

The interplay effects between agent characteristics and  
organizational level safeguards on opportunism  
in buyer-supplier relationships



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# Summary

## *Problem statement*

Supplier relationships are increasingly considered as strategically important for companies. The increased need for buyer-supplier integration is provoked by end-markets that require reduced development and delivery times. Since companies concentrate more and more on their core competences, supplier relationships have gained in importance. Despite the often proclaimed advantages of cooperative long lasting buyer–supplier relationships, parties in such relationships frequently experience opportunistic behaviour. Companies and their individual agents are in a constant struggle to achieve competitive advantage and thereby superior financial performance which creates the potential to behave opportunistically. Research has demonstrated that opportunistic behaviour has a destructive and detrimental impact on buyer–supplier relationships. Companies try to protect themselves against opportunism by implementing safeguards.

Whereas most research on safeguards has been carried out from an organizational perspective, little research has been carried out on the role that individuals play in the prevention and mitigation of opportunism. Organizational safeguards such as contractual governance, power/dependence and relational norms are well studied but there is a lack of attention on the role of individual agents, such as purchasers and sales people. There is also an increasing awareness that the interaction and complementary usage of individual safeguards provide the best potential for safeguarding against opportunism. However, little is known about the interaction between organizational safeguards and agent behaviour.

This study extends the line of research that was started by the pioneering research of Tangpong et al. (2010) on the interaction of agent characteristics and organizational safeguards by expanding their model. Next to relational norms, the organizational safeguards were expanded with contractual governance, power/dependence factors and buyer opportunism. The characterization of agent behaviour was expanded by adding three of the Big Five personality characteristics next to cooperativeness. The aim of this study is to investigate the following problem statement:

“ what are the interplay effects between agent characteristics and organizational level safeguards on opportunism in buyer-supplier relationships? ”

## *Research method*

Survey data have been collected using questionnaires that were sent to 6,236 members of the Dutch association for purchasing professionals (NEVI). The respondents are active at different positions and belonging to a wide range of economic sectors in the Netherlands. The survey resulted in a total number of 677 valid responses (overall response rate 10.9%).

## *Results and discussion*

The findings indicate that the use of relational norms is the strongest and most significant organizational safeguard for mitigating supplier opportunism. This conclusion is in line with the social exchange theory (SET). In contrast with the transaction cost analysis theory (TCA), our study reveals a positive relationship between contractual governance and opportunism. This finding sheds another light on TCA and our perspective on the use of contracts. First of all we need to consider that contractual governance does not necessarily act as a safeguard but instead could work counterproductive. Second we need to consider that contractual governance is not necessarily set up to safeguard against future opportunistic behaviour, it can also be the result of existing opportunistic behaviour.

The results of this study indicate that the safeguarding effect of relational norms will be reduced when a buying company behaves opportunistically itself. This finding adds to the literature that did not report

on such a moderating effect. In our study, buyer opportunism did not seem to affect the safeguarding effect of contractual governance.

Buyer's relative power position was found to be negatively related to the use of contractual governance. This suggests that a dominant buyer will make less use of contractual governance than a dominated buyer. No significant correlation was found between buyer's relative power and supplier opportunistic behaviour. Apparently the decision for a supplier to act opportunistically is not influenced by its relative power position towards the buyer. This result conflicts with existing literature, but previous studies did not use a model with multiple organizational safeguards simultaneously. The result is in line with Caniels and Gelderman (2010) who also used a multi-safeguard model. This leads to the assumption that relative power loses its importance as a safeguard when it is simultaneously used with more powerful safeguards such as relational norms and contractual governance.

Mutual dependence was found to stimulate the use of relational norms. This is in line with literature in which increased mutual dependence was found to lead to more fostered relationships and cooperation, characterized by mutual trust and commitment. Whereas previous studies did not incorporate relational norms explicitly, we were able to confirm a positive relationship between mutual dependence and relational norms.

The study's main objective was to investigate the interplay between agent personality characteristics and organizational level safeguards. Based upon our results we did not find support for such an interplay. Extraversion did not influence the safeguarding effect of contractual governance. Cooperativeness did not influence the safeguarding effect of relational norms. This is in variance with Tangpong et al. (2010) who found a significant interplay between relational norms and cooperativeness in mitigating opportunism. Unfortunately, we were not able to analyze the impact of the buyer's conscientiousness, since the construct showed a fatal lack of internal consistency. Taken these findings together, we conclude that the organizational safeguards function without being directly affected by personality characteristics of individual agents, thus diminishing the role of the individual within its organization in mitigating supplier opportunism. This preliminary conclusion is not in line with the first pioneering studies (Tangpong and Ro 2009; Hung et al. 2009; Tangpong et al. 2010) on the interplay between agent characteristics and organizational level safeguards.

However, we did find an indirect influence of an agent characteristic on supplier opportunism. We found a partly mediation of the relationship between neuroticism and supplier opportunism via buyer opportunism. It seems that neuroticism is associated to opportunistic behaviour, which is in line with literature that connects neuroticism with conflicts and ethics. Our study added the role of neuroticism to the known relationships between buyer opportunism and supplier opportunism.

Finally, we found an interesting impact of relationship duration on the way in which relational norms develop. Literature describes two different developments of relational norms; (continuously) increasing from the start of a relationship and decreasing later on. In this study, we statistically connect these two developments by showing that an inverted curvilinear relationship exists. From the start of the relationship, relational norms initially increase. However, as the relationship continues and matures, these norms will gradually decrease. Apparently, there is an optimum in the level of relational norms in the course of time. Herewith we refine the knowledge on relational norms by more accurately describing its development in time.

#### *Recommendations for future research*

We found a positive association between contractual governance and supplier opportunism although we cannot be sure about the causality. Does contractual governance stimulate opportunistic behaviour? Or, alternatively, is contractual governance the direct result of past opportunistic behaviour. Future research could shed more light on these questions. This study confirmed that buyer opportunism influences the safeguarding effect of relational norms. This impact is most likely caused by a lack of solidarity. Since relational norms consist of more dimensions, future research is required to investigate the impact of buyer opportunism on the separate relational norm dimensions: solidarity, flexibility and information exchange.

We could not confirm that agent personality characteristics have a moderating effect on organizational safeguards. Differences in population size and composition between comparable earlier studies and our study could be an explanation. Additional research could find out if for example respondents' age, working experience and company size are able to explain these differences. We connected the literature on opportunism and personality traits by showing that agent neuroticism affects supplier opportunism through the buyer's opportunistic behaviour. This is an interesting result but to really understand the mechanism behind it we need to find out how the individual's behaviour affects the buying organization. What causes the organization to behave opportunistically when (one of) its agent(s) behaves neurotically?

We more accurately described the development of relational norms but did not explore the mechanisms behind it. What are the critical parameters that cause the increases of relational norms to decline? How do we identify the optimum level of relational norms? Further research could more explicitly look into this subject.

There are some limitations to our research that implies additional directions for further research as well. The first limitation lies in the measurement of agent personality characteristics. In order to better capture them future research should try to use more extensive self measurements. It could also consider other measurement methods for example by observing agents through other people or by using in-depth analysis. The second limitation lies in the organizational elements we have chosen in our model. Future research could take into account other factors that play a role in the existence of opportunism such as the industry context, industry complexity and the rate by which that type of industry changes. It should also consider classifying the goods or services being bought and how it affects opportunistic behaviour. The third limitation lies in the selected agent characteristics. We have used three of the Big Five characteristics plus cooperativeness. Future research could take into account the other two Big Five characteristics (openness to experience and agreeableness). Adding the missing two will assure that we have completely looked upon all the elements that constitute the Big Five model.

# 1 Introduction

## 1.1 Problem statement

Supplier relationships are increasingly considered as strategically important for companies. The increased need for buyer-supplier integration is provoked by end-markets that require reduced development and delivery times. Since companies concentrate more and more on their core competences, supplier relationships have gained in importance. Despite the often-proclaimed advantages of cooperative long-lasting buyer-supplier relationships, parties in such relationships frequently experience opportunistic behaviour. Companies and their individual agents are in a constant struggle to achieve competitive advantage and thereby superior financial performance Hawkins (2008) which creates the potential to behave opportunistically. Research has demonstrated that opportunistic behaviour has a destructive and detrimental impact on buyer-supplier relationships.

In his classical work Williamson (1985, p. 47) defines opportunism as “self-interest seeking with guile”. This includes clear behaviour such as lying, stealing and cheating or more subtle forms of deceit. More generally, opportunism refers to the incomplete or distorted disclosure of information, especially to calculated efforts to mislead or otherwise confuse. Opportunism can have serious consequences for buyer-supplier relationships such as production disruptions and sub-optimal performance resulting in economic damage. Opportunism can also result in more “soft” forms of damage such as a decrease of trust (Hawkins, 2008). In the end opportunism might result in the termination of a relationship or at least it could undermine the foundation for a long-term exchange (Achrol and Gundlach, 1999).

Given the negative consequences of opportunism in relationships, companies implement measures to prevent or mitigate it. These measures are called safeguards or governance mechanisms. Williamson (1985) introduced contractual governance as a means to control opportunism, aiming to minimize the costs of exchange. Extant research shows a wide variety of other governance types such as governance by/through the market, governance by hierarchy and relational governance. Next to the individual influence of the different safeguards, the interaction between safeguards has been subject of much research (Zheng et al., 2008; Ferguson et al., 2005; Carson et al., 2006).

Most research on safeguards is set to study opportunistic behaviour of companies, from a perspective at an organizational level. Little research has been carried out on the role that individuals play in the prevention and mitigation of opportunism. The lack of attention on the individual's role is not in line with the increased importance that is being given to the role of relational governance, such as being expressed by Caniëls and Gelderman (2010). Individuals are the basis for setting up relations between companies. Relations such as between a purchaser and a salesperson, a product technologists and his customer counterpart, in real life are the building blocks that constitute the relations between companies. Therefore, how can we research opportunism without taking into account the major actors in it, being the agents that represent the individual companies?

There is also an increasing awareness that safeguards on their own have limited success in mitigating opportunism (Vázquez et al., 2007; Zheng et al., 2008). It is the interaction and complementary usage of individual safeguards that provides the best potential for safeguarding against opportunism. When using relational governance as the main safeguard, formal contracts can be used additionally to streamline the development of relations and to clarify some of the definitions/ agreements within those relations. As an extension to the lack of knowledge on the role of agents, there is also a lack of knowledge on the interaction between safeguards at the organizational level and the agent's behaviour.

The pioneering research of Tangpong et al. (2010) has started a line of research on the interaction of agent characteristics and organizational safeguards on opportunism in buyer-supplier relationships. The limitations of this study can be considered as a starting point for new research. First, Tangpong et al. (2010) have focused on relational norms as the safeguard at an organizational level. Although

relational norms have received increased attention, one could or should include other organizational safeguards such as contractual governance and power/dependence factors. Second, the study focused on agent cooperativeness as the main personal characteristic influencing opportunism. The behaviour of individuals however, cannot be identified by one characteristic only. Therefore further research needs to be done on other personal characteristics such as assertiveness. Third, Tangpong et al. (2010) conclude that the multi-level perspective (interaction of organizational safeguard relational norms and agent cooperativeness) is much better than a single perspective on safeguards, because it provides the highest explained variance. The analysis results however are not extremely convincing and require further confirmation by new research. Fourth, the research methodology of Tangpong et al. (2010) was based on two controlled experiments. This type of research has the disadvantage that the respondents have not been chosen 'at random' which limits the external validation of the study.

Based upon the above, this study intends to extend the line of research that Tangpong et al. (2010) have started by expanding their model. Next to relational norms, the organizational safeguards were expanded with contractual governance, power/dependence factors and buyer opportunism. The characterization of agent behaviour will be expanded by adding three of the Big Five personality characteristics next to cooperativeness.

This study will investigate the following problem statement:

*“ what are the interplay effects between agent characteristics and organizational level safeguards on opportunism in buyer-supplier relationships?”*

## **1.2 Methodology**

To investigate the central problem statement and test the hypotheses, this research will use a survey strategy as the central method. Empirical data will be collected using questionnaires that will be sent to purchasing professionals in the Dutch industry. The (address-)data will be collected through the membership database of the Dutch association for purchasing professionals NEVI.

The organization of this research is as follows. In the next chapter the current body of knowledge on opportunism, safeguards, and individual/agent behaviour is looked upon. Furthermore it will explore on the interaction effects between the organizational safeguards and agent behaviour. Based on this study of the existing theory, hypotheses will be set up in order to investigate the central problem statement and the research model will be presented. In chapter three the research methodology is presented that will be used to test the constructed hypotheses. It consists of determining the purpose of the research, selection of the suitable research design and the appropriate data collection method. Chapter four will present the results of the research and finally in chapter five the main conclusions of the research will be presented and its main implications for both the working field and future research.

## 2 Literature

### 2.1 Safeguards against opportunistic behaviour

Williamson (1985, p. 47) defines opportunism as “self-interest seeking with guile”. This includes clear behaviour such as lying, stealing and cheating or more subtle forms of deceit. More generally, opportunism refers to the incomplete or distorted disclosure of information, especially to calculated efforts to mislead or otherwise confuse. The behaviour is aimed at achieving one’s own objectives despite the possible damage that is done to others. Opportunistic behaviour is distinguishable from self-interested behaviour in that whereas a party behaving in the latter manner makes their intentions and objectives clear to their partner, an opportunistic party strives to keep their intentions and objectives opaque to their partner (Joshi and Arnold, 1997).

The transaction cost theory (TCA) states that idiosyncratic investments in a buyer-supplier relationship could be a trigger for opportunism to arise. Although these investments are initially made because of their productive nature, they have a limited value outside the buyer-supplier relationship and thus expose the investing party to the risk of opportunism (Williamson, 1985). Companies can use a number of safeguards, also called governance mechanisms, in order to prevent or mitigate opportunism. Jap and Ganesan (2000, p. 4) define governance mechanisms as ‘safeguards that firms put in place to govern interorganizational exchange, minimize exposure to opportunism, and protect transaction specific investments’. In the extant literature there is no consensus on the categorization of these safeguards. Different categorizations can be found, each created from a different perspective:

#### *Perspective: transaction costs*

Early transaction cost theory (Williamson, 1975) relied on two types of safeguards: either markets (i.e. the use of contract) or hierarchy, both aiming to minimize the transaction costs between a buyer and a supplier. In those situations where the costs of contractual governance become too high, one could (vertically) integrate with the supplier to reduce the total costs. In this situation governance is carried out by means of vertical integration/hierarchy. In the later transaction cost theory a continuum is distinguished in which a variety of intermediate governance mechanisms exist between market and hierarchy, such as joint ventures, strategic alliances and relational exchange (Joshi and Stump, 1999; Williamson, 1985). Within TCA contractual governance is prescribed as the default non-market safeguard against opportunism.

#### *Perspective: forms of opportunism*

Wathne and Heide (2000) categorized governance strategies in order to manage different forms of opportunism. Based upon the companies’ behaviour (active/passive) and the circumstances (existing/new) they identified four basic forms of opportunism. In order to effectively mitigate these forms, they define four different governance strategies; monitoring, incentives, selection and socialization. The use of monitoring and incentives stems from the early transaction cost literature in which they are the fundamentals for using vertical integration as a governance strategy (Williamson, 1975). In subsequent contributions these forms have been translated into using them in buyer-supplier relationships. This has been extended by using selection and socialization as strategies to mitigate opportunism (Ouchi, 1980; Stump and Heide, 1996).

Wathne and Heide (2000) explain that each governance strategy has got its own purpose, prerequisite and safeguarding effect on opportunism. Therefore to effectively manage opportunism a company should first identify the form of opportunism and consequently should use the most effective governance strategy or combination of strategies.

Most of the recent literature on opportunism safeguards can be brought back to one or a combination of the above mentioned perspectives. The categorization of safeguards most common found in the recent literature on opportunism in buyer-supplier relationships is: contractual governance, hierarchy and relational governance through the use of relational norms (e.g. Achrol and Gundlach, 1999; Tangpong et al., 2010). Since the objective of this research is to study independent buyer-supplier relationships (and not fully integrated forms between buyers and suppliers) the use of hierarchy as a safeguard will be excluded.

Following Caniëls and Gelderman (2010) we introduce power in our research, which is closely linked to dependence, as the third important safeguard to mitigate opportunism. The safeguarding effect of power has been demonstrated in a number of studies (Ireland and Webb, 2007; Joshi and Arnold, 1997; Rokkan and Haugland, 2000). However, in the past no studies on the simultaneous use of safeguards have introduced power as a variable to mitigate opportunism (Caniëls and Gelderman, 2010).

Heide (1994) emphasizes that individual safeguards are not necessarily independent from each other. Since the different safeguards are simplifications of more complex phenomena, they may be combined or replaced with the goal of becoming more effective or efficient. Therefore the focus will be on the individual and combined use of contractual governance, relational norms and power as safeguards.

## 2.2 Safeguards at an organizational level

### 2.2.1 Contractual governance

Having its roots in the TCA theory, contractual governance is used by companies to mitigate opportunism and thus to protect their interests such as specific assets. By creating and implementing written contracts they try to anticipate on future environmental scenarios. It is prescribed by TCA as the default nonmarket safeguard for dealing with specific assets owing to its purportedly strong ability to constrain opportunism and its low cost in comparison to hierarchy (Carson et al., 2006).

Contracts are considered a key mechanism of governing inter-organizational exchange (Williamson, 1985). Defined as “the extent to which detailed and binding contractual agreements are used to specify the roles and obligations of the parties” (Cannon et al., 2000, p. 182), contracts incorporate the expectations and obligations of actors in the relationship. Contracts are central to most supply arrangements: providing a legally bound, institutional framework in which each party’s rights, duties, and responsibilities are codified and goals, policies and strategies underlying the relationship are specified (Zheng et al., 2008). According to TCA a contract should safeguard against opportunism by specifying what is acceptable and what is not, with threats of legal enforcement or non- legal retribution (Williamson, 1975). In this way a ‘perfect’ contract should ultimately result in the lowest transaction cost.

Within the contractual governance literature little attention is given to the role of individuals, instead the main focus is on the use of formal contracts at the organization level. Individuals however are responsible for setting up and implementing these formal contracts. Williamson (1985) is one of the exceptions by stressing that individuals are characterized by bounded rationality (next to opportunism). It is this bounded rationality that prevents individuals from setting up omniscient contracts.

The weakness of using contractual governance as a safeguard is in its ability to anticipate on future changes in the environmental conditions. By definition not all changes such as supplier behaviour, technological changes and market conditions can be predicted and anticipated on in advance (ex-ante). Therefore contracts tend to be inflexible and not well suited to environmental change. Frequently updating i.e. adapting formal contracts to the changing conditions is therefore required but is impractical for both buyer and supplier and most often takes place after (ex-post) difficulties have taken place. This implies that the use of contractual governance only is insufficient to safeguard against opportunism and that it must be complemented with other safeguards such as relational norms. This is in line with the critics on TCA that it pays too little attention to the social and relational aspects of buyer-supplier relationships (e.g. Carson, 2006). Some even argue that contractual governance actually undermines trust and thereby encourages the opportunistic behaviour that it intends to discourage (Poppo and Zenger, 2002).

We hypothesize the following:

**H1:** Contractual governance is negatively related to supplier opportunistic behaviour.

## 2.2.2 Relational norms

Even transaction cost economics have observed that the governance of exchanges between buyers and suppliers involves more than contractual governance only (Poppo and Zenger, 2002). One such addition is relational governance which has got its roots within the social exchange theory (SET). Instead of a focus on transaction costs purely, SET states that exchanges between buyers and suppliers involve both social and economic outcomes. Relational governance attempts to socially embed exchange partners such that their goals are in close alignment and their joint utility is maximized (Stephen and Coote, 2007). Positive outcomes increase trust and commitment and, over time, relational norms develop that govern the relationship. Therefore not only legal sanctions are required for individuals and organizations to fulfill commitments. Parties involved in relational governance tend to rely more on trust, commitment, cooperation, satisfaction and relational norms than strictly on written contracts (Heide and John, 1992).

The dominant focus within the relational governance research has been on relational norms. Relational governance requires that socialization efforts take place, which have the aim of promoting social norms. Relational behaviours, the manifestation of relational norms, are central to the process of relational governance (Heide and John, 1992; Macneil, 1980). The safeguarding effect of relational norms against opportunism has been demonstrated in a number of studies (Heide and John, 1992; Gundlach et al., 1995), all of them at an organization level. Whereas opportunism reduces the trustworthiness of an exchange partner, relational norms provide the mechanism and motivation to be trustworthy and not behave opportunistically. Norms that govern relational exchanges encourage repeated interactions and information exchange between buyer and supplier, which then form the foundation of trust (Paulin and Ferguson, 2010; Zhang et al., 2003).

Relational norms are defined as shared expectations regarding behaviour between buyers and suppliers. They are a unique set of governance mechanisms that serves to prescribe and proscribe certain behaviours in exchange relationships (Macneil, 1980). Behaviour is controlled not through incentives (market governance) or fiat (hierarchy), but through internalization and moral control, i.e. a system of mutual and self-regulation (Gundlach et al., 1995; Joshi and Stump, 1999). The existence of relational norms in a buyer-supplier relationship is seen as an indicator of the harmony of both parties' interests which, in turn, reduces the risk of opportunistic behaviour (Ouchi, 1980). Relational norms address behavioral expectations in ongoing, present-day relationships. Such an emphasis on ongoing relationships makes relational norms distinct from other aspects of the relationship such as commitment, which focuses on future expectations in a relationship (Jap and Ganesan, 2000).

In recent literature relational norms are most often operationalized by the behaviour dimensions flexibility, information exchange, and solidarity (Heide and John, 1992; Jap and Ganesan, 2000). Buyers and suppliers that behave flexible to each other when problems occur, exchange confidential and critical information and show solidarity by aiming at common responsibilities and interest, will be less vulnerable to the development of opportunism in their relationship. High relational norm relationships may be characterized as partnerial or cooperative, while low relational norm relationships tend to be characterized as "arms length" or competitive.

We hypothesize the following:

**H2:** Relational norms is negatively related to supplier opportunistic behaviour.

It is well accepted that relational norms are not fully established at the early stages of a relationship but as relationships develop, relational norms evolve (e.g. Heide and John, 1992; Poppo and Zenger, 2002). Reaching such a higher level of relational norms is not without input. It requires substantial up-front investments of time, money, and personnel by both buyer and supplier (Frazier et al., 1988). Even when established, relational norms are fragile and require continuous maintenance and development (Dwyer et al., 1987; Larson, 1992). Hence, it is expected that in the initial phases of a buyer-supplier relationship, relational norms are not yet present. As the relationship continues in a satisfactory way for both parties, relational norms become established and start to function as a safeguard against opportunism. Gopalakrishna Pillai and Sharma (2003) describe the curve between relationship duration and buyer's relational orientation as being s-shaped for most of the buyer-supplier relationships.

However, evidence is available that such a (continuous) development of relational norms is not present in any buyer-supplier relationship, but instead a relationship could start to decline as it continues for a longer period. Some studies find an absence of positive effects of relationship duration, or even find negative effects

Lusch and Brown (1996) did not find associations between relationship duration and long-term orientation or a greater usage of explicit/normative contracts. Weiss & Kurland (1997) even found a negative relation between relationship duration and relational orientation in case of asymmetric investments. Villena et al. (2011) describe that as the level of cognitive social capital increases, performance begins to suffer because phenomena like “groupthink” and “isomorphism” set in. As social capital increases, the rate of benefits slows down as associated rigidities set in. It is expected that as the relationship continues for a longer period, eventually (one of the) parties commit(s) less energy into maintaining the relational norms which will consequently decline.

More specifically, in their explorative research Gopalakrishna Pillai and Sharma (2003) mention a number of antecedents that could cause a buyer’s relational orientation in a developed (mature) relationship to change to a more transactional orientation. These antecedents are a suppliers’ relational assets, transaction-specific investments by the buyer, quality of alternatives, higher levels of knowledge of seller, lack of innovation, dissatisfaction, personal/social bonds, and changes in the environment. In this change of orientation relational norms consequently decline.

In contrast to the dominant literature on relational norms we therefore expect the development of relational norms in a buyer-supplier relationship to increase from the start, reaching a maximum and when continuing for a longer period, to decline later on. As earlier described, relational norms provide a harmony of interests and suppress the possibility of opportunistic behaviours. An increase/decline of relational norms vice versa therefore leads to a decrease/increase of opportunistic behaviour.

We hypothesize the following:

- H3:** The relationship between relationship duration and relational norms is an inverted curvilinear relationship where relational norms initially increase up to an optimum after which they will decrease.
- H4:** The relationship between relationship duration and buyer opportunistic behaviour is a curvilinear relationship where buyer opportunistic behaviour initially decreases up to a minimum after which it will increase.

### 2.2.3 Power and dependence

In the channel literature it is argued that power is the major means available to achieve coordination and cooperation among channel members. Buyer power is defined as a buyer’s ability to control a supplier’s behaviour (Wilkinson, 1979). In the literature the terms “power” and “control” are often used interchangeably. Power is obtained through the possession and control of resources that are valued by the other party. These resources are the assets, attributes, and conditions within a relationship that generate and represent each channel member’s dependence, indebtedness, or allegiance to another (Dwyer, 1980; El-Ansary, 1975; Wilkinson, 1979). This shows that power and dependence are related constructs within buyer-supplier relationships.

Buyer’s dependence on a supplier refers to the costs for the buyer associated with terminating the relationship with that supplier and switching to an alternative supplier (Heide and John, 1988; Morgan and Hunt, 1994; Buchanan, 1992). A buyer that expects substantial switching and termination costs in its relationship with a supplier is said to be dependent on that supplier. Factors both external and internal to the buyer-supplier relationship contribute to the switching costs. The absence of easily available competing suppliers in the external environment (Pfeffer and Salancik, 1978) and the investment of specific assets by manufacturers within a supplier relationship (Anderson and Weitz, 1992; Williamson, 1985) are key determinants of buyer dependence on its supplier.

The relation between power and dependence is illustrated by the relative power position. A buyer's relative power position is calculated by the difference between the constructs of buyer's dependence and supplier's dependence. If the buyer depends on the supplier more than the supplier depends on the buyer, then the supplier has power over the buyer (Caniëls and Gelderman, 2010). For example, when a supplier controls resources that are important to a buyer, the buyer's relative power is low (i.e. the relative buyer dependence is high). In this situation the supplier is able to bargain aggressively, influencing the buyer's strategic decisions (Pfeffer and Salancik, 1978) and thus reducing the buyer's profitability. Buyer-supplier relationships like these have often been characterized as involving a high degree of conflict and dissatisfaction (Buchanan, 1992) and thus they are a breeding ground for supplier opportunism.

In the literature the direct relationship between power and opportunism has been studied (e.g. Joshi and Arnold, 1997; Ireland and Webb, 2007): in general, a dominant relative power position of the buyer is associated with a mitigating effect on supplier opportunism. This effect can be explained by two mechanisms (Caniëls and Gelderman, 2010): first, dependent suppliers will avoid opportunistic behaviour since the relationship is too important for them and a termination will cause large costs for them. Second, dependent suppliers know that there is a high chance that opportunistic behaviour will be reciprocated by a powerful buyer. This threat of repercussions alone is enough to withhold (or at least reduce) supplier opportunistic behaviour (Joshi and Arnold, 1997).

Next to the direct relationship between the buyer's relative power and supplier opportunism there is also an indirect effect, since power influences the use of contractual governance and relational norms. In general unilateral dependence is associated with contractual governance, while high and symmetrical dependence is associated with relational exchange (e.g. Heide, 1994; Gundlach et al., 1995).

With regard to the influence of power on the use of contractual governance, Heide and John (1988, p. 3) mention that "obtaining protection through market contracts depends on having sufficient (bargaining) power to extract safeguards" i.e. the more dominant the buyer's relative power position, the easier it can make use of contractual governance.

In the resource dependence theory and relational exchange literature it is mentioned that dependence is a major antecedent of relational norms. Resource dependence theory states that the dependent (i.e. less powerful) party should undertake actions to reduce its dependence. Pfeffer and Salancik (1978) suggest avoidance mechanisms/behaviour, such as diversification, creating alternatives and coordination. Such behaviour can be obtained by using relational norms (such as information exchange or flexible adjustment processes) that demonstrate a willingness to work with the partner (Zhang et al., 2003). This is illustrated by Joshi and Arnold (1998, p. 2) by the following: "Whereas dependence makes relational continuity a valued outcome, relational norms facilitate the achievement of this outcome".

We hypothesize the following:

- H5:** Buyer's relative power position is negatively related to supplier opportunistic behaviour;
- H6:** Buyer's relative power position is positively related to the use of contractual governance;
- H7:** Buyer's relative power position is negatively related to the use of relational norms.

Various studies refer to mutual dependence as an indicator for the intensity of a relationship. It has been identified as being important for buyer-supplier relationships (e.g. Frazier and Antia, 1995; Gundlach and Cadotte, 1994). The research of Lusch and Brown (1996) underscores the importance of studying mutual dependence, especially as it affects perceptions of relational exchange and the use of normative contracts.

Mutual dependence captures the existence of bilateral dependencies in the dyad, regardless of whether the two actors' dependencies are balanced or imbalanced (Casciaro and Piskorski, 2005). When high levels of mutual dependence exist, it is likely that both buyer and supplier foster the relationship, co-operate and refrain from opportunistic acts (Buchanan, 1992; Gundlach and Cadotte 1994). In such a situation a strong, co-operative long-term relationship exists in which both parties invest (Anderson and Weitz, 1989) and which is characterized by mutual trust and mutual commitment

(Geyskens et al., 1996). Increased mutual dependence therefore brings buyer and supplier in harmony with each other for the simple reason that they need each other. It is expected that together they will also build up more flexibility, information exchange, and solidarity and thus increase the relational norms.

**H8:** Relational norms is positively related to mutual dependence.

#### **2.2.4. Buyer opportunistic behaviour**

As mentioned in chapter 2.1, safeguards are installed to protect companies against the negative consequences of opportunism in buyer-supplier relationships. Following the saying “practice what you preach” it seems unlogical for buyers to install safeguards and on the other hand show opportunistic behaviour themselves. However, it cannot be prevented that such inconsequent buyer behaviour takes place and that it influences the effectiveness of the safeguards deployed.

Although the literature suggests that buyer opportunistic behaviour might have a moderating effect on the relationship between safeguards and supplier opportunistic behaviour (e.g. Jap and Ganesan 2000, Joshi and Arnold, 1997), it is rarely controlled for. One recent exception is the Caniëls and Gelderman (2010) study. They find a moderating effect of buyer opportunistic behaviour on the use of power as a safeguard against supplier opportunistic behaviour. More precisely they find that in case of high buyer opportunism the safeguarding effect of power is dissolved and turns into an opposite effect. In other words, power only works as a safeguard when it is not actually (mis-)used. Next to the moderating effect, a strong and positive association between buyer’s and supplier’s opportunistic behaviour was found.

In our study we also expect buyer opportunistic behaviour to have a moderating effect on the safeguards contractual governance and relational norms.

Parties structure complex contracts and rely upon the law to protect themselves against opportunism by the other party (Williamson, 1975; Achrol and Gundlach, 1999). This implies that it is not only a safeguard for the buyer, but also for the supplier. Contracts contain expectations about roles and responsibilities, outcomes to be delivered and contain adaptive processes for resolving unforeseeable outcomes (Lusch and Brown 1996; Poppo and Zenger 2002). Contracts therefore contain expectations about the partner’s behaviour. Opportunistic behaviour by a buyer can be seen as a violation of these expectations by the supplier. We expect that when a buyer acts opportunistically in a buyer-supplier relationship this will have its (negative) effect on the buyer’s compliance towards existing contractual agreements. We consequently expect this form of buyer opportunistic behaviour will be followed by the same form of behaviour from the supplier’s side. Contractual governance under low buyer opportunistic behaviour will therefore function more effectively as a safeguard against supplier opportunistic behaviour than does contractual governance under high buyer opportunistic behaviour. In this way the buyer’s opportunistic behaviour will decrease the safeguarding effect of contractual governance.

The use of relational norms highly relies on the solidarity of both buyer and supplier. Obviously when buyers show opportunistic behaviour they are not showing solidarity and thus they do not effectively support the use of relational norms. It is assumed this negatively influences the safeguarding effect of relational norms.

To further build on the moderating effect of buyer opportunistic behaviour, we hypothesize the following:

**H9:** High levels of buyer opportunism will decrease the safeguarding effect of relational norms on supplier opportunistic behaviour;

**H10:** High levels of buyer opportunism will decrease the safeguarding effect of contractual governance on supplier opportunistic behaviour.

### **2.2.5. Limitations organizational level perspective**

Both the use of contractual governance, relational norms, power and buyer opportunistic behaviour are characterized by a perspective of safeguarding against opportunism at the level of the organization. It seems remarkable to only study e.g. relational norms from this perspective. The core of relational norms is focusing on (acceptable and non-acceptable) behaviour of buyers and suppliers, which in practice is formed by the individuals within those companies. At the core of relationships are the agents that represent the individual buying and supplying companies, such as purchasers and sales people. It seems incomplete to look at companies' relational norms without studying the agents within those companies, and to find out whether they fit within and behave according to these relational norms. However, although the organizational perspective is dominant in the extant literature on opportunism safeguards, different critiques can be found on this limited approach.

Williamson (1993) already discusses that when individuals are presented with the opportunity, they will behave opportunistically when it is profitable. This assumption on opportunism is one important factor for the TCA theory and later on for the development of governance systems. The second important factor of TCA is the assumed bounded rationality of individuals. In short, bounded rationality is the concept that humans cannot know all of the pertinent facts and that limits of a person's cognitive ability means that a person will not always behave rationally. In this way, decision makers (agents) do not always act in the best interests of the firm due to a lack of information or a lack of cognitive ability. Although both of these two TCA factors have a direct link to the individual (i.e. agents) within a firm, much of the (TCA) literature on opportunism and safeguards (implicitly) treats opportunism as a firm-level phenomenon.

Tangpong, et al. (2010) and Tangpong and Ro (2009) are one of the first studies to identify the lack of knowledge on the role of agents in mitigating opportunism. The required investigation into opportunism factors at the individual's level is justified by referring to broader management and business literature on interorganizational dynamics. Research areas such as supply chain management and marketing have highlighted the importance of human agents in various aspects of exchange relationships. McCarter et al. (2005) for example highlight that for the successful performance of supply chains people are at least equally important as the use of IT technology. The findings of the Hung et al. (2009) study more specifically suggest that certain characteristics of decision making agents do matter in supply chain relationship dynamics.

By omitting the role of agents in opportunism safeguards (as is the case in most of the opportunism research), we therefore run the risk to address certain effects of these individuals characteristics and behaviours to that of firms. In the next section we will elaborate on the agent characteristics influencing opportunism.

## **2.3 Agent characteristics**

Agents are decision makers within firms. Being a purchaser or a salesman, each agent represents its firm and has personal interactions with agents of other firms. These interactions are important for the relationship between the firms (Villena et al., 2011; Haytko, 2004) such as between a buyer and a supplier. Frequent interactions at multiple contact points between a buying and a supplying firm provides a diversity of reliable information, leading to faster problem resolution and synchronized inter-firm processes. For example, interactions at top management level (such as between CEO's) creates close ties that subsequently leads to the exchange of sensitive information and the formulation of common strategies.

Because of these interactions agent characteristics play a major role in explaining idiosyncratic behaviours in buyer-supplier relationships. This is supported by the personality trait theory that states that individual behaviour is explained by personality characteristics. These (agent) characteristics are defined as relatively stable sets of psychological characteristics and behavioral attributes that differ from one individual to another (e.g. Weiss and Adler, 1984). Agent characteristics are reflected into the personal interactions and the managerial decisions that these agents make. By studying the managerial decision-making of agents it is possible to study agent characteristics. One important field

of managerial decision-making is the negotiation or conflict management that they perform. In a way the existence of opportunism can be seen as an outcome of conflict management.

Wilmot and Hocker (2001) have set up a framework for conflict management based upon the two dimensions assertiveness and cooperativeness. This means that the agent characteristics assertiveness and cooperativeness are the main factors that characterize the negotiations or conflict management that these agents carry out in their daily work. It is reasonable to expect that opportunism is related to the outcome of these negotiations or conflicts. According to Wilmot and Hocker, an agent will show cooperativeness when he is most concerned for others. Assertiveness will be shown when an agent is most concerned for himself. In this way the agent characteristics assertiveness and cooperativeness are supposed to have an influence on the rise or mitigation of opportunism.

Cooperativeness is multifaceted, consisting of elements of agreeableness, teamwork, and compassion. Highly cooperative individuals are described as tolerant, empathetic, supportive, compassionate, fair, and principle-centered. They are service-oriented and attempt to cooperate with others as much as possible; hence, cooperative individuals tend to be motivated more by a concern for others than by their own self-interest (Tangpong et al., 2010).

According to Wilmot and Hocker (2001), assertiveness is required when there exists a tendency of concern for oneself. The greater the concern for oneself, the greater the individual's assertiveness tendency. When you are assertive, you stand up for what you want and do not automatically give in to the other. A high level of assertiveness would be exhibited by an individual engaged in competition and collaboration strategies and a low level of assertiveness would be exhibited by an individual engaged in accommodation and avoidance strategies (Wilmot and Hocker, 2001).

Research by Tangpong and Ro (2009), Hung et al. (2009) and Tangpong et al. (2010) are amongst the few studies that have focused on the role of cooperativeness and assertiveness as two agent characteristics influencing buyer-supplier relationships and/or opportunism. The main contribution of these studies however is not that they describe the direct influence of agent characteristics on opportunism. Instead they are the first studies to show that agent characteristics influence opportunism via an interplay effect between agent characteristics and organizational level safeguards. Therefore for this study it is decided to further investigate and describe the role of cooperativeness and assertiveness on opportunism by its interplay effect with organizational level safeguards.

The Five Factor model on personality traits describes an emerging consensus on the structure of personality in five main factors, often labeled Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience (e.g. Costa and McCrae, 1992). The "Big Five" traits are found consistently using different research methods and have been recognized as genetically based, stable, and cross culture generalizable (e.g. McCrae and Costa, 1997).

In the literature the Big Five personality trait extraversion has earlier been related to the personality trait assertiveness (Vestewig and Moss, 1976; Costa and McCrae, 1992). In the operationalisation of the assertiveness construct we will be using extraversion as a proxy of assertiveness. In this way we can connect to the existing broad knowledge of the Five Factor model.

One of the most frequently studied Big Five traits, neuroticism, has also been studied in relationship with conflict and ethical behaviour. Neuroticism can be described as the tendency to experience negative affect and emotions such as fear, sadness, anger, and guilt (Bono et al., 2002). A positive relation between neuroticism and conflict (frequency and affect intensity) has been determined (Bolger and Zuckerman, 1995; McFatter, 1998). Individuals scoring high on neuroticism tend to report more conflicts (Bono et al., 2002). More specifically Antonioni (1998) found a positive relationship between neuroticism and an avoiding conflict style. Neurotic agents will therefore have a preference for avoiding conflicts. In their theoretical review Brown and Treviño (2006) suggest there is likely to be a negative relationship between neuroticism and ethical leadership, which was confirmed by Kalshoven e.a. (2011).

Opportunistic behaviour is characterized by the fact that one strives to keep its intentions and objectives opaque to its partner (Joshi and Arnold, 1997). In any case one does not want to openly confront the partner with and get into a direct conflict. Instead of presenting the conflict the opportunistic partner tries to get away with it by cheating the other party in an unethical way.

Opportunistic behaviour is therefore closely connected to both conflict and (un)ethical behaviour. Combining the literature on neuroticism, conflict and ethics, we expect buyer's agent neuroticism to have an influence on supplier opportunistic behaviour. This influence is mediated through buyer opportunism for two reasons.

First, agent behaviour is an example for the rest of the organization and/or (buying) department. Especially when the agent is a leader, its neurotic and resulting opportunistic behaviour can have a substantial impact on subordinates. Leaders' attitudes and actions towards suppliers manifest in subordinates' behaviours (Hawkins, 2007). Agent neuroticism thus influences opportunism of the buying organization as a whole. Second, recent literature (Caniëls and Gelderman, 2010) found a strong association between buyer's and supplier's opportunistic behaviour. Buyer and supplier treat each other in a way that is similar to how he is treated himself ('tit-for-tat'). We therefore hypothesize the following mediating effect:

**H11:** High levels of buyer's agent neuroticism increase supplier opportunistic behaviour through increased buyer opportunism.

In the agency theory human behaviour is usually simplified to a default which is the same for all individuals. Eisenhardt (1989) states that agency theory assumes that humans are self-interested, have a bounded rationality and have an aversion against risk. Fong and Tosi (2007) however have shown that the default human does not exist. They confirmed that the motivation to act opportunistically differs between individuals unlike what is assumed by agency theory. Specifically they studied the moderating effect of the Big Five personality trait conscientiousness on the principal's control of the agent. Conscientiousness refers to the extent to which someone is achievement oriented, dependable, persevering, hardworking, and deliberate (Fong and Tosi, 2007). Their research confirmed that less conscientious individual agents seem to behave opportunistically, whereas conscientious individual agents appear not to behave opportunistically.

When we consider the principal-agent relationship between the buying company (principal) and its buyer (buyer's agent) we therefore expect that the buyer's agent who is less conscientious will show more opportunistic behaviour. Although this opportunistic behaviour is initially directed towards the principal (the buying company), we expect that the same behaviour will be present directed towards the supplying company. We expect that the buyer's agent opportunistic behaviour will result in less compliance to the principal's (buying company) organizational safeguards in general. When not complying to or supporting of the organizational safeguards, less conscientious buyer's agents will thus decrease the safeguarding effect of contractual governance and relational norms.

## 2.4 Interplay effects agent characteristics and organizational level safeguards

Relationships between organizations are not faceless or monolithic. Rather they are actively handled and managed by individual boundary spanners whose orientations and motivations may well be different from those of the organizations as a whole (Zaheer et al. 1998). Therefore when studying a mixed-level phenomenon such as opportunism (being a characteristic of interorganizational relationships), we need to look at both the organizational level and the individual level simultaneously (Rousseau, 1985).

The literature on the interplay effects between the individual level and the organizational level on opportunism is limited. Most often the focus is either on the individual or on the organizational level, but rarely on the interplay between them. For example, although relational exchange theory (e.g. Macneil 1980) states that personal relations generate trust and discourage opportunistic behaviour between firms, this perspective does not explain the mechanisms by which individual-level action affects organizational-level outcomes (Zaheer et al. 1998).

Zaheer et al. (1998) have investigated the interplay between organizational trust and personal trust on (the performance of) buyer-supplier relations. Zaheer et al. (p2) underline the importance of interplay effects by stating "We maintain that theories of interfirm exchange that simply view opportunism—or conversely, trust—as a property of organizations without specifying the link between micro and macro levels is inaccurate as it tends to anthropomorphize the organization." Although the focus of the Zaheer et al. study is on trust instead of opportunism, it is relevant for our research since opportunism

can be seen as being the opposite of trust. The results of their research show that interpersonal and interorganizational trust have an interplay effect although they are distinct constructs, and play different roles in affecting the interorganizational relationship. Given the close connection of trust and opportunism, this indicates that such an interplay effect (could) also exist between opportunism antecedents at the individual level (such as agent characteristics) and at the organizational level (such as organizational safeguards).

Tangpong and Ro (2009) have studied the role of agent negotiation behaviours in buyer-supplier relationships. They especially focused on agents' assertiveness and cooperativeness influencing opportunism and the tendency to continue in a buyer-supplier relationship, after controlling for firm-level factors including dependence and relational norms. This research is one of the first to look at the interplay effects between agent characteristics and organizational level safeguards on opportunism in buyer-supplier relationships. Using a scenario-based experiment they showed that next to firm-level factors, agent-level factors (specifically cooperativeness) do matter in mitigating opportunism in buyer-supplier relationship. Next to that the research provides some preliminary evidence that agent-level cooperativeness and firm-level relational norms could potentially interact with each other in influencing opportunism.

Tangpong et al. (2010) confirmed the interplay effect by showing that models based on a mix of organizational-level and agent-level factors (*interactionist model*) better explained (the variance of) opportunism than did models consisting of either organizational-level factors (*organizationalist model*) or agent-level factors (*individualist model*). They showed a significant interplay effect of relational norms and agent cooperativeness in mitigating opportunism. The research however has got some limitations that require further investigation. First, they focused on the organizational-level safeguard relational norms only. Although relational norms are important, one could or should include other organizational-level safeguards such as contractual governance, power/dependence and buyer opportunistic behaviour. Second, they focused on agent cooperativeness as the main agent characteristic, where other (Big Five) characteristics should also be taken into account. Third, their analysis results are not extremely convincing to conclude that an interactionist model explains the variance in opportunism the best, neither does it explain or describe the mechanism behind this interplay such as a possible moderating effect of the agent characteristic cooperativeness on the use of relational norms. Fourth, their type of research (controlled experiments) limits the external validation of their study.

To further investigate the interplay effect of agent characteristics and organizational level safeguards, a number of model expansions will be introduced to the Tangpong (2010) model.

First, organizational level safeguards will be described by the variables relational norms, contractual governance, buyer's relative power, mutual dependence and buyer opportunistic behaviour. Second, agent characteristics will not only be described by the variable cooperativeness but also by the Big Five traits extraversion, conscientiousness and neuroticism. Third, the assumed interplay effect will be described more precisely by investigating the moderating effect of multiple agent characteristics on the use of organizational level safeguards. Following chapter 2.3 we therefore hypothesize the following:

- H12:** High levels of buyer's agent extraversion decrease the safeguarding effect of contractual governance on supplier opportunistic behaviour;
- H13:** High levels of buyer's agent cooperativeness increase the safeguarding effect of relational norms on supplier opportunistic behaviour;
- H14:** High levels of buyer's agent conscientiousness increase the safeguarding effect of relational norms on supplier opportunistic behaviour.
- H15:** High levels of buyer's agent conscientiousness increase the safeguarding effect of contractual governance on supplier opportunistic behaviour.

Summarizing the different hypotheses, the variables and their relations, figure 1 shows the total research conceptual model:

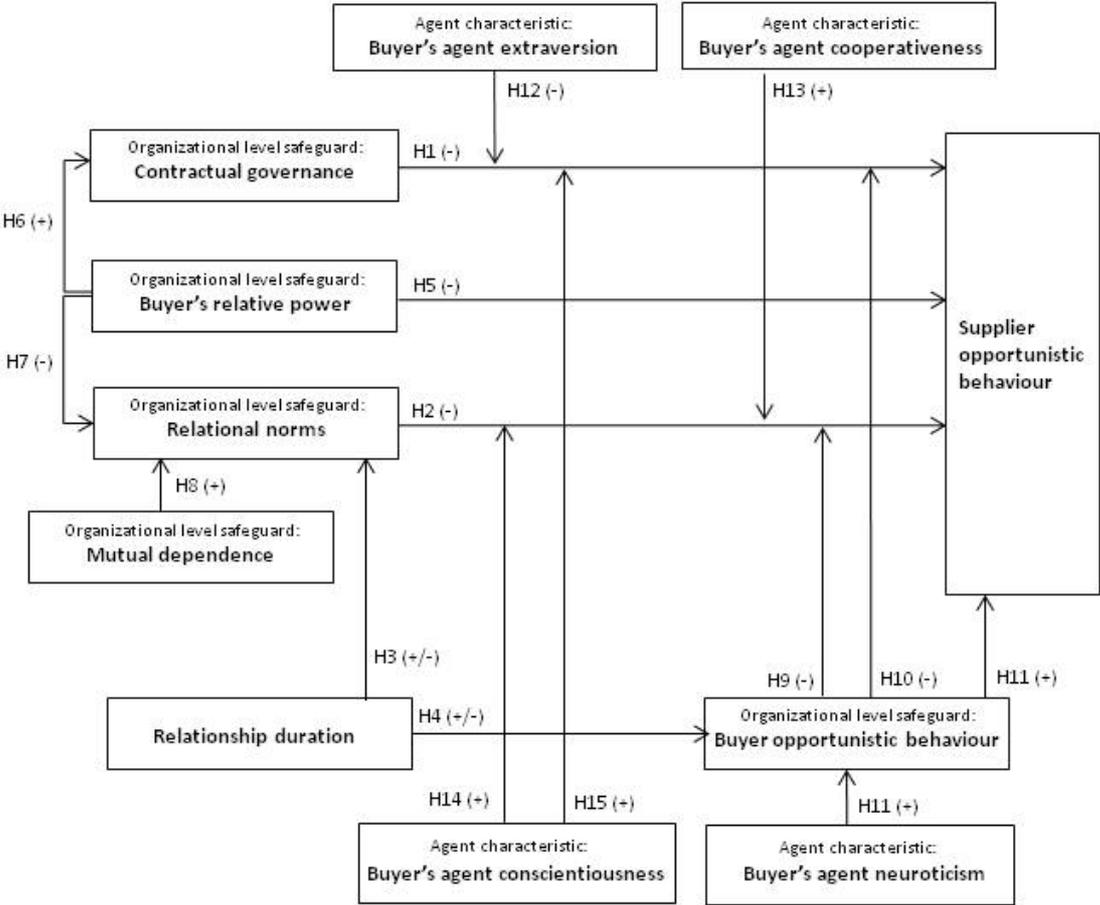


Figure 1. Conceptual model

# 3 Methodology

## 3.1 Research design

In order to examine the hypothesized relationships, we utilized a survey research design using structured questionnaires. The survey is cross-sectional since data has been collected at one point in time from a sample selected to represent a larger population. Amongst the general advantages of using a survey is that it provides the possibility to obtain a large sample, which is required for statistically testing the hypotheses. The use of e-mail and internet as a data collection mode, contributes to this advantage. For this research, where respondents are being asked questions on personality characteristics and opinions, it is specifically important that a survey provides the opportunity for respondents to respond on their personality and opinions anonymously.

## 3.2 Research setting and data collection

The context of this empirical study consists of the economic sectors in the Netherlands. The Dutch association for purchasing professionals (NEVI) supports this research and invited its members to participate and fill in the questionnaire. From the total association's database 6,236 members were selected who were identified as being active at a purchasing position. The members received a cover letter explaining the purpose of the study and instructions how to complete the questionnaire. To facilitate the respondents to easily enter the data into the questionnaire and for faster data analysis, a survey website (SurveyMonkey) was used. The cover letter contained an internet link to the online questionnaire at this dedicated website.

To maximize the response to the questionnaires, three measures were taken. First, members were informed that after completing the questionnaire they would receive a small premium (pdf file containing a purchase tool). Second, members were reminded to the questionnaire by a news item at the NEVI's website one week after the invitation. Third, respondents were given the opportunity to receive a copy of the research results.

The survey website was opened on June 23<sup>rd</sup> 2011 (when the invitation was sent) and closed 11 days after it. A total of 830 members responded. Respondents with job titles that were likely to be non-purchasing positions (e.g. consultant, instructor, etc.), and not completely answered questionnaires, were considered not to be usable. This resulted in a total of 677 responses, representing an overall response rate of 10.9 %.

## 3.3 Research models

Multiple models will be used to link the key variables in this research and to test the hypotheses. The first set of models (figure 2) concerns the moderating effect of agent characteristics (hypotheses 12,13,14 and 15) and buyer opportunistic behaviour (hypotheses 9 and 10) on the main organizational safeguards. Starting point is the base model with the direct effects of contractual governance, buyer's relative power and relational norms on supplier opportunistic behaviour (hypotheses 1, 2 and 5). By separately adding one of the four different interaction terms, four different hypotheses will be tested to identify the importance of these agent characteristics.

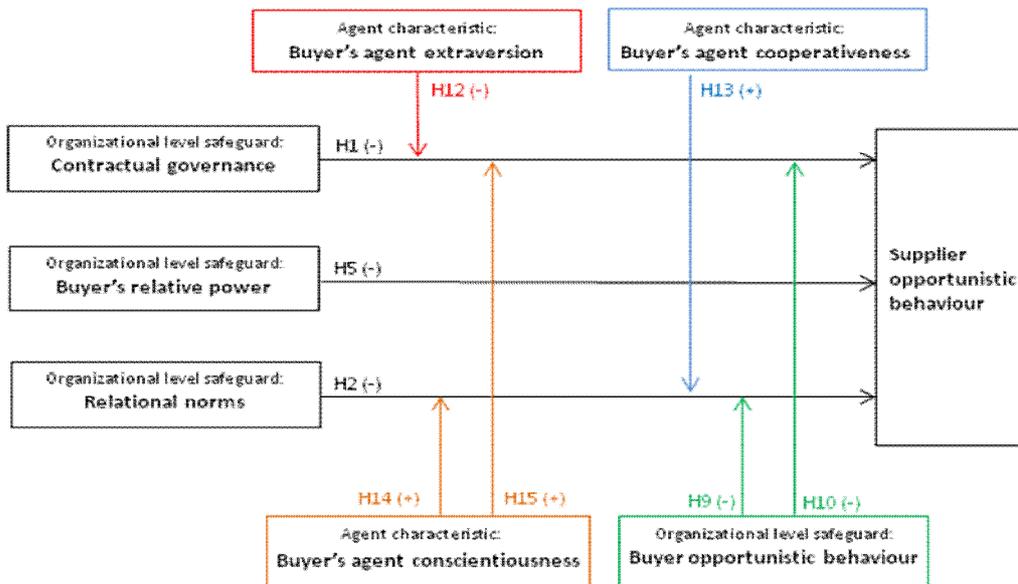


Figure 2. First model set

The second set of models (figure 3) concerns the direct relationship between organizational safeguards (hypotheses 6, 7 and 8) and the direct influence of the relationship duration on organizational safeguards (hypotheses 3 and 4). Each direct relationship (i.e. hypothesis) will be investigated separately by a two variables model.

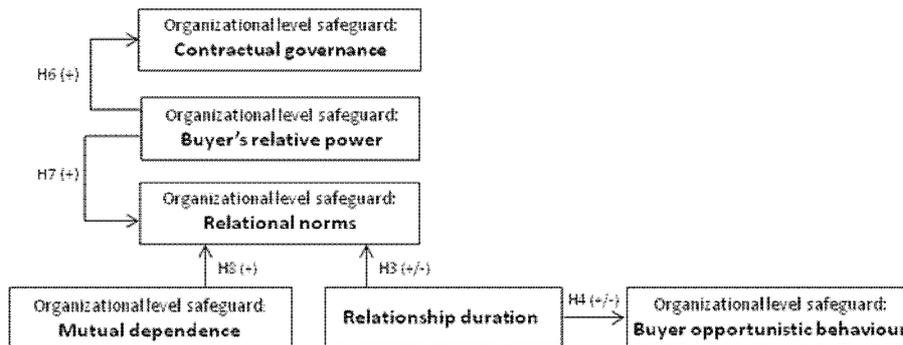


Figure 3. Second model set

The last model (figure 4) is used to investigate the mediating relationship between agent neuroticism and supplier opportunistic behaviour through buyer opportunistic behaviour (hypothesis 11).



Figure 4. Third model set

### 3.4 Measurement

With reference to the conceptual model (chapter 2, fig. 1), data were collected on six constructs related to organizational safeguards (i.e. contractual governance, buyer's relative power, mutual dependence, relational norms, supplier opportunism and buyer opportunism), four constructs related to agent characteristics (i.e. buyer's agent extraversion, cooperativeness, conscientiousness and neuroticism) and the single item construct relationship duration. Following the studies of Pfeffer (1981) and Caniëls and Gelderman (2007, 2010), the constructs of buyer's relative power and mutual dependence have been calculated from the constructs of buyer's dependence and supplier's dependence. These constructs have been measured using mostly existing and validated multiple-item scales from past research. Except for relationship duration (single item), all questionnaire items were measured using a five-point Likert-type scale (1-strongly disagree to 5-strongly agree). The appendix shows the construct variables, the corresponding measured items and the previous study it has been obtained from.

The survey items on both supplier and buyer opportunistic behaviour were adopted from Achrol and Gundlach (1999). The items measuring relational norms were adopted from Heide and John (1992). The items measuring contractual governance are based on Andaleeb (1995) and Caniëls and Gelderman (2010). Both buyer's and supplier's dependence are based on Lusch and Brown (1996) and Gelderman (2003). All survey items on the Big Five agent characteristics extraversion, conscientiousness and neuroticism are adopted from Lang et al. (2011). The agent characteristic cooperativeness is based on Tangpong et al. (2010). Buyer's relative power and mutual dependence are calculated out of buyer's dependence and supplier's dependence. The relative power position of the buyer is calculated by the difference between the constructs of buyer's dependence and supplier's dependence. If the supplier depends on the buyer more than the buyer depends on the supplier, then the buyer has got (relative) power over the supplier (Pfeffer, 1981; Caniëls and Gelderman, 2007, 2010). Mutual dependence is measured by weighing the total interdependence with the net dependence present in the relationship (Caniëls and Gelderman, 2007). A high level of mutual dependence is an indicator for a strong, co-operative long-term relationship in which both parties have invested a lot in terms of time, effort and money (Anderson & Weitz, 1989).

The construct items were written in the English language. Since the population consists of Dutch purchasers, the items (questions) were translated into the Dutch language by an experienced professional translator (Academic Cambridge English level). The Dutch translation was then double-checked by two other experienced academics and compared with the original English items with the purpose of establishing conformity of meaning. In case of inconsistencies the items have been reformulated. A pre-test was carried out by presenting the final online questionnaire to a small number of experienced purchasers at a Dutch multinational food organization. The questionnaire was tested for clarity, inconsistencies, time consumption and possible technical defaults in the online application. Based on the pre-test small corrections have been made to the questionnaire. It appeared that the questionnaire could be completed in 5 to 10 minutes time.

### 3.5 Reliability and validity

Reliability is the part of construct validity that is concerned with the quality, consistency and overall reliability of the measurement. Internal consistency is the most commonly used measure that examines how consistent results are for differing items for the same construct. Cronbach alpha is the most frequently used estimate of internal consistency.

A reliability analysis using Cronbach's alpha was performed to ensure the internal consistency of the items that constitute each construct (see appendix). In empirical studies, an alpha of above 0.60 is normally considered as adequate for assessing reliability with new scales, for existing scales an alpha of above 0.70 is normally considered as adequate. The agent conscientiousness-construct has been removed from further analysis, because the Cronbach's alpha did not exceed the threshold of 0.60. The other coefficients of Cronbach's alpha are all higher than 0.60, indicating an acceptable internal consistency and reliability of the constructs, see appendix. Additional correlation analysis showed that items that should be related are correlated, indicating convergent validity. In addition it was found that items that theoretically should not be related did not correlate (discriminant validity).

To assess the validity of the constructs and to identify a possible underlying factor structure, a factor analysis (principal components analysis with varimax rotation) has been carried out using SPSS. It is generally accepted that factor loadings should exceed the arbitrary 0.5 standard, suggesting that each of the items captures the constructs, they were designed to measure. We have applied "scale purification" by removing the items with low factor loadings or items that did not load on the same construct as the other related items did, resulting in a reduced set of items for each construct. The removed items for relational norms (three items), buyer opportunism (two items) and agent conscientiousness (one item) are indicated in the appendix. Additional correlation analysis showed that items that should be related are correlated (convergent validity) and items that should not be related did not correlate (discriminant validity).

Finally an outlier analysis was carried out to assess the influence of mild and extreme outliers. Using SPSS, 30 outliers were identified. The datasets including and excluding the outliers were compared with each other by analyzing the Cronbach's alpha and correlations matrices. Removing the outliers lead to a reduction of the Cronbach's alpha for each individual construct and a deterioration of the correlations. Therefore it was decided not to remove the outliers.

# 4 Results

## 4.1 Sample profile

In the final sample of 677 purchasers, the majority of the respondents was male (69%) and had an average age of 44 years. On average the respondents were experienced purchasers, being active at a purchasing position for 12 years. The vast majority of the purchasers were well educated since 73% of the respondents graduated at an university level (Dutch hbo/wo level). Most of the respondents (31%) had a position as a purchaser or purchasing assistant, followed by senior buyer (26%) and purchasing manager (16%). Most of the respondents' organizations were operating in the industrial economic sector (34%), followed by the governmental sector (10%), healthcare and welfare sector (10%) and the building/construction sector (8%). On average most of the respondents represented large organizations; 40% of the organizations had more than 1.000 employees and 50% had an annual (2010) turnover above 100 million Euro's. Within the industrial economic sector most organizations were active in the subsector of machinery and equipment (22%), followed by the metal industry (14%) and food industry (13%). Respondents were asked to respond on the questionnaire by focusing on a relationship with one of their suppliers. The average relationship duration with the focal supplier was 7 years.

## 4.2 Statistics and correlation

Multiple regression analysis was used to test the hypothesized moderating effect of agent characteristics and buyer opportunistic behaviour on the main organizational safeguards. Additionally the hypothesized direct relationships between organizational safeguards were investigated including the direct influence of relationship duration on organizational safeguards. Finally the hypothesized mediating relationship between agent neuroticism and supplier opportunistic behaviour through buyer opportunistic behaviour was tested. The means, standard deviations and correlations between the variables are shown in table 1.

Instead of an expected negative correlation between contractual governance and supplier opportunism, the correlation matrix shows a significant positive correlation ( $p < 0.001$ ), suggesting a stimulating instead of a mitigating effect of contractual governance. The construct of buyer's relative power is statistically distinct (instead of correlated) from the constructs of supplier opportunistic behaviour, suggesting that there is no safeguarding effect.

Hypothesis 6 predicted that buyer's relative power position is positively related to the use of contractual governance. Table 1 shows that the correlation is significant ( $p < 0.05$ ), but the correlation is negative instead of positive (-0.09). Hypothesis 6 could therefore not be supported. Hypothesis 7 predicted that buyer's relative power position is positively related to the use of relational norms. Table 1 shows that since the correlation is not significant this hypothesis cannot be supported. Hypothesis 8 predicted that relational norms is positively related to mutual dependence. Table 1 shows that there is a significant positive correlation (0.15,  $p < 0.001$ ). Thus hypothesis 8 was supported.

All control variables (age, education level, tenure, gender and firm size) have one or more significant correlations with the main model variables. Note that the firm size (by turnover and by employees) positively correlates with contractual governance and negatively correlates with relational norms, suggesting that larger firms make more use of contractual governance as a safeguard and make less use of relational norms. Supplier opportunism is positively correlated to education and firm size but is negatively correlated to tenure. The buyer's agent age is negatively correlated to buyer's opportunism and buyer's agent neuroticism. To correct the tested models for the influence of the control variables, they will be taken into account in the different multiple regression analyses. Since the control variables firm size by employees and firm size by turnover have comparable significant correlations with the same variables, we choose to represent firm size by the number of employees only.

	Scale	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Supplier opportunistic behaviour	1 to 5	2.81	0.71															
2. Contractual governance	1 to 5	3.18	0.72	0.19***														
3. Buyer's relative power	-4 to 4	0.04	0.87	0.01	-0.09*													
4. Relational norms	1 to 5	3.62	0.57	-0.54***	-0.14***													
5. Buyer opportunistic behaviour	1 to 5	2.41	0.73	0.35***	0.08*	-0.04												
6. Buyer's agent extraversion	1 to 5	3.60	0.69	-0.07	0.05	-0.07	-0.16***											
7. Buyer's agent cooperativeness	1 to 5	3.95	0.49	0.00	0.10**	-0.05	0.08*	-0.08*										
8. Buyer's agent neuroticism	1 to 5	2.31	0.68	0.15***	0.02	0.01	0.11**	0.04	0.29***									
9. Mutual dependence	0 to 10	4.96	1.41	-0.03	0.01	-0.04	-0.07	0.14***	-0.19***	-0.10**								
10. Relationship duration	years	7.05	6.35	-0.15***	-0.06	0.09*	0.12**	0.00	0.01	0.00	0.03							
11. Age	years	43.50	9.19	-0.06	-0.05	0.01	0.02	-0.13**	0.02	0.07	-0.16***	0.18***						
12. Education <sup>1</sup>	1 to 4	3.70	0.51	0.17***	0.03	0.06	-0.11**	0.06	0.01	0.04	-0.07	0.08*	-0.13**					
13. Tenure	years	11.60	8.76	-0.09*	-0.07	0.03	0.07	-0.07	0.03	0.03	-0.15***	0.03	0.23***	-0.05				
14. Gender <sup>2</sup>	1 or 2	1.18	0.39	0.00	0.03	-0.02	-0.01	0.00	0.08*	-0.02	0.03	-0.02	-0.09*	0.16***	-0.01	-0.14***		
15. Firm size by employees <sup>3</sup>	1 to 5	3.42	1.55	0.16***	0.26***	-0.04	-0.15***	0.02	0.01	0.02	-0.03	-0.06	-0.09*	0.06	0.17***	0.05	-0.02	
16. Firm size by turnover <sup>4</sup>	1 to 6	4.34	1.43	0.11**	0.21***	0.01	-0.10*	-0.02	0.00	0.03	-0.07	0.04	0.00	-0.03	0.18***	0.02	-0.09*	0.74***

Notes: N = 677  
<sup>1</sup> Education levels (Dutch system)

1 = primary education  
2 = lower general secondary education (mavo, vbo, vmbo)  
3 = higher general secondary & pre-university education (havo/vwo, mbo)  
4 = university (hbo / wo)

<sup>2</sup> Gender  
1 = male  
2 = female

<sup>3</sup> Categories firm size by employees (full time equivalent, excluding temporary labour)  
1 = < 1.000  
2 = 100-200  
3 = 201-500  
4 = 501-1.000  
5 = > 1.000

<sup>4</sup> Categories firm size by turnover (million Euro)  
1 = < 5  
2 = 5 - 10  
3 = 10 - 25  
4 = 25 - 100  
5 = 100 - 500  
6 = > 500

**Table 1.** Means, standard deviations and correlations

### 4.3 Regression analysis

As described in chapter 3 the hypotheses will be tested by applying regression analysis on three different sets of models (chapter 3, fig. 2-4). Below the regression analyses per model set will be described in more detail.

#### 4.3.1. Moderating effects agent characteristics and buyer opportunism

For the first model set (chapter 3, figure 2), the moderating effect of the two agent characteristics (extraversion and cooperativeness) and buyer opportunistic behaviour on the main organizational safeguards will be tested. This is carried out by testing two individual models.

- The first model contains the base model (main organizational safeguards and supplier opportunistic behaviour), plus the interaction terms for agent extraversion and cooperativeness. To test the influence of the agent characteristics on the main organizational safeguards, regression analysis has been carried out with, and without the relevant interaction terms. The results of the regression analyses are presented in table 2.
- The second model contains the base model and the interaction terms for buyer opportunistic behaviour. To test the influence of buyer opportunistic behaviour on the main organizational safeguards, the regression analysis results have been carried out with, and without the relevant interaction terms. The results of the regression analyses are presented in table 3.

To correct the tested models for the influence of the control variables, they are added to the models. Note that agent conscientiousness was removed from the model set because its construct had a lack of internal consistency (thus hypotheses 14 and 15 could not be tested).

**Table 2.** Regression analysis with agent extraversion and cooperativeness

Dependent variable: Supplier opportunistic behaviour	Bêta		
	Control model	Control + directs model	Full model
<i>Independent variables (centralized)</i>			
<i>Control variables</i>			
Age	0.00 (0.951)	-0.01 (0.662)	0.00 (0.625)
Education	0.19*** (0.000)	0.13** (0.003)	0.13** (0.004)
Tenure	-0.01 (0.054)	0.00 (0.297)	0.00 (0.328)
Gender	-0.03 (0.717)	-0.04 (0.533)	-0.03 (0.633)
Firm size (fte)	0.06*** (0.000)	0.02 (0.171)	0.02 (0.173)
<i>Direct effects</i>			
Contractual governance		0.10** (0.003)	0.15** (0.004)
Buyer's relative power		0.00 (0.987)	0.00 (0.934)
Relational norms		-0.64*** (0.000)	-0.70*** (0.000)
<i>Interaction effects</i>			
Buyer's agent extraversion x contractual governance			-0.02 (0.171)
Buyer's agent cooperativeness x relational norms			0.02 (0.247)
<i>Intercept</i>	2.01*** (0.000)	4.40*** (0.000)	4.42*** (0.000)
R <sup>2</sup>	0.05	0.33	0.33
Adjusted R <sup>2</sup>	0.05	0.32	0.32
F value	7.353*** (0.000)	40.450*** (0.000)	32.646*** (0.000)
ΔR <sup>2</sup>		0.28	0.00
ΔF		90.604*** (0.000)	1.289 (0.276)

*Notes:* Unstandardized coefficients are reported; independent variables were centred.  
P values are reported between parentheses. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; N=677

**Table 3.** Regression analysis with buyer opportunistic behaviour

Dependent variable: Supplier opportunistic behaviour	Bêta		
	Control model	Control + directs model	Full model
<i>Control variables</i>			
Age	0.00 (0.951)	-0.01 (0.662)	0.00 (0.588)
Education	0.19*** (0.000)	0.13** (0.003)	0.12** (0.004)
Tenure	-0.01 (0.054)	0.00 (0.297)	0.00 (0.209)
Gender	-0.03 (0.717)	-0.04 (0.533)	-0.03 (0.540)
Firm size (fte)	0.06*** (0.000)	0.02 (0.171)	0.02 (0.156)
<i>Direct effects</i>			
Contractual governance		0.10** (0.003)	0.14 (0.054)
Buyer's relative power		0.00 (0.987)	0.00 (0.963)
Relational norms		-0.64*** (0.000)	-0.82*** (0.000)
<i>Interaction effects</i>			
Buyer opportunistic behaviour x relational norms			0.09*** (0.000)
Buyer opportunistic behaviour x contractual governance			-0.03 (0.357)
<i>Intercept</i>	2.01*** (0.000)	4.40*** (0.000)	4.20*** (0.000)
R <sup>2</sup>	0.05	0.33	0.40
Adjusted R <sup>2</sup>	0.05	0.32	0.39
F value	7.353*** (0.000)	40.450*** (0.000)	44.059*** (0.000)
ΔR <sup>2</sup>		0.28	0.07
ΔF		90.604*** (0.000)	39.484*** (0.000)

Notes: Unstandardized coefficients are reported; independent variables were centred.  
P values are reported between parentheses. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; N=677

Both table 2 and 3 show the same consistent results on the direct (safeguarding) effects of the main organizational safeguards (contractual governance, relative power and relational norms) on supplier opportunistic behaviour. Contractual governance does have a significant effect on supplier opportunistic behaviour but instead of an expected negative (mitigating) effect, it appeared that it has got a positive effect. Therefore hypothesis 1 was not supported. This suggests that the use of contractual governance as a means to protect the buyer against supplier opportunism does not have the expected result. Both tables show that there is no safeguarding effect against supplier opportunistic behaviour through the use of buyer's relative power. It appears that buyer's relative power does not have a significant effect on supplier opportunism hence hypothesis 5 was not supported. Relational norms do have a strong safeguarding effect on supplier opportunism hence hypothesis 2 was supported.

In the first model hypothesis 12 predicted that buyer's agent characteristic extraversion would decrease the safeguarding effect of contractual governance on supplier opportunistic behaviour. Hypothesis 13 predicted that buyer's agent characteristic cooperativeness would increase the safeguarding effect of relational norms on supplier opportunistic behaviour. However, introducing both interaction terms to the base model showed that both agent characteristics do not have a significant influence (table 2). The interaction terms are not significant and introducing them did not improve the (unadjusted) R<sup>2</sup> of 0.33. Therefore hypothesis 12 and 13 could not be supported.

In the second model the moderating effect of buyer opportunism on contractual governance and relational norms was tested. Hypothesis 9 and 10 expected that buyer opportunism would have a mitigating effect on the safeguarding effect of both relational norms and contractual governance. Table 3 confirms that by adding both interaction terms, the R<sup>2</sup> increased from 0.33 to 0.40, showing a significant change of 0.07 (p<0.001). Since the interaction term of buyer opportunistic behaviour and contractual governance was not significant, hypothesis 10 was not supported. Therefore the model improvement can be fully allocated to the interaction term of buyer opportunism and relational norms

( $p < 0.001$ ). This leads to the conclusion that buyer opportunistic behaviour reduces the safeguarding effect of relational norms on supplier opportunistic behaviour, thus hypothesis 9 was supported.

#### 4.3.2 Interaction organizational safeguards and direct influence relationship duration

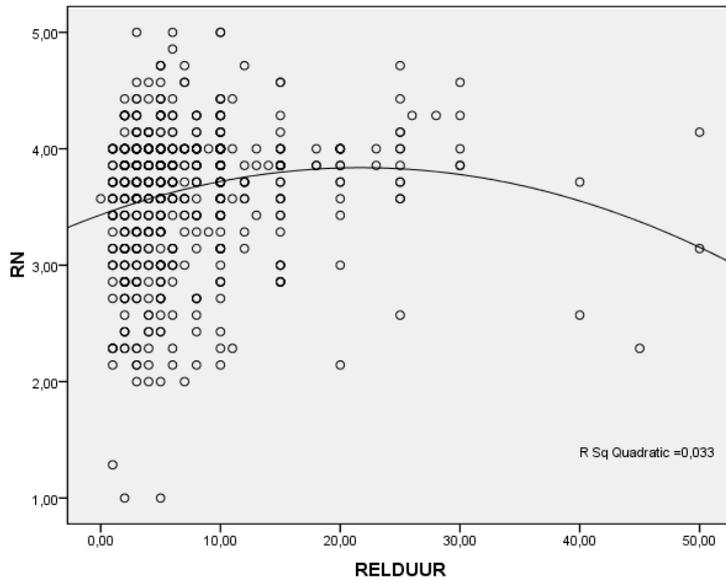
The second set of models (chapter 3, figure 3) tested the direct relationships between organizational safeguards and the direct influence of relationship duration on organizational safeguards. Hypotheses 6, 7 and 8 have been tested earlier based on the correlation matrix (§ 4.2). Hypotheses 3 and 4 were tested separately using regression analysis. Since hypothesis 3 and 4 predicted a (inverted) curvilinear relationship they could not be tested using linear regression analysis only, but instead required additional second order regression analysis. First the  $R^2$  values for both a first order (linear) regression and a second order (quadratic) regression were compared, to find out if a second order regression better described the relationships.

Table 4 shows the comparison between the linear and quadratic regression analysis for the relationship between relationship duration and relational norms (hypothesis 3). The  $R^2$  increased by 0.01 indicating that a second order relationship better describes this relationship. Figure 5 shows the second order relationship (line) against the measured data (plotted dots). The expected inverted curvilinear relationship is present; from the start of the relationship between buyer and supplier, relational norms initially increase up to an optimum, but as the relationship continues and matures it will start to decrease. Hypothesis 3 was therefore supported. For the relationship between relationship duration and buyer opportunistic behaviour (hypothesis 4), the  $R^2$  values were the same for both the linear and quadratic regression. Therefore hypothesis 4 was not supported.

**Table 4.** Linear and quadratic regression for relationship between duration and relational norms

Dependent variable: Relational norms	Bèta		
	Control model	Control + directs model	Full model
<i>Control variables</i>			
Age	0.0 (0.503)	0.00 (0.648)	0.00 (0.653)
Education	-0.10* (0.025)	-0.10* (0.020)	-0.09* (0.035)
Tenure	0.01 (0.078)	0.00 (0.234)	0.00 (0.333)
Gender	-0.01 (0.858)	0.00 (0.997)	0.00 (0.958)
Firm size (fte)	-0.05** (0.001)	-0.04* (0.051)	-0.04** (0.009)
<i>Direct effects</i>			
Mutual dependence		0.06*** (0.000)	0.06*** (0.000)
Relationship duration		0.01 (0.051)	0.03*** (0.000)
(Relationship duration) <sup>2</sup>			0.00** (0.002)
<i>Intercept</i>	4.18*** (0.000)	3.83*** (0.000)	3.69*** (0.000)
$R^2$	0.03	0.06	0.07
Adjusted $R^2$	0.02	0.05	0.06
F value	4.320** (0.001)	5.636*** (0.000)	6.230*** (0.000)
$\Delta R^2$		0.03	0.01
$\Delta F$		8.673*** (0.000)	9.856** (0.002)

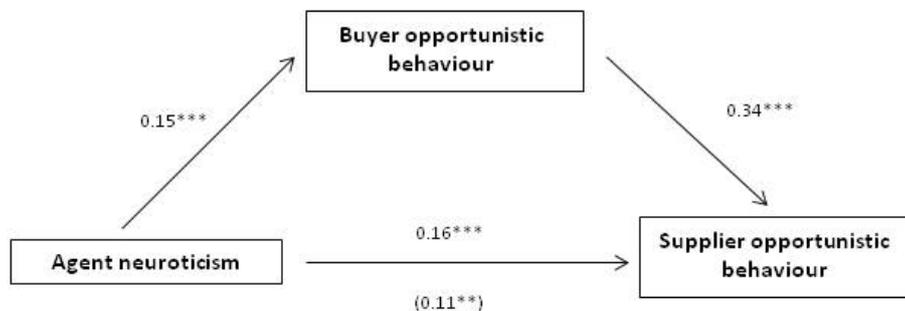
*Notes:* Unstandardized coefficients are reported; independent variables were centred.  
P values are reported between parentheses. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ;  $N = 677$



**Fig. 5** Plot diagram showing relationship between relationship duration and relational norms (Rsq linear = 0,013)

#### 4.3.3 Mediating relationship neuroticism and supplier opportunism

The third set of models (chapter 3, figure 4) predicted a mediating relationship of buyer's agent neuroticism and supplier opportunistic behaviour via buyer opportunistic behaviour (hypothesis 11). The relationship between agent neuroticism and supplier opportunistic behaviour is decomposed into two effects (figure 6).



**Fig. 6.** Regression coefficients for the relationship between neuroticism and supplier opportunism as mediated by buyer opportunism. The regression coefficient between neuroticism and supplier opportunism controlling for buyer opportunism is in parentheses.

The first effect is the direct effect of agent neuroticism on supplier opportunistic behaviour, the second effect is the indirect effect of agent neuroticism on supplier opportunistic behaviour through the mediator buyer opportunism. To test for mediation a causal step method is used, where the mediation regression equations are evaluated sequentially (e.g. Baron and Kenny, 1986).

First, a significant overall effect of agent neuroticism on supplier opportunistic behaviour is required. Linear regression showed that there is a significant effect ( $\beta=0.16$ ,  $p<0.001$ ). Second, agent neuroticism must affect the mediator buyer opportunism and buyer opportunism must affect supplier opportunistic behaviour. Linear regression showed that both the regressions of neuroticism on buyer

opportunism ( $\beta=0.15$ ,  $p<0.001$ ) and buyer opportunism on supplier opportunism ( $\beta=0.34$ ,  $p<0.001$ ) are significant. Finally the overall effect of neuroticism on supplier opportunism must be greater than the direct effect of neuroticism on supplier opportunism that remains when controlling for the mediator. Using multiple regression analyses supplier opportunism was regressed on both buyer opportunism and neuroticism showing a reduction of the effect of neuroticism on supplier opportunism since  $\beta$  changed from 0.16 ( $p<0.001$ ) to 0.11 ( $p<0.01$ ). This leads to the conclusion that there is a partly mediation of the relationship between agent neuroticism and supplier opportunistic behaviour via buyer opportunistic behaviour. Hypothesis 11 was therefore partly supported.

#### 4.3.4 Hypotheses results

Table 5 summarizes the hypotheses results as described in this chapter.

**Table 5.** Hypotheses results.

Hypothesis		Result
1	Contractual governance negatively related to supplier opportunism	Not supported
2	Relational norms negatively related to supplier opportunism	Supported
3	Inverted curvilinear relationship between duration and relational norms	Supported
4	Curvilinear relationship between duration and buyer opportunism	Not supported
5	Buyer's relative power negatively related to supplier opportunism	Not supported
6	Buyer's relative power positively related to contractual governance	Not supported
7	Buyer's relative power negatively related to relational norms	Not supported
8	Relational norms positively related to mutual dependence	Supported
9	Buyer opportunism decreases safeguarding effect relational norms	Supported
10	Buyer opportunism decreases safeguarding effect contractual governance	Not supported
11	Neuroticism increases supplier opportunism through buyer opportunism	Partly supported
12	Extraversion decreases safeguarding effect contractual governance	Not supported
13	Cooperativeness increases safeguarding effect relational norms	Not supported
14	Conscientiousness increases safeguarding effect relational norms	Could not be tested
15	Conscientiousness increases safeguarding effect contractual governance	Could not be tested

# 5 Conclusions, discussion and recommendations

## 5.1 Conclusions

Whereas most research on safeguards has been carried out from an organizational perspective, little research has been carried out on the role that individuals play in the prevention and mitigation of opportunism. Organizational safeguards such as contractual governance, power/dependence and relational norms are well studied but there is a lack of attention on the role of individual agents, such as purchasers and sales people, on preventing opportunism. There is also an increasing awareness that the interaction and complementary usage of individual safeguards provides the best potential for safeguarding against opportunism (Vázquez et al., 2007; Zheng et al., 2008). However, little is known about the interaction between organizational safeguards and agent behaviour in mitigating opportunism.

This study is one of the first to investigate the interplay effects between organizational level safeguards and the agent personality characteristics that define agent behaviour. Building on the pioneering research of Tangpong et al. (2010) we have developed a model consisting of multiple organizational safeguards and multiple agent characteristics. Instead of using small scale controlled experiments (as Tangpong et al. did) we utilized a large scale survey to statistically test the 15 hypotheses on the interplay effects between agent characteristics and organizational level safeguards on supplier opportunistic behaviour in buyer-supplier relationships. Figure 7 gives an overview on the main findings by showing the hypotheses results in the conceptual model.

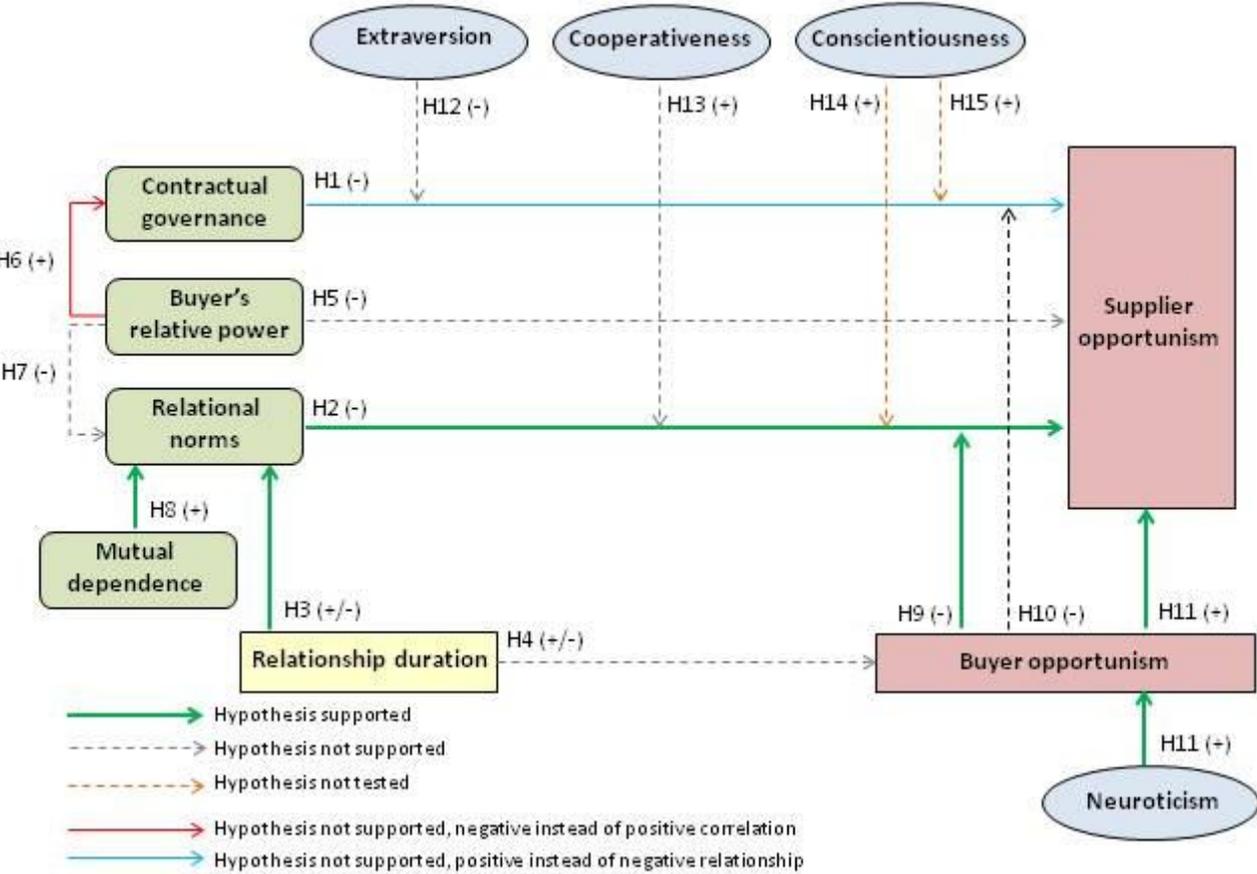


Fig. 7 Hypotheses results in conceptual model

The findings present some remarkable outcomes on the effectiveness of the organizational safeguards. The results indicate that contractual governance and relational norms have a significant impact on supplier opportunistic behaviour. As expected, relational norms have a strong negative effect on supplier opportunistic behaviour. Contrary to our expectations, the data showed that contractual governance seemed to have a positive association with supplier opportunism. Apparently, using contractual governance does not necessarily result in the mitigation of supplier opportunism.

We hypothesized that the relative power position of the buyer would have a negative effect on the opportunistic behaviour of suppliers. However, we could not establish a significant impact of the buyer's relative power on the opportunistic behaviour of a supplier.

Introducing buyer opportunistic behaviour into our model showed that it improved our understanding of supplier opportunism. It turned out that buying companies that show a high level of opportunistic behaviour reduce the safeguarding effect of relational norms on supplier opportunism. Buyer opportunistic behaviour was found not to affect the influence of contractual governance on supplier opportunism.

Buyer's relative power position was found to be negatively related to the use of contractual governance. This suggests that a dominant buyer will make less use of contractual governance than a dominated buyer. No significant relation was found between the buyer's relative power position and the use of relational norms. We did find a significant impact of the mutual dependence on the use of relational norms. This relationship implies that mutual dependence is positively associated with relational norms.

We did not find a moderating influence of the relationships between agent characteristics and supplier opportunistic behaviour. The buyer's agent characteristic extraversion did not influence the relationship between contractual governance and supplier opportunistic behaviour, nor did agent cooperativeness influence the relationship between relational norms and supplier opportunistic behaviour. However, we did find an indirect influence of an agent characteristic on supplier opportunistic behaviour. We found a partly mediation of the relationship between agent neuroticism and supplier opportunistic behaviour via buyer opportunistic behaviour.

The duration of a relationship between buyer and supplier was found to influence the development of relational norms. We found a curvilinear relationship between these variables. From the start of the relationship between buyer and supplier, relational norms initially increase, but as the relationship continues and matures they will start to decrease again. Apparently, there is an optimum in the level of relational norms in the course of time. At the optimum level, relational norms have the strongest safeguarding effect on supplier opportunistic behaviour.

## 5.2 Discussion

The results indicate that the use of relational norms is the strongest and most significant organizational safeguard for mitigating supplier opportunistic behaviour. These results are in accordance with the outcomes of other studies that reported a mitigating effect of relational norms on opportunistic behaviour (e.g. Gundlach e.a., 1995; Heide and John, 1992; Lusch and Brown, 1996; Caniels and Gelderman, 2010). It is also in line with the extant literature based on social exchange theory (SET) that underlines the importance of using relational norms for safeguarding against opportunism (e.g. Achrol and Gundlach, 1999; Heide and John, 1988,1992).

Based upon the reasoning of transaction cost analysis (TCA), we predicted a safeguarding effect of contractual governance on opportunism. However, the data in our study reveals a positive instead of a negative relationship between contractual governance and opportunism. This result does not identify the exact causal relationship and could therefore be explained by two reasonings. Either, using contractual governance increases (instead of reduces) supplier opportunistic behaviour, or, opportunistic supplier behaviour increases the use of contractual governance by the buyer.

In the first reasoning, a stimulating effect of contractual governance on opportunism, the use (or misuse) of contracts is considered to harm the relationship and stimulate supplier opportunism. An explanation for the stimulating effect of contractual governance could be that contractual governance and relational norms are considered to be substitutes rather than complements (cf. Lazzarini et al. 2004), where one governance mechanism may hinder or even preclude the use of the other (cf. Poppo and Zenger 2002). Thus the counterproductive use of contractual governance in our study could be explained by the effective use of relational norms at the same time. While using relational norms builds up trust and reduces opportunism, the use of contracts could break down trust and stimulate opportunism. This reasoning contradicts with the existing TCA literature in which contracts form an effective safeguard (e.g. Williamson 1985). It attributes to other studies in which a stimulating effect of contractual governance has been reported too (e.g. Woolthuis e.a., 2005; Lusch and Brown, 1996; Young and Wilkinson 1989; Ferguson et al., 2005).

The second reasoning on the positive association between contractual governance and supplier opportunism is that opportunistic supplier behaviour causes buyers to increase the use of contractual governance. Woolthuis e.a. (2005) describe that the use of contracts can have many functions, safeguarding being (just) one of them. They also found that the use and content of contracts depends on the relationship itself. In a trusting atmosphere, negotiating the contract can be seen as a process of getting to know and understand each other whereas in an opportunistic atmosphere contract negotiations “resemble the battlefield”. Therefore when a supplier behaves opportunistically the corresponding atmosphere could cause the buyer to increase its use of formal contracts to safeguard itself against the negative effects. This reasoning refines the TCA literature in which the use of contracts is seen as a preventative measure to protect against future opportunistic behaviour. Instead, in our reasoning, the use of contracts is seen as a result of existing opportunistic behaviour.

Both reasonings shed another light on the existing TCA literature regarding contractual governance and its relationship with (supplier) opportunistic behaviour, and increase our understanding on this subject. The perspective on the use of contracts in buyer-supplier relationships has been widened. First of all we need to consider that contractual governance not necessarily contributes to the safeguarding of opportunistic behaviour, instead it could work counterproductive. Second we need to consider that contractual governance is not necessarily set up to safeguard against future opportunistic behaviour, it can also be the result of existing opportunistic behaviour.

The results of this study indicate that the safeguarding effect of relational norms is affected by the buyer’s opportunistic behaviour. When a buying company behaves in an opportunistic way, it will reduce the mitigating effect of relational norms on supplier opportunistic behaviour. This is most likely explained by the fact that opportunistic buyers do not show solidarity with their suppliers and thus do not effectively support the use of relational norms (that rely on solidarity between buyer and supplier). This finding adds to the literature that did not report on such a moderating effect.

In our study buyer opportunistic behaviour did not seem to affect the relationship between contractual governance and supplier opportunistic behaviour. This finding is in conflict with existing literature (e.g. Lusch and Brown, 1996; Poppo and Zenger, 2002) in which contracts contain expectations about the partner’s behaviour. Based upon this literature opportunistic behaviour by a partner is seen as a violation to these expectations and is expected to influence the (effective) use of contractual governance. In contrast our study shows that such a violation by the buyer (through opportunistic behaviour) does not affect the relationship between contractual governance and supplier opportunistic behaviour. Although our findings are in contrast with the existing literature, some reasoning can be found. We expected contractual governance to have a safeguarding effect but our results instead suggest a stimulating effect on supplier opportunism. In case the use of contracts already increases supplier opportunism, there will probably be no additional (increasing) effect of buyer opportunism.

The results indicate that the role of buyer’s relative power in mitigating supplier opportunism is not in line with our expectations. No significant correlation was found between buyer’s relative power and supplier opportunistic behaviour or relational norms. A correlation between buyer’s relative power and contractual governance was found but instead of a positive correlation a negative correlation was found.

Our expectations on the mitigating effect of the buyer's relative power were based on existing studies such as Joshi and Arnold (1997) and Ireland and Webb (2007) who associated a dominant relative power position with a mitigating effect on opportunism. Our study finds no support for the reasoning that a better relative power position for the buyer acts as a safeguard against supplier opportunistic behaviour. Apparently the decision for a supplier to act opportunistically is not influenced by its relative power position towards the buyer.

In contrast with our survey, these studies did not use a model with multiple organizational safeguards simultaneously. Our results confirm an earlier study on opportunism safeguards by Caniëls and Gelderman (2010) who also used a model containing multiple safeguards and found no relationship between buyer's relative power and supplier's opportunistic behaviour. This leads to the assumption that relative power loses its importance as an opportunism safeguard when it is simultaneously used with much more powerful safeguards such as relational norms and contractual governance.

In our study dominant buyers did not increase the use of contractual governance. The more powerful buyers did not (mis)use their relative power position towards the supplier for setting up more contracts to safeguard against supplier opportunism, compared to less powerful buyers. This is in conflict with Heide and John (1988) who stated that the possession of power increases the use of contracts as a safeguard. Instead we found that when the buyer increases its relative power position, he reduces the use of contractual governance. An explanation for our finding could be that the threat of being more powerful causes the buyer to think that a supplier will withhold opportunistic behaviour anyway, reducing the necessity for using contracts.

Mutual dependence was found to stimulate the use of the relational norms between buyer and supplier. This result is in line with existing literature in which increased mutual dependence was found to lead to more fostered relationships and cooperation (Buchanan, 1992; Gundlach and Cadotte, 1994) in which both parties invest (Anderson and Weitz, 1989) and which is characterized by mutual trust and commitment (Geyskens et al., 1996). Theoretically we expected that this would lead to a harmonization between buyer and supplier in which they build up flexibility, information exchange and solidarity and thus increase the relational norms. The models of the studies mentioned however did not incorporate relational norms as such. We were able to confirm that such a relationship between mutual dependence and relational norms indeed exists.

One of the study's main objectives was to investigate the moderating effect of agent personality characteristics on the safeguarding effect of organizational safeguards. Based upon our results we did not find the support for such an interplay. The agent characteristic extraversion did not have an effect on the safeguarding effect of contractual governance. The agent characteristic cooperativeness did not have an effect on the safeguarding effect of or relational norms. This is in variance with the earlier study by Tangpong et al. (2010) who found a significant interplay between relational norms and the agent characteristic cooperativeness in mitigating opportunism. For conscientiousness we were not able to investigate its moderating effect since the construct showed a fatal lack of internal consistency.

Taken these findings together, we conclude that the organizational safeguards function without being directly affected by the personality characteristics of their individual agents, thus diminishing the role of the individual within its organization in mitigating supplier opportunism. This preliminary conclusion is not in line with the first pioneering studies (Tangpong and Ro 2009; Hung et al. 2009; Tangpong et al. 2010) on the interplay between agent characteristics and organizational level safeguards. These studies indicated that the interplay between agent characteristics and organizational safeguards does influence buyer opportunistic behaviour.

The contradicting results could be explained by the differences in the populations that were studied. The first three studies used a population (average 159 respondents), of relatively young purchasers (max 29 years old) with an average working experience of 7 years. The second substudy of Tangpong e.a. (2010) is an exception with a population of older purchasers (49 years on average) with 14 years working experience but the population consisted of only 83 purchasers. In contrast, the population (677 respondents) in our study consisted of purchasers with an average age of 44 years old and a 12 years' working experience. Although our study clearly consisted of much older and more experienced purchasers, it remains unclear why this could lead to a reduced influence of their agent characteristics on the organizational safeguards.

Respondent company size could give a more clear explanation for the differences found but, with the exception of the second substudy of Tangpong e.a. (2010) in which 34% of the respondents worked at companies with an annual turnover of 100 Million USD and more, this variable is not known for the other studies. The respondents in our study worked at relatively large companies with 50% of the respondents working at companies with an annual turnover of more than 100 Million Euro. We expect that purchasers in smaller companies will have more possibilities to either positively or negatively influence the safeguarding effect of the organizational safeguards in place. Likewise we expect that company size negatively reduces the moderating effect of agent characteristics on the mitigating effect of organizational safeguards.

In our study we did find an indirect influence of an agent characteristic on supplier opportunistic behaviour. As hypothesized, buyer's agent neuroticism increased supplier opportunistic behaviour by an increase of the buyer's opportunistic behaviour. With this result we connect to three different streams in the literature. First we connect to the literature in which the agent characteristic neuroticism is associated with conflict (Bolger and Zuckerman, 1995; McFatter, 1998), avoiding conflict styles (Antonioni, 1998) and ethical leadership (Brown and Trevino, 2006). We add to this existing literature on conflicts and ethics, by showing that a positive relationship exists between neuroticism and opportunistic behaviour. Second we connect to the literature in which agent behaviour influences the organization's behaviour (e.g. Hawkins, 2007) by showing that the neurotic agent's opportunistic behaviour leads to opportunistic behaviour of the buying company as a whole. Third we connect to the literature in which buyer opportunistic behaviour leads to supplier opportunistic behaviour. Caniëls and Gelderman (2010) already showed the negative effect of buyer's opportunistic behaviour when trying to mitigate supplier opportunism, we now attributed to this the role that the agent characteristic neuroticism plays in this process. Herewith our finding connects the broad knowledge on the Five Factor model on personality traits to the knowledge on safeguarding opportunism.

Finally, we found an interesting impact of relationship duration on the way in which relational norms develop. Existing studies showed that relational norms developed from the start of a relationship (e.g. Heide and John, 1992; Poppo and Zenger, 2002), our results are in line with such a development. No studies clearly showed us how these relational norms further developed as the duration of the buyer-supplier relationships increased. Existing literature described that relational norms could decline later on (e.g. Lusch and Brown, 1996; Villena et al., 2011) but as far as we know no empirical study connected these two described developments of increasing and decreasing relational norms. We showed that an inverted curvilinear relationship exists between relationship duration and relational norms where relational norms initially increase up to an optimum after which they decrease later on. This result contributes to the growing literature on the development of relational norms during the duration of a buyer-supplier relationship (e.g. Gopalakrishna Pillai and Sharma, 2003; Dwyer et al., 1987). In contrast to the dominating view on continuously increasing relational norms, it more accurately describes the development being n-shaped. Next to that it attributes to the same literature in which the optimum level of relational norms in a buyer-supplier relationship is the subject of research.

Based on the demonstrated safeguarding effect of relational norms (Heide and John, 1992; Gundlach et al., 1995) a vice versa curvilinear relationship between relationship duration and buyer opportunistic behaviour was expected but was not found in our study.

### **5.3 Recommendations for practitioners**

The managerial implications of our study are threefold.

First, they lie in the most effective application of safeguards against supplier opportunism. Relational norms were shown to be the most influential safeguard against supplier opportunism. Contractual governance was shown to be an ineffective safeguard that does not necessarily mitigate opportunism but instead may increase supplier opportunism. Managers should be aware of the possible negative effect of contractual governance since it is widely used and supposed to be an effective safeguard. Knowing this, managers should shift their focus from contractual governance to relational governance using relational norms.

Second, managers should consider that personality characteristics of purchasers may affect the buyer-supplier relationships of their company. When assigning neurotic people to a purchasing or supply chain position, they run the risk that the purchaser's neurotic behaviour leads to opportunistic behaviour of the organization as a whole and thus leads to equal opportunistic behaviour by the supplier(s). Since opportunism is harmful to buyer-supplier relations (see chapter 1), neurotic purchasers may thus harm the (financial) interests of the company. Managers therefore should pay attention to purchasers' characteristics when contracting new personnel or shifting personnel to new supply chain positions.

Third, managers should be aware that there is an optimum in the relational norms that they build up with their suppliers. Unlike the assumption that relational norms continue to build up during the duration of a buyer-suppliership, there is a maximum, after which relational norms start to decline. Managers should realize that from this moment on the effectiveness of relational norms as a safeguard will start to decline as well. By anticipating managers can try to compensate for this loss by deploying other safeguards or bringing new life to the relational norms in order to maintain the level of protection against supplier opportunistic behaviour.

## 5.4 Recommendations for further research

The findings of our study give rise to several recommendations for future research.

The positive association between contractual governance and supplier opportunism requires further investigation. Since our research did not conclude on the causal relationship between the two, either contractual governance increases future opportunistic behaviour or it is a direct result of existing opportunistic behaviour. Future research needs to increase our knowledge on the causal relationship.

In line with earlier studies (Woolthuis e.a., 2005; Lusch and Brown, 1996; Young and Wilkinson, 1989; Ferguson et al., 2005) contractual governance may work counterproductive in safeguarding against supplier opportunistic behaviour. This could be explained by the interaction/substitution with relational norms. Further research is required to identify the real mechanism behind it. What causes contractual governance to lose its mitigating power when applied in buyer-supplier relationships that are dominated by high relational norms? Why do suppliers react opportunistically when buyers intensify the use of contracts in a high relational buyer-supplier relationship? Is there a most effective combination of applying both contractual governance and relational norms in buyer-supplier relationships, or do we need to completely stop applying contractual governance?

In line with Woolthuis e.a. (2005) contractual governance may also be a result of an existing opportunistic atmosphere i.e. opportunistic behaviour by the partner. We need to find out why, in such a case, a partner chooses to increase contractual governance instead of reacting in a different way for example by ending the relationship or trying to invest in the relational norms.

We confirmed that buyer opportunism influences the safeguarding effect of relational norms. This is most likely caused by the lack of solidarity shown by the buyer that causes the effective use of relational norms to decrease. Since relational norms consist of the behaviour dimensions flexibility, information exchange and solidarity (Heide and John, 1992; Jap and Ganesan, 2000) we need to more accurately find out how buyer opportunism affects these different dimensions of relational norms. Future research is required to confirm that buyer opportunism influences the solidarity dimension of relational norms and/or if it also affects the flexibility and information exchange dimensions.

We could not confirm that agent personality characteristics have a moderating effect on organizational safeguards. This is in variance with the first pioneering studies on the interplay between agent characteristics and organizational level safeguards (Tangpong and Ro 2009; Hung et al. 2009; Tangpong et al. 2010). Differences in population size and composition between these studies and our study could be an explanation for the differing results. Additional research could find out if for example respondents' age, working experience and company size are able to explain these differences.

We connected the literature on opportunism to the literature on personality traits by showing that agent neuroticism affects supplier opportunistic behaviour through the buyer's opportunistic behaviour. This

is an interesting result but to really understand the mechanism behind it we need to find out in more detail how the individual's behaviour affects the buying organization as a whole. What causes the organization to behave opportunistically when (one of) its agent(s) behaves neurotically?

In our study we more accurately described the development of relational norms during the duration of a buyer-supplier's relationship. Although this is a clear contribution to the existing knowledge on relational norms development, our study did not explore the mechanisms behind the typical way these relational norms develop. What are the critical parameters that cause the increases of relational norms to decline? How do we identify the optimum level of relational norms? Further research could more explicitly look into this subject.

There are some limitations to the research that we have carried out that implies additional directions for further research as well.

The first limitation lies in the measurement of the agent personality characteristics. To measure the Big Five agent characteristics extraversion, conscientiousness and neuroticism we used the short Big Five Inventory (BFI-S) items from Lang et al. (2011). The BFI-S uses 15 items to measure the Big Five characteristics whereas the most comprehensive instrument NEO Personality Inventory (NEO-PI-R) by Costa and McCrae (1992) consists of 240 items. We choose the measurement set from Lang et al. (2011) to reduce costs and to obtain a high number of responses. Although Lang et al (2011) showed that there is robustness and reliability in using short selfreport measures to assess personality trait characteristics, we failed to measure the construct of conscientiousness. The potential disadvantage of using short personality measures is that the breadth and facets of the Big Five constructs may not be fully represented (Lang et al. 2011).

In order to better capture agent characteristics, and to further investigate the conscientiousness characteristic, future research should try to use more extensive self measurement scales such as the 40-item instrument developed by Saucier (1994) or the 60-item NEO Five-Factor Inventory (NEO-FFI) instrument by Costa and McCrae (1992). Future research should also consider other methods for measuring agent characteristics for example by observing them through other people than the agents themselves or by using in-depth analysis.

The second limitation lies in the organizational elements we have chosen to incorporate into our conceptual model. Although we have incorporated the most critical elements into our conceptual model, based on the literature, future research should take into account other factors that play a role in the existence of opportunism in buyer-supplier relationships. We did for example not take into account the industry context in which the relationship exists. What is the rate by which that type of industry changes and is it a complex type of industry? How can we classify the goods or services being bought according to the Kraljic matrix (Kraljic, 1983) and how does that affect the opportunistic behaviour by the buyer and supplier?

The third limitation lies in the selected agent characteristics. We have used three of the Big Five characteristics plus cooperativeness. Future research could take into account the other two Big Five characteristics (openness to experience and agreeableness). Adding the missing two will assure that we have completely looked upon all the elements that constitute the Big Five model.

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## Appendix - Measurement items

Measure (on a five-point Likert scale)	Factor loading	Cronbach's alpha	Mean	Standard deviation
<b>Supplier opportunistic behaviour</b> (Achrol and Gundlach 1999)		0.83	2.81	0.71
<ul style="list-style-type: none"> <li>The supplier exaggerates his needs in order to get what he desires</li> <li>The supplier is not always sincere</li> <li>The supplier alters facts in order to get what he wants</li> <li>Good faith bargaining is not a hallmark of his negotiation style</li> <li>The supplier provides a completely truthful picture when negotiating *</li> <li>The supplier breaches formal agreements to benefit himself</li> </ul>	0.67 0.77  0.79 0.71 0.57 0.61			
<b>Relational Norms</b> (Heide and John 1992)		0.82	3.62	0.57
<i>Norm of flexibility</i> <ul style="list-style-type: none"> <li>Flexibility in response to requests for changes is a characteristic of this relationship</li> <li>The parties expect to be able to make adjustments in the ongoing relationship to cope with changing circumstances</li> <li>When some unexpected situation arises, the parties would rather work out a new deal than hold each other to the original terms</li> </ul> <i>Norm of information exchange</i> <ul style="list-style-type: none"> <li>In our relationship, it is expected that any information that might help the other party will be provided to them</li> <li>Exchange of information in this relationship takes place frequently and informally, and not only according to a pre-specified agreement</li> <li>It is expected that the parties will provide proprietary information if it can help the other party</li> <li>It is expected that we keep each other informed about events or changes that may affect the other party</li> </ul> <i>Norm of solidarity</i> <ul style="list-style-type: none"> <li>Problems that arise in the course of this relationship are treated by the parties as joint rather than individual responsibilities</li> <li>The parties are committed to improvements that may benefit the relationship as a whole, and not only the individual parties</li> <li>The parties in this relationship do not mind owing each other favors</li> </ul>	- - -  0.67 0.55 0.69 0.75  0.61 0.66 0.59			
<b>Agent cooperativeness</b> (Based on Tangpong et al. 2010)		0.60	3.95	0.49
<ul style="list-style-type: none"> <li>I enjoy activities that involve a high level of cooperation with other people</li> <li>I believe that teamwork allows common people to achieve uncommon results</li> <li>I believe that a person can best achieve his/her goals if others around him/her achieve theirs too.</li> </ul>	0.54 0.82 0.75			
<b>Agent extraversion</b> (Lang et al. 2011)		0.69	3.60	0.69
<ul style="list-style-type: none"> <li>I see myself as someone who is talkative</li> <li>I see myself as someone who is outgoing, sociable</li> <li>I see myself as someone who is reserved *</li> </ul>	- 0.84 0.85			
<b>Agent conscientiousness</b> (Lang et al. 2011)		0.46	-	-
<ul style="list-style-type: none"> <li>I see myself as someone who does a thorough job</li> <li>I see myself as someone who tends to be lazy *</li> <li>I see myself as someone who does things efficiently</li> </ul>	0.72 0.76 -			

<b>Agent neuroticism</b> (Lang et al. 2011)		0.63	2.31	0.68
<ul style="list-style-type: none"> <li>I see myself as someone who worries a lot</li> <li>I see myself as someone who gets nervous easily</li> <li>I see myself as someone who remains calm in tense situations *</li> </ul>	0.81 0.85 -			
<b>Buyer opportunistic behaviour</b> (Achrol and Gundlach 1999)		0.72	2.41	0.73
<ul style="list-style-type: none"> <li>We exaggerate our needs in order to get what we desire</li> <li>We are not always sincere</li> <li>We alter facts in order to get what we want</li> <li>Good faith bargaining is not a hallmark of our negotiation style</li> <li>We provide a completely truthful picture when negotiating *</li> <li>We breach formal agreements to benefit ourselves</li> </ul>	0.73 0.82 0.77 - - -			
<b>Contractual governance</b> (Based on Andaleeb 1995 and Caniels and Gelderman 2010)		0.72	3.18	0.72
<ul style="list-style-type: none"> <li>We demand detailed contracts before conducting any further business with our exchange partner</li> <li>Responsibilities of both parties should be clearly specified in the contract and both parties should adhere strictly to these terms</li> <li>We establish penalties for inadequate performance in the contractual relationship with our exchange partner</li> <li>We seek maximum protection through the contractual relations with our exchange partner</li> </ul>	0.75 0.74 0.70 0.73			
<b>Buyer's dependence</b> (Based on Lusch and Brown 1996 and Gelderman 2003)		0.79	2.97	0.81
<ul style="list-style-type: none"> <li>Our supplier would be costly to lose</li> <li>Our supplier would be difficult to replace</li> <li>We need the supplier's expertise</li> <li>Our supplier is dependent on us</li> </ul>	0.77 0.83 0.65 0.80			
<b>Supplier's dependence</b> (Based on Lusch and Brown 1996 and Gelderman 2003)		0.75	2.93	0.72
<ul style="list-style-type: none"> <li>Our supplier would find it costly to lose us</li> <li>Our supplier would find it difficult to replace us</li> <li>Our supplier needs our expertise</li> <li>Our supplier is dependent on us</li> </ul>	0.79 0.84 0.50 0.79			
<b>Buyer's relative power</b> <sup>A</sup>			0.04	0.87
<b>Mutual dependence</b> <sup>A</sup>			4.96	1.41
<b>Relationship duration</b>			7.05	6.35
<ul style="list-style-type: none"> <li>What is the duration of the relationship with the supplier (in years)?</li> </ul>				

Remarks:

\* = reverse coded

<sup>A</sup> = derived from buyer's dependence and supplier's dependence

- = deleted item