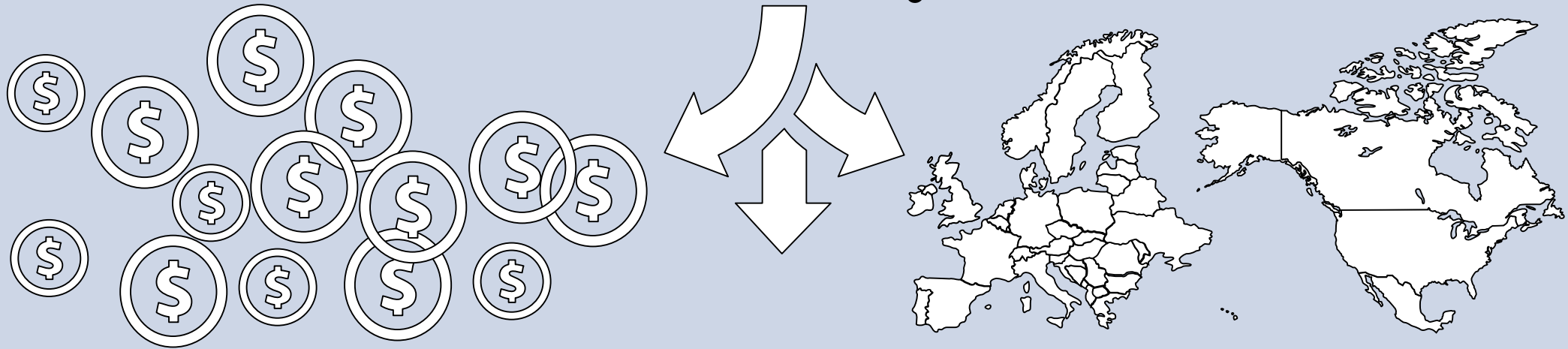


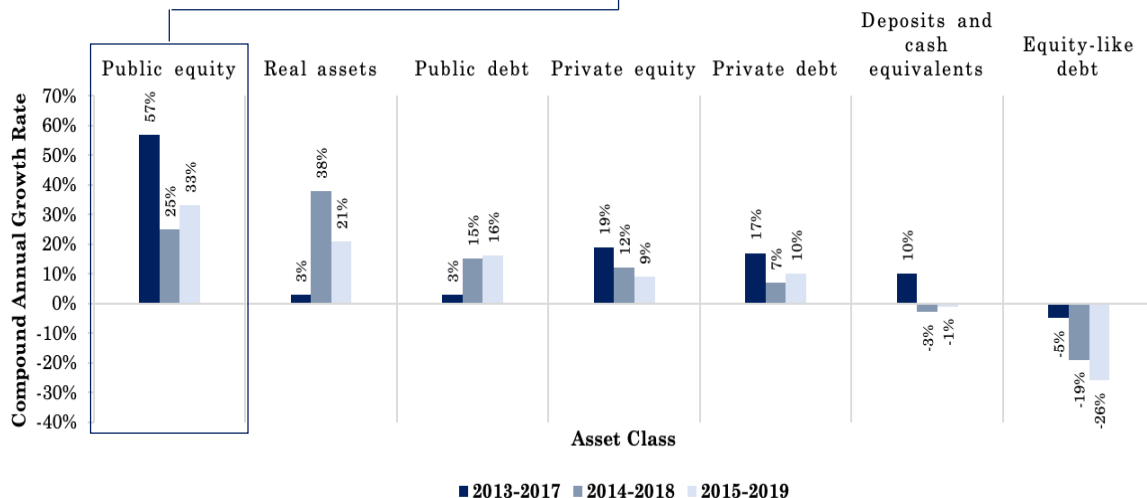
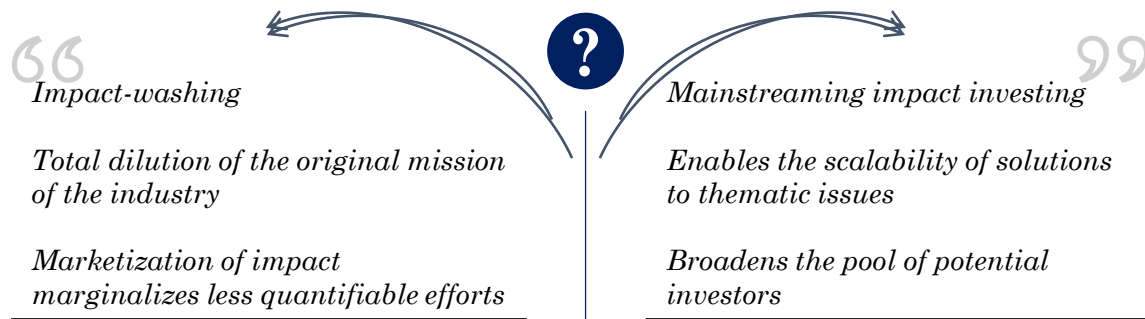
DO IMPACT INVESTING OPPURTUNITIES EXIST IN PUBLIC EQUITY?



AN EMPIRICAL EXAMINATION

The rationale for the thesis is grounded in a theoretical as well as a practical motivation of understanding whether the concept of impact investing can exist in public equity

The **theoretical motivation** stems from the identified research gap where the lack of academic research leads to the **practical motivation** of understanding whether impact investing is feasible in public equity...

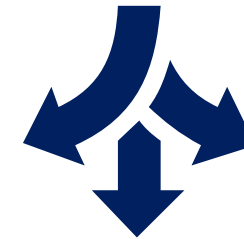


... Which makes this thesis highly relevant as it is the first effort attempting to empirically examine whether impact investing opportunities exist in public equity



Problem statement:

Do impact investing opportunities exist in public equity?



Ensure reliability of the concept and credibility of associated stakeholders and especially institutional investors

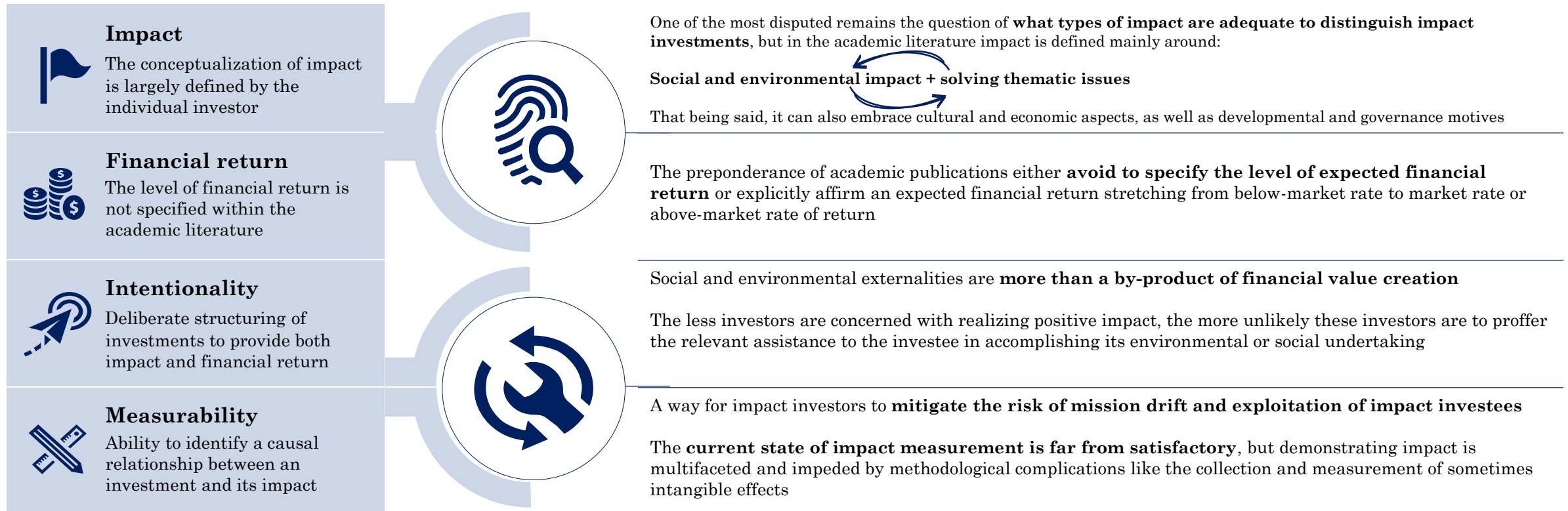


Enable the ability of conventional and impact investors to take a stance toward impact investing in public equity



Provide empirical evidence upon which theories can advance

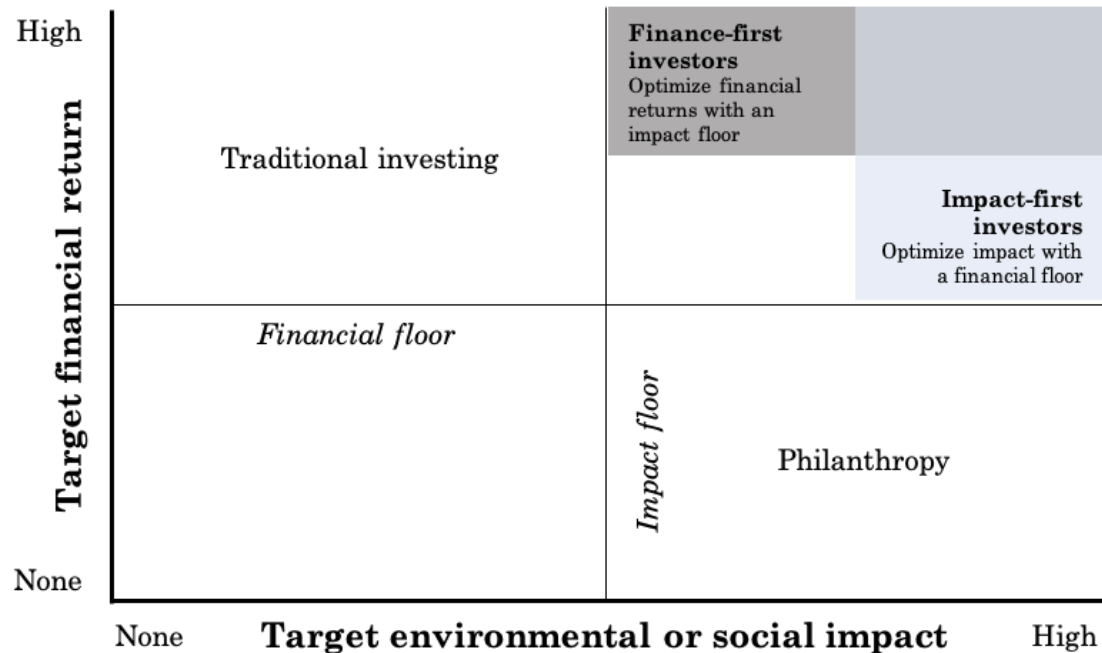
The literature review reveals that no uniform and soundly based definition of impact investing exists, but that the concept has four defining characteristics



“Impact investments are investments made with the **intention** to generate positive, **measurable** social and environmental **impact** alongside a **financial return**”

Based on the defining characteristics of impact investing, two categories of impact investors can be identified that both need two principles to be met in order for impact investing opportunities to exist in public equity

Impact investors can select from a variety of investment approaches that offer different blends of financial return and impact to fit the rationality of their investments...



... **Finance-first investors** are more likely to be **institutional investors**, operating in mature sectors and entering once the impact-first investors have proven the viability of the market

Blended value principle

Ensures that impact investing can attain both financial return as well as social and environmental impact

Sustainable financial return and impact

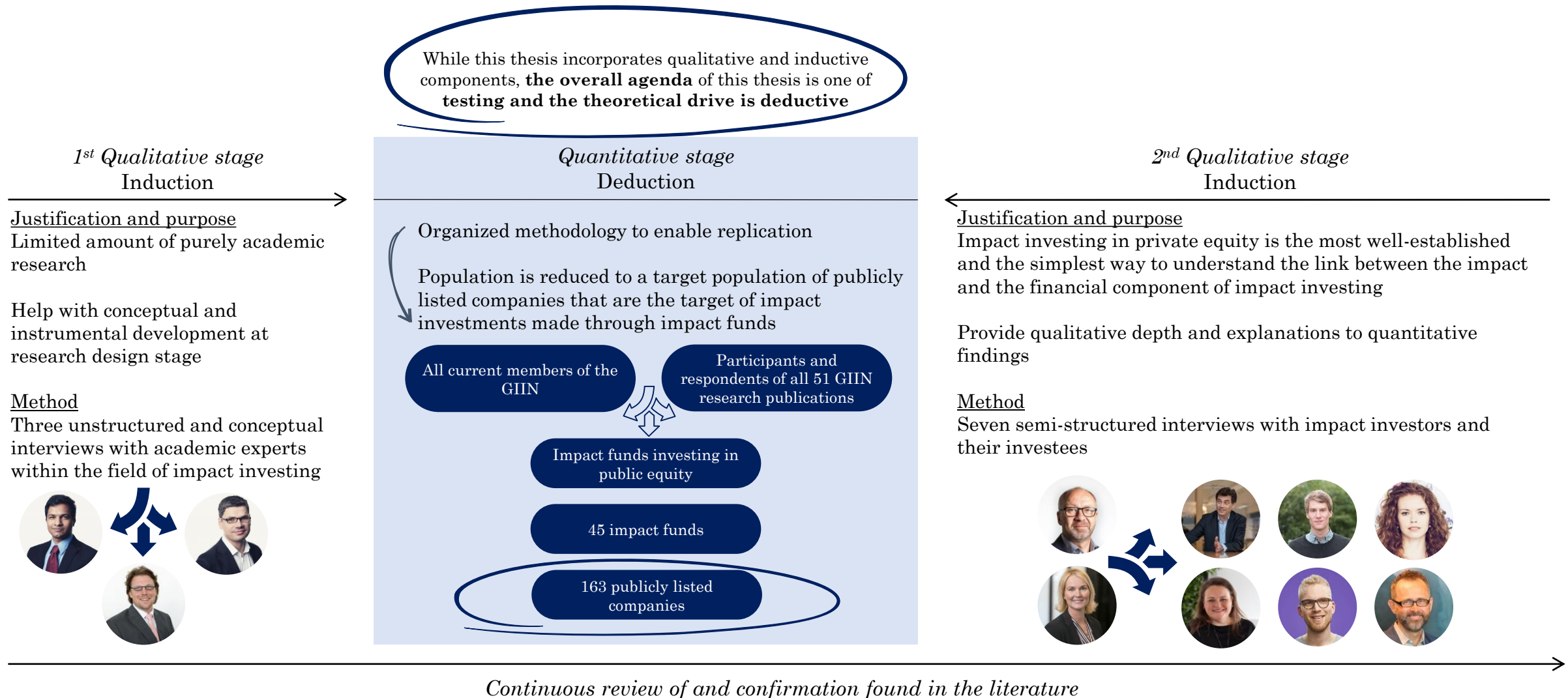
Ensures the lasting viability of impact investments

For impact investing opportunities to exist in public equity there must be a positive causal relationship between the impact achieved and the generation of financial return

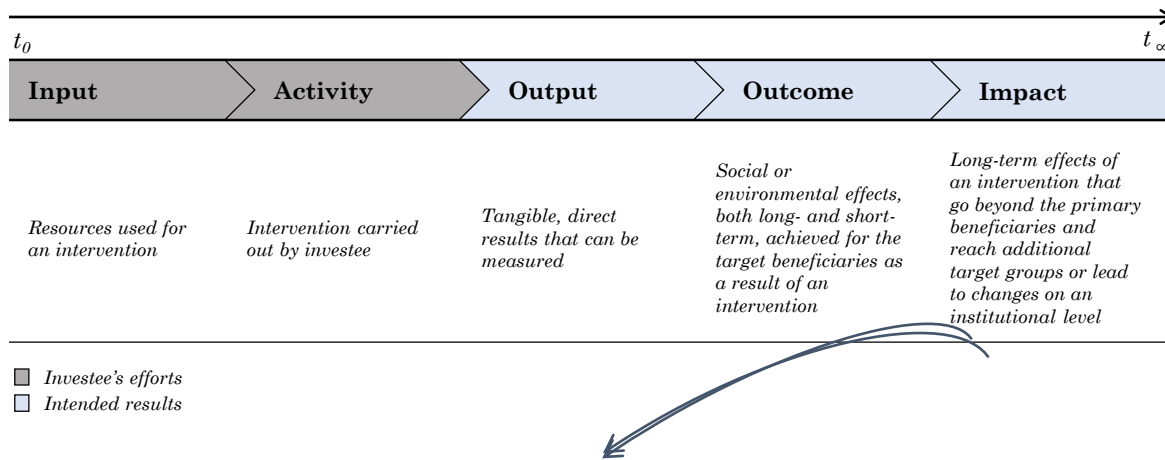
RQ1: What is the relationship between the impact generated by publicly listed companies, which are the target of impact investments, and their levels of shareholder value creation?

RQ2: What is the causal relationship between the impact generated by publicly listed companies, which are the target of impact investments, and their levels of shareholder value creation?

Guided by a post-positivist research philosophy an abductive approach to theory development in the form of a quantitative dominant multistage research design is adopted



As a consequence of the challenges associated with impact measurement from both an impact investor and an impact investee perspective, scholars agree that the current state of impact measurement is far from satisfactory



The concept of Creating Shared Value

Reconceiving products and markets

Products and services that meet societal needs

Providing products to unserved or underserved customers and communities

Redefining productivity in the value chain

Accessing and utilizing resources, energy, suppliers, logistics and employees differently and more productively

Enabling local cluster development

E.g. Improving skills, local suppliers and supporting institutions in the areas where the company operates

Enhancing cluster sophistication in the sector

CSV Construct	Category	Description
Reconceiving Products and Markets	Product Responsibility Score	Reflects a company's capacity to produce quality goods and services integrating the customer's health and safety, integrity and data privacy
	Environmental Innovation Score	Reflects a company's capacity to reduce the environmental costs and burdens for its customers, and thereby creating new market opportunities through new environmental technologies and processes or eco-designed products
Redefining Productivity in the Value Chain	Emissions Score	Measures a company's commitment and effectiveness towards reducing environmental emission in the production and operational processes
	Resource Use Score	Reflects a company's performance and capacity to reduce the use of materials, energy or water, and to find more eco-efficient solutions by improving supply chain management
	Workforce Score	Measures a company's effectiveness towards job satisfaction, healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce
Enabling Local Cluster Development	Community Score	Community category score measures the company's commitment towards being a good citizen, protecting public health and respecting business ethics

$$\text{Social and environmental impact} = \frac{\left(\frac{\sum \text{Reconceiving products and markets}}{2} + \frac{\sum \text{Redefining productivity in the value chain}}{3} + \text{Enabling local cluster development} \right)}{3}$$

Multiple linear regressions test whether the blended value principles can be met in a public equity context

RQ1: *What is the relationship between the impact generated by publicly listed companies, which are the target of impact investments, and their levels of shareholder value creation?*

$$SVC_{(i,t)} = \phi_{1j} Impact_{(i,t-j)} + \phi_2 Risk_{(i,t)} + \phi_3 R\&D_{(i,t)} + \phi_4 Size_{(i,t)} + Industry_{(i,t)} \beta + a_i + \varepsilon_{it}$$

Table 7: Panel Regression Results with Fixed Effects

	Measure of Shareholder Value Creation			
	ROE	EPS	MVA	MRK
Impact	0.2137 (0.1659)	0.3955** (0.1922)	0.4056** (0.16)	0.2528** (0.1259)
Risk	0.089** (0.0357)	-0.0047 (0.0346)	0.0118 (0.0603)	-0.0432 (0.0397)
R&D	0.2343 (0.1626)	0.1719 (0.1355)	0.2075 (0.1391)	0.1227 (0.0947)
Log Assets	-0.4185*** (0.1246)	0.3374** (0.1355)	0.3984*** (0.1357)	0.6422*** (0.0694)
R ² -within	0.0864	0.1620	0.2867	0.5197
R ² -between	0.0033	0.0380	0.9698	0.9844
R ² -overall	0.0034	0.0204	0.9681	0.9850
N	737	738	730	735

***p-value < 0.01, **p-value < 0.05, *p-value < 0.10
Robust standard errors are presented in the brackets below each estimate

Table 9: Estimates of Lagged Effects of Social and Environmental Impact

		Measure of Shareholder Value Creation			
		ROE	EPS	MVA	MRK
Contemporaneous Impact	Coefficient	0.2137	0.3955	0.4056	0.2528
	p-value	0.2020	0.0430	0.0130	0.0480
Lag 1 of Impact	Coefficient	0.2440	0.4038	0.3644	0.2137
	p-value	0.0650	0.0190	0.0400	0.1230
Lag 2 of Impact	Coefficient	0.2209	0.1449	0.5630	0.3327
	p-value	0.0690	0.3000	0.0000	0.0030
Lag 3 of Impact	Coefficient	-0.0315	-0.0913	0.0723	0.0233
	p-value	0.8130	0.6150	0.7840	0.8970

Table 6: Results of Hausman Tests for Each Measure of the Dependent

Variable	Hausman Test	
	Chi ²	p-value
Measure of Shareholder Value Creation		
Market Capitalization (MRK)	44.78	0.0000
Earnings per Share (EPS)	135.37	0.0000
Market Value Added (MVA)	20.13	0.0012
Return on Equity (ROE)	17.24	0.0041

Table 8: Results of Pearsons Correlation Coefficients by GICS Sector

GICS Sector	Companies in the Sector	Measure of Shareholder Value Creation				Average Absolute Correlation
		ROE	MVA	MRK	EPS	
Communication Services	9	-0.58	-0.94	-0.87	0.52	0.73
Consumer Discretionary	12	0.78	0.94	0.95	-0.17	0.71
Consumer Staples	22	0.65	0.65	0.67	0.50	0.62
Energy	7	0.52	0.02	0.61	0.96	0.53
Healthcare	31	-0.42	0.65	0.81	0.08	0.49
Industrials	28	0.56	0.75	0.78	0.76	0.71
Information Technology	26	0.21	0.94	0.94	0.71	0.70
Materials	10	0.77	0.65	0.45	0.58	0.62
Real Estate	1	0.42	0.87	0.83	0.42	0.63
Utilities	18	0.62	0.94	0.95	0.89	0.85
Average Absolute Correlation		0.55	0.74	0.79	0.56	0.66

H1: *There is a positive linear relationship between social and environmental impact and shareholder value creation*



The results indicate that social and environmental impact has a contemporaneous and positive effect on **long term shareholder value creation**, when tested at the conventional significance level of .05



The relationship between impact and shareholder value creation is found to be **sensitive to the measures of shareholder value creation adopted**



Specifically, the results suggest that social and environmental impact has a **relevant effect on long term measures of shareholder value creation**, whereas it **does not have a relevant effect on short term measures of shareholder value creation**



The results indicate that this relationship exists across 9 out of the 10 GICS sectors under investigation, suggesting that impact investing opportunities in public equity is **possible across a wide range of sectors**



Some sectors are less attractive for impact investments made through public equity and **some sectors are especially attractive**

Granger causality tests investigate whether the blended value principle is based on sustainable financial return and impact realization

RQ2: *What is the causal relationship between the impact generated by publicly listed companies, which are the target of impact investments, and their levels of shareholder value creation?*

$$Impact(i, t) = \sum_{j=1}^p \varphi_j SVC(i, t-j) + \sum_{j=1}^p \theta_j Impact(i, t-j)$$

$$SVC(i, t) = \sum_{j=1}^p \varphi_j Impact(i, t-j) + \sum_{j=1}^p \theta_j SVC(i, t-j)$$

Table 11: Results of Dumitrescu and Hurlin Tests

	Variables in Levels*			Variables in First Differences*		
	W	Z-bar	Z-tilde	W	Z-bar	Z-tilde
H0: Impact does not Granger cause shareholder value creation						
Return on Equity (ROE)	3.0181	8.5621 (0.0000)	1.7201 (0.0854)	13.7119	53.9320 (0.0000)	15.3311 (0.0000)
Earnings per Share (EPS)	4.3017	14.0081 (0.0000)	3.3539 (0.0008)	7.9674	29.5603 (0.0000)	8.0195 (0.0000)
Market Value Added (MVA)	2.647	6.9877 (0.0000)	1.2478 (0.2121)	4.8728	16.4309 (0.0000)	4.0807 (0.0000)
Market Capitalization (MRK)	2.4488	6.1466 (0.0000)	0.9955 (0.3195)	5.5867	19.4599 (0.0000)	4.9894 (0.0000)
H0: Shareholder value creation does not Granger cause impact						
Return on Equity (ROE)	1.9744	4.134 (0.0000)	0.3917 (0.6953)	11.0297	42.5526 (0.0000)	11.9172 (0.0000)
Earnings per Share (EPS)	2.5157	6.4307 (0.0000)	1.0807 (0.2798)	5.5417	19.2687 (0.0000)	4.9321 (0.0000)
Market Value Added (MVA)	4.8724	16.4291 (0.0000)	4.0802 (0.0000)	6.8098	24.6491 (0.0000)	6.5462 (0.0000)
Market Capitalization (MRK)	5.3237	18.3438 (0.0000)	4.6546 (0.0000)	8.0851	30.0594 (0.0000)	8.1693 (0.0000)

(*) p-values in brackets below each estimated statistic

Table 10: Results of Fisher-ADF and Harris-Tzavalis Tests

Variable	Fisher-ADF Test		Harris-Tzavalis Test	
	ChiP	p-value	rho	p-value
Market Capitalization (MRK)	113.6054	0.0013	0.9212	1.0000
Earnings per Share (EPS)	120.7778	0.0003	0.6708	0.2810
Market Value Added (MVA)	116.3288	0.0007	0.8767	0.9998
Return on Equity (ROE)	136.5092	0.0000	0.7910	0.9649
Impact	147.2722	0.0000	0.9247	1.0000

Table 12: Coefficients of Determination

Lag	Coefficient of Determination			
	ROE	EPS	MVA	MRK
1	0.9965544	0.9979749	0.9998292	0.9995796
2	0.9963383	0.9979726	0.999816	0.9994401
3	0.9966254	0.9982796	0.9994895	0.9999208
4	0.9957665	0.9978286	0.9996385	0.9999179

H2A: *Higher levels of social and environmental impact cause higher levels of shareholder value creation*

H2B: *Higher levels of shareholder value creation cause higher levels of social and environmental impact*



The results indicate that the **relationship is bidirectional** between long-term shareholder value creation and social and environmental impact



Higher levels of social and environmental impact granger cause higher levels of shareholder value creation



Higher levels of share holder value creation granger cause higher levels of social and environmental impact

The quantitative findings of this thesis suggest that impact investing opportunities exist in public equity for long-term impact investors

Multiple linear regressions test whether the blended value principles can be met in a public equity context



H1: *There is a positive linear relationship between social and environmental impact and shareholder value creation*



Robust significant positive relationship between social and environmental impact and long-term shareholder value creation



Non-robust significant positive relationship between social and environmental impact and short-term shareholder value creation

Granger causality tests investigate whether the blended value principle is based on sustainable financial return and impact realization



H2A: *Higher levels of social and environmental impact cause higher levels of shareholder value creation*



H2B: *Higher levels of shareholder value creation cause higher levels of social and environmental impact*



Significant bidirectional relationship between long-term shareholder value creation and social and environmental impact

Not able to falsify that impact investing opportunities exist in public equity for long-term impact investors

But...

... Questionable whether the level of impact generated by publicly listed companies is sufficient to meet the objective of impact-first investors and the impact floor of finance-first investors

... An impact proxy mean score that is only 16.18 points higher than the average score of the respective industry groups seems to be insufficient to qualify as impact investing for impact-first investors that aim to maximize their social and environmental impact

... Impact investors must hold a large enough financial claim compared to conventional investors in order to incentivize conventional investors to pursue impact realization

Both literature and qualitative findings suggest that impact investors generally are long-term oriented and take a slow money approach to impact investments



The qualitative findings of this thesis support the quantitative findings but suggest that there are boundaries to the impact investing opportunities in public equity

The impact investors interviewed for the purpose of this thesis can be classified as finance-first and with an overall impact motive of enabling local cluster development...

Company	Impact Objective	Industry
AIM	Environmental	Software & IT Services
Akthelia*	Social	Pharmaceutical
Ekko	Environmental	Fishing
Florealis*	Social	Pharmaceutical
Genki Instruments*	Social	Software & IT Services
Godo	Not inherent in business model	Software & IT Services
HAP+	Social	Healthcare
Klappir*	Environmental	Software & IT Services
Kúla 3D	Not inherent in business model	Software & IT Services
Nordic Wasabi*	Environmental	Agriculture
ONANOFF	Social	Household Electronics
Sidekick	Social	Healthcare
Spectaflow	Not inherent in business model	Software & IT Services
The One	Social	Software & IT Services
Tulipop*	Environmental + Social	Entertainment
UNYQ	Social	Healthcare
ZIZERA	Not inherent in business model	Software & IT Services
Pickr.ai	Environmental	Software & IT Services

(*) Companies interviewed for the purpose of this thesis

... But still 13 out of the 18 companies included in their current portfolio have a clear social or environmental impact objective inherent in their business models



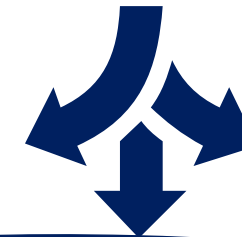
The companies interviewed for the purpose of this thesis are focused on solving thematic social or environmental issues



Mindsets, motivations and intentions of impact investors are found to be crucial for the ability to deliver on their dual objectives



Governance and ownership structure as well as the nature of the impact investee have implications for the impact generated by impact investors



There are boundaries to the impact investing opportunities in public equity

“



We have the fishing industry, energy industry and tourism [...] but everybody sees that it would be really helpful to have more knowledge based industries [...] but there are not many of those and they are very important and we can see how valuable it is [...] if we can create jobs for 300-500 for more or less well-educated that's a goal [...] we want young people to come back with their knowledge.



”

The findings of this thesis have important theoretical and practical implications, but must be evaluated based on the limitations of the research design

Theoretical and practical implications



Theoretical implications

The concept of impact investing does not need to be refined in a public equity setting

The concepts of blended value and sustainable financial return and impact generation can be met for impact investments made into public equity

The field can advance from discussing the fundamental assumptions to start defining the boundaries of impact investing in public equity



Practical implications

Impact investors need to take a slow money approach to investments

Impact investors can include investments in publicly listed companies in their portfolios

The level of impact generated by publicly listed companies is not sufficient to meet impact-first impact investors' definition of impact investing

Impact investing in public equity is possible across a wide range of industries

Limitations

The most significant limitations that potentially affect these implications can be summarized as...



Measurement of social and environmental impact remains a proxy



Sampling frame risks that the companies included in the sample are not really the target of impact investments



The sample suffers from a matching problem

...But based on the current state of research, the research design and findings of this thesis are found to be the strongest possible representation of impact investing in public equity

Maybe the impact investing opportunities within public equity are bigger and more diverse than what is suggested by the findings

... Based on the average impact proxy score, it seems like impact generated by publicly listed companies is not sufficient to meet the definition of impact investing of all impact investors



Even though the findings suggest that impact investing opportunities exist in public equity, it is not ensured that all impact investors will consider the impact generated sufficient to qualify as impact investing



When purely for-profit investors cannot commit to the impact objectives of the investee, impact investors must hold a large enough financial claim in order to incentivize these to pursue impact realization

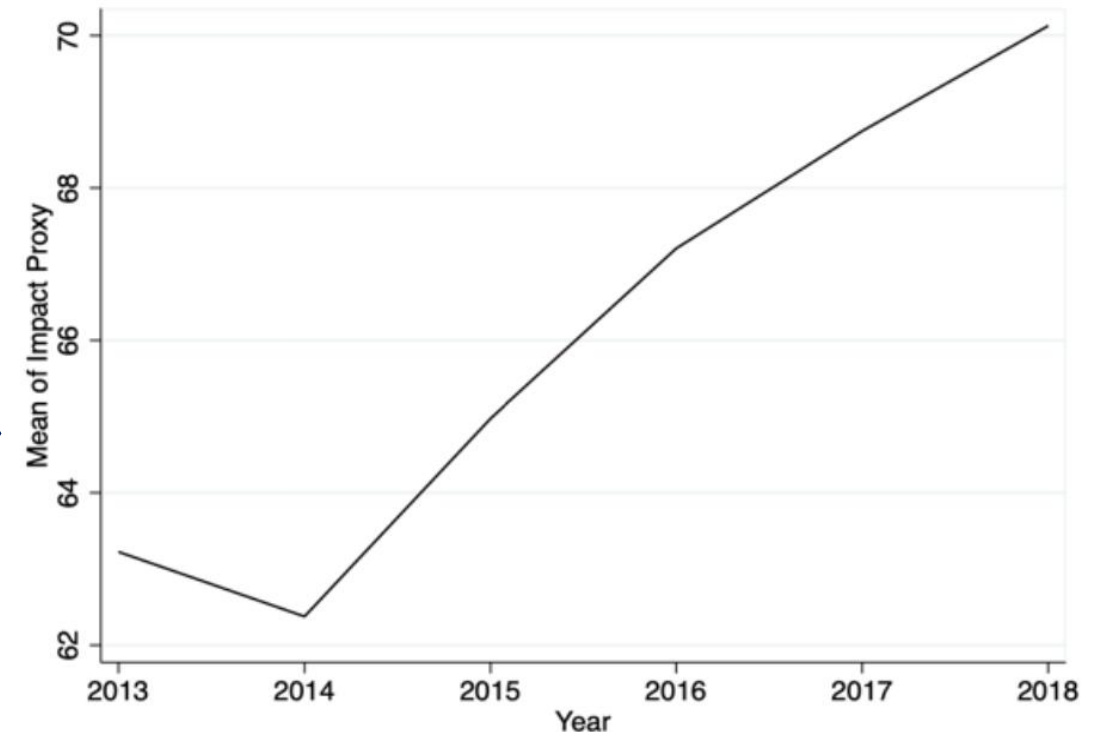


The act of actively influencing the business conduct to generate impact is harder in public equity, why impact investments made into public equity are of larger size compared to private equity

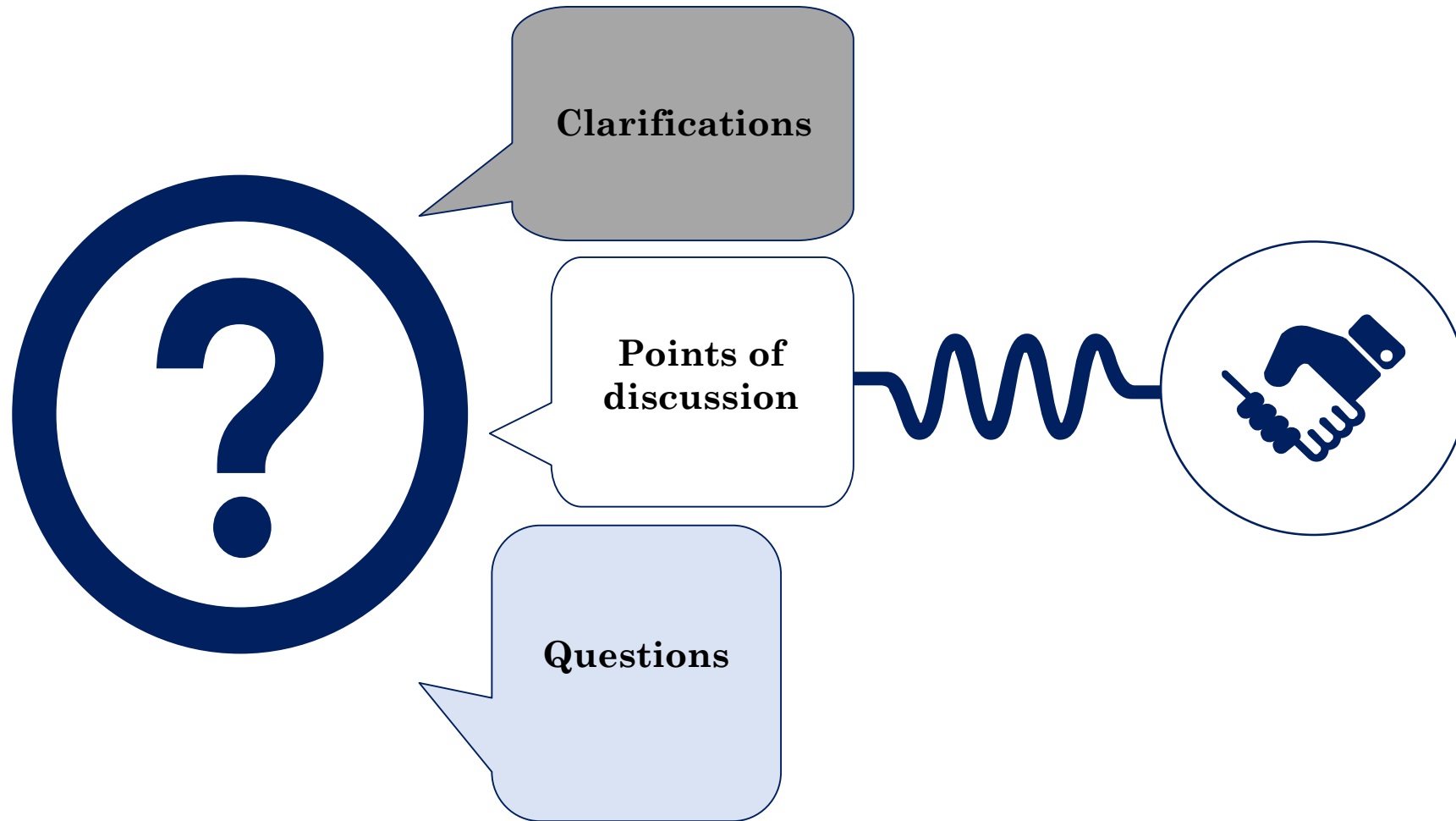


Impact investors investing in public equity can generate impact through shareholder advocacy campaigning and thereby have an impact on corporate practices and the decisions of management

Development of impact proxy mean from 2013-2018



... This could suggest that impact investing in public equity is actually feasible for both impact- and finance-first impact investors



The combined findings and limitations of this thesis give rise to two separate avenues of potential future research, where the first stream is based on the presented research design and the second stream is beyond its initial scope

1

Efforts aimed at further falsifying that impact investing opportunities exist in public equity

Control for ownership and governance structure

Enhanced data sets with more fine-grained measures of social and environmental impact and additional measures of shareholder value creation

Application of the same proxy for social and environmental impact on another sample at a later point in time

Sampling procedure based on the intentionality of both impact- and finance-first impact investors

If these studies yield results corresponding to those of this thesis, it can be concluded that impact investing opportunities exist in public equity ...



2

Efforts aimed at discovering the boundaries of impact investing opportunities in public equity

Investigate whether the impact generated by publicly listed companies is sufficient to meet the impact objective of both impact- and finance-first impact investors

Test whether the impact generated by publicly listed companies is significantly higher than that of their respective industry peers

Study differences between industries and differences according to the type of impact

... And then these studies could deepen the understanding of the concept of impact investing in a public equity setting

