

Will it be drizzling, pouring, or is there an oncoming drought?  
**The effect of the current discussion on land grabbing on investment  
decision making in Sustainable Forest Management**

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*“‘All right’, said Deep Thought. ‘The Answer to the Great Question...’*

*‘Yes...!’*

*‘Of Life, the Universe and Everything...’ said Deep Thought.*

*‘Yes...!’*

*‘Is...’ said Deep Thought, and paused.*

*‘Yes...!’*

*‘Is...’*

*‘Yes...!!!...?’*

*‘Forty-two’, said Deep Thought, with infinite majesty and calm.”*

Douglas Adams

‘The Hitchhiker’s Guide to the Galaxy’

## Summary

In recent years, there has been an increase in attention for the role of forests in sustainable development by global institutions like the UN, the World Bank and the FAO, which is reflected in an increase in private investments in Sustainable Forest Management (SFM) practices. This positive trend is however challenged by an increasingly heated discussion on land grabbing. The enabling environment for SFM investments created by global institutions is contradicted by the discouraging climate created by the association of SFM with land grabbing practices. This thesis analyses from an economic perspective SFM and the discussion on land grabbing in relation to investment decision making, in order to investigate probable future investment trends in SFM. An investment decision making model was constructed for SFM investment decisions, integrating both financial and non-financial criteria. This was done on the basis of existing literature on economic investment decision making. Secondary data were used as input for the model resulting in a logic deductive analysis result, stating that at this point in time no effect of the discussion on land grabbing on the investment climate in SFM is to be expected. It was beyond the scope of this thesis to cross check the logically deducted decision making model with empirical research through a questionnaire. However, the implications of the decision making model and the formulation of a set-up for a questionnaire have shown that the financial criteria and their interrelation with non-financial criteria needs further research. A Google Trends analysis of the non-financial criteria has indicated that interpretation of these results goes beyond the reach of the economic approach, and has indicated the need for other disciplines to provide a full picture of SFM investment decision making on which future trend scenarios can be based. Throughout the study the issue of property rights has presented itself to be the complex core of the conflict between SFM investments and the land grabbing discussion. A pragmatic policy approach on this matter is needed. From this research can be concluded that SFM is a sector which is vulnerable to the discussion of land grabbing, which could be detrimental to the SFM sector. Caution is wanted as not to jeopardize the development of the sector in the future.

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When I was looking for a thesis subject, I looked for something challenging, inspiring and out of the ordinary. A subject that would keep me in its grip for the six months to go. Something challenging, inspiring and out of the ordinary was offered to me in the form that is my thesis subject as here presented to you. As I got what I asked for, sometimes it would be nearly too challenging, at which point I would turn to my parents, roommate, sisters and friends. I want to sincerely thank them for their support over this thesis period; I don't know what I would have done without you!

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## List of Abbreviations

AuM	Assets under Management
B:C	Benefit Cost Ratio
CAGR	Compound Annual Growth Rate
CalPERS	California Public Employees' Retirement System
CBD	Convention on Biological Diversity
CIFOR	Center for International Forestry Research
CSR	Corporate Social Responsibility
EAA	Equivalent Annual Annuity
EAI	Equivalent Annual Income
ESDN	European Sustainable Development Network
ESG	Environmental, Social and Governance
FAO	The Food & Agriculture Organization of the United Nations
FC	Financial Criteria
IRR	Internal Rate of Return
ITTO	International Tropical Timber Organisation
LD	Logic Deductive
LEV	Land Expectation Value
LG	Land Grabbing
MAR	Minimal Acceptable Rate of Return
MCA	Multi Criteria Analysis
MCDA	Multi Criteria Decision Analysis
MCDM	Multi Criteria Decision Making
NFC	Non-Financial Criteria

NGO	Non-Governmental Organisation
NPV	Net Present Value
NTFP	Non Timber Forest Product
OWS	Overall Weighted Score
PES	Payments for Environmental Services
PV	Present Value
REDD+	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
SEV	Soil Expectation Value
SFM	Sustainable Forest Management
SRI	Socially Responsible Investing
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention on Combating Desertification
UNCED	United Nations Convention on Environment and Development
UNCSD	United Nations Convention on Sustainable Development
UNCTD	United Nations Conference on Trade and Development
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests
UNPRI	United Nations Principles for Responsible Investing
VBDO	Vereniging van Beleggers voor Duurzame Ontwikkeling (Association of Investors for Sustainable Development)
WB	World Bank
WSSD	World Summit on Sustainable Development

# 1. Introduction

## 1.1 Background

### 1.1.1 Global Forests

In June 2012, the United Nations Conference on Sustainable Development (UNCSD), or RIO +20, was organized in Rio de Janeiro. It marked the 20th anniversary of the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992, and also the 10th anniversary of the World Summit on Sustainable Development (WSSD)<sup>1</sup>. These events mark a period in which the increase in political attention for the importance of forests for the environment and sustainable development has become very evident. This was also expressed in the UN Framework Convention on Climate Change (1992), the UN Convention on Biological Diversity (1992), the UN Convention on the Combat of Desertification (1994) and the UN Forum on Forests (2000)<sup>2</sup>. This attention is much needed. According to the latest Global Forest Resources Assessment performed by the FAO and published in 2010, the net loss of forest area has gone down from 8,3 million hectares per year in the period of 1990-2000 to 5,2 million hectares per year in the period of 2000-2010. Although this shows a decrease of net forest loss on a global level, in effect this means that there is a decline in some countries but a continuous high rate of deforestation in others. World-wide deforestation is mainly caused by conversion of tropical forests into agricultural lands<sup>3</sup>. According to all these conventions, conferences and forums, Sustainable Forest Management (SFM) is the answer to this on-going issue of deforestation and many other issues at the same time. Implementing SFM is meant to kill many birds with one stone.

During the Rio +20 Conference, political leaders have expressed their will to move towards a 'green economy' and developing an institutional framework for sustainable development which will alleviate poverty and stimulate a more fair and sustainable use of natural resources<sup>4</sup>. Part of this 'greening' process is putting a price tag on nature, also called economising or the commodification of nature. Part of the process also consists of renewed attention for already existing practices like agriculture and forestry. SFM fits right into this picture. Coinciding with this increasing political will is the fact that 80% of the world's forests are

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<sup>1</sup> UNCSD, 2012

<sup>2</sup> FAO, 2006: iii, 6-7

<sup>3</sup> FAO, 2010:3

<sup>4</sup> UNCSD, 2012; Thiaw & Munang, 2012

publicly owned<sup>5</sup>. However, because of the continuing economic crisis the public sector is already making rigorous budget cuts in all of its departments. Spare budget for investments in SFM are therefore not to be expected. Ownership and management of forests by communities, individuals and private companies is increasing<sup>6</sup>, and taking into account the above, also welcomed by the public sector and stimulated. The private sector is called on its 'Corporate Social Responsibility' (CSR) to take care of 'public problems'. New markets mean new business opportunities and in this case there is more to gain than money in the form of a 'green' reputation. The private sector is jumping to the occasion. The world seems more favourable than ever towards private investments in SFM projects.

When the year 2007-2008 saw a global food price crisis, this triggered (institutional) investors from western industrialised countries and emerging markets with expanding populations to invest in developing countries, as these often offer investment opportunities in the agro-sector and forestry business due to their abundance in land resources<sup>7</sup>. What global institutions like the UN, World Bank and FAO were already advocating since years<sup>8</sup> appeared to really happen: investments in agriculture in developing parts of the world bringing food security, and poverty alleviation. These investments were mainly based on large land deals ranging from a thousand hectares to 5,000 km<sup>9</sup>. Likewise, on-going attention for the environmental crisis has seen increasing investments in amongst others forestry<sup>10</sup>, met by the same support and enthusiasm from the World Bank and the FAO<sup>11</sup>.

### 1.1.2 Global people

After first significant investments were made, problems started to surface. For both agricultural investments and investments in forestry, vast tracts of land have been and are being acquired<sup>12</sup>. This is done to secure that the full return on the agro or forest project goes to the investor, and not to any other party. Whose land, though? Not long after investments began to pour in and land was acquired, (local) NGOs and governments sounded the alarm bell for what has

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<sup>5</sup> FAO, 2010:10

<sup>6</sup> FAO, 2010:10

<sup>7</sup> Von Braun & Meinzen-Dick, 2009:1; WB, 2010:32

<sup>8</sup> WB, 2004; FAO, 2006

<sup>9</sup> FAO, 2009:7

<sup>10</sup> FAO, 2010

<sup>11</sup> WB, 2004; WB, 2008; FAO, 2006; FAO, 2008

<sup>12</sup> Von Braun & Meinzen-Dick, 2009:1; WB, 2010

been branded 'land grabbing'<sup>13</sup>, and mentioned as being a form of neo-imperialism<sup>14</sup>. Today, reports on land grabs come from everywhere, and are published everywhere, through organisations dedicated to providing and updating information on alleged 'land-grabs' on specifically for that purpose managed websites, such as [www.farmlandgrab.org](http://www.farmlandgrab.org) and [www.stopafricalandgrab.com](http://www.stopafricalandgrab.com).

The internationally well renowned organisation Oxfam International has started an online petition to appeal to political leaders to stop the practice of land grabbing<sup>15</sup>. The primary accusation against these investments is that they deny local communities the rightful access to the land and harm the environment<sup>16</sup>. A very recent example of forest land grab in the media is the accusation Oxfam International laid at the World Bank's door of being involved in land grabbing by indirectly backing up a forestry project in Uganda through their loan of \$7 million to an agricultural investment company. The project is said to have resulted in forceful evictions of communities living in the area<sup>17</sup>.

All this commotion has led the UN to formulate Principles for Responsible Investment<sup>18</sup>, and the FAO to formulate guidelines of 'Responsible Governance of Tenure'<sup>19</sup> and 'Principles for Responsible Agricultural Investment'<sup>20</sup>, to streamline foreign investment into agriculture, fisheries and forestry. Foreign investment has however gotten a negative image, and it is doubtful if any guideline can change this.

### 1.2 Problem Statement

When the positive picture painted on SFM by international institutions is put together with the negative image of the relation of SFM with land grabbing, friction occurs.

- ❖ On the one hand, increasing awareness of the options of investing in SFM and the political positive climate that enables the private sector to commit to these investments gives a rosy prospect for continuing and increasing investments in SFM.

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<sup>13</sup> Transnational Institute, 2012; Vidal, 2008

<sup>14</sup> Snijders, 2012:513-514

<sup>15</sup> Oxfam International, 2012

<sup>16</sup> Borras & Franco, 2010:507,509

<sup>17</sup> Bawden, 2012

<sup>18</sup> UNPRI, 2012

<sup>19</sup> FAO, 2012a

<sup>20</sup> FAO et al., 2010 as cited by Borras & Franco, 2010:507

- ❖ On the other hand, the worldwide issue of land grabbing discredits foreign investments in forestry of any kind, and gives a prospect of declining investments in SFM.

Both images appear not to be able to reasonably coexist at the same time. Reality however shows that they do. This of course has some consequences. These are two powers working in complete opposite directions, which will likely result in the goals set on either side not being reached.

Private investment companies considering investments in SFM have these conflicting images to deal with. For the individual investment manager providing the company with his investment recommendation these are two antagonistic powers on his mind. On the one hand investing could mean an improved 'green' reputation; on the other hand it could destroy an investor's reputation when public opinion turns on him. For the description and analysis of situations, like the one described above, a neoclassical economics approach seems to offer an appropriate starting point. Neoclassical economics puts the individual decision maker in the centre of its theoretical frame. This corresponds with the central position the individual (investment) decision maker takes in the real world situation. When taking the individual and his actions as the starting point of analysis, this will have its effect on the outcome of the analysis. This will be based on what the individual decision maker decides. Will he consider land grabbing in his decision? And if he does, will he consider it to be more important than other factors he considers which might speak in favour of investing in SFM? To be able to answer these and related questions, it is necessary to look into the elements that guide the decision making process of the individual decision maker.

### 1.3 Research objectives

SFM, land grabbing, and neoclassical economics are topics which have been extensively dealt with in science and research, and accordingly a massive body of literature exists on these topics. The existing literature discusses the topics separately extensively, but when tying it all together this brings research to unexplored grounds.

The relation of SFM to the discussion on land grabbing has not been studied before in the context of investment decision making. In conventional investment decisions most assets of SFM and the discussion of land grabbing as a whole would not be taken up, as they mostly affect a company's reputation in respectively a good or bad way, and are not directly related to financial criteria. As of yet no method is known which quantifies reputation into a monetary value.

However, these non-monetary values appear to have large effects on investment decision making. How and to what extent are non-monetary elements like SFM and the discussion on land grabbing taken up in an investment decision? Economic and financial research has been busying itself with the importance of this kind of non-financial aspects<sup>21</sup>, but so far a straight forward method has not been formulated, with several studies indicating this as a gap in knowledge which should be filled<sup>22</sup>.

This research project has the objective to analyse SFM and the discussion on land grabbing in relation to investment decision making.

To realise this main research objective, several sub-objectives have to be met.

- ❖ To map out the past development of both SFM and land grabbing which have led to the status quo in SFM investments.
- ❖ To formulate a scenario of future development of SFM investments in which the discussion on land grabbing does not affect investment decision making.
- ❖ To formulate a scenario of future development of SFM investments in which the discussion on land grabbing does affect investment decision making.
- ❖ To provide insight in how investment decision making works, specifically with relation to investments in SFM, and how it considers non-financial elements like the discussion on land grabbing.

If this study is successful its outcome will help explore probable future investment trends in SFM.

### 1.4 Research questions

SFM provides a way of dealing with a wide array of urgent ecological and environmental problems, while alleviating poverty and being economically viable at the same time. However, this cannot be realised without investments into the sector. Seeing the current discussion on land grabbing it is not clear cut that these investments will be made in the future. The main research question is therefore:

- ❖ Will the current discussion on land grabbing result in more or in less investments made in sustainable forest management, measured in US\$?

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<sup>21</sup> Davis, 1973; Kerste et al., 2011; TEIU, 2005

<sup>22</sup> Kerste et al., 2011:169; Brown, 2007:11

The answer to this question will show what can be expected for the SFM sector in terms of private investments, and this will have its direct consequences for all the problems it is meant to solve. Answering this question will therefore be of major relevance to environmental sciences in understanding the effect of public debate on possible ways to counteract environmental problems. Environmental policy can anticipate on the effects of the discussion on land grabbing on the investment level in SFM and change management accordingly if necessary. In addition, answering this research question will provide new insights in land use rights issues in developing countries and their effects on economic processes. Policy implications that might be drawn from this can propose a new approach in handling land use rights issues and which may change the investment environment in these countries.

To be able to answer the main research question conclusively, it has been split up in several sub-questions.

This thesis will take an economic approach, it is therefore necessary to know:

- ❖ What is the economic approach to decision making?

Decisions made concern SFM and the discussion on land grabbing. To get better insight into why decisions are made, it needs to be investigated what the decisions are about.

- ❖ What is Sustainable Forest Management (SFM)?
- ❖ What is the discussion on land grabbing about?

Property rights seems a central issue to both (private) investments in SFM and the discussion on land grabbing. This relation needs to be clarified to understand why there is a problem in the first place.

- ❖ What is the relation of investments in SFM and the discussion on land grabbing to property rights?

When it is established why decisions are made with respect to investments in SFM, how it relates to the discussion on land grabbing, insight has to be gained in how investment decisions are made.

- ❖ How do investors decide what to invest in?
  - What tools are used to decide on the financial utility of a project?
  - What tools are used to decide on the non-financial utility of a project?



Finally, to be able to formulate predictions about future trends in investments in SFM it is necessary to see if either non-financial or financial utility of an investment project is currently more important to an investor.

- ❖ How important is the non-financial utility relative to the financial utility in an investment decision?

After all sub-questions have been answered, the main research question is answered as well.

### 1.5 Structure of thesis report

The structure of the thesis report is provided in the form of a road map which guides the reader through the different chapters and paragraphs. This road map, as depicted in the figure below, does not include the whole table of content, but follows the line of reasoning which is presented in this thesis.

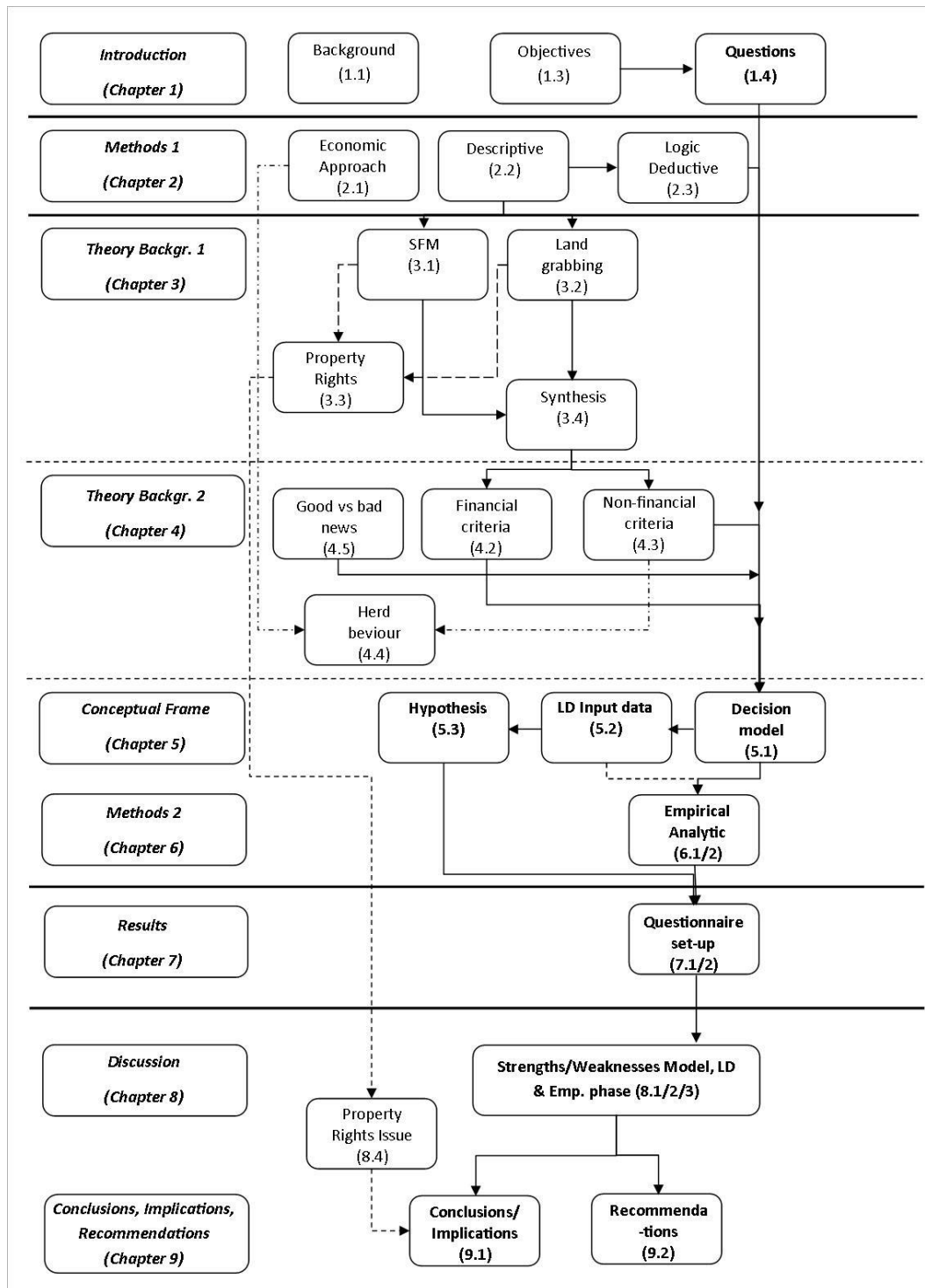


Figure 1. Logical relation in thesis report structure (Source: own work)

As can be seen in Figure 1, the pathway of logical reasoning running through this thesis report starts in this chapter, in which through the objectives and the research questions the approach of this research is explained and the requirements of the conceptual framework (Chapter 5) are stated. Subsequently, in Chapter 2 the economic approach to the whole thesis will be explained, as will

## Introduction

be the logic deductive research which will shape the conceptual framework. The input to the logic deductive research is provided by descriptive research. This descriptive research will take shape in Chapter 3 in which the concepts of SFM and the discussion on land grabbing will be discussed; their conflicting ground in property rights; and their connection to investment decision making. In Chapter 4 this descriptive research will take further shape and it introduces the elements of investment decision making, financial and non-financial criteria and how this is dealt with in relation to SFM and the discussion on land grabbing. In Chapter 5 the descriptive research will be tied together logic deductively in a decision making model (paragraph 5.1), which will be completed and run with secondary input data, on the basis of which a hypothesis will be formulated. This will provide the framework on the basis of which the empirical analytic stage will be set up. In Chapter 7 the results of the limited empirical phase will be discussed, in the form of a questionnaire set-up. This will lead to an overall discussion of the strengths and weaknesses of the research and specifically the decision making model in Chapter 8. The report will be concluded by Chapter 9 presenting the conclusions, policy implications and recommendations for further research.

## 2. Methods Part 1: Axiomatic foundation, logic deductive and descriptive research

### 2.1 Forest Economics: Rationalism, Methodological Individualism and Decision Situations

The perspective to take in this thesis is that of forest economics, since forest economics is nothing more than economics applied to forestry, with some special attention given to certain tools and principles<sup>23</sup>. Economics puts the individual decision maker at the centre of the issue, which corresponds with the position of the investment decision maker studied in this thesis. How do people make economic decisions? Economic theorists have been trying to figure out the answer to this question since Jeremy Bentham (1748-1832)<sup>24</sup>, who is known amongst other things for his ideas about utilitarianism which formed the precedence for the maximisation principle. Inherent to economic decision making are the assumptions of rational choice and methodological individualism, which also form the basic approach of this entire thesis. They will be elaborated in the next two paragraphs (2.1.1 and 2.1.2), as will the different decision situations in which an economic decision can be made in paragraph 2.1.3.

#### 2.1.1 Rationalism

To formulate any theories about (riskless) choice, a set of assumptions was made that comes down to the fact that the person, who the theory is applied to in this case the investment manager, is an economic man. Three characteristics can be ascribed to the economic man.

- ❖ He is completely informed.
- ❖ He is infinitely sensitive.
- ❖ He is rational.

The assumption is that decision makers are rational. Being rational basically means two things.

- ❖ You know the causal relationship between your choices and their consequences and you can order options of choices according to the question if they are relatively more or less favourable than the other choice.

---

<sup>23</sup> Rideout & Hessel, 1997:1, as cited by Blum & Hoogstra, 2009:8

<sup>24</sup> Edwards, 1954:380

- ❖ You make your choices on the basis that you want to maximize something. In the theory of choice this something is utility in case of riskless choice, and expected utility in case of risky choice<sup>25</sup>. This leads back to the utilitarianism as initially formulated by Bentham who reasoned that maximizing utility or ‘good’ utility was the choice which generated the most pleasure and the least pain<sup>26</sup>.

The economic man will order his choices on the basis of what brings him the highest utility. This behaviour of the economic man is central to the rational choice theory. Rational choice theory *“denies the existence of any kinds of action other than the purely rational and calculative”*<sup>27</sup>.

Of course there have been all kinds of critiques and other theories formulated in response to the theory of rationality. A very important and well known one is the theory of bounded rationality by Simon (1959, 1972, 1979). His biggest critique on the classical rational choice model is that it requires the decision maker to have complete knowledge of the consequences of the alternative choices that are available to him, or the ability to calculate them; the certainty of the consistency of his evaluation now and in the future; and the ability to compare consequences however different they are to come to a consistent judgement of their utility<sup>28</sup>. Since the decision maker will not be able to have full information on all alternatives and their consequences, and the external environment which influences both of the prior, his ability to decide rationally is limited or ‘bounded’<sup>29</sup>. It is therefore not possible to make the optimal decision, but only to make an adequate or ‘satisficing’ decision<sup>30</sup>.

Rationality has a set of characteristics which makes it a very suitable tool to use for analysis. For one, assuming that people make choices rationally gives a substantial basis to predict what individuals will do in given situations. People are in general effective in pursuing their goals and in that sense maximizing the process of their choices. Rational behaviour favours individuals and organisations in competition. When choices are made optimally this increases the chance of coming out on top. And last, there is an intuitive appeal of the model of rational choice<sup>31</sup>. In 1979 Grether and Plott argued that at that point in time no

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<sup>25</sup> Edwards, 1954:381

<sup>26</sup> Mill, 1879

<sup>27</sup> Scott, 2000

<sup>28</sup> Simon, 1979:500

<sup>29</sup> Simon, 1979

<sup>30</sup> Simon, 1957 as cited from Simon, 1972:168

<sup>31</sup> Tversky & Kahneman, 1986: S252

other theory than the theory of optimization, which is another name for the maximization principle, could explain the *“same extremely broad range of phenomena”*.

As late as 1993 Becker claimed in the speech he held on the occasion of being awarded with the Nobel Prize, that although all kinds of other theories in addition to the theory of rational choice have come along, individuals maximize welfare as they conceive it<sup>32</sup>. This means, that utility and welfare do not have to be considered in a purely monetary way. When an individual happily changes money for ‘doing good’, for example gaining a minimal acceptable return<sup>33</sup>, this will also bring him utility, and he will seek to maximize this. In addition and applied to the specific case of investment decision making studied in this thesis, it is assumed of investors that they *“spend money in a way that maximizes satisfaction”*<sup>34</sup>.

### 2.1.2 Methodological Individualism

With rationality being the first assumption of economics, the second assumption on which this framework is built is that of methodological individualism. Methodological individualism means the individual and his actions are taken as a starting point of reasoning. The action of a group of people, an aggregated group of individuals, is therefore made up of actions of the separate individuals. Choices on group or societal level are thus the sum of individual (rational) choices<sup>35</sup>. Rational choice theory states the following about methodological individualism. *“It argues that all social action can be seen as rationally motivated, as instrumental action, however much it may appear to be irrational or non-rational”*<sup>36</sup>.

The exact definition of methodological individualism has changed in the course of time, from when it was first used as a theory by the ancient Greeks to explain the rise of social order<sup>37</sup> which would be a precedence of the theory of social contract, till the analytical Marxism advocated by Jon Elster<sup>38</sup> and John Roemer<sup>39</sup>. However, they all agree on the fact that the choices of individuals make up the choices of groups.

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<sup>32</sup> Becker, 1993

<sup>33</sup> Hildebrandt & Knoke, 2011

<sup>34</sup> Klemperer, 1996

<sup>35</sup> Blum & Hoogstra, 2009; Scott, 2000

<sup>36</sup> Scott, 2000

<sup>37</sup> Udehn, 2002:480

<sup>38</sup> 1985:5, as cited by Udehn, 2002:497

<sup>39</sup> Udehn, 2002:498

### 2.1.3 Decision situations

Decision situations in this thesis are categorised under the terms of certainty, risk, uncertainty and ignorance. This structure is used because it gives the possibility to give a clear and conclusive categorisation using only two parameters. These parameters are the following.

- ❖ The spectrum of different outcomes of a decision.
- ❖ The availability of information regarding the probability that a certain outcome will occur.

In an economic context the spectrum of outcomes of a decision and the availability of the probability of a certain outcome, give the terms the following meaning.

*Certainty:* Decisions taken under certainty mean that the decision maker is fully informed about the context of the decision. He knows what the causal relationship is of his choices and the result of those choices.

*Risk:* When a decision is taken in a situation of risk the information available is not complete. The decision maker does know the spectrum and probability of the consequences of his choices, but he is no longer certain that his choice will lead to an anticipated result.

*Uncertainty:* In this case the spectrum of consequences of a choice is known, but the probabilities are unknown.

*Ignorance:* In a situation of ignorance there is no information available about the possible consequences of a choice.<sup>40</sup>

The economic approach can only be applied to explain decision situations under certainty and risk. In these situations causal relationship is either clear or can be calculated which are also the characteristics of rational choice theory (see paragraph 2.1.1). In decision situations of uncertainty or ignorance this is not the case, which generally makes them unfavourable for a decision maker. In these situations the economic approach is not appropriate for analysis. An exception to this rule is when another kind of predictable mechanism is present in uncertainty or ignorance situations. This mechanism is based on peer pressure. When people lack information to make a decision themselves, their choice can be determined by which choice has the most support amongst their peers. As this is the

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<sup>40</sup> Blum & Hoogstra, 2009:13

complete opposite of rationality, but is nevertheless consistent in its outcome, it becomes possible to predict outcomes because of their irrationality<sup>41</sup>.

### 2.1.4 Synthesis

To conclude the above written line of arguments, this thesis is approached from a framework which is based on the following assumptions.

- ❖ Individual decision makers act rationally. As a consequence, they will weigh their decisions, maximize their utility in whichever way this utility is perceived, and their actions can be predicted.
- ❖ Social phenomena can be explained through the actions of individuals. Therefore studying the actions of individual decision makers will show what is (to be) a societal trend.
- ❖ Individual decision makers try to avoid situations which cannot be predicted or calculated. In situations of uncertainty or ignorance, which cannot be calculated, there is no systematic way of deciding which choice to make. When decision makers are forced to make decisions, as is the case with investment decision makers, choices can be determined by the peer group of the decision maker.

It is important to note that rationalism and methodological individualism are not said to be 'the truth' and the ultimate theories of explaining human behaviour. They are taken as a basic framework that best fits the issue described in this thesis, and used as tools to explain it. The assumptions of rational choice and methodological individualism are considered as much methods as they are theory.

## 2.2 Methodological Tools

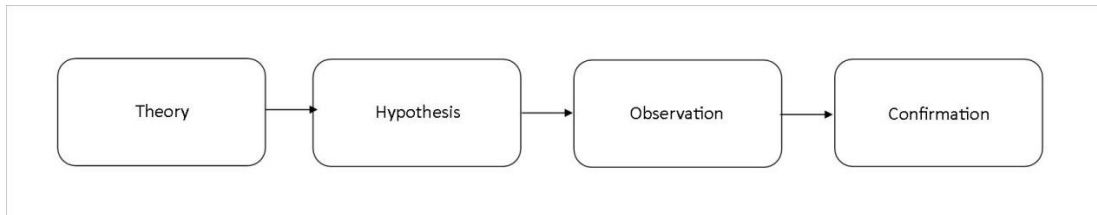
### 2.2.1 Logic deductive research

Throughout this thesis a logic deductive (LD) approach is taken. Characteristic for this approach is that it takes the different research steps in the following order:

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<sup>41</sup> Blum & Hoogstra, 2009:23





**Figure 2. Graphical depiction of logic deductive research set-up (Source: Based on Trochim, 2002)**

Logical deductive research collects theoretical ‘building blocks’ out of existing theory and literature and formulates relations between these building blocks on the basis of logical reasoning. In this way the conceptual framework of this thesis is formulated. The main structure of the investment decision making model, which makes up part of the conceptual framework, is formulated in the same way. It uses the theory on economic decision making, on SFM, on the discussion on land grabbing and on investment decision making to piece together a reflection of the decision making process of an investor. On the basis of this logically deduced investment decision making model and conceptual framework, a hypothesis is formulated.

For the hypothesis to be verified or falsified, it needs to be cross-checked with empirical research. Since it is beyond the scope of this thesis to execute the empirical research itself, only the set-up for this part will be discussed in Chapter 6 and Chapter 7.

### 2.2.2 Descriptive research

To explore the impact SFM and land grabbing have on investment decision making, the first stage of the research and the first part of the report are purely descriptive. It describes ‘*what is prevalent with respect to the issue/phenomenon under study*’<sup>42</sup>, meaning that it gives an overview of current literature and knowledge on the subject. The introduction (chapter 1) and theoretical background part 1 of SFM and LG (chapter 3) provide this overview, as well as large parts of the logically deduced theoretical background (part 2) about investment decision making (chapter 4).

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<sup>42</sup> Kumar, 2005:10

### 3. Theoretical Background Part 1: SFM, land grabbing and property rights

In this chapter SFM and the discussion on land grabbing will be discussed. What is the historical background of concepts, how are they defined and approached and where do they connect and conflict. It will illustrate why SFM and the discussion on land grabbing is related to investment decision making.

#### 3.1 Sustainable Forest Management (SFM): the solution to all the world's problems

##### *History and current definition*

Sustainability in relation to forest management was first mentioned by von Carlowitz in 1713 in Central Europe<sup>43</sup>. Since then the concept of Sustainable Forest Management has changed meaning numerous times, and by looking at the implementation of the concept there is still no universal perception of the concept<sup>44</sup>.

There are a lot of definitions going around. What definitions generally come down to is using forests in a sustainable way, both environmentally and socio-economically. This can be illustrated by the following two examples.

A very elaborate current definition of SFM as used by Moura Costa and Kohn (2000) involves the activities of plantation forestry, natural forest management for timber logging, natural forest management for other forest and environmental services, conservation forestry. These activities are different from conventional forestry in that they are all conducted in a sustainable manner. This means that they intend to satisfy requirements of sustainability, in conservation, productivity, ecological processes and socio-economic aspects<sup>45</sup>.

The definition of SFM as established by the Ministerial Conference on the Protection of Forests in Europe (Forest Europe) at the conference in Helsinki in 1993 is: *“the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social*

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<sup>43</sup> Schanz, 2004:1346

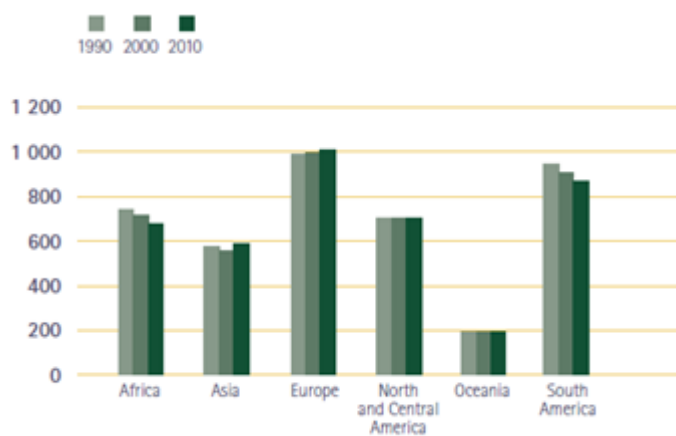
<sup>44</sup> Wang, 2004

<sup>45</sup> Moura Costa & Kohn, 2000: 6-7

*functions, at local, national, and global levels, and that does not cause damage to other ecosystems*"<sup>46</sup>. This definition was later taken up by the FAO as well<sup>47</sup>.

### ***Cause for 'renewed' interest in SFM***

Although already being around for a couple of centuries, the current concept of SFM has been developed as a consequence of the following. Forest degradation specifically in the tropics is vast<sup>48</sup>. Though it is difficult to state exactly how much forest is degraded or turned into secondary forest, because of differing definitions, estimates based on extrapolations in the year 2000 say that about 850 million ha of the total forest area in tropical countries is either degraded or secondary forest. This corresponds with 60% of the total forest area in the three tropical regions. Of this number 350 million ha of formerly forested land has been deforested between 1950 and 2000. The other 500 million ha counts for degraded primary or secondary forest<sup>49</sup>. According to the last Forest Resources Assessment published by the FAO in 2010, globally the decrease in forest area reported in earlier decades is slowing in pace. During the period of 2000 to 2010 13 million ha per year have been converted to other land uses. In the period 1990 to 2000 this was 16 million ha annually<sup>50</sup>.



**Figure 3. Trends in forest area, 1990-2010 (million ha) (Source: Forest Resources Assessment 2010, FAO, 2010:4)**

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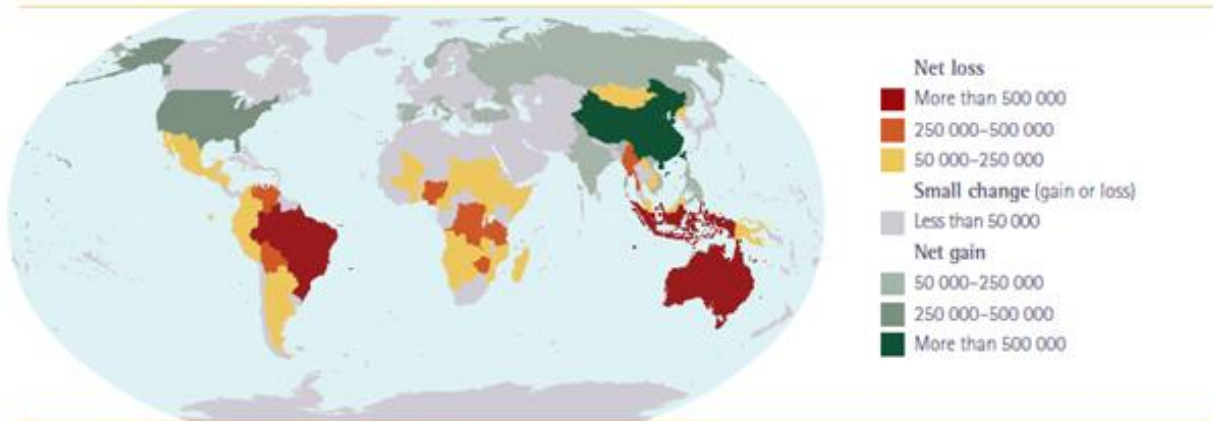
<sup>46</sup> Forest Europe, 2012

<sup>47</sup> e.g. FAO, 1996

<sup>48</sup> ITTO, 2002:5

<sup>49</sup> ITTO, 2002:14, 15

<sup>50</sup> FAO, 2010:3



**Figure 4. Net change in forest area by country, 2005-2010 (ha/year) (Source: Forest Resources Assessment 2010, FAO, 2010:4)**

Although the decrease in forest cover was less severe in the last decade than in the 1990's, the net balance of forest cover is still negative. As can be seen from Figure 3 and Figure 4 some parts of the world show a slight increase in forest cover, or even quite significant as in the case of China. The tropical regions however show severe deforestation rates.

#### *Forest attributes*

The importance of forests lies in the many attributes they have. Therefore, deforestation and degradation have several consequences for the functioning of these attributes in the future.

- ❖ The first obvious consequence is that unsustainable use of forest resources will mean that they will be depleted sooner or later. Forests provide all kinds of products ranging from timber to non-timber forest products, like nuts, fruits and medicinal plants. Unsustainable use will harm the supply of these products.
- ❖ A second consequence is the inevitable loss in biodiversity, as especially in tropical forest ecosystems at stake two-thirds of the world's terrestrial biological diversity can be found<sup>51</sup>. A loss in forest area implies a loss of habitat, which will eventually lead to a loss of species.
- ❖ A third consequence is an increase in CO<sub>2</sub> emission. It is estimated that the current rate of deforestation is responsible for 12 to 17% of the yearly emission of CO<sub>2</sub><sup>52</sup>. The world's forests store major amounts of carbon<sup>53</sup>, with a loss of forest this function can no longer be fulfilled.

<sup>51</sup> Gardner et al., 2009

<sup>52</sup> Lawlor et al., 2010

These three elements are just a few of the environmental services provided by forests. Other environmental services provided by forests are for instance water purification, flood protection and regional climate regulation<sup>54</sup>. At the same time as fulfilling these environmental and ecological functions, according to the World Bank (2004) forest resources contribute directly to the livelihoods of 90% of the 1.2 billion people living in extreme poverty. The World Bank also states that forests indirectly support environmental services that are essential to agriculture and through that provide half the population of the developing world with food supplies<sup>55</sup>.

By forest decline all these different aspects are threatened. Seeing the still condensed list above, sustainable use and management of forests is vital to the whole of human society. By integrating socio-economic aspects in the concept, SFM is trying to be a solution to all these problems.

But, there are conflicting (economic) interests in forests.

#### ***SFM implementation: need and preconditions***

The rapid deforestation has moved institutions like the World Bank in the last decade to advocate conservation of forests, especially tropical moist forests, rather than looking into the economic services forests offer<sup>56</sup>. While conservation areas are essential, it is equally or even more important to regulate how areas outside strict conservation areas are managed since this influences greatly the effectiveness of the conservation areas<sup>57</sup>. Also, conservation of forest in one place has meant an increase of forest exploitation in other places, also called 'leakage' of the problem. Conservation on its own is therefore not as effective as it might have appeared<sup>58</sup>. Besides that, only a few countries are actually willing to give up 10 to 20 % of their forests to strict conservation. Forests outside conservation areas are and will be used in the future for the production of timber<sup>59</sup>, certainly with the increased demand for timber<sup>60</sup>. To deal with this reality SFM is promoted by large institutions like the FAO, ITTO and the World Bank with the 'use it, or lose it' principle in mind. Better implement SFM and use forests in a responsible way, than to lose the forests altogether.

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<sup>53</sup> ScienceDaily, 2011; Pan et al., 2011

<sup>54</sup> CBD, 2009

<sup>55</sup> World Bank, 2004:1

<sup>56</sup> World Bank, 2004, pp. 1-2

<sup>57</sup> Wittemeyer et al., 2008; World Bank, 2004: 6

<sup>58</sup> Sohngen et al., 1999:11

<sup>59</sup> World Bank, 2004, pp. 6-7

<sup>60</sup> Sohngen et al., 1999:1,2

For SFM to be implemented successfully, a couple of things are required. Important factors are financial incentives, a clear scheme of sharing the costs and investments of implementation and development, and a committed and well informed civil society in support of this. Essential and mentioned by many in similar contexts, is the establishment of clear legislation of forest tenure, as well as different forms of forest ownership and forest usage rights<sup>61</sup>. The issue of tenure will be more elaborately discussed further on in this paragraph and in paragraph 3.3.

### *SFM and private sector involvement*

As is indicated in paragraph 1.1.1 (page 10), the political will to 'go green', and in this case implementing SFM, is present, but there is a lack of financial resources. While reliance on governmental budgets is high, due to effects of the on-going world-wide economic crisis, resources in the public sector are scarce. The last couple of years several reports have been published by the World Bank, UN, FAO and CIFOR which promote involvement of private funds and investors in SFM (see Table 1). According to the FAO<sup>62</sup> this has resulted already in an 80 to 90 % increase of private funding in this sector.

**Table 1. A selection of relevant opinions on the involvement of the private sector in SFM funding (Source: own compilation)**

Involvement private sector in SFM funding as 'promoted' by institutes, conferences and conventions		
Report title	Authors	Citation
<b>International Tropical Timber Agreement 2006</b>	ITTA 2006	"(i) Reaffirming their commitment to moving as rapidly as possible toward achieving exports of tropical timber and timber products from sustainably managed sources (ITTO Objective 2000) and recalling the establishment of the Bali Partnership Fund;" "(j) Recalling the commitment made by consumer members in January 1994 to maintain or achieve the sustainable management of their forests;" "(q) Recognizing the need for increased investment in sustainable forest management, including through reinvesting revenues generated from forests, including from timber - related trade;" <i>Etcetera.</i>
<b>Responsible management of Planted Forests</b>	FAO 2006	"The quest for sustainable forest management has received considerable attention in international negotiations. The Rio Declaration, United Nations conventions – the framework Convention on Climate Change, Convention on Biological Diversity and Convention to Combat Desertification – the United Nations Forum on Forests and other international processes, meetings and key publications have recognized the critical role of forestry in achieving sustainable development."

<sup>61</sup> Schanz, 2004: 1349; FAO, 2008:1

<sup>62</sup> 2008:2

## Theoretical Background Part 1: SFM, land grabbing and property rights

<b>Forestry Policy Brief: Financing Sustainable Forest Management</b>	FAO 2008	"Direct investment currently accounts for most private-sector investment in forestry, but indirect investment products - such as forest and land investment trusts and funds - are increasing in importance. Funds focusing on socially responsible and green investments are another source of private-sector finance that is expanding and these funds might invest in some types of forests. In addition, the development of mechanisms for the payment of environmental services may increase the financial returns from sustainable forest management and stimulate more investment in the sector."
<b>The private sector speaks: investing in Sustainable Forest Management</b>	Chipeta & Joshi (eds.) 2001	"I take pleasure in introducing this report, which conveys private sector views on factors affecting private sector investment in Sustainable Forest Management (SFM). The report seeks to better understand how this important stakeholder group can be encouraged to play a more central role in SFM." <i>Whole report</i>
<b>Sustaining Forest</b>	World Bank 2004	"It will provide institutional and policy support for community and joint forest management, governance and control of illegal activities, building markets, and financial instruments in support of private investment in sustainable forest conservation and management. It will emphasize the development of new markets and marketing arrangements for the full range of goods and environmental services available from well-managed forests. For the IFC and the MIGA, the major focus will be to support private investments in sustainable forest management (SFM), conservation, and rural forest industries." "To achieve blended terms, the Bank will need to work together with other donors including the Global Environment Facility (GEF), bilateral development assistance agencies, NGOs, civil society, and the private sector (including "green" private investment funds) to create the right blend of lending and grant financing from multiple sources."
<b>Engaging the Private Sector in Forest Sector Development. In: Forests Sourcebook: Practical Guidance for Sustaining Forests in Development Cooperation</b>	World Bank, 2008	"To date, private investment in SFM has been concentrated in developed countries. Although this trend is changing, the need remains to motivate similar investment in developing countries to maximize the full potential of SFM, because investments required for harvesting and processing can be large (for example, establishing a modern pulp mill can cost the better part of US\$1 billion). " <i>Whole chapter</i>

### *Private financing of SFM: gains and risks*

These private investments in SFM are not only done for altruistic reasons. Besides the fact that SFM puts ecological and socio-economic use of forests together, which makes it multi beneficial, investment performance in forest investments can get an internal rate of return (IRR) ranging from 4 to 8% on natural managed forest in the US South<sup>63</sup>, it has a low or negative correlation to all other asset classes, and it has a positive relation to inflation<sup>64</sup>. Taking into account the economic crisis of the moment this is a big advantage. These reasons make the sector attractive for private investors. Adding up to that the enabling environment currently created by national and international public bodies it is

<sup>63</sup> Cubbage et al, 2007:237

<sup>64</sup> Mills & Hoover, 1982:44-45; New Forests, 2012:4

not surprising that private funding has increased in such dramatic figures as 80 to 90%.

However, at the moment the major part of private funds goes into plantations<sup>65</sup>. The primary reason for this is, since forest investments are already perceived as risky business, that plantations are highly controlled and uncertainty and risk concerning the investment are reduced to a minimum. Natural hazards, environmental conditions for growth, and property protection are relatively checked for the best in plantation forests. Therefore they give the highest IRRs<sup>66</sup>. Moving to less controlled, more natural stands, the risks and uncertainties concerning the timber production are perceived to be higher, and because of that the return on the investment is likely to be lower<sup>67</sup>. Yin and Newman (1996) make this even more explicit, by stating that the perception of the potential for catastrophic risk decreases the value of an investment project. It simultaneously increases the critical price level for investment consideration, and as a result discourages investments in forestry. An important aspect of this, which plays a role in all variations of timber production, is the question who actually owns the land on which the timber is produced. In other words, who is entitled to the rights to the property? Investors indicate that legal protection of property rights is one of the risks they take into account when considering an international timberland investment<sup>68</sup>. When these rights are not clear, or badly protected, the chance exists that in the (near) future disputes will occur as a result of which the investment is not secure and the investor risks losing his money. This is an example of what can be perceived as a catastrophic risk.

This makes it significantly more unattractive to invest in forestry projects. Or as the FAO<sup>69</sup> puts it *“without secure tenure, sustainable management of planted forests is not possible”*.

To secure investments in forest land, it is therefore common practice to acquire a tract of forest, by which way it becomes privately owned by the investor. This entitles the investor to remove things that could form a threat to the timber production and the return on the production. These acquisitions do not involve single hectares, but thousands at a time. Being the rightful owner of the land, the investor has the legal right to remove threats and exclude people from his property.

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<sup>65</sup> Chipeta & Joshi, 2001; Feehan, 2012; Perez-Corral & Rosien, 2002

<sup>66</sup> Cubbage et al., 2007:246

<sup>67</sup> Chipeta & Joshi, 2001; Cubbage et al., 2007

<sup>68</sup> Mendell et al., 2011:457

<sup>69</sup> 2006:35



This does unfortunately not mean that because of acquisition no problems occur. The acquisition in itself poses a problem, which is illustrated in the following two paragraphs.

### 3.2 Land grabbing (LG)

#### *History and current definition*

While the oldest traceable citations of the term land-grabbing can be found in the titles of articles by M.R. and Mansergh published in the year 1889<sup>70</sup>, increasingly frequent use of the term only goes back as recent as 1974<sup>71</sup>. In Conlin's book review (1975) land grabbing relates to the eviction of inhabitants of a neighbourhood of San Francisco because of construction plans.

For this thesis land grabbing will be defined as powerful financial and political interests with land as objective which conflicts with current user/owner interests of that same land, but consistently overrules these interests.

With the continuous rise in world population, demand for natural resources is ever increasing, and demand for land is enormous<sup>72</sup>. Land to live, to produce food, for traffic, to recreate, to leave untouched. As indicated in the introduction, the food price crisis in 2007-2008 made governments and (institutional) investors rush to get a piece of the profitable investment opportunity agriculture had suddenly turned into. One of the results of this rush was not only millions of dollars poured into developing countries, but NGOs raising the alarm to "*the by-now-familiar, iconic image of (Northern) companies and governments enclosing the commons, dispossessing peasants, and ruining environments (in the South)*"<sup>73</sup>. Therefore land grabbing is nowadays mostly associated with agricultural practices. As already indicated in the introduction, forest land grabs are also a hot topic with recent reports coming from China, India and Papua New Guinea<sup>74</sup>. The FAO Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (2012) treats the term in the same way for agriculture, fisheries and forests. Essentially these practices are very similar. It all concerns the harvesting of a renewable natural resource from a certain delineated area.

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<sup>70</sup> M.R., 1889; Mansergh, 1889

<sup>71</sup> Singh, 1974

<sup>72</sup> World Bank, 2010

<sup>73</sup> Borras & Franco, 2010:509

<sup>74</sup> Rights & Resources Initiative, 2011; Business Standard, 2012; RadioNational, 2012

### *Green grabbing*

In addition to land grabbing the term 'green grabbing' has come into circulation. This term has come along with the new 'green' markets surrounding sustainability and ecosystem services, marking the purchase of land for:

- ❖ Exploiting CO2 sequestration
- ❖ Biodiversity banking
- ❖ Nature conservation.

If it is 'green' it can be added to the list of 'green grabbing' activities, because a wide variety of activities, both sincere environmental practices and activities who claim to be so, have been named green grabbing: 'war on drugs' under the cover of ecotourism<sup>75</sup>; bio char production<sup>76</sup>; game farming<sup>77</sup>; establishment of nature conservation areas<sup>78</sup>; military occupation under the cover of nature conservation<sup>79</sup>.

Sustainable forest management in this respect can both be categorised as land grabbing and green grabbing, since it is forestry but with a 'new' sustainable feel to it. The essence of both phenomena is however the same: powerful financial and political interests with land as objective which conflict with current user/owner interests of that same land, but consistently overrule these interests. Green grabbing is seen as part of the wider discussion on land grabbing<sup>80</sup>.

But what is the real 'sting' of the conflict that is named land grabbing? It all comes down to property rights, also called tenure. This will be more elaborately discussed in the next paragraph.

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<sup>75</sup> Ojeda, 2012

<sup>76</sup> Leach et al., 2012

<sup>77</sup> Snijders, 2012

<sup>78</sup> Gardner, 2012

<sup>79</sup> Ybarra, 2012

<sup>80</sup> Fairhead et al., 2012:238

### *Perception of land grabbing*

It can be questioned what the truthfulness of this picture is, and whether or not land grabbing actually ‘exists’. Reality is that this is a current ruling perception.

More important than how land grabbing is defined, is the dominant perception by the public. When the public perceives and labels an acquisition of land as land grabbing, this is all that is necessary to evoke a negative response.

For this thesis it is therefore not relevant to debate the phenomenon of land grabbing in itself, but only the fact that land grabbing is negatively associated with (foreign) investments.

### 3.3 The SFM and LG conflict: Property rights

Land grabbing is about taking a piece of land that is perceived to belong to someone else. The core of the issue is that it is undefined or unclear who is entitled to the land; who is allowed to use it; to sell it; to catch the returns to it. This all comes down to the issue of property rights. Property rights can be defined as a bundle of rights, a set of rights which dictates what people can and cannot do with resources. For example use them, change them or sell them. A certain bundle of rights can be used in four different property regimes: governmental, private property, common property, open access. The property regime determines the rules of the game, and how that game with a bundle of property rights is played<sup>81</sup>.

In the governmental regime, the control over the bundle of rights is in the hands of the government, who has the decisive say on what happens with the rights. In case of a private property regime the owner, be that an individual or a group, has the right both legally and socially permitted to exclude others from a resource<sup>82</sup>. A common property regime is a private property regime for a group of owners with equal rights to a resource. This group of co-owners is characterised by a clearly demarcated membership, *“with certain common interests, with at least some interaction between members, with some cultural values and norms, and often with their own endogenous authority system”*<sup>83</sup>. In case of an open access regime no ownership is defined, and ‘everybody’s property is nobody’s property’. The perception of the stability and security of property rights differs per regime, where the private property regime is said to be more stable and adaptable, because of its effective

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<sup>81</sup> Slangen et al., 2008:318

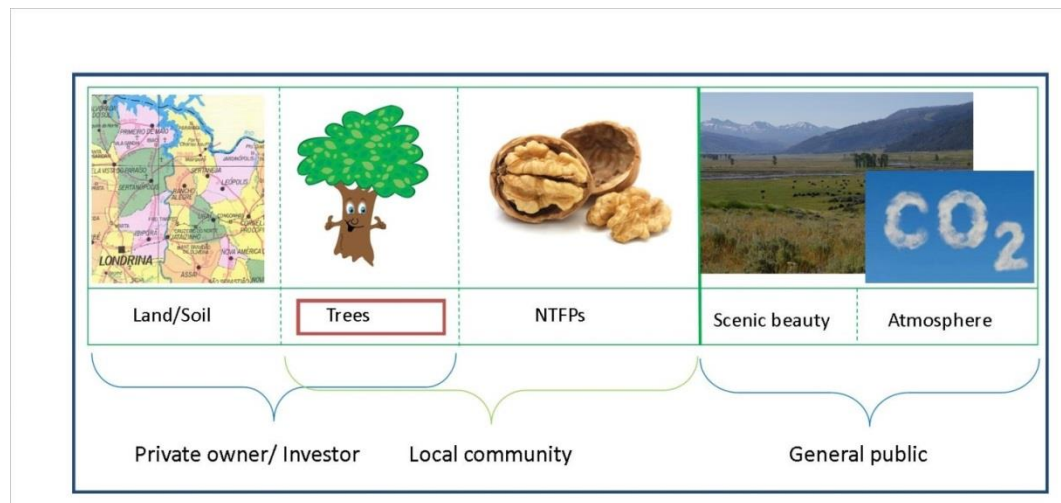
<sup>82</sup> Slangen et al., 2008:326

<sup>83</sup> Slangen et al., 2008:327

ability to exclude others, and the open access regime being the opposite as it can exclude no one<sup>84</sup>.

### *Bundle of rights*

A bundle of property rights can be separated and can be assigned to different entities. In the case of forest land the division of rights of for instance an investor, a local community and the general public can visually be depicted as it has been done in Figure 5.



**Figure 5. A possible division of a bundle of (property) rights of forest land. The dotted lines represent the vague boundaries between the different 'properties'. There is a conflict between private owner/investor and local community over who has a say about the trees on a forest land (Source: own work.)**

As can be seen in Figure 5, most of the rights are only due to one of the three entities. In essence this also applies to the right over the trees of a forest land, the private owner, investor, or even the state for that matter, is entitled to say what happens to the trees on his land. This however conflicts with the right local communities often have of collecting the Non Timber Forest Products (NTFPs) (fruits, nuts, leaves, etc.) from the trees on the land. Fruit cannot be collected from a tree that has been cut down.

Pure economically speaking, according to the Coase Theorem when the rights are appointed to anyone, allocation will be efficient<sup>85</sup>. This is however only applicable when rights are clearly demarcated, when you either have it, or you don't. The right over the trees is somewhat blurred. The owner of the land can decide what to do with his trees. NGOs question if it is reasonable that people

<sup>84</sup> Slangen et al., 2008:328

<sup>85</sup> Slangen et al., 2008:303,304

collecting the products from the tree do not have anything to say about the matter. This leads to another facet of the issue. When a political perspective is taken on this issue, one will see differences in power, which make it unlikely that fair allocation will occur. This discussion of economics versus politics will come back later in this paragraph.

*Disputes over rights: historical causes of perception differences*

Disputes over property happen all the time, also in western industrialised countries. Here, however, laws and governance of tenure are firmly established, and property generally well protected. In most countries of interest for investment in agriculture or forestry, developing countries and emerging markets, property rights laws and governance are not so straight forward. During colonialism the existing rights regimes were ignored or used to the favour of the coloniser. After decolonisation most of the land was taken as governmental property, without acknowledging the rights that existed before colonisation. Finding out what kind of rights existed before, who is entitled to what, and if people actually claim in truth what they say is their right, is not an easy job. All kinds of rights over land exist; the guideline of the FAO on tenure governance<sup>86</sup> names the following:

- ❖ customary rights
- ❖ collective tenure rights
- ❖ gathering rights
- ❖ usufruct rights
- ❖ informal rights

In these countries most of these property rights issues are far from resolved and this is leading to problems. Governments make all kinds of rigorous decisions concerning these lands, without or badly consulting other parties that might be involved. A good example is the forestry project in Uganda. The Ugandan government performed land deals with the New Forests Company, a forestry company planting trees in central Uganda from 2005 onwards, apparently without properly considering the rights of the communities living on the land. Communities living around the plantations in the districts of Mubende, Luwunga and Kiboga say that they have been forcefully evicted without proper consultation or compensation<sup>87</sup>.

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<sup>86</sup> 2012:11-16

<sup>87</sup> Bawden, 2012

*Paradigm difference: economics and politics*

Of course it is in itself problematic that there is so much unclear about property rights, and that there is dispute over property rights in these regions. But even if they were solved and there would be a clear record of who has which rights (usage, customary, informal, etcetera) this would not fully enable legal investments in these areas, and prevent people from perceiving these activities as land grabbing. The reason for this is the clash between two paradigms, economics and politics. In economics efficiency is of key importance. Resources should be allocated efficiently as to not waste any resources. For investments to be made most efficiently, risk and uncertainty need to be limited to an absolute minimum. Politics on the other hand is in this case concerned with the social side of the issue and, more specifically, identified with equity. The question it asks is: are resources allocated in a fair way? So while efficiency requires property rights not only to be crystal clear, it also prefers it to be undivided. Equity on the other hand is not so much concerned with how many divisions are made in rights of one plot of land, as long as they are recognised and honoured, which signifies the clash. Efficiency does not naturally lead to equity, and equity does not necessarily involve any efficiency.

To summarise, the issue of property rights leads to a conflict of the paradigms economics and politics.

### 3.4 Synthesis

As can be seen from the first paragraph in this chapter (3.1) there are enough reasons why one should and financially responsibly could invest in SFM. Because of vast deforestation in the tropics the need and urgency are present for SFM to be implemented. This will not only provide sustainable generation of timber, but will support all kinds of environmental services, like biodiversity protection, carbon sequestration and water regulation. At the same time it also considers social and economic elements in its management. On top of that, investing in SFM will give a reasonable financial return. But it does have an issue with property rights. No safe and clear property rights, no investments.

On the other hand paragraph 3.2 shows that (foreign) investments in land lead to the perception of the occurrence of 'land grabbing'. Thus investments in agriculture and forestry are related to practices which evict local communities from their rightful homes and block access to their resources, and may even harm the environment in the process. This is an obvious problem with property rights.

More insight into the exact problem SFM and LG have with property rights, does not resolve the case. In fact it seems to make it even more undoable to make any kind of decision. The end result is that there are two powers, antagonistic, one for and one against investing in SFM. This leads to conflicting cognitions, 'cognitive dissonance'<sup>88</sup> on a decision maker's mind, which makes it very hard to predict what he will do. He is facing an absolute paradox.

Any person in the luxury of not having to make any decision in this context would refrain from doing so, since it is almost impossible to come to a reasonable solution in decision making situations where the information available is so miscellaneous. In case of making an investment decision as an investment manager this luxury is however not yours. An investor will have to decide: to invest or not to invest.

In summary, at this stage the following can be said about the future of investments in SFM with relation to the discussion on land grabbing.

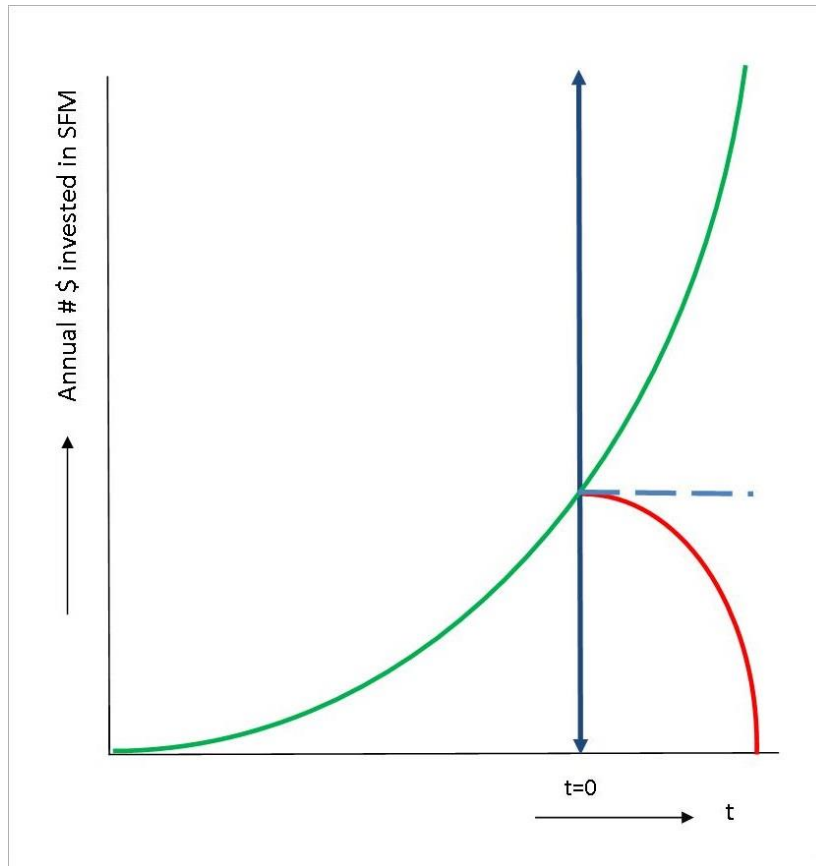
- ❖ Investment decisions have been identified as being responsible for shaping the future of SFM sector development.
- ❖ Up till now ( $t = t_0$ ) there has been a rising trend in investments in SFM.
- ❖ Currently there are two movements in influencing the future trend in SFM investments. One can be identified as the 'pro SFM movement' fuelled by the international community creating an enabling environment for investments in the sector. The other is the 'con SFM movement' characterised by the discussion on land grabbing.

Both movements are not simply integrated into a decision with a single outcome, and therefore lead to several future scenarios which are depicted in Figure 6. After the moment of  $t = 0$  the following trends can occur:

- ❖ Investors will not be affected by the discussion on land grabbing and the positive upwards trend will continue in the near future.
- ❖ In the very unlikely situation that the pro and con movement balance each other out, the status quo will be maintained and the investment level will stay at the same level as it is now.
- ❖ Investors are discouraged by the discussion on land grabbing, and do not wish to be associated with it. As a consequence the graph will take a downward trend.

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<sup>88</sup> Festinger, 1957



**Figure 6. Expected annual amount of dollars invested in SFM based on three scenarios (Source: own work)**

By their investment decisions investment managers will shape the future trend that will prevail. The next chapters will provide more insights on their decision making process concerning SFM with relation to the discussion on land grabbing.



## 4. Theoretical Background Part 2: Investment decision making

The end of the last chapter showed a paradox, which seems to be causing a deadlock in decision making. The incentives to invest in SFM move in the opposite direction from the incentives the discussion on land grabbing give, which ward off investments in SFM. Logical reasoning seems to indicate that it is still impossible to make a decision in this given situation. Nevertheless, there are people dealing with these situations every day, and they manage to make decisions. Investors, the common term applicable to this group of people, are not a homogenous group, but have different budgets under their management as well as they can have different interests. One thing they have in common is that when making a decision about what to invest in and what not, investors consider both financial and non-financial criteria. But even these criteria may not suffice in some situations to base a decision on, which is when an investor will look at his peers for guidance.

### 4.1 Investors: who are they?

‘Investors’ is a general term for a broad range of people working with money provided by other entities or the companies they work for. A first distinction can be made between public and private investment. As indicated in the Introduction (paragraph 1.1.1) public investment is considering the economic crisis not an option for SFM investments today, and will therefore not be considered here. Within the private investment sector, several groups are distinguished by Canby and Raditz (2005) on the basis of their relevance for the tropical forestry sector in developing regions<sup>89</sup>.

#### *Domestic investors*

90 % of forestry products from small and community enterprises in tropical countries are consumed locally. These enterprises are usually owner-financed.

#### *Industrial investors (International/Domestic)*

*“Industrial investors invest strategically in forestry operations to use the wood as raw material inputs in their pulp & paper and manufacturing operations.”*<sup>90</sup> They do this by purchasing concessions from local or national governments, which give them the right to harvest timber on a specific tract of land. They do not become the owner

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<sup>89</sup> Canby & Raditz, 2005:30

<sup>90</sup> Canby & Raditz, 2005:30

of the land in this way. The industrial investor may set up stock listed companies, where stock exchanges gives these listed companies the opportunity to list concessions purchased as part of their assets. Through stock exchange these investors have access to large capital flows.

#### *Investment funds/Hedge funds*

Investment funds are funds which take a minor stake themselves in forestry projects and forestry product companies, but market the shares of projects to both retail and institutional investors. They generally only participate in stock listed private companies, but some may be specialised and are also involved in not-listed forestry enterprises. These enterprises are usually smaller companies and more informal operations.

A special kind of investment fund is a hedge fund, which takes majority share positions in undisclosed companies. Different regulations and levels of disclosure apply to these funds than to public funds, since they limit their investors to qualified institutions and high net worth individuals (HNWIs). In this way hedge funds are not subject to the control and criticism of the public and institutional investors <sup>91</sup>.

#### *Timber Investment Management Organisations (TIMOs)*

Timber Investment Management Organisations (TIMOs) are investment funds that actively manage investments in forestry practices on behalf of mainly HNWIs and institutional investors. There has been a significant rise in the number of TIMOs since especially institutional investors have come to see the benefits of forestry practices investments as they stretch over long time periods, and can function as bond like investments.

#### *Pension funds*

Pension funds are often shareholders or partners in TIMOs. The interests of pension funds align very well with long term forestry investments, since pension funds look for long term assets that match the timing of their liabilities to retirees. However, pension funds are also more stringent when it comes to risks, which makes investing in emerging markets a less appealing possibility<sup>92</sup>.

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<sup>91</sup> Canby & Raditz, 2005:30,31

<sup>92</sup> Canby & Raditz, 2005:31

### *Foundations and Endowments*

Foundations and endowments also consider long or even perpetual time horizons for their investments. While wanting to generate income to be able to hand out grants and realise their objectives of being a charity or an educational institute, they are risk-averse in investment behaviour. Foundations do also lend on certain terms to projects that are in line with the mission of the foundation. These projects are often small projects and community projects that do not have access to big capital markets.

### *Private Equity Investors*

The private equity investor provides both debt and equity to forestry enterprises. They earn their income through the increase in value of their investments. Meaning, they buy and grow a company, after which they will sell it or take it to the stock market, with which they get access to their initial investment and to the increase in value of the company. Private equity investors generally make smaller investments than public funds do, but at the same time also often take larger risks as liquidity is less of an issue for them. This may be the reason that private equity investors do participate in tropical forestry<sup>93</sup>.

### *Venture Capitalists*

Venture capitalists are similar in practice to private equity investors. Their focus is however on buying young companies with large growth potential and little to no access to the big capital markets. *“They may be general partners in forest management companies, majority shareholders, joint ventures strategic partners, private equity investors or hedge funds”*<sup>94</sup>.

In addition, venture capitalists may take an additional role within the company acquired, for instance in management. They may improve different elements of a company, like finance or logistics, to increase the value of the company. Venture capitalists do not have a lot of companies in their portfolio, as they are looking specifically for the young high-growth potential. But, for instance privatised state forest enterprises, innovative forest technology initiatives, or other young high growth potential enterprises could fit their portfolio<sup>95</sup>.

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<sup>93</sup> Canby & Raditz, 2005:31

<sup>94</sup> Canby & Raditz, 2005:31

<sup>95</sup> Canby & Raditz, 2005:32

### *Socially Responsible Investments (SRI)*

The Socially Responsible Investment (SRI) market has been growing steadily matching the growing awareness of the public of misconduct in conventional investment practises and asset classes. SRI funds usually do not seek out specific investments as such, but filter those projects and companies out which (potentially) violate environmental, social and good governance standards. For forestry the standard mostly used is certification, for instance FSC certification. But also in the SRI fund it is not evident to invest in tropical forestry, as the investment managers feel they lack the expertise and time to judge the projects, and emerging markets and developing tropical regions have their own specific risks. Most sustainable forestry projects funded by SRI are therefore in the northern hemisphere.

### *Institutional Investors*

In addition to this categorisation by Canby and Raditz (2005), an often identified group of investors are institutional investors. Various combinations of investor groups identified by Canby and Raditz (2005) are acknowledged as being institutional investors. With regard to forestry the FAO recognises institutional investors to be: pension funds, endowments, foundations and high net worth families<sup>96</sup>. The common characteristic is that as a single entity an institutional investor has a considerable amount of money which he can invest.

## 4.2 Financial criteria of decision making

The financial criteria with which an investor judges a project for its potential can be summarised in three terms: liquidity, the payback period (aspect of time), and profitability. Liquidity and payback period are characteristically different for forestry projects, while profitability calculations are very similar to other kinds of (land use) projects. There are a lot of different financial criteria available, those discussed below will be the ones that are best suited and most applicable for forest investments. They will all only be discussed in their most basic form. For the more complex and advanced stages of the application of the criteria mentioned Klemperer (1996), Hillier et al. (2010) and similar works on forest economics and corporate finance can be consulted.

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<sup>96</sup> FAO, 2012b:10

### *Liquidity*

Liquidity stands for the ease with which assets of a company or project can be converted into cash, without significant loss of value<sup>97</sup>. The relevance of this criterion for screening a potential investment is that it shows if through rapid conversion to cash short term obligations of the investor and the investment project can be met. The more liquid the project's assets, the more likely it is that these obligations can be met<sup>98</sup>. The liquidity of an asset depends on if the asset is a current or a non-current asset: current assets being very liquid like cash, trade receivables and inventories; non-current being the least liquid, like property and equipment<sup>99</sup>. Forestry projects characteristically have a relative high percentage of non-current assets in the form of land, standing timber and equipment.

### *Payback period: the aspect of time*

Though scientific opinion differs if the payback period should have the importance in an investment decision that it has<sup>100</sup>, it is still widely used<sup>101</sup>.

The principle of the payback period is very simple. When one makes an investment in a project of for example - €100.000, and the cash flow on this project is the years after respectively €30.000, €30.000, €40.000, €20.000 per year, then the return on the investment will have paid the initial investment back after three years ( $€30.000 + €30.000 + €40.000 = €100.000$ ). The payback period is three years. The aspect of discounting over time is not taken into account when calculating the payback period in its simplest form. This is however possible with the discounted payback period, which discounts all the cash flows before calculating how long it takes to pay back on the initial investment<sup>102</sup>.

The payback period rule that follows from this calculation is the decision rule which sets a fixed payback period. All projects that exceed the pre-set payback period will not be taken into consideration<sup>103</sup>. As said, the payback period is criticized as decision tool, since it does not take the time aspect of returns into account or payments after the payback period has passed<sup>104</sup>. Nevertheless, it is

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<sup>97</sup> Hillier et al., 2010: 43

<sup>98</sup> Hillier et al., 2010: 44

<sup>99</sup> Hillier et al., 2010: 43, 44

<sup>100</sup> Weingartner, 1969: B-594

<sup>101</sup> Istvan, 1961: 45; Lefley, 1996: 207

<sup>102</sup> Hillier et al., 2010: 150, 153

<sup>103</sup> Hillier et al., 2010: 150

<sup>104</sup> Hillier et al., 2010: 151

considered useful when used together with the NPV and IRR<sup>105</sup>, who will be explained under the heading of 'profitability'.

Investments in forestry projects are however not comparable to other conventional assets when it comes to the aspect of time. The reason for this is the nature of the most important product it delivers: timber. To put it into perspective, a medium productivity coniferous crop in Europe would give maximal mean annual revenue after a rotation of 80 years<sup>106</sup>. This means that when starting with a hectare full of seedlings, it will take 80 years before getting a maximal mean annual return on this hectare of forest land. Luckily, there are many hectares of forest and not just one hectare is purchased. When plots of different age classes are purchased this means one can harvest these different plots at shorter intervals than 80 years. It still leaves a longer time horizon for planning and return than other assets. Setting a payback period of three, five or maybe even 8 years does not leave forestry projects a chance if comparing them to other assets. The long time horizon should therefore be taken into account.

### *Profitability*

Cubbage et al. (2007) have reviewed several capital budget analysis tools used for reviewing the financial vitality of forestry projects, being:

- Net Present Value (NPV)
- Land or Soil Expectation Value (LEV/SEV) or Faustmann formula
- Internal Rate of Return (IRR)
- Equivalent Annual Income (EAI)
- Benefit/Cost analysis (B:C)

References in which these criteria are also discussed are among others Klemperer (1996), Hillier et al. (2010), and Gregory (1987). Below will be discussed what the criteria say about a forest investment.

#### *Net Present Value (NPV)*

The NPV is determined summing all the discounted cash flows for a certain amount of periods, minus the initial cost. This is the simplest way of calculating an NPV<sup>107</sup>.

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<sup>105</sup> Klemperer, 1996: 176

<sup>106</sup> Price, 2011: 312

<sup>107</sup> Klemperer, 1996: 171

$$NPV = \sum_{y=0}^n \frac{R_y}{(1+r)_y} - \sum_{y=0}^n \frac{C_y}{(1+r)_y}$$

In which  $R_y$  is the revenue in any year  $y$  and  $C_y$  in any year  $y$ , with  $r$  being the interest rate. The decision rule that goes with calculating the NPV is the following:

- ❖ If the NPV is greater than zero, it can be accepted
- ❖ If the NPV is less than zero, the project is unacceptable<sup>108</sup>

This decision rule is based on the fact that the project's present value of revenues *"must be greater than or equal to the present value of costs, both computed with the investor's minimum acceptable rate of return (MAR)"*<sup>109</sup> for the project to be able to add value to the firm<sup>110</sup>. The MAR will be more elaborately explained under the heading 'Internal Rate of Return'.

#### *Land Expectation Value (LEV)*

The LEV, also called SEV, *bare land value* or *Faustmann formula* calculates the value of forest land in perpetual timber production, without including the value of the standing timber. Simply said, it is calculating the value of bare land which is used to grow timber<sup>111</sup>. LEV can be said to be a special variant of NPV of all costs and revenues related with the growing of timber into perpetuity<sup>112</sup>. Therefore a general formula for the LEV is based on the discounting formula for the PV of a perpetual periodic annuity:

$$PV = \frac{a}{(1+r)t - 1}$$

In which<sup>113</sup>:

PV = Present value of a perpetual periodic annuity

$a$  = Value received every  $t$  years in perpetuity

$t$  = Years between annuity payments

$r$  = Interest rate

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<sup>108</sup> Hillier et al., 2010:149, 150; Klemperer, 1996: 172

<sup>109</sup> Klemperer, 1996:172

<sup>110</sup> Hillier et al., 2010:149

<sup>111</sup> Klemperer, 1996: 206; Straka & Bullard, 1996

<sup>112</sup> Straka & Bullard, 1996

<sup>113</sup> Based on: Straka & Bullard, 1996

The decision rule going with the LEV is that the calculated LEV is the price the investor should maximally pay for a tract of land “*while still receiving the minimal acceptable rate of return*”<sup>114</sup>.

#### *Internal Rate of Return (IRR)*

The IRR is intrinsic to the project and does not depend on any external market rate, but is generated by the cash flows of the project itself<sup>115</sup>. Formulated in a more practical way the IRR is the interest rate when the present value (PV) of the revenues minus the PV of the costs is zero, in other words when the NPV is equal to zero<sup>116</sup>.

$$\sum_{y=0}^n \frac{R_y}{(1 + IRR)_y} - \sum_{y=0}^n \frac{C_y}{(1 + IRR)_y} = 0$$

To judge what the IRR of a given project means for the investor one has to know what the Minimal Acceptable Rate (MAR) is which is used as a reference point. The MAR is determined by the individual preferences of the investor or the best earning rate available elsewhere, and this rate is external to the project. The rule is that the IRR should be equal or greater than the MAR for a project to be accepted. When the IRR is smaller than the MAR the project should not be accepted<sup>117</sup>.

The NPV is very closely connected to the IRR, and therefore one would assume that when the MAR is lower than the IRR the NPV is positive, and when the MAR is higher than the IRR the NPV is negative. This would result in the same ranking according to both criteria. Unfortunately, this is not always the case<sup>118</sup>. Nevertheless, the IRR is one of the tools most often used in daily practice, because of its independence of project size and intuitive use of percentage instead of amounts of dollars<sup>119</sup>.

#### *Equivalent Annual Income (EAI)*

Also called Equivalent Annual Annuity (EAA) is ‘*an equal annual real income with the same present value, over the project life, as the project’s NPV, all computed at the*

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<sup>114</sup> Klemperer, 1996: 206

<sup>115</sup> Hillier, et al., 2010: 155

<sup>116</sup> Klemperer, 1996: 173

<sup>117</sup> Klemperer, 1996: 174

<sup>118</sup> Hillier, et al., 2010: 158; Klemperer, 1996: 174

<sup>119</sup> ITTO, 2007:20; Cubbage et al., 2009:245



same real  $MAR'$ <sup>120</sup>. The project with the highest EAA is considered the better option. The EEA is calculated as follows<sup>121</sup>:

$$EAA = NPV \frac{r}{1 - (1 + r)^{-n}}$$

According to Cubbage et al. (2007) the EAI (EAA) is useful “as a comparison with other land uses that generate annual incomes”<sup>122</sup>, for instance for comparing a forestry project with farming, which does yield an annual return.

#### *Benefit/Cost Analysis (B/C)*

The B/C ratio is the present value of the benefits, or revenues, divided by the present value of the costs, using the  $MAR$ <sup>123</sup>. The ratio is also called the profitability index, and is made up as follows<sup>124</sup>:

$$\frac{B}{C} ratio = \frac{PV \text{ Revenues}}{PV \text{ Costs}} = \frac{\sum_{y=0}^n \frac{R_y}{(1 + MAR)^y}}{\sum_{y=0}^n \frac{C_y}{(1 + MAR)^y}}$$

If the PV of the revenues is equal to the PV of the costs, then the B/C ratio is equal to 1. When the revenues are bigger than the costs the B/C ratio is bigger than 1, and when the costs are bigger than the revenues the B/C ratio is smaller than 1. As a result, the decision rule is to accept the project when the B/C ratio is equal to or greater than 1. When the B/C ratio is smaller than 1 the project is unacceptable<sup>125</sup>.

### 4.3 Non-financial criteria

Financial criteria have long been used in investment decisions. However, only in very recent times have non-financial criteria become important for professional investment decision making, and therefore they are not bite-sized available in ready-made formulas and decision rules, as will be elaborated on in this paragraph.

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<sup>120</sup> Klemperer, 1996: 182

<sup>121</sup> Klemperer, 1996: 182

<sup>122</sup> Cubbage et al., 2007:245

<sup>123</sup> Klemperer, 1996: 174

<sup>124</sup> Klemperer, 1996: 175

<sup>125</sup> Klemperer, 1996: 175

*Intangible assets*

Non-financial assets or threats to a company are not tangible. They are not the classical physical assets known from the industrial era, like land, labour and capital. In modern economies value is largely created through knowledge. The emphasis has shifted from industrial physical assets to intangible knowledge. The result of this is that a large part of the value of a firm is reflected in its intangible assets<sup>126</sup>. Kramer et al. (2011) state that intangible assets can be defined as “*all non-material factors that contribute to the performance of firms in the production of goods or the provision of services, or that are expected to generate future economic benefits to the entities or individuals that control their deployment*”<sup>127</sup>, and “*resources that are not visible in the balance sheet, but that add value to the enterprise*”<sup>128</sup>. They even go a step further and state that these assets generate critical returns to firms and are a major source of value creation<sup>129</sup>. With an approximate of 80 % of the total market or company value being linked to intangible assets, this has seen a sharp increase compared to the 30-40% in the mid-1980s<sup>130</sup>.

However, while their importance is recognised, it is still unclear why they are of this importance and how this effectuates<sup>131</sup>. While financial assets, or tangible assets, can be easily monetised, valuation of investments in intangible assets has proven to be a challenge<sup>132</sup>. Intangible assets are addressed in literature by a large variety of approaches, without a leading method surfacing. Intangible assets are those assets which are considered not to be ‘tangible’ in general<sup>133</sup>. This means that it covers a variety of different assets, e.g. brand recognisability, market share, customer size<sup>134</sup>, organisational and network capital<sup>135</sup>, social capital and knowledge<sup>136</sup>. Since ‘going green’ is mainly motivated by the positive image that can be gained from it, this paper will only look into how this is gained, and how risks involved are generally calculated. As Corporate Social Responsibility (CSR) is also primarily concerned with image and reputation management, a closer look will be taken at the concept of CSR and reputation.

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<sup>126</sup> Tsai et al., 2012

<sup>127</sup> Eustace, 2000: 31, as cited by Kramer et al., 2011: 447

<sup>128</sup> Edvinsson, 1997: 322, as cited by Kramer et al., 2011: 448

<sup>129</sup> Kramer et al., 2011: 448; Tsai et al., 2012:68

<sup>130</sup> Schnabel, 2002 , as cited by Kramer et al., 2011: 448

<sup>131</sup> Teece, 2007, as cited by Kramer et al., 2011:449

<sup>132</sup> Greco et al., 2012:2

<sup>133</sup> Greco et al., 2012:3

<sup>134</sup> Tsai et al., 2012: 68

<sup>135</sup> Kramer et al., 2011: 448

<sup>136</sup> Greco et al., 2012: 3

*Corporate Social Responsibility (CSR) and reputation*

Economists have been arguing about the question if businesses should be expected to take up social responsibility. While followers of classical economic theory of the free market, like Friedman (1962)<sup>137</sup> state it to be “*undermining the free society*”, Samuelson’s opinion about a business engaging in social responsibility is: “*it had damn well better try to do so*”<sup>138</sup>.

What is it that is actually talked about when considering Corporate Social Responsibility (CSR)? According to Davis and Blomstrom (1971)<sup>139</sup> CSR is the

*“firm’s obligation to evaluate in its decision-making process the effects of its decisions on the external social system in a manner that will accomplish social benefits along with the traditional economic gains which the firm seeks”. “It is a firm’s acceptance of a social obligation beyond the requirements of the law”*<sup>140</sup>.

Davis (1973) concludes his review of both sides of the discussion that although something is to be said for and against CSR, practice shows that it has already been decided on and companies not incorporating CSR may find themselves in disfavour with customers and public<sup>141</sup>.

This points directly to the reason why business so eagerly takes up CSR nowadays. This reason is called ‘reputational risk’. For if a company is favoured or disfavoured by customers and the public, this will basically make or break it, as is also recognised by the FAO. In its report ‘Land grab or development opportunity?’<sup>142</sup> it states:

*“Issues of image and reputational risk should not be underestimated. Investors can be seen as dealing with or propping up corrupt regimes and human rights violators. They may also be perceived as land grabbers in food-insecure countries.”*

The TEIU (2005)<sup>143</sup> states that in its research 85% of the respondents felt that in the last years reputational risk had increased. Articles published about ‘corporate reputation’ and ‘reputational risk’ have more than doubled since the year 2000<sup>144</sup>.

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<sup>137</sup> as cited by Davis, 1973:312

<sup>138</sup> 1971, as cited by Davis, 1973:312

<sup>139</sup> as cited by Davis, 1973:313

<sup>140</sup> Davis, 1973:313

<sup>141</sup> p.321

<sup>142</sup> 2009:8

<sup>143</sup> p.2

<sup>144</sup> Tonello, 2007

Eccles et al. (2009)<sup>145</sup> state that reputational risk makes up 70 to 80% of the market value. A low level of reputational risk is marked as a competitive advantage<sup>146</sup> and one of the most important corporate assets. It is also the hardest to protect<sup>147</sup>, and the greatest current threat to a company's market value according to research by PriceWaterhouseCoopers and the Economist Intelligence Unit (2004)<sup>148</sup>. Based on this it can be said that integrating reputation and its risks into investment decision making is, or should be, of immense importance. But how is this quantified? As well as for intangible assets as a whole, no unambiguous answer to this question currently seems to exist in literature. To illustrate this point, recent research has ended up asking the same question<sup>149</sup>.

SFM and land grabbing can be categorised as ESG elements, which stands for Environmental, Social and Governance elements which could and should be taken up in investment decision making<sup>150</sup>. While investment in SFM is experienced as a positive asset for the reputation of a company, land grabbing is quite the opposite and it creates a negative association with the company involved.

#### 4.4 Decision making when you just don't know: herd behaviour

One can conclude from both the literature review on intangible assets as well as CSR and reputation (risk) that investors simply do not yet know how to integrate these assets in decision making. This does however not mean that decisions are not being made every day. This is a necessity, as it is recognised that these elements have a significant impact on the profitability of an investment. The question then is on what basis investors come to a decision in these situations.

People tend to cluster in to groups with a shared ideology. This shared ideology serves to deal with insecurities in everyday life, through shared beliefs, goals and values. This 'web of shared beliefs'<sup>151</sup> guides people in which choices to make, and therefore people from the same group tend to make the same decisions<sup>152</sup>. Even if people express different values in different social environments, in

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<sup>145</sup> p.1

<sup>146</sup> TEIU, 2005:1, 7; Testa, 2006: 3; Lash & Wellington, 2007:1

<sup>147</sup> Testa, 2006:8

<sup>148</sup> as cited by Brown, 2007: 1, 11

<sup>149</sup> E.g. Brown, 2007:11 ; Kerste et al., 2011: 169

<sup>150</sup> Kerste et al., 2011

<sup>151</sup> Hargreaves Heap et al., 1992, as cited by Haker, 2003:31, 39

<sup>152</sup> Schanz, 1999:66-67

general they tend towards coherence within their different social environments<sup>153</sup>.

Investors from western industrialised countries can be seen as one of such groups, with the same jargon, work field, specialisation, and focus. Belonging to competing companies, one would expect them not to make the same decisions. However, the contrary is said to be true. Literature shows that investors tend to make the same decisions under certain circumstances. In financial markets this is called 'herd behaviour', or 'herding'<sup>154</sup>. A differentiation is made between rational and non-rational herding. Non-rational herding is defined as investor psychology, where agents follow each other blindly. Rational herding is caused by externalities of rational decision making, when optimal decision making is distorted because of problems with information or incentives<sup>155</sup>. Since in the beginning of the chapter it is argued that it is assumed that investors are rational decision makers, rational herding seems in its place here. Externalities which are recognised as causes of rational herding are:

- ❖ pay-off externalities: *payoffs to an agent adopting an action increases in the number of other agents adopting the same action*
- ❖ principal-agent problems: *managers, in order to preserve or gain reputation when markets are imperfectly informed, may prefer either to 'hide in the herd' not to be evaluable, or to 'ride the herd' in order to prove quality<sup>156</sup>*
- ❖ sanctions upon deviants: *for instance, when dissidents in a dictatorship are jailed<sup>157</sup>*
- ❖ preference interactions: *some people may prefer to choose a course of action because everybody else does so, others may prefer to choose a different course of action than everybody else is taking*
- ❖ direct communication: *simply stating the option which is better in one's eyes, but being challenged by credibility*
- ❖ observational influence: *an individual may observe the actions of others or consequences of those actions<sup>158</sup>*
- ❖ informational learning (cascade): *later agents, inferring information from the actions of prior agents, optimally decide to ignore their own information and act alike<sup>159</sup>.*

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<sup>153</sup> Schanz, 1999:66

<sup>154</sup> Kahan & Klausner 1996:355; Devenow & Welch, 1996; Scharfstein & Stein, 1990; Avery & Zemski, 1998; Hirshleifer & Teoh, 2003; Shiller, 1995

<sup>155</sup> Devenow & Welch, 1996:604

<sup>156</sup> Devenow & Welch, 1996:605

<sup>157</sup> Hirshleifer & Teoh, 2003:27

<sup>158</sup> Hirshleifer & Teoh, 2003:28

The most attention however, is given to the externality which is called: 'informational cascade'<sup>160</sup>.

*"The basic cascade model applies when actions rather than private information are publicly visible, and when there are finite limits to agent's private information and possible actions. The idea is that agents gain useful information from observing previous agents' decisions, to the point where they optimally and rationally completely ignore their own private information"*<sup>161</sup>.

As a consequence, the action of the 'last' agent in the line is completely devoid of useful information for later observers, and the information flow is blocked<sup>162</sup>, breaking down social learning<sup>163</sup>.

Although argued on a case concerning price mechanism, Avery & Zemski (1998)<sup>164</sup> state that the nature of the information dealt with by decision makers can cause herd behaviour. As long as the decision deals with one uncertainty at a time long run choices are efficient. However, when more uncertainties have to be dealt with at the same time and information structures get more complex this can lead to herd behaviour.

In addition, there is what is called the 'sharing-the-blame' effect<sup>165</sup>, which is all about reputation. *"Worldly wisdom teaches that it is better for reputation to fail conventionally than to succeed unconventionally"*<sup>166</sup>. Scharfstein and Stein (1990)<sup>167</sup> argue that because of reputation and reward management at different layers in the organisation mimic the behaviour that others have shown before them. The reason for this herd behaviour is that 'good' managers receive the same signals out of their private information, while 'bad' managers simply don't know what to do and therefore follow the herd. Failing collectively will then not 'unmask' them.

Looking to the discussion about SFM and land grabbing, several elements in this discussion point towards a likelihood of occurrence of herd behaviour. First of all, the discussion is complex, and very much so. As argued in chapter 3 there is a

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<sup>159</sup> Devenow & Welch, 1996:605

<sup>160</sup> Devenow & Welch, 1996:609; Avery & Zemski, 1998:724; Hirshleifer & Teoh, 2003:29; Shiller, 1995:181

<sup>161</sup> Devenow & Welch, 1996:609

<sup>162</sup> Hirshleifer & Teoh, 2003:29

<sup>163</sup> Avery & Zemski, 1998:724

<sup>164</sup> p.740

<sup>165</sup> Scharfstein & Stein, 1990:465

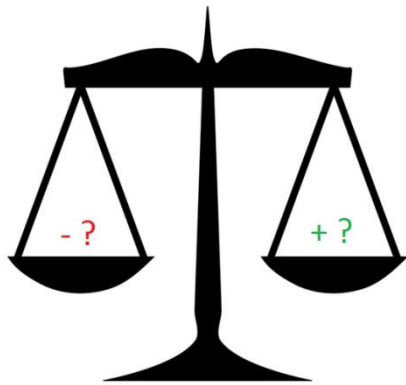
<sup>166</sup> Keynes, 1936:157-158, as cited by Scharfstein & Stein, 1990:465

<sup>167</sup> p.465

paradox in the information available to the investor. It can be concluded that there is a distortion in information and uncertainty as a consequence of the complexity of the discussion. Secondly, for investors putting money in SFM there is a definite interest in reputation, though maybe variable in extent. This is another indicator that herd behaviour is likely to happen. As a consequence it can be stated, that when decisions are made concerning investments in SFM with the land grabbing discussion in mind, this will not just be one investor. It can be expected that many will follow.

#### 4.5 Perception of good versus bad news

In addition to looking at his peers for guidance in his decision considering non-financial criteria related to reputation, an investor has to take into account the perception of these criteria. As reputation depends on public perception he has to consider which of these criteria are the reputation 'makers' and 'breakers'. The relevance of this is not directly related to how much money can be made or is lost because of reputational causes, but how much 'makers' an investor needs to compensate the 'breakers'. This determines the relative importance he gives to good and bad elements in his decision making process.



**Figure 7. Can one reputation damaging event be compensated by one reputation enhancing event, as experienced by the investor?**  
(Modified from: VU Amsterdam, 2013)

The easiest approach would of course be that one positive news item is perceived as being of equal weight as one bad news item on the same topic. According to theories in various scientific paradigms, amongst others political science, psychology and economics, the responsiveness to information is however asymmetric. In economic theories this issue is known under the name of *prospect theory*<sup>168</sup> and *loss aversion*. Summarized, it seems that negative information, whether this is in the media or other means of communication, is perceived as to have a bigger impact than positive information<sup>169</sup>.

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<sup>168</sup> Kahneman & Tversky, 1979

<sup>169</sup> Soroka, 2006:372, 373

A whole different study could be devoted to this phenomenon. For this thesis, the importance lies in the recognition that negative associations with an investment may have more impact on the investor's decision than positive ones.



## 5. Conceptual framework, input data and analysis result

The previous chapters have introduced the economic perspective, insight in the background of the concept of SFM and the discussion on land grabbing, and the apparent paradox of the two concepts. Subsequently, it was discussed how it all is related to investment decision making and what investment decision making entails. All these elements together will be the basis for the conceptual framework and form the input for the framework constructed. Combining the framework and the input data will lead to the result of the logic deductive analysis.

### 5.1 The Conceptual Framework and Multi Criteria Analysis

This thesis argues that to predict what choice a larger group of decision makers will make, one has to study what choice an individual decision maker will make. To be able to answer the question whether there will be more or there will be fewer investments made in SFM, one has to know what the decision making process of the individual maker will be. The conceptual framework is this decision making process, and embodies the different decision making elements described in chapters 2 and 4.

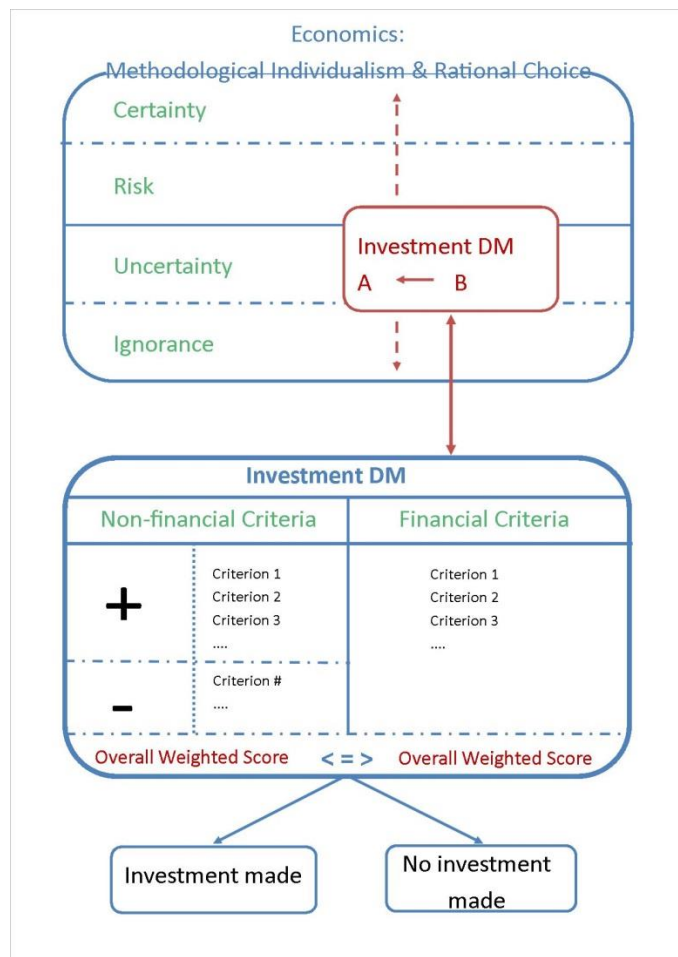
An economic decision is made by a rational individual, calculative in his approach of his decisions, choosing the alternative that will maximise his utility (see also paragraph 2.1.1 and 2.1.2). To what extent he can calculate what the outcome of his decision options will be, depends on the decision situation he finds himself in, distinguished in: certainty, risk, uncertainty or ignorance (see also paragraph 2.1.3).

Since not just any decision maker is considered here, but an investment decision maker, his decision will concern an investment project. The question he has to answer in the end is: will I or will I not invest? Since the importance of CSR, reputation and related non-tangible assets in business management have increased over the past years, the investment decision maker needs to consider two types of criteria, financial criteria (paragraph 4.2) and non-financial criteria (paragraph 4.3) in order for him to be able to answer the question. The financial criteria are pretty straight forward. Although it can differ per investment decision maker which criteria he will use, the criteria will have the same connotation, and will not be experienced as either positive or negative. The value they produce might, but not the different criteria themselves. This is different for the non-financial criteria, especially considering reputation. There are criteria that are perceived as positive for the investment company's reputation, and there

are criteria that are perceived as negative for the investment company's reputation. The positive or negative perception of a non-financial criterion has an effect on its impact on the decision making process; the negative connotation of one criterion weighs 'heavier' in the decision making process than the positive connotation of one other criterion (paragraph 4.5).

The investment decision maker will judge all of the criteria and he will consider the importance of the categories of financial criteria and non-financial criteria relative to one another. On the basis of his judgement of the importance of the criteria, their outcome and the relative importance of the financial criteria in relation to the non-financial criteria, he will make his decision whether or not to invest.

A depiction of the decision making process of an investment decision maker considering any kind of investment decision is displayed in Figure 8.



**Figure 8. Conceptual framework of the economic investment decision making process**  
(Source: own work).

What is displayed in the lower block in Figure 8 with the heading ‘Investment DM’ is in scientific literature known under the name Multi Criteria Decision Making (MCDM), analysed with Multi-Criteria Analysis (MCA), also called Multi Criteria Decision Analysis (MCDA). From here on the term MCA will be used to describe the process. *“Multi-Criteria Analysis is a decision-making tool developed for complex multi-criteria problems that include qualitative and/or quantitative aspects of the problem in the decision-making process”*<sup>170</sup>. This definition of MCA shows directly why MCA is the right tool for analysing this issue. The investor encounters a decision in which multiple criteria need to be taken into account, both qualitative and quantitative. This easily can lead to confusion and mistakes, since qualitative and quantitative data are of a different kind and need to be ‘measured’ according to the same scale to be able to integrate and compare them with each other. This is what MCA does.

MCA knows its origins in decision analysis, which has been studied for centuries by philosophers and economists alike. Only quite recently decision analysis has taken to considering more than one criterion in a decision at the same time, acknowledging the plurality of a decision and not trying to put all aspects considered into one scale of measure. MCA is therefore intuitively closer to how humans make decisions<sup>171</sup>.

There are three components which make up MCA problems: the decision makers, the alternatives or options considered, and the criteria<sup>172</sup>. In most examples found in literature, several decision makers are considered with regard to a problem, but it can also be applied to a single decision maker as *“typical MCDA problems arise when a single decision maker considers several criteria simultaneously”*<sup>173</sup>, as is specified above. The options or alternatives are the possibilities the decision maker has to choose from. All the options together make up what is called the ‘decision space’. The criteria are the requirements an option has to fulfil to a more or lesser extent<sup>174</sup>.

Different approaches of MCA exist, varying in complexity, and differing in the way they combine data. All approaches however require judgement of different criteria through a weighing system<sup>175</sup>. The linear additive model is the most

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<sup>170</sup> Mendoza et al., 1999:15

<sup>171</sup> Figueira et al., 2005

<sup>172</sup> Zarghami & Szidarovszky, 2011:4; Figueira et al., 2005:14; Department for Communities and Local Government, 2009

<sup>173</sup> Zargami & Szidarovszky, 2011:4

<sup>174</sup> Zargami & Szidarovszky, 2011:5

<sup>175</sup> Department for Communities and Local Government, 2009:19

suitable for the decision situation of an investment decision by a single decision maker. It is the most basic model of MCA, but sufficient for the decision situation discussed here. This model reflects how the overall value of an option can be determined by adding up the values of the different criteria. In this model it is assumed that all criteria used are independent of each other in the decision maker's preference<sup>176</sup>, which means that his judgement of one criterion does not affect his judgment of another criterion. Going through this MCA process the following steps are taken.

1. Establishing the aim, objectives, options and criteria to the options.
2. Clustering the criteria into separate groups.
3. Scoring and weighing the criteria with respect to the options, and calculating the weighted score of the criteria.
4. Establishing the overall weighted score of a cluster of criteria, and the overall weighted score/value of an option.<sup>177</sup>

In case of an investment decision the different steps consider the following elements.

1) In general, the aim of an investment decision is to establish whether or not the investment should be made. The objectives which the investment decision has to meet differ per type of investment considered, but can generally be said to be divided in objectives considering the non-financial assets and the financial assets of the company and the project considered, both affecting the 'profitability' of the investment project. The options are rather limited, only two in this case: invest or not invest. The criteria are then considered in relation to the non-financial objectives and the financial objectives.

2) The way the criteria are clustered is according to this same division, financial and non-financial criteria. The clustering of criteria is not necessary, but of aid when trying to get insight into MCA problems with a lot of criteria. It is then possible to calculate first the weight of a group of related criteria, to be able to then compare it to the weights of other groups of criteria<sup>178</sup>.

3) Scoring the criteria means that:

*"the expected consequences of each option are assigned a numerical score on a strength of preference scale for each option for each criterion. More preferred options score higher on the scale, and less preferred options score lower. In practice, scales extending from 0 to*

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<sup>176</sup> Department for Communities and Local Government, 2009:25

<sup>177</sup> Based on Department for Communities and Local Government, 2009:31

<sup>178</sup> Department for Communities and Local Government, 2009:34

*100 are often used, where 0 represents a real or hypothetical least preferred option, and 100 is associated with a real or hypothetical most preferred option. All options considered in the MCA would then fall between 0 and 100."*

Weighing a criterion involves assigning numerical weights to define for each criterion its relevance to the decision at hand. *"This is done by relative valuations of a shift between the top and bottom of the chosen scale."*<sup>179</sup> *"Any numbers can be used for the weights so long as their ratios consistently represent the ratios of the valuation of the differences in preferences between the top and bottom scores (whether 100 and 0 or other numbers) of the scales which are being weighted."*<sup>180</sup>

The weighted score of a criterion is calculated by multiplying the score (s) of a criterion with its weight (w)<sup>181</sup>.

Weighted score = score (s) \* weight (w)

4) The last step is then only to calculate the overall weighted score (OWS) of the financial criteria (FC), and the non-financial criteria (NFC). This is done by summing up all the weighted scores of the financial criteria, and all the weighted scores of the non-financial criteria.

$$\text{OWS FC} = \sum (s*w)_{\text{FC}}$$

$$\text{OWS NFC} = \sum (s*w)_{\text{NFC}}$$

Using the MCA in this way shows what the best option is for the investor, but at the same time gives insight in how he makes his choice.

The process is generally displayed in a performance matrix, or a consequence table. In a performance matrix as it is generally used the rows represent the different options and the columns the scores of the options for each criterion<sup>182</sup>. Formatted so that it displays the investment decision making situation as discussed here, this performance matrix does not display this in the same way. The matrix shows the different clusters of criteria, the criteria and their scores. The analysis of this matrix as such will point to one of the two options, invest or not invest, but does not display the options themselves. It does not point out what the decision *should* be, but what it, based on investment decision making theory, *will* be.

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<sup>179</sup> Department for Communities and Local Government, 2009:22

<sup>180</sup> Department for Communities and Local Government, 2009:63

<sup>181</sup> Department for Communities and Local Government, 2009:65

<sup>182</sup> Department for Communities and Local Government, 2009:21

Table 2. Performance matrix for investment decision making

Investment decision making									
Non-financial criteria						Financial criteria			
Connotation (positive +/ negative -)	Criterion	Score (0 -100)	Weight (0 - 100)	Correction factor positive vs negative connotation	Weighted Score (Score* Weight* <i>correction factor</i> )	Criterion	Score (0 -100)	Weight (0 - 100)	Weighted Score (Score* Weight)
	<i>Criterion 1</i>					<i>Criterion 1</i>			
	<i>Criterion 2</i>					<i>Criterion 2</i>			
	<i>Criterion 3</i>					<i>Criterion 3</i>			
	<i>Criterion 4</i>					...			
	....					<i>Criterion #</i>			
	<i>Criterion #</i>								
				Overall Weighted Score Non- Financial Criteria				Overall Weighted Score Financial Criteria	

To give an example, Table 3 considers a certain non-financial criterion. This criterion has a negative connotation, and the positive versus negative connotation is judged to have a ratio of 3:1. In the performance matrix this looks as follows.

**Table 3. Example of the use of a performance matrix considering a non-financial criterion**

<b>Non-financial criteria</b>					
<b>Connotation</b> (positive +/ negative -)	<b>Criterion</b>	<b>Score</b> (0 -100)	<b>Weight</b> (0 - 100)	<b>Correction factor positive vs negative connotation</b>	<b>Weighted Score</b> (Score* Weight* <i>correction factor</i> )
-	<b>Criterion #</b>	75	60	3	13500

As explained, scoring and weighing is done on a scale from 0 to 100. This can also be done on a scale from 0 to 1 reflecting a normal distribution scale. Using the normal distribution scale will make the performance matrix more accessible and ratios more obvious.

There is no ‘rule’ for how many criteria should be used to make a decision. The general approach however is that *“the number of criteria should be kept as low as is consistent with making a well-founded decision.”*<sup>183</sup>

## 5.2 Input data

The conceptual framework presented in the previous paragraph is applicable to investment decisions in general. What is needed to make this framework ‘work’ is input data for a specific investment decision. This data is made up of theory and information on SFM, the discussion on land grabbing, and investment decision making provided in the previous chapters, as well as additional data logically deduced from these chapters and a Google Trends analysis on the non-financial criteria.

### 5.2.1 Investment decision making: considering SFM and the discussion on land grabbing

Applied to investment decision making considering a SFM project, and taking into account the possible effect of the discussion on land grabbing on the decision, the conceptual framework gets a more distinct form.

Instead of approaching the whole decision making process from a general economics perspective, forest economics is used as a starting point. As forest

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<sup>183</sup> Department for Communities and Local Government, 2009:33

economics does not differ from economics except for the special emphasis put on some of the tools (see also 2.1), methodological individualism and rationalism as well as the decision situations remain a part of the decision making process.

The decision making situation applicable to an investment decision in SFM under influence of the discussion on land grabbing (LG) is uncertainty or even ignorance. As explained in paragraph 4.3 there is no set mechanism to integrate non-financial aspects like reputation into an investment decision, and therefore no way known of yet that can calculate its impact on a decision. The situation is thus that an investor might know a spectrum of the effects that his decision to invest in SFM will have with consideration of LG, but it might very well be that an investor has no idea what to expect when he chooses to invest in SFM. This works the other way around as well, of course. Because the investor is considering LG (and other non-financial criteria) in his decision the decision situation is that of uncertainty/ignorance. Most decisions, in which only financial (calculable) criteria are considered, are seen as situations influenced by things that are known (certain) or of known risk. Therefore, if in a SFM investment decision only the financial criteria would be considered, the decision situation would most likely be that of certainty/risk.

To come to a decision the investor will consider the financial criteria of the SFM project, which will tell him if he will get sufficient return on his investment money wise. In addition he will consider the reputational effects (non-financial), both positive and negative of the attributes related to SFM. The weighted scores of the criteria and the balance between the overall weighted scores of these two clusters of criteria will show what decision the investor is likely to make. For this decision he has again two options: invest or not invest.

The investment decision making framework in case of a SFM project, taking into consideration the possible effect of the discussion on land grabbing, then looks as follows:



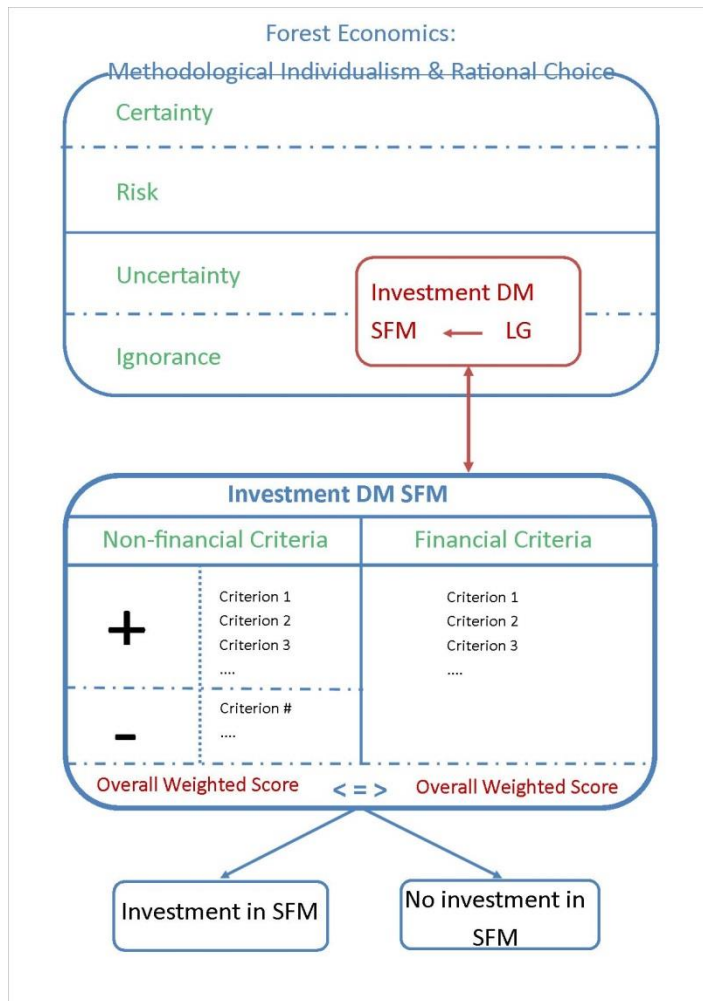
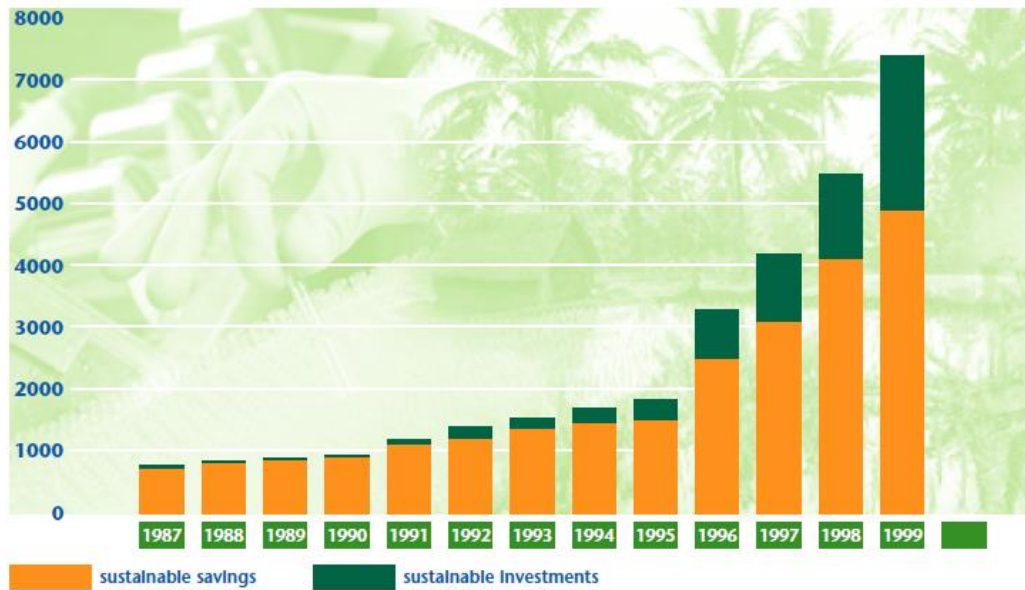


Figure 9. The decision making framework including the relation between investment decision making in SFM and the discussion on land grabbing, from a forest economic perspective (Source: own work).

### 5.2.2 The investment decision maker in SFM: forestry investors and their economic 'weight'

In paragraph 4.1, different subgroups have been distinguished in 'investors' as a homogenous group, according to a categorisation made by Canby and Raditz (2005) on the basis of their relevance for the (tropical) forestry sector. This does not in itself say anything about the economic weight each of these investors put in the scale for SFM project investment.

The term '*Sustainable Forest Management*' gives away that when looking for investments for this sector one best focusses on the sustainable or 'responsible' investment sector. This sector has seen a dramatic growth over the last years, which is reflected in a national survey of VBDO ('Association of Investors for Sustainable Development') in the Netherlands from the period of 1987 to 1999.



**Figure 10. Volume trend in sustainable savings and investments (x million guilders)**  
(Source: Jansen et al., 2000:3)

Figure 10 shows that the volume of sustainable investments took a sudden increase from 1995 onwards. This same study provides further insight in the ratio of sustainable savings and investments with relation to the overall investments of Dutch investment institutions as is displayed in Table 4.

**Table 4. Volume of sustainable savings and investments (x thousand guilders)** (Source: Jansen et al., 2000:5)

year	Savings in green funds	ethical savings	sustainable savings	OVERALL SAVINGS	Investments in green funds	ethical investments	sustainable investments	OVERALL INVESTMENTS*
1987	0	723,069	723,069	152,929,000	0	10,010	10,010	41,070,000
1988	0	861,989	861,989	157,269,000	0	11,025	11,025	55,450,000
1989	0	937,167	937,167	165,317,000	0	12,047	12,047	63,660,000
1990	0	1,085,085	1,085,085	178,572,000	0	34,531	34,531	54,223,000
1991	0	1,251,072	1,251,072	188,621,000	0	123,265	123,265	61,610,000
1992	0	1,360,360	1,360,360	206,608,000	0	131,336	131,336	72,200,000
1993	0	1,481,549	1,481,549	212,659,000	0	170,829	170,829	103,550,000
1994	0	1,559,699	1,559,699	216,849,000	0	205,782	205,782	99,140,000
1995	0	1,678,349	1,678,349	231,001,000	0	260,867	260,867	101,017,000
1996	672,693	2,002,221	2,674,914	246,764,000	529,266	222,543	751,809	115,986,000
1997	1,004,418	2,261,008	3,265,426	256,184,000	718,003	357,575	1,075,578	139,699,000
1998	1,715,017	2,531,186	4,246,203	269,306,000	902,059	490,872	1,392,931	165,113,000
1999	2,048,819	3,014,182	5,063,001	283,937,000	1,323,461	1,099,930	2,423,391	193,571,000

\* Balancesheet overall Dutch investment institutions

This table shows more explicitly the significant growth of the sector in this period with sustainable savings growing from 0.47% of total savings in 1987 to 1.78% of the total savings in 1999. For sustainable investments this was even from 0.02% of the total investments in 1987 to 1.25% of total investments in 1999.

**Table 5. Increase share of sustainable savings and investments (x thousand guilders) of the overall Dutch savings and investments (Based on: Jansen et al., 2000:5, Table 2)**

Year	Sustainable Savings	Overall Savings	% Sustainable of Overall
1987	723,069	152,929,000	0.47
1999	5,063,001	283,937,000	1.78
Year	Sustainable Investments	Overall investments	% Sustainable of Overall
1987	10,010	41,070,000	0.02
1999	2,423,391	193,571,000	1.25

This increase has continued Europe wide in the last years as is shown in the study of ESDN (European Sustainable Development Network)<sup>184</sup>. This study gives an overview of the development of Socially Responsible Investment (SRI), of which sustainable forestry has conventionally been an important asset class for asset owners<sup>185</sup>. The study recognises different investment strategies within SRI.

- ❖ ***“Sustainable Themed Investment:*** *Investment in themes or assets linked to the development of sustainability. Thematic funds focus on specific or multiple issues related to ESG.*
- ❖ ***Best in Class Investment Selection:*** *Approach where leading or best-performing investments within a universe, category, or class are selected or weighted based on ESG criteria.*
- ❖ ***Norms-based Screening:*** *Screening of investments according to their compliance with international standards and norms.*
- ❖ ***Exclusion of Holdings from Investment Universe:*** *An approach that excludes specific investments or classes of investment from the investible universe, such as companies, sectors, or countries.*
- ❖ ***Integration of ESG Factors in Financial Analysis:*** *The explicit inclusion by asset managers of ESG risks and opportunities into traditional financial analysis and investment decisions based on a systematic process and appropriate research sources.*

<sup>184</sup> Endl, 2012

<sup>185</sup> Endl, 2012:9

- ❖ **Engagement and Voting on Sustainability Matters:** Engagement activities and active ownership through voting of shares and engagement with companies on ESG matters. This is a long-term process, seeking to influence behaviour or increase disclosure.
- ❖ **Impact Investment:** Impact investments are investments made into companies, organizations, and funds with the intention to generate social and environmental impact alongside a financial return. Impact investments can be made in both emerging and developed markets, and target a range of returns from below market-to-market rate, depending upon the circumstances."<sup>186</sup>

According to the European Fund and Management Association<sup>187</sup>, European assets under management (AuM) overall “grew from €12.8 trillion in 2009 to €13.8 trillion in 2011 with a Compound Annual Growth Rate (CAGR) of 3.8%”<sup>188</sup>. The CAGR is the year-over-year growth rate for a specific defined period. It is not a real growth rate, but one that reflects the rate as it would have been when it would have grown at a continuous rate<sup>189</sup>. In the investment strategies as defined above this growth has also seen its reflection (Table 6).

**Table 6. Aggregated market growth (€ billion) of 14 European countries (Source: EUROSIF, 2012b, as cited by Endl, 2012:9)**

Investment strategy	2009	2011	Growth (CAGR)
Sustainability themed	€ 25,361	€ 48,090	37.7%
Best in Class/Positive Screening	€ 132,956	€ 283,206	45.9%
Norms-based screening	€ 988,756	€ 2,346,308	54.0%
Exclusions	€ 1,749,432	€ 3,829,287	47.9%
Engagement/Voting	€ 1,668,473	€ 1,950,406	8.1%
Integration	€ 2,810,506	€ 3,204,107	6.8%

The growth in SRI investments in each strategy is many times the growth of the AuM overall, with the largest growth being displayed in ‘Norms-based Screening’ with 54.0% (see Table 6). The growth of SRI is explained by the fact that a lot of existing investments were converted to a SRI listed strategy<sup>190</sup>.

However, these numbers count for the aggregated group of investors. The group of investors that is specifically interesting for forestry investments world-wide

<sup>186</sup> Endl, 2012:8

<sup>187</sup> EFAMA, 2012, as cited by Endl, 2012:9

<sup>188</sup> Endl, 2012:9

<sup>189</sup> Investopedia, 2013

<sup>190</sup> Endl, 2012:9

are institutional investors from North America and Europe, as identified by the FAO<sup>191</sup>. There are several reasons for this.

- ❖ Institutional investors are large players in the overall market in stocks, bond and commodities<sup>192</sup>. The overall value of the institutional claim within the G-7 has increased from the equivalent of 23% in 1970 to 108% of GDP in 1998<sup>193</sup>.
- ❖ There is an increasing interest of institutional investors in assets in forests and forestry practices, illustrated by the increase in number of institutional investors taking part in timberland ownership, management and investment<sup>194</sup>.
- ❖ This increasing trend can be explained by the good match of the long time horizon of forest investments to the sought after investment period by institutional investors, for instance pension funds<sup>195</sup>.
- ❖ Investments in forestry by institutional investors have grown to over US\$50 billion today from the 1980s on, which can be defined as the starting point of this period of institutional forest investments<sup>196</sup>.

The geographical emphasis on North America and Europe stems from the fact that studies from 2001 on forestry and forestry products in capital markets, equity and debt markets show that about 73% of the global asset value was by that time managed by investors from these two regions<sup>197</sup> (see also Table 7). The FAO states that *“their [investors from North America and Europe] representatives are key decision-makers regarding the timing and structure of institutional forest investing”* as they are already investing in forestry or have investigated the possibility of forestry assets<sup>198</sup>.

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<sup>191</sup> 2012b:11

<sup>192</sup> Business Dictionary, 2013; Investing for Beginners, 2013

<sup>193</sup> Davis & Steil, 2004, as cited by Endl, 2012:10

<sup>194</sup> Endl, 2012:10

<sup>195</sup> Canby & Raditz, 2005:31

<sup>196</sup> Endl, 2012:10

<sup>197</sup> Canby & Raditz, 2005:34

<sup>198</sup> Endl, 2012:11

**Table 7. Total Market Capitalization: Global Forest & Paper Sector (Source: Henderson Global Investments, 2004 as cited by Canby & Raditz, 2005:34)**

(\$ millions)	Forestry Sector		Paper Sector		Combined Total	
North America	21,025	79%	53,031	37%	74,056	44%
Europe	392	1%	48,390	34%	48,782	29%
Aus, NZ, Brazil	1,212	5%	6,685	5%	7,897	5%
Other	3,823	14%	34,903	24%	38,726	23%
World	26,452	100%	143,009	100%	169,461	100%

An example of a heavy weight institutional investor is CalPERS (California Public Employees Retirement System), which is the largest public pension fund in the USA, and the third largest in the world. The total value of CalPERS' assets was US\$193,8 billion in October 2005<sup>199</sup>, and these have increased to currently, April 2013, being of a total value of US\$256,9 billion. *"With its gigantic presence in world markets, CalPERS has exercised pressure for countries to improve their capital market institutions and other investment industry factors."*<sup>200</sup> Although only a small allocation of its major "alternative investment" asset class is directed to forestry in emerging markets<sup>201</sup>, relative to its overall asset value this is still a considerable amount. Taking into account its size and presence in the overall market, CalPERS is a player which can be considered to be trend setting, changing the market playing field by its asset allocation policy.

On the basis of this information can be said that the (potential) value of investments in SFM has significantly grown in the form of SRI, in which (sustainable) forestry investments are conventionally taken up. In addition, within the wider group of investors, institutional investors can be pointed out to be the most significant players in the market, by being a limited group of entities controlling tremendous amounts of assets.

### **5.2.3 Financial and non-financial criteria in SFM investment decision making and their connotation**

The criteria are clustered in a financial and non-financial category. It differs per investment project considered which criteria, especially non-financial, are used. They are therefore specified here.

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<sup>199</sup> Canby & Raditz, 2005:43

<sup>200</sup> CalPERS, 2013

<sup>201</sup> Canby & Raditz, 2005:31

When trying to get insight into the way the investor's decision works considering an investment made in a SFM project with relation to the discussion on LG, the financial criteria considered are split up in:

**Table 8. Selection of literature supporting financial criteria related to SFM investments (Source: own work)**

<b>Criterion</b>	<b>Source title</b>	<b>Author</b>
Liquidity	Corporate Finance European Edition	Hillier et al., 2010
Payback Period	Corporate Finance European Edition	Hillier et al., 2010
Profitability: IRR	<ul style="list-style-type: none"> <li>- Forest Resource Economics and Finance;</li> <li>- Timber investment returns for selected plantations and native forests in South America and the Southern United States;</li> <li>- Corporate Finance European Edition</li> <li>- West and Central Africa Tropical Forest Investment Forum</li> </ul>	<ul style="list-style-type: none"> <li>- Klemperer, 1996;</li> <li>- Cubbage et al., 2007;</li> <li>- Hillier et al., 2010</li> <li>- ITTO, 2007</li> </ul>

As indicated in paragraph 4.2, there are several ways of determining the profitability of a venture. For the purpose of the decision making model, out of the different methods only the IRR will be used, as it is seen as the *"highest and best decision making tool"* available for forest projects<sup>202</sup>.

The IRR of forest investments can be expected in different ranges. In general natural forest stands are said to have an IRR of 4 to 8%<sup>203</sup>. Other figures that are mentioned are:

- ❖ For exotic species plantations IRRs can range from 13 to 23% for eucalyptus plantations in South America<sup>204</sup>.
- ❖ Natural stands of tropical forest in Latin America yield an average of 2% IRR, and natural stands in the US yield an IRR of 4%<sup>205</sup>.
- ❖ Investment companies however promote IRRs ranging from 15-20 %<sup>206</sup>, up to 20% and even 27% for bamboo and teak plantations said to be

<sup>202</sup> ITTO, 2007:20

<sup>203</sup> Cubbage et al., 2007:237

<sup>204</sup> Cubbage et al., 2007:237

<sup>205</sup> Cubbage et al., 2007:252

<sup>206</sup> Garner & Brittain, 2012



*"sustainable and environmentally ethical"*<sup>207</sup>. This is of course also a way to sell.

For the sake of simplicity and to be realistic the range of 4 to 8% as used by Cubbage et al. (2007) will be taken as a benchmark here.

Non-financial criteria are numerous, but in relation to SFM and limited to the aspects concerning the CSR and reputation of the investor, the following elements can be identified from literature and through logical reasoning, to be either positively or negatively related to SFM.

**Table 9. Selection of literature supporting non-financial criteria related to SFM investments (Source: own work)**

<b>Criterion</b>	<b>Source title</b>	<b>Author/year/page</b>
Sustainable Forestry	<ul style="list-style-type: none"> <li>- ITTO guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests;</li> <li>- International Tropical Timber Agreement 2006;</li> <li>- Responsible Management of Planted Forests: Voluntary Guidelines;</li> </ul>	<ul style="list-style-type: none"> <li>- ITTO, 2002:7</li> <li>- UNCTD, 2006</li> <li>- FAO, 2006</li> </ul>
Reduction of atmospheric carbon (fighting climate change)	<ul style="list-style-type: none"> <li>- ITTO guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests</li> </ul>	<ul style="list-style-type: none"> <li>- ITTO, 2002:5</li> </ul>
Protecting biodiversity	<ul style="list-style-type: none"> <li>- ITTO guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests;</li> <li>- Responsible Management of Planted Forests: Voluntary Guidelines;</li> <li>- Tropical Forest Management and Conservation of Biodiversity: an Overview</li> </ul>	<ul style="list-style-type: none"> <li>- ITTO, 2002:5</li> <li>- FAO, 2006:17</li> <li>- Putz et al., 2001</li> </ul>
Poverty Alleviation	<ul style="list-style-type: none"> <li>- ITTO guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests;</li> <li>- International Tropical Timber Agreement 2006</li> <li>- Responsible Management of Planted Forests: Voluntary Guidelines</li> <li>- Sustaining Forests</li> </ul>	<ul style="list-style-type: none"> <li>- ITTO, 2002:7</li> <li>- UNCTD, 2006:2</li> <li>- FAO, 2006:34-36</li> <li>- WB, 2004:1</li> </ul>
Conserving Nature	<ul style="list-style-type: none"> <li>- ITTO guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests</li> <li>- Sustaining Forests</li> </ul>	<ul style="list-style-type: none"> <li>- ITTO, 2002:7</li> <li>- WB, 2004:12</li> </ul>

<sup>207</sup> Forestry Investments, 2012



## Conceptual framework, input data and analysis result

Ecosystem Services	<ul style="list-style-type: none"> <li>- ITTO guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests;</li> <li>- International Tropical Timber Agreement 2006</li> </ul>	<ul style="list-style-type: none"> <li>- ITTO, 2002:5</li> <li>- UNCTD, 2006:2</li> </ul>
Sustainable Development	<ul style="list-style-type: none"> <li>- International Tropical Timber Agreement 2006</li> </ul>	<ul style="list-style-type: none"> <li>- UNCTD, 2006:2</li> </ul>
Land grabbing	<ul style="list-style-type: none"> <li>- Land grab or development opportunity?</li> <li>- Investitionen in Land und das Phänomen "Land Grabbing"</li> <li>- Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security</li> <li>- Rising Global Interest in Farmland: Can it yield sustainable and equitable benefits?</li> </ul>	<ul style="list-style-type: none"> <li>- FAO, 2009</li> <li>- BMZ, 2012:13,14</li> <li>- FAO, 2012a</li> <li>- WB, 2010</li> </ul>

The first seven non-financial criteria - sustainable forestry, reduction of atmospheric carbon, protecting biodiversity, poverty alleviation, conserving nature, ecosystem services and sustainable development - can be said to be positively related to SFM. They are attributes of SFM, which means they are judged to be positive in the eye of the public, as they all encompass an answer to social and environmental problems. These criteria are therefore also perceived as reputation enhancing. The last criterion, 'land grabbing', is negatively related to SFM, as a SFM project needs land for realisation, which can possibly lead to land grabbing. The connotation of this is therefore negative, and perceived as reputation damaging.

With the criteria for an investment decision of a SFM project defined, the performance matrix or consequence table of this decision making process takes the following shape.

Table 10. Performance matrix of an investment decision making process of a SFM project (Source: own work)

Investment decision making SFM									
Non-financial criteria						Financial criteria			
Connotation (positive +/ negative -)	Criterion	Score (0 -100)	Weight (0 - 100)	Correction factor positive vs negative connotation	Weighted Score (Score* Weight* <i>correction</i> factor)	Criterion	Score (0 -100)	Weight (0 - 100)	Weighted Score (Score* Weight)
+	<b>Sustainable Forestry</b>								
	<b>Fighting climate change (reduction of atmospheric carbon)</b>					<b>Liquidity</b>			
+	<b>Protecting biodiversity</b>					<b>Profitability: IRR</b>			
+	<b>Poverty Alleviation</b>					<b>Payback Period</b>			
+	<b>Conserving Nature</b>								
	<b>Providing Ecosystem Services</b>								
+	<b>Contributing to Sustainable Development</b>								
-	<b>Land grabbing</b>								
				<b>Overall Weighted Score Non- Financial Criteria</b>				<b>Overall Weighted Score Financial Criteria</b>	

Based on this performance matrix, several assumptions can be formulated which indicate which option the investor will choose.

- 1) If the overall weighted score of financial criteria in the investment decision making process is larger than the overall weighted score of the non-financial criteria, then investments in SFM will be made, if it is judged to be financially 'profitable' enough. The weighted scores of the different non-financial criteria are not relevant in this case, as all of them are overruled by the financial criteria.
- 2) If the overall weighted score of financial criteria is smaller than the overall weighted score of the non-financial criteria, then
  - a. Investments in SFM will be made when the weighted score of land grabbing is relatively small.
  - b. Investments in SFM will no longer be made when the weighted score of land grabbing is relatively big.

To get a better idea of which of these assumptions apply to an investor, more input data is required. Google Trends Analysis provides a source to give an indication of the different weights of the non-financial criteria.

#### **5.2.4 Google Trends analysis: weight of non-financial criteria**

##### *The analysis method*

Since reputation is made and damaged by public perception, a good indication of what investors perceive as being of importance for their reputation is which topics receive the most attention on mass media channels like the World Wide Web. Mass media shapes and is shaped by public perception. As Google is ranked the best and most popular search engine on the web<sup>208</sup>, searches performed in this search engine are perceived to be representative for the public attention a topic receives. The non-financial criteria as mentioned in the SFM decision making model in Table 10 were searched for relative importance, 'weight', in the search database of Google through a Google Trends analysis.

In this analysis Google counts the number of Google web-searches performed on a certain search term and directly associated words over a certain period in relation to the total number of searches performed in that same period. For instance, when 'land grabbing' is entered, it will also count the news items that mention 'land grab' or 'landgrabbing'. This is done for a pre-defined period,

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<sup>208</sup> eBizMBA,2013; Lamba, 2011; The Search Engine List, 2010

which can range from 2004 till now. Searches from before 2004 are not available. The analysis reflects the probability that a random web-user from a certain location at a certain time will search a specific search term. Google Trends uses a certain threshold for search numbers below which the searches of a specific search term are not displayed. In addition, repetitive searches within a short time span by a specific individual web-user are ignored in the analysis, as it would misrepresent the relevant number of searches<sup>209</sup>.

The results are normalised, so that the absolute numbers of searches on a certain term are not given, but presented as a relative to the total number of searches performed in the same period. Normalisation is performed on the results to prevent the searches performed in regions with the highest absolute number of searches always having the highest value. Because the results are normalised, the graph presented and connected numbers are always relative to the total volume of searches. This means that value on the y-axis represents the normalised number of searches performed on a specific search on a certain location relative to the total number of searches on that location at that point in time (x-axis). When more than one search term is entered the result presented is the number of searches per search term relative to the total searching volume and to every other search term. In this way a graphical presentation is made of the relative 'importance' of the search term to other search terms<sup>210</sup>.

A rising trend in a graph means that the popularity of the search term has increased. At the same time it is also likely that the total search volume has increased, as the number of web-users is assumed to constantly increase. When the trend is going down, this means that the relative popularity of the search term has gone down. The absolute number of searches has not necessarily decreased, but relative to the total (growing) search volume the popularity of the search term has decreased<sup>211</sup>.

In addition to the analysis of searches already performed in the past, Google Trends can give prognoses about the future development of a trend in searches performed on a specific search term. On the basis of the values Google has researched in the past it extrapolates future values and makes a prognosis of the search trends of that specific search term. This extrapolation process does not take into account any context of the search term. The prognosis is therefore estimation and not an exact prediction of future values of number of searches

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<sup>209</sup> Google, 2013

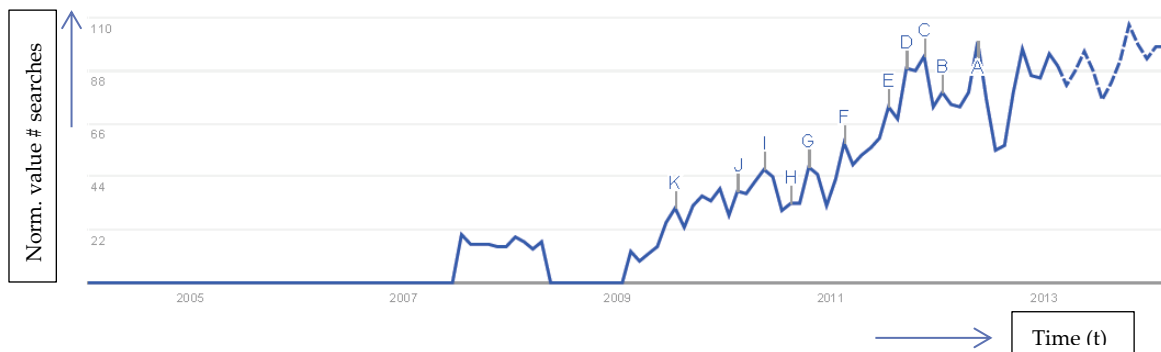
<sup>210</sup> Google, 2013

<sup>211</sup> Google, 2013

performed on a specific search term. The prognosis is displayed as a dotted line. For some search terms it is hard for Google to extrapolate future values on the basis of past values. In this case it cannot provide a prognosis on the number of searches that will be performed in the future.

### *Google Trends analysis results*

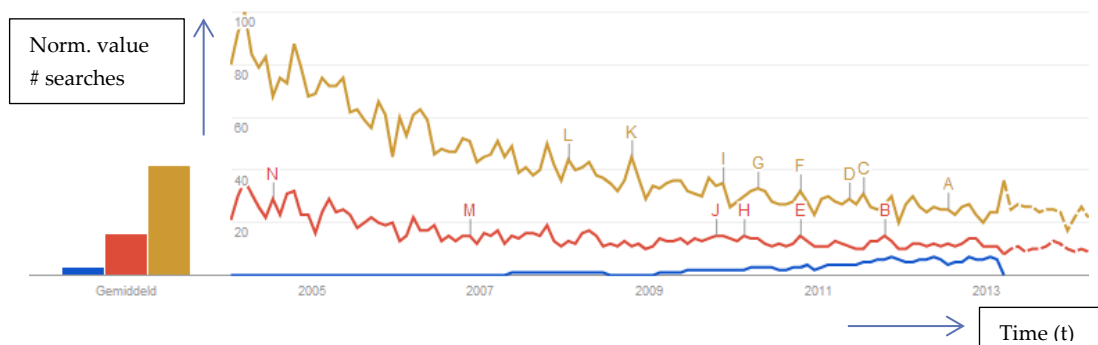
The Google Trends analysis shows some interesting results. At first only the term 'land grabbing' is searched. This presents the result as depicted in Figure 11.



**Figure 11. Normalised number of searches for the term 'land grabbing' from 2004 till 2013 plus a prognosis for the near future (Source: Google Trends, 2013a)**

This graph shows a sharp increase from halfway 2007 going back down in 2008 with a continuous rise from 2009 onwards. A prognosis of future values beyond 2013 continues this trend. Noteworthy is mostly that before 2007 the number of searches does not rise above the minimum set threshold.

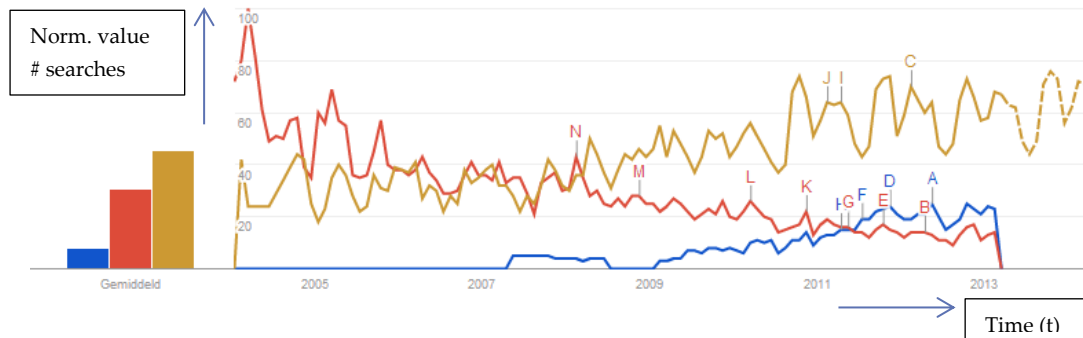
When the terms 'poverty alleviation' and 'nature conservation' from the decision making model are entered the following picture appears.



**Figure 12. Normalised number of searches for the term 'land grabbing' (blue line), 'poverty alleviation' (red line) and 'nature conservation' (yellow line) from 2004 till 2013 plus a prognosis for the near future (Source: Google Trends, 2013b)**

This graph shows that 'land grabbing' might be a sharp riser by itself, but in comparison to the two other search terms it is relatively less searched by Google users. Also, for the search term 'land grabbing' in the context of the other search terms Google Trends is not able to extrapolate a prognosis for the near future.

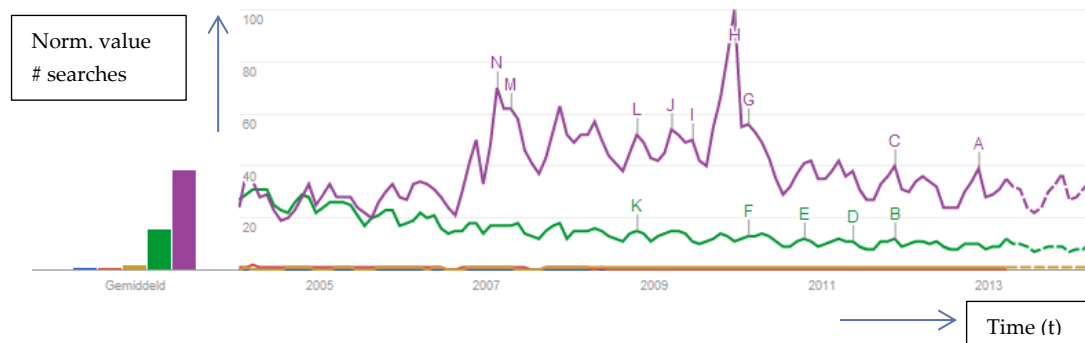
When 'land grabbing' is compared to 'sustainable forestry' and 'ecosystem services' the following graph shows.



**Figure 13. Normalised number of searches for the term 'land grabbing' (blue line), 'sustainable forestry' (red line) and 'ecosystem services' (yellow line) from 2004 till 2013 plus a prognosis for the near future (Source: Google Trends, 2013c)**

Although interestingly climbing above 'sustainable forestry' during 2011 relative to 'ecosystem services', 'land grabbing' has again a relative low number of searches. Nevertheless, the graph shows that both 'ecosystem services' and 'land grabbing' are both significantly increasing over time. In this search for both 'sustainable forestry' and 'land grabbing' no prognosis could be given.

As a last comparison the search terms 'climate change' and 'sustainable development' were put in the search that is depicted in Figure 13.



**Figure 14.** Normalised number of searches for the term 'land grabbing' (blue line), 'sustainable forestry' (red line), 'ecosystem services' (yellow line), 'sustainable development' (green line) and 'climate change' (purple line) from 2004 till 2013 plus a prognosis for the near future (Source: Google Trends, 2013d)

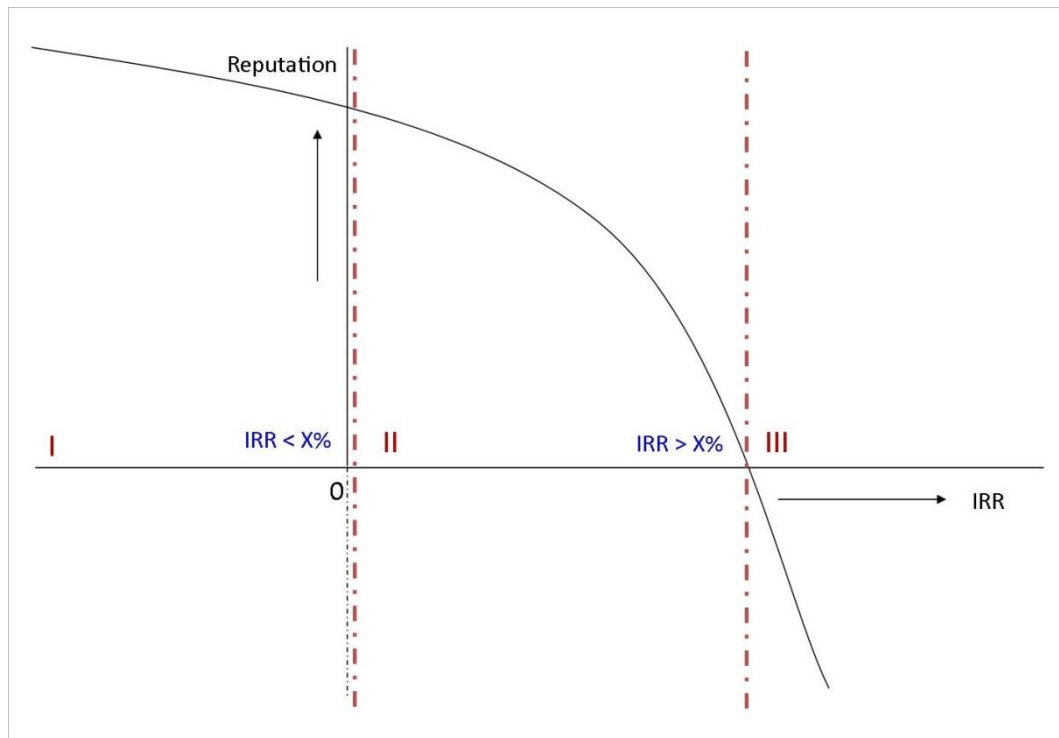
The graph shows that the previous three search terms of 'land grabbing', 'sustainable forestry' and 'ecosystem services' are nothing in comparison to the last two search terms, 'sustainable development' and 'climate change', in the total searching volume.

As Google Trends only allows searching for a maximum of five terms at a time, not all terms have been searched at the same time. The data provided by Google Trends is all in relative values of that search and does not permit a one to one integration to show a total picture. Nevertheless, the graphs show that before 2007 'land grabbing' was not searched above the threshold of the minimum amount of searches. From 2007 until now the term was relatively insignificant in comparison to the other search terms, although it does show a relative significant increase in searches over time. Nevertheless, currently only 'sustainable forestry' is lower in search popularity, which is noteworthy in itself. 'Climate change' and 'sustainable development' are the obvious attention seekers in this group.

### 5.2.5 Relation between financial and non-financial criteria: IRR and reputation

#### *Trade-off between financial return (IRR) and reputation*

The overarching term for the relation between IRR and reputational risk is trade-offs. When choosing between several options there is always a trade-off made, as you usually cannot have everything you want at the same time. In economics this is described as the opportunity cost to the alternative chosen. A good reputation comes with a price, and a bad reputation is not without benefits. The following graph may illustrate the relation between reputation and return.



**Figure 15. Hypothetical relation between financial return (in IRR) and reputation**  
(Source: own work)

The graph depicts a possible relationship between the amount of controversies and complaints an investor is willing to suffer for an investment made in relation to the IRR of that investment project. The graph shows an expectancy that the higher the IRR, the more risky an investment is, the more controversy (reputation risk) an investor will encounter and has to be willing to tolerate around his investment. This is in line with the general notion, that *"higher risk capital requires higher returns."*<sup>212</sup> Which makes sense, the loss made by reputational damage has to be compensated by the return on the investment otherwise it is pointless to make the investment in the first place. As stated by Perry & Fontnouvelle (2005), increase of the market rate of return is in this case necessary. The investor wants to maximize his utility; however he perceives this utility, in monetary value or reputation (see also paragraph 2.1.1).

It also works the other way around, investments with a high IRR are in general not very socially, environmentally or other ways of responsible. Investments in this category are for instance overlogging practices in forestry. Outside the forestry sector examples can be found in commodity production through exploitation of people and environment. Consider clothing industries which work with bad wages and working conditions. Or simply the fossil fuel industry,

<sup>212</sup> Canby & Raditz, 2005:30



which has considerable returns, and has shown on more than one occasion to harm the environment.

For investment in SFM this is an interesting point. Since forest management relatively does not give high returns in terms of IRR (see also paragraph 3.1) according to this graph the investor needs his reputation to be positive. In other words, he will not tolerate that much controversy surrounding his SFM investment which will deteriorate his reputation. Interesting in this case is then when he decides against an investment in SFM, which trade-off between IRR and reputation he accepts and which one he no longer accepts. This is depicted in the following table, with a *hypothetical* division.

**Table 11. Hypothetical relation between financial gain (in IRR) and reputation (Source: own work)**

IRR	-2%	0%	2%	4%	8%	10%
Reputation	+10	+8	+4	0	-4	-6
Total Value	8	8	6	4	4	4

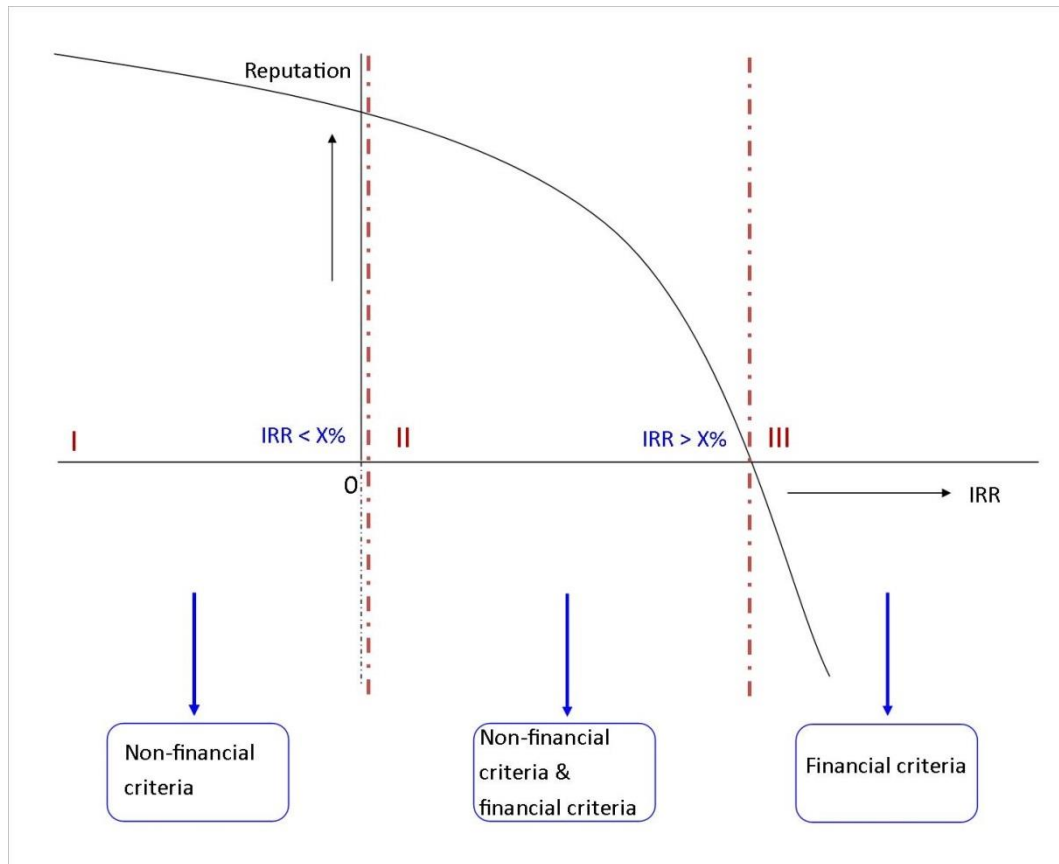
If the relation between IRR and reputation risk is indeed as assumed in table 5, then the expectation will be that with a maximum IRR of 8% return an SFM investment, the investor will not accept a bad reputation of more than -4.

### *Three different stages in financial – non-financial criteria consideration*

As depicted in Figure 15, three different stages can be distinguished. In the first stage reputation is positive. Reputation is enhanced, but the IRR is very low or negative. ‘Investments’ in this stage are good for reputation, but not for financial return, and better known under the name of ‘donation’ or ‘charity’. Relating this to the decision making model as displayed in the performance matrix in Table 10, financial criteria are of no relevance here, since deciding to invest in this part of the spectrum will give no or very little financial return. Financial criteria are not considered, therefore only the weight of the different non-financial criteria will influence the final decision of the investor. Of the assumptions formulated in paragraph 5.2.3 (page 74), to this part of the figure assumption 2 a or b is applicable.

- 2) *If the overall weighted score of financial criteria is smaller than the overall weighted score of the non-financial criteria, then*
  - a. *Investments in SFM will be made when the weighted score of land grabbing is relatively small.*

- b. *Investments in SFM will no longer be made when the weighted score of land grabbing is relatively big.*



**Figure 16. Relation between financial return (in IRR), reputation and the decision making model (Table 10) (Source: own work)**

The second stage is the middle stage and the mixed stage in which reputation value is decreasing and IRR is rising. Investments give a reasonable to good return, but damage to reputation keeps increasing with the IRR, which makes the value of reputation go down. In this stage both financial and non-financial criteria are relevant in the decision making model (Table 10). Both monetary and non-monetary values will have to be integrated and compared to see what is relatively more important in the decision making process. In the second stage assumptions 1 and 2 a/b can be applicable though, to different segments of the stage. Either financial criteria are more important to the investor, or non-financial criteria. Where the turning point is in this stage depends on the individual investor.

- 1) *If the overall weighted score of financial criteria in the investment decision making process is larger than the overall weighted score of the non-financial criteria, then investments in SFM will be made, if it is judged to be financially*

*'profitable' enough. The weighted scores of the different non-financial criteria are not relevant in this case, as all of them are overruled by the financial criteria.*

- 2) *If the overall weighted score of financial criteria is smaller than the overall weighted score of the non-financial criteria, then*
  - a. *Investments in SFM will be made when the weighted score of land grabbing is relatively small.*
  - b. *Investments in SFM will no longer be made when the weighted score of land grabbing is relatively big.*

In the third and last stage the IRR has increased to such high levels, and reputation has so severely been damaged, that if an investor chooses to invest in this area, his care for non-financial criteria is negligible or non-existent. Therefore, in the decision making model (Table 10) the non-financial criteria are not considered and only the weight of the financial criteria will make up the decision of the investor. In this part of the figure only assumption 1 is of relevance.

- 1) *If the overall weighted score of financial criteria in the investment decision making process is larger than the overall weighted score of the non-financial criteria, then investments in SFM will be made, if it is judged to be financially 'profitable' enough. The weighted scores of the different non-financial criteria are not relevant in this case, as all of them are overruled by the financial criteria.*

Based on this division of stages in the relation between IRR and reputation, one can deduce that investors interested in the SFM sector will either be in stage 1 or stage 2 of this relation. If they are stage 3 investors *and* are interested in SFM investments, then they probably have a wrong idea about the financial return on SFM. Part of the appeal of SFM is in the non-financial factors, which a stage 3 investor will not take into consideration. For financial return he would better look into other kinds of assets.

### 5.3 Logic deductive analysis result

#### **Synthesis**

The input data presented in paragraph 5.2 can be placed in the performance matrix, and give insight into the decision making process. Figure 17 shows the positions of the different sets of data in the performance matrix of Table 10.

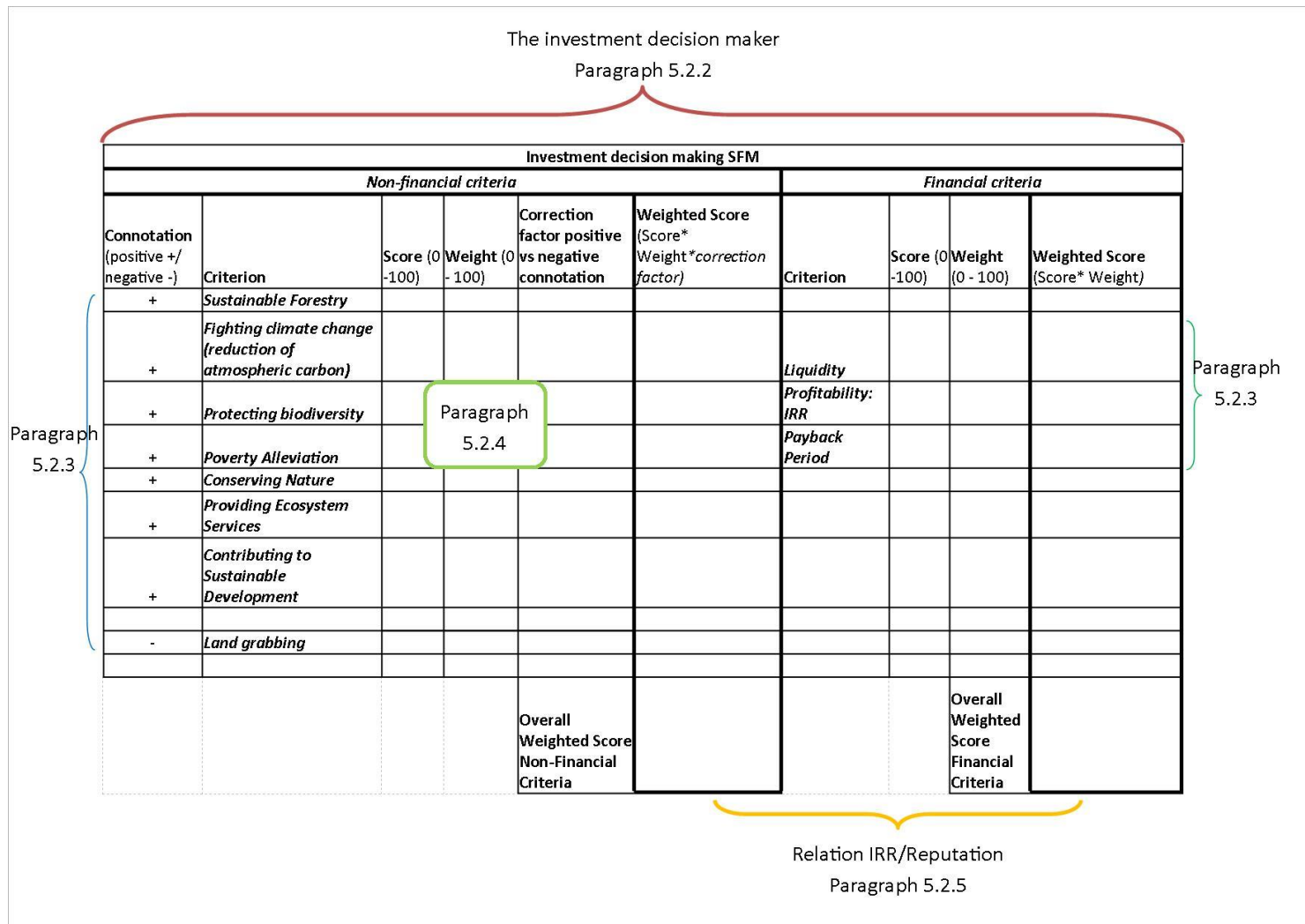


Figure 17. Position input data in performance matrix (Source: own work)

On the basis of the information derived from literature provided up to this point, a line of reasoning can be given in answer to the research question of this thesis. The main research question asks the following question:

*Will the current discussion on land grabbing result in more or in less investments made in sustainable forest management, measured in US\$?*

To be able to answer this question, in this thesis it is argued that what an individual decision maker decides will make up the decision of the larger group of decision makers. In other words, when it is known what individual investment decision makers decide one can also know the decision which will be made by the larger group of investment decision makers. In addition, this investment decision maker is calculative, rational, and will consider the consequences of his decision in a predictable manner.

The investment decision maker of particular interest in this case is the institutional investor, from North America and Europe, who has the economic size and power to enforce a trend in any asset class. Literature suggests that the market value of a company at the moment consists of 70 to 80% of reputational risk, with a large group of investment managers stating that they feel this has increased in recent years. In addition, the return on SFM is not very high, with an IRR considered between 4 and 8%. Concerning the relation of IRR with reputation the institutional investor is assumed to be in stage II, which indicates that he will consider both financial and non-financial criteria. Based on this information, the institutional investor is likely to consider the importance, the overall weighted score, of non-financial criteria to be higher than the financial criteria.

His decision then will depend on how he judges the importance of the different non-financial criteria. As these non-financial criteria concern his reputation, and his reputation depends on public perception, insight in what the public perception currently is concerning these criteria will give a good idea of how an investor will weigh the different non-financial criteria. The Google Trends analysis, which shows how often a certain search term is searched for in a specific period, shows that currently land grabbing is not very prevalent in the attention of the public. Although the perception of a negative related aspect to SFM, like land grabbing, can be perceived to have much more impact than a positive aspect, positive aspects like fighting climate change are still that much more prevalent in public attention that they overrule the importance of land grabbing. This assumption only holds if the investor tolerates any negative perception at all. However, if he does, it can be safely stated that at this specific

moment in time the positive criteria related to SFM are still of more importance to him than the negative association with land grabbing.

Therefore, based on these assumptions and criteria it can be assumed that he will invest in SFM and that therefore the current trend of increasing investments in SFM is not altered, and will continue to increase.

### *Hypothesis*

The hypothesis that follows from this line of reasoning is:

If the investment decision of the individual institutional investor makes up the decision of the larger group of investors,

and if he perceives the non-financial criteria concerning his reputation to be of more importance than the financial criteria,

and if he perceives the aggregated weight of the positive non-financial criteria to be higher than the weight of the negative non-financial criterion, land grabbing,

and if he does allow some negative association of the public with his investment projects,

then his investment decision will be to invest or keep investing in SFM projects.

Thus the current discussion on land grabbing will not result in less investments made in sustainable forest management, measured in US\$, and likely continue the increasing trend that was already present.

## 6. Methods part two: Empirical analysis

The multi criteria decision making model (Table 10) and hypothesis (paragraph 5.3) as formulated in the conceptual framework (Chapter 5) are based on literature and logic deduction and reflect a decision making process by a theoretically constructed individual investment manager. To cross-check if the perception of science about the decision making process corresponds with the actual decision maker, the model and hypothesis should be compared with the decision making process of a real individual investment manager. This can be done with observations collected through an empirical analysis via a questionnaire. This will either lead to a confirmation or falsification of the formulated hypothesis. The scope of this thesis however does not reach as far as completing and executing the actual questionnaire. The reasoning and part of the set-up of the questionnaire are explained in Chapter 7, with a view to provide insight for succeeding research in how the conceptual framework should be tested and which lines it dictates. Chapter 6 anticipates on this succeeding research which will execute this questionnaire and recommends methods that seem best fit for this.

### 6.1 Respondents: sample group and geographical background

To test the framework and hypothesis with a group of people you do not know the extent of heterogeneity of, usually the larger the group of respondents the better. However, due to time and costs this is often not possible, and a sample of the population of research subjects has to resemble the larger group. The population is best represented in a sample that has been selected through probability sampling, which is based on random selection. When this is not possible, due to the fact that for instance you are not able to get in touch with part of the population, non-probability sampling can be applied. This is based on non-random selection. However, when non-probability sampling is used, the results *“cannot be used to make generalizations about the whole population”*<sup>213</sup>.

For this research, the research population of specific interest are investors. They have been introduced as a diverse group in paragraph 4.1 and more extensively in paragraph 5.2.2. It appears as though from the wider group of investors, the institutional investors are the most interesting to approach in the context of this research. With a limited amount of entities, and a high amount of assets under

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<sup>213</sup> Walliman, 2006:76

management, these investors are able to enforce a trend. To get insight in what the market will do when it comes to investments in SFM it is therefore most effective and interesting to take a sample from this specific group of investors. In addition, having a history in responsible investing for quite a long period, institutional investors from Europe and North America will be the most influential in the SFM market. Selection will therefore have to be done non-randomly, and by ways of theoretical sampling. This means that the sample is selected on the basis of the fact that the most useful information on the subject can be provided by this group. To limit the amount of time spent on reaching respondents of this specific investor group, snowball sampling may be used, where one contacts individual entities or associations of institutional investors which can provide further contacts within the group<sup>214</sup>.

## 6.2 Online questionnaire

To get insight into the decision making process of real investors concerning investments made in SFM in relation to land grabbing, survey research needs to be undertaken, which means real life observations need to be collected. There are many ways of gathering this kind of information in research, such as experiments, interviews and questionnaires, to name a few.

From the methods available, an online questionnaire has several advantages which make it a very suitable tool for the issue studied. The following advantages of online questionnaires, or self-completion questionnaires, are listed by Walliman (2006:88).

- ❖ *“They are cheap to administer,*
- ❖ *They are quick to administer.*
- ❖ *They are an easy way to question a large number of cases covering large geographical arrears.*
- ❖ *The personal influence of the researcher is eliminated.*
- ❖ *They are convenient for respondents.*
- ❖ *Respondents have time to check facts and think about their answers, which tends to lead to more accurate information.*
- ❖ *They have a structured format.*
- ❖ *They can be designed to assist in the analysis stage.*
- ❖ *They are particularly suitable for quantitative data but can also be used for qualitative data.”*

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<sup>214</sup> Walliman, 2006:79



In addition, Singleton and Straits (2010) state that online questionnaires have the advantage that respondents are less likely to leave questions unanswered. Also, online questionnaires give a lot of opportunities in design and interaction level, making it more appealing to respondents<sup>215</sup>.

However, online questionnaires run the risk of evoking self-selected samples, which only *"reflect the views of those who choose to respond"*<sup>216</sup>. As they need to be self-explanatory, they need a lot of time and skill to be designed and only a limited range of questions can be asked, and they need to be simple to understand. The time and cost advantage of not being physically present as an interviewer, also means that it is impossible to prompt or probe the respondent<sup>217</sup>. In addition, response rates for online questionnaires tend to be quite low in comparison to other methods<sup>218</sup>. The advantages of online questionnaires are such though, that it seems the best method for this research. It gives the opportunity to reach investors from both Europe and North America, sets the bar quite low for them to respond, and makes it possible to design the questionnaire in such a way that it fits the Multi Criteria Analysis (MCA) as described in paragraph 5.1 best.

To make full use of this format the questions need to be formulated in a closed-format, making it easy to answer and to code. For fitting the questionnaire to the MCA the types of questions that can be used are mostly:

- ❖ Rank order (listed by preference)
- ❖ Lickert style (rate to which is agreed with a statement, e.g. strongly agree – strongly disagree)
- ❖ Semantic differential (choosing from a range of qualities, e.g. very good – very poor)<sup>219</sup>

These question types make it possible to score and weigh different elements in the decision making process, as they all use a scale for the answer options. All answers should provide answers on a normalised scale so that answers can be integrated, calculating the weighted score, and compared, comparing the overall weighted score of the financial and non-financial criteria (see also paragraph 5.1 on MCA).

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<sup>215</sup> Singleton & Straits, 2010:289-290

<sup>216</sup> Singleton & Straits, 2010:290

<sup>217</sup> Walliman, 2006:88

<sup>218</sup> Singleton & Straits, 2010:290; Walliman, 2006:88

<sup>219</sup> Walliman, 2006:90

A question can be constructed as shown in the table.

**Table 12. Example question online questionnaire**

<b>Question 3</b>	Are you positive concerning investments in Natural Resource Management?	Rate 1 to 5 in which 1 = not at all, and 5 = absolutely	1 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> 5	Normalisation 0 – 1  1 = 0.2 ... 5 = 1.0
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## 7. Empirical research results

The conceptual framework (Chapter 5) has provided all the ingredients to be moulded into an empirical approach by the methods for the empirical analysis (Chapter 6). Cross checking of the logic deductive formulated hypothesis with empirics will show if the hypothesis is falsifiable or not. The scope of this thesis does not reach as far as the completion of this empirical stage. However, on the basis of the logic deductive approach, the conceptual framework and the decision making model a set-up for a questionnaire is formulated as can be used in follow-up research for this purpose.

### 7.1 Overall set-up questionnaire

Before discussing the different parts of the questionnaire and their logical foundation, first an overview of the whole set-up is given. This overview is depicted in the following figure.

As shown in Figure 18, representing the questionnaire structure, the questionnaire consists of a general part followed by three different pathways. The general part asks questions to all respondents. As a last question of the general part the answer to Question 10 will determine which of the three pathways of questions the investor will follow.

Pathway 1 corresponds with stage 1 in Figure 16 (page 81), depicting the relationship between IRR and reputation, which in stage 1 indicates that the only decision criteria relevant for the investor are the non-financial criteria. The questions asked will therefore only consider the non-financial criteria, corresponding with the left side of the decision making model in the performance matrix (Table 10). Pathway 2 similarly corresponds with stage 2 in Figure 16, meaning the criteria relevant for the investor are both financial and non-financial criteria. Thus, the whole performance matrix is relevant for the decision making process. The third pathway corresponds with stage 3 in Figure 16, the criteria relevant only being the financial criteria. The questions on this path will be only financially focused, and therefore only the right side of the performance matrix is relevant for decision making. All the four blocks will be separately discussed in the coming paragraphs.

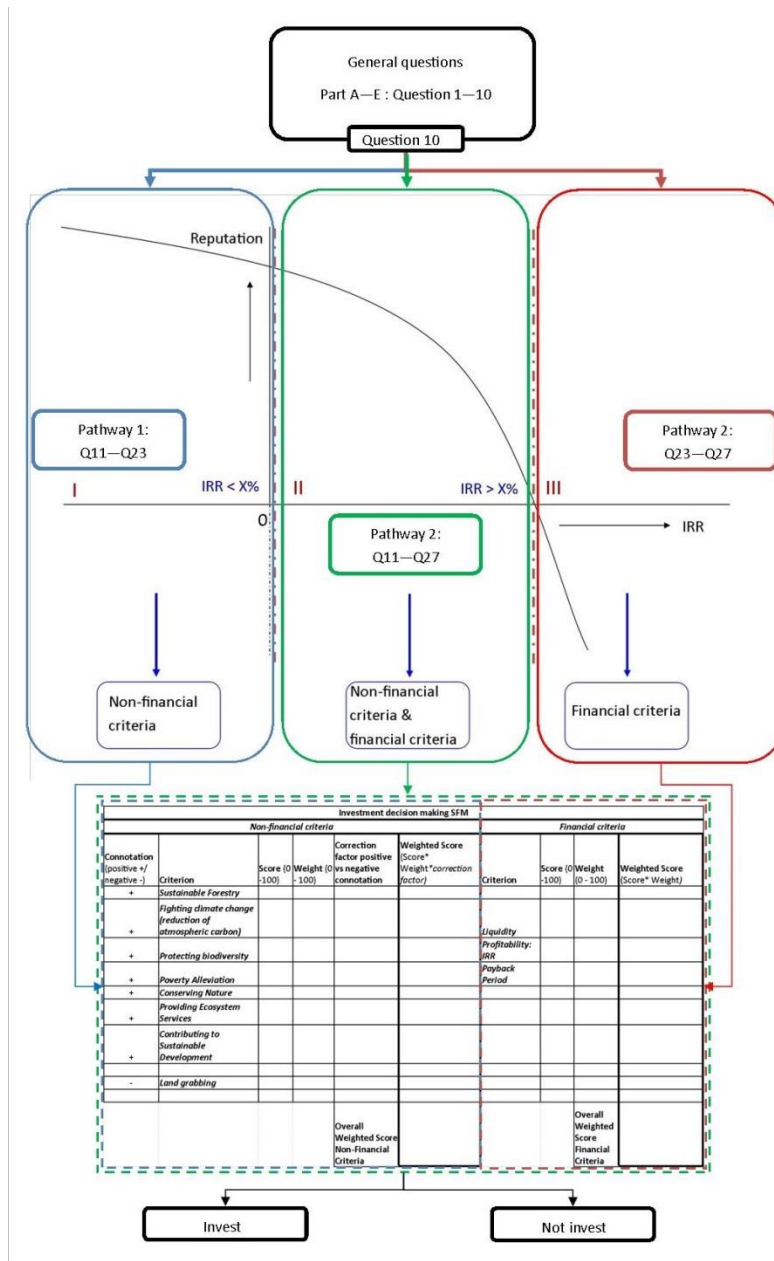


Figure 18. Overview pathways questionnaire

## 7.2 Different building blocks of the questionnaire

### 7.2.1 General Part: What type of investor are you?

This part of the questionnaire intends to provide basic information necessary to identify the respondent. What kind of company he is from; how much money he has under his management; and similar questions. The questions are structured in an ABC column structure which will explain why the question is asked, what the actual question in the questionnaire will be, and how the answer to the question is processed.

**Table 13. Block 1: General questions questionnaire**

	<b>A: Interest / Purpose of question:</b>	<b>B: Data:</b>		<b>C: Further treatment of data / Information:</b>
		<b>Question:</b>	<b>Type: Numeric Non-Numeric</b>	
<b>Part A</b>	Information on respondents background, ensuring individuality, basis for categorization, purely administrative	<b>Q1</b> respondents profile: name, company, position	Non-numeric	Make sure everything is filled out by different individuals, possible to distinguish from which groups/backgrounds they are. The information is not used in the end, it is anonymous.
<b>Part B</b>	How does the specific company fit into one of the clusters / strata defined?	<b>Q2</b> What is the total current amount of assets under management of your company?	Numeric	Example results of questionnaire: Respondent 008 = \$500 Mio.  No strata of types of investors and their amount of assets under management (AuM) have been pre-defined.  On the basis of Q1 and Q2 it will be possible to see if there is a relation between a type of investor and AuM, and if there is a correlation with the rest of the answers given.
	How is the general attitude towards investments in natural resource management, is it experienced as a potential area to invest in.	<b>Q3</b> Are you positive concerning investments in Natural Resource Management?	1-2-3-4-5 1= very negative 5= very positive	e.g. response: 001 = 4 008 = 2 020 = 5 Etc.  By combining the data of Q1, Q2 and Q3 it may be possible through descriptive statistics to answer the following question:  <i>Who are the most relevant players in future investments in NRM? Who will put the most money in the sector?</i>
<b>Part C</b>	Does the investor have experience with investing in SFM; does he know what	<b>Q4</b> Do you currently invest in SFM?	Yes/no Yes, continue to question 6 No, continue to question 5	Classes: Yes / No

	he is talking about?			
	What reason does the investor have not to invest in SFM at the moment?	<b>Q5</b> What are your reasons for not investing in SFM	Not profitable Too risky Not enough knowledge No offer Other	Combined with part B this will give insight in if people who are positive about investing in NRM also invest in SFM. And if they don't, what is holding them back.  This can give a lead on what should or could be changed in the future to enable the investing climate in SFM more.
<b>Part D</b>	Does the investor experience events that damage his reputation the same as events that enhance his reputation? Is it of equal weight? Translated in terms of publicity, is bad publicity relatively heavier in his judgment?	<b>Q6</b> How many good newspaper articles about an investment project do you need to compensate for one bad article?	1 2 5 8 10 0, no positive publicity can make up for a bad article	The outcome of the question shows how much heavier damage to reputation is experienced, and what is needed to even the score.  In the MCA calculation this means that in case of the relation not being 1:1 the weights have to be adjusted accordingly.  E.g. 1 bad article needs compensation of 5 good ones. MCA values of reputation damaging elements (land grabbing) have to be multiplied by 5 to adjust for this effect.
<b>Part E</b>	<i>What is the investor's own perception of importance of financial criteria relative to non-financial criteria</i>	<b>Q7</b> <i>What do you consider to be the relative importance of financial criteria of an investment to be to non-financial criteria of an investment? Please indicate a ratio.</i>	<i>Open question</i>	e.g. response: 004 = 1:2 014 = 1:1 020 = 1:0  <i>This question will give the ability to check if the outcome of the MCA corresponds with the own perception of the investor of his judgment of the relative importance of FC to N-FC in his decision making process</i>
	<i>What is the investor's idea of the reputational riskiness of investing in SFM?</i>	<b>Q8</b> <i>How controversial do you consider investments in SFM to be?</i>	1-2-3-4-5 1= not controversial at all 5= very controversial	A way of finding out what spot on the y-axis of the graph IRR/reputation the investor is.
	<i>What does the investor think is the IRR of SFM investments? What does he know of reality?</i>	<b>Q9</b> <i>What is according to you the range of IRR in which SFM investments perform?</i>	<0% 0-4% IRR 4-8% IRR 8-12% IRR >12%	A way of finding out what spot on the x-axis of the graph IRR/reputation the investor is.
	<i>In which of the three stages as depicted in Figure 16 does the investor belong? In what way does he consider the trade-off between IRR and reputation risk?</i>	<b>Q10</b> (Part 1) <i>From which level of profitability (IRR) onward would you no longer consider reputation risk an obstacle worth considering in investment decisions?</i>	0-5% IRR 5-10% IRR 10-15% IRR 15-20% IRR >20% Never	Data will show in which of the three stages the investor is to be placed. On the basis of this question, he will go along one of the three pathways.

## Empirical research results

		<i>(Part 2) From which level of profitability downward would you consider the reputation gain of your investment more important than the return you get?</i>	<i>&lt; 0% 0-5% IRR 5-10% IRR 10-15% IRR 15-20% IRR Never</i>	
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Table 13 shows several different parts making up the general questions asked to the investor. The answers to Part B will give insight in who amongst the respondents are the important (future) players in natural resource management investment who will dominate the market. When identified, this together with additional information can give a good basis for predictions of this group's future role and behaviour in the market.

Part C will give insight in the investor's background in investments in SFM. Is he investing, and if not, why not? This may already indicate some obstacles and give an idea about the knowledge the investor has on SFM investments. Part D is a vital question, since it provides the insight if information is experienced to be asymmetric, and what the order of magnitude is in which this asymmetry is experienced. For the MCA method (paragraph 5.1) to give a sound outcome this information is needed.

Part E is then the part after which the different pathways will split. These questions serve to establish what kind of investor is encountered. It shows in which of the three stages of profitability versus reputation risk (Figure 16) he is to be placed. Does he invest for the purpose of reputation gain, financial gain or both? Based on the outcome of this part the investor will proceed along one of the three pathways.

### **7.2.2 Pathway 1: Reputation matters**

Part E of the general part has established that the investor can be categorised in stage 1 of Figure 16, and therefore only the non-financial criteria are relevant for determining his decision making process. This practically means that for finding out what the investor will decide with respect to an SFM investment in relation to the discussion on land grabbing only the left side of the performance matrix (Table 10) should be used. It needs to be provided with both the score of each criterion and the weight of each criterion to be able to calculate the weighted score per non-financial criterion. The questions asked should be structured in such a way that these values can be deduced. Furthermore, since the investor is only considering non-financial criteria in his investment decision, this is the last and ultimate opportunity to ask him some more questions about the specific criterion of land grabbing.



Table 14. Block 2: Questionnaire questions non-financial criteria

	A: Interest / Purpose of question:	B: Data:		C: Further treatment of data / Information:
		Question:	Type: Numeric Non-Numeric	
<b>Part F</b>	Get insight into relative importance within the category of non-financial elements in investment decision making	<p><b>Q11</b> Please rank the following elements in importance of consideration for judging a possible investment project:</p> <ul style="list-style-type: none"> <li>• Sustainable Forestry</li> <li>• Fighting Climate Change</li> <li>• Protecting biodiversity</li> <li>• Conserving nature</li> <li>• Providing Ecosystem Services</li> <li>• Contributing to Sustainable Development</li> <li>• Poverty Alleviation</li> <li>• Land grabbing</li> </ul>	<p>1-2-3-4-5 1= not important at all 5= very important</p>	<p>E.g. Resp. 005</p> <p>Sustainable Forestry = 3 Fighting Climate Change = 5 Protecting biodiversity = 3 Conserving nature = 2 Providing Ecosystem Services = 4 Contributing to Sustainable Development = 3 Poverty Alleviation = 3 Land grabbing = 5</p> <p>Normalized from 0-1, giving the <b>weight</b> of the N-FC</p>
<b>Part G</b>	How important does the investor think the element of sustainable forestry is to his business? What is the absolute value of the criterion sustainable forestry?	<p><b>Q12</b> Is practicing forestry in a sustainable way a motivation for investing?</p>	<p>1-2-3-4-5 1= not at all 5 = absolutely</p>	Normalized, gives the <b>score</b> of the NFC
	How important does the investor think the element of fighting climate change is to his business? What is the absolute value of the criterion fighting climate change?	<p><b>Q13</b> Does the positive image of fighting climate change help safeguard your business?</p>	<p>1-2-3-4-5 1= not at all 5 = absolutely</p>	Normalized, gives the <b>score</b> of the NFC

	How important does the investor think the element of protecting biodiversity is to his business? What is the absolute value of the criterion protecting biodiversity?	<b>Q14</b> Is biodiversity an asset of much importance?	1-2-3-4-5 1= not at all 5 = absolutely	Normalized, gives the <b>score</b> of the NFC
	How important does the investor think the element of Conserving nature is to his business? What is the absolute value of the criterion Conserving nature?	<b>Q15</b> Do you consider nature conservation effects of your investment decision?	1-2-3-4-5 1= not at all 5 = absolutely	Normalized, gives the <b>score</b> of the NFC
	How important does the investor think the element of Providing Ecosystem Services is to his business? What is the absolute value of the criterion Providing Ecosystem Services?	<b>Q16</b> Do you see providing environmental services as an important asset of the forest you invest in?	1-2-3-4-5 1= not at all 5 = absolutely	Normalized, gives the <b>score</b> of the NFC
	How important does the investor think the element of Contributing to Sustainable Development is to his business? What is the absolute value of the criterion Contributing to Sustainable Development?	<b>Q17</b> Do you invest to make a contribution to sustainable development?	1-2-3-4-5 1= not at all 5 = absolutely	Normalized, gives the <b>score</b> of the NFC
	How important does the investor think the element of Poverty Alleviation is to his business? What is the absolute value of the criterion Poverty Alleviation?	<b>Q18</b> Do you consider it your (company's) responsibility to fight poverty with your investments?	1-2-3-4-5 1= not at all 5 = absolutely	Normalized, gives the <b>score</b> of the NFC
	How important does the investor think the element of property rights is to his business? What is the absolute value of the criterion land grabbing?	<b>Q19</b> Do you consider property rights to be a problem for investments in Sustainable Forest Management?	1-2-3-4-5 1= not at all 5 = absolutely	This question is the <i>neutral</i> way of asking if the investor considers property rights/land grabbing a problem for investment.  If he doesn't, then that may indicate that he either does not link property rights to land grabbing, or that he does not consider land grabbing to be an issue.

## Empirical research results

				If he does, than this should correspond with the answer to the next question.
<b>Part H</b>	How important does the investor think the element of land grabbing is to his business? What is the absolute value of the criterion land grabbing?	<b>Q20</b> Do you consider property rights to be a problem for investments in Sustainable Forest Management?	1-2-3-4-5 1= not at all 5 = absolutely	Normalized, gives the <b>score</b> of the NFC
	Is the element of land grabbing new to the investor? Is it an issue of increasing importance and therefore an expected ongoing trend?	<b>Q21</b> Is land grabbing an issue that you (would) have considered 10 years ago in an investment decision?	1-2-3-4-5 1= not at all 5= absolutely	By identifying if the discussion on land grabbing is considered 'new', something can be said about its evolvement in the future. More specifically about its behavioral effect. If the discussion on land grabbing is not experienced as fairly recent the behavioral effect of it can be expected to already have taken place.
	What is the investor's opinion of the future in the discussion on land grabbing?	<b>Q22</b> Do you expect (radical) changes in the discussion on land grabbing in the (near) future?	Non-numerical Open question	The answers to question 19 and 20 will show if the investor understands the key issue of the land grabbing discussion. And if he sees anything changing in the near future.
<b>Part I</b>	Is there in the opinion of the investor a criterion missing?	<b>Q23</b> Are you missing a non-financial element which you would consider in your decision making process concerning an investment in SFM?	Open question	

The outcome of the question in Part F (Table 14) will give the weight of the different non-financial criteria, and the questions in part G will give the score of each criterion. Combined they will show how important the discussion on land grabbing is to the investor in comparison to other (positive) criteria related to SFM. This is a major element in answering the question: *‘What is the influence of the discussion of land grabbing on the investment climate in SFM?’* In fact, when an investor falls into this category where financial criteria are not considered on the basis of information provided by Part F and G, the hypothesis can be falsified or not.

As said earlier in this paragraph, this is the ultimate opportunity to ask investors some more questions on their thoughts about the discussion on land grabbing. This will also provide more embedding for the rest of the results. As the investor’s decision will shape the future, it is interesting to see how he sees this future. Answers to the questions in Part H will provide this.

Last in this pathway is Question 23, Part I, which will check if the investor considers any other non-financial criteria in his decision making process. By checking if the picture is complete, errors of this kind in the MCA can be prevented and the MCA can show a realistic result.

### **7.2.3 Pathway 2: Mixed Targets**

When a respondent is categorised in stage 2 of Figure 16, he will consider both financial and non-financial criteria. That means that to be able to construct his decision making process, further insight is needed in the financial criteria as well as the non-financial criteria. Therefore, he will be given more questions. After the general questions he will first be led through the questions determining the weighted scores of the non-financial criteria as described in Table 14. The weighted scores summed will give an overall weighted score for the whole category of non-financial criteria (see Table 10). This is to be followed by questions that determine the weighted scores of the financial criteria. Summed, these will make up the overall weighted score of the financial criteria.

As a consequence of this stage and pathway the whole decision model as depicted in Table 10 will be used. As a result both financial and non-financial criteria will have to be integrated and the relative importance of one category to the other determined, as this may vary. The overall weighted scores of the categories however are decisive for falsifying the hypothesis or not, and answering the research question.

The set-up for the questions in the questionnaire on the financial criteria can be similar to the set-up of the questions for the non-financial criteria.

**Table 15. Block 3: possible set-up questionnaire questions financial part**

	<b>A: Interest / Purpose of question:</b>	<b>B: Data:</b>		<b>C: Further treatment of data / Information:</b>
		<b>Question:</b>	<b>Type: Numeric Non-Numeric</b>	
<b>Part J</b>	Get insight into the relative importance within the category of financial criteria used by investors. Which criterion is the most important to the investor?	<b>Q24</b> Please rank the following criteria in relative importance to one another of use for judging a possible investment project. Which criterion is most important:  Liquidity Profitability: IRR Payback period	1-2-3-4-5 1= not important at all 5= very important	E.g. Resp. 01 Liquidity = 2 IRR = 5 PP= 3  Normalized from 0-1, giving the weight of the FC in relation to one another
<b>Part K</b>	What is the absolute value of the criterion liquidity	<b>Q25</b> --	--	Normalized, gives the score of the FC
	What is the absolute value of the criterion profitability, specific in this case IRR	<b>Q26</b> --	--	Normalized, gives the score of the FC
	What is the absolute value of the criterion payback period	<b>Q27</b> --	--	Normalized, gives the score of the FC

Part J will involve a question which determines the weight of each financial criterion. Part K establishes the individual score of each financial criterion.

As indicated in paragraph 5.2.3 the financial criteria category is made up of liquidity, profitability (IRR) and payback time. Determining how the questions for calculating the score per financial criterion should be shaped however, exceeds the scope of this thesis. This will be further elaborated on in the discussion (Chapter 8).

### 7.2.4 Pathway 3: Money Matters

This last pathway represents the route which an investor will take when he is categorised as being a 'stage 3' investor according to Figure 16, meaning that he will only consider financial criteria when making an investment decision. When this is the case the non-financial criteria, and with that the left side of the decision making model in the performance matrix (Table 10), is not relevant for the questionnaire for this respondent.

When entering this pathway, one can question if it is at all useful to ask respondents in this category any further questions. Through the previous questions they have indicated that they will choose profitability over reputation. From this can be concluded as well that the discussion on land grabbing is of no concern to them. They simply do not take such issues into account in their investment decisions. Since SFM has relatively low IRRs this investment group is probably not very interesting for getting any further insight into the future of SFM investments. However, it should be considered that insight into the relative importance of the different financial criteria may be of relevance in the wider context of forest economics.

## 8. Discussion

### 8.1 Strength and weaknesses of the decision making model

#### 8.1.1 Strengths

The strengths of the decision making model (Table 10) are what this thesis is built upon. The first and foremost strength is the simplicity of the model. It uses the basics of the economic paradigm, and therefore its analytical power. It is very straight forward, integrating financial and non-financial criteria into one analytical method. The criteria, both financial and non-financial have been deduced directly from literature and limited to the precise elements under discussion. When data input from the questionnaire is processed in the model, it is possible to get an answer to the research question through basic descriptive statistics. A complex societal issue is in this way approachable in a simple but elegant way.

#### 8.1.2 Weaknesses

The simplicity of the model is however also its largest weakness. It is inadequate for showing the wider, more complex context of decision making. This is primarily caused by the scope provided by the economic approach taken, which both constructively simplifies the analysis but also limits it at the same time. In addition, the theoretical support for the interrelation between the profitability (IRR) and reputation is insufficient. Clarity on this interrelation serves as a precondition for categorisation of investors responding to the questionnaire, and with that the functioning of the model and its capability to produce sound data. Both points will be more elaborately discussed in the following two paragraphs.

##### 8.1.2.1 *Suitability/sufficiency of economic approach*

This thesis started off with introducing the economic approach as both the basic theory and the method from which it would be approached. Throughout this thesis, rationalism and methodological individualism have formed the perspective from which to approach the effect of the discussion on land grabbing on the investment climate in SFM. Group actions are seen to be made up out of the sum of actions of individuals, which make the actions of individuals the place to start studying future societal trends. Individuals will show calculative behaviour and always choose the alternative that brings them maximum utility, however they perceive this utility. The logic deductive research has however grazed the boundaries of the economic approach, and it is questionable if economics alone is sufficient to explain and study such a complex phenomenon as the effect of land grabbing on investment decision making.

The cracks already started to show with introducing the decision situations. The situation of decision making on investments in SFM with regard to the land grabbing discussion is placed in the situation of uncertainty/ignorance. According to Blum and Hoogstra (2009) decision situations placed in these categories cannot be analysed by economics. As an exception the situation is mentioned in which an individual lets his decisions be determined by what his peer group thinks is the best alternative. Because of the irrationality of the situation, the predictable 'tradition' in it, it is still possible to predict the outcomes of the individual decision maker, and thus use the rational choice model. Be that as it may, the decision no longer takes the direction of the individual's action forming that of the group, but the group determining what the individual's action is. The individual is still making the final decision, but the same economic calculative mode may not apply. Taking the perspective of the group determining the behaviour of the individual is sociology terrain, and it might be better suited to this specific situation to analyse it from a sociological perspective. The herd behaviour that is identified in investment decision making is a mere confirmation of this fact.

This is also true for the recognition of the effect that (mass) media and other forms of communication have on the investor's decision. Although identified in economic theory under the term *loss aversion* and *prospect theory*<sup>220</sup>, it is basically an integration of psychology and (risk) communication science into economics. If one would want to know even more specifically what to expect of the investor's decision, looking into the fact whether he is risk averse, neutral or risk seeking would add to the completeness of the picture. As Loewenstein (2000) states that there is a "*necessity of incorporating visceral factors in economic models to make sense of emotion driven behaviour*". The need for this integrated approach is best summarized by Simon: "*To predict how economic man will behave we need to know not only that he is rational, but also how he perceives the world – what alternatives he sees and what consequences he attached to them*"<sup>221</sup>. How he perceives the world in this case is shaped by other disciplines besides economics. Already three other scientific disciplines have been indicated at this point to be of relevance in the analysis of this phenomenon, and there are sure to be more if they are looked for. Without additional theory of psychology, sociology and risk communication the analysis of this complex situation seems incomplete. But the effort to make the picture complete also adds to the complexity of the analysis of it.

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<sup>220</sup> Kahneman and Tversky, 1979 as cited by Soroka, 2006:373

<sup>221</sup> Simon, 1956:271 as cited by Smith, 1991:888



However, the question is if adding them to the economic analysis would improve the analysis. Becker (1993) indicates that economists move to other social science disciplines to describe economic phenomena. Other social scientists move to economic rationality because of its analytical power. *“The rational choice model provides the most promising basis presently available for a unified approach to the analysis of the social world by scholars from different social sciences”*<sup>222</sup>. Lindenberg (1992) backs this statement up by his finding that it does not work to add sociological variables to economic models, nor the other way around. The analytical power of economic models is high.

As the scientific world does not agree on the best approach to study complex social phenomena, the best approach might be to indicate, as is done in this thesis, that the scientific paradigm functions as a ‘toolbox’ to approach the object of study with, and with that also to identify which tools are missing. Do not try to fix everything with a hammer, when what you need is a screwdriver. This can partly take the shape of suggestions for further research; partly it is necessary to identify the shortcomings of the scientific perspective chosen.

In this thesis, the shortcoming of the economic approach is that reaches its limits when considering non-financial criteria in investment decision making. Non-financial criteria bring along uncertainty and are very hard to quantify. The calculative rational approach of the individual does not suffice here. He will be looking for other ways of determining his decision, by using the actions of his peer group as a reference. This does however not mean that his action is not part of the sum that creates the action of the group. It cannot be seen as mere one-way traffic. In addition, how the investor perceives his environment, to what extent he is risk averse or risk seeking, and whether he experiences bad news to be of much heavier weight than positive news are not elements inherent to classical economic analysis. As this deviates from the concept of the economic man always striving for maximum utility, these elements require a different approach in the form of psychological or communication analysis.

### 8.1.2.2 Profitability versus reputation

An element which is not sufficiently understood in this thesis is the assumption of the relation between profitability, measured in IRR, and reputation. The conceptual framework shows a hypothetical relation in paragraph 5.2.5 based on the educated guess that the higher the return on a forestry investment the lower the sustainability of the forestry practices, in the form of for instance overlogging, environmental damage and bad labour circumstances. Therefore, reputation can

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<sup>222</sup> Becker, 1993:403

be said to be negatively correlated with IRR; with a rise in IRR the risk to reputation increases, and reputation overall decreases. Also, when the IRR gets lower reputation will increase. As an illustration: the lower the IRR the more sustainable the practices, up till the point where the IRR turns negative and the money invested is only meant for altruistic and/or reputation enhancing reasons. It should be noted that the relation of IRR and reputation with relation to forestry practices cannot be seen as a one to one relation. Negative impact on people and the environment can also be caused by mismanagement, and do not necessarily correspond with a high IRR. The course of the relation is depicted in Figure 15 and Figure 16 as somewhat linear. This is however not based on scientific theory or empirical evidence.

Literature indicates that reputation risk is difficult to identify and can be perceived by public perception and unfavourable media attention<sup>223</sup>. Changes in external beliefs or expectations determine the exposure of an organisation to reputation risk<sup>224</sup>. This makes the very nature of it volatile and fickle. The relation as described above is built on how society perceives corporate correct behaviour now, but is not 'future-proof'. It cannot be blindly used as a blue print for future research, since society is dynamic and therefore it needs to be checked when used if it is still built on the reality of society at that point in time.

Although indicated by Perry and Fontnouvelle (2005) that reputational losses cause major operational losses, which results in the market value of the firm going down, and an expected future erosion of cash flow, no characterisation of the exact relation between profitability and reputation risk is given. Kerste et al. (2011) wonder about the trade-off between shareholder (IRR) and stakeholder (reputation) value, but cannot give an answer to it. This has proven to be a knowledge gap in the argumentation build-up of the thesis.

In that sense it can be said that by the end of this thesis in a way it has almost come full circle, back to the beginning in which it was indicated that it is unknown how the impact of non-financial assets, in this case reputation (risk), should be measured. However, by providing a decision making tool and using a multi criteria analysis it has come some way to deliver the stepping stones on which further research can base its efforts to explain the relation between financial and non-financial aspects of an investment decision. The solidity of this part of theory as the foundation for the construction of the questionnaire should however be improved, since it serves as the discriminating element on the basis

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<sup>223</sup> Brown, 2007; Lash & Wellington, 2007

<sup>224</sup> Eccles et al, 2009

of which investors are categorised in stage 1, 2 or 3 in the interrelation between IRR and reputation. This serves as the key element for the further analysis.

In addition, the educated guess of the relation between IRR and reputation may not be true for all asset classes. In other asset classes the relation may be different, and higher IRRs may be reached without noteworthy increase in reputation risk. This relation between IRR and reputation can therefore not be generalised to other asset classes. It should be noted though, that extremely high IRRs will probably never be the paragon for responsible investing in an environmental, social and governance respect, as responsible investing has its own 'cost'.

### 8.2 Input Data Logic Deductive Research: Google Trends Analysis

To provide secondary input data for the decision making model a Google Trends Analysis was performed. In this 'quick and dirty' search, Google Trends gives an idea of what the relative importance is of the different non-financial criteria, based on the fact that attention of the public is a good indicator of the estimation of importance by the investor. However, a one to one translation cannot be assumed. If this would be assumed then the relative importance of the criterion 'land grabbing' would be marginal and on this basis the effect of it on investment decision making in SFM non-existent in comparison to the other non-financial criteria. As has been indicated in theoretical background, paragraph 4.5, this cannot be done as people weigh negative information more heavily than positive information. How much more heavily is unknown at this point in the analysis, and therefore the Google Trends study is indicative but incomplete.

What was however a noteworthy result from this quick analysis is that recently the media attention for 'sustainable forestry' has become lower, even lower than 'land grabbing'. 'Land grabbing' is continuing its upward trend though. This does not give enough foundation for talking about a correlation between the two trends, but should not go unnoticed.

### 8.3 The empirical stage: The questionnaire set-up

The set-up for the questionnaire shows in which direction the empirics should go, the stepping stones which could be used to cross-check the hypothesis stated in the logic deductive analysis result. The questionnaire functions as the method to provide data for the MCA (Multi Criteria Analysis) out of which through descriptive statistics conclusions about the model, the questionnaire and the hypothesis can be drawn. At this point they cannot really be discussed as they are not tested. Only by executing the questionnaire occurrences of, for instance, answering in a socially desirable way can be identified.

The questionnaire set-up does indicate what the knowledge gaps are at this point of the research. The first one encountered is the relation between the financial and non-financial criteria, that is the relation between the IRR and reputation. This has been discussed in paragraph 8.1.2.2. The other apparent knowledge gap is the in depth knowledge on the financial criteria. Considering the financial criteria, there are two difficulties which should be solved before being able to ask the right questions, and solving these issues is beyond the reach of this research.

- ❖ The first issue is the fact that the financial criteria, liquidity, profitability and payback period, are interrelated in a way, and this relation should be understood to be able to say anything useful on the subject.
- ❖ Secondly, the criteria are in a basic way described in paragraph 4.2, but it will need more in depth study to be able to formulate questions on a theoretical sound basis which make it possible to rank the answers in some way. Otherwise it is not possible to normalize the answers into a score which can be used in the MCA.

It is left to future research to fill these knowledge gaps, complete the questionnaire and the empirical research.

The saying is that ‘the proof of the pudding is in the eating’. The pudding has been made, but the eating will be left to follow-up research since it did not fit into the time-frame this thesis was performed in. The execution of the empirical part of the research will not change the argumentation line of reasoning of the logic deductive part of the research. By cross-checking the logic deductive part with empirics the deductive part would merely be falsified or not on the basis of the sample studied in that empirical test, which would be limited by the sample size. However, the theory on which the framework is built is based on a wide array of (scientific) sources and one empirical test would give interesting insights into what might in practice be different from what the theory proposes up to that point. It would however not directly change the correctness of the theoretical basis.

#### 8.4 The perception of property rights: paradigms and cultural differences

Apart from the decision making model, this thesis has touched lightly upon the core of the problem of the conflict of SFM investments and the discussion on land grabbing. As already indicated in chapter 3, there is much ado about property rights. Land grabbing is one big property rights issue and investments in SFM are discouraged by uncertainty of property rights protection. Historically, there has been a lot of shuffling around with rights in developing regions of the world,

with the colonial period creating total disorder in local property rights systems. Additionally, the perception of who is entitled to what may cause conflict as it is not clearly defined who has the right to say what happens to the trees on forest land; the investor who owns the land and the trees, or/and the community who is entitled to the fruits of the trees (see also paragraph 3.3).

On top of that, perception of property rights in different scientific paradigms, economics and political science, cause a discrepancy in the debate on land grabbing, with one defining and using it for efficiency and the other for equity. The clash of these two paradigms can be clearly retraced in literature. Borras and Franco (2010) indicate that the Code of Conduct formulated by the FAO in 2010 for Responsible Investment in Agriculture *‘that respects rights, livelihoods and resources’* is not sufficient as it puts the discussion in an *‘economic development grid’*<sup>225</sup> in which it does not fit. They advocate approaching the debate from a human rights perspective and framework. At the same time the World Bank (2010) states that large land acquisitions may not be desirable, but are necessary to improve land governance<sup>226</sup>. Fairhead et al. (2012) criticize the economic approach of schemes that promote environmental service use, like PES (Payments for Environmental Services) and REDD+ (Reducing Emissions from Deforestation and Forest Degradation), stating that *“While development actors try to identify such ‘pro-poor’, ‘benefit-sharing’, ‘win-win’ opportunities of such schemes [...] it is the local political dynamics that define winners and losers”*<sup>227</sup>. Although they acknowledge the existence of both economic and political processes, they fail to identify the effect of this paradigm difference and the truth that is present in both perspectives. There is truth in the economic approach of efficiency in allocation, as well as the political approach of giving everyone his fair share. The discussion is however not about what is more true, or a better or worse approach. There should be no value connected to either approach, because they are both important, and therefore there is a need to reconcile them.

All the while there is a call for ‘securing’, ‘clarifying’ and ‘respecting’ tenure rights from all sides, as being the prerequisite for betterment of the situation both from the ‘economic’ and ‘political’ perspective<sup>228</sup>. These are however hollow words, since it is never specified what it exactly is that needs to be clarified. When it is figured out who is exactly entitled to what on what basis, this might still conflict with each other, because rights change over time and what will be

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<sup>225</sup> Borras & Franco, 2010:516

<sup>226</sup> 2010:x|iii

<sup>227</sup> Fairhead et al., 2012:250

<sup>228</sup> e.g. WB, 2004; FAO, 2008; Filer, 2012; Landell-Mills, 2001; Schanz, 2004:1349

the reference point? When it is known who is entitled to what this might still not provide protection of tenure, and still not improve economic efficiency, because the government might not provide this protective environment, and clear rights divided by 10 instead of 1 does not improve efficiency. This all without even taking into account the internal property rights issue, in which it is not clearly defined where the right of the forest land owner exactly stops and that of local communities begins (see also paragraph 3.3 and Figure 5). And that there is no universal definition of property rights to begin with<sup>229</sup>. Clarifying will take some time for sure.

In addition, it is questionable if this quest for clarifying tenure serves the purpose aimed for. Angelsen & Kaimowitz (1999) suggest that secure land tenure can also lead to more deforestation, by providing the same investment enabling environment. According to Liscow (2011) clear property rights will increase returns to deforestation, and therefore a rational person will deforest. Tenure insecurity protects forests, according to this line of reasoning.

The historically created indistinct situation concerning property rights; the difference in perception in the economic and political perspective; the unclear demarcation within a bundle of property rights; and the question if property rights serve the purpose of safeguarding the forest or putting it up for sale, all point in different directions. This shows a picture of much diversity which has, up till now, not lead to a unified approach of the issue.

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<sup>229</sup> Meyer, 2012

## 9. Conclusions, Policy Implications and Research Recommendations

### 9.1 Conclusions and Policy Implications

The main research objective this thesis has been trying to meet and main research question it has been trying to answer are the following.

*Objective:* This research project has the objective to analyse SFM and the discussion on land grabbing in relation to investment decision making.

*Question:* Will the current discussion on land grabbing result in more or less investments made in sustainable forest management, measured in \$?

SFM and the discussion on land grabbing have been mapped out, their conflict in relation to property rights identified. Policies related to SFM and the discussion on land grabbing give opposite signals on whether or not to invest in forest land. They pose a paradox for investment decision making. SFM and its attributes can be perceived as reputation enhancing on the one hand, because of its association with environmental sustainability, and reputation damaging because of its association with land grabbing. Since investors cannot withhold from decision making they are confronted with this paradox. To figure out what probable future investment trends in SFM will be, insight from an economic perspective is necessary in the decision making process of the investor. In current society where both shareholder and stakeholder values are important to business, both financial and non-financial criteria are integrated into decision making. By mapping out the criteria in a decision making model and using the model as a basis for formulating the hypothesis, the hypothesis that resulted from the logic deductive research is:

*If the investment decision of the individual institutional investor makes up the decision of the larger group of investors,*

*and if he perceives the non-financial criteria concerning his reputation to be of more importance than the financial criteria,*

*and if he perceives the aggregated weighted scores of the positive non-financial criteria to be higher than the weighted score of the negative non-financial criterion, land grabbing,*

*and if he does allow some negative association of the public with his investment projects,*

*then his investment decision will be to invest or keep investing in SFM projects.*

As the hypothesis is not at this point cross-checked with empirical research, the question if more or less will be invested in SFM in the future cannot be conclusively answered by this thesis. What can be said is that on the basis of the logic deductive research there is not yet a reason to believe that the upwards trend of investments in SFM will change. That does not mean that the discussion on land grabbing does not have to be taken very seriously in further development of the SFM sector. This can be supported by the finding of Yin and Newman (1996) that the potential for catastrophic risk decreases the value of an investment project. It simultaneously increases the critical price level for investment consideration, and as a result discourages investments in forestry. If an association with a reputation damaging discussion as land grabbing is felt to be catastrophic and decisive for investors to renounce investing in SFM altogether, this will be detrimental to SFM initiatives, current and future ones.

Management of forest, actively shaping forest land, needs input in the form of labour and machinery, and thus needs money and investments. When governments cannot invest because they have no money and the private sector will not invest because of the real risk that it will possibly harm instead of benefit them, there will be no money to sustain and develop the SFM sector. All the issues which it is meant to be (part of) the answer to - protection of biodiversity, providing environmental services, fighting climate change -, while being economically and socially responsible at the same time, will then be at risk. Guidelines, codes of conduct, conferences and the like do not seem to lessen the discussion. The question then is what role there is for policy in finding a way out of this discussion.

Since property rights are at the heart of the perception of risk in investments in SFM and the cause for the discussion on land grabbing, a final note on this subject is made here for policy making purposes. Forestry students in the Netherlands get taught that it is not so much the question if you *have* to manage a forest, but whether you *want* to. This depends on your *goals*. Do you want to have high natural values, let nature take its course and leave the forest to itself? Then active management of the forest is not necessary, it can be left to itself. Do you want to extract timber out of that forest and make money out of it? Also a possibility, but then you will have to manage it. Up to some extent functions of timber production can be combined with having high natural values, as is tried in forestry management types like SFM and multi-functional forest management. A trade off in accomplishment of both functions will be unavoidable however, because it is not possible to have the highest (return on) timber production and at



the same time have red list monkeys swaying in the lianas. Lianas are not known to have very positive effects on tree growth.

This example is put quite bluntly, but a certain parallel may be drawn with the discussion on land grabbing. It is not so much the question if money *has* to be invested in forestry or agricultural practices in developing countries. It doesn't. It is very well possible to leave the land to its current (indigenous) inhabitants and not invest or interfere at all. They might choose for themselves to govern the land differently, practice SFM, or convert forest into agricultural land or not, maybe get a better life standard in the process or not. They will be fully entitled in their own tenure system to govern the land as they wish to. If the current situation is however not as you *want* it, when your *goal* is to increase economic return of that land, change living conditions of the local communities or anything else for that matter, you will have to manage it differently. This does not mean that increasing economic activity, alleviating poverty and protecting biodiversity cannot be integrated into one 'management' approach, if this is what you want. But trade-offs will have to be made. It is not possible to get the maximum out of every one of these functions. Some laws of economics may be not reconcilable with (the political approach of) equity. It is all about having to make choices and accepting that you may not get it all.

The policy implications of this parallel drawn is exactly that; deciding what trade-offs need to be and will be made. When perceptions about property rights, the discussion on what property rights are and what purpose they serve ends in so much diversity - better called chaos – maybe the short term focus should not be on 'clarifying' property rights to raise policy efficiency. The clarifying may best be left to science to study for providing insight on the longer term, while on the short term policy should focus on a more pragmatic approach of dealing with property rights, in which they are governed with the future in mind instead of being built on the past. Using future goals to shape today's policy approach will provide a framework, which can show which trade-offs should be made in order to reach these goals.

Although not perfect, democracy is able to create a platform for involving all stakeholders nationally or regionally to come to an agreement on what these goals should be. This means however, that in several of the most relevant regions for SFM democratic processes have to be strengthened to be able to play this role. This will most likely not result in the same policy in all the developing regions. But it at least creates a clear basis for the international investment sector to proceed from.

## 9.2 Recommendations for further research

An obvious recommendation for further research is to follow up on this study and use the decision making model and its implications, and carry out the questionnaire to see what empirical research says about the logical deductive foundation that has been laid here. This involves looking more extensively into the financial criteria of investment decision making and its interaction with non-financial criteria. In this way, underlying connections can be made visible and taken into account when studying the investment decision making process.

To provide scientific input for the progress of the land grabbing discussion, further research could be performed in the direction of property rights. Gaining insight into the different perceptions of property rights systems, the customary, the governmental and the (international) financial one, could provide valuable knowledge on how they are similar and different. Knowledge about their interaction might give an opening to streamline them more, or at least will create a common understanding of why they cannot be reconciled. This is valuable information for the future improvement of foreign investment policy. Since there is no universal property rights system, this research can best be performed on case study basis, out of which valuable lessons can be drawn for other regions.

## References

### List of References (complete)

Adams, D. (2005) *The Hitchhiker's Guide to the Galaxy* (Film tie-in edition) London: Pan Macmillan Ltd

Angelsen, A. and Kaimowitz, D. (1999) Rethinking the causes of deforestation: lessons from economic models, *The World Bank Research Observer*, Vol.14, Iss.1, pp.73-98

Avery, C. and Zemsky, P. (1998) Multidimensional Uncertainty and Herd Behavior in Financial Markets, *The American Economic Review*, Vol. 88, No. 4, pp. 724-748

Bawden, T. (2012) World Bank accused over land grabs: Aid provider denies claims of forcible evictions in developing countries, *The Independent*, (*Document online available, see attached cd-rom*)

Becker, G.S. (1993) Nobel Lecture: The Economic Way of Looking at Behavior, *Journal of Political Economy*, Vol. 101, No. 3, pp. 385-409

Blum, A.W and Hoogstra, M.A. (2009) Forstökonomik - Vorschlag für eine theoretische und fachdisziplinäre Perspektive, In: Keuffel, W., Löwenstein, W., Möhring, B., Moog, M. and Olschewski, R. (2009) *Forstökonomie - Eine Standortbestimmung (Schriften zur Forst und Umweltökonomie)*, Frankfurt am Main: J.D. Sauerländer's Verlag

BMZ (2012a) (BMZ | Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung) Investitionen in Land und das Phänomen des 'Land Grabbing' - Herausforderungen für die Entwicklungspolitik. BMZ Strategiepapier 2 | 2012 (*Document online available, see attached cd-rom*)

Borras, S.M. Jr. and Franco., J. (2010) From Threat to Opportunity? Problems with the Idea of a "Code of Conduct" for Land-Grabbing, *Yale Human Rights & Development L.J.*, Vol.13, pp. 507–523 (*Document online available, see attached cd-rom*)

Braun, J. von and Meinzen-Dick, R. (2009) "Land Grabbing" by Foreign Investors in Developing Countries: Risks and Opportunities, *International Food Policy*

Research Institute, IFPRI Policy Brief 13 (*Document online available, see attached cd-rom*)

Brown, W.J. (2007) Understanding Reputational Risk: Identify, Measure, and Mitigate the Risk, SRC Insights, Fourth quarter, Vol. 12, Iss. 2

Business Dictionary (2013) Institutional Investors (*Document online available, see attached cd-rom*)

CalPERS (2013) Current Investment Fund Values (*Document online available, see attached cd-rom*)

Canby, K. and Raditz, C. (2005) Opportunities and Constraints to Investment: Natural Tropical Forest Industries, Washington DC: Forest Trends (*Document online available, see attached cd-rom*)

Chipeta, M.E. and Joshi, M. (editors) (2001) The Private sector speaks: Investing in sustainable forest management. Center for International Forestry Research, Bogor, Indonesia. (*Document online available, see attached cd-rom*)

Conlin, J.R. (1975) 'Yerba Buena: Land Grab and Community Resistance in San Francisco by Chester Hartman' Review, *Annals of the American Academy of Political and Social Science*, Vol. 419, pp. 197-198

Cubbage, F., Mac Donagh, P., Sawinski Júnior, J., Rubilar, R., Donoso, P., Ferreira, A., Hoeflich, V., Olmos, V., Ferreira, G., Balmelli, G., Siry, J., Báez, M., Alvarez, J., (2007) Timber investment returns for selected plantations and native forests in South America and the Southern United States, *New Forests*, Vol.33, Iss.3, pp. 237-255

Davis, K. (1973) The Case for and against Business Assumption of Social Responsibilities, *The Academy of Management Journal*, Vol. 16, No. 2, pp. 312-322

Davis, K. and Blomstrom, R.L. (1971) *Business, Society, and Environment: Social Power and Social Response* (Second edition) New York: McGraw-Hill

Department for Communities and Local Government (2009) *Multi-criteria Analysis: A Manual*, London: Department for Communities and Local Government (*Document online available, see attached cd-rom*)

Devenow, A. and Welch, I. (1996) Rational herding in financial economics, *European Economic Review*, Vol.40, Iss.3-5, pp.603-615

## References

- eBizMBA (2013) Top 15 Most Popular Search Engines – March 2013 (*Document online available, see attached cd-rom*)
- Eccles, R.G., Newquist, S.C. and Schatz, R., (2007) Reputation and its risks, Harvard Business Review, Vol.85, Iss.2, pp.104-114
- Edvinsson, L. (1997) Developing intellectual capital for Skandia. *Long Range Planning* 5, pp.320–331
- Edwards, W. (1954) The Theory of Decision Making, Psychological Bulletin, Vol. 51, No. 4, pp. 380–417
- EFAMA (2012) 5th Annual Review: Asset Management in Europe - Facts and Figures.
- Endl, A. (2012) *Sustainable investment: options for a contribution to a more sustainable financial sector*, ESDN Case Study No 11, European Sustainable Development Network (*Document online available, see attached cd-rom*)
- EUROSIF A.I.S.B.L. (2012b) 5th European Socially Responsible Investment Study (*Document online available, see attached cd-rom*)
- Eustace, C. (2000) The Intangible Economy: Impact and Policy Issues. Report for the European High Level Expert Group on the Intangible Economy.
- Fairhead, J., Leach, M. and Scoones, I.(2012) Green Grabbing: a new appropriation of nature?, *Journal of Peasant Studies*, 39:2, 237-261
- FAO (1996) The IUFRO position on sustainable management of tropical forests. In: FAO (1996) *Forest Codes of Practice: Contributing to Environmentally Sound Forest Operations*. FAO Forestry Paper No. 133. (*Document online available, see attached cd-rom*)
- FAO (2006) *Responsible management of planted forests: voluntary guidelines*. Planted Forests and Trees Working Paper 37/E, Rome (*Document online available, see attached cd-rom*)
- FAO (2008) Forestry Policy Brief: Financing Sustainable Forest Management (*Document online available, see attached cd-rom*)
- FAO (2009) Land grab or Development Opportunity? Agricultural investment and international land deals in Africa (*Document online available, see attached cd-rom*)

FAO (2010) Key Findings: Global Forest Resources Assessment 2010 (*Document online available, see attached cd-rom*)

FAO, IFAD, UNCTAD and The World Bank Group (2010) Principles for Responsible Agricultural Investment that Respects Rights, Livelihoods and Resources (*Document online available, see attached cd-rom*)

FAO (2012a) Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (*Document online available, see attached cd-rom*)

FAO (2012b) Timberland in Institutional Investment Portfolios: Can Significant Investments Reach Emerging Markets? Forestry Policy and Institutions Working Paper 31 (*Document online available, see attached cd-rom*)

Farmlandgrab.org (2012) Food crisis and the global land grab (*Document online available, see attached cd-rom*)

Feehan, J. (2012) Forestry at the European Investment Bank, European Investment Bank (*Document online available, see attached cd-rom*)

Festinger, L. (1957). *A theory of cognitive dissonance*, Stanford, CA: Stanford University Press.

Figuera, J., Greco, S. and Ehrgott, M. (eds.) (2005) *Multiple Criteria Decision Analysis, State of the Art Surveys*, New York: Springer

Filer, C. (2012) Why green grabs don't work in Papua New Guinea, *Journal of Peasant Studies*, 39:2, 599-617

Forestry Investments (2012) Ethical Forestry Investments (*Document online available, see attached cd-rom*)

Friedman, M. (1962) *Capitalism and Freedom*, Chicago: University of Chicago Press

Gardner, B. (2012) Tourism and the politics of the global land grab in Tanzania: markets, appropriation and recognition, *Journal of Peasant Studies*, 39:2, 377-402

Gardner, T. A., Barlow, J., Chazdon, R., Ewers, R. M., Harvey, C. A., Peres, C. A. (2009). Prospects for tropical forest biodiversity in a human-modified world. *Ecology Letters*, 12(6), 561-582.

Garner, D. and Brittain, W. (2012) Forestry as an Alternative Investment Asset Class: Fundamentals – Characteristics – Performance – Opportunities – Risks,

## References

- DGC Asset Management, Northampton, UK, 2012 (*Document online available, see attached cd-rom*)
- Google (2013) Google Trends Help (*Document online available, see attached cd-rom*)
- Greco, M., Cricelli, L. and Grimaldi, M. (2012) A strategic management framework of tangible and intangible assets, *European Management Journal*, published online (*Document online available, see attached cd-rom*)
- Gregory, G.R. (1987) *Resource Economics for Foresters*, John Wiley. New York
- Grether, D.M. and Plott, C.R. (1979) Economic Theory of Choice and the Preference Reversal Phenomenon, *The American Economic Review*, Vol.69, No.4, pp. 623-638
- Haker, H. (2003) *Trend Research in Forestry: MSc thesis*. Wageningen: Wageningen UR
- Hargreaves Heap, S., Hollis, M., Lyon, B., Sugden, R., and Weale, A. (eds.) (1992) *The Theory of Choice: a Critical Guide*, Oxford: Blackwell Publishers
- Henderson Global Investments (2004) In: Canby, K. and Raditz, C. (2005) Opportunities and Constraints to Investment: Natural Tropical Forest Industries, Washington DC: Forest Trends (*Document online available, see attached cd-rom*)
- Hildebrandt, P., and Knoke, T. (2011) Investment decisions under uncertainty – A methodological review on forest science studies, *Forest Policy and Economics*, Vol.13, Iss.1, pp. 1-15
- Hillier, D., Ross, S., Westerfield, R., Jaffe, J. and Jordan, B. (2010) *Corporate Finance: The first European Edition*, McGraw Hill Higher Education, London
- Hirshleifer, D. and Hong Teoh, S. (2003) Herd Behaviour and Cascading in Capital Markets: a Review and Synthesis, *European Financial Management*, Vol.9, pp. 25–66
- Investing for Beginners (2013) Institutional Investor (*Document online available, see attached cd-rom*)
- Investopedia (2013) Compound Annual Growth Rate (*Document online available, see attached cd-rom*)
- Istvan, D. F. (1961) The Economic Evaluation of Capital Expenditures, *The Journal of Business*, Vol.34, Iss.1, pp. 45-51

ITTO (2002) *ITTO guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests*. Yokohama, Japan: ITTO, CIFOR, FAO, IUCN, WWF International. (Document online available, see attached cd-rom)

ITTO (2007) West and Central Africa Tropical Forest Investment Forum: Issues and Opportunities for Investment in Natural Tropical Forests (Forum Proceedings), ITTO Regional Investment Forum, Accra, Ghana 28 - 30 August 2007 (Document online available, see attached cd-rom)

Jansens, K., Scholtens, L.J.R. and Sprengers P. (2000) *Sustainable Savings and Investments in the Netherlands: Volume and growth trends, 1987 – 1999*, Culemborg: VBDO (Document online available, see attached cd-rom)

Kahan, M. and Klausner, M. (1996) Path Dependence in Corporate Contracting: Increasing Returns, Herd Behavior and Cognitive Biases, *Washington University Law Review*, Vol.74, Iss.2, pp.347 - 366

Kahneman, D. and Tversky, A. (1979) Prospect Theory: An Analysis of Decision Under Risk. *Econometrica*, Vol.47, Iss.2, pp.263–92

Kerste, M., Rosenboom, N., Sikken, B.J. and Weda, J. (2011) *Sustainable Investing*, In: Kerste, M., Rosenboom, N., Sikken, B.J. and Weda, J. (2011) *Financing Sustainability - Insights for Investors, Corporate Executives, and Policymakers*, pp. 147-181. Amsterdam: VU University Press

Keynes, J.M. (1936) *The General Theory of Employment, Interest and Money*, London: Macmillan

Klemperer, D. (1996) *Forest resource economics and finance*, New York: McGraw-Hill Book Company

Kramer, J., Marinelli, E., Iammarino, S. and Revilla Diez, J. (2011) Intangible assets as drivers of innovation: Empirical evidence on multinational enterprises in German and UK regional systems of innovation, *Technovation*, Vol.31, Iss.9, pp.447-458

Kumar, R. (2005) *Research Methodology: A step-by-step guide for beginners* (Second Edition), Thousand Oakes, CA: Sage Publications

Lamba, V. (2011) WORLD TOP 10 BEST POPULAR SEARCH ENGINES LIST (Document online available, see attached cd-rom)



## References

- Landell-Mills, N. (2000) Developing markets for forest environmental services: an opportunity for promoting equity while securing efficiency? *Philosophical Transactions of the Royal Society A*, Vol.360, pp.1817-1825
- Lash, J., and Wellington, F. (2007). Competitive advantage on a warming planet, *Harvard Business Review*, Vol.85, Iss.3, pp.94-102
- Lawlor, K., Weinthal, E. and Olander, L. (2010) Institutions and Policies to Protect Rural Livelihoods in REDD+ Regimes, *Global Environmental Politics*, Vol.10, Nr. 4, pp. 1-11
- Leach, M., Fairhead, J. and Fraser, J. (2012) Green grabs and biochar: Revaluing African soils and farming in the new carbon economy, *Journal of Peasant Studies*, Vol.39, Iss.2, pp. 285-307
- Lefley, F. (1996) The payback method of investment appraisal: A review and synthesis, *International Journal of Production Economics*, Vol.44, Iss.3, pp.207-224
- Lindenberg, S. (1992) The Method of Decreasing Abstraction, In: Coleman, J.S. and Fararo, T.J. (1992) *Rational choice theory: advocacy and critique*, Newbury Park: Sage Publications
- Liscow, Z.D. (2012) Do property rights promote investment but cause deforestation? Quasi-experimental evidence from Nicaragua, *Journal of Environmental Economics and Management*, Available online 17 July 2012 (Document online available, see attached cd-rom)
- Loewenstein, G. (2000) Emotions in Economic Theory and Economic Behavior, *The American Economic Review*, Vol. 90, No. 2, pp. 426-432
- M.R. (1889) Land-grabbing Notes and Queries s7-VII (167) , pp. 189
- Mansergh, J.F. (1889) Notes and Queries s7-VII (171) , pp. 276
- Mendell, B.C., Sydor, T. and Lang, A.H. (2011) U.S. Investor Perspectives of International Timberland Investments and Colombia, *International Forestry Review*, Vol.13, Iss.4, pp.456-460
- Mendoza, G.A., Macoun, P., Prabhu, R., Sukadri, D., Purnomo, H., Hartanto, H. (1999) *Guidelines for applying multi-criteria analysis to the assessment of criteria and indicators* . Criteria and Indicators Toolbox Series No.9. Bogor, Indonesia, CIFOR. (Document online available, see attached cd-rom)

Mill, J.S. (1879) *Utilitarianism* (Reprinted from FRASER'S MAGAZINE Seventh Edition) London: Longmans, Green, and Co. (*Document online available, see attached cd-rom*)

Mills, W. L. Jr. and Hoover, W.L. (1982) Investment in Forest Land: Aspects of Risk and Diversification, *Land Economics*, Vol. 58, No. 1, pp. 33-51

Moura Costa, P. and Kohn, G. (2001) Feasibility Analysis for an International Investment Promotion Entity for Sustainable Forest Management. In: Chipeta, M.E. and Joshi, M. (eds.) (2001) *The Private sector speaks: Investing in sustainable forest management*. Bogor, Indonesia: Center for International Forestry Research (*Document online available, see attached cd-rom*)

New Forests (2012) Responsible Investment in the Forestry Sector: Recommendations for Institutional Investors (*Document online available, see attached cd-rom*)

Ojeda, D. (2012) Green pretexts: Ecotourism, neoliberal conservation and land grabbing in Tayrona National Natural Park, Colombia, *Journal of Peasant Studies*, 39:2, 357-375

Oxfam International (2012) Land grab (*Document online available, see attached cd-rom*)

Pan, Y., Birdsey, R. A., Fang, J., Houghton, R., Kauppi, P. E., Kurz, W. A., et al. (2011). A Large and Persistent Carbon Sink in the World's Forests. *Science*, 333(6045), 988-993.

Perez-Corral, V.Q. and Rosien, J. (2002) FORUM BRIEFER O2-05: Updates on Review of ADB's Forestry Policy, NGO Forum on ADB (*Document online available, see attached cd-rom*)

Perry, J. and De Fontnouvelle, P. (2005) Measuring Reputational Risk: The Market Reaction to Operational Loss Announcements (*Document online available, see attached cd-rom*)

Price, C. (2011) Optimal rotation with declining discount rate, *Journal of Forest Economics*, Vol.17, Iss.3, pp. 307-318

PriceWaterhouseCoopers and The Economist Intelligence Unit (2004) Financial Institutions See Reputational Risk As The Greatest Threat (August 24) (*No longer available online*)

## References

- Putz, F.E., Blate, G.M., Redford, K.H., Fimbel, R. and Robinson, J. (2001) Tropical Forest Management and Conservation of Biodiversity: An Overview, *Conservation Biology*, Vol.15, No.1, pp.7-20
- Rideout, D.B. and Hessel, H. (1997) *Principles of Forest and Environmental Economics*. Resource & Environmental Management, Fort Collins, Colorado
- Samuelson, P.A. (1971) Love that Corporation, *Mountain Bell Magazine*, Spring
- Schanz, H. (2004) Sustainable Forest Management, In: J. Burley (Ed.) et al. (2004) *Encyclopedia of Forest Sciences*, pp. 1345–1350, Amsterdam: Elsevier
- Scharfstein, D.S. and Stein, J.C. (1990) Herd Behavior and Investment, *The American Economic Review*, Vol.80, No.3, pp. 465-479
- Schnabel, U. (2002) Wertorientiertes Management von Intangible Assets. HDM—Praxis der Wirtschaftsinformatik, Vol. 227, pp.36–45
- Science Daily (2011) World's Forests' Role in Carbon Storage Immense, Research Reveals (*Document online available, see attached cd-rom*)
- Scott, J. (2000) Rational Choice Theory, In: G. Browning, A. Halcli, and F. Webster (eds.)(2000) *Understanding Contemporary Society: Theories of the Present*, Thousand Oaks, CA: Sage Publications
- Shiller, R.J. (1995) Conversation, Information, and Herd Behavior, *The American Economic Review*, Vol. 85, No. 2, pp. 181-185
- Simon, H.A. (1956) A Comparison of Game Theory and Learning Theory, *Psychometrika*, Vol.21, pp.267-272
- Simon, H.A. (1957) Part IV, In: Simon, H.A. (1957) *Models of Man*, pp. 196-279, Wiley: New York,
- Simon, H.A. (1979) Rational Decision Making in Business Organizations, *The American Economic Review*, Vol.69, No.4, pp. 493-513
- Singh, R. (1974) Agrarian Social Structure and Peasant Unrest - Study of Land-Grab Movement in District Basti, *East Up Sociological Bulletin*, Vol.23, Iss.1, pp.44-70
- Singleton Jr., R.A. and Straits, B.C. (2010) *Approaches to Social Research* (5<sup>th</sup> edition), Oxford: Oxford University Press

Slangen, L.H.G., Loucks, L.A., and Slangen, A.H.L. (2008), *Institutional economics and economics organisation theory: an integrated approach*, Wageningen: Wageningen Academic Publishers

Smith, V.L. (1991) Rational Choice: The Contrast between Economics and Psychology, *Journal of Political Economy*, Vol.99, No.4, pp. 877-897

Snijders, D. (2012) Wild property and its boundaries – on wildlife policy and rural consequences in South Africa, *Journal of Peasant Studies*, Vol.39, Iss.2, 503-520

Sohnen, B., Mendelsohn, R. and Sedjo, R. (1999) Forest Management, Conservation, and Global Timber Markets, *American Journal of Agricultural Economics*, Vol. 81, No. 1, pp. 1-13

Soroka, S.N. (2006) Good News and Bad News: Asymmetric Responses to Economic Information, *The Journal of Politics*, Vol. 68, No. 2, pp. 372–385

Stop Africa Land Grab (2012) Stop Africa Land Grab: The Global Movement to Rollback Africa Land Grab (*Document online available, see attached cd-rom*)

Straka, T.J. and Bullard, H.B. (1996) Land Expectation Value Calculation in Timberland Valuation, *Appraisal Journal* (*Document online available, see attached cd-rom*)

Teece, D. (2007) Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance, *Strategic Management Journal*, Vol.28, pp. 1319–1350

Testa, M. (2006), Corporate Social Responsibility and Reputation Risk Analysis, The Corporate Responsibility Research Conference, 4th-5th September, Dublin, Ireland. (*Document online available, see attached cd-rom*)

The Economist Intelligence Unit (2005) Reputation: Risk of Risks (*Document online available, see attached cd-rom*)

The Search Engine List (2013) Comprehensive List of Search Engines (*Document online available, see attached cd-rom*)

Thiaw, I. and Munang, R. (2012) RIO+20 outcomes recognize the value of biodiversity and ecosystems: Implications for global, regional and national policy, *Ecosystem Services*, Vol.1, Iss.1, pp.121-122

## References

- Tonello, M. (2007) *Reputation Risk: A Corporate Governance Perspective*, The Conference Board, Inc. (Document online available, see attached cd-rom)
- Transnational Institute (2012) Green grabbing: the social cost of putting a price on nature (Document online available, see attached cd-rom)
- Trochim, W.M.K. (2002) Research Methods Knowledge Base (Document online available, see attached cd-rom)
- Tsai, C., Lu, Y. and Yen, D.C. (2012) Determinants of intangible assets value: The data mining approach, *Knowledge-Based Systems*, Vol.31, pp.67-77
- Tversky, A. and Kahneman, D. (1986) Rational Choice and the Framing of Decisions, *The Journal of Business*, Vol. 59, No. 4, Part 2: The Behavioral Foundations of Economic Theory, pp. S251-S278
- Udehn, L. (2002) The Changing Face of Methodological Individualism, *Annual Review of Sociology*, Vol.28, pp.479–507
- UNCTD (2006) International Tropical Timber Agreement 2006 (Document online available, see attached cd-rom)
- UNCSD (2012) About the Rio +20 Conference (Document online available, see attached cd-rom)
- Vidal, J. (2008) The Great Green Land Grab, *The Guardian*, Wednesday 13<sup>th</sup> of February (Document online available, see attached cd-rom)
- Walliman, N. (2006) *Social Research Methods*, London: Sage Publications
- Wang, S. (2004) One hundred faces of sustainable forest management, *Forest Policy and Economics*, Vol.6, Iss.3–4, pp.205-213
- Weingartner, H. M. (1969) Some New Views on the Payback Period and Capital Budgeting Decisions, *Management Science*, Vol.15, Iss.12, pp. B-594-B-607
- Wittemyer, G., Elsen, P., Bean, W.T., Burton, C.O. & Brashares, J.S. (2008) Accelerated human population growth at protected area edges. *Science*, Vol.321, 123–126
- World Bank (2004) *Sustaining Forests: A Development Strategy*, Washington D.C.: The World Bank Group, (Document online available, see attached cd-rom)
- World Bank (2008) Engaging the Private Sector in Forest Sector Development, In: World Bank (2008) *Forests Sourcebook: Practical Guidance for Sustaining Forests in*

*Development Cooperation*, pp. 63-70. Washington D.C.: The World Bank Group (Document online available, see attached cd-rom)

World Bank (2010) *Rising global interest in farmland: can it yield sustainable and equitable benefits?* Washington, DC: The World Bank Group. (Document online available, see attached cd-rom)

Ybarra, M (2012) Taming the jungle, saving the Maya Forest: sedimented counterinsurgency practices in contemporary Guatemalan conservation, *Journal of Peasant Studies*, 39:2, 479-502

Yin, R. and Newman, D.H. (1996) The Effect of Catastrophic Risk on Forest Investment Decisions, *Journal of Environmental Economics and Management*, Vol.31, pp. 186-197

Zarghami, M. and Szidarovszky, F. (2011) *Multicriteria Analysis*, New York: Springer

## References

### List of References Online Available

- Bawden, T. (2012) Accessed on: 23/11/2012 09:13:55, Link:  
<http://www.independent.co.uk/news/business/news/world-bank-accused-over-land-grabs-8200596.html> (*Information referred to saved on cd-rom*)
- BMZ (2012) Accessed on: 07.09.2012 11:49:39, Link:  
[http://www.bmz.de/de/publikationen/reihen/strategiepapiere/Strategiepapier316\\_2\\_2012.pdf](http://www.bmz.de/de/publikationen/reihen/strategiepapiere/Strategiepapier316_2_2012.pdf) (*Information referred to saved on cd-rom*)
- Borras, S.M. Jr. and Franco., J. (2010) Accessed on: 06/09/2012 15:07:00, Link:  
[https://www.foodfirst.org/files/pdf/Yale%20April%202010%20Borras\\_Franco%20CoC%20paper.pdf](https://www.foodfirst.org/files/pdf/Yale%20April%202010%20Borras_Franco%20CoC%20paper.pdf) (*Information referred to saved on cd-rom*)
- Braun, J. von and Meinzen-Dick, R. (2009) Accessed on: 7-9-2012 10:37:40, Link:  
<http://www.ifpri.org/sites/default/files/publications/bp013all.pdf> (*Information referred to saved on cd-rom*)
- Business Dictionary (2013) Accessed on: 16/04/2013 21:23:06, Link:  
<http://www.businessdictionary.com/definition/institutional-investors.html>
- CalPERS (2013) Accessed on: 20/04/2013 14:59:12, Link:  
<http://www.calpers.ca.gov/index.jsp?bc=/investments/assets/mvs.xml>
- Canby, K. and Raditz, C. (2005) Accessed on: 12/03/2013 22:36:05, Link:  
[http://www.forest-trends.org/publication\\_details.php?publicationID=104](http://www.forest-trends.org/publication_details.php?publicationID=104)  
(*Information referred to saved on cd-rom*)
- Department for Communities and Local Governments (2011) Accessed on: 13/03/2013 22:28:24, Link:  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/7612/1132618.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7612/1132618.pdf)
- eBizMBA (2013) Accessed on: 31/03/2013 16:31:40, Link:  
<http://www.ebizmba.com/articles/search-engines>
- EFAMA (2012) Accessed on: 12-5-2013 15:46:47, Link:  
<http://www.efama.org/Publications/Statistics/Asset%20Management%20Report/Asset%20Management%20Report%202012.pdf>
- Endl, A. (2012) Accessed on: 14/04/2013 14:01:11, Link: [http://www.sd-network.eu/pdf/case%20studies/ESDN%20Case%20Study\\_No.%2011\\_sustainable%20investment\\_FINAL.pdf](http://www.sd-network.eu/pdf/case%20studies/ESDN%20Case%20Study_No.%2011_sustainable%20investment_FINAL.pdf)

EUROSIF A.I.S.B.L., (2012b) Accessed on: 12/05/2013 15:53:28, Link:  
[http://www.investmenteurope.net/digital\\_assets/5925/2570912\\_eurosif\\_sri\\_study\\_low-res.pdf](http://www.investmenteurope.net/digital_assets/5925/2570912_eurosif_sri_study_low-res.pdf)

FAO (1996) Accessed on: 03/03/2013 21:06:40, Link:  
[http://www.fao.org/docrep/W3646E/w3646e06.htm#the\\_iufro\\_position\\_on\\_sustainable\\_management\\_of\\_tropical\\_forests](http://www.fao.org/docrep/W3646E/w3646e06.htm#the_iufro_position_on_sustainable_management_of_tropical_forests) *(Information referred to saved on cd-rom)*

FAO (2006) Accessed on: 23/11/2012 09:24:12, Link:  
<ftp://ftp.fao.org/docrep/fao/009/j9256e/j9256e00.pdf> *(Information referred to saved on cd-rom)*

FAO (2008) Accessed on: 22-9-2012 23:37:11, Link:  
<http://foris.fao.org/preview/16559-0325ac13168b9c3d84d0279e2f8adc798.pdf>  
*(Information referred to saved on cd-rom)*

FAO (2009) Accessed on: 25/10/2012 16:26:49, Link:  
<http://www.fao.org/docrep/011/ak241e/ak241e00.htm> *(Information referred to saved on cd-rom)*

FAO (2010) Accessed on: 23/11/2012 10:09:06, Link:  
<http://foris.fao.org/static/data/fra2010/KeyFindings-en.pdf> *(Information referred to saved on cd-rom)*

FAO (2012a) Accessed on: 23/11/2012 09:42:18, Link:  
[http://www.fao.org/fileadmin/user\\_upload/newsroom/docs/VGsennglish.pdf](http://www.fao.org/fileadmin/user_upload/newsroom/docs/VGsennglish.pdf)  
*(Information referred to saved on cd-rom)*

FAO (2012b) Accessed on: 14/04/2013 22:05:48, Link:  
<http://www.fao.org/docrep/015/an901e/an901e00.pdf>

FAO, IFAD, UNCTAD and The World Bank Group (2010) Accessed on: 3-3-2013 17:27:06, Link: [http://siteresources.worldbank.org/INTARD/214574-1111138388661/22453321/Principles\\_Extended.pdf](http://siteresources.worldbank.org/INTARD/214574-1111138388661/22453321/Principles_Extended.pdf)

Farmlandgrab.org (2012) Accessed on: 25/10/2012 15:13:28, Link:  
<http://farmlandgrab.org/> *(Information referred to saved on cd-rom)*

Feehan, J. (2012) Accessed on: 23-9-2012 21:33:02, Link:  
<http://www.nyenrode.nl/FacultyResearch/LSE/CS/International%20Sustainable%20Business/conferences/2012conferenceBoostingInvestments/Documents/Europe%20Investment%20Bank%20-%20Jane%20Feehan.pdf> *(Information referred to saved on cd-rom)*



## References

- Forestry Investments (2012) Accessed on: 14/02/2013 21:53:01, Link:  
<http://www.forestry-investing.co.uk/> (*Information referred to saved on cd-rom*)
- Garner, D. and Brittain, W. (2012) Accessed on: 05/09/2012 09:44:03, Link:  
<http://dgcassetmanagement.com/sites/dgcassetmanagement.com/files/Forestry%20Investment%20Report%202012%20-%20DGC%20Asset%20Management.pdf>  
(*Information referred to saved on cd-rom*)
- Google (2013) Accessed on: 30-3-2013 21:52:58, Link:  
<http://support.google.com/trends/?hl=nl#topic=13762>
- Greco, M., Cricelli, L. and Grimaldi, M. (2012) Accessed on: 23/11/2012 11:45:37, Link:  
<http://www.sciencedirect.com.ezproxy.library.wur.nl/science/article/pii/S0263237312001107> (*Information referred to saved on cd-rom*)
- Investing for Beginners (2013) Accessed on: 16/04/2013 21:16:20, Link:  
<http://beginnersinvest.about.com/od/investingglossary/g/institutional-investor.htm>
- Investopedia (2013) Accessed on: 15/04/2013 21:21:31, Link:  
<http://www.investopedia.com/terms/c/cagr.asp>
- Jansens, K., Scholtens, L.J.R. and Sprengers P. (2000) Accessed on: 26/05/2010 11:10, Link: [http://www.vbdo.nl/publicaties/sparen\\_gb.pdf](http://www.vbdo.nl/publicaties/sparen_gb.pdf)
- Lamba, V. (2011) Accessed on: 31/03/2013 12:45:32, Link:  
<http://topbestlisted.blogspot.com/2011/08/worlds-top-10-best-popular-search.html>
- Liscow (2012) Accessed on: 23/11/2012 10:18:03, Link:  
<http://www.sciencedirect.com.ezproxy.library.wur.nl/science/article/pii/S0095069612000642#> (*Information referred to saved on cd-rom*)
- Mendoza, G.A., Macoun, P., Prabhu, R., Sukadri, D., Purnomo, H. and Hartanto, H. (1999) Accessed on: 12-10-2012 12:12:52, Link:  
[http://www.cifor.org/livesinfores/publications/pdf\\_files/toolbox-9c.pdf](http://www.cifor.org/livesinfores/publications/pdf_files/toolbox-9c.pdf)  
(*Information referred to saved on cd-rom*)
- Mill, J.S. (1879) Accessed on: 05/03/2013 10:54:02, Link:  
[http://www.olimon.org/uan/stuart-mill\\_Utilitarianism.pdf](http://www.olimon.org/uan/stuart-mill_Utilitarianism.pdf) (*Information referred to saved on cd-rom*)

- Moura Costa, P. and Kohn, G. (2001) Accessed on: 22-9-2012 23:29:30, Link: [http://www.cifor.org/publications/pdf\\_files/Books/private\\_sector/private\\_sector-page172-302.pdf](http://www.cifor.org/publications/pdf_files/Books/private_sector/private_sector-page172-302.pdf) (*Information referred to saved on cd-rom*)
- New Forests (2012) Accessed on: 23-9-2012 21:59:19, Link: [http://www.newforests.com.au/news/pdf/articles/Responsible\\_Investment\\_in\\_Forestry.pdf](http://www.newforests.com.au/news/pdf/articles/Responsible_Investment_in_Forestry.pdf) (*Information referred to saved on cd-rom*)
- Oxfam International (2012) Accessed on: 25/10/2012 15:30:17, Link: <http://www.oxfam.org/en/grow/issues/land-grabs> (*Information referred to saved on cd-rom*)
- Perez-Corral, V.Q. and Rosien, J. (2002) Accessed on: 23-9-2012 21:26:50, Link: <http://www.forum-adb.org/pdf/02-05.pdf> (*Information referred to saved on cd-rom*)
- Perry, J. and De Fontnouvelle, P. (2005) Accessed on: 12-10-2012 11:57:59, Link: <http://bostonfed.org/bankinfo/qau/research/papers/jppd1005.pdf> (*Information referred to saved on cd-rom*)
- Science Daily (2011) Accessed on: 13/12/2012 15:03:25, Link: <http://www.sciencedaily.com/releases/2011/07/110718092212.htm>
- Stop Africa Land Grab (2012) Accessed on: 23/11/2012 10:47:41, Link: <http://www.stopafricalandgrab.com/> (*Information referred to saved on cd-rom*)
- Straka, T.J. and Bullard, H.B. (1996) Accessed on: 31/10/2012 10:57:09, Link: <http://www.timbertax.org/getstarted/appraisal/papers/pdf/ajoct96.PDF> (*Information referred to saved on cd-rom*)
- Testa (2006) Accessed on: 07/03/2013 15:23:36, Link: <http://www.crrconference.org/downloads/2006testa.pdf> (*Information referred to saved on cd-rom*)
- The Economist Intelligence Unit (2005) Accessed on: 08/10/2012 17:04:17, Link: <http://www.acegroup.com/eu-en/assets/risk-reputation-report.pdf> (*Information referred to saved on cd-rom*)
- The Search Engine List (2013) Accessed on: 31/03/2013 12:42:56, Link: <http://www.thesearchenginelist.com/>
- Tonello, M. (2007) Accessed on: 08/10/2012 16:44:37, Link: <http://www.complianceweek.com/s/documents/ConfBReputation.pdf> (*Information referred to saved on cd-rom*)

## References

- Transnational Institute (2012) Accessed on: 03/09/2012 12:33:17, Link: <http://www.tni.org/interview/green-grabbing> (*Information referred to saved on cd-rom*)
- Trochim, W.M.K. (2002) Accessed on: 16/05/2013 19:55:26, Link: <http://www.socialresearchmethods.net/kb/dedind.php>
- UNCTD (2006) Accessed on: 23/11/2012 11:21:43, Link: <http://www.itto.int/itta/> (*Information referred to saved on cd-rom*)
- UNCSD (2012) Accessed on: 19/10/2012 09:51:56, Link: <http://www.uncsd2012.org/about.html> (*Information referred to saved on cd-rom*)
- Vidal, J. (2008) Accessed on: 24/10/2012 11:10:27, Link: <http://www.guardian.co.uk/environment/2008/feb/13/conservation> (*Information referred to saved on cd-rom*)
- World Bank (2004) Accessed on: 23-9-2012 0:12:27, Link: <http://siteresources.worldbank.org/INTFORESTS/Resources/SustainingForests.pdf> (*Information referred to saved on cd-rom*)
- World Bank (2008) Accessed on: 22-9-2012 23:48:11, Link: <http://siteresources.worldbank.org/EXTFORSOUBOOK/Resources/02-FSB-Ch02.pdf> (*Information referred to saved on cd-rom*)
- World Bank (2010) Accessed on: 6-9-2012 14:55:29, Link: [http://siteresources.worldbank.org/INTARD/Resources/ESW\\_Sept7\\_final\\_final.pdf](http://siteresources.worldbank.org/INTARD/Resources/ESW_Sept7_final_final.pdf) (*Information referred to saved on cd-rom*)

## List of References Illustrations used

### Figure 5

- CO2 (2012) Accessed on: 07/03/2013 12:41:32, Link: [http://www.dnhk.org/uploads/pics/2012\\_co2.jpg](http://www.dnhk.org/uploads/pics/2012_co2.jpg)
- Map (2012) Accessed on: 7-3-2013 12:30:00, Link: [http://www.maps2anywhere.com/Maps/Brazil\\_map\\_sample\\_parana\\_geomapas.htm](http://www.maps2anywhere.com/Maps/Brazil_map_sample_parana_geomapas.htm)
- Nuts (2012) Accessed on: 07/03/2013 12:39:04, Link: <http://www.acreagelife.com/rural-living-articles/nuts-nuts>

Tree (2012) Accessed on: 07/03/2013 12:33:30, Link  
[http://www.rbwm.gov.uk/web/trees\\_adopt.htm](http://www.rbwm.gov.uk/web/trees_adopt.htm)

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**Figure 7**

VU Amsterdam (2013) Accessed on: 07/03/2013 12:45:03,  
Link:[http://www.vu.nl/nl/Images/weegschaal%20persoonlijke%20effectiviteit\\_tc\\_m9-227643.jpg](http://www.vu.nl/nl/Images/weegschaal%20persoonlijke%20effectiviteit_tc_m9-227643.jpg)

**Figure 11**

Google Trends (2013a) *Normalised number of searches for the term 'land grabbing' from 2004 till 2013 plus a prognosis for the near future*, Accessed on: 01/03/2013 13:33:24, Link:  
<http://www.google.com/trends/explore#q=land%20grabbing&cmpt=q>

**Figure 12**

Google Trends (2013b) *Normalised number of searches for the term 'land grabbing' (blue line), 'poverty alleviation' (red line) and 'nature conservation' (yellow line) from 2004 till 2013 plus a prognosis for the near future*, Accessed on: 01/03/2013 13:37:00, Link:  
<http://www.google.com/trends/explore#q=land%20grabbing%2C%20poverty%20alleviation%2C%20nature%20conservation&cmpt=q>

**Figure 13**

Google Trends (2013c) *Normalised number of searches for the term 'land grabbing' (blue line), 'sustainable forestry' (red line) and 'ecosystem services' (yellow line) from 2004 till 2013 plus a prognosis for the near future*, Accessed on: 02/03/2013 22:39:06, Link:  
<http://www.google.com/trends/explore#q=land%20grabbing%2C%20sustainable%20forestry%2C%20ecosystem%20services&cmpt=q>

**Figure 14**

Google Trends (2013d) *Normalised number of searches for the term 'land grabbing' (blue line), 'sustainable forestry' (red line), 'ecosystem services' (yellow line), 'sustainable development' (green line) and 'climate change' (purple line) from 2004 till 2013 plus a prognosis for the near future*, Accessed on: 02/03/2013 22:52:17, Link:  
<http://www.google.com/trends/explore#q=land%20grabbing%2C%20sustainable%20forestry%2C%20ecosystem%20services%2C%20sustainable%20development%2C%20climate%20change&cmpt=q>

