Control mechanisms and asset specificity in hybrid governance

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Abstract

Within this research I examine how risks of opportunistic behavior resulting from asset specificity, assets which can not or can barely be redeployed to alternative use without the sacrifice of productive value, are best governed by specific action, result or personnel & cultural control mechanisms within a hybrid governance mode.

Based upon the literature I have proposed two hypothesis. First, in case of higher human asset specificity, procedural asset specificity and marketing asset specificity, the dominant control mechanism used for the protection of asset specificity is personnel & cultural control. Secondly, that in case of higher physical asset specificity, site specificity, dedicated asset specificity and temporal asset specificity, the dominant control mechanism for the protection of asset specificity is action or result controls.

The previous two propositions have been investigated in two case studies. One case study setting is selected for its high physical asset specificity and the other setting is selected for its high human asset specificity.

In the case studies both propositions are confirmed. In addition, it is demonstrated that a balanced distribution of asset specificity between cooperating parties is an important mechanism for mitigating opportunistic behavior between cooperating parties.
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1 Introduction & problem definition

1.1 INTRODUCTION

Transaction Cost Theory is a theory of coordination of transactions between and within business organizations (Steen, 2005).

In normal, day to day business operations, organizations incur costs for primary activities like processing raw goods, the costs of personnel, the shipping of end products etcetera. *Transaction Cost Theory* (TCT) states that an organization will select the governance structure that minimizes the costs of effecting transactions in total (Williamson, 1979). ‘In total’ means the sum of the costs for primary activities and transaction costs for executing these primary activities.

Transaction costs are associated with activities to minimize risks from opportunistic behavior. To cooperate with other companies, organizations need to explore their outsourcing needs, bargain, write contracts, supervise if activities are undertaken according as agreed and sometimes even take legal action if conflicts arise.

A central topic within TCT the governance structure in which transactions are best organized. In general, governance structures for effecting transactions can be classified in three modes namely; hierarchy, market and hybrid (Williamson, 1991).

The first form, hierarchy, means that transactions are executed inside an organization (e.g. a legal company). The second mode, market, is the opposite of hierarchy and is a setting in which many suppliers and buyers are available and product and services are traded without longer term contracts or constraints.

The third mode, hybrid, lies between hierarchy and market and contains all mixed, longer term cooperation’s. Examples of hybrid modes of governance are various long-term contracting agreements like franchising and Joint Ventures.

TCT states that three elements and two behavioral assumptions predict whether a transaction is best undertaken within a hierarchy or ‘bought’ on the market. ‘Undertaken’ in this matter refers to the governance structure in which it is executed to minimize the transaction costs. In more common terminology this is also referred to as the ‘Make or Buy’ decision which many organizations face when deciding to integrate or outsource their activities.

These predicting elements are *Uncertainty, Frequency* and *Asset Specificity*. Uncertainty is the level of risk for unpredictable events in the external environment. Frequency refers to the number and interval of the transactions. Asset Specificity means that there are elements within the transaction which have little or no value outside the specific purpose of the transaction (Williamson, 1979).
TCT theory and research states that a high content of any of these three elements will favor a transaction to be executed and governed within an organization. The two behavioral assumptions, bounded rationality, the ability of agents to economize on only a limited amount of options and opportunism make that transactions with high Uncertainty, Frequency and Asset Specificity, are best undertaken within a hierarchy, inside an organization. Vice Vera, a low content of any of these three elements will favor a transaction to be executed and governed on the market place.

The assumption of effecting transactions on the free market is that due to competition and the easy of switching to other market alternatives (the lack of long term commitments), lower costs can be achieved. Because of companies communicating and sharing reviews, bad performing companies and their products won’t survive in an open market place. (Williamson, 1979)

In literature the element Asset Specificity is given much value “It is the big locomotive to which transaction cost economics owes much of it predictive content”. (Williamson 1998 p. 36).

In the previous eight decades, much research has been undertaken on the market and internal organizational governance structures. Studies have been focused to see if and in what degree the three elements Uncertainty, Frequency and Asset Specificity are drivers for the given governance structures and what control mechanism is in place and evolving.

In the last two decades, more and more research attention has been given to hybrid governance structures and hybrid governance modes have been an increasingly popular way of cooperation between companies. Below two examples of asset specificity within hybrid governance mode are given:

In 2005 Apple collaborated with AT&T to invest in the successful launch of its first IPhone in 2007. The iPhone relied heavily on wireless data which was, in 2005, not a widely spread and advanced technology. Apple saw AT&T as a long term partner who was able to develop the necessary technologically investments in wireless data. Back then, both companies were investing in new assets which value outside the cooperation, at that time, was of less value. The asset specificity for both companies was high at the time.

North Hoyle Wind Farm, an offshore wind farm has been in operation since 2003. In 2014, a governmental study has been finished to investigate if and how a Marine Culture (off shore fishing farm) might be explored and located physically within the wind farm. The perfect conditions (electricity, connection of nets) and already available infrastructure of the wind farm are an excellent location for breeding fish and managing the farm.

On the other hand, the exploitation of the farm, physically as well as its human capital invested, can’t easily be copied outside the given location of the wind farm. As soon as a fishing farm installs its nets or machinery, their investments are sunk. These sunken investments don’t cause a direct financial loss but cause, due to the non-symmetrical asset specificity, a negative impact to the strategic bargaining position of the farm. The previous will become an issue in case of contract renewal or in case of any additional investments.
Given the increasing intensity and complexity an interesting area for research is whether and how the complexity coming from Asset Specific investments within hybrid organizations gives rise to certain risks and how these risks are being controlled.

A theoretical and practically interesting question is which control mechanisms are used within hybrid organizations to control and secure high asset specificity. A interesting way to classify control mechanisms is according to the object of control; that is, whether control is exercised over actions, results, or personnel and culture (Merchant & van der Stede, 2007) (Groot & Merchant, 2000).

Action Control involves steps to make sure that employees act in the organizations best interest. Think of passwords, audits or expenditure caps as an example. Result Controls focus on the organizations strategy and on aligning employees with that strategy. Examples of result controls are bonus elements or incentives for achieving certain goals.

Personnel and cultural controls emphasize informal group mechanisms, for instance group pressure or tradition to behave in certain ways of norms. Trust is also an important driver within cultural controls. Personnel controls build on employees’ natural tendencies to control and/or motivate themselves.
1.2 PROBLEM DEFINITION

This research will give answer to the main question:

**How can risks resulting from high Asset Specificity within hybrid governance be governed by control mechanisms.**

To answer this question. The following sub questions are relevant:

1. Which risks, resulting from high Asset Specificity within hybrid governance, are discussed in literature?
2. What control Mechanisms governing risks of high asset specific investments are discussed in literature?
3. Which risks, resulting from high Asset Specific investments within hybrid governance, do we find in practice?
4. What control Mechanisms are used in practice to govern risks of high asset specificity
2 Theoretical backgrounds

2.1 INTRODUCTION

In this theoretical section I will answer the first and second question in the problem definition:

1. Which risks, resulting from high Asset Specificity within hybrid governance, are discussed in literature?

2. What control Mechanisms governing risks of high asset specific investments are discussed in literature?

I will start to explain the main questions in Transaction Costs Theory on governance structures (paragraph 2.2), and five elements of the theory (paragraph 2.3). In paragraph 2.4 I will focus on seven known forms of asset specificity and the higher or lower availability of the seven forms. In paragraph 2.5 I will describe the risks of asset specificity within hybrid governance. In paragraph 2.6 a set of controls are given in which these risks can be better controlled or mitigated.

I propose that specific control mechanisms are better suited for mitigating and controlling risk within hybrid governance with high asset specificity. In two case studies these propositions will be tested.
In the following figure, the composition and context of the study is given:

**Figure 1:** Visual construction of study model;

In the most above horizontal row, three generally known governance forms are shown. The focus of this study is on hybrid governance. In the second row the five elements of TCT are shown with a focus on asset specificity. The risks of asset specificity within hybrid governance are discussed and in paragraph 2.6 the found solutions in literature within control mechanism on these risks are shown.
2.2 TRANSACTION COST THEORY AND HYBRID GOVERNANCE

The main question of Transaction Cost Theory is to predict in what governance mode, transactions are best undertaken (Williamson 1991).

Before and in a large part of the 20th century, the main assumption in economic theories on markets and firms were that resources (personnel and goods) are allocated by means of the price mechanism of supply and demand. Firms or companies were described as “Islands of Conscious power” but no understanding was available why the choice between market or hierarchy was effected (Coase, 1937, p. 388). No consideration was given to the idea that effecting transactions on the market place or within a hierarchical organization (hierarchy) might actually matter in terms of transaction costs.

Oliver E. Williamson further defined the insights of Ronald Coase and created the Transaction Costs Theory (TCT). TCT assumes that organizations incur transaction costs besides costs for direct activities like processing raw goods, costs of personnel, shipping of end products. Transaction costs are that costs which are not directly linked to the product or service. costs for bargaining of contracts, supervision costs or costs associated with opportunistic behaviour such as extra management control. Transaction Cost Theory (TCT) states that an organization will select the governance mode that minimizes the costs of effecting transactions in total (Williamson, 1979). ‘In total’ then means the sum of the costs for direct activities but also the more indirect transaction costs for effectively executing these direct activities. Transaction costs are an important part of the total costs of a firm and will, if not considered in business decisions, lead to ineffective governance and business failure.

Transaction costs are found in all phases of the life span of a product for example: (1) Searching for information, (2) drafting and negotiating an agreement, (3) Costs of safeguarding an agreement, (4) evaluating inputs, (5) Measuring outputs, and (6) monitoring and enforcement of the agreement (Williamson, 1985).

As stated, an important factor in TCT is to predict in what governance mode transactions are best undertaken. Williamson defines a governance mode as “the institutional framework within which the integrity of a transaction is decided” (Williamson, 1979, p. 236). The institutional frameworks can be categorized in three modes; hierarchy, market and hybrid (Williamson, 1991).
Hierarchy
The first mode, hierarchy, means that transactions are being executed inside an organization (e.g. a legal company). Hierarchy relies on top-down coordination mechanisms by managerial fiat. Ronald Coase (1937) described the question as to why person A executes managers B’s request; “because he is ordered to do so[..]” (Coase, 1937, p. 387). The ability to steer by command and control is strongly developed within a company simply because people’s careers and wages depend on a good performance within the company’s rules. Because of the strong internal command and control, there is no strong dependency on legal contract law or formal contracts to get things done within the company. If a division within a company suffers a major loss or certain deadlines between the marketing division and the sales division aren’t met, the company’s top management can decide whether the losses or late deliveries are taken for granted and or not pay out certain bonuses. In most cases no legal court intervention is necessary, simply because the company is one legal entity which decides on its own in matters.

Market
The second governance mode of executing transactions is the free market where many suppliers and buyers are available. The main coordination mechanism of markets is the price mechanism which is deciding in the relationship between buyers and sellers (Coase, 1937). Buyers and sellers have no formal dependency or relation to each other which means that simple contracts are made up (only) for delivery of a one time service or product. The purchasing of a laptop computer with no additional servicing contract or the purchase of 10,000 barrels of crude oil in a trading room are examples of market transactions. Because of the not existing relationship between a buyer and a seller, contract law is interpreted in a very legalistic way and the rules of contract law are strictly applied. E.g. in the Netherlands all consumer products and services bought via internet or ordered by phone can be returned within 14 days after purchasing, no questions asked.

An important assumption for effecting transactions on the market is that due to competition and the ease of switching to other market alternatives, lower costs can be achieved. Changes in price and demand are easily adapted within market governance but much less within a hierarchy where internal pricing systems and cultural differences can frustrate adaption to changes. Due to companies sharing bad reviews (E.g. product reviews on internet) bad performing companies and their products won’t survive in an open market place because of the open communication and quick feedback between all parties.

Hybrid
The third mode, hybrid governance, lies between hierarchy and market and contains all intermediate governance structures. Hybrid governance is defined as “various forms of long-term contracting, reciprocal trading, regulation, franchising, and the like” assistance agreements, franchising, Joint Ventures” (Williamson, 1991, p. 280). A central characteristic for hybrid governance is the intended longer term cooperation element which is not available in market governance where transactions have a single and infrequent character.
In general, within hybrid governance forms, organizations maintain their autonomy but are, to a certain level also dependent on each other. Franchising, for instance, awards entrepreneurs greater autonomy than hierarchy but places franchisees under added rules and of the franchise holding company.

Hybrid governance forms are diverse and found in different forms. Below a a categorization of hybrid governance modes and their dependency on each other is given.

i. A Joint Venture (JV) is a hybrid governance form in which companies place a long term business endavour in a separate entity (the Joint Venture) with own decision mandate. The dependancy of the joint venture on the mother companies is relatively low however within the JV, the dependancy on each other is high. An example of a JV is the development of the VolvoV60 plug-in hybrid car and infrastructure by the Swedish companies Vattenfall and Volvo. A JV posesses high risks of interdependence on each partner contributon for profit making or losses or bad exposure. The JV also posesses much benefits e.g. research, patents and new product development can be done in a safe and isolated environment.

ii. In a franchising agreement in which a well established company provides its brand, operational model and required support to another party (the franchisee) to set up and run a similar business in exchange for a fee and some share of the income generated. Both the franchisee and the holding company have an interdependent but still freerelationship. The franchisee has, within the franchising’s brand rules, freedom in exploiting the formula within a geographical area to its own benefit. much risk and insecurity is already regulated by the franchise’s proven concept and size advantages.

iii. In a buyback agreement, parties agree to buy an amount of produced goods or services. In return, partner X buying product A, agrees to buy or invest in partners Y product of service B. The interdependance between companies is moderate to low depending on the replace ability of the services or goods and limited to only the specified goods in the contract.

iv. In a production agreement, parties agree to buy an amount of produced goods or services and agree on standard quality aspects and for instance a small share of goods sold to end consumers. The interdependance between companies is relatively low and limited to only the specified goods in the contract. In case of contract breach or earlier termination of the contract, the cost and exposure of litigation often prevents parties from undertaking legal actions for the sake of the relationship.
2.3 FIVE ELEMENTS OF TRANSACTION COST THEORY

Three transaction characteristics within TCT are uncertainty, the frequency with which transactions occur, and the degree to which durable asset-specific investments are incurred (Williamson, 1979). These dimensions help to classify what governance mode is more effective given the high or low levels in a transaction. Two behavioural assumptions play an important role to TCT namely opportunism and bounded rationality. These two assumptions explain why a certain governance form is more effective than the other.

Opportunism can be defined as “Making false or empty, that is, self-disbelieved threats or promises, cutting corners for undisclosed personal advantage, covering up tracks, and the like” (Williamson & Ouchi, 1981, p. 351) Williamson states that because people are naturally looking for personal gain (opportunism), extra supervision needs to be in place and in case of a hybrid or market governance, contracts need to be drawn up to minimize the risk of opportunistic behaviour. The cost for drawing up contracts are a practical example of transaction costs.

Bounded rationality can be defined as “behavior that is intended rational but is only limited so” (Williamson, 1998, p.30). Bounded rationality means that individuals can only optimize on a limited number of alternatives and that individuals will minimize the efforts to find these alternatives. Early 20th century neoclassical economic theory assumes that agents can and will optimize between an unlimited number of alternatives at all time. The availability of bounded rationality within TCT strongly limits the drive for efficiency because it acknowledges only a small amount of alternatives for a individuals to assess. An example and recent phenomenon in the last decade is the seemingly endless availability and speed of information on the internet together with mobile devices to quickly assess any information. The previous trend of information assessing can be put in perspective within bounded rationality because no matter how much alternatives are selected by a computer, the ability to rationally assess and choose out of these options is still limited to the agents capacity and personal preferences.

As a consequence of bounded rationality, contracts are by nature unavoidably incomplete because they can never foresee all future events or relevant topics from happening. Further, the value of a contract is also limited by the fact that contract breaching is difficult and hard to assess and legal actions are costly and time consuming. The presence of the earlier stated opportunism in itself is not a problem.

Uncertainty means that information about past, current and future states is simply not perfectly known, for various reasons (Martins et. al., 2010). Uncertainty can arise from not knowing about future states but also from the inability to determine which individuals will behave opportunistically (Williamson, 1993b). Without the existence of bounded rationality and opportunism, uncertainty would be much less of a problem and much less measures for protection transactions to behavioural uncertainty have to be in place. given the fact of bounded rationality and opportunism, uncertainty is a critical element.
**Frequency** deals with the volume and recurrence of transactions. If transactions are infrequent or low in volume then the cost of a permanent hierarchical governance may not be justified. A temporary, low profile, hybrid setup or a one time buy on the market is a more cost optimizing choice. A more predictable frequency or larger volume of transaction does justify the establishment of an internal, hierarchical governance. The volume, number, and/or temporal spread of transactions are all included within the element frequency and are important to be considered (Williamson, 1985).

**Asset specificity** is being defined by Williamson as the degree to which an asset can be redeployed to alternative uses by alternative users without sacrifice of productive value (Williamson 1996, p. 59). To be more concrete, in a high asset specific environment, an asset can not, or can barely be redeployed to alternative use without sacrifice of productive value. Asset specificity is further specified in seven different forms which are explained in paragraph 2.5. Asset specificity is escibed as “the big locomotive to which transaction cost economics owes much of it predictive content”. (Williamson, 1998, p.36).

The sum of the five elements is that a high content of one or more of the three elements frequency, uncertainty and asset specificity will favor a transaction to be executed and governed within a hierarchy. (Van der Meer-Kooistra, 1994, p131). Vice versa, a low content of one or more elements favours a transaction to be executed and governed on the market place. Intermediate values of all elements generally cause a transaction to be executed in a hybrid governance mode.

Deviation from the described ideal will generally cause negative side effects resulting in unnecessary transaction costs. If a transaction with a low frequency, low uncertainty and low asset specificity, is undertaken within a hierarchy, too much levels of bureaucracy (transaction costs) will be the result. The transactions will better flourish in a competitive market environment where low cost, high quality and low switching costs to alternative suppliers are fully available. If a transaction with high frequency, uncertainty and asset specificity, is undertaken on the market place (or in lesser extent within a hybrid governance structure), more risk of ineffective governance and contract failure is available. Williamson states that in the previous cases, a relationship will be subject to “costly haggling and maladaptiveness” (Williamson, 1985, p. 15) meaning an ineffective governance.

Dekker (2004) states that all elements but most specifically asset specificity, can give rise to appropriation concerns which means the concern when one partner invests more asset specific knowledge or asset in a relationship than the other. The concern of being vulnerable from the appropriated investments by the other party gives rise to potentially opportunistic behavior.
Table 1: transaction characteristics and governance modes

<table>
<thead>
<tr>
<th></th>
<th>Market</th>
<th>Hybrid</th>
<th>Hierarchy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertainty</td>
<td>low</td>
<td>medium</td>
<td>high</td>
</tr>
<tr>
<td>Frequency</td>
<td>low</td>
<td>medium</td>
<td>high</td>
</tr>
<tr>
<td>Asset specificity</td>
<td>low</td>
<td>Medium</td>
<td>High</td>
</tr>
</tbody>
</table>

In table 1 transaction characteristics are shown on the vertical axis and the ‘best’ governance mode on the horizontal axis.

An important consequence of undertaking high asset specific ventures with other companies is higher contract complexity. In a contract, to prevent opportunistic behaviour by the other party, future possible events have to be mapped and anticipated. As stated before in 2.3, contracts are by nature incomplete because agents can not fully anticipate on every future occasion due to bounded rationality (Aghion & Holden, 2011). If parties do attempt to write a very detailed contract for an already highly asset specific service in an uncertain, risky environment, the connected transaction costs will be very high, and probably not justify a cooperation in the first place.

Hart & Moore (2008) state that parties, after negotiating a contract, perform relative to what the feel they should have gotten out of the contract and will underperform. Terms and procedures in a contract don’t matter at all. Clausules in a contract to prevent unwanted behaviour e.g. describing protocols and penalties for every possible situation of a cooperation won’t improve an already mistrusting, opportunistic situation. The clauses also make it difficult to perform on the wanted outcome. If any party decides to go to court because they feel that contract agreements have been breached, the costs of legal litigation and the loss of reputation for both parties, would be high and therefore possibly not worth the endavour. In this view, detailed contracts are not the answer to mitigate governance misfits.
2.4 ASSET SPECIFICITY FORMS WITHIN HYBRID GOVERNANCE

2.4.1 HIGH OR LOW ASSET SPECIFICITY

Transactions with a low and medium level of asset specificity are generally undertaken within respectively market and hybrid governance. Higher quantities of asset specificity within market or hybrid governance contain higher risks of ineffective governance and contract failure caused by the larger risks of opportunistic behaviour and limiting abilities of bounded rationality.

2.4.2 ASSET SPECIFICITY FORMS

Asset Specificity can be found in several forms. All forms can be available in higher or lower quantity. Initially, Oliver E. Williamson specified four different forms; site specificity, physical asset specificity, human asset specificity and dedicated asset specificity (Williamson, 1983). In the following years several authors identified more forms of asset specificity. Van der Meer-Kooistra identifies marketing asset specificity (Van der Meer-Kooistra, 1994). Geyskens, Steenkamp en Kumar(2006) use goodwill asset specificity. Zaheer & Venkatraman identified, within their research in a services environment procedural asset specificity. Masten, Meehan & Snyder identify temporal asset specificity (Masten, Meehan & Snyder, 1991). Gatignon & Anderson identify brand capital specificity. In the below table, all seven forms of asset specificity are specified with a description and example.
Table 2; asset specificity forms

<table>
<thead>
<tr>
<th>Form asset specificity</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Site specificity</td>
<td>Facilities are located so that inventory and transportation expenses are minimized. (Lohtia, Brooks &amp; Krapfel, 1994)</td>
<td>A coal energy plant which is deliberately located near a commercially exploited harbor which is its only source of supply is an example of site specificity.</td>
</tr>
<tr>
<td>2 Physical asset specificity</td>
<td>Assets are developed or customized to a particular use or purpose (Lohtia, Brooks &amp; Krapfel, 1994)</td>
<td>A die which is especially fitted to a specific formula 1 racing team car.</td>
</tr>
<tr>
<td>3 Human asset specificity</td>
<td>Employees develop firm specific skills or knowledge (Lohtia, Brooks &amp; Krapfel, 1994)</td>
<td>Knowledge and training for a very specific item. Backlog handling of work items within a customized IT system of a service company.</td>
</tr>
<tr>
<td>4 Dedicated asset specificity</td>
<td>Dedicated assets occur when additions are made to an existing machine or device that would not be made but for the expectation of selling significant product to a particular customer on a long term basis (Lohtia, Brooks &amp; Krapfel, 1994)</td>
<td>A small sized company delivering half products to an original equipment manufacturer (OEM) may invest in customizing a machine for the sake of delivering extra capacity, agreed in a contract with the OEM. When the OEM decides, or even threatens to discontinue the contract, overcapacity which cannot be sold elsewhere is the result.</td>
</tr>
<tr>
<td>5 Temporal asset specificity</td>
<td>Specificty when timely responses by on-site human assets is vital. (Lohtia, Brooks &amp; Krapfel, 1994)</td>
<td>When building a house timely delivery of the right building materials and building professionals is key to a timely delivery of the completed house.</td>
</tr>
<tr>
<td>6 Procedural asset specificity</td>
<td>The degree a firm’s workflows and processes are customized in line with the requirements of the exchange partner (Malone, Yates, and Benjamin, 1987).</td>
<td>If a commercial service company works with an outside partner for delivering their sales and orders of commodity products, it may need to make large investments to align its procedures and IT processes so that orders can be efficiently transferred and handled.</td>
</tr>
<tr>
<td>7A Marketing asset specificity</td>
<td>Specificity arising in the selling phase of a product life cycle (Van der Meer-Kooistra, 1994 p131)</td>
<td>Investments in a particular brand can lose their value very quick if the reputation of a company is compromised (Buckler beer in the Netherlands)</td>
</tr>
<tr>
<td>7B Goodwill asset specificity</td>
<td>Idiosyncratic investments in brand name capital (Williamson, 1991 p 281)</td>
<td></td>
</tr>
<tr>
<td>7C Brand capital asset specificity</td>
<td>Brand capital is an investment in reputations (Lohtia, Brooks &amp; Krapfel, 1994)</td>
<td></td>
</tr>
</tbody>
</table>

In case of Marketing asset specificity and the rows below (7a,b,c) all definitions and descriptions give a more or less, same explanation but use different names. To improve the quality of reading and to avoid unnecessary complexity the term marketing asset specificity will be used to cover all three descriptions.

More than one asset specificity can appear at the same time. Also the boundaries between the forms are not strict and some overlap can appear. Below two examples are given to illustrate how asset specific investments in a governance mode looks like.
Marketing asset specificity is widely used by hotels as a mean to gain commitment from subcontractors. These commitments are designed to reduce the chance of a contractor (a supplier) to act opportunistically. Lamminmaki (2005) has done research within a hotel/services environment in which a luxury hotel outsources the management of one of its restaurants to an expensive, high standard, specialist restaurant with a reputation for high quality dining. Where, in normal cases, hotels are reluctant to outsource for the fear destroying the hotels overall reputation, this hotel deliberately chooses the specialist restaurant as it has its own high reputation to protect. The asset specificity creates a mutual, symmetrical, dependency in which both parties have hostages (prestige) to lose. If the contracted services are poorly delivered, the hotel’s image and the restaurant image will both suffer.

Another example is the outsourcing of a hotel’s indoor plants. A subcontractor owned, maintained and replaced the plants if necessary. Though if the contracts were to end and no contract renewal was granted to the subcontractor, a lot of excess plants would be left to the contractor. Removing and re-contracting of the plants will be a costly operation and plants can be damaged or die from a moving operation. The dedicated asset specificity in this case is non-symmetrical and solely on the side of the subcontractor.

2.5 RISKS OF HIGH ASSET SPECIFICITY WITHIN HYBRID GOVERNANCE

High asset specificity, favors a transaction to be executed within a hierarchy, sometimes within a hybrid governance mode but in no case in market governance. In practice the ideal mode however simply isn’t always chosen which is a risk that can lead to extra transaction costs or non-optimal hierarchical governance.

In this section, two important factors are given which highly shape the risks of opportunistic behavior of asset specificity within hybrid governance. The factors are the symmetrical (all sides) or non-symmetrical (one side) exposure to asset specificity. The second one is the possibility to measure the output of high asset specific transactions within a hybrid governance mode. Both factors are found separately in recent literature but have not been investigated integrated within hybrid governance.
2.5.1 SYMMETRICAL OR NON SYMMETRICAL (LOCK IN)

A party in a cooperation which single handedly invests specific assets, is ‘locked in’ to a transaction meaning that one party in a cooperation has invested highly, and one party in the cooperation has invested much less in asset specificity. In this case, the ‘non symmetrical asset specificity’ can be the direct result of a transaction (a signed contract) in which one party consciously or unconsciously accepts the terms of a contract. Non symmetrical asset specificity can also evolve and increase during a relationship. In the below three aineas, three risks of non symmetrical asset specificity are explained.

**Lock in.** Asset specificity can have a negative effect on an original equipment manufacturer (OEM). An OEM is an end producer of completed product out of sub parts delivered by external suppliers. In some cases specialized assets, exclusively produced for an end product, are worth little outside the present relationship. An OEM needs the specific supplier for that specific part otherwise its completed end product won’t be realized. The supplier knows the OEM is ‘locked in’ to the relationship and therefore their motivation to provide superior performance could be reduced. The suppliers options to save on the costs of the relationship is generally not saving on the output or agreed service because these are generally agreed on in the contract, but to cut back on the amount of operational resources or R&D which can have a negative impact on delivery performance and the buyer’s satisfaction. (Vita et al., 2010).

**Recontracting (dis)advantages.** The winner of an initial contract can, in case of asset specificity, have a starting advantage in further rounds of contract prolongation because he has already made the required specialized investment necessary to deliver the service. Potential competitors are unlikely to appear, or enter the tender a financially less attractive bid, because they are unwilling to take the high costs of the initial specialized investment (Brown and Potowski, 2005).

**Monopoly.** The above factors, Lock in and re-contracting disadvantages, can slowly contribute to the making of a monopoly or duopoly, a market where respectively only one, or a very limited amount of supplier(s) can deliver the requested services. In a case study of municipal government services in the USA only one service provider could deliver specific medical services to several municipal governments. The medical service provider worked for several other municipals which put the governmental municipals in a strategically disadvantaged bargaining position and lock in. (Brown and Potowski, 2005)
2.5.2 LEVEL OF MEASUREABILITY

Ouchi (1980) states that performance assessment is key to cooperating parties and that clear performance assessment can even overcome high levels of opportunism and goal incongruence. On the other end, Brown and Potowski (2005) conclude in a study within municipal government on outsourced services that the risk of contract failure is extremely high if services are being performed by a monopolist and the output measurability of these services is low.

Within a high asset specific hybrid governance collaboration this implies that being able to assess whether the opposite party is performing as planned, can give rise to lower opportunism and conflicts.

In case of a long term contract where inputs and outputs can easily be identified and counted alike, simple management reports can assess whether a party in which an asset specific investment has been made, is performing as agreed. The ability to assess the performance of the other party can reduce mistrust, appropriation concerns and opportunism. If on the other hand inputs and outputs can not easily be measured due to longer completion time or non measurable criteria, the effectiveness of a cooperation is harder to assess. Feelings of mistrust and opportunism are then likely to appear and further worsen a collaboration.

Ease of measurement is therefore a serious complicating risk factor for collaborations with higher forms of asset specificity. Brown and Potowski (2005) investigated the outsourcing of social services in a rural area in the USA based on a survey of 64 municipal service managers. The research focused on the degree of asset specificity within a collaboration and on the degree to which the output was measurable.

A service is easy to measure if it is relatively straightforward to monitor the activities required to deliver the service and to identify performance measures that accurately represent the quantity and quality of the service. For easy to measure services, one can clearly specify activities and outcomes for a vendor to perform and achieve. Also it is easy for a contractor to monitor the quality and quantity of the activities and their outcomes.

At the other end of the scale, a service is difficult to measure if it is hard to monitor the activities required to deliver the service and to identify performance measures that accurately represent the quantity and quality of the service. For difficult to measure services one cannot easily write a contract and clearly specify the activities and outcomes for the vendor to perform and achieve. (Brown & Potoski, 2005)

Brown and Potoski see the combination of asset specificity and output measurement difficulties as a major risk factor for contract failure. Contracted services like; Drug and alcohol treatment, children’s Welfare programs and the operation of Mental Health programs all have a high tacit, human asset specific character. A trust relationship, between a doctor and a patient e.g. is not easily transferrable to another location or use without loss of value. Specific knowledge of customers or patients can also come at great cost and time and is also not easily redeploy able without the loss of value. In their research, these services receive a low scoring to the easy of measurement which means that their output is hard to
quantify and measure. How can the success of a drug addiction cure be best quantified? Or how can the output of a childrens welfare program be best measured? Even if outputs can be quantified to a certain level, another problem arises when or if a certain output or goal is ever reached. Brown and Potoski state that successful treatment of drug or alcohol addiction can often only be partly established after a very long team while the risk of return of the addiction is often imminent and many other factors influence the chances of return.

Vita, Tekaya & Wang (2011) state that human asset specificity is complex and by nature hard to measure compared to other forms of asset specificity. The same seems valid for higher forms of marketing asset specificity in which the reputation of one or both organizations is at stake. Reputation depends on on many factors like is hard to quantify is simple measurable elements. Procedural asset specificity is used to measure connections of workflows and procedures within services environment and has a relative high overlap with human asset specificity.

It can be argued then that in case of high human asset specificity, marketing asset specificity and procedural asset specificity, the relative difficulty to assess whether the opposite party is performing as planned, can give rise to higher opportunism and conflicts.

In case of other contracted services in the research of Brown and Potowski (2005), services like waste disposal, water treatment, electricity utility management, the measurement of outputs can be based on quantifiable outputs. Physical goods can be described by form and number, output of water or electricity can be quantified in units like M3 and Kwh.

Joskow (1985) and later Van der Meer-Kooistra (1994) also point to a similarity between physical, site and dedicated asset specificity in which they all are defined as being meant for tangible and measurable assets or goods. They describe the exploitation of a coal mine and an electricity plant in which the investments in infrastructure and machines (physical asset specificity) and location of the electricity plant (site specificity) and the one time large investment made for 30+ years of exploitation (dedicated asset specificity) are all tied together and show overlap. The investments all have a high measurable character. In addition, in case of temporal asset specificity, the timing of assets is key, timing is a highly quantifiable elements and therefore also measurable element.

It can be argued that in case of physical asset specificity, site asset specificity, dedicated asset specificity and temporal asset specificity, the relative ease to assess whether the opposite party is performing as planned, can give rise to lower opportunism and conflicts.

The level of measureability therefore is a factor which, depending on the asset specificity form, shapes the risks of opportunistic behavior of asset specificity within hybrid governance.
In literature, several ways of reducing opportunistic behavior resulting from asset specificity are discussed. In the below alinea two general views of control on asset specificity which apply to a hybrid governance mode, are elaborated. In the following alinea’s two connected controls mechanism which are interesting to be further investigated, are elaborated.

In case of a lock in, mentioned in paragraph 2.5.1, a company can decide that a third party will perform a part of the contract, or a firm itself will keep a small percentage in-house to keep internal capability and not fully lose sight of the outsourced work. The in-house capability will reduce effects of a lock in (Geyskes, Steenkamp & Kumar, 2006). Also a hybrid governance mode itself, mentioned in paragraph 2.2, is a protection mechanism. In a joint venture, due to mutual investments in the joint venture and its distance to its parent company, asset specificity can be controlled relatively safer than in a simple buyback agreement.

Within a chosen hybrid governance mode however, two control mechanisms can be distinguished. Firstly the level in which asset specificity is evenly divided between partners within a hybrid governance mode, so called ‘hostage taking’ or ‘reciprocal investments’ (Williamson, 2009). Both terms mean that partners have invested in asset specificity on each side of the collaboration to prevent one party from being able to participate in opportunistic behaviour.

Secondly, Merchant & Groot (2000) introduce a generally accepted dimension of control namely; control mechanisms. Within these control mechanisms, control can be exercised by actions, results or through culture & personnel. Below these three forms are elaborated.

**Action control** Action control means that control is exercised so that certain desirable actions are taken (or undesirable actions not taken). The management of an organization can give itself the right to make key decisions, they can physically or digitally secure valuable company assets and they can require personnel to follow certain pre-approved policies or contract terms. Action control can be exercised by legal, physical, or administrative means. A general way of action control is a formalized contract in which the described services, terms of liability, litigation, ending of contract etcetera are formalized. Within action control, these agreements, formalized in a contract facilitate the cooperation’s needs and daily procedures in most of the cases.

To steer and intervene by action control mechanisms, it has to be clear what interventions are necessary to meet certain goals or avoid negative results. Precise measurement, the ability to measure the output play an important role within action control.

**Result control** In case of result control partners can focus on results and intervene only when targets are not being met. Result control ensures that employees, teams and divisions are promised rewards for producing desired results. On the other side, punishments or malus is given for results that are unwanted or should be avoided. Result control stimulates employees to choose and take the actions that lead to the desired results.
A prerequisite element for result controls is the availability to measure results effectively. Employees naturally want to know how to get a bonus and financial managers want to measure the effects of investments and set the strategic course. The previous requires that results can be measured precise, free from bias, in a short time lag between the action and the result so that employees understand how to set course. If any of these elements are not clear, result controls can be a very strong counterproductive control element in a way that an organization is steering for the wrong goals.

**Personnel and cultural controls.** Personnel control is aimed at the selection of key personnel. A main driver for personnel control is a natural present force that pushes employees to the organization’s goals and derives self-respect and self-satisfaction. Cultural controls are a way of control in which group pressure plays a major role. Cultural controls can be built on traditions, norms, and attitudes. In the Jewish community in New York and countries in Southeast Asia, agreements, due to cultural controls, are sealed and maintained by verbal agreements. In both personnel and cultural control mechanisms, trust and a good relationship play an important factor. Both management and employees are given trust as a substitute for more formal action and result controls. Trust enables them to perform on their own motivation. Personnel and cultural control is an already naturally present form of control which, if used within a company or collaboration, needs to be respected in a way that their benefits can be gained. For their major overlaps, cultural and personnel control mechanisms are taken as one control mechanism within this research.
2.7 HYPOTHESIS

In case of high human asset specificity, marketing asset specificity and procedural asset specificity, the relative difficulty to assess whether the opposite party is performing as planned, can give rise to higher opportunism and conflicts. Also in case of physical asset specificity, site asset specificity, dedicated asset specificity and temporal asset specificity, the relative ease to assess whether the opposite party is performing as planned, can give rise to lower opportunism and conflicts.

Merchant (2000) describes a set of specific control mechanisms which differ in their need for clear and measurable output. Action control and result control mechanisms have a high dependency on clear and quantifiable goals. Cultural controls thrive on trust intrinsic motivation and do not have a need for clear quantifiable goals. The previous findings make the following hypothesis interesting for further research

A. Within hybrid governance and in case of higher human asset specificity, procedural asset specificity and marketing asset specificity, due to the less measurable output, personnel and cultural controls will be used as dominant steering mechanisms.

B. Within hybrid governance in case of higher physical asset specificity site specificity, dedicated asset specificity and temporal asset specificity, due to the more measurable output, result and action controls will be used as dominant steering mechanisms.
3 Methodology and design

In this section, the design for this study is motivated. For investigating the two hypotheses, seven forms of asset specificity and linked control mechanisms can be identified. A general characteristic of these variables is the fact that they are not easily distinguished because they are embedded in a blurred, real life setting which is impossible to isolate from the outside world. The hypotheses are therefore best investigated in a case study design. A case study is a research situation in which the number of variables of interest far outstrips the number of datapoints (Yin, 1994, p. 13) The specific type of case study is explanatory because in this case study research the hypotheses, based on the literature, will be tested.

The most important criterion for the selection of the case studies is their connection to the hypotheses. For each hypothesis in this research a fitting case study situation has been found in which all the elements of the hypothesis are expected to be present. A second important criterion for each case study is the availability of a longer and continuously enduring, cooperation. Asset specificity can, due to longer term collaboration, often become more intense. In case of human asset specificity, tacit knowledge is often low at the start but evolves when a cooperation between two organizations continues. Logically, Asset specificity decreases or stops when a cooperation is being discontinued. For this specific research a minimum of a five year, continuous, relationship has been taken as norm.

The following case studies have been selected:

1 Case study Vestas - Nuon. In this case study the relationship between Vestas, a supplier of Wind Turbines and Nuon, a customer of Vestas and exploiter of Wind Parks is being investigated. Due to the importance of physical assets, the wind turbines, and the aspect of physical immobility of the assets, high physical asset specificity and site specificity is expected to be present. Unfortunately, due to protection of strategical information only Nuon has been willing to agree on interviews and no ability to assess interviews from Vestas side has been available.

2 Case study Oxyma – Nuon. In this case study the relationship between Oxyma as a marketing services provider and Nuon as a customer of the delivered services is being investigated. Due to the importance of knowledge and the way in which the workflow processes of Nuon and Oxyma are tied together, high human asset specificity and procedural asset pecificity is expected to be present.

Within the case studies Vestas-Nuon and Oxyma-Nuon, the unit of analysis is the relationship between both parties. Within that relationship asset specificity and connected control mechanisms are available.

The selection of the respondents has been made in accordance with a selected key person per case study. After a phone call and a positive response of the key person, a request with general information on the topic and a copy of the interview questions have been sent. Together with this key person, the other persons for the interviews have been selected. In the Vestas-Nuon case study, in total three persons have been selected and in the Oxyma-Nuon case study, in total six persons have been selected. After the selection of all respondents, the respondents have been given the same preparation information for the interview as the initial key persons.
The main source of gathering information for the case studies is interviews. In specific cases, additional information was requested from the interviewees for further clarification. In all situations the formal contract agreement between parties has been requested beforehand by the interviewer for preparation of the interviews.

The questions within the interviews are directly based on the questions list. The main topics in the interviews are the seven forms of asset specificity, three forms on control mechanisms and the causal connection between the asset specificity and control mechanisms. A copy of the question list is enclosed as separate attachment to this research. All interviews have been held face to face and have been recorded on audio. After the interview, the audio transcript has been literally translated to paper. Each interviewee has been given a written transcript of their interview text and a document in which the case study itself, chapter 4 or 5 in this research, is written down. Three respondent, one in the Vestas-Nuon case study and two in the Oxyma-Nuon case study, have given feedback which has been evaluated and added to the final results of the case studies afterwards.

Concerning the construct validity, different sources of information have been used in addition to the interviews and to ensure data triangulation. As discussed above in section 10 a list of additional and documents is available. Concerning the internal validity, the establishment of causal relationships, Three persons on each side of the cooperation have been interviewed to ensure that answers can be compared and backed by the findings in previous interviews. In the case study Vestas-Nuon however only three persons on Nuon side have been interviewed. To ensure the internal validity, a specific question in the interviews is if a causal relationship is available from the asset specificity within the cooperation to the control mechanisms in casu. The external validity in this case study, the way that the results can be generalized to other settings, is medium to low. Only two specific settings have been investigated. Within these settings however, the relationship between a utilities company and a wind turbine manufacturer, and the relationship between a utilities company and a marketing services supplier, similar results could be expected.

The reliability of the research is ensured by a research database with a consequent mapping of the documentation and audio formats. All interviews have been conducted on a face to face basis and have been recorded on audio in one mp4 file per interview. All audio transcripts have been literally translated into a word transcript per interview. Per interview, the word documents have been scanned for phrases and quotes of asset specificity and control mechanisms. The result has been mapped into an excel per case study. For explanatory reasons and proof, some quotes have been mentioned literally in the case studies and can be traced back literally in the audio and word transcriptions in the research database. The nine audio formats and written transcriptions in the database can be accessed after a request to the author.
4 Case study Vestas-Nuon

The Dutch government together with lower government bodies, committed itself to the goal of 14% renewable energy in 2020. For wind turbine based energy this goal is translated into a more specific goal. Compared to 2013, an increase of 300% more land based wind energy (on-shore) and a 2000% increase for sea based wind energy (off-shore). The dutch government is committed to reach this goal by means of supporting and subsidizing investments in wind energy and pointing out specific areas on-shore and off-shore which are suitable for the exploitation of wind farms.

https://www.rijksoverheid.nl/onderwerpen/duurzame-energie/inhoud/windenergie
Consulted on 18th February 2016

Several traditional utility companies like Essent/RWE, Eneco and Nuon/Vattenfall see their traditional ways of generating revenues on fossil fuel generation decline. The companies and sector are victim to a negative public image due to environment and carbon dioxide emission goals. The companies anticipate on renewable sources of energy and expand their wind energy business. Currently wind energy is a fast growing and relevant topic for almost all utility companies.

Nuon is a traditional Dutch utility company and has been taken over in 2009 by a Swedish, state owned Utility company named Vattenfall AB. An international Business Area within Vattenfall is Business Area (BA) Wind. In BA Wind all new investments and installation of wind park projects, operation and maintenance of current wind turbines are undertaken. In the Netherlands The BA wind is divided in on-shore and off-shore operations. The case study is undertaken within on-shore Netherlands, meaning all land based wind parks in the Netherlands.

Nuon relies on external parties like Senvion, Siemens, Enercon and Vestas for manufacturing, engineering and construction of the wind turbines. If a new wind park is to be built or if existing wind turbines within these wind parks are end of life and decommissioned, Nuon is selecting a new partner by tender. In these tenders the main criteria are financially driven and low costs and a high NPV (net present value) of the bidding offers are an important selection criteria.

Nuon currently relies on external parties for the servicing and repair of the wind turbines. In most cases a wind turbine manufacturer like Vestas is also the contracted party for service and maintenance in the first 2-5 years. After that period, due to the lower costs involved, a non-manufacturing specialized service party like Certion, Bettink or GES is selected to execute the maintenance and repair for the resulting life span of the wind turbines.

Vestas is one of the biggest wind turbine suppliers for Nuon. Currently Vestas is servicing 37 Wind turbines, divided over 6 wind farms for Nuon. Vestas is an international company operating in the engineering, construction, operation and servicing of wind energy. Vestas has installed over 53.714 Wind turbines which operate in 73 countries in 6 continents over the world(Annual report Vestas, 2014). In 2014 Vestas was the world wide market leader in turbine manufactures with a market share of 13,2 %. In total the top 5 turbine manufacturers hold 47,9% of the global market share.

Consulted on 18th February 2016
The relationship between Vestas and Vattenfall lasts for 15 years. A deciding factor for the continuous relationship lies in the tendering process in which Vestas has always been able to offer bigger, higher megawatt output wind turbines than the, at the moment of the tender available, normal market standards. Especially in the Netherlands where free space for installing large amounts of space consuming wind turbines is scarce, the possibility to have high output turbines on a relatively small area has been a key factor in the choice for Vestas in several previous tenders.

On Nuon side three persons have been interviewed. All interviewees are working within a Dutch, on-shore country scope. These persons are; the manager Onshore Operations Netherlands, responsible for the operation of all on-shore wind turbines of Nuon in the Netherlands. The second person is an expert in the analysis of management- and technical reports and contracts with external service or hardware suppliers. The third person is responsible for the operation of all Vattenfall wind turbines in the north of the Netherlands. All three persons have regular direct contact with Vestas.

Asset specificity findings

Quote 1 nl:
“Een Vestas turbine is eigenlijk meer een samenraapsel, klinkt een beetje denigrerend, maar dat is het eigenlijk wel, van verschillende turbine core elementen die door andere partijen geproduceerd worden. Zit een tandwielkast in, die tandwielkast wordt niet door Vestas gemaakt. Die kopen ze in bij Hanse, die kun je bij Windenergy halen, die kun je bij Noventus halen. Die maken allemaal tandwielkasten geschikt om Vestas V80 te bieden. Hetzelfde geldt voor de generator. Hetzelfde geldt voor de transformator. Het enige waar Vestas zich echt in onderscheidt, is denk ik de bladen die ze zelf produceren, maar dat zou je eventueel ook nog van een derde partij eraan kunnen hangen”.

Quote 1 eng:
“A Vestas wind turbine is in fact no more than a mishmash, sounds a bit degrading but in fact it is true. It is a combination of key elements, produced by other parties. There is a gear-box made by Hanse, Windenergy or Noventus. All these parties make a gear box suitable for the Vestas V80. The same goes for the generator and the transformator. The only thing that is really distinguishing for Vestas are the rotor blades which they produce themselves but even these blades could be changed by blades from another party”.

In the above quote it is stated that a lot of the essential parts of the wind turbines that Vestas is manufacturing, are interchangeable qua parts and are not uniquely tailored to wind turbines of Vests and the relationship between Nuon and Vestas. This quote and other statements in the interview illustrate that, in general, physical asset specificity for these parts is not high. It is not always common that wind turbines and their parts are manufactured out of mainly generic and interchangeable parts. Enercon is a manufacturer who’s parts are quite unique and not interchangeable which makes them more scarce and as a result various companies delivering services and repair after the initial contracting period activities aren’t able to service these turbines.
Some parts of the Vestas Wind Turbine however do have high physical asset specificity. Two interviewees mentioned four specific parts: (1) An RCC, which is a device for storing energy surpluses, (2) a transformer, (3) a valve for a grease pump for lubrication of the turning parts of the wind turbine and finally (4) a controller which is a piece of software that functions as the technical brain and regulator of the wind turbine.

The first three parts are not only unique due to their technical complexity but also due to the fact that Vestas has a unique seller right on these items. Nuon is not allowed to make this parts on their own specification. Companies who do manufacture these parts do so on an exclusive seller license to Vestas. Regarding part 2, the transformer, a new transformer, costs around €25-€30.000,-- when bought new from Vestas. If made to specification by an alternative supplier, the transformer is estimated to cost 10.000,-- less.

For part 1, 2 and 3 some spare parts are available to Nuon and stored after an older wind turbine is dismantled. New parts however aren’t free for reproduction and sale which does make them unique.

Part 4, the controller, is updated regularly by Vestas through software updates. These software updates make the machines more stable and deliver more output. The software updates are only delivered within a Vestas AOM 4000 and AOM 5000 Vestas contract forms which are the most expensive, and a minority compared to lower service (AOM <= 3000) contracts offered by Vestas. Of the 6 wind farms serviced by Vestas, 2 are AOM 4000 contract forms and 4 are AOM 2000 forms.

When questioned if the not updated controller software could potentially lead to problems the answer was that, although new updates were not installed, the inconvenience is mild. Sometimes software is installed via an alternative route and in general the wind turbine will not stop functioning or function much worse due to not up-to-date software.

Procedural asset specificity is found in the setup of the contracts between Vestas and Nuon. All wind turbine manufacturers currently have their own contract templates as a basis for the agreements. This means that Nuon actively has to adjust and bargain terms and policies after every tender to get it’s own terms mentioned or altered. Standard procedures for ordering materials and performance indicators for measuring results are initially tailored to Vestas which at least gives Nuon a disadvantage in the translation of Nuon’s own terms and policies in the contract. Vestas offers standardized contracts to their customers which mainly vary in five standardized forms from AOM (Active Output Management) 1000 until AOM 5000, which is the most full serviced contract form. Customers, like Nuon, choose the level of service they want for a certain price, connected to a wind turbine or park. When asked to give a grade between 0 and 10, a 7 was given to present the degree to which the current contract terms are tailored to Vestas instead of Nuon. This degree of tailoring to an external supplier indicates a certain, medium to low, form of asset specificity which can potentially have a negative strategic bargaining effects for Nuon. After an initial contract, as stated, a recontracting is often not granted to Vestas which means that recontracting disadvantages do not affect the asset specificity and only a medium to low score is given.
Finally, a form of human asset specificity lies in the fact that Vestas has certain dedicated teams on Nuon wind park sites. The dedicated teams are fixed personnel of Vestas, dedicated to a wind park site which actively perform maintenance and service checks on the site. Strictly economically speaking it could be beneficial for Vestas to employ Vestas maintenance personnel to a geographically wider area than a specific wind park. The below quote illustrates the importance of the dedicated teams:

**Quote 2 nl**


I: Kun je daar een voorbeeld van geven om aan te geven hoe wezenlijk dat is?

G: Bijvoorbeeld 14 dagen terug komen die jongens in een windmolen voor onderhoud en bellen mij: X, we weten niet wat het is, maar er zit een heel raar geluid in deze windmolen. Vervolgens hebben ze het onderhoud gedaan en hebben eigenlijk niks kunnen vinden. Maar ze zeggen: ‘We durven hem toch niet in bedrijf te nemen, want er zit een heel raar geluid in.’ Daar hebben we een boroscopisch onderzoek laten doen. Een boroscopisch onderzoek is dat je er met een speciaal lampje met een camera op een stokje in gaat kijken. En het bleek toch dat de tandwielkast in die windmolen niet al te best mehr is. Daarom hebben we een boroscopisch onderzoek laten doen. Een boroscopisch onderzoek is dat je er met een speciaal lampje met een camera op een stokje in gaat kijken. En het bleek toch dat de tandwielkast in die windmolen niet al te best meer is. Daar hebben we een boroscopisch onderzoek laten doen. Een boroscopisch onderzoek is dat je er met een speciaal lampje met een camera op een stokje in gaat kijken. En het bleek toch dat de tandwielkast in die windmolen niet al te best meer is.

Both quotes indicate that certain knowledge of the operation of the wind turbines is tacit, and therefore not easily transferred to paper. An interviewee responded to the above quote that in case of a swap to another (non Vestas) service party, the wind turbines would possibly not work as good for a short while and it could take ‘some weeks’ to achieve the level of output (of wind power) as with the previous service party. The above stated is ranked as a medium form of human asset specificity.

The expected availability of site specificity, due to the fact that the wind farms are all location bound, is not available in higher form in this case study. In the Vestas–Nuon case the normal life span of a wind turbine is 15–20 years meaning that there is an end date in which the wind farms are economically no longer viable. Currently, in 2015, Vattenfall is planning for the decommission of a set of older wind turbines in Windpark ‘De Tochten’ in the North of the Netherlands. Two interviewees confirm that there is a world wide demand for older wind turbines which means that, after a buyer is found the turbines will be decommissioned, physically transported and build up on a new location elsewhere. The fact
that it is economically viable and technically possible to relocate the wind turbines indicates that the site specificity for the shore wind farms is low.

**Control Mechanisms**

A main control mechanism between Nuon and Vestas is the contract agreement between Nuon and Vestas in which the terms of maintenance, output performance, liability, litigation, ending of contract etcetera is described. When a new park with Vestas wind turbines is installed, a contract for maintenance or a contract for maintenance and output guarantee can be chosen. In case of an output guarantee, an AOM 4000 or higher contract, Vestas guarantees an output performance of 97% of the time for the wind park or wind turbine, otherwise a penalty or bonus is paid. After the initial contract, Nuon’s general policy is to recontract the maintenance of a wind park to a local (non manufacturing) service party for cost reasons. Vestas is mostly not contracted for general maintenance after an initial period.

Vestas offers standardized contracts which vary from a low to a high standard of offered services and guarantees. Lower standard AOM ‘Active Output Management’ contracts start with the coding ‘1000’ and go all the way up to an AOM 5000 contract. An AOM 1000 contract ‘only’ consists of standard service on demand by Nuon. An AOM 2000 contract has added scheduled and unscheduled maintenance. An AOM 3000 contract has included software updates for the controller software and the AOM 4000 and AOM 5000 contract forms have an output guarantee for Vestas.

Nuon currently only has the AOM 2000 contract (spread over 4 wind parks, 32 older V66 turbines) for its older wind parks. Other parks are being serviced by a Vestas AOM 4000 contract (spread over 2 wind parks, consisting of 5 newer V90 wind turbines). The fact that a bonus malus is being paid on the actual delivery of a certain output level for the AOM 4000 is a clear result control. The standard maintenance contract AOM 2000 can be seen as an action control in which standard rules and regulations on maintenance and service are being stated. In general, much of the relationship between Nuon and Vestas is governed by the procedures, prices and regulations in the contract. The four describes spare parts are also formally regulated within the contract. In general the available asset specificity within the relationship Vestas-Nuon is causally regulated and governed by the formal contracts.

A second control mechanism in the relationship between Nuon and Vestas is cultural control and is visible in the availability of the dedicated teams which represent a medium for of human asset specificity. As described before, much of the relationship between Vestas and Nuon is formally regulated bij de the contract(s) of a specific site. The availability of the dedicated teams in which personnel are dedicated to a specific site is not described. One interviewee stated that face to face contact and a chat is a normal and preferred way of contact. Another interviewee stated that he doesn’t rely on a standard service notification ‘done’ when a repair is done but that he wants to talk to the person to know what really happened. Trust is mentioned as a factor in the cooperation and an example was given when a certain person was ‘not’ trusted, more checks were made to see if actual work was actually being performed and pressure was exercised to transfer this person elsewhere. In general a medium form of personnel and cultural control is used for the control of the available human asset specificity.
Table 3: overview asset specificity and control mechanisms Vestas Nuon

<table>
<thead>
<tr>
<th>Asset specificity form</th>
<th>Examples</th>
<th>Which side?</th>
<th>Level</th>
<th>Control Mechanism per form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>service parts, wind turbines</td>
<td>Lock in of Nuon</td>
<td>Medium</td>
<td>Action for AOM 2000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Result for AOM 4000</td>
</tr>
<tr>
<td>Human</td>
<td>Dedicated teams</td>
<td>Lock in of Vestas</td>
<td>Medium</td>
<td>Cultural</td>
</tr>
<tr>
<td>Procedural</td>
<td>Tailoring of contracts</td>
<td>Lock in of Nuon</td>
<td>Medium to low</td>
<td>Action for AOM 2000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Result for AOM 4000</td>
</tr>
</tbody>
</table>

**Hypotheses**

In the case study it is shown that physical asset specificity leads to action control and therefore hypothesis B is confirmed. Within the case study, a relative high form of physical asset specificity is present in the scarcity of certain spare parts of the wind turbine. In general however, physical asset specificity is not high due to the fact that many parts of a Vestas wind turbine are interchangeable so an overall medium score is given. The physical asset specificity is governed and controlled mainly by the formal contract between Nuon and Vestas. A small part of these contracts have a result control mechanisms, based on the output guarantee of 97%. In most cases however, the contracts have a dominant action control mechanism and describe standard rules and procedures within the relationship.

In the case study it is also shown that human asset specificity leads to cultural control and therefore hypothesis A is confirmed. The connection of dedicated teams to a specific wind park site is beneficial in building up tacit knowledge of the specific site and wind turbines. The human asset specificity is being influenced and steered by trust and therefore has a personnel and cultural control mechanism in place. The level of cultural control can however not be considered dominant in the overall relationship.

In the case study it is shown that procedural asset specificity leads to action control. The level of procedural asset specificity however is medium to low. In section 6, conclusion and discussion I will further elaborate on this finding.
5  Case study Oxyma-Nuon

Oxyma is a partner for companies in executing parts of their marketing process and increasing the effectiveness and efficiency of their marketing their activities. Oxyma, has very recently been rebranded and operated under a set of different names as a consequence of a capital investment by private equity partner Nordian capital partners. Nordian Capital Partners has a majority stake in Oxyma. Oxyma has grown out to be a market leader for data driven marketing services. Oxyma works for for companies like BMW, Vodafone, Air France KLM and Nuon. The partnership between Oxyma and Nuon exists uninterruptedly for over 13 years and has a yearly turnover of roughly €2mln per year. Oxyma is located in the cities of Amsterdam and Rotterdam and employs over 250 marketing and IT professionals.

Nuon is a traditional Dutch utility company and has been taken over in 2009 by a Swedish, state owned Utility company, named Vattenfall AB. An international Business Area within Vattenfall is Business Area (BA) Customers and Solutions. In this Area Nuon has located all its customer and sales activities for business and consumer customers. The start of the liberalization of the dutch electricity market in 2001 for Nuon meant that for the first time, customers could choose a different electricity supplier for durable ‘green’ electricity. In 2004 the dutch electricity and gas market was being open and liberalized for all commodity products including normal ‘grey’ electricity and gas. As an actor on a fully liberalized market environment, Nuon had to invent, professionalize and scale up their marketing activities as of what customers to select, how to approach them and how to process and validate new customer orders for electricity and gas. Because of the lack of market and IT expertise on how to set up and manage such an operation internally, Nuon decided to outsource the processing and technical validation of new customer orders. Up until now, Oxyma executes the processing and validation of all new customer orders for Nuon by an IT tool called RPM, Response Process Management.

More recently, as the electricity and gas market and marketing as a whole has changed to a more digital approach. Also the need for more personalized marketing and sale methods has grown significantly. In the past, marketing campaigns were executed by subscribing thousands of customers with a single, one size fits all, application card or by advertising a specific product for all customers. If the customer called and wanted to order a different product than advertised, often no sale was possible. Marketing and sales was organized by a sale channel meaning channel A (e.g. internet) offered product 1,2 and 3 and sales channel B (e.g. telemarketing) only offered product 4,5 and 6. The trend for marketing lies in offering customers more and more individual, customer specific offers which the customer can order by the sale channel he or she chooses. This trend is called micro campaigning.

Nuon has attracted Oxyma to make their marketing process smarter and select and target more specific groups of customers instead of targeting large amounts of customers with the same messages. Nuon and Oxyma combined these activities under the name Next Generation Marketing (NGM)

Asset specificity findings
The below quote is an answer from a Nuon respondent to the question what would happen if, hypothetically speaking, the cooperation between Nuon and Oxyma would stop.
Quote 3 nl:
“Uiteindelijk is wat het functioneel doet nog niet eens zo heel erg ingewikkeld en hebben wij zelf met name ook bedacht. Alleen, de toepassing daarvan binnen de Oxyma-omgeving is dat we daar specifieke software tegenaan hebben geplakt. Altemaal Oracle databases. je moet compleet opnieuw dat technisch landschap opbouwen en je moet die mensen van die nieuwe organisatie gaan leren hoe onze processen, hoe die werken en hoe wij die in de systemen willen hebben. Daar zit met name de tijd in. Voor NGM en RPM bij elkaar denk ik dat je zo een jaar verder bent. Of je moet zeggen: ‘Ik wil het niet per se conform de NUON-regels, en de NUON-functionaliteiten, wensen, maar we moeten gewoon campagnes doen en dit zijn de producten, kanalen, en we gaan...”.

Quote 3 eng:
“In the end, how it works functionally, is not that complicated and we mostly invented it ourselves. Only the application of it within the Oxyma-environment is that we created specific software. All Oracle databases. You must build that technical landscape from scratch on and you need to teach those people of the new organization now our processes work, and how we want them applied in our system landscape. That is the time consuming aspect. For NGM and RPM together I think this will take a year at minimum. Or you have to say, ‘I don’t need to do this by the current Nuon rules and functionality and wishes and we only need to execute some campaigns and here are the given sales channels and let go!”

The above quote is an answer from a Nuon respondent to the question what would happen if, hypothetically speaking, the cooperation between Nuon and Oxyma were to stop. Within the questioning of asset specificity three forms of asset specificity appeared significantly. Procedural asset specificity is available due to the way that RPM, the processing and validation of new customer orders, has been executed in a close cooperation with, and supervision of Nuon. Internal, but also external sales partners of Nuon e.g. the commercial company gaslicht.com and several telemarketing companies are delivering their sale directly to Oxyma. Oxyma validates if the sales orders are delivered correct and sometimes adds info itself or, sends them back to the sales party for adjustment. After this process, Oxyma sends the sales in a Nuon specific data format to Nuon after which the sales are put into the Nuon Customer Relationship Management IT system. Although performance indicators are used as a sanity check, they are not very challenging and Oxyma is mostly valued for it’s quality and trustworthiness (Quarterly report Q4 2016). Oxyma possesses a lot of tacit knowledge of the process in general but also of Nuon’s sales partners as to how to deliver and validate the sales orders. Oxyma, is directly communicating and steering to external sales companies which makes the procedural connection between Nuon and Oxyma complex and intense.

For Oxyma, the processing and validation of sales is ‘core’ business. RPM is an end-of-life product which is no longer subject to large optimzations. The execution of the process is complex but fully standardized and mapped by Oxyma. For NGM, the procedural asset specificity is not a high due to the fact that procedures and workflows are relatively new and not yet altered much which means that they are not that much tied together as RPM. The managing director of Oxyma stated that much of the future functionality is still in the heads of person x (director Customers and Sales B2C NL) and person y (contract partner Oxyma). Therefore also from Oxyma side much less Nuon specific logic and processes are yet fully implemented which means procedural asset specificity for NGM is not very high.
Due to the fact that Oxyma ‘only’ executes the process as part of the contract but Nuon is more dependent on the process for their core customer business, the procedural asset specificity for Nuon is considered high. The procedural asset specificity for Oxyma is considered medium.

Concerning the physical asset specificity. For the development of IT tooling for its customers, Oxyma has a policy in place in which it deliberately invests or disinvests in software which it purchases from larger suppliers like Oracle or IBM. Oxyma looks to operate the basic components of their software for other clients but also tailors a part of the software for specific client wishes. For an upgrade of RPM in 2011 Oxyma invested in a specific Oracle software named ‘SOA Suite’ and made an agreement with Nuon to pay for that investment in yearly fees (around +/- yearly €50.000 is booked as investment assignable to Nuon). Nuon however also pays for software updates on SOA Suite as well. In this case, Oxyma invested for a large part on the demand of longer time partner Nuon so the dedicated asset specificity in this case is medium to low for Oxyma who still has a small strategic bargaining disadvantage on this dedicated investment.

Regarding the software itself, ‘Oracle SOA Suite’ and ‘IBM Campaign Management’, a part of this software is being tailored to customer Nuon and another part is being kept general. An estimate of 50/50 is being given by an interviewee on Oxyma side as to how much has been modified to Nuon preferences. It is difficult to state that 50% of the software is therefore highly physical asset specific because Oxyma also uses the software for other clients and this study gives no insight in that. I cáan be stated that, due to the moderate to high fine-tuning of software to Nuon preferences, also physical asset specificity is medium. In the two before stated asset specificities also some overlap is available. The physical asset specificity in the software is used within a process which is tailored to Nuon and which contains the high procedural asset specificity. Also the dedicated asset specificity caused by the specific investment in Oracle SOA Suite can be seen in the light of the procedural asset specificity.

Within the 13 years of cooperation, an extensive amount of tacit knowledge and a close relationship has been built up. Both elements are important and contribute to human asset specificity. Nuon has certain key personnel in place which is almost uniquely tied to partner Oxyma. Campaign marketeers who invent and create certain campaigns, A key person who is responsible and dedicated 100% for the implementation of NGM. Operational employees who assess certain customer applications (which is for a large part described in standard procedures), persons who see to the performance and contracts. An exact figure is hard to give but probably 3-4 employees are dedicated full time to Oxyma. All these persons work within tooling and procedures that have been made up in the last 13 years of close cooperation.

Considering human asset specificity, Oxyma has embedded its client specific activities with it partners in a client service team which is dedicated to Nuon specifically. The Nuon client team consists of an account manager, two software developers and two process managers. The level of knowledge which is solely used for Nuon purposes is estimated at 50%. The other 50% of knowledge within the team is applicable for general Oxyma purposes and can, for instance, be used if a person switches from one client team to another. Human asset specificity is considered high in the relationship between Nuon and Oxyma. High on Nuon side and high on Oxyma side.
Control mechanisms

An important noting is the fact that the relationship between Nuon and Oxyma is good and intense. An interviewee on Nuon side states that ‘other’ relationships with other partners are being held against the good the relationship with Oxyma, meaning that the cooperation is considered as a ‘best practice’ internally for Nuon. Key personnel on each side of the cooperation know each other for several years and implicit expectations are clear. This intense relationship contributes to the well being and performance of the cooperation and is hard to replace or rebuild. An interesting and supporting fact for the previous finding is that the management of Oxyma generally strives for a duration of two year in a specific client team after which an employee can rotate to another client team. Oxyma then ‘softly’ pushes and promotes an employee to broaden its capabilities in an other client team. The average age of employees in the Nuon client team however is 7 years and, for two Oxyma employees covers almost the entire age of the relationship. On both Nuon and Oxyma side an event was mentioned where a new Oxyma colleague in the client team just didn’t ‘fit’. After mutual evaluation, the person was transferred to another position outside the client team. The previous example is a clear personnel control. In general, cultural control is a strong control mechanism within the relationship. From Nuon side and from Oxyma side signals have been given whether the high trust and not so challenging KPI’s on RPM are creating a certain blindness and are therefore actually blocking further improvement of the performance and cooperation. In the discussion section I will further elaborate on this topic.

The management of Oxyma has a vision on how to manage their asset specificity ad how to mitigate the risks associated with that. For human asset specificity, personnel is encouraged to switch between customer accounts and broaden their horizons. For the Nuon client service team however no rotations have been made in the recent past. For preventing that software and processes are being tailored too much to customer preferences, Oxyma also has a policy in place. Specifically a team of consultants which are working across the client service teams and which are looking for general customer needs and the spreading of best practices across teams. One of their aims, at least for Oxyma as a whole is to minimize lock-ins in which specific software is only tailored to a single customer.

The relationship between Nuon and Oxyma is formally regulated in a ‘raamovereenkomst’ in which the general services, purchasing terms, customer data policy, penalties for certain don’ts and key persons are described. In the Service Level Agreement (SLA) aspects like escalation mechanisms and specific procedures are described. For RPM, a set of performance indicators is in place in which the response time of the processing and validation of customer orders is measured. These KPI’s haven’t changed much in time. When performance indicators are not met, mutual, actions are formulated for improvement and in general, no punishment or rewards are given. The managing director of Oxyma describes the performance indicators as a crucial ‘sanity’ factor which has to be in place before other things like future product development and relationship are discussed.

Within the raamovereenkomst and SLA, an escalation procedure, procedures when the cooperation is being discontinued, quarterly meetings, data protection and KPI’s etcetera are being specified. When asked whether following these procedures is a dominant control in the cooperation a negative answer is given. Oxyma does specify their spent cost on a 2 weekly basis and these costs are also checked on a two weekly base by Nuon. Procedures and performance are also being discussed in report meetings but when not met, no penalties are given. The previous control can be qualified as an action control mechanism which is not dominant as a control mechanism.
For normal development activities in which software or processes are being developed, Nuon pays for the amount of hours that are spent on development of new services. No bonus element is paid and no fine is being charged when KPI’s are not met. In the contract only certain fines are describes for, e.g. bad handling of customer data and delays in processing etcetera. For NGM, not as much clearly described performance indicators compared to RPM are in place. For a new pilot in which Nuon and Oxyma both have learning goals, a performance element is created in which Nuon is paying Oxyma up to 50% bonus of the actual value of an investment. The bonus is however only given is the outcome of the pilot leads to above the average results, being extra new customers won for Nuon. Vice versa also a fine (Oxyma not receiving the actual invested costst) is given is the results are below average. This incentive is a strong result control mechanism but must also be seen in the light of the trusted relation between both. In case of a pure result control, the partners dominant goal and main source of income is to achieve the targets. The profit, however, that Oxyma can gain is not larger than +/- 5% of the yearly budget of the the cooperation.

The cooperation in general is evaluated twice a year with an evaluation in which the cooperation is mutually rated and both parties express how thing went and how the cooperation can improve further. This evaluation is qualified as a cultural control.

Table 4: overview asset specificity and control mechanisms Oxyma -Nuon

<table>
<thead>
<tr>
<th>Asset specificity form</th>
<th>Examples</th>
<th>Which side level</th>
<th>Control mechanism per form</th>
<th>Dominant Control mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedural</td>
<td>Workflow processes</td>
<td>Nuon and Oxyma Medium for Oxyma, High for Nuon</td>
<td>cultural</td>
<td>Cultural Control</td>
</tr>
<tr>
<td>Physical</td>
<td>IT Tooling &amp; software</td>
<td>Oxyma medium to low for oxyma</td>
<td>Action and cultural</td>
<td></td>
</tr>
<tr>
<td>Human</td>
<td>Client service teams and relationship</td>
<td>Nuon and Oxyma high for Oxyma, medium for Nuon</td>
<td>Cultural</td>
<td></td>
</tr>
</tbody>
</table>
**Hypotheses**

In the case study Nuon-Oxyma it is shown that human asset specificity leads to cultural control and therefore hypothesis A is confirmed. In the case study setting, human asset specificity has been shown to be present in high form mainly in the client service teams on Oxyma side and the relationship between Nuon and Oxyma. This human asset specificity is governed by cultural control and therefore hypothesis A is confirmed.

In the case study it is also shown that procedural asset specificity leads to cultural control and therefore hypothesis A is confirmed. The measurability of the workflows and their output, is high for most performance indicators which measure the performance of services executed by Oxyma. This seems to lead to a more action control mechanism. Below the surface however, the output of the client team is in essence measured with ‘trust’ and ‘quality’ and therefore a cultural control mechanism emerges. The long working relationship of employees within the client service team and the execution of new, uncertain marketing pilots, are not easily quantified which also support the claim that in case of low measurability, cultural control mechanisms are preferred for governing human asset specificity.

In the case study it is also shown that physical asset specificity leads to a mixed pattern of action and cultural control. In section 6, conclusion and discussion I will further elaborate on this finding.
6 Conclusions and discussion

Overall
In this study, it has been investigated how risks resulting from asset specificity within hybrid governance modes can be governed by control mechanisms. In the theoretical section, seven forms of asset specificity and three control mechanisms are identified which lead to the two hypotheses in this research.

A. Within hybrid governance and in case of higher human asset specificity, procedural asset specificity and marketing asset specificity, due to the less measurable output, personnel and cultural controls will be used as dominant steering mechanisms.

B. Within hybrid governance in case of higher physical asset specificity site specificity, dedicated asset specificity and temporal asset specificity, due to the more measurable output, result and action controls will be used as dominant steering mechanisms.

Both hypothesis were investigated in two case studies and led to the conclusions:

- Human asset specificity and procedural asset specificity led to cultural control and therefore hypothesis A is confirmed.
- Physical asset specificity led to action control and therefore hypothesis B is confirmed.

The case studies also demonstrated that reciprocal investments or hostage taking, which represents the distribution of asset specificity on both sides of the collaboration, were an important control mechanism. Out of case study result tables 4.1 and 5.1, it can be concluded that in the case study Vestas-Nuon, a small lock-in for Nuon is present. Added up, Nuon possesses a slightly larger level of asset specificity than Vestas. In the case study Oxyma-Nuon there is a balance in asset specific investments on both sides. Generally, in both case studies asset specificity levels are quite evenly distributed which could also be considered as another important mechanisms for mitigating opportunistic behavior.

In the case study Vestas-Nuon an interesting outcome was the fact that the found procedural asset specificity did not lead to a cultural control mechanism but to a mixed action/result control mechanism. A possible explanation for this finding is the fact that the mutual hostage position of Vestas and Nuon is relatively balanced. Within this balance, opportunistic behavior is naturally low and therefore the dominant action/result control mechanism is capable of absorbing and governing also amounts of procedural asset specificity.

Human asset specificity and procedural asset specificity overlap.
Vita (2011) states that “facets of asset specificity form distinct and interrelated, rather than substitute and isolated, dimensions of the construct”. In the Oxyma-Nuon case study this is visible in the connection of the level of procedural asset specificity with the level of human asset specificity. The connection of the workflow and processes are off course highly related to the level of tacit knowledge which is exercised by people who work with the workflow and processes. The two asset specificity forms should not be seen as separate elements.
Validity and reliability
Concerning the internal validity, the establishment of causal relationships, it can be argued that in the Vestas-Nuon case study, due to the absence of interviews on Vestas side and the medium (instead of high at Oxyma–Nuon) levels of asset specificity, the causal connection between the asset specificity and control mechanisms is not as strong as in the Oxyma-Nuon case study. Concerning the construct validity, external validity and reliability of the research, the already mentioned measures were followed when undertaking the case study interviews.

Practical relevance
The practical relevance of this research is the fact that organizations are given insight in factors that determine how risks of asset specificity can be governed by control mechanisms. Based on these factors, organizations can determine whether their hybrid governance setup is in line with the conclusions and findings of this research and possible alterations should be made.

Suggestions for future research
An interesting suggestion for future research is to look into the effects of high levels different asset specificity forms on both sides of a cooperation. What control mechanism is best in place if partner A mainly has a high level of human asset specificity and partner B has a high physical asset specific in place. How does this balanced distribution of different forms of asset specificity work out qua effective control mechanisms for protecting and governing these assets?

Secondly, in the case study Vestas-Nuon it is also shown that procedural asset specificity leads to a mixed pattern of action control and result control. The level of procedural asset specificity however is medium to low. Future case study research on high level of procedural asset specificity, more specific, a formal contract between two companies, could point out if the causal connection to the action and result control mechanisms is also confirmed.

Thirdly, an interesting topic in the Oxyma–Nuon case study is that, however there is a significant level of trust and cultural control which leads to lower levels of opportunistic behavior, there are doubts whether this trust is creating a certain blindness. An interesting topic for future result is to investigate what the boundaries of control mechanisms are, and to what level they effectively mitigate opportunistic behavior within high asset specificity.

In the case study Vestas-Nuon, a medium (and not high) form of physical asset specificity was found. Hypothesis B however also mentions site specificity, dedicated asset specificity and temporal asset specificity. It is interesting to confirm in practice if the hypothesis is also confirmed for a setting with high physical asset specificity and the three other asset specificities in high form.
7 References


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Consulted on 18th February 2016

Consulted on 18th February 2016
8 Appendix

The picture on the title page represents one of the 22 new built 2004 Athens Olympic stadiums. After the games, 21 of the initial 22 stadiums are left unused and a total loss of $14 to $15 billion dollar is calculated for the Greek government. The loss and might have contributed to the country’s bankruptcy in 2009.

http://www.cnbc.com/id/45943877/page/5
Consulted on 2nd February 2016

The high investment in the assets, the stadiums, were made, together with the Olympic committee for a particular use or purpose and can not be easily replaced to another location (site specificity) or use (physical asset specificity). In this case, the Greek government and not the partnering International Olympic Committee (IOC) fully took this risk and were not backed by any reciprocal investments from the Olympic committee.
## 9 Interview questions

- **Question list:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Questions</th>
<th>Talking schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 interviewee personal</td>
<td>What is your name and current position?</td>
<td></td>
</tr>
<tr>
<td>2 interviewee personal</td>
<td>Have you had other positions in the collaboration?</td>
<td></td>
</tr>
<tr>
<td>3 General collaboration</td>
<td>What is the purpose of the collaboration? (delivery of products, delivery of services, developing new products, profit maximizing, learning from partner)</td>
<td>The general questions 1-7 are always asked</td>
</tr>
<tr>
<td>4 General collaboration</td>
<td>What does each partner contribute to the collaboration</td>
<td></td>
</tr>
<tr>
<td>5 General collaboration</td>
<td>How was the partner selected?</td>
<td></td>
</tr>
<tr>
<td>6 General asset specificity</td>
<td>Are there specific asset are in the collaboration which are only of value within the collaboration and which, if taken out of the collaboration, have less value? Hypothetically, What if the collaboration with the vendor were to stop immediately? Which assets would have no or much less value? Which assets would have to be amortized? Which assets would have to be retrained or redeveloped?</td>
<td>Explain the definitions to interviewee 4-12. See first tab.</td>
</tr>
<tr>
<td>7 General asset specificity</td>
<td>Can you characterize these into more (a) human asset specificity (knowledge) © brand asset specificity, (c) physical asset specificity or (d) site specificity. Interviewer explains</td>
<td>Switch to Human, Physical, brand or site specificity, depending on the outcome of the question</td>
</tr>
<tr>
<td>8 General asset specificity</td>
<td>General &amp; per Asset Specificity form. What protection mechanism do you have in place to protect your business from high asset specificity?</td>
<td>Asked in general and per per asset specificity form.</td>
</tr>
<tr>
<td>9 Human Asset specificity</td>
<td>To what extent is knowledge an important driver in the collaboration. Can you give specific examples.</td>
<td>asked depending on question 5-7</td>
</tr>
<tr>
<td>10 Human Asset specificity</td>
<td>Do you regard the partners contribution as unique?</td>
<td></td>
</tr>
<tr>
<td>11 Human Asset specificity</td>
<td>To what extent are skills, knowledge and experience tailored to the specific supplier?</td>
<td></td>
</tr>
<tr>
<td>12 Human Asset specificity</td>
<td>To what extent is tacit knowledge an important driver in the collaboration. Tacit knowledge is hard to specify or write down, how to manage a specific team, expertise in building a product.</td>
<td></td>
</tr>
<tr>
<td>13 Human Asset specificity</td>
<td>What part of the knowledge &amp; expertise is highly asset specific? In other words knowledge which is worth little outside the collaboration or is only applicable outside after major adjustment.</td>
<td></td>
</tr>
<tr>
<td>14 Human Asset specificity</td>
<td>Are any of the above knowledge and expertise contributions formalized? How?</td>
<td></td>
</tr>
<tr>
<td>15 Human Asset specificity</td>
<td>How do you assess your contribution qua human asset specificity compared to the partner?</td>
<td></td>
</tr>
<tr>
<td>16 Human Asset specificity</td>
<td>What was each partners initial contribution to the collaboration regarding knowledge and expertise?</td>
<td></td>
</tr>
<tr>
<td>17 Human Asset specificity</td>
<td>What was each partners evolving (after contract signing) contribution to the collaboration regarding knowledge and expertise?</td>
<td></td>
</tr>
<tr>
<td>Question Number</td>
<td>Question</td>
<td>Asked Depending On Question</td>
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<tr>
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</tr>
<tr>
<td>18</td>
<td><strong>Physical asset specificity</strong> To what extent are physical assets (goods/infrastructure) an important driver in the collaboration? Can you give specific examples.</td>
<td>5-7</td>
</tr>
<tr>
<td>19</td>
<td>Do you regard the partners contribution as unique?</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td><strong>Physical asset specificity</strong> How likely is it that if, hypothetically, the partner would step out, the physical assets can be redeploed and maintained without alterations made to them (very likely ≠ not likely)</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td><strong>Physical asset specificity</strong> What part of the physical asset is specifically tailored to the collaboration itself (I.e., the asset is worth little outside the collaboration or stand alone)</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td><strong>Physical asset specificity</strong> What is the extent extent of the actual investments in physical assets made by the partner specifically for the purpose of the relationship</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td><strong>Physical asset specificity</strong> What was each partners initial contribution to the collaboration regarding unique physical assets?</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td><strong>Physical asset specificity</strong> What was each partners evolving (after contract signing) contribution to the collaboration regarding unique physical assets?</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td><strong>Brand asset specificity</strong> To what extent is brand value and reputation an important driver in the collaboration? Can you give specific examples.</td>
<td>5-7</td>
</tr>
<tr>
<td>26</td>
<td><strong>Brand asset specificity</strong> What was each partners initial contribution to the collaboration regarding brand/marketing value?</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td><strong>Brand asset specificity</strong> Are there currently any transactions in the collaboration which involve activities with a direct and high effect on the overall firm performance</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td><strong>Brand asset specificity</strong> To what extent is the Brand image or reputation of the company dependant on the performance or image of the partner?</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td><strong>Brand asset specificity</strong> Are any of the above possible situations formalized? How?</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td><strong>Brand asset specificity</strong> How do you assess your dependence and vulnerability to negative or positive aspects of brand asset specificity compared to the partner?</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td><strong>Brand asset specificity</strong> What was each partners initial dependence regarding brand asset specificity</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td><strong>Brand asset specificity</strong> What was each partners evolving dependence regarding brand asset specificity</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td><strong>Site specificity</strong> To what extent is site specificity and important driver in the collaboration? Can you give specific examples.</td>
<td>5-7</td>
</tr>
<tr>
<td>34</td>
<td><strong>Site specificity</strong> What was each partners initial contribution to the collaboration regarding site specificity</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td><strong>Site specificity</strong> To what extent is the proximity of the partners an issue in the relationship? F.I. is the location of assets a key element in the cooperation?</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td><strong>Site specificity</strong> Would there be a high impact on the relationship if the partner were to physically move, relocate its operations/manufacturing facility or specific assets</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td><strong>Site specificity</strong> How do you assess your vulnerability qua site specificity compared to the partner?</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>What was each partners initial dependence regarding site specificity</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>What was each partners evolving dependence regarding site specificity</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Based on the sort of specificity, Human, Physical, brand or site the below questions; (39-44) are being asked for more clarity on the specific asset specificity form.</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
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<tr>
<td>General asset specificity 40. Are any arrangements made for protection or ownership of specific assets? (Veto, Non disclosure agreement, authorized access, informal management agreements?)</td>
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<td>General asset specificity 43. What risks do you see regarding the vulnerability and protection of these assets?</td>
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<td>General asset specificity 42. To what extent does a parent need the contributions of the other parent? i.e think of the examples given of the specific assets. 43. How crucial are the parental contributions for the functioning of the collaboration?</td>
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<td>General asset specificity 44. What control measures are being used to govern the asset specific elements as discussed?</td>
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<td>general management control 45. Can you give specific examples of these measures?</td>
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<tr>
<td>Result control 46. To what extent are the goals of the collaboration in casu communicated to every relevant layer in your organization? Does everybody know exactly what to perform, relatively to the goals of the collaboration?</td>
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<td>Result control 47. Is good performance on goals&amp;targets(KPI's) the main driver for a successful collaboration?</td>
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<td>Result control 48. To what extent are rewards (gain sharing, bonus) based on personal performance (in contrast to team/group performance)</td>
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<td>Result control 49. Are bonus incentives incorporated in the collaboration. More specifically incentives within a short (6 months-1 yr) lag between performance and compensation? Can you give examples?</td>
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<td>Result control 50. Quote/agree or disagree. A manager/employee in the collaboration is normally not held accountable for unfavorable outcomes or credited with favourable ones if they are clearly due to causes not under his control.</td>
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<td>Action control 51. How effective can results be measured within the collaboration?</td>
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<td>Action control 52. Which restraining activities are being put on employees to prevent certain things that should not be done? E.g. Examples of physical constraints: limited access to information, ID card readers? Safety measures, helmets, E.g. Examples of administrative constraints: Decision or expenditure caps. Separation of duties &amp; tasks E.g. Examples of preaction review: Multiple reviews of plans (bottom up, peer to peer) before approval</td>
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<td>Action control 53. To what extent are employees being held accountable for actions taken? Actions resulting from rules, procedures, work instructions. Are there any rewards or punishments connected in not following these procedures?</td>
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<td>Action control 54. Are any tasks being performed double (redundant) for the purpose of increasing the probability that it will be successfully fulfilled?</td>
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<tr>
<td>personnel control 55. What importance is placed on the selection of the right key personnel in the Collaboration? Reference checks? Education experience? Past success (track record) social skills?</td>
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<td>personnel control 56. How is the employee selection of personnel in the collaboration done? Pre screened? Informal contacts? Open applications on Internet?</td>
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<td>personnel control 57. What is the effort and intensity of training for employees and staff in the collaboration?</td>
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<td>Cultural control 58. Is there a specific culture 'way of doing' within the collaboration?Is this culture different than outside in the rest of the company/division?</td>
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<td>Cultural control 59. How would you describe the emotional ties to the collaboration/vendor in regard to other collaboraties/vendors?</td>
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<tr>
<td>Cultural control 60. To what extent are rewards (gain sharing, bonus) based on team performance achievements?</td>
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<td>Cultural control 61. Are there specific dress codes or specific vocabulary which distinguishes the collaboration with the outside world?</td>
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<td>Evolution of asset specificity 62. Have there been any changes in the sort of asset specificity during the previous years? How?</td>
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<tr>
<td>Evolution of asset specificity 63. Have there been any changes in the intensity of asset specificity during the previous years? How?</td>
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<tr>
<td>Evolution of control mechanisms 64. Have there been any changes in the sort of controls in the previous years? How?</td>
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<tr>
<td>Evolution of control mechanisms 65. Have there been any changes in the intensity of the used controls in the previous years? How?</td>
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### Definitions used with question list:

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<th>nr</th>
<th>what</th>
<th>description</th>
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<tbody>
<tr>
<td>1</td>
<td>Result control</td>
<td>In case of result control partners can focus only on results and intervene when targets are not being met or potentially not being met. Result control can ensure that employees are promised rewards for producing the desired results or punishments for results that should be avoided, thereby stimulating employees to take the desired actions.</td>
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<td>2</td>
<td>Personnel control / Cultural control</td>
<td>Partners can take steps to ensure either that employees and managers are willing to perform well by their own intrinsic motivation. The main driver for personnel control is a natural present force that pushes employees to the organization’s goals and derives self-respect and self-satisfaction. Management and employees are given trust as a substitute for more formal action and result controls. Trust enables them to perform on their own motivation. Cultural controls are also away of control in which group pressure plays a major role.</td>
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<td>3</td>
<td>Action Control</td>
<td>Action control means that control is exercised so that certain desirable actions are taken (or undesirable actions not taken). E.g. management can guarantee itself the right to make or approve certain key decisions; they can physically secure valuable company assets or they can require personnel to follow certain pre-approved policies or contract terms.</td>
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<td>4</td>
<td>Asset specificity definition</td>
<td>The degree to which an asset can be redeployed to alternative uses by alternative users without sacrifice of productive value (Williamson 1996, p59) To be more concrete, in a high asset specific environment, an asset can not, or can barely be redeployed to alternative use without sacrifice of productive value.</td>
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<td>5</td>
<td>Asset specificity effects</td>
<td>Dekker (2004) states that asset Specificity, specifically within joint ventures can give rise to appropriation concerns which describe the concern when one partner invests more asset specific knowledge or asset in a relationship than the other. The concern of being vulnerable from the appropriated investments by the other party gives rise to potentially opportunistic behavior.</td>
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<td>6</td>
<td>Site specificity</td>
<td>What is it? A situation where the buyer and the supplier are involved in a ‘cheek-by-jowl’ relationship with one another due to the importance of close proximity in reducing inventory and other related processing costs. However, once in place, the assets involved are highly immobile and, thus, the cost of their relocation is very high. Examples: A coal energy plant, privately held, which is deliberately located near a commercially exploited harbor which is its only source of supply is an example of site specificity. The deliberate location of some electric generating plants next to particular mines, with the expectation of a potential long term coal supply relationship. Entry of new suppliers and buyers in physical proximity which will offer the party with less asset specificity a strategic bargaining advantage.</td>
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<td>7</td>
<td>Physical asset specificity</td>
<td>What is it: Assets are developed or customized to a particular use or purpose. It refers to investments in physical assets that are tailored to a specific transaction and have few alternative uses, owing to their specific (design) characteristics Examples: A die which is especially fitted to a specific formula 1 racing team car. An individual supplier which makes customized wings for a specific Boeing plane, this particular wing manufacturing facility would have little value to the supplier in other transactional relationships. Conflicts which can endanger the long term cooperation in which the asset specific investment is of value.</td>
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<td>9</td>
<td>Human asset specificity</td>
<td>What is it:</td>
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<td>Examples:</td>
<td>Employees develop firm specific skills or knowledge, e.g. knowledge and training for a very specific item. Backlog handling of work items within a customized IT system of a service company.</td>
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<td>A unique technical skills and experience required in carrying out the activity being transacted.</td>
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<td>Knowledge specific assets (Kleibert et al. 2005) that arise from learning-by-doing (Williamson 1996), and which are not easily transferable, owing to their limited application in other work settings (Lamminmaki 2005).</td>
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<td></td>
<td>Leakage of crucial knowledge of R&amp;D investments which have not yet been commercially exploited.</td>
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| 10 | Dedicated asset specificity | What is it: | Dedicated assets occur when additions are made to an existing machine or device that would not be made but for the expectation of selling significant product to a particular customer on a long-term basis. |
| Examples: | A small sized company delivering half products to an original equipment manufacturer (OEM) may invest in customizing a machine for the sake of delivering extra capacity, agreed in a contract with the OEM. When the OEM decides, or even threatens to discontinue the contract, overcapacity which cannot be sold elsewhere is the result. |
| | A product contract with one large customer may cause a firm to expand its capacity to meet demand, which would ultimately result in significant over-capacity and important financial disruption if the customer in question chooses not to renew the contract. |
| | Mediated asset specificity could, under certain circumstances, be related to an investment made by the buyer, such as additional investment in laboratory accessories that help the firm to assess the quality of a bigger proportion of goods acquired. |
| | Dedicated asset specificity is different from physical asset specificity. It refers to assets that are of general purpose as opposed to specialized uses (physical asset specificity), but which have been made for a particular transactional agreement that is likely to entail a long-term relationship. Should this relationship end prematurely, excess capacity will, however, be created. |
| | Conflicts which can endanger the long-term cooperation in which the asset specific investment is of value. |

| 11 | Temporal asset specificity | What is it: | Temporal specificity refers to the importance of timing and co-ordination required by a transactional relationship. An asset is time specific if its value is highly dependent on it reaching the user within a specified, relatively limited period of time. The need for precise scheduling within the transactional relationship. |
| Examples: | E.g. when building a house, or a block of houses, timely delivery of the right building materials and building professionals is key to a timely delivery of the completed house. |
| | If the delivery is late, the customer could even decide to discontinue its plan and opt for another supplier. |
| | In the case of shipbuilding, where the ability to hold buffer stock is limited, hence timely delivery becomes vital to prevent costly delays. |
| | Service punctuality in order to prevent any deterioration in the quality of services. |

| 12 | Procedural asset specificity | What is it: | The degree a firm’s workflows and processes are customized in line with the requirements of the exchange partner. Procedural asset specificity refers to organizational routines and workflows that are tailored to a particular transactional relationship and which are difficult to modify once created or to redeploy without value reduction. |
| Examples: | If a commercial service company works with an outside partner for delivering their sales and leads of commodity products, it may need to make large investments to align procedures and IT processes so that the leads can be efficiently transferred and handled. |
| | Adaptation of the production process and system in the chemical manufacturing industry for making a special product for an end-customer. |

| 13 | Brand asset specificity | What is it: | Brand asset specificity arises in the selling/execution phase of a product life cycle. Brand capital specificity can also relate to reputation management. |
| Examples: | Investments by two or more parties in a particular brand can lose their value very quickly if the reputation of a company is compromised (Budweiser beer in the Netherlands). |
| | All activities which have a direct and high effect on the overall firm performance could be described as one of high brand capital specificity. A supplier could find itself in a position enabling it to intentionally or unintentionally cause damage to the buyer’s reputation. |
| | A bad reputation of an outsourced restaurant services could prove very costly, reputationwise, to the overall hotel business. |

| 14 | Spatial asset specificity | What is it: | Spatial asset specificity refers to the degree to which assets are specific to a particular location. |
| Examples: | Investments into a logistics company may become obsolete if the location is chosen wrongly. |

| 15 | Knowledge asset specificity | What is it: | Knowledge asset specificity is the degree to which knowledge that is specific to a particular transaction is more valuable than knowledge that is more general. |
| Examples: | Knowledge asset specificity may apply to the specific knowledge that a firm has of its customers (e.g. knowledge about its customer base is more valuable than knowledge about customers in general). |

| 16 | Social asset specificity | What is it: | Social asset specificity refers to the degree to which social relationships are specific to a particular transaction. |
| Examples: | Social asset specificity may apply to the social relationships that a firm has with its customers (e.g. a firm may have strong social relationships with its customers due to its long-term relationship). |
10 Attachments

- Contract Vestas–Nuon / Different contracts per wind park*
- Contract Oxyma–Nuon / 2Organize_2014_def contract signed.pdf*
  - Quarterly report Vestas-Nuon Q4 2016*
- Case study interview transcripts*

*All attachments are available in the research database.