Analysis of the Impact of Women in Investment Roles on IPO rates in European Venture Capital Firms

A Work Project, presented as part of the requirements for the Award of a Master's degree in Impact Entrepreneurship and Innovation from the Nova School of Business and Economics.

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Contents

Abstract

This thesis investigates whether gender diversity, particularly in investment decision-making roles, in Venture Capital (VC) firms influences the likelihood of successful exits in their portfolio companies, with a specific focus on initial public offerings (IPOs).

By analyzing a dataset of 82 well-known European VC firms obtained from PitchBook, this research investigates the relationship between female workforce, especially in decision-making roles and the IPO rate using linear regression analysis.

Keywords: Gender Diversity, Venture Capital, Start-up Financing, Women in Venture Capital

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Introduction

Venture Capital firms plays a crucial role in the growth of some of the most influential companies worldwide. For instance, seven of the top eight firms by market capitalization in May 2020 in the United States has been backed by Venture Capital prior to their initial public offerings (Lerner and Nanda 2020).

However, data reveals that female-founded companies are significantly less likely to receive investments from Venture Capital firms. According to PitchBook's *European VC Female Founders Dashboard*, the latest figures on the funding gap between female- and male-founded startups show a significant disparity. In 2024, startups founded exclusively by women received only 2.7% of all European VC funding, while those founded by mixed-gender teams received 16.4%. These numbers indicate that over 80% of Venture Capital money is exclusively allocated to male-only founders (PitchBook 2024).

Focusing on the supply side of startup financing, the *European Women in Venture Capital* study states that only 16% of all General Partners (GPs) in Venture Capital are female. Furthermore, only 9% of female GPs in Europe have "firepower," meaning they have access to the firm's assets under management (AUM) for making significant investment decisions. Existing research shows that female investors are "2 to 3 times more likely to invest in female founders" (EWVC 2023), which raises the hypothesis that the underrepresentation of women in Venture Capital may be a contributing factor to the challenges female founders face in securing VC funding.

Increasing female representation within VC firms could potentially enhance investment opportunities for female entrepreneurs. This thesis focuses on the role of women in Venture Capital, examining the current representation of women in top VC firms across Europe and investigating whether gender diversity, particularly in investment roles, impacts the likelihood of IPOs in their portfolio companies.

Literature Review

The venture capital industry has traditionally been male-dominated, with significant gender disparity in both representation and decision-making power. With a growing societal interest in gender equality and the role of women in male-dominated industries, there are several recent studies on the role of women in venture capital.

2.1 Past Research on Gender Diversity in Venture Capital

The role of women in venture capital has garnered increased attention due to the underrepresentation of women in investment decision-making roles. Past research has highlighted various factors that contribute to the gender gap in VC, including networking frictions, mentorship barriers, and the performance of female investors.

According to a report from the Harvard Kennedy School from the year 2019, there is a common belief that there aren't enough qualified women to fill the venture capital pipeline. However, data suggests otherwise. Women make up over 40% of the student population at top U.S. business schools, 36% of new investment bankers, and 45% of new management consultants (Chilazi 2019).

This indicates that there are far more women with the needed qualifications than there are female investors currently in the industry (Chilazi 2019). Despite this, currently in the U.S., only 11% of VCs are women and 71% of VC firms have no female partners (Kaden 2019). This raises the question of why the gender gap in venture capital is still existing.

The underrepresentation of women in venture capital can be attributed to several interrelated factors that make the industry an uneven playing field for women.

First, VC firms are highly homogeneous, with similar gender, racial, and educational backgrounds among their members. This demographic uniformity, a result of homophily, has perpetuated the exclusion of women and continues to limit the industry's ability to diversify (Chilazi 2019).

The lack of female role models in venture capital firms creates a significant barrier to women's success in the industry. Since individuals often seek and emulate success models (Kaden 2019), the absence of women in prominent roles hinders other women from joining and starting a career in this industry, as there are fewer examples of women achieving success compared to men.

Additionally, most VC firms are rather small with low turnover, making hiring infrequent and impedes diversification efforts. However, larger companies are more likely to hire women (Chilazi 2019).

Networks also play a crucial role in the industry, and since the majority of VC professionals and founders are male, women are disadvantaged when it comes to networking and building partnerships (Chilazi 2019). These factors have led to a systemic and still existing underrepresentation of women in the venture capital field.

2.2 Implications of Gender Diversity on Firm and Portfolio Performance

Although women are underrepresented in venture capital, existing literature shows that a higher proportion of females in the investment team is linked to better fund performance.

The most compelling evidence for the positive impact of gender diversity on venture capital returns comes from Paul Gompers and his team, who analyzed data covering 14,000 VC investments across 42,000 startups from 1990 to 2016. Their findings show that VC firms that increase their proportion of female partner hires by 10% see a 1.5% annual increase in fund

returns and experience 9.7% more profitable exits on average (Gompers and Kovvali 2018).

Additionally, the *European Women in VC* report from 2023 indicates that gender diversity in VC firms not only enhances inclusivity but also contributes to improved financial performance. Gender-diverse teams are shown to make more balanced decisions, which can reduce investment risks and enhance returns. According to data from the *European Women in VC* report, a 10% increase in the proportion of women in senior management correlates with a 1.3 percentage-point increase in the Internal Rate of Return (IRR) for VC firms (EWVC 2023).

This suggests that gender diversity in decision-making roles can lead to more profitable investment results, likely because diverse teams incorporate a wider array of perspectives. This is, among others, caused by the fact that, influenced by a combination of biological, social, and economic factors, women are generally more risk averse than men in their investment decisions (Bajtelsmit and Bernasek 1996).

Furthermore, the *European Women in VC* report highlights that mixed gender management teams are associated with lower portfolio volatility, implying that the presence of women in senior roles may contribute to the stability of investment performance, particularly in unpredictable markets. The ability of gender-diverse teams to better navigate risks and deliver more stable returns may be attributed to collaborative and inclusive decision-making styles that are often fostered in diverse environments (EWVC 2023).

According to Gompers and colleagues, the higher returns could stem from several factors. First, given the challenges women face in securing a role in venture capital, those who are hired may be exceptionally qualified. Another possibility is that women investors may be more inclined to back companies led by women, identifying opportunities that might be overlooked by other funds.A third reason is that gender diversity fosters different perspectives, which can lead to the discovery of new investment opportunities (Gompers and Blanding 2018).

2.3 Implications of Gender Diversity on the Gender Funding Gap

Networking plays a critical role in the VC industry, as access to investors often depends on personal networks. It has been investigates how exposure to VC networks can affect entrepreneurial success. While male entrepreneurs were shown to benefit significantly from increased exposure to VCs, female entrepreneurs did not show the same benefit (Howell and Nanda 2024).

This difference in networking value can be explained by the fact that male investors tend to invest in male founders. This is the result of a study from Ewens et. al in which it was found that male investors express less interest in female entrepreneurs compared to male founders (Ewens and Townsend 2020).

This can be supported by the findings of Brooks et al., which reveal that investment decisions are influenced not only by the content of the pitch but also by additional factors, including the gender and physical attractiveness of the entrepreneurs. It was found that investors are more inclined to favor pitches from male founders, even when the content of the pitch is identical (Rooks et al. 2014).

Similarly, there is evidence that female venture capitalists are more likely to invest in women-led startups, potentially addressing the gender funding gap that has historically disadvantaged female entrepreneurs. The article *A Diana Project: report on the role and participation of women in the venture capital industry* shows that female investors have unique network connections, which often include other women-led ventures, and are thus more likely to fund female-founded startups (Brush et al. 2004). The *European Women in VC* report supports this finding, noting that women-led funds are two to three times more likely to invest in female-founded companies compared to male-led funds (EWVC 2023).

The tendency of women-led funds to invest in female entrepreneurs implies a potential solution to the funding gap faced by women-led startups. By increasing female representation within VC

leadership, the industry may create a more inclusive funding landscape that supports a broader range of business models and innovation. This shift not only benefits women entrepreneurs but also enriches the entire ecosystem by allowing diverse perspectives to influence investment decisions.

2.4 Research Focus

The findings from the mentioned studies collectively suggest that gender diversity in venture capital can influence both, the types of investments made and the financial success of the firm. Gender-diverse teams have been shown to contribute to stronger financial performance, with reduced volatility and increased returns, particularly within sectors that benefit from diverse perspectives. These outcomes imply that the integration of women into decision-making roles in VC firms could lead to a more robust investment environment, which is essential in an industry that relies heavily on strategic risk-taking.

From a literature standpoint, gender diversity in decision-making roles within VC firms can be expected to positively affect IPO outcomes, as existing research suggests that women have a positive impact on financial returns. This thesis aims to build on these findings by examining the impact of gender diversity specifically within some of Europe's most successful venture capital firms. By focusing on these firms, the study will test the hypothesis that women in key investment roles contribute to improved IPO outcomes, providing empirical evidence to support the positive relationship between gender diversity and IPO success.

This project investigates whether the presence of women in VC decision-making positions has a measurable impact on the success rates of portfolio companies, specifically focusing on IPO outcomes. By examining this relationship, the research aims to contribute to the growing body of evidence on the financial and social value of gender diversity in venture capital.

Furthermore, this project aims to investigate the differential impact of gender diversity in two distinct contexts within venture capital firms: the overall workforce of the VC firm versus

women specifically working as investors.

In venture capital firms, the broader workforce may include individuals in roles such as marketing, operations, legal, or administrative support. While gender diversity across these positions is valuable and contributes to the overall culture and inclusivity of the firm, the investment team holds primary responsibility for the allocation of funds and the strategic direction of investments. Therefore, the influence of women in the investment team may have a significantly different impact on firm outcomes, including IPO rates, compared to the representation of women in the non-investment roles.

The hypothesis of this thesis is that there is a significant difference in the impact of women working as investors compared to the impact of women in the overall workforce within venture capital firms. The findings are expected to suggest that initiatives such as quotas and hiring under public pressure, which focus on increasing female representation across all roles within the firm, may not yield the desired results in terms of improving financial performance or driving innovation. In contrast, hiring women specifically as investors has the potential to unlock significant opportunities.

Methodology

This chapter covers the data collection, preprocessing and analysis, including the tools used to interpret the results. It gives an overview about the used statistical techniques, specifically linear regression, to examine the relationship between gender diversity and IPO rates, incorporating various variables.

3.1 Data Collection

The data used in this research was obtained in October 2024 from PitchBook, a comprehensive data platform that provides detailed information on companies, investors, deals, Mergers & Acquisitions (M&A), Limited Partners (LPs), funds, financials, debt, lenders, advisors and professionals.

The dataset consists of 100 venture capital firms in Europe. These firms represent some of the most well-known and most successful VCs across Europe. The dataset includes venture capital firms with 1 to 70 employees in the role of investors. For performing the linear regression, 82 of the 100 venture capital Firms were analyzed. This restriction is due to the availability of AUM data. The AUM ranges from 36 million to over 6 billion Dollars. It contains VCs from 22 different countries in Europe. A visual representation of the geographical distribution of the firms from the dataset can be seen in figure 3.1.

Furthermore, the dataset includes variables such as:

- The names of employees working at each VC firm, including both current and former employees.
- The role or position of each employee within the VC firm.

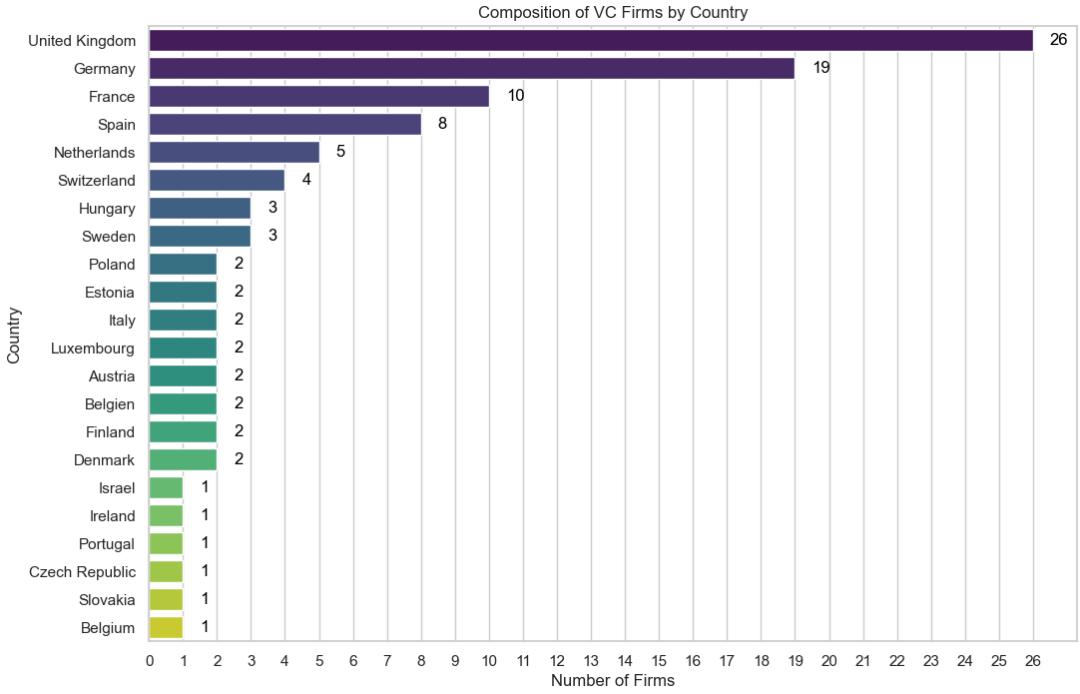

Figure 3.1: Composition of venture capital Firms by Country

- The assets under management for each VC firm.
- The number of investments made by each firm.
- The number of exits in the firm's portfolio.
- A detailed list of all exits, including the type of exit (e.g., mergers and acquisitions, IPOs, bankruptcies, secondary transactions).
- The location of the headquarter of the VC.
- The number of investors currently working in this firm

This dataset serves as the foundation for investigating the impact of gender diversity within VC firms on the rate of initial public offerings as a key performance indicator.

3.2 Gender Composition and Investor Classification

The gender composition of each VC firm was calculated using a custom Python script. The script analyzed the names of employees and classified them based on gender using a list of over 8000 names. Each employee was categorized as either male or female. If a name could not be classified with certainty, it was excluded from the calculation. From this data, the percentage of females working at each VC firm was derived as follows:

$$\text{Percentage of Female Employees} = \frac{\text{Number of Female Employees}}{\text{Total Number of Employees}} \times 100 \tag{3.1}$$

Additionally, the percentage of female investors was calculated based on the roles assigned to employees. Employees in decision-making roles related to investment were classified as *investors*, and those without such responsibilities were excluded.

The following roles in venture capital firms were classified as investment decision-making roles: *Investor, Managing Partner, Venture Partner, Co-Founder, Partner, General Partner, Investment Director, Principal, Investment Manager*.

The percentage of female investors was then computed as the proportion of females in decision-making investment roles relative to the total number people decision-making investment roles within each VC firm:

$$\text{Percentage of Female Investors} = \frac{\text{Number of Female Investors}}{\text{Total Number of Investors}} \times 100 \tag{3.2}$$

These calculations provide insight into the representation of women within each VC firm, both in general and in key decision-making roles, forming an essential part of the study's analysis of gender diversity in the venture capital landscape.

3.3 Calculation of the IPO rate as Success Metric

The IPO rate for each venture capital firm was calculated by dividing the number of initial public offerings in the firm's portfolio by the total number of exits. Exits are defined as all non-active investments, including M&A, bankruptcies, secondary transactions, and IPOs. Formally, the IPO rate is expressed as:

$$\text{IPO rate} = \frac{\text{Number of IPOs}}{\text{Total Number of Exits}} \tag{3.3}$$

This rate serves as a robust indicator of success in the context of venture capital performance, as achieving an IPO is generally regarded as the most desirable outcome for an investor.

The outcomes of the data preparation lead to the final dataset which was used to perform the Linear Regression Analysis. These complete dataset is shown in the appendix in Tables A.2 and A.3.

3.4 Data Evaluation: Linear Regression Analysis

For the data evalulation, a multiple linear regression was performed using the `statsmodels` library in Python.

Using a linear regression model provides a robust statistical framework to validate whether gender diversity within VC firms is a significant predictor of IPO outcomes. By including control variables, the analysis accounts for additional factors that may impact IPO success, thus isolating the effect of gender diversity on the IPO rate.

3.4.1 Regression Model and Variables

In the following section, the regression model and the variables used to examine the relationship between gender diversity in venture capital firms and their IPO rates are displayed.

Dependent Variable

The dependent variable (Y), also referred to as the response or outcome variable, is the variable that is aimed to be predicted or explained. In this analysis, the dependent variable is:

- **IPO rate**: The proportion of exits that resulted in an initial public offering for each venture capital firm.

Independent Variables

The independent variables (X), also called predictor or explanatory variables, are the variables that are expected to influence the dependent variable. In this regression model, the independent variables are:

- **Percentage of Female Employees**: The proportion of female employees in the overall workforce of the VC firm.
- **Percentage of Female Investors**: The proportion of women among all investors.

Control Variables

Control variables are included in the regression model to account for other factors that might influence the dependent variable but are not the primary focus of the study. By controlling for these variables, we can isolate the effect of gender diversity on IPO rates. The control variables in this analysis are:

- **Number of Investors**: The total number of investors working in the VC firm.
- **AUM**: The financial capacity of the VC firm, measured by the total assets under management.
- **Geographical location**: The city in which the VC has its headquarter.

3.4.2 Regression Equation

The multiple linear regression model used in this study can be represented as follows:

$$\text{IPO rate} = \alpha + \beta_1 + \beta_2 + \beta_3 + \beta_4 + \epsilon \tag{3.4}$$

Where:

- α is the intercept, representing the baseline IPO rate when all independent variables are zero.
- β_1 is the effect of the percentage of female employees on the IPO rate.
- β_2 is the effect of the percentage of female investors in decision-making roles on the IPO rate.
- β_3 is the effect of the number of investors on the IPO rate.
- β_4 is the effect of Assets Under Management on the IPO rate.
- ϵ captures the variation in IPO rate not explained by the independent variables.

3.4.3 Hypotheses

The equation leads to the following hypotheses:

- $H0_1$: $\beta_1 = 0$ (The null hypothesis for the effect of the Percentage of Female Employees on the IPO rate states that this variable does not have a statistically significant impact on the dependent variable.)

- $H0_2$: $\beta_2 = 0$ (The null hypothesis for the effect of the Percentage of Female Investors on the IPO rate states that this variable does not have a statistically significant impact on the dependent variable.)

In words, each null hypothesis tests whether the corresponding independent variable (Percentage of Female Employees or Percentage of Female Investors) has a statistically significant effect on the dependent variable (IPO rate). The other variables, such as the number of investors and the AUM, are considered control variables and will not be included in the hypotheses. These hypotheses will be tested using the regression results to determine whether the coefficients for each independent variable are statistically significantly different from zero.

Results and Discussion

In this chapter the findings of the study are presented and then analyzed in relation to the research questions regarding the impact of women in venture capital firms.

4.1 Results

This section outlines the results of the multiple linear regression analysis performed to assess the relationship between gender diversity in venture capital firms and their IPO rates. Initially, a linear regression is conducted without control variables. Then, additional control variables are added incrementally, and the final model includes all control variables.

4.1.1 Descriptive Statistics

The dataset indicates that, on average, 31.29% of employees in these VC firms are female, while only 24.00% hold investment decision-making roles. This level of female representation is somewhat consistent with prior studies, such as the *European Women in VC* report, which reported that in the year 2023 around 16% of General Partners are women, with a larger percentage of female presence at the junior levels (EWVC 2023). However, the relatively high mean percentage of female investors in this dataset suggests that some progress may be occurring in promoting women into more senior, decision-making roles.

Additionally, the average IPO rate of 4.79% is a crucial metric, as IPO outcomes are often seen as indicators of a firm's ability to generate significant financial returns.

Table 4.1: OLS Regression results: Models (1) includes the independent variables female employee and female investors, with Model (2) also including the number of investors. Model (3) adds AUM, while Model (4) adds geographic location

	Dependent variable: IPO rate			
	(1)	(2)	(3)	(4)
const	0.019	0.019	-0.092**	-0.165
	(0.017)	(0.018)	(0.046)	(0.108)
female employees	-0.019	-0.019	-0.034	-0.079
	(0.043)	(0.045)	(0.043)	(0.060)
female investors	0.173**	0.173**	0.153*	0.220*
	(0.079)	(0.080)	(0.077)	(0.118)
number of investors		0.000	-0.001	-0.001
		(0.001)	(0.001)	(0.001)
AUM (log)			0.022**	0.019
			(0.008)	(0.012)
Copenhagen				0.261**
				(0.116)
Basel				0.229**
				(0.111)
San Sabastian				0.218**
				(0.097)
Oxford				0.178
				(0.112)
Stockholm				0.139
				(0.092)
Observations	82	82	82	82
R^2	0.070	0.070	0.146	0.483
Adjusted R^2	0.047	0.035	0.101	0.025
Residual Std. Error	0.074 (df=79)	0.075 (df=78)	0.072 (df=77)	0.075 (df=43)
F Statistic	2.990* (df=2; 79)	1.968 (df=3; 78)	3.282** (df=4; 77)	1.056 (df=38; 43)
Note:				*p<0.1; **p<0.05; ***p<0.01

4.1.2 Basic Regression with Female Investors and Female Employees without additional control variables

The results of the Least Squares regression (OLS) which investigates the relationship between gender diversity and IPO rate in venture capital firms without any additional control variables can be seen in Model (1) in Table 4.1. This is a basic linear regression model without any

additional controls, focusing on the direct impact of gender diversity in venture capital firms on IPO success.

The results show that the coefficient for *female investors* is positive ($\beta = 0.173$) and statistically significant at the 5% level ($p < 0.05$), indicating a positive association between the proportion of female investors in a firm and the likelihood of a successful IPO. This suggests that having more female investors in decision-making roles is correlated with higher IPO rates.

On the other hand, the coefficient for *female employees* is negative ($\beta = -0.019$) and not statistically significant, meaning that the gender composition of the overall workforce does not appear to have a meaningful impact on IPO success in this model.

4.1.3 Linear Regression with *Number of Investors* as Control Variable

In this section, the control variable *number of investors* is introduced and the results of this regression are compared to the first regression without any control variables. Model (2) in Table 4.1 presents the results of two OLS regressions analyzing the relationship between various factors and the IPO rate.

The results of the linear adds the *number of investors* as an additional control variable. This control was included because the number of investors in a firm could influence the IPO rate, as larger groups of investors might have different decision-making dynamics compared to smaller groups.

The results show that the coefficient for *female investors* remains positive ($\beta = 0.173$), indicating that the proportion of female investors continues to have a positive relationship with IPO success, even when accounting for the number of investors. The coefficient for *female employees* remains negative and not statistically significant.

The addition of the *number of investors* variable does not significantly change the results for female investors or employees. The coefficient for the number of investors is very small ($\beta = 0.000$) and not statistically significant, suggesting that, in this model, the number of investors

does not have a meaningful impact on IPO success.

4.1.4 Linear Regression with *Assets Under Management* as Control Variable

In this section, the control variable assets under management is introduced. Model (3) in Table 4.1 shows the results of this regression.

Assets Under Management is included as a control variable to account for variations in financial capacity across firms. AUM represents the total market value of the capital managed by fund. Including AUM as a control variable is crucial, as larger financial resources could provide VCs with greater opportunities to invest in high-potential startups, thereby influencing IPO rates. The use of the logarithm of AUM in this model further minimizes the effect of outliers, ensuring a more stable analysis.

The coefficient for *female investors* remains positive ($\beta = 0.153$) and statistically significant at the 10% level ($p < 0.10$), suggesting that female investors still have a positive impact on IPO success even after accounting for the size of the firm. The inclusion of AUM does not change the statistical significance of *female employees*, which remains negative and non-significant.

4.1.5 Linear Regression with *Geographical Location* as Control Variable

In this regression, the control variable *geographical location* is introduced. Model (4) displayed in Table 4.1 presents the results.

For a better overview, only the five cities with the highest coefficient are presented in Table 4.1. The complete table including all cities can be seen in Table A.1.

Geographic location may influence the availability of resources, market conditions, regulatory environments, and networking opportunities, all of which can significantly impact the likelihood of a successful IPO. By controlling for city-specific factors, the effect of gender diversity on IPO

rates can be isolated from these regional influences.

The coefficient for *female investors* in this model remains positive ($\beta = 0.220$), though it is now only statistically significant at the 10% level ($p = 0.10$). This suggests that while female investors continue to have a positive effect on IPO success, the effect becomes weaker when accounting for geographical location. The geographical variables for cities like Copenhagen ($\beta = 0.261$), Basel ($\beta = 0.229$), and San Sabastian ($\beta = 0.218$) are statistically significant and show strong positive associations with IPO success, indicating that location plays a crucial role in determining IPO outcomes.

4.2 Discussion

This section provides an interpretation of the results which are displayed in the previous section.

4.2.1 Influence of Female Employees on IPO rate

The results from the regression analysis offer valuable insights into the relationship between gender diversity within venture capital firms and the likelihood of initial public offerings as successful exits in their portfolio companies. As indicated in Table 4.1, the coefficient for female employees remains negative and fails to achieve statistical significance. This suggests that the presence of female employees in a VC firm, regardless of their specific role, does not have a direct impact on the likelihood of IPO success. As a result, the null hypothesis $H0_1$ introduced in Chapter 3 can not be rejected.

4.2.2 Influence of Female Investors on IPO rate

The most striking and consistent finding across multiple models is the positive correlation between the percentage of female investors in a VC firm and the IPO rate of its portfolio companies. In the regression models, the coefficient for female investors is statistically significant at

the 5% level in both the models with and without control variables. Specifically, an increase in the percentage of female investors by one unit leads to an approximate 0.173 increase in the IPO rate without any other factors (as seen in model (1) in Table 4.1).

This positive relationship remains intact when control variables, such as the number of investors, assets under management, or the geographical location, are added. While the effect slightly changes in magnitude (with the highest differences for the control variable Assets under Management from 0.173 to 0.153, as seen in Model (3)), the positive coefficient persists, supporting the fact that the presence of female investors positively influences IPO outcomes.

Even with the addition of more control variables in one model, the positive effect of female investors can be seen in the results, as shown in Model (4) in Table 4.1. The coefficient even increases from 0.173 (without any other independent variables) to 0.220 (with combined control variables). The increase in the coefficient can be attributed to the fact that the control variables added to the model are correlated with the presence of female investors. For instance, female investors may be more prevalent in firms with larger AUM or in certain geographical regions, and the inclusion of these controls accounts for that correlation.

Additionally, it should be noted that the p-value for the second coefficient is increasing to the 10% level, indicating weaker evidence compared to the first model.

As shown in Chapter 3, the null hypothesis ($H0_2$) states that there is no significant relationship between the independent variable (in this case, the percentage of female investors and employees) and the dependent variable (IPO rate). For female investors, the null hypothes ($H0_2$) is is rejected, as the p-value for the coefficient of female investors is below the typical significance threshold (0.05), indicating a statistically significant positive relationship with IPO success. Even with the addition of control variables, the p-value for the coefficient remains below the threshold of 0.10, which indicates that the relationship between the variable and the dependent variable remains statistically significant, although at a lower level of confidence. This suggests that even after accounting for additional factors, the effect of female investors on IPO outcomes remains notable but may require further investigation to strengthen the evidence.

4.3 Reverse Implication of Gender Diversity in Venture Capital

In this thesis, the focus is on the potential positive effects of having more female investors in VC firms. However, one possible concern is the reverse implication: that successful VC firms with higher IPO rates might hire more female investors simply because they have higher public profiles, thus responding to external pressure rather than seeing tangible benefits from gender diversity.

While this reverse causality cannot be tested directly in this study due to the lack of timestamp data regarding the exact timing of IPOs or the hiring of female investors, it can make sense to have a look at the existence of female partners within a venture capital firm as becoming a partner is often a long-term process that requires years of experience, making it unlikely that partners are hired simply to improve the firm's reputation in response to recent IPO successes or external pressure. In many cases, partners are promoted based on their performance and years of experience, rather than being hired hastily due to reputational concerns.

Among the 82 VC firms analyzed, 31 firms had at least one female partner. The 82 firms in the analysis were divided into two distinct groups based on the presence of female partners: one group consisting of firms with at least one female partner, and the other group consisting of firms with no female partners.

The mean IPO rate for VCs with at least one female partner is 5.16%, while for VCs with no female partners, the mean IPO rate is 4.48%. The overall mean IPO rate for all 82 analyzed VC firms is 4.79%. These figures suggest that firms with female investors have higher IPO rates than those without, indicating a positive association between gender diversity and IPO success

As is usually takes time for a person to become a partner in a VC firm, the higher IPO rates observed in firms with female partners are less likely to be a result of these firms hiring women due to external pressures following recent IPO success.

However, there are limitations to this analysis. First, the sample size is relatively small, focusing on only 31 VC firms with at least one female partner out of the 82 analyzed. This small sample size may limit the robustness of the findings. Furthermore, due to the lack of timestamp data, it is not possible to observe the exact timing of female partner hiring relative to IPO events. Without this temporal data, it is difficult to rule out the possibility that some firms hired female partners after experiencing higher IPO success.

Despite these limitations, the results provide some preliminary evidence that female partners are not simply hired after a firm's IPO success. As partners generally have long tenures in a firm, the data suggest that the presence of female investors may not be a result of public pressure or recent success. Instead, it is more plausible that the positive correlation between female representation and IPO success is a result of the contributions of female investors over time, rather than the hiring of women in response to short-term performance outcomes.

Conclusion

The results of this project provide several important implications for venture capital firms, particularly regarding the role of gender diversity in investment decision-making and its potential impact on portfolio performance. These imppliactions are displayed in this Chapter in addition to the limitations of this project.

5.1 Limitations

While this study seeks to provide insights into the relationship between gender diversity in venture capital firms and their portfolio performance, several limitations must be acknowledged.

First, the dataset is limited to 82 European VC firms. As a result, findings may not be fully generalizable to VC firms outside Europe or those in specific sectors not well-represented in this sample.

Second, the study relies on the classification of employees based on available name data, which was used to estimate gender composition within firms. Names that could not be classified were excluded from the analysis, potentially introducing a degree of bias or inaccuracy, particularly in cases where gender-neutral names were misclassified or omitted.

Additionally, the use of IPO rate as the key performance metric may not fully capture the success of a venture capital firm's portfolio. IPOs are just one possible exit strategy, and many successful investments may be realized through other forms, which are not considered in this analysis.

It is challenging to isolate the impact of gender diversity on portfolio outcomes, such as IPO rates, due to the complex interplay of factors influencing success in venture capital. While this

study attempts to control for key variables, it is possible that unobserved factors may influence the results, limiting the displayed conclusions.

These limitations can lead to areas for future research to enhance the robustness and generalizability of findings related to gender diversity in venture capital and its impact on investment outcomes.

5.2 Implications for Venture Capital Firms

The most significant finding of this study is that the proportion of female investors is positively correlated with higher IPO rates. This suggests that increasing the representation of women in investment roles such as General Partners, Investment Directors, and other decision-making positions could enhance the likelihood of achieving successful exits, particularly through IPOs.

The findings also indicate that simply increasing gender diversity to meet quotas or project an inclusive image is insufficient to improve the IPO rate. There is no evidence to suggest that a balanced gender composition across the overall workforce contributes to higher IPO rates in a portfolio. The positive impact can only be achieved through an increase in the number of women among the investors.

VC firms should, therefore, focus on ensuring that women are not only represented but also empowered in decision-making capacities. Simply increasing the number of female employees across all levels may not be sufficient to drive significant changes in IPO outcomes. Instead, promoting women into senior leadership and investment roles should be a priority. By adopting these practices, VC firms can enhance both their financial performance and their contribution to a more inclusive and diverse entrepreneurial ecosystem.

It is critical to understand that the goal is not to hire exclusively women, as diversity—rather than gender alone—has proven to be the key success factor. Nevertheless, looking at the current state of the industry, it is still far from achieving diversity and equal distribution in venture capital.

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Appendix

A.1 Results of Linear Regression with Control Variable *Number of Investors*, *AUM* and *Geographical Location*

Table A.1: Dependent variable: IPO rate

	Dependent variable: IPO rate			
	(1)	(2)	(3)	(4)
const	0.019	0.019	-0.092**	-0.165
	(0.017)	(0.018)	(0.046)	(0.108)
female employees	-0.019	-0.019	-0.034	-0.079
	(0.043)	(0.045)	(0.043)	(0.060)
female investors	0.173**	0.173**	0.153*	0.220*
	(0.079)	(0.080)	(0.077)	(0.118)
number of investors		0.000	-0.001	-0.001
		(0.001)	(0.001)	(0.001)
AUM (log)			0.022**	0.019
			(0.008)	(0.012)
Amsterdam				0.031
				(0.095)
Antwerp				0.056
				(0.099)
Barcelona				0.097
				(0.121)
Basel				0.229**
				(0.111)
Berlin				0.072
				(0.090)
Bonn				0.063
				(0.128)
Bratislava				0.087
				(0.120)
Budapest				0.041
				(0.115)
Copenhagen				0.261**
				(0.116)
Dublin				0.013
				(0.112)

Continued on next page

	Dependent variable: IPO rate			
	(1)	(2)	(3)	(4)
Ecublens				0.122
				(0.121)
Espoo				0.083
				(0.120)
Garching				0.089
				(0.100)
Gent				0.071
				(0.117)
Hamburg				0.094
				(0.120)
Hellerup				0.100
				(0.113)
Karlsruhe				0.050
				(0.119)
Krakow				0.121
				(0.117)
London				0.080
				(0.085)
Luxembourg				0.043
				(0.100)
Madrid				0.045
				(0.090)
Milan				0.025
				(0.115)
Munich				0.087
				(0.097)
Münster				0.046
				(0.112)
Oxford				0.178
				(0.112)
Paris				0.103
				(0.088)
Porto				0.019
				(0.110)
Prague				0.079
				(0.114)
San Sabastian				0.218**
				(0.097)
Stockholm				0.139
				(0.092)
Tallinn				-0.012
				(0.107)
Tampere				0.092
				(0.114)

Continued on next page

	Dependent variable: IPO rate			
	(1)	(2)	(3)	(4)
Vienna				0.070
				(0.103)
Zurich				0.104
				(0.104)
Observations	82	82	82	82
R^2	0.070	0.070	0.146	0.483
Adjusted R^2	0.047	0.035	0.101	0.025
Residual Std. Error	0.074 (df=79)	0.075 (df=78)	0.072 (df=77)	0.075 (df=43)
F Statistic	2.990* (df=2; 79)	1.968 (df=3; 78)	3.282** (df=4; 77)	1.056 (df=38; 43)

Note: *p<0.1; **p<0.05; ***p<0.01

A.2 Complete Dataset: Percentage of Female Employees, Female Investors and IPO rate

Table A.2: Complete Dataset: venture capital Firms: Percentage of Female Employees, Percentage of Female Investors and IPO rate

VC	Employees (f)	Investors (f)	IPO rate
212	34.78%	33.33%	0.00%
10x Founders	26.67%	20.00%	0.00%
360 Capital Partners	43.14%	40.00%	12.79%
7percent	7.69%	8.33%	3.03%
83North	16.67%	2.05%	4.00%
Active Venture Partners	14.20%	0.00%	0.00%
Adara Ventures	29.17%	29.41%	4.55%
Alven	24.00%	23.53%	1.90%
Amadeus Capital	24.29%	20.00%	14.04%
Andgo Partners	0.00%	0.00%	0.00%
Ascencion	29.73%	31.43%	0.00%
Atlantic	27.91%	34.29%	2.33%
Atomico	90.43%	28.40%	7.32%
AWS Gründerfonds	16.22%	15.62%	0.00%
AXA Ventures	43.40%	43.86%	0.00%
Balderton	36.47%	35.94%	8.86%
BlueYard	0.00%	0.00%	0.00%
BMW I Ventures	2.86%	20.69%	10.00%
Carbot Square Capital	13.04%	10.00%	8.33%
Cherry Ventures	29.03%	24.14%	6.38%
Conor Venture Partners	0.00%	0.00%	0.00%
Creandum	95.56%	30.56%	7.14%
Credo Ventures	18.52%	16.00%	3.45%
Daphni	46.51%	45.95%	0.00%
Dawn	49.25%	48.89%	5.00%
DN Capital	32.39%	36.36%	7.48%
Earlybird Capital	27.27%	25.84%	8.11%
eCapital	20.00%	25.00%	2.13%
Eden Ventures	0.00%	0.00%	0.00%
Endeit Capital	32.00%	33.33%	0.00%
Episode 1 Ventures	32.39%	40.00%	4.65%
Felix Capital Partners	35.90%	50.00%	22.22%
Firstminute Capital	92.49%	36.84%	0.00%
Fly Ventures	16.67%	16.67%	0.00%
Fuel Ventures	23.53%	24.24%	0.00%
Global Founders Xapital	12.09%	14.29%	9.34%
HardGamma Ventures	20.00%	0.00%	0.00%
HenQ	38.46%	36.36%	3.70%
Hightech Gründerfonds	29.55%	21.54%	1.03%
Holtzbrick Ventures	96.36%	33.33%	6.43%

VC	Employees (f)	Investors (f)	IPO rate
Hoxton Ventures	2.09%	10.00%	8.33%
Hummingbird Ventures	25.00%	27.59%	2.70%
HV Capital	96.36%	33.33%	6.43%
Idinvest	29.27%	28.80%	11.25%
Industrifonden	34.18%	32.81%	16.91%
Innovation Nest	6.25%	7.14%	3.45%
Inveready Asset Management	25.86%	25.00%	6.96%
JME Venture Capital	27.27%	22.22%	0.00%
JPIF	57.14%	50.00%	0.00%
Karma Ventures	35.29%	50.00%	0.00%
KFund	24.00%	21.74%	0.00%
Kima Ventures	32.39%	37.50%	0.65%
Kindred Capital	51.72%	18.18%	0.00%
Kurma Partners	36.36%	35.71%	41.94%
Lakestar	18.75%	17.07%	15.38%
LEA Partners	11.90%	11.76%	0.00%
LocalGlobe X	98.40%	36.36%	0.00%
London Venture Partners	17.65%	21.43%	2.86%
Mairdumont Ventures	0.00%	0.00%	0.00%
Mangrove Capital Partners	11.76%	6.25%	2.41%
Nauta	17.14%	13.33%	0.00%
NBI Investors	96.36%	36.36%	0.00%
Nero Ventures	25.00%	30.00%	0.00%
Neulogy Ventures	2.09%	0.00%	0.00%
Newfund Management	20.00%	12.50%	3.90%
Northcap	12.50%	16.67%	4.35%
Northzone	35.71%	26.09%	12.40%
Notion Venture Capital	37.04%	35.48%	3.33%
Novartis	30.20%	32.14%	22.75%
Omnes Capital	29.37%	34.18%	7.60%
Oxford Capital	24.27%	22.06%	13.46%
P101	8.70%	16.67%	0.00%
Par Equity	92.14%	26.32%	0.00%
Partech Ventures	33.64%	32.18%	6.67%
PBG FMC	0.00%	0.00%	0.00%
Pitchdrive	20.00%	15.38%	0.00%
Point Nine Capital	20.43%	31.58%	7.95%
PolyTech	0.00%	0.00%	2.38%
Portfolion	19.35%	17.24%	0.00%
Portugal Ventures	53.49%	47.37%	0.00%
Project A	95.05%	37.50%	0.00%
Redalpine	23.53%	20.00%	2.50%
Rhodium	12.50%	16.67%	4.00%
Samaipata	21.74%	25.00%	0.00%
Seedcamp	17.31%	18.52%	1.45%
SHIFT Invest	55.56%	55.56%	0.00%
Shortcut Ventures	0.00%	0.00%	0.00%

VC	Employees (f)	Investors (f)	IPO rate
SpeedInvest	93.81%	26.36%	0.00%
Spintop Ventures	21.74%	30.77%	9.09%
SquareOne	17.65%	13.33%	0.00%
Sunstone Ventures	92.14%	30.00%	19.23%
TA Ventures	27.27%	26.32%	3.06%
Target Global	27.69%	24.56%	13.46%
UVC Partners	27.08%	28.26%	5.26%
Ventech	27.27%	21.74%	12.58%
VNT Management	14.29%	14.29%	4.35%
Volta Ventures	14.81%	8.00%	0.00%
Winton Technology Ventures	0.00%	0.00%	0.00%
Ysios Capital	41.94%	40.74%	35.29%
ZernikeMeta Ventures Spa	50.00%	50.00%	0.00%

A.3 Complete Dataset: AUM, Number of Investors and Geographical Location

Table A.3: Complete Dataset: Venture Capital Firms with AUM in million dollars, number of investors and location

VC	Employees	AUM	City	Country
212	9	170	Luxembourg	Luxembourg
10x Founders	13	177.64	Munich	Germany
360 Capital Partners	12	555.02	Paris	France
7percent	2	114.8	London	United Kingdom
83North	4	2200	London	United Kingdom
Active Venture Partners	5	79.53	Barcelona	Spain
Adara Ventures	10	288.61	Madrid	Spain
Alven	10	2000	Paris	France
Amadeus Capital	16	924.75	London	United Kingdom
Andgo Partners	2		Budapest	Hungary
Ascencion	13	92.11	London	United Kingdom
Atlantic	14	1110	Dublin	Ireland
Atomico	35	4500	London	United Kingdom
AWS Gründerfonds	7	159.94	Vienna	Austria
AXA Ventures	35	2220	Paris	France
Balderton	27		London	United Kingdom
BlueYard	3	500	Berlin	Germany
BMW i Ventures	13	800	Garching	Germany
Carbot Square Capital	8	1000	London	United Kingdom
Cherry Ventures	7	888.15	Berlin	Germany
Conor Venture Partners	2	77.7	Espoo	Finland
Creandum	15	1670	Stockholm	Sweden
Credo Ventures	9	277.51	Prague	Czech Republic
Daphni	10	555.02	Paris	France

VC	Employees	AUM	City	Country
Dawn	14	2050	London	United Kingdom
DN Capital	15	1000	London	United Kingdom
Earlybird Capital	53	2220	Berlin	Germany
eCapital	10	310.81	Münster	Germany
Eden Ventures	13		London	United Kingdom
Endeit Capital	10	475.1	Amsterdam	Netherlands
Episode 1 Ventures	6	229.87	London	United Kingdom
Felix Capital Partners	9	1200	London	United Kingdom
Firstminute Capital	10	400	London	United Kingdom
Fly Ventures	5		Berlin	Germany
Fuel Ventures	16	460.55	London	United Kingdom
Global Founders Xapital	10	4000	Berlin	Germany
HardGamma Ventures	4		Warsaw	Poland
HenQ	5	222.01	Amsterdam	Netherlands
Hightech Gründerfonds	61	1550	Bonn	Germany
Holtzbrick Ventures	31	3330	Munich	Germany
Hoxton Ventures	6	370	London	United Kingdom
Hummingbird Ventures	6	1000	Antwerp	Belgium
HV Capital	31	3330	Munich	Germany
Idinvest	70		Paris	France
Industrifonden	21	488.13	Stockholm	Sweden
Innovation Nest	5	44.4	Krakow	Poland
Inveready Asset Management	23	1330	San Sabastian	Spain
JME Venture Capital	7	133.21	Madrid	Spain
JPIF	4		Warsaw	Poland
Karma Ventures	6	188.71	Tallinn	Estonia
KFund	14	555.02	Madrid	Spain
Kima Ventures	4		Tallinn	Estonia
Kindred Capital	4	396.32	London	United Kingdom
Kurma Partners	17	777.03	Paris	France
Lakestar	16	2220	Zurich	Switzerland
LEA Partners	26	555.02	Karlsruhe	Germany
LocalGlobe X	3		London	United Kingdom
London Venture Partners	6	86.93	London	United Kingdom
Mairdumont Ventures	2		Ostfildern	Germany
Mangrove Capital Partners	6	1000	Luxembourg	Luxembourg
Nauta	11	610.89	London	United Kingdom
NBI Investors	6		Amstelveen	Netherlands
Nero Ventures	2		Barcelona	Spain
Neulogy Ventures	3	72.15	Bratislava	Slovakia
Newfund Management	10	300	Paris	France
Northcap	2	78.81	Hellerup	Denmark
Northzone	27	1700	London	United Kingdom
Notion Venture Capital	14	1000	London	United Kingdom
Novartis	12	750	Basel	Switzerland
Omnes Capital	52	6490	Paris	France
Oxford Capital	7	171.74	Oxford	United Kingdom

VC	Employees	AUM	City	Country
P101	8	444.02	Milan	Italy
Par Equity	10		Edinburgh	United Kingdom
Partech Ventures	50	2780	Paris	France
PBG FMC	1		Budapest	Hungary
Pitchdrive	11	36.64	Antwerp	Belgium
Point Nine Capital	5	368.93	Berlin	Germany
PolyTech	4	40	Ecublens	Switzerland
Portfolion	20	488.42	Budapest	Hungary
Portugal Ventures	30	313.03	Porto	Portugal
Project A	22	1000	Berlin	Germany
Redalpine	18	1110	Zurich	Switzerland
Rhodium	4		Herzliiya	Israel
Samaipata	7	166.51	Madrid	Spain
Seedcamp	10	921.1	London	United Kingdom
SHIFT Invest	6	122.11	Amstelveen	Netherlands
Shortcut Ventures	2	44.4	Hamburg	Germany
SpeedInvest	46	1110	Vienna	Austria
Spintop Ventures	8	195.25	Stockholm	Sweden
SquareOne	7	144.31	Berlin	Germany
Sunstone Ventures	7	299.71	Copenhagen	Denmark
TA Ventures	6		Frankfurt	Germany
Target Global	11	3330	London	United Kingdom
UVC Partners	15	444.02	Garching	Germany
Ventech	20	999.04	Paris	France
VNT Management	3	174.28	Tampere	Finland
Volta Ventures	5	125	Gent	Belgium
Winton Technology Ventures	1		London	United Kingdom
Ysios Capital	11	444.02	San Sabastian	Spain
ZernikeMeta Ventures Spa	2		Rome	Italy