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MEASURING RETURN EXPECTATIONS AND CAPITAL COSTS IN THE EUROPEAN PRIVATE CAPITAL MARKETS: AN ALTERNATIVE APPROACH

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Abstract

Data collection on return expectations (Ret_Exp) and capital costs is still connected with high barriers and low transparency, especially in European private markets. This study suggests a questionnaire format to gather data from market participants derived from an approach seen in the USA by Slee and Paglia (2010, 2011). Moreover, it suggests that return expectations and cost of capital (CoC) should not be regarded as synonyms. A delta of approximately 1.2 percent can be observed when comparing mean values of both variables over various asset classes as real estate funds, venture capital, mezzanine investments, and direct investment from 213 data points collected in 2019/2020 primarily before the COVID-19 crisis as well as the Russia-Ukraine-conflict. This supports the general theory that return expectations incorporate the cost of capital structure, including a certain premium. In the second step, regressions are applied to identify influential factors on capital costs and return expectations in European private markets. The regressions suggest that the investment duration reduces these values. As a result, short-termism will lead to higher return expectations and capital costs, according to the model. Considering further variables indicates that specialization effects combined with a long investment horizon reduce both metrics for investors.

Keywords: Investment Criteria, Cost of Capital, Return Expectations, Private Equity, Private Markets

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1. NTRODUCT ON

The definition of cost of capital (CoC) includes the minimum expected return on one or more investment opportunities, which should compensate for all risks taken (Bruner et al., 1998; Vernimmen et al., 2022). The expected returns take into account numerous factors — such as geographies, sectors/industries, time horizon, risk appetite, and transaction costs — and can be regarded as opportunity costs (Brotherson et al., 2013; Lossen, 2007; Slee & Paglia, 2011; Zarzecki, 2015). At the same time, both the CoC and expected returns differ significantly between the public capital market and the private market segment. Research and practice often describe this difference as the "illiquidity premium" (Lerner & Schoar, 2004).

Due to the private market segment's limited transparency and asymmetrical information, many market participants use valuation models built for the public market to determine their cost of capital or expected return. However, these are not suitable for this purpose. For example, models based on the capital asset pricing model (CAPM) (Sharpe, 1964; Lintner, 1965; Mossin, 1966) or the five-factor model (Fama & French, 2015) are commonly applied, although data from the public markets is used for this purpose (Truong et al., 2008; Damodaran, 2012). Some market participants adjust the assumptions to their situation to still be able to perform calculations (Broughton & Lobo, 2014). However, all these routes may lead to incorrect results due to the different mechanics of the private and public markets. Market participants generally suffer as neither models nor suitable data are freely available.

Obtaining stable data in the private market segment to determine financial metrics such as cost of capital or performance/return expectations (Ret_Exp) for different sectors/industries and asset types/categories is often done through portals with high paywalls such as Preqin or Thomson Reuters. An alternative approach for data collection is the distribution of surveys or the use of available information from firms/investment companies. However, primary data collection is rarely chosen by researchers because data collection is resource-intensive. For example, Mason and Harrison (2002) pointed out that data for specific investment types, such as venture capital, is hardly available. Nevertheless, there are rare successful examples for specific other sectors, such as private equity (Lopez-de-Silanes et al., 2015).

Slee and Paglia (2010, 2011) provide a rather general approach. They developed a model in the form of a survey to ask for the cost of capital and expected returns for the private market segment. This approach involves querying the cost of capital of numerous market participants (including private equity, real estate funds, mezzanine, and venture capital) in the USA market. The practical focus is that data is not primarily used for scientific studies but rather for benchmarking purposes of affected companies.

This research project includes collecting primary data for the European market to define capital costs and return expectations for diverse investor groups and types of use derived from the Slee and Paglia (2010, 2011) approach. In the following, the sourced data will be analyzed with explanatory variables in several regressions to develop an understanding of the underlying drivers. The research gap is defined by the pairing of diverse types of use and investor groups; as such, a research paper is unique in the European context. In addition, a practical differentiation between the cost of capital and return expectations is applied. This is regarded as a necessity as, until today, many practitioners use both terms as synonyms although they describe different topics, as pointed out by Fama and French (1999).

We contribute to the existing literature with a fresh view on calculating return expectations and cost of capital in the European private equity market. We also compare the approach by Slee and Paglia (2010, 2011) for the USA market with European estimations. Our results show that European private equity markets are still subject to a data-sourcing transparency problem and that market participants' cost of capital and return expectations are not interchangeable. Finally, the investment duration and asset class focus deliver statistically significant contributions to return expectations and cost of capital.

Our paper is structured as follows. Section 2 gives an overview of the relevant literature and presents the derivation of the hypotheses for the empirical analysis. Section 3 presents the applied data set and the methodology. Section 4 deals with the presentation of the results and discusses limitations. Section 5 presents the conclusion of the results.

2. RELATED L TERATURE AND YPOT ESES DEVELOPMENT

In practice, many market participants interchangeably use the cost of capital and return expectations. For many practitioners, both metrics represent the minimum return of a specific investment. However, this view is not generally shared in research. Amongst others, Elton (1999), Easton and Monahan (2005), and Hughes et al. (2009) have shown that these terms should not be used equivalently as return expectations are often subject to measuring errors, e.g., due to idiosyncratic risk factors of investments that are not included adequately.

Jacobs and Shivdasani (2012) generally show that the assumptions for calculating the cost of capital vary widely between market participants, often leading to imprecise results. The implied cost of capital is derived by various scholars, thereby using different approaches such as the processing of price-earnings ratio (Easton, 2004), forward-looking option contract data (Callen & Lyle, 2020), or the combination of CAPM principles with the implied cost of capital approach (Olson & Pagano, 2023). Easton and Monahan (2005) suggest that accounting-based proxies do not provide reliable information on return expectations. Xu (2020) describes that the cost of capital is partly regarded as unobservable, leading to a lack of empirical studies using this measure despite being a crucial factor for the investment decision. Other

research looked at the impact of individual variables on expected returns or private market premiums/ discounts. Abudy et al. (2016) cite the lack of diversification as the main reason for the cost of capital or "illiquidity premium". In parallel, Lossen (2007) supports this statement and, in turn, identifies existing diversification as a driver of higher returns. The existing literature suggests various factors influencing the cost of capital and the return expectations for different types of investments. Bowden et al. (2016) show that sectoral and geographic diversification positively affects expected returns in the venture capital segment. Fuerst et al. (2021) proved that specialization in a country or a country-sector combination leads to outperformance in Europe's private real estate fund segment. Salomon and Wu (2012) demonstrated that higher financing costs for investments outside the domestic market directly affect capital costs. This is described by increased coordination efforts or transaction costs, among other factors (Boeh & Beamish, 2015). Lossen (2007) shows that investing in the home country positively affects the internal rate of return (IRR) of private equity funds. Stotz (2011) demonstrates that returns are higher if the target and the investment company are from the same country in the context of private equity investments on already listed investment targets. Coelho and Madkur (2021) noted a negative relationship between private equity fund investment size and returns for the Brazilian market. According to Castellaneta and Gottschalg (2016) and Zellweger (2007), investment duration over time reduces the cost of capital and return expectations. Investment size seems to positively impact the cost of capital and return expectations (Gottschalg et al., 2004; Arnold et al., 2019). Bajaj et al. (2001) analyzed to compare purchase prices for private and public transactions. They found a discount of up to 20% for transactions in the private market segment — compared to the public capital market. Abudy et al. (2016) put the cost of capital premium for the private market at 4–33%, while Koeplin et al. (2000) calculated around 20%. Kooli et al. (2003) define a range of 20–34%, depending on the base size. Nielsen (2011) shows that Danish pension funds' direct investments in private firms do not outperform the public market when benchmarking against market return at the domestic stock exchange. Data sets for these studies were mainly sourced via platforms with payment barriers, such as Amadeus (Mortal & Reisel, 2013), Burgiss (Harris & Marston, 2013; Harris et al., 2023), Cambridge Associates (Arnold et al., 2019), Preqin (Ewens et al., 2013; Korteweg & Sorensen, 2017; Ang et al., 2018), Thomson Reuters (Kwon et al., 2020), or Thomson Venture Economics (Kaplan & Schoar, 2005; Phalippou & Gottschalg, 2009; Ewens et al., 2013). In addition, the data is often historical only, leading to a lack of information for return expectations. Still, all studies have in common that there is a need to put a different angle on the private markets to understand the mechanics fully. Lastly, previous studies are differently framed with the result that the combination of several factors focusing on the European market to describe differences in return expectations and cost of capital estimation has not been represented in the literature so far. Due to this gap, primary data collection is chosen to explain the underlying drivers of return expectations and cost of capital and demonstrate the factual difference between the terms cost of capital and return expectations. This argumentation is also based on Phalippou's (2007) summary, which mentions various data collection approaches in comparable studies. However, the study does not mention a primary data collection approach using a survey. Due to this reason, this alternative approach shall be applied to demonstrate a new point of view.

The literature review suggests various factors that impact the cost of capital and return expectations in the private market segment. A general overview of the relevant factors can be found in Table 1.

Table 1. Overview of known determinants for cost of capital

Author(s)	*Year*	*Finding*
Bajaj et al.	2001	Up to 20% discount for private market transactions, and consequently for the cost of capital, compared to public markets
Koeplin et al.	2000	Estimated a cost of capital premium of around 20% for the private market
Gottschalg et al.	2004	Larger investment sizes lead to higher cost of capital and return expectations
Kooli et al.	2003	Cost of capital premium ranges from 20–34% for private markets
Zellweger	2007	Increasing investment duration reduces the cost of capital
Salomon and Wu	2012	Higher financing costs for investments outside the domestic market increase capital costs
Harford and Kolasinski	2014	Short-termism in investment duration impacts the cost of capital negatively
Boeh and Beamish	2015	Increased coordination efforts and transaction costs raise capital costs for international investments
Haldane	2015	Short-termism in investment duration impacts the cost of capital negatively
Abudy et al.	2016	Lack of diversification is a reason for the cost of capital premium
Castellaneta and Gottschalg	2016	Investment duration reduces the cost of capital
Arnold et al.	2019	Larger investment sizes lead to higher cost of capital
Ljungqvist et al.	2020	Reduction in cost of capital over time

An often-cited term is the so-called short-termism (Harford & Kolasinski, 2014; Haldane, 2015) regarding the impact of investment duration. Khanin and Turel (2012) combine short-termism, and the counterpart called longtermism for venture capital investment decisions by demonstrating the impact on investment willingness. Still, the ultimate role of duration remains unclear and creates a challenge, especially for the private markets. However, connecting factors are available for other geographic markets, such as North America (Ljungqvist et al., 2020). In a multi-country

analysis with panel data for the period 1973–2008, the study of Castellaneta and Gottschalg (2016) showed a reduction in the cost of capital and return expectations over time. This finding is used for the formulation of the first hypothesis to be tested for the European market:

H1: Investment duration has a negative impact on the cost of capital and return expectations.

Knowledge of a specific market, e.g., the domestic market, is considered an important factor in the cost of capital. Due to the specialization effects stemming from the focus on a country, a reduction in interest rates on debt might be expected. This benefits the cost of capital in general, impacting the connected return expectations. Based on this argumentation, which is generally in line with Salomon and Wu (2012), the second hypothesis tackles the focus on a geographic market:

H2: Focusing on a particular geographic market has a negative impact on the cost of capital and return expectations.

Castellaneta and Gottschalg (2016) and Zellweger (2007) suggest decreasing the cost of capital and return expectations for the specialization of various investment types. However, this is not a systematic case, as Fleming (2004) shows that Australian venture capital investments have weak evidence regarding the effects of specialization on returns. Fuerst et al. (2021) demonstrate that every kind of specialization leads to higher returns in the non-listed real estate fund industry. This mainly does not count for pure sector or asset class specialists. However, when creating sector-geography specializations, higher returns are suggested. Finally, Buchner et al. (2017) propose that diversification reduces risks in venture capital funds, thereby enabling risk-averse investors to decide on risky investments with the effect of higher expected returns. Those mixed results demonstrate that this field is still in the process of exploration. The specific impact per asset class shall be tested by including variables on the specific investment type chosen in the portfolio. A particular specialization effect is expected for experienced and professional market participants, thereby leading to the third hypothesis:

H3: Focusing on a specific investment type has a negative impact on the cost of capital and return expectations.

Delfim and Hoesli (2016) demonstrate that fund size positively affects the returns of non-listed/private real estate funds in Europe. Fuerst and Matysiak (2013) show comparable results from a dataset from INREV. Combined with the results of Gottschalg et al. (2004) and Arnold et al. (2019) for private equity investment, high-volume investments are expected to lead to higher expectations regarding the cost of capital and return expectation. Ljungqvist and Richardson (2003) describe a U-shaped relationship between returns and the size of investments. Humphery-Jenner (2012) also shows that significant private equity funds require significant investments to earn high returns. In contrast to other factors, current research suggests that size increases the return (expectations). Due to this reason, the fourth hypothesis is as follows:

H4: Investment size has a positive impact on the cost of capital and return expectations.

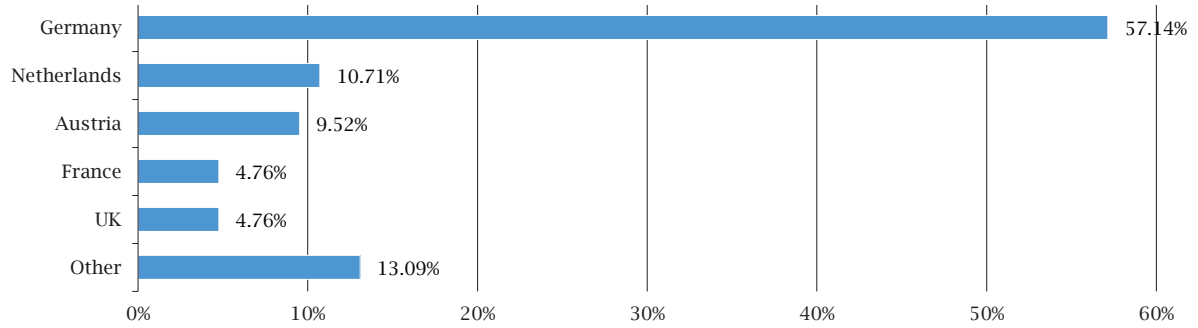
3. DATA AND METHODOLOGY

The literature review outlines that relevant data is scarcely available for private markets. The usage of market intelligence platforms with data on return expectation is avoided due to 1) the payment barrier for obtaining these datasets (e.g., from Burgiss, Preqin, or Thomson Reuters), 2) the focus on the private markets thereby approaching multiple investors that are not covered in the datasets, and 3) the availability of data as structured in the theoretical model as, e.g., information on cost of capital. For this purpose, a questionnaire consisting of 15 items was developed, which asked for variables such as the cost of capital (*CoC*), the return expectations (*Ret_Exp*) per country, and *investment type*. It is important to notice that the values describe future-oriented expectations. This is one of the major differentiators of this study when comparing similar analyses focusing on private markets. The values are driven by the experience and track record per investor by nature but express actuals, especially regarding the returns. In addition, data was obtained to distinguish between financial and strategic focus, the investor's headquarters, the typical investment duration, and size. Thus, clusters per investment type can be formed to highlight the expected returns. Data collection occurred between May 2019 and May 2020 and focused on European companies active in private markets. Our data is merely affected by the COVID-19 crisis, as most responses were collected before March 2020. Nearly 1,000 companies were contacted directly via email. Besides personal contacts, the member directories of the following industry associations were used to identify suitable participants: INREV (Europe/Real estate), BVAI (Germany), BVK (Germany), LAFV (Liechtenstein), LPEA (Luxembourg), AVCO (Austria). These associations were selected due to their high coverage of the relevant market participants. In Figure 1, the information about the distribution among investor types is presented.

Figure 1. Survey participants: Types of investors

In total, 69 questionnaires were completed and included in the following statistical analyses. Looking closely at the statistics, more than half of the participants are either private equity investors or associated with an investment bank. Please note that the private equity investor group also includes real estate investors, as this is a joint clustering in the industry. Most groups were not separable, as the survey only allowed selecting a single investor type per participant. Data analysis has also revealed that most participants are in mainly German-speaking countries (Germany, Austria, Switzerland, and Liechtenstein) with a share of approx. 73%. Most participants have investment portfolios with a certain degree of diversification due to various *investment types*. On average, slightly more than three different *investment types* are noted per participant. Figure 2 presents the national origin of the survey participants and the distribution.

Figure 2. Survey participants: Origin of participants related to their nationalities



In total, 224 data points for different *investment types* such as "Direct investment", "Real estate funds", "Mezzanine fund", "Private equity", and "Venture capital" are available for further processing[1]. The number of observations is relatively close to the Da Rin and Phalippou (2017) study, which focuses on limited partners in private equity deals. Lerner and Schoar (2005) and Bernile et al. (2007) observed even fewer companies in their models than in this data set. Summary statistics over the entire dataset are provided in Table B.2, Appendix B. For comparison, results have been clustered based on the suggestions of the Pepperdine capital surveys, thereby distinguishing between the investment/capital provision category and return expectations segmented in sizes. This segmentation enables identifying possible premia derived from the investment size. For comparability, mean value, median, first, and third quartile values are prepared for each *CoC* and return expectation. Data collection left various blank spots as information is not available for all combinations of *investment types* and investment sizes. The data set is further reduced as clusters with less than 10 entries are excluded from the analysis. This leaves out another 11 observations, making 213 data points available for further processing. Statistics show that *Ret_Exp* deliver higher numbers regarding the mean value, median, and first and third quartile than the *CoC* results. The difference in mean value is at 1.2%, suggesting that both terms indicate topics that need to be observed. Still, these results vary within the groups. This means that, for example, real estate funds up to EUR 10 million (mn) suggest a higher mean value for *CoC* than *Ret_Exp*. One possible explanation is outliers with relatively high values provided by few investors in this context. The differences in the return expectation median values paired with the *investment type* and size are the first indicator for the idiosyncratic risks associated with the specific investments. This enables a transition to the chosen data model, where the effects will be tested on various factors. Tables 2 and 3 present descriptions of *Ret_Exp* and the *CoC* related to *investment type* and size.

[1] The description of individual portfolio investments explains the transition from 69 survey participants to 224 and 213 data points. As suggested in the questionnaire, most survey participants are invested in various types of investments. On average, every survey participant is invested in 3.1 different types of investments.

Table 2. Descriptives about return expectations related to investment type and investment size

Investment type	*Investment size*	*1st quartile*	*Median*	*Mean*	*4th quartile*	*Obs.*
Real estate funds	up to EUR 50 mn	5.50%	6.00%	7.31%	7.50%	35
Direct investment	up to EUR 10 mn	8.00%	10.00%	13.38%	15.00%	25
Private equity	up to EUR 50 mn	17.00%	18.00%	18.63%	20.00%	24
	up to EUR 10 mn	8.50%	15.00%	12.55%	15.00%	22
Real estate funds	up to EUR 10 mn	7.63%	9.00%	13.59%	15.00%	20
Venture capital	up to EUR 50 mn	20.00%	20.00%	20.60%	20.00%	20
Direct investment	up to EUR 100 mn	8.50%	8.97%	9.00%	10.00%	19
	up to EUR 50 mn	6.00%	8.00%	10.65%	18.00%	17
Venture capital	up to EUR 10 mn	15.00%	20.00%	19.74%	25.00%	16
Mezzanine fund	up to EUR 10 mn	15.00%	17.50%	16.93%	20.00%	14
Real estate funds	up to EUR 100 mn	8.00%	15.00%	13.13%	20.00%	8
Total		7.00%	13.00%	13.36%	20.00%	213

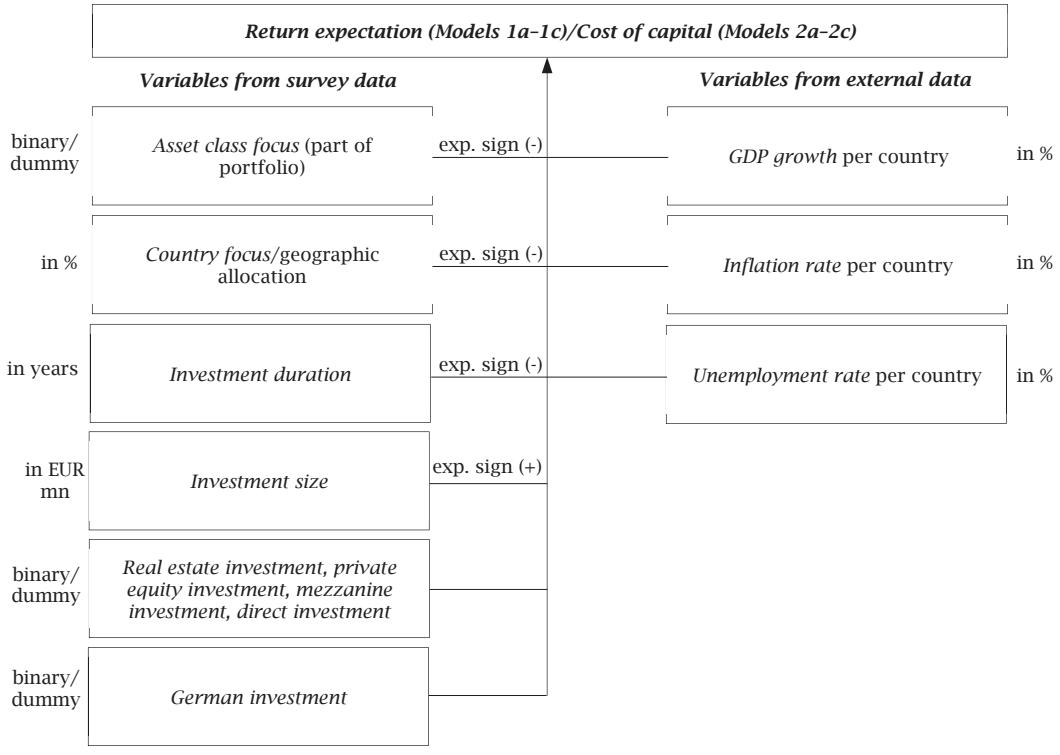
Table 3. Descriptives about the cost of capital related to investment type and investment size

Investment type	*Investment size*	*1st quartile*	*Median*	*Mean*	*4th quartile*	*Obs.*
Real estate funds	up to EUR 50 mn	5.00%	6.00%	9.56%	8.50%	35
Direct investment	up to EUR 10 mn	6.00%	8.00%	12.06%	10.00%	25
Private equity	up to EUR 50 mn	14.00%	18.00%	17.75%	20.00%	24
	up to EUR 10 mn	7.25%	10.00%	8.98%	10.00%	22
Real estate funds	up to EUR 10 mn	7.90%	10.00%	20.00%	20.00%	20
Venture capital	up to EUR 50 mn	20.00%	20.00%	20.60%	20.00%	20
Direct investment	up to EUR 100 mn	9.00%	12.00%	11.63%	12.00%	19
	up to EUR 50 mn	6.00%	6.00%	8.83%	15.00%	17
Venture capital	up to EUR 10 mn	10.00%	20.00%	16.74%	20.00%	16
Mezzanine fund	up to EUR 10 mn	10.00%	15.00%	12.29%	15.00%	14
Real estate funds	up to EUR 100 mn	7.60%	10.00%	16.99%	20.00%	8
Total		6.00%	10.00%	12.16%	18.00%	213

Following the assumption that the *CoC* and *Ret_Exp* are not interchangeable, various regressions are conducted to identify relevant drivers of both metrics. Available data is analyzed using ordinary least squares (OLS) regressions. The dependent variables, *CoC* and *Ret_Exp*, are determined at the portfolio level across all investments.

Figure 3 shows the general model setup, including all independent variables. As this study focuses on investments rather than the market environment (Bernoth et al., 2010), only selected macroeconomic variables have been included. The models are built up as follows.

Figure 3. General model setup for the regression analysis



Models 1a and 2a exclude the externally sourced macroeconomic factors (*GDP growth*, *inflation rate*, *unemployment rate*) and the classification of whether it is a *German investment*. The equation below presents the general form of regression models with the regressor *CoC*.

$$Return\ expectation_i = a_0 + \beta_1\ asset\ class\ focus_i + \beta_2\ country\ focus_i + \beta_3\ investment\ duration_i + \beta_4\ investment\ size_i + \beta_5\ real\ estate\ investment_i + \beta_6\ private\ equity\ investment_i + \beta_7\ mezzanine\ investment_i + \beta_8\ direct\ investment_i + \beta_9\ GDP\ growth_i + \beta_{10}\ inflation\ rate_i + \beta_{11}\ unemployment\ rate_i + \beta_{12}\ German\ investment_i + \varepsilon \quad (1)$$

$$Cost\ of\ capital_i = a_0 + \beta_1\ asset\ class\ focus_i + \beta_2\ country\ focus_i + \beta_3\ investment\ duration_i + \beta_4\ investment\ size_i + \beta_5\ real\ estate\ investment_i + \beta_6\ private\ equity\ investment_i + \beta_7\ mezzanine\ investment_i + \beta_8\ direct\ investment_i + \beta_9\ GDP\ growth_i + \beta_{10}\ inflation\ rate_i + \beta_{11}\ unemployment\ rate_i + \beta\ \ German\ investment_i + \varepsilon \quad (2)$$

Models 1b and 2b include macroeconomic factors in the regression, and Models 1c and 2c are subject to the entire dataset, as shown in the equations above. Please note that German investments have been chosen as a separate variable due to the high share of German participants in the survey.

The dataset composition suggests a potential risk for multicollinearity and heteroscedasticity. After regressing the models, several tests can be applied to rule out these risks. Standard tests are the variance inflation factor (VIF) and Breusch-Pagan/Cook-Weisberg, as seen in Diller and Kaserer (2009). The VIF test for the dataset's multicollinearity showed that the values are below 10 and, respectively, 5 in each case. Based on the results, no multicollinearity was observed.

Table 4. Variance inflation factors test results

Variable	*VIF*	*1 / VIF*
Direct investment	2.52	0.396825
German investment	2.06	0.485437
Real estate investment	2.02	0.495050
GDP growth	1.95	0.512821
Private equity investment	1.81	0.552486
Inflation rate	1.63	0.613497
Country focus	1.62	0.617284
Unemployment rate	1.61	0.621118
Investment size	1.54	0.649351
Mezzanine investment	1.33	0.751880
Asset class focus	1.16	0.862069
Investment duration	1.10	0.909091
Mean VIF	1.70	0.588235

Moreover, a Breusch-Pagan/Cook-Weisberg test for heteroskedasticity was performed on all models. Results show that the null hypothesis of the Breusch-Pagan test can be confirmed for all regressions on the *CoC*. However, the null hypothesis is rejected for all regressions on *Ret_Exp*, thereby indicating the heteroskedasticity of data. This leads to a necessity to perform the regressions by applying an extension to the model to capture these circumstances. Applying robust standard errors is a common possibility to overcome this issue. Hence, all regression models on the *Ret_Exp* are carried out using an vce (robust) test (Table 4).

Table 5. Breusch-Pagan/Cook-Weisberg test results

	Model 1a	*Model 1b*	*Model 1c*	*Model 2a*	*Model 2b*	*Model 2c*
	Ret_Exp			*CoC*		
Chi^2	0.18	0.26	1.29	87.39	108.00	108.23
(Prob > Chi^2)	0.6715	0.6072	0.2569	0.0000	0.0000	0.0000

4. RESULTS

The first OLS regressions (Table 4) were conducted to identify relevant factors in determining *Ret_Exp* (Models 1a–1c). Results have shown that including the venture capital variable in the regressions carries an inherent risk of omitted variable bias. To avoid undesired coefficient changes, this variable has been removed going forward.

Table 6. Results of regression models 1a–1c

Dependent variable: Ret_Exp	*Model 1a*	*Model 1b*	*Model 1c*
Asset class focus	-0.0085 (0.0114)	-0.0073 (0.0113)	-0.0066 (0.0108)
Country focus	-0.0032 (0.0160)	-0.0121 (0.0164)	-0.0055 (0.0201)
Investment duration	-0.0058 (0.0014)***	-0.0058 (0.0014)***	-0.0057 (0.0013)***
Investment size	-0.0006 (0.0002)***	-0.0006 (0.0002)***	-0.0006 (0.0002)***
Real estate investment	-0.0905 (0.0144)***	-0.0901 (0.0145)***	-0.0906 (0.0140)***
Private equity investment	-0.0389 (0.0078)***	-0.0388 (0.0079)***	-0.0383 (0.0078)***
Mezzanine investment	-0.0327 (0.0089)***	-0.0328 (0.0090)***	-0.0325 (0.0090)**
Direct investment	-0.0661 (0.0140)***	-0.0660 (0.0141)***	-0.0651 (0.0144)***
GDP growth		-0.0077 (0.0058)	-0.0122 (0.0082)
Inflation rate		0.0029 (0.0056)	0.0033 (0.0057)
Unemployment rate		-0.0007 (0.0011)	-0.0013 (0.0012)
German investment			-0.0158 (0.0166)
_cons	0.2571 (0.0161)	0.2656 (0.0193)	0.2747 (0.0250)
R-squared	0.3910	0.3960	0.4009
The number of obs.	212	212	212
F	48.83	35.58	34.89
Prob > F	0.0000	0.0000	0.0000
Robust standard errors	Yes	Yes	Yes

*Note: This table presents the estimated coefficient parameters of Models 1a–1c, with the return expectation selected as the dependent variable. Robust standard errors are reported in brackets, and statistical significance at 5%, 1%, and 0.1% levels is denoted by *, **, and ***, respectively.*

All models are subjected to adj. R^2-values in the range between 0.3910–0.4009, thereby proposing a relatively high explanatory power of the regressions. *H1* regarding the negative impact of investment duration on return expectation is supported in all three models combined with statistical significance at a 0.1% level. This effect rules out short-termism and is in line with general market assumptions. *H2* (market focus) cannot be supported due to the results. The focus on specific investment types is ambivalent in the regressions. While there is no statistical significance on the asset class focus in general, the picture changes when closely observing the selection of investment types in the dataset. This could indicate that selecting various investment types within the private market segment influences return expectations. However, *H3* cannot be supported. The results also suggest that *H4* needs to be rejected due to the opposite algebraic sign of the coefficient with a relatively high statistical significance of values.

The analysis of the cost of capital regressions provides analogous insights compared to the previous models and is presented in Table 7. Models 2a–2c also show a high explanatory power with adj. R^2-values in the range between 0.2895–0.3286. *H1* regarding the negative impact of investment duration on return expectation is supported in all three models combined with statistical significance as already seen for return expectations. *H2* (particular geographic market focus) cannot be supported due to the results. *H3* on the asset class focus is not supported regarding the cost of capital. However, it is noted that the influence of specific investment types differs from the results seen for the return expectations. Hence, it is observable that the pure asset class focus determines the cost of capital, with lower values regarding the statistical significance per type. *H4* is rejected for the same reasons as stated for the return expectations while indicating opposite algebraic signs.

Table 7. Results of regression models 2a–2c

Dependent variable: CoC	*Model 2a*	*Model 2b*	*Model 2c*
Asset class focus	-0.0529 (0.0276)	-0.0517 (0.0270)	-0.0523 (0.0271)
Country focus	-0.0530 (0.079)	-0.0292 (0.0312)	-0.0357 (0.0339)
Investment duration	-0.0170 (0.0033)***	-0.0164 (0.0032)***	-0.0165 (0.0032)***
Investment size	-0.0016 (0.0006)***	-0.0015 (0.0006)***	-0.0015 (0.0006)***
Real estate investment	-0.0098 (0.0271)	-0.0054 (0.0271)	-0.0049 (0.0273)
Private equity investment	-0.0446 (0.0126)***	-0.0439 (0.0141)***	-0.0443 (0.0142)***
Mezzanine investment	-0.0654 (0.0130)***	-0.0702 (0.0176)***	-0.0705 (0.0178)***
Direct investment	0.0572 (0.0382)	0.0538 (0.0375)	0.0530 (0.0373)
GDP growth		0.0351 (0.0205)	0.0395 (0.0216)
Inflation rate		-0.0479 (0.0209)**	-0.0483 (0.0209)**
Unemployment rate		-0.0047 (0.0032)	-0.0040 (0.0035)
German investment			0.0154 (0.0269)
_cons	0.3827 (0.0390)	0.4284 (0.0505)	0.4195 (0.0525)
R-squared	0.2895	0.3274	0.3286
The number of obs.	212	212	212
F	10.05	6.81	6.18
Prob > F	0.0000	0.0000	0.0000
Robust standard errors	Yes	Yes	Yes

*Note: This table presents the estimated coefficient parameters of Models 2a–2c, with the return expectation selected as the dependent variable. Robust standard errors are reported in brackets, and statistical significance at 5%, 1%, and 0.1% levels is denoted by *, **, and ***, respectively.*

Another notable difference between both models is the role of macroeconomic factors in determining the cost of capital. While these variables do not have statistical significance for the return expectation, the situation changes for the cost of capital. In detail, the inflation rate demonstrates

statistical significance at the 1% level. This leaves room for interpretation of whether the cost of capital is closer to the actual market development, as it includes assumptions on factors such as changing interest rates.

This study is confronted with various limitations, and as a consequence, results should be regarded with a certain degree of caution. The first point concerns the small data set with 69 companies that contributed 224 data points on diverse investment types and geographies. However, other studies with a comparable focus are even subject to smaller datasets. However, after clustering, the dataset is further reduced to 213 data points. Although this dataset is unique in the European context, it could be impacted by bias due to the high proportion of German survey participants (almost 58%). Second, the selection does not fully represent the entire private market as several asset or investment types, such as angel investments, hedge funds, or secondary funds, are not part of this study due to missing data. Third, the study focuses on a single point in time, as data collection has only been conducted once. Moreover, influence factors stemming from the COVID-19 crisis are not measured for late responses recorded between March and May 2020. Fourth, the responses received might be subject to survivorship bias (Damodaran, 2012). There is no possibility to control the validity of the data provided due to the anonymized data provision process. As a result, the data points only mirror successful investments from the past while excluding critical investments with high numbers for the cost of capital due to the risk/return profile.

To overcome these barriers, another survey is foreseen to measure time effects and further influential factors. Collecting panel data will improve the quality of the suggestions made within this project. However, due to the anonymized data structure, a solution must be developed to track the responses. We recognize that a substantial part of relevant research was conducted before 2020 indicating that no consensus has been reached until now while seeing a lack of alternatives in recent years. Various models defined by Easton (2004) or Gebhardt et al. (2001) were developed to identify implied rates of return or cost of capital. However, these models have in common that they really use publicly available data, which is not the case for our approach. Further studies following a comparable approach conducted regularly will shed light on the role of different factors regarding the cost of capital and return expectations for private markets with limited data availability but will also highlight that both terms should not be used interchangeably.

5. CONCLUSION

Our study aims to clarify multiple aspects of the private capital market segment. It is essential to understand that market dynamics between public and private markets differ significantly, leading to information provision gaps. This includes key factors for both markets, such as the definition of cost of capital or return expectations for specific investment types. The underlying data is often opaque for private markets compared to the relatively transparent information flow given for public markets. To overcome this problematic situation, using specialized data portals is an option, but it still does not guarantee receiving the desired information. Due to this reason, separate data collection efforts might be necessary to gather the required data. The approach taken by Slee and Paglia (2010, 2011) in North America is a promising project to tackle the problem, which has not yet been transferred to Europe. It enables the data processors to oversee relevant numbers of the private capital markets, divided by specific asset types such as real estate funds, venture capital, mezzanine, direct investments, or private equity. Using these numbers makes it possible to calculate a more accurate cost of capital value per segment and even per company if required.

However, one should remember that this type of data collection comes with considerable effort, and there is no guarantee that a sufficient number of participants can be attracted. Hence, a broad program providing data points to contributors via surveys might incentivize participation while increasing the number of observations. It only creates a snapshot of the market situation based on the time lags between data provision and data processing. It also does not provide researchers to work with time effects which are at the core of comparable studies. Keeping all risks and downsides in mind, this approach still adequately helps to create clarity for private markets. Private markets will always be exposed to a lower level of transparency, thereby suggesting to focus on countries with a higher willingness to share and provide data. For this reason, this approach has been modified for the European market within this study. It also provides the possibility to gather data points that are not covered regularly by established market intelligence platforms. This mainly refers to the cost of capital, which is still one of the most opaque measures in the financial industry, especially for private market participants. The research initiatives around implementing transparency frameworks in the private equity industry (Monk et al., 2021) or other programs leading to facilitated data access should be observed going forward.

Plus, defining terms also leads to misunderstandings for different private market participants. This mainly refers to the concepts above of cost of capital and return expectations, which should not be taken as synonyms. Survey results indicate differences on the quantitative but not necessarily on the qualitative level. Especially when looking at the underlying data of the survey results, it becomes clear that several participants provided the same value for the cost of capital and return expectations.

When thinking one step further, another requirement evolves, as the connections between various factors determining the cost of capital and return expectations are still not sufficiently explored. Hence, the combination of several influential factors is, until today, a research field with unanswered questions. Derived from past research, factors such as investment size, investment duration, geographic focus, and asset focus have been determined as suitable measures. Results of the OLS regressions with robust standard errors on return expectations and cost of capital suggest that the investment duration is a statistically significant influential factor, thereby reducing the values.

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APPEND X A. QUESTIONNA RE FOR THE SURVEY

Question
1. Please select a category that best describes you
2. Please select your headquarters (HQ) location
3. Do you act as a strategic or financial investor?
4. Which business types/sectors have you invested in your past transactions/financings?
5. Please state your actual cost of equity capital based on your calculation (in %)
6. Which valuation methods do you use?
7. Which multiple methods do you use?
8. Please provide information on your investment portfolio: target asset allocation by asset type (in %)
9. Please provide information on your investment portfolio: typical time horizon per investment by asset type (in years)
10. Please provide information on your investment portfolio: annual return expectations for investments by asset type (in %)
11. Please provide information on your investment portfolio: typical investment size by asset type (in EUR mn)
12. Please provide information on your investment portfolio: target asset allocation by geography (in % per country)
13. Please provide information on your investment portfolio: typical time horizon per investment by geography (in years)
14. Please provide information on your investment portfolio: annual return expectations for investments by geography (in %)
15. Please provide information on your investment portfolio: typical investment size by geography (in EUR mn)

APPEND X B. DETAILS ON T E DA TASET

Table B.1. Description of the considered variables

Variable name	*Type of variable*	*Description*
Cost of capital	Floating value in %	Cost of capital per investment
Return expectation	Floating value in %	Return expectation per investment
Investment duration	Floating value in years	Investment duration/horizon per investment
Investment size	Floating value in EUR mn	Investment size in EUR per investment
Country focus	Floating value in %	Share of investments per country compared to the entire portfolio of an investor
Asset class focus	Floating value in %	Share of investments in a specific asset class compared to the entire portfolio of an investor
Real estate investment	Binary	0 = No investment in real estate; 1 = investment in real estate
Private equity investment	Binary	0 = No investment in private equity; 1 = investment in private equity
Mezzanine investment	Binary	0 = No investment in mezzanine; 1 = investment in mezzanine
Direct investment	Binary	0 = No direct investment; 1 = direct investment
GDP growth	Floating value in %	GDP growth between 2019 and 2020 in % per country
Inflation rate	Floating value in %	Inflation rate 2019 in % per country
Unemployment rate	Floating value in EUR mn	Unemployment rate 2019 in % per country
German investment	Binary	0 = No German investment; 1 = German investment

Table B.2. Summary statistics

Variable name	*Obs.*	*Mean*	*Std. dev.*	*Min*	*Max*
Cost of capital	213	0.1555	0.1419	0.01	0.80
Return expectation	213	0.1364	0.0714	0.01	0.50
Asset class focus	213	0.6887	0.3813	0.05	1.00
Country focus	213	0.2892	0.3040	0.01	1.00
Investment duration	213	8.0714	3.8542	1.00	30.00
Investment size	213	21.2174	24.4671	0.05	100
Real estate investment	213	0.2582	0.4387	0.0000	1.0000
Private equity investment	213	0.2160	0.4125	0.0000	1.0000
Mezzanine investment	213	0.0657	0.2484	0.0000	1.0000
Direct investment	213	0.2911	0.4553	0.0000	1.0000
GDP growth	213	0.9984	0.6980	0.1000	3.1000
Inflation rate	213	1.5143	0.7132	-0.1000	3.3750
Unemployment rate	213	5.2461	2.8686	3.2000	14.1000
German investment	213	0.2863	0.4531	0.0000	1.0000

Table B.3. Correlation matrix

	German investment	*Unemployment rate*	*Inflation rate*	*GDP growth*	*Direct investment*	*Mezzanine investment*	*Private equity investment*	*Real estate investment*	*Investment size*	*Investment duration*	*Country focus*	*Asset class focus*	*Return expectation*	*Cost of capital*
German investment	1.0000													
Unemployment rate	0.3051***	1.0000												
Inflation rate	-0.1188	-0.1742**	1.0000											
GDP growth	-0.1084	-0.0711	-0.0701	1.0000										
Direct investment	-0.3810***	-0.2748***	-0.1565*	0.1647*	1.0000									
Mezzanine investment	-0.1503*	-0.2902***	0.2915***	-0.1197	-0.1815**	1.0000								
Private equity investment	-0.1192	-0.3728***	0.1249	0.0214	0.0902	0.0351	1.0000							
Real estate investment	-0.0592	0.1828**	-0.1916**	-0.0368	-0.0477	-0.0935	-0.3247***	1.0000						
Investment size	-0.0637	0.1036	0.0131	0.0643	-0.0717	0.1790**	-0.1725**	-0.1441*	1.0000					
Investment duration	0.1108	-0.1816*	0.1453*	0.1061	0.0188	0.3310***	-0.3846***	-0.3212***	-0.1706*	1.0000				
Country focus	0.0916	0.0010	0.0574	-0.2249***	-0.0595	0.0313	0.0261	0.0273	-0.0334	-0.0628	1.0000			
Asset class focus	-0.1482*	-0.0352	0.0345	0.1748**	0.0552	0.0225	0.0859	-0.0326	-0.0253	0.0017	0.4453***	1.0000		
Return expectation	-0.0327	-0.0618	0.0835	-0.3739***	-0.0203	0.1654*	0.0282	0.0758	-0.0850	-0.0785	0.1276	-0.3654***	1.0000	
Cost of capital	-0.0415	-0.0494	-0.0357	0.5025***	0.0671	-0.0957	-0.0582	-0.0348	0.0585	0.1250	-0.5271***	-0.0151	-0.4446***	1.0000

*Note: Statistical significance at 5%, 1%, and 0.1% levels are denoted by *, **, and ***, respectively.*