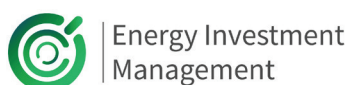




INVESTING IN EARLY-STAGE RENEWABLE ENERGY STARTUPS

COMPARING THE DECISION-MAKING PROCESS
OF VENTURE CAPITALISTS, BUSINESS ANGELS
AND STRATEGIC INVESTORS



NOORTJE VAN HEIJST

TABLE OF CONTENTS

EXECUTIVE SUMMARY

INTRODUCTION

KEY STUDY FINDINGS

- To what degree do the risk avoidance strategies vary between different types of investors?
- To what degree do different types of investors differ from each other in the importance given to new ventures' features in the investment decision?
 - Venture capitalists
 - Business angels
 - Strategic investors
- Screening Criteria Differences Explained
- How do differences in risk avoidance strategies of investors relate to the differences in relative importance of startup features?
- What are other potential explanations for the differences between investors in the relative importance given to startup features in the investment decision-making process?
 - Motives to Invest
 - Relationship with Third Parties

CONCLUSIONS

RELEVANCE OF FINDINGS

- For Investors
- For Startups & Entrepreneurs
- For Governments

APPENDIX A

TERMINOLOGY & DEFINITIONS

REFERENCES

ABOUT THE AUTHOR



EXECUTIVE SUMMARY

There is growing awareness of the negative impacts of climate change on the planet, so the need for an energy transition from fossil fuels to low-carbon options on a worldwide scale has never been more evident. Startups with innovative technologies in the field of renewable energy are part of the solution as they have the potential to fundamentally drive this transition.

However, in the capital-intensive and relatively conservative energy sector it is extremely challenging for new ventures to attract sufficient funding to even survive, far less go through the phases of development and growth. Early-stage private equity and venture capital

investors have the potential to reduce this funding gap.

The investment decision-making and evaluation processes of investors have been part of academic debate for decades. Existing research, however, lacks insights into how different types of investors vary in how they assess the quality of a startup and how these differences can be explained.

In the following study, the differences in screening criteria between venture capitalists, business angels and strategic investors in the renewable energy sector, and the potential role of risk avoidance strategies of investors to explain these differences were investigated.

KEY FINDINGS:

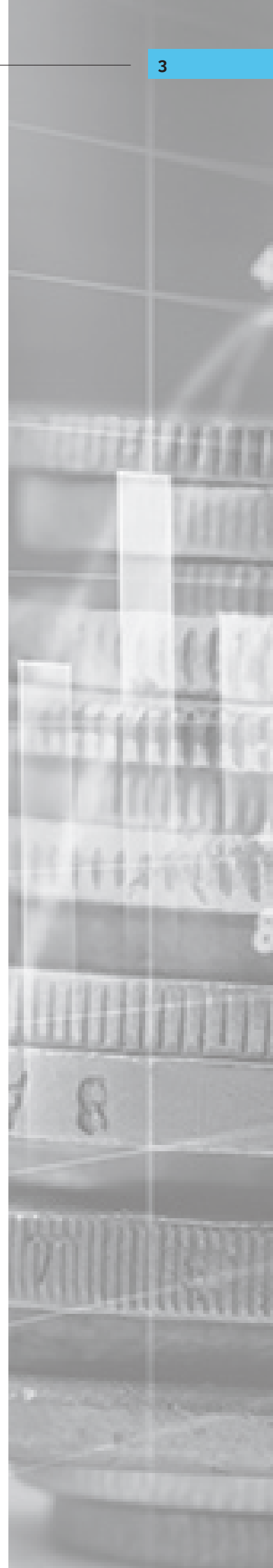
1. There are substantial differences between investors in both risk avoidance strategies and screening criteria
2. These differences in risk avoidance strategies can explain the differences in screening criteria between investors
3. Two additional explanations for the differences between investors in how they assess a startup were found, namely their motive to invest and their relationship with third parties, such as co-investors and limited partners

The knowledge derived from this study provides insights for all the stakeholders. Through an increased understanding of investment decision-making, entrepreneurs seeking capital will be better able to align their requests for funding to those criteria investors find most critical in the evaluation of a new venture.

Investors could use these findings to better understand their own decision-making process, which, in turn, provides the opportunity to increase evaluation efficiency and make better informed

decisions. Lastly, the research results provide insights for governments to better tailor their policies on injecting the private sector with additional funding to stimulate investment in renewable energy technologies.

In conclusion, with improved understanding of investment behavior by investors themselves, as well as the entrepreneurs, this research study brings capital and capital need together, and hereby contributes to moving the global energy transition forward.



INTRODUCTION

“ENERGY INVESTMENT IS MISALIGNED WITH WHERE THE WORLD APPEARS TO BE HEADING, AND ALSO FAR OUT OF STEP WITH WHERE IT NEEDS TO GO.” – IEA

With growing awareness of the effects of climate change, the need for an energy transition on a worldwide scale has never been more evident, and startups with innovative technologies in the field of renewable energy have the potential to fundamentally drive this transition.

However, in the capital-intensive and relatively conservative energy sector it is extremely challenging for new ventures to attract sufficient funding to even survive, far less go through the normal phases of development and growth.

The 2019 edition of the World Energy Investment report, the International Energy Agency’s annual benchmark for tracking energy investment, looked at trends in investment for early-stage technologies and found that global venture capital investments in new energy ventures reached USD 6.9 billion in 2018, representing an increase of 130% compared to 2017^[1].

However, this growth is almost entirely driven by investments in clean mobility technologies, and investments in early-stage renewables companies are actually declining^[2]. With regard to corporate

venture capital, investments in energy technology startups totaled around USD 0.9 billion in 2018, which is a decline compared to 2017^[1]. These investment trends therefore indicate it is proving challenging for new ventures to attract sufficient funding in the renewable energy technologies space.

One potential solution to this issue is early-stage private equity and venture capital investors, which are widely recognized as key to reducing this funding gap and bridging the so-called “valley of death”. The investment decision-making and evaluation processes of investors have been part of the academic debate for decades. Existing research, however, lacks insights in how different types of investors differ from each other in how they assess the quality of a startup (i.e. their screening criteria) and how these differences can be explained.

The following study investigated the differences in **screening criteria** between venture capitalists, business angels and strategic investors in the renewable energy sector and the potential role of **risk avoidance strategies** to explain these differences.

The objective was to gain insights into how investor types differ from each other in how they perceive and assess risks and identify which

startup features they evaluate highly in the investment decision-making and how these differences can be explained.

THE RESEARCH CENTERED AROUND FOUR KEY QUESTIONS:

1. To what degree do the risk avoidance strategies vary between different types of investors?
2. To what degree do different types of investors vary from each other in the importance given to new ventures' features in the investment decision?
3. How do differences in risk avoidance strategies relate to the differences in relative importance of startup features?
4. What are other potential explanations for the differences between investors in the relative importance given to startup features in the investment decision-making?



The study explored the differences between investors in the evaluation or screening criteria and risk avoidance strategies. Central to this investigation

were the types of risks^[3] outlined in Table 1 (based on ^[4]) and the 12 screening criteria, arranged in four clusters, in Table 2:

TABLE 1: TYPES OF RISK AND THEIR DEFINITIONS

RISKS	DEFINITION
Competitive risk	The risk resulted from competitive threats
Bail-out risk	The risk of failure to bail out the investment
Investment risk or liquidity risk	The risk that the investor may not realize a high return on investment
Management risk	The risk of management failure
Implementation risk	The risk of failure to implement the business model or strategy of the venture
Leadership risk	The risk of failure of the entrepreneur to lead the management team

TABLE 2: SCREENING CRITERIA ARRANGED IN FOUR GROUPS

CLUSTER	SCREENING CRITERIA		
Financial metrics	Profitability	Revenue growth	Company valuation (IRR)
Entrepreneur and team	Founding experience	Commitment	Domain passion
Partnerships and investors	Upstream strategic alliances	Current investors	Downstream strategic alliances
Product/service characteristics	TRL Level	Value added	Patents/Intellectual Property

KEY STUDY FINDINGS

THE RESULTS OF THE STUDY ARE BASED ON AN INTEGRATED ANALYSIS OF QUANTITATIVE DATA COLLECTED FROM 40 EUROPEAN INVESTORS ACTIVE IN THE RENEWABLE ENERGY SECTOR AND COMPLEMENTED WITH INFORMATION BASED ON 10 FOLLOW-UP INTERVIEWS.

TO WHAT DEGREE DO THE RISK AVOIDANCE STRATEGIES VARY BETWEEN DIFFERENT TYPES OF INVESTORS?

Based on an exploratory data analysis on the differences between the three investor types in risk avoidance strategies multiple patterns of differences were revealed. The findings for each of the investor type based on the six types of risks investigated in the quantitative component of this study are presented below.

Table 3 highlights the general patterns found in relation to the differences between venture capitalists, business angels and strategic investors in risk avoidance strategies. It is evident that in general, venture capital investors report the highest risk scores. Specifically, venture capital investors are concerned about competitive risks, investment risk (related to market growth), management risk (specifically risk related to coping abilities), implementation risk (related to the business model) and leadership risk (specifically lack of leadership ability).

TABLE 3: DIFFERENCES IN RISK AVOIDANCE STRATEGIES BETWEEN INVESTORS

	COMPETITIVE RISK		BAIL-OUT RISK		INVESTMENT RISK		MANAGEMENT RISK		IMPLEMENTATION RISK		LEADERSHIP RISK	
	Competitors	Substitutes	Familiarity	Network	Market growth	Exit opportunity	Risk coping	Young & no experience	Market acceptance	Business model	Ability to lead	Experience
Venture capital	Evident pattern	Evident pattern			Evident pattern		Evident pattern			Evident pattern	Evident pattern	
Business angel			Evident pattern	Evident pattern		Non-evident pattern						Non-evident pattern
Strategic investor							Evident pattern	Evident pattern				

 Evident pattern

 Non-evident pattern

Business angels, in contrast, report the highest risks scores with regards to the bail-out risk. Also, compared to the other two investor types they show slightly higher scores for investment risk (related to a lack of exit opportunities) and risk related to a lack of leadership experience.

While, strategic investors report only the highest risk scores for implementation risk related to market acceptance of the product and management risk, specifically for ventures with a young and inexperienced management team.

TO WHAT DEGREE DO DIFFERENT TYPES OF INVESTORS DIFFER FROM EACH OTHER IN THE IMPORTANCE GIVEN TO NEW VENTURES' FEATURES IN THE INVESTMENT DECISION?

The results indicate multiple patterns of differences between the three investor types in terms of the relative importance of screening or evaluation criteria.

Figure 1 shows the ranking of startup features for each of the three investor types and explanations and details of each of the startup features can be found in Appendix A.

FIGURE 1: RANKING OF STARTUP FEATURES BY INVESTOR TYPE

VENTURE CAPITAL	BUSINESS ANGELS	STRATEGIC INVESTORS
1. TRL Level	1. Domain passion	1. TRL Level
2. Domain passion	2. TRL Level	2. Domain passion
3. Downstream strategic alliances	3. Value added	3. Profitability
4. Profitability	4. Patents/Intellectual Property	4. Upstream strategic alliances
5. Revenue growth	5. Revenue growth	5. Patents/Intellectual Property
6. Value added	6. Company valuation	6. Value added
7. Founding experience	7. Profitability	7. Founding experience
8. Company valuation	8. Downstream strategic alliances	8. Company valuation
9. Current investors	9. Commitment	9. Current investors
10. Upstream strategic alliances	10. Current investors	10. Downstream strategic alliances
11. Patents/Intellectual property	11. Upstream strategic alliances	11. Revenue growth
12. Commitment	12. Founding experience	12. Commitment

VENTURE CAPITALISTS

The venture capital investors awarded the highest importance scores to the TRL Level, Domain Passion and Downstream Strategic Alliances, and allocated the least importance to Commitment, Patents/Intellectual Property and Upstream Strategic Alliances.

One of the most apparent differences between the venture capitals and the other two investor types was the relative high importance they award to Downstream Strategic Alliances, which represents the number of established relationships with reputable business partners based on sales agreement (e.g. pilot customers, sales partners, etc.). This finding indicates that new ventures with existing customers or pilot projects are valued highly by venture capital funds.

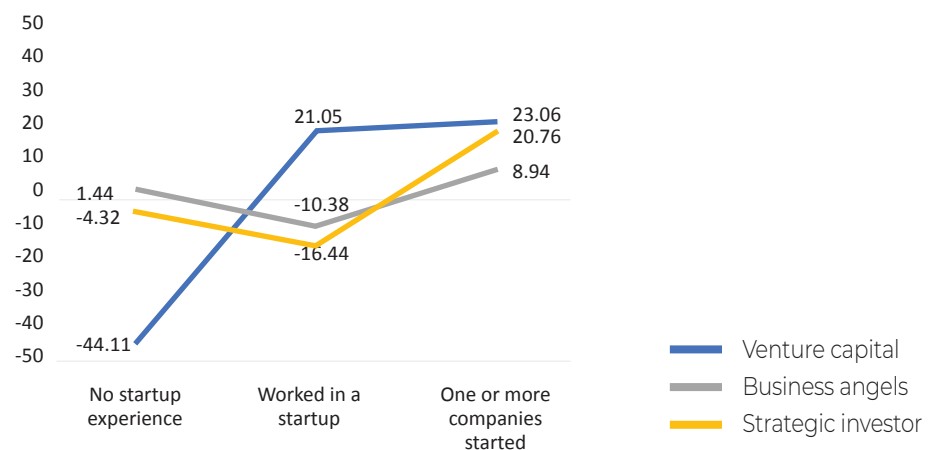
In addition, Patents/Intellectual Property are considered more important to business angels and strategic investors, respectively fourth and fifth place, compared to

venture capital investors, who ranked it in 11th place. This indicates that venture capital investors value the 'protectability' of the technology less than the other two investor types.

Furthermore, while venture capitalists and strategic investors ranked Founding experience both in seventh place, there were some apparent differences based on a comparison of utility given to the levels within this attribute.

Figure 2 shows that although all investor types prefer a venture with an entrepreneur who has one or more companies that they've started, venture capital investors value the experience in working in a startup almost as highly as the experience of starting a company. In contrast, business angels and strategic investors prefer no startup experience over experience of working in a startup, indicating that experience of working in a startup is valued higher by venture capitals.

FIGURE 2: AVERAGE LEVEL UTILITY: FOUNDING EXPERIENCE



BUSINESS ANGELS



Business angels ranked the Domain passion highest, with TRL Level and Value Added ranked second and third. While least importance is given to Founding Experience, Upstream Strategic Alliances and Current Investors.

Based on the attribute ranking several clear differences between business angels and the other two investor types can be seen. First of all, where venture capital and strategic investors both ranked the TRL Level of the venture the highest, business angels awarded the highest importance to the attribute of Domain Passion of the entrepreneurs in their evaluation criteria.

This indicates that the stage of the technology of the venture is considered less important by

business angels compared to the other two investor types. It also suggests that in the investment decision-making, they find it less important if the technology is not fully developed.

Based on the part-worth utility findings within the TRL Level attribute, the business angels even reported a preference for venture that have technology in the development stage between TRL 4 and TRL 6 over a fully demonstrated and deployed technology (TRL 7–TRL 9) (Figure 3). This finding confirms previous empirical evidence that business angels generally invest at earlier stages in the creation process of a venture^[5].

In relation to the existence of Patents/ Intellectual Property', business angels prefer the intellectual property to be granted, while strategic investors and venture capitalists allocate the highest utility to the situation in which the venture has only applied for the intellectual property. This means that business angels highly value the 'protectability' of the technology of the venture (Figure 4).

FIGURE 3: AVERAGE LEVEL UTILITY: TRL LEVEL

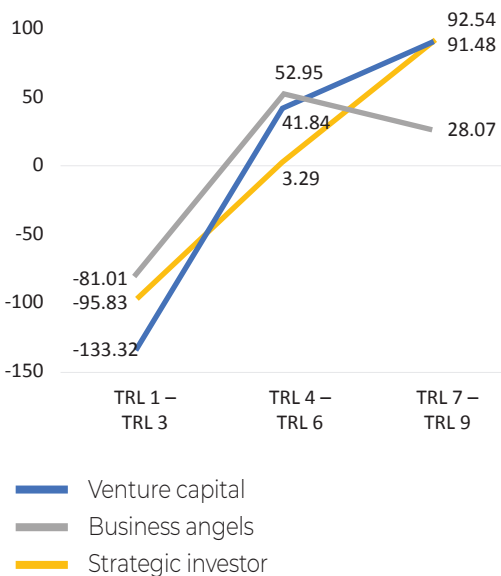
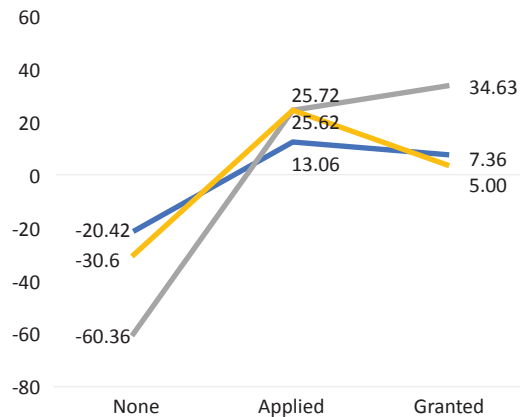


FIGURE 4: AVERAGE LEVEL UTILITY: PATENTS/ INTELLECTUAL PROPERTY



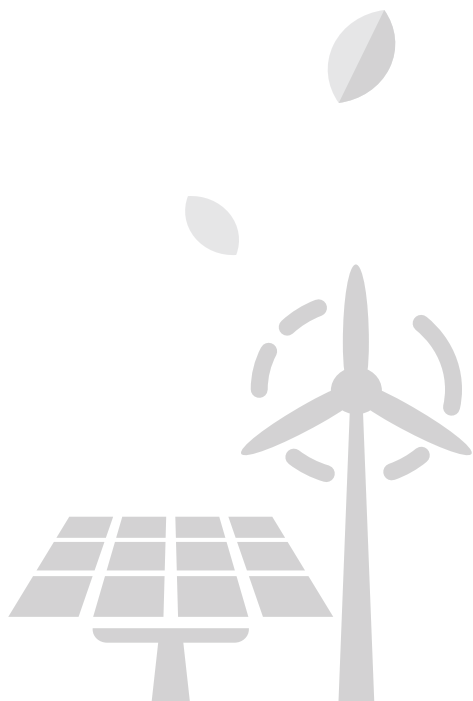
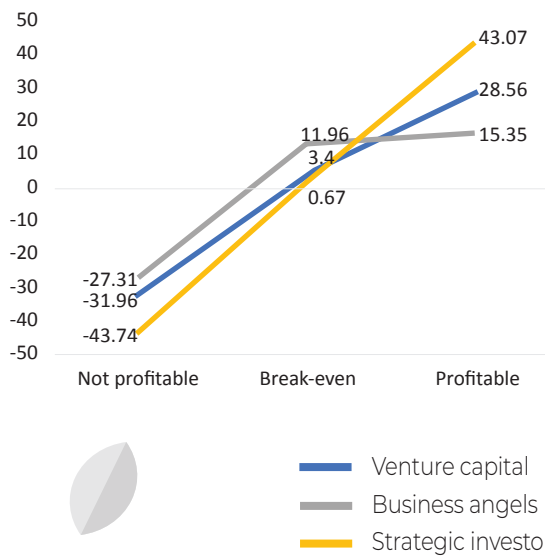
For business angels, Domain Passion was considered the most important attribute. Domain passion represents the entrepreneurs' passion for activities related to the business area in which they are active. Venture capitalists and strategic investors also ranked this attribute high, both in second place.

Another notable pattern in the entrepreneur and team cluster indicates that the Founding Experience attribute is not considered important to business angels compared to the other two investor types, ranked in twelfth and seventh place, respectively.

Lastly, compared to the other two investor types, business angels awarded less importance to the 'profitability' of the startup and gave almost as much utility to a venture that financially breaks even as one that is profitable.

This pattern is confirmed by the average part-worth utilities for the profitability attribute. All investor types showed high utility scores for profitable ventures. However, the graph in Figure 5 flattens for business angels after the break-even point. This indicates that compared to venture capitalists and strategic investors, business angels report a lower increased utility for a profitable venture compared to one that breaks even.

FIGURE 5: AVERAGE LEVEL UTILITY: PROFITABILITY



STRATEGIC INVESTORS

Strategic investors rank the TRL level, Domain Passion and Profitability of the venture highest. These investors gave the least importance to Commitment, Revenue Growth and Downstream Strategic Alliances.

With regard to Upstream Strategic Alliances, the high ranking that strategic investors gave that attribute compared to business angels and venture capital funds is notable. The number of upstream strategic alliances represents the status derived from established relationships with reputable partners, such as universities, research institutes or incubators.

This finding signifies that strategic investors highly value the relationship a venture has with a reputable party in their investment decision-making.

In contrast, strategic investors assign least importance to Downstream Strategic Alliances. Also, based on the part-worth

utilities, it is evident that they allocate less utility to ventures with one written agreement. Strategic investors prefer multiple written agreements or even no agreements, which differs from business angels and venture capital investors, who both prefer a single written agreement over no agreements (Figure 6).

There is also an apparent difference in the ranking by strategic investors for attributes related to the evaluation of revenue growth of a venture. Venture capital investors and business angels both ranked Revenue Growth in fifth place, while strategic investors reported substantially lower importance and placed it in 11th place.

Subsequent results from path worth utilities demonstrate that strategic investors actually prefer a venture with a revenue growth of 10% per year above to one with an annual growth of 20% (Figure 7).

FIGURE 6: AVERAGE LEVEL UTILITY: DOWNSTREAM STRATEGIC ALLIANCES

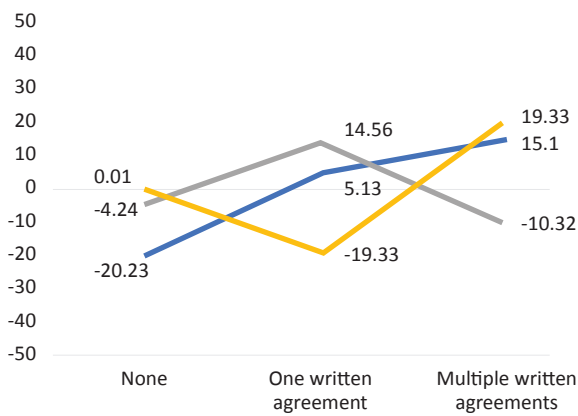
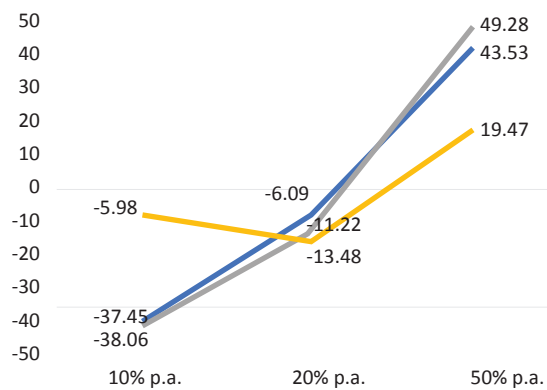


FIGURE 7: AVERAGE LEVEL UTILITY: REVENUE GROWTH



- Venture capital
- Business angels
- Strategic investor

SCREENING CRITERIA DIFFERENCES EXPLAINED

Substantial patterns of differences in the relative importance of screening criteria between the investor types in the renewable energy technologies sector were found. The most obvious patterns are the relatively high importance of downstream strategic alliances and startup experience for venture capital investors, domain passion and intellectual property for business angels

and upstream strategic alliances for strategic investors.

Furthermore, patterns regarding the relative low importance of the intellectual property of a venture's technology for venture capitalists, low importance of profitability for business angels and low importance of downstream strategic alliances for strategic investors were also apparent.

THE STUDY PRESENTS THREE EXPLANATIONS FOR THIS VARIANCE BETWEEN INVESTORS ALLOCATING RELATIVE IMPORTANCE TO DIFFERENT STARTUP FEATURES:

- Differences in risk avoidance strategies
- Difference in motives to invest
- Differences in relationships with third parties



HOW DO DIFFERENCES IN RISK AVOIDANCE STRATEGIES OF INVESTORS RELATE TO THE DIFFERENCES IN RELATIVE IMPORTANCE OF STARTUP FEATURES?

In general, qualitative insights have indicated that the differences in the relative importance of startup features relate to the differences in risk avoidance strategies. In other words, the differences in relative importance for startup attributes between investors can be partly explained by their different risk avoidance strategies.

For instance, venture capital investors allocated high importance to the existence of downstream strategic alliances compared to business angels and strategic investors, which can be explained by their risk avoidance strategy on competitive threats.

In addition, venture capital investors report the highest scores for leadership risk, specifically a situation in which the venture founder has a lack of leadership ability. The findings indicate that the high reported risks related to the leadership capabilities of the entrepreneur is related to the relatively high importance of founding experience.

Additionally, the business angels reported the lowest risk scores for almost all types of risks, except for the bail-out risk, which is the risk related to the investor, who lacks familiarity or an existing network within the

industry. It is notable, however, that domain passion was reported as the most important attribute for business angels, indicating that this attribute of the entrepreneur could diminish the bail-out risk for the business angel because the familiarity and network within the industry are then with the entrepreneur. Informal investors often make decisions based on trust in the entrepreneurs.

Strategic investors reported the highest risk profile for management risk related to ventures with a young and inexperienced management team. Like venture capital investors, they allocated relative high importance to the founding experience of the entrepreneur based on quantitative findings.

If the founder already has experience in setting up a venture, this signals information about their qualities. Also, this risk is potentially alleviated by the existence of upstream strategic alliances. Having the back-up of an incubator or mentor could help manage the high perceived risk of investing in an inexperienced, young management team. Table 4 provides an overview of the findings on how risk avoidance strategies are related to the startup features.

TABLE 4: RELATING RISK AVOIDANCE STRATEGIES AND RELATIVE IMPORTANCE OF STARTUP ATTRIBUTES

INVESTOR TYPE	RISK AVOIDANCE STRATEGY	START-UP FEATURES
Venture capital	Competitive risk	Downstream strategic alliances
	Investment risk	Downstream strategic alliances
	Management risk	Founding experience; domain passion
	Leadership risk	Founding experience
	Implementation risk	Founding experience; profitability; revenue growth
Business angels	Bail-out risk	Domain passion
Strategic investors	Management risk	Founding experience; upstream strategic alliances
	Implementation risk	TRL level; patents/intellectual property

WHAT ARE OTHER POTENTIAL EXPLANATIONS FOR THE DIFFERENCES BETWEEN INVESTORS IN THE RELATIVE IMPORTANCE GIVEN TO STARTUP FEATURES IN THE INVESTMENT DECISION-MAKING PROCESS?

MOTIVES TO INVEST

The qualitative data indicated that investors have a diversified range of motives to invest:

- Personal development and beliefs
- Strategic relevance to parent company and ecosystem
- Financial considerations

The business angels reported that they invest in ventures because they want to learn from it or that creating impact with these ventures was their personal motivation and drive. They also indicated that they wanted to specifically invest in renewable energy because it is a field that they are interested in either through personal experiences or related to their professional background. Strategic investors, on the other hand, indicated the strategic alignment and relevance of the startup to the parent company is an important motive to invest.

While, venture capital investors reported personal development and beliefs motives, such as their motivation based on solving real-world problems, as well as the financial return and exit opportunity motivations. It is notable that for business angels, who often report the personal development and beliefs motive, domain passion of the entrepreneur is the key feature in the investment decision. This could indicate that they look for characteristics in the entrepreneur that resonate with their own drivers, namely passion for a specific industry or sector. This relates to the findings of [6], where similarity biases of venture capital investors were investigated. Also, based on the quantitative findings, business angels reported the least importance to the profitability of the startup, compared to the other investor types. The main motive to invest, which is not focused on financial considerations, could be related to this pattern.

The higher importance of profitability of a startup for both the venture capital and strategic investors compared to business angels could be explained by

the financial motivation of these investors based on the qualitative data. Lastly, the strategic alignment motive, solely raised by the strategic investors as an important driver to invest, is not directly related to the relative importance of startup features based on the qualitative findings.

A potential relationship, however, could be found in the pattern of low importance given to downstream strategic alliances, such as pilot projects and launching customers for strategic investors compared to the other two investor types.

Strategic investors invest in ventures that are of strategic relevance to the parent company or its ecosystem. This means that when a venture already has multiple agreements with other customers, it is potentially less interesting because the potential of creating a strategic advantage over the competition is smaller.

RELATIONSHIP WITH THIRD PARTIES

A third explanation of differences between the investor types in the relative importance of startup features is related to the relationship with third parties, such as co-financing parties and limited partners of the investment fund. Based on the qualitative research findings, the quality of co-investors is an important consideration for strategic investors when evaluating a venture.

In addition, for both venture capital and strategic investors, standard requirements and criteria previously agreed with the limited partners of their funds are an important additional aspect in the evaluation of a venture. The respondents from both investor types indicated that evaluations based on the standard criteria as discussed with limited partners of the fund they are managing, make the investment process more rational. Thus, there are certain standard requirements that already lead to the rejection of a large proportion of the proposals.



CONCLUSIONS

The objective of the study was to develop an understanding of how different types of investors assess the quality of renewable energy startups and how they decide upon the investment, contributing to the development of a theoretical structure to explain the differences between the investors.

The study found preliminary evidence of the existence of differences between venture capitals, business angels and strategic investors in their evaluation of early-stage renewable energy startups.

In general, venture capital and strategic investors highly value a venture that has a technology already in an advanced stage of development and demonstration. Business angels, in contrast, prefer to invest in a venture at an earlier stage of development and allocate the greatest importance to the domain passion of the entrepreneur.

Whether a venture is profitable is also considered less important by business angels compared to the other two investor types. Strategic investors highly value the number of agreements a venture has with reputable partners, while the results indicate that venture capital investors primarily value agreements with (pilot) customers.

Three additional potential explanations for these differences between investors were discovered.

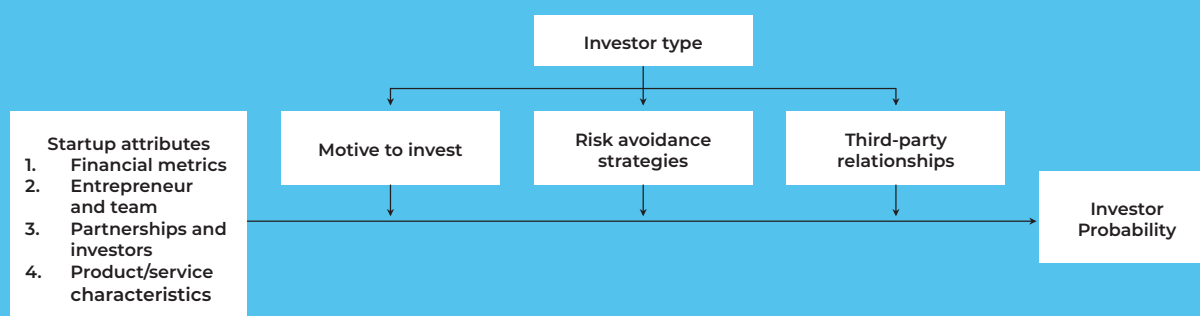
Firstly, the investors differ from each other in their motives to invest. Business angels mostly invest based on a personal development and belief motive, while strategic investors focus on the strategic alignment of the venture with the parent company. Venture capital funds are mainly motivated by financial considerations.

Secondly, the investor types significantly differ from each other in how they assess risks. These differences in risk profiles, such as the high reported competitive risk by venture capitals, is identified as a potential explanation for the relative importance given to certain screening criteria by the respective investor type.

Lastly, the results indicate that for strategic and venture capitalist investors, their relationship with third-parties such as the limited partners of the fund and syndicate of co-investors play an important role in their relative screening criteria preferences.

Based on the study's findings, the flow diagram in Figure 8 illustrates the investment decision-making process for early-stage renewable energy startups.

FIGURE 8: INVESTMENT DECISION-MAKING PROCESS



RELEVANCE OF FINDINGS

FOR INVESTORS

Previous research has shown that investments in early-stage renewables companies are declining because venture capital firms often find it hard to evaluate the risks and rewards from investing in those technologies^[1].

The findings of this study could be used by investors as a way to better understand their own decision-making process as they often indicate, also backed up in this research, that they are not necessarily sure how they actually make investment decisions.

Having a better understanding of their own evaluation processes provides investors with the opportunity to increase evaluation efficiency and performance as they screen hundreds of proposals every year. Additionally, early-stage equity investors are competing with each other to attract the most promising startups, and this study also provides relevant insights in how their peers are evaluating startups.

Lastly, another important insight from this study's research for investors is that their motive to invest, risk profile and relationship with third parties substantially influence the way they evaluate a new venture.

Based on the study findings it is recommended that investors identify their motive to invest, develop a risk profile and assess the importance of relationship with third parties because all these aspects are profoundly influencing their initial screening of ventures.

FOR STARTUPS & ENTREPRENEURS

Based on the key findings of the study, entrepreneurs that are seeking capital will be better able to align their requests for funding to those criteria that venture capitalists, business angels and strategic investors find most critical in their evaluation of a new venture.

Entrepreneurs have limited time and are unable to pitch their ideas to all investors active



in their field. From this research, entrepreneurs can better assess which investor type to address, based on their specific characteristics. For instance, startups with technologies that are not demonstrated yet should consider approaching informal investors first, while those with existing launching customers or pilot projects are better suited to approach venture capital investors.

FOR GOVERNMENTS

Governmental institutions all around the world are introducing regulations and allocating subsidies for increased investments in sustainable innovations, such as provided by renewable energy startups. The results of this study, therefore, also provide insights for governments on which investors are most likely to invest in renewable energy ventures based on their motive, risk profile and relationships with third parties.

Governments could then use this information to better tailor their policies on injecting the private sector with additional funding to stimulate investment in renewable energy technologies.

In conclusion, this study expands on prior research focused on either one investor type or retroactive approaches to capture the decision policies. With improved understanding of investment behavior by investors themselves, as well as by entrepreneurs, the findings of this research aims to bring capital and capital need together, helping to decrease the funding gap for innovative renewable energy technology startups and contribute to the global energy transition.

APPENDIX A

CLUSTER	ATTRIBUTE	LEVELS	EXPLANATION
Financial metrics	Profitability (3 levels, ordinal)	Not profitable	Based on ^[7] .
		Break-even	
		Profitable	
	Revenue growth (3 levels, ordinal)	10% p.a.	Represents the company's average yearly revenue growth rate over the last years. Based on ^[7] .
		20% p.a.	
		50% p.a.	
Company valuation: expected IRR (3 levels, ordinal)	<25%	Represents the expected IRR. Based on ^[8] .	
	25-35%		
	>35%		
Entrepreneur and team	Founding experience (3 levels, ordinal)	No startup experience	Represents the managerial experience of the venture's founder(s).
		Worked in a startup	
		One or more companies started	
	Commitment: entrepreneur's own investment (3 levels, ordinal)	<10% personal net worth invested by NVT members	Represents the percentage of individual wealth that the new venture team members invest in a venture. Based on ^[9] .
		10%-30% personal net worth invested in a venture by NVT members	
		>30% personal net worth invested by NVT members.	
Domain passion (3 levels, ordinal)	Low	Represents the entrepreneurs' passion for activities related to the business's domain. Based on ^[10,11] .	
	Moderate		
	High		
Partnerships and investors	Upstream strategic alliances (3 levels, ordinal)	None	Represents the status derived from established relationships with reputable Partners based on research agreement (e.g. universities, research institutions, Venture Development Organizations (VDO), university incubator, or different mentoring programs in which affiliations can support, and evaluate concepts of newly-born ventures. Based on ^[12] .
		One written agreement	
		Multiple written agreements	
	Current investors (3 levels, ordinal)	None	Describes the type of current investor, if any. Based on ^[7] . Tier 1 investors are investors with high reputation, as identified by different rankings (e.g. CB Insights).
		Unfamiliar	
		Tier 1	
Downstream strategic alliances (3 levels, ordinal)	None	Represents the number of established relationships with reputable business partners based on sales agreement (e.g. pilot customers, sales partners). Based on ^[12] .	
	One written agreement		
	Multiple written agreements		
Product/service characteristics	TRL Level (3 levels, ordinal)	TRL 1 – TRL 3	Represents the Technology Readiness Level of the innovation.
		TRL 4 – TRL 6	
		TRL 7 – TRL 9	
	Value added (3 levels, ordinal)	Low	Describes the value added for the customer through the product or service. Low value-added represents a marginal improvement (e.g., in cost-reduction or service quality), whereas high value-added represents significant improvements. Based on ^[7] .
		Medium	
		High	
Patents/Intellectual Property (3 levels, ordinal)	None	Represents patent protection on the venture's core technology. Based on ^[12] .	
	Applied		
	Granted		

TERMINOLOGY & DEFINITIONS

Venture capitalists are formal investors that raise funds from individuals, organizations, endowments, pension funds, banks, sovereign wealth funds, families and insurance companies to invest in early-stage ventures that offer high reward potential through an equity stake^[3]. Venture capitalists tend to focus on investing in startups with high technology risk but low capital intensity of the project^[4].

Business angels or informal investors are wealthy individuals who provide early-stage financing or seed capital for startup entrepreneurial ventures^[3, 15].

Strategic investors or corporate venture capital are corporate institutions that invest in innovations and new technologies in the form of corporate venture capital. Corporate venture capital has been defined as: the investment of corporate funds directly in external startup companies^[6]. The objective of an investment is strategic or financial, or a combination of both.

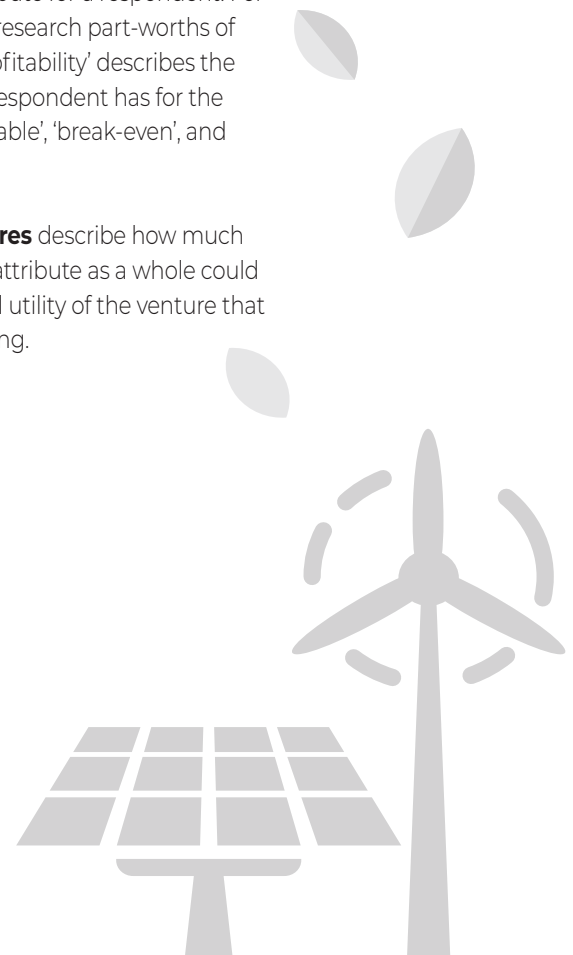
Risk avoidance strategy is a strategy that investors adopt in order to reduce exposure to adverse selection by not investing in risky ventures^[3].

Screening is an operationalization of a risk avoidance strategy to screen potential ventures and look for specific criteria in order to overcome information asymmetry and combat adverse selection in the initial screening phase of an investment decision^[7]. Based on the information derived from the initial screening phase, investors could decide to not continue the investment process and thereby avoid any risk of investing in a potential hazardous venture.

Attribute is a characteristic, in this research of a venture (e.g. profitability), made up of various levels (e.g. 'not profitable', 'break even', 'profitable')

Part-worth utility represent the utility of a level of an attribute for a respondent. For example, in this research part-worths of the attribute 'profitability' describes the relative utility a respondent has for the levels: 'not profitable', 'break-even', and 'profitable'.

Importance scores describe how much difference each attribute as a whole could make in the total utility of the venture that they are evaluating.



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ABOUT NOORTJE VAN HEIJST

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Noortje is a genuine startup enthusiast and has extensive experience in the startup industry at Get in the Ring, a global pitching competition for startups, Unknown Group, a technology scouting agency, and the Erasmus Centre for Entrepreneurship.

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The study was a collaboration between Erasmus University, Energy Investment Management and Initiate.

ABOUT ENERGY INVESTMENT MANAGEMENT BV

Energy Investment Management is an investment management and advisory boutique focused on energy transition assets and cleantech ventures located in The Netherlands.

ABOUT INITIATE

Initiate is a global movement that spotlights talent, empowers the next generation of energy entrepreneurs, connects them with established industry players and investors, and creates impactful programmes to help move the industry towards a just and fair energy transition.

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