysis: A New Approach.* Prentice Hall, Inc.

Meier-Pesti, K., & Penz, E. (2008). Sex or Gender? Expanding the Sex-Based View by Introducing Masculinity and Femininity as Predictors of Financial Risk Taking. *Journal of Economic Psychology, 29,* 180-196. https://doi.org/10.1016/j.joep.2007.05.002

Robb, A. (2002). Entrepreneurship: A Path for Economic Advancement for Women and Minorities? *Journal of Developmental Entrepreneurship, 7,* 383-397.

Robb, A., & Wolken, J. (2002). *Firm, Owner, and Financing Characteristics: Differences between Female- and Male-owned Small Businesses.* Federal Reserve Working Paper Series, 2002-18. https://doi.org/10.2139/ssrn.306800

Rosa, P., Carter, S., & Hamilton, D. (1996). Gender as a Determinant of Small Business Performance: Insights from a British Study. *Small Business Economics, 8,* 463-478. https://doi.org/10.1007/BF00390031

Rose, C. (2004). The Composition of Boards and Financial Performance in Danish Listed Firms—Are the Recommendations from the Nørby Report Beneficial for the Shareholders? WP 2004-2, Institut for Finansiering, Handelshøjskolen i København. (In Danish)

Smith, N., Smith, V., & Verner, M. (2006). Do Women in Top Management Affect Firm Performance? A Panel Study of 2500 Danish Firms. *International Journal of Productivity and Performance Management, 55,* 569-593. https://doi.org/10.1108/17410400610702160

Staszkiewicz, P., & Szelagowska, A. (2019). Ultimate Owner and Risk of Company Performance. *Economic Research-Ekonomska Istrazivanja, 32,* 3795-3812. https://doi.org/10.1080/1331677X.2019.1678499

Subramanyam, K. R. (2014). *Financial Statement Analysis* (11th ed.). McGraw-Hill.

Watson, J. (2003). Failure Rates for Female-Controlled Businesses: Are They Any Different? *Journal of Small Business Management, 41,* 262-227. https://doi.org/10.1111/1540-627X.00081

Appendixes

Appendix 1. Definition of the Financial Ratios in ORBIS Database

1. 31,060 EBITDA margin (%) = (EBITDA/Operating Revenue) * 100 = (30,320/30,205) * 100
2. 31,005 Profit margin (%) = P/L Before tax/Operating Revenue (Turnover) * 100 = (30,260/30,205) * 100
3. 31,015 Return on total assets (%) = (P/L Before tax/Total Assets) * 100 = (30,260/30,050) * 100
4. 31,305 Shareholders liquidity ratio = Shareholders Funds/Non-current Liabilities = 30,090/30,075
5. 31,310 Solvency ratio (%) = (Shareholders Funds/Total Assets) * 100 = (30,090/30,050) * 100
6. 31,110 Liquidity ratio = (Current Assets Stocks)/Current Liabilities = (30,005 − 30,010)/30,055
7. 31,120 Collection period (days) = (Debtors/Operating Revenue) * 360 = (30,015/30,205) * 360
8. 31,125 Credit period (days) = (Creditors/Operating Revenue) * 360 = (30,065/30,205) * 360

Appendix 2. Statistics of the Regression Equation (1) for Different Predictor Variables

Dependent variable	R	R Square adjusted	F statistic	p-value
1. Labor-intensity	0.4010	0.1610	724.033	0.0000
2. EBITDA margin	0.2890	0.0840	286.893	0.0000
3. Profit margin	0.2520	0.0630	311.187	0.0000
4. Return on total assets	0.2270	0.0510	269.509	0.0000
5. Shareholders liquidity ratio	0.1560	0.0240	54.436	<0.0010
6. Solvency ratio	0.1600	0.0250	128.767	<0.0010
7. Liquidity or current ratio	0.1390	0.0190	91.167	<0.0010
8. Collection period	0.1040	0.0110	51.493	<0.0010
9. Credit period	0.0670	0.0050	20.535	<0.0010