



MASTER THESIS

THE RELATIVE IMPORTANCE OF COMMITMENT DIMENSIONS IN SECURING CUSTOMER LOYALTY IN THE DUTCH PIG FEED INDUSTRY

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Abstract

The ultimate aim of this research is to answer the following research question: *What is the relative importance of affective commitment and calculative commitment in securing customer loyalty in the Dutch pig feed market?*

The Dutch pig feed market is characterized by the buyer's major reliance on the quality of the supplier's product and knowledge. Dutch feed suppliers face the problem that a relative high percentage of buyers defect to competitors each year. Commitment has been widely acknowledged by prior literature to be a vital antecedent of customer loyalty. Commitment can be distinguished into two dimensions: affective commitment and calculative commitment. Prior studies suggested that affective commitment, rather than calculative commitment, influences customer loyalty to a much greater extent. The results of this study show that affective commitment has a stronger impact on attitudinal loyalty than calculative commitment. Calculative commitment was found to have a numerically stronger impact on behavioral loyalty.

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1. Introduction

The Dutch pig feed market is changing. In the last decade, the number of pig farms has decreased to a great extent. In 2014, there were 5110 pig farms in the Netherlands. This has decreased to less than 4000 pig farms in 2018 (Baan, 2018). Due to government regulations, the number of pig farms in the Netherlands is going to decrease drastically in the upcoming years. The Dutch government is constantly developing new regulations concerning emissions and animal welfare. Reducing emission levels and increasing the level of animal welfare require huge investments in stables. In many cases, these investments are not financially viable for pig farmers. Agridirect, a research company that is active in agricultural markets, expects the number of pig farms to drop to 1.500 in 2030 (Agridirect, 2018). In contradiction to this, the number of pigs in the Netherlands has increased in recent years. This results in more pigs per farm. The expectation is that this trend towards concentration of pig farmers will continue in the upcoming years (Burgers, 2018). For feed companies, this means the number of potential pig farmers to be served will drastically decrease, but the remaining farmers are likely to purchase bigger volumes.

The buyer-supplier relationship between feed supplier and farmer can be characterized as a long-term relationship, as the majority of the farmers are likely to remain customer for a period that exceeds one year (Agridirect, 2016). Nevertheless, contracts between a farmer and supplier are signed for periods not longer than 6 months since the availability of raw materials for feed suppliers is completely dependent on the extent to which harvests are successful (van der Plas, 2020). A pig farmer is highly dependent on the quality, advice and knowledge of his feed supplier since nutrition is the most important factor in producing healthy pigs, the core business of a pig farm (ForFarmers, 2020). Therefore, the pig feed market is characterized by buyer's major reliance on the quality of the supplier's products.

Dutch pig farms are being served by +/- 50 feed companies ranging from large internationally operating companies like ForFarmers with an annual turnover of more than €2.000.000.000, to small local firms with only a couple of dozen employees. Nowadays, the quality of animal feed of Dutch feed suppliers does not vary widely. Feed suppliers are to a large extent differentiated by their size. The supplier side of the market can roughly be distinguished into three different types which are shown in the table below.

Table 1- comparison table feed companies

<i>Type feed supplier</i>	<i>Description</i>
Large internationally operating feed suppliers	-Large quantities of feed at stock, capable to deliver at any moment -Own research departments, large information databases. Can provide customers with knowledge and advice gathered from an extensive customer base. -Customers are more or less considered as a 'number'.
Nationally operating feed suppliers	-Nationally operating firms that aim at providing customers with the service and knowledge of a large firm but with better personal relationships between farmer and feed supplier.
Local operating feed suppliers	-Small firms that have customers only in a specific region the Netherlands. -Personal contact with buyers is highly valued. -Often involved in activities supporting the local (agricultural) community.

1.1 Problem description

An average Dutch pig farmer spends between 50% and 70% of his total annual company expenses on animal feed (Goedele, 2014). It is therefore that pig farmers select their feed supplier with the highest care. The Dutch pig feed industry faces the problem that a relative high percentage of pig farmers switch from feed supplier each year. On average, one in ten pig farmers switch every year from feed supplier (van Rossum, 2020). Van Rossum (2020) mentions several factors that can have an influence on whether a farmer defects to another feed supplier. Providing guidance and advice, trust, quality, prices, delivery reliability, and the technical efficiency (farmer's company results) are all factors that can have an influence on whether a farmer wants to maintain the relationship with its feed supplier (van Rossum, 2020). Companies in the feed industry try to anticipate on this by prioritizing the creation and maintenance of long term relationships with pig farmers. They try to bind customers not only by delivering feed products of excellent quality and providing farmers with the best advice, but also by different initiatives like rewarding customers who achieve extraordinary results, hosting events where customers can share their knowledge, having own research departments where customers can profit from etc. A substantial body of research has been done on the importance of relationship marketing. Barry, Dion and Johnsen (2008) state that a growing body of evidence shows that companies benefit far more from customer retention than they do from the acquisition of new ones. A successful implementation of long term relationship marketing often results in higher buyer investments in the relationship and word-of-mouth influence (Barry et al., 2008). Considering the trend towards consolidation of Dutch pig farmers and the relative high percentage of pig farmers who switch from feed supplier, creating, maintaining and increasing customer loyalty among current customers should be one of the key priorities among Dutch pig feed suppliers.

Commitment is considered to be one of the key issues in b2b relationship marketing and customer loyalty (Ellis, 2011). Commitment is a logical antecedent of customer loyalty since it focuses on attachments based upon economic calculations, psychological and/or emotional feelings that a customer might have towards a firm (Fullerton, 2003). These attachments are vital antecedents of customer loyalty since they are fundamental appraisal mechanisms upon which the customer's decision whether and why to be loyal is based (Thomson et al., 2005). Factors like prices, trust, and product quality all lead to the development of a certain kind of commitment. According to Gustafsson, Johnson and Roos (2005), many scholars distinguish commitment into two major dimensions: calculative commitment and affective commitment. Calculative commitment represents the rational commitment a company has towards its supplier that is based on economic reasons. Affective commitment implies that "firms bound by sentiments of allegiance and faithfulness are tied to their partners for reasons beyond pure economic gain" (Barry et al., 2008, p.119). In other words, a buyer remains a customer because of an emotional kind of attachment to the other organization. Since commitment was found in the literature to be one of the key drivers of customer loyalty, it is of great interest for the Dutch pig feed industry to study the relative impact of both commitment dimensions on customer loyalty.

1.2 Research gap

Prior studies have examined the effect of both affective commitment and calculative commitment on customer loyalty in a business-to-business context. Several scholar who studied the concepts affective and calculative commitment found that commitment of buyers is based upon calculations of economical benefits as well as on feelings of allegiance (de Ruyter et al., 2001; Geyskens et al., 1996; Gilliland and Bello, 2002). Other scholars, who have measured the effect of affective and calculative commitment on customer loyalty/customer retention, found that buyers who are

affectively committed to their supplier have higher levels of customer loyalty or have stronger intentions to stay in a relationship than buyers who select their supplier solely on 'cold', economic-based reasons (Evanschitzky et al., 2006; De Ruyter et al., 2001; Rauyruen & Miller, 2007; Wetzels et al., 1998). They conclude that particularly affective commitment is a major driver of customer loyalty/the intention to stay in a relationship . Table 2 shows a summary of the above mentioned literature highlighting the context and the findings of the studies.

Table 2- table summary of literature on the impacts of affective and calculative commitment

<i>Authors</i>	<i>Context</i>	<i>Conclusions</i>
De Ruyter, Moorman and Lemmink (2001)	Study was performed with data collected from the very high volume (VHV) copiers market (high technology).	Both affective commitment and calculative commitment were found to positively influence the intention to stay. However, affective commitment was found to have a considerable larger effect.
Evanschitzky, Iyer, Plassman, Niessing, and Meffert (2006)	Study was performed with data collected from customers of a large transport company (service industry).	Affective commitment was found to have greater positive impacts on attitudinal and behavioral loyalty than calculative commitment.
Rauyren and Miller (2006)	Study was performed in a courier delivery context (service industry).	Affective commitment was found to positively influence attitudinal loyalty. Calculative commitment was not found to influence attitudinal loyalty. Both affective commitment and calculative commitment were not found to influence behavioral loyalty.
Wetzels, de Ruyter, and van Birgelen (1998)	Study was performed with data from industrial customers of an office equipment manufacturer.	The results of this study indicate that customers who are more affectively committed show stronger intentions to maintain a relationship than customers who have higher levels of calculative commitment.

Although prior studies have examined the effect of affective and calculative commitment on customer loyalty, none of these studies were done in a business-to-business context that is characterized by an extremely heavy reliance on the suppliers' product. Therefore, the generalizability of these findings are limited. To address this gap, this research will be conducted in the pig feed market. The context of the pig feed market suits this gap perfectly since feed products account for 50% - 70% of the annual company expenses of a pig farmer. Additionally, the extent to which a farmer's core business is successful, is to a great extent determined by the quality, advice and knowledge of its feed supplier. For instance, with an average size of 1400 sows, the difference between the annual turnovers of a farmer with poor technical results and a farmer with excellent technical results could be as high as €700.000,- (van Rossum, 2020). Furthermore, the size of the average pig farm is increasing which means that the volumes of feed that a pig farmer purchases will increase as well. It is therefore important for the feed industry to study the relative effect of affective and calculative commitment on customer loyalty in order to optimize or build strategic customer loyalty programs. Results of the studies shown in table 2, that suggest that companies should focus on creating affectively committed customers, might not be applicable to the Dutch pig feed market and other industries characterized by the buyer's major reliance on the supplier's product.

Furthermore, many existing studies examine the effects of both commitment dimensions on constructs as 'intention to stay'. This is a limited construct since it does not include actual purchasing behavior and the customers attitude towards the supplier. This thesis expands on these studies by measuring customer loyalty as a multi-dimensional construct as developed by Dick and Basu (1994) in order to complete the picture. This will be elaborated on in the theory section.

1.3 Purpose of the study and expected contribution to theory and practice

On the basis of existing literature, one can conclude that there is no empirical evidence of the relative importance of affective commitment and calculative commitment in customer loyalty in b2b markets characterized by an extremely heavy reliance on the supplier's product which is also the buyer's largest company expense . This study contributes to existing literature by gaining insight on the relative importance of affective commitment and calculative commitment in securing customer loyalty under such circumstances in a b2b context. Furthermore, Davis-Sramek, Mentzer and Myer (2009) state that the majority of the literature on customer loyalty is focused on b2c markets. They add that b2b studies on customer loyalty are relatively few in number and in contrast to extensive b2c studies, are much more limited with regard to context and scope. This study contributes to theory development of affective commitment, calculative commitment and customer loyalty in a b2b context.

Considering the decreasing number of potential pig farmers to be served, the increasing size of the average pig farm, the relative high percentage of pig farmers who switch from feed supplier, and the several benefits that firms derive from loyal customers, it is of great importance for the pig feed industry to gain insight on what the relative importance is of the commitment dimensions with regard to customer loyalty in order to optimize priority-setting within the feed industry. Gaining insight into these relationships provide feed suppliers with important implications. Feed suppliers who focus merely on retaining buyers through economic incentives might spend their money better on developing loyalty programs that increase affective commitment. Or otherwise, feed companies who focus on enhancing customer loyalty through non-economic means might be better off shifting this focus to building economic incentives. This raises the question: should a company that is active in such a market focus on creating economic-based switching barriers, or should a company place great emphasis on the relational aspects of the relationship?

1.4 Research question

This thesis aims to answer the following research question:

What is the relative importance of affective commitment and calculative commitment in securing customer loyalty in the Dutch pig feed market?

Sub-questions

1. How are the constructs affective commitment, calculative commitment and customer loyalty defined, related and operationalized in previous literature?

This question is answered by an in-depth literature review. It will be examined how these constructs were conceptualized, operationalized and measured in other studies and how these constructs were related to each other. These thick descriptions of the three constructs will be used in order to design the methodology part and to increase the validity and the generalizability of the research

2. What is the effect of calculative commitment on customer loyalty in the Dutch pig feed market?

This question is answered by conducting a survey among Dutch pig farmers.

3. What is the effect of affective commitment on customer loyalty in the Dutch pig feed market?

This question is answered by conducting a survey among Dutch pig farmers.

1.5 Research strategy

The aim of this research is to collect empirical evidence from buyers in the Dutch pig feed market to test hypotheses about the relative effect of affective commitment and calculative commitment on customer loyalty in order to deepen knowledge and understanding of these relationships in b2b markets. The research question of this research will be studied in a deductive way. First, a thorough literature research will be conducted to define and operationalize the different constructs that are used in this research. At the end of the literature part, hypotheses will be formulated according to the literature that was found. In the next part, a research design will be presented how the constructs will be measured. The hypotheses will be tested by using data that will be collected from surveys among Dutch pig farmers.

Table 3- Research strategy

<i>Main research question: What is the relative importance of affective commitment and calculative commitment in securing customer loyalty in the Dutch pig feed market?</i>	
Sub-research questions	Data collection method
RQ 1	Literature review
RQ 2	Survey among Dutch pig farmers
RQ 3	Survey among Dutch pig farmers

2. Literature review

2.1 Customer loyalty

A substantial body of research has been done on customer loyalty in several business contexts. The definition developed by Dick & Basu (1994), which is adopted by many other scholars, describes customer loyalty as "the strenght of the relationship between an individual's relative attitude and repeat patronage" (p. 16). Dick and Basu (1994), whose main field of research concerns the full understanding of customer loyalty, highlight that customer loyalty includes both behavioral and attitudinal aspects of a customer. Based on the dimensions 'repeat patronage/purchase' and 'relative attitude', Dick and Basu (1994) created a typology which is shown in figure 1. This framework was tested and confirmed by Garland and Gendall (2004). In line with the study of Dick and Basu (1994), Garland and Gendall (2004) found that both attitudinal and behavioral aspects are crucial determinants of customer loyalty.

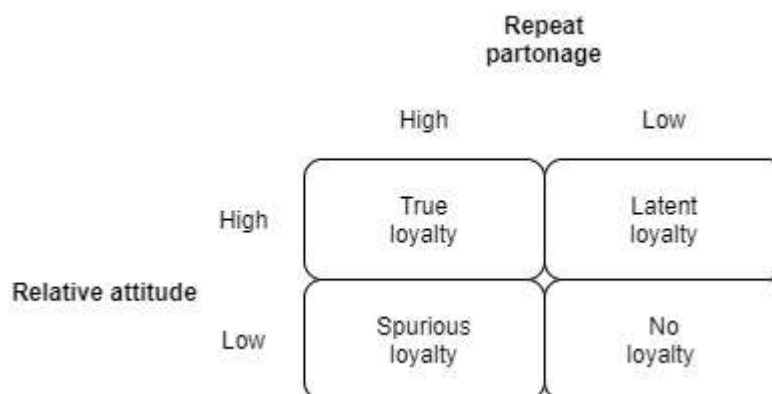


Figure 1 - Customer loyalty typology Dick and Basu (1994)

Rauyruen, Miller and Barret (2007) found that customer loyalty is a multi-dimensional construct. In line with the study of Dick and Basu (1994) they stated that customer loyalty can be divided into

behavioral loyalty and attitudinal loyalty. They refer to the combination of both loyalty dimensions by the term 'composite loyalty'. Behavioral loyalty focuses on aspects with regard to the actions of customers. It measures the customer's past buying behavior and the intention of future purchase (Dick & Basu, 1994). In contrast, attitudinal loyalty focuses on aspects such as the extent to which a customer is willing to recommend a service, product or brand or is willing to talk positively about the firm to other customers (word-of-mouth). It measures the customer's attitude towards a firm or brand (Dick & Basu, 1994). In order to develop a full understanding of long term customer relationship, it is important to study both concepts since they emphasize not only past buying behaviors and intentions of future purchase, but also emphasize the customer's psychological disposition towards a firm or brand (Dick and Basu (1994).

As mentioned before in this thesis, the importance of customer loyalty has been endorsed by many scholars. The costs involving the acquisition of new customers are considerably higher than the costs of serving a loyal customer. In addition, loyal customers are more likely to make higher investments in the relationship (Cavana et al., 2007; Pfeifer, 2005; Walsh et al., 2005). Besides these advantages, the study of Gee, Coates and Nicholson (2008) mentioned several other positive outcomes which can be achieved by increasing customer loyalty:

- Firms service cost are less when serving loyal customers
- Loyal customers are likely to invest more in the relationship
- Loyal customers improve a firm's image by word-of-mouth marketing

2.2 Affective commitment

Commitment is considered to be a logical antecedent of customer loyalty since it represents the desire of the customer to continue a relationship with a firm or brand (Fullerton, 2003). Fullerton (2003) states that commitment is distinct from loyalty since commitment focuses more on attachments based upon economic calculations and/or emotional feelings that a customer might have towards a firm. According to Fullerton (2003) two distinct forms of commitment are being acknowledged in prior research. One type has an economic nature whereas the other type has an emotional nature. The two types are labeled as affective commitment and calculative commitment.

Affective commitment is according to Meyer and Allen (1990) an emotional attachment to an organization. An affectively committed customer identifies himself with the other organization. Furthermore, the customer has feeling of trust towards the organization and is emotionally connected to the other organization (Rauyren and Miller, 2007). Fullerton (2003) found a significant positive impact of affective commitment on loyalty.

As stated before in this research, customer loyalty has been distinguished in prior literature into attitudinal loyalty and behavioral loyalty. To increase the level of attitudinal loyalty among customers, firms should aim at enhancing the strength of one's attitude towards their organization as compared with other organizations. This involves more than simple transactional incentives. Kumar and Shah (2004) argue that a long term relationship horizon is necessary to cultivate positive attitudes towards a firm or brand. They argue that commitment plays a vital role in cultivating attitudinal loyalty since it concerns the customers active decision to maintain a relationship.

Affective commitment can be described as one's desire to maintain a relationship based upon emotional feelings of attachment and concerns the psychological nature of the relationship between a customer and a firm or brand. Harrison-Walker (2001) found that feelings of identification with a firm or brand often results in positive expressions and attitudes about the firm to others. Therefore, one could argue that affective commitment leads to the enhancement of attitudinal loyalty. This results in the hypothesis below.

H1: The effect of affective commitment on attitudinal loyalty is positive in the Dutch pig feed industry.

Feelings of attachment to an organization and the motivation to cultivate a long term relationship are enhanced by increasing levels of affective commitment (Fullerton, 2003). Fullerton (2003) states that these feelings result in impacts on customer's repurchase behavior. Moreover, affective commitment can be described as the emotional desire of a customer to maintain a relationship, which entails that the customer remains customer because he or she wants to maintain the relationship. Keller (1998) found that the strength of one's positive feeling towards a firm is a strong indication of one's loyalty behavior. Consequently, we hypothesize the following:

H2: The effect of affective commitment on behavioral loyalty is positive in the Dutch pig feed industry.

2.3 Calculative commitment

"Calculative commitment is the state of attachment to a partner cognitively experienced as a realization of the benefits sacrificed and losses incurred if the relationship were to end" (Gilliland and Bello, 2002, p. 28). In other words, calculative commitment involves the task-oriented and rational decision whether to continue a relationship. This decision is based upon calculations of profits associated with the continuation of the relationship and costs associated with leaving the relationship.

Although calculative commitment reflects the customer's desire to continue the relationship based upon rational reasoning, in some cases, customers do not only remain customer out of habit, but also develop positive attitudes towards the specific firm (Dowling and Uncles, 1997). In other words, one may continue a long-term relationship since one has no reasons to evaluate this relationship or to search for alternatives, and therefore one might develop a positive psychological disposition towards the current relationship. Burnham et al. (2003) found that, from a customer's perspective, high perceived difficulties and costs associated with switching is also a major driver for the continuation of long-term relationships. Therefore, one could argue that whether due to past habits/behaviors or high perceived difficulties/costs, a customer who appreciates its current relationship from a rational perspective, might develop positive attitudes towards the specific firm as well. Consequently, we hypothesize the following:

H3: The effect of calculative commitment on attitudinal loyalty is positive in the Dutch pig feed industry.

A customer might not always be able to directly change his level of calculative commitment, since it is based on the "consumption" context of the customer. For example, if the customer is active in an industry in which there is a lack of competing alternatives, the scarcity of competing alternatives might lead to increased levels of calculative commitment. Piha and Avlonitis (2015) found that the relationship between customer satisfaction and customer loyalty is affected by the extent to which an environment is competitive. They found high levels of customer loyalty despite low levels of satisfaction, due to a lack of competing alternatives. One could argue that the customer's desire to continue the relationship, resulting in high levels of behavioral loyalty, is partially caused by a perceived lack of competing alternatives. We therefore hypothesize:

H4: The effect of calculative commitment on behavioral loyalty is positive in the Dutch pig feed industry.

The above mentioned hypotheses and the corresponding relationships can be found in the figure below.

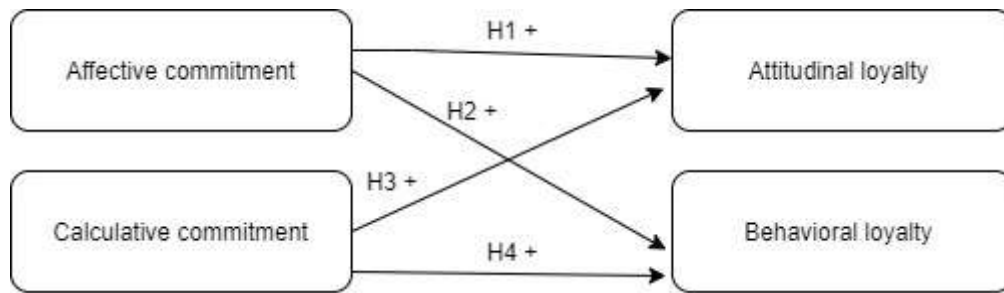


Figure2 - overview hypotheses and relationships between affective commitment, calculative commitment and attitudinal and behavioral loyalty

2.4 Affective commitment vs. calculative commitment

Summarizing the sections about affective and calculative commitment one can state that affective commitment may produce a positive impact on loyalty behavior based on emotional attachments, whereas calculative commitment may produce a positive impact based on contextual and economic circumstances. This raises the question which of the two forms of commitment has the strongest impact on customer loyalty in the Dutch pig feed market.

High levels of calculative commitment imply a context of economical dependence and/or perceived lack of alternatives, whereas high levels of affective commitment imply a context of free will and choice (Fullerton, 2003). Fullerton (2003) states that both forms of commitment can increase levels of customer loyalty. However, the study suggests that affective commitment has a stronger impact on customer loyalty as compared to calculative commitment. This is because affective commitment signifies a relationship that is being continued because the customer wants to continue the relationship. On the contrary, calculative commitment signifies a relationship that is being continued because of economical reasons or lack of competing alternatives.

Positive attitudes among customers towards a firm or brand are more likely to be obtained in a 'context of free will and choice'. Downing and Uncles (1997) found that attitudinal responses based on emotional attachments are more beneficial than attitudinal responses based on economic incentives. Additionally, Downing and Uncles (1997) state that positive attitudes are stronger predictors of actual loyalty behavior than economic incentives. Considering all the above, we conclude our theory section with the following hypothesis:

H5: Affective commitment has stronger positive impacts on customer loyalty (attitudinal and behavioral) than calculative commitment in the Dutch pig feed market.

3. Methodology

3.1 Research design

3.1.1 Research environment

This study focuses on the market served by Dutch pig feed suppliers. In 2020, there are approximately 4000 pig farms in the Netherlands. There are pig farms specialized in producing piglets, producing sows, and fattening pigs. The size of farms ranges from small farms being run by a single farmer to large farms employing up to 20 people. Dutch pig farms are being served by +/- 50 feed suppliers, ranging from local feed suppliers to internationally operating feed suppliers, like ForFarmers, with an annual turnover of more than €2.000.000.000. The market is characterized by

high involvement from both parties since nutrition is one of the most important factors in the core business of a pig farmer and accounts for the largest part of a farmer's company expenses. Contracts between a farmer and feed supplier are signed for periods not longer than 6 months since the availability of raw materials is dependent on the extent to which harvests are successful.

3.1.2 Research method

Due to the limited resources of this study (limited time, money and manpower), a web-based questionnaire was used. It is a relatively cheap way to collect a lot of data within a short period of time. In order to collect relevant and valid data, the variables will be measured using scales that are being developed by scholars who have assessed the validity/reliability and that are being widely adapted in prior literature. To ensure the presence of internal consistency and reliability of the main variables (affective commitment, calculative commitment and customer loyalty), the Cronbach's Alpha (α) will be calculated for each item.

3.1.3 Research population and sample size

The research population of this research consists of all pig farmers in the Netherlands. According to van der Plas (2020), there are little less than 4000 pig farms in the Netherlands. The number of potential respondents is equal to the number of pig farms in the Netherlands. However, due to limited time, money and manpower, not every pig farmer can be reached. Personal connections within ForFarmers (one of the largest animal feed suppliers in the Netherlands) make it possible to reach +/- 350 farmers, which is equal to approximately 8,75% of the entire population.

3.1.4 Procedure

Respondents will be contacted via e-mail. Respondents will receive an e-mail which invites them to participate in the questionnaire. This e-mail will be forwarded by a personal connection within ForFarmers and can reach up to 350 farmers. This e-mail will contain an introduction to the topic and to the researcher. Subsequently, a hyperlink will appear that links the respondent to the questionnaire. The research will be conducted completely anonymously. No information that could lead to the identification of the respondent will be required to fill in, since personal information such as names, age, gender, city of residence etc. is not relevant in this study. By using this anonymous procedure and contacting respondents via e-mail, it is ensured that interviewer influence and bias is minimized. Respondents can take their time reading the questionnaire and are not being influenced by body language or intonation of the researcher.

The questionnaire follows a fixed sequence. First the general aim of the research will be explained. Afterwards, the statements that measure the different constructs will be presented. In order to obtain statistically useful information, all statements need to be answered. The questionnaire ends with a brief 'thank you'. The questionnaire can be found in the appendix.

3.1 Measures

In this section, the several constructs will be operationalized. First, the different scales that measure the constructs will be discussed. The section ends with an operationalization table that shows the items that correspond with the different scales used in this study.

3.1.1 Customer loyalty

As stated before, this research uses the definition of customer loyalty from Dick and Basu (1994), who define customer loyalty as "the strength of the relationship between an individual's relative attitude and repeat patronage" (p. 16). Their study showed that customer loyalty consists of both attitudinal and behavioral aspects. The item indicators which they developed are shown in the operationalization table.

The items attitudinal loyalty and behavioral loyalty will be measured separately. The item attitudinal loyalty can be distinguished into high or low. This research uses two statements (4-point scale) to measure attitudinal loyalty. Attitudinal loyalty can be considered as high when the average score of the two statements is higher than 2.5 points. In case the average score is lower than 2.5 points, attitudinal loyalty can be considered as low.

The item behavioral loyalty will be measured by using two item indicators developed by Dick and Basu (1994) and Evanschitzky et al. (2006). One item measures the intention to maintain the relationship, the other item measures the actual repurchase behavior. Behavioral loyalty is considered low when the average score of both statements is below 2.5 points or equal to 2.5 points. It is considered high when the average score is higher than 2.5 points. The categories enable us to classify the respondents according to the loyalty types created by Dick and Basu (1994), which was explained in the theory section of this thesis.

3.1.2 Affective commitment

To measure affective commitment, this study will use the three-item scale which was developed by Kumar, Stern and Steenkamp (1995). This scale has been adapted by many other scholars and has proven its validity/reliability. The scale measures the extent to which a customer identifies himself with the firm, the extent to which a customer trusts a firm, and the extent to which a customer feels an emotional bonding with the firm. An example of the three items will be given in the operationalization table. All items will be measured using a 5-point likert-type scale. "1" will represent the weakest possible (strongly disagree), and "5" will represent the strongest possible (strongly agree).

3.1.3 Calculative commitment

This study uses the 4-item scale of Geykens et al. (1996) and Gilliland and Bello (2002) to measure calculative commitment. These items capture the buyer's motivation to continue the relationship based upon calculations of benefits and costs. This is specified into the benefits of continuing the relationship, the losses associated with leaving the relationship and the costs associated with establishing a new relationship. All items will be measured using a 5-point likert-type scale. "1" will represent the weakest possible (strongly disagree), and "5" will represent the strongest possible (strongly agree).

3.1.4 Operationalization table

In the table below one can find the items of the scales that measure the variables used in this study. In the appendix one can find the original survey that was sent to the respondents and an English translation of this survey.

Table 4- Variable Operationalization

<i>Variables</i>	<i>Scale reference</i>	<i>Concept</i>	<i>Operationalization items</i>
Attitudinal loyalty	Dick and Basu (1994)	The strength of an individual's attitude towards a supplier	-Recommendation to other farmers -Positive comments on products/services
Behavioral loyalty	Dick and Basu (1994); Evanschitzky et al. (2006)	The strength of an individual's repeat patronage behavior	-Repurchase products -Intention to remain customer in the future
Affective commitment	Kumar, Stern and Steenkamp (1995)	Affective commitment implies an emotional kind of attachment to an organization based upon reasons beyond pure economic gain	-Trusting the supplier -Emotional attachment to supplier -Identification with the supplier
Calculative commitment	Geykens et al. (1996); Gilliland and Bello (2002)	Calculative commitment involves the task-oriented and rational decision whether to continue a relationship. This decision is based upon calculations of profits associated with the continuation of the relationship and costs associated with leaving the relationship.	-Continuation based upon economical reasons -Continuation based upon fear for significant losses if the relationship were to end -Continuation based upon perceived need for extensive resources to establish a new relationship -Continuation based upon perceived lack of competing alternatives

4. Results

This section deals with the results of the questionnaire and will provide statistical answers to the hypotheses. First, some general results and outcomes will be discussed before proceeding with the analyses per hypothesis.

The questionnaire was distributed via the networks of a personal connection within ForFarmers and 2 pig farmers with whom I have a personal connection as well. This resulted in 48 useful responses. Since there are +/- 4000 pig farms in the Netherlands, the number of useful responses is approximately 1,1% of the entire population.

In order to ensure that the items that were used in this research measure the corresponding constructs, a reliability analysis was conducted. This reliability analysis was conducted to test the internal consistency of the scales for behavioral loyalty, attitudinal loyalty, affective commitment and calculative commitment. The results can be found in the table below. The original SPSS output can be found in the appendix.

Table 5 - reliability statistics

	Behavioral loyalty	Attitudinal loyalty	Affective commitment	Calculative commitment
Cronbach's Alpha	,789	,724	,802	,761
N of items	2	2	3	4

The general rule of thumb is that the Cronbach's alpha should be higher than 0,7. Since all the 4 scales have scores that are higher than 0,7, one can conclude that the internal consistency of the items that are used in this research is acceptable, and we can therefore proceed with our research.

Besides the reliability test, the data were also tested for normality. This is done by plotting histograms and overlaying a normal curve. These histograms can be found in the appendix. Based on these histograms and the normality curve, we can conclude that the data appears to be normally distributed. This research also calculates the z-values of Skewness and Kurtosis in order to determine whether the data are normally distributed. According to Kim (2013), in case of a small sample size ($n < 50$), one can conclude, with an alpha-level of 0.05, that the data are normally distributed when the absolute z-values of Skewness and Kurtosis are neither below -1.96, nor above 1.96. The z-values of Skewness and Kurtosis can be found in the table below. The original SPSS output that was used to calculate these numbers can be found in the appendix.

Table 6 - z-values of Skewness and Kurtosis

	Skewness (z-value)	Kurtosis (z-value)
Behavioral loyalty	-0,948	-1.384
Attitudinal loyalty	0,318	0,131
Affective commitment	-0,942	-0,764
Calculative commitment	-0,102	-1,105

Since all z-values of skewness and kurtosis are within +/- 1.96, we can conclude that our data do not differ significantly from normality and we can therefore assume that our data are approximately normally distributed. Furthermore, the histograms (see appendix) also indicate a normally distributed dataset. We can therefore proceed with our analyses.

According to our conceptual framework we have two models. One model has attitudinal loyalty as dependent variable. The other model has behavioral loyalty as dependent variable. Both models have affective commitment and calculative commitment as independent variables. Before conducting the multiple regression analyses, the assumptions for multiple regression were tested. The results can be found in the appendix. All assumptions were met, we can therefore proceed with our analysis.

Table 7- Regression results

Variables	(1)	(2)
(Intercept)	1,575* (0,460)	1,613* (0,540)
Affective commitment	0,228** <i>0,393</i> (0,081)	0,206* <i>0,294</i> (0,096)
Calculative commitment	0,099 <i>0,197</i> (0,070)	0,206* <i>0,339</i> (0,083)
R-squared	0,253	0,278
N	48	48

Notes: * $p < 0.05$, ** $p < 0,01$.

In the table above one can find the results of the two multiple regression analyses that were performed. The table shows the unstandardized regression coefficients, the standardized beta coefficients (*in italics*), and the standard errors (between brackets). Model (1) represents the effect of affective commitment and calculative commitment on attitudinal loyalty. Model (2) represents the effect of affective commitment and calculative commitment on behavioral loyalty. The regression equation of model 1 is: $y = 1,575 + 0,228(\text{affective commitment}) + 0,099(\text{calculative commitment})$. The regression equation of model 2 is: $y = 1,613 + 0,206(\text{affective commitment}) + 0,206(\text{calculative commitment})$.

H1: The effect of affective commitment on attitudinal loyalty is positive in the Dutch pig feed industry.

As one can see in table 7, there is a significant positive linear relationship between affective commitment and attitudinal loyalty. Therefore this research has found support for hypothesis 1. Based on this research, one can state that affective commitment has a weak positive effect on attitudinal loyalty in the Dutch pig feed market. According to the regression output, for every 1 unit increase in affective commitment, a 0,228 increase in attitudinal loyalty is predicted.

H2: The effect of affective commitment on behavioral loyalty is positive in the Dutch pig feed industry.

As one can see in table 7, there is a significant positive linear relationship between affective commitment and behavioral loyalty. Therefore this research has found support for hypothesis 2. Based on this research, one can state that affective commitment has a weak positive effect on behavioral loyalty in the Dutch pig feed market. According to the regression output, for every 1 unit increase in affective commitment, a 0,206 increase in behavioral loyalty is predicted.

H3: The effect of calculative commitment on attitudinal loyalty is positive in the Dutch pig feed industry.

As one can see in table 7, the relationship between calculative commitment and attitudinal loyalty was found to be non-significant. Therefore this research has not found support for hypothesis 3. Based on this research, it seems that calculative commitment has a (very) weak positive effect on attitudinal loyalty where for every 1 unit increase in calculative commitment, a 0.099 increase in attitudinal loyalty is predicted. However, this effect did not reach statistical significance.

H4: The effect of calculative commitment on behavioral loyalty is positive in the Dutch pig feed industry.

As one can see in table 7, there is a significant positive linear relationship between calculative commitment and behavioral loyalty. Therefore this research has found support for hypothesis 4. Based on this research, one can state that calculative commitment has a weak positive effect on behavioral loyalty in the Dutch pig feed industry. According to the regression output, for every 1 unit increase in calculative commitment, a 0,206 increase in behavioral loyalty is predicted.

H5: Affective commitment has stronger impacts on customer loyalty (attitudinal and behavioral) than calculative commitment in the Dutch pig feed market.

One of the main goals of this research is to investigate what the relative importance is of affective commitment and calculative commitment in securing customer loyalty. In order to investigate this, this research compares the standardized beta coefficients of the multiple linear regression output. The standardized beta coefficients can be used to compare the strength of the effect of each independent variable on the dependent variable. In other words, it shows the relative importance of each coefficient in a regression model. The higher the absolute value of the standardized beta coefficient, the stronger its effect. In order to test whether the beta coefficients of affective commitment and calculative commitment are statistically significantly different from each other, this research estimated their corresponding 95% confidence intervals via bias corrected bootstrap. According to the study of Cumming (2009), two (beta) regression coefficients are considered statistical significantly different from each other, when their corresponding 95% confidence intervals overlap by not more than 50% ($p < 0.05$).

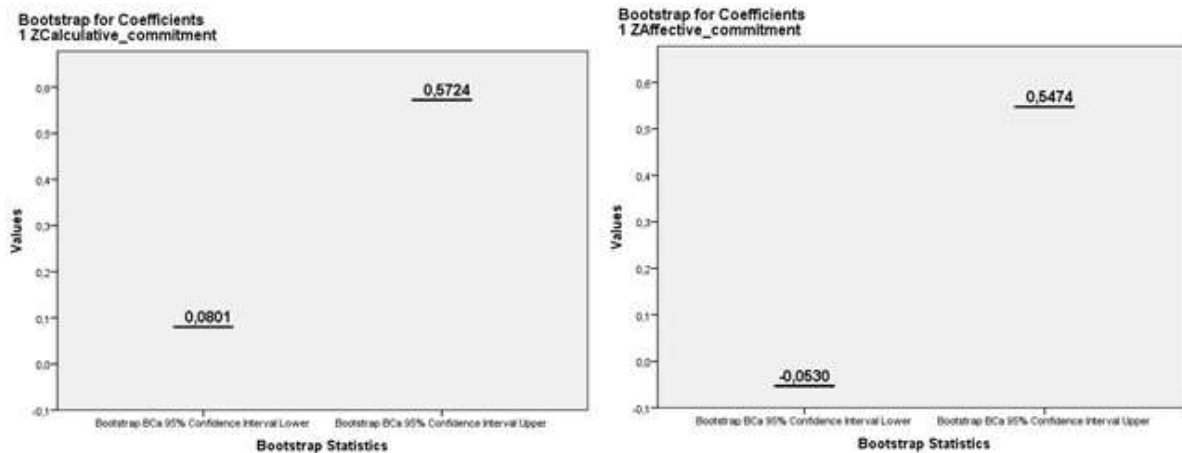
H5a: relative effect of affective commitment and calculative commitment on behavioral loyalty

The unstandardized regression coefficients show that both affective and calculative commitment have the same significant effect on behavioral loyalty (0,206). However, the standardized beta coefficients differ. The beta coefficient of calculative commitment (0,339) is numerically larger than the beta coefficient of affective commitment (0,294). This outcome suggests that calculative commitment has a stronger effect on behavioral loyalty than affective commitment. Nevertheless, one should test whether both coefficients are significantly different from each other. To test this, this study uses the 50% overlap rule demonstrated by Cumming (2009).

Table 8- Bootstrap for coefficients

Model	B	Bootstrap BCa 95% Confidence Interval	
		Lower	Upper
Constant	-5,514E-16	-,290	,264
ZAffective_commitment	,294	-,053	0,547
ZCalculative_commitment	,339	,080	,572

As can be seen in table 8, the upper and lower bound values of the 95% confidence intervals of affective and calculative commitment have very small differences. This indicates an overlap that is larger than 50%. This large overlap is also shown graphically in the graphs below.



Based on this research, one can state that calculative commitment has a numerically stronger positive effect on behavioral loyalty than affective commitment. However, since both confidence intervals overlap by more than 50%, we cannot state that the effect of calculative commitment is significantly stronger than the effect of affective commitment. Considering all the above, this study has not found evidence that supports the hypothesis that affective commitment has stronger positive impacts on behavioral loyalty than calculative commitment.

H5b: relative effect of affective commitment and calculative commitment on attitudinal loyalty:

The regression coefficient of affective commitment (0.228) is larger than the regression coefficient of calculative commitment (0,099). Moreover, the regression coefficient of affective commitment is statistically significant ($0.007 < 0.05$), whereas the regression coefficient of calculative commitment is not significant ($0.164 > 0.05$). Affective commitment has a significant beta coefficient of 0,393. On the contrary, calculative commitment has a numerically smaller beta coefficient of 0,197 which is also not significant. Based on these findings, one can state that affective commitment has stronger positive impacts on attitudinal loyalty than calculative commitment. This evidence supports a part of H5.

5. Discussion

The main goal of this study is to investigate what the effect is of commitment dimensions on customer loyalty in a b2b market characterized by an extremely heavy reliance on the supplier's product, and subsequently, what the relative impacts are of these commitment dimension on customer loyalty under such circumstances.

This study hypothesized that affective commitment and calculative commitment have positive effects on both behavioral and attitudinal loyalty. The results of this study provide evidence that support the majority of these hypotheses. Only the relationship between calculative commitment and attitudinal loyalty was found to be non-significant. This is in line with prior literature. The studies cited in this thesis found significant positive impacts of affective commitment on customer loyalty dimensions, however, not all studies that found significant impacts of affective commitment on customer loyalty did find significant impacts of calculative commitment on customer loyalty as well.

This study also hypothesized that the relative impact of affective commitment on behavioral and attitudinal loyalty is stronger than the impact of calculative commitment on these loyalty dimensions. A part of this hypothesis is supported by evidence provided by this thesis. The results of this research indicate that affective commitment has stronger positive impacts on attitudinal loyalty than calculative commitment. On the contrary, calculative commitment was found to have a

numerically larger impact on behavioral loyalty than affective commitment. However, this difference was not found to be significant. Nevertheless, one can state that the results of this study are not completely in line with prior literature which suggests that high levels of affective commitment should be preferred over high levels of calculative commitment to increase levels of customer loyalty.

Now that we have discussed the results of this study, the limitations of this study will be discussed below.

The first limitation of this study is the small sample size. The results of this study are drawn from 48 useful responses on the questionnaire that was distributed. Despite of the fact that our sample size represent approximately 1.1% of the entire research population, 48 is still a relatively small number. Since there was lack of manpower, extensive personal network, time and money, this study did not succeed to reach more pig farmers. An important limitation that can be associated with small sample studies is that these studies might over- or under-estimate the magnitude of a certain association. Therefore, additional research with a larger sample size is needed to confirm the results of this study.

Secondly, this study did not look into whether statistically significant differences exist between buyer's of different feed suppliers, but it could be that this has influenced the results. For instance, farmers who buy from local feed suppliers who are active in their local community might be more affectively committed than farmers who buy large quantities from internationally operating feed suppliers. Due to limited resources, this study was not able to collect enough data to investigate this. In future research, it would be advised to obtain data from similar numbers of buyers from different types of feed suppliers to investigate whether the same conclusions can be made.

Another limitation, which is quite similar to the previous limitation, is that this study did not examine if there are any statistical differences between types of farms. Large farmers who order large quantities might approach the relationship with their feed supplier from a different angle than small farmers. Again, in future research it would be advised to obtain data from a similar number of respondents from different types/sizes of farms in order to examine whether there are any differences.

Despite the several limitations of this thesis, this study has provided existing literature with new reliable results (as discussed in the result section of this thesis). Furthermore, since the fundamental aspects of this thesis are based on valid previous literature, one can state that the outcomes provided by this thesis can be considered valid as well. Since this research has examined a subject in a context that has not been explored by prior studies, further research in a similar b2b context is needed to confirm the outcomes of this research.

6. Conclusion

The ultimate aim of this research is to provide an answer to the following research question: What is the relative importance of affective commitment and calculative commitment in securing customer loyalty in the Dutch pig feed market? based on three sub-questions, we formulated 5 hypotheses. Three hypotheses were completely supported by evidence found in this research. One hypothesis was partially supported. One hypothesis was not supported.

Feed suppliers in the Dutch pig feed market pursue high levels of customer loyalty among their customers. A loyal customer consistently chooses the products or services of one specific company over the products or services of other alternative companies. In the literature, customer loyalty is being distinguished into behavioral loyalty and attitudinal loyalty. Satisfying levels of customer

loyalty can be achieved in several ways. In prior literature, commitment has been widely acknowledged as a vital predictor of customer loyalty. Commitment can be distinguished into two dimensions: affective commitment and calculative commitment.

This study hypothesized that commitment dimensions have positive effects on behavioral loyalty and attitudinal loyalty in the Dutch pig feed industry. Three of these hypotheses were confirmed by the outcomes of our research. One hypothesis was not supported. Based on our research one can state that both affective commitment and calculative commitment have a positive effect on behavioral loyalty in the Dutch pig feed market. Only affective commitment was found to have a significant positive effect on attitudinal loyalty in the Dutch pig feed market.

With regard to the comparison of the impacts of both commitment dimensions on behavioral loyalty and attitudinal loyalty, this study hypothesized that affective commitment has stronger positive impacts on both behavioral loyalty and attitudinal loyalty than calculative commitment. Based on the evidence provided by this study, one can state that affective commitment has stronger positive impacts on attitudinal loyalty than calculative commitment in the Dutch pig feed market. Therefore this hypothesis is partially supported. However, this study did not find evidence that affective commitment has stronger positive impacts on behavioral loyalty. Contrary, calculative commitment was found to have a numerically stronger effect on behavioral loyalty than affective commitment. Therefore, based on the findings of this study, we cannot state that affective commitment has stronger positive impacts on behavioral loyalty than calculative commitment.

7. Contributions to theory and practice & recommendations

This study has provided new contributions for theory development and useful implications for practice. These contributions will be discussed shortly in this section.

As mentioned in the introduction part of this thesis, no prior research was done on the effect of commitment on customer loyalty in a business-to-business context that is characterized by the extremely large extent to which a supplier's product influences the (technical) company results of the customer. Other studies performed in more conventional b2b contexts suggest that affective commitment should be preferred over calculative commitment (Evanschitzky et al., 2006; De Ruyter et al., 2001; Rauyruen & Miller, 2007; Wetzels et al., 1998). Results of this study suggest that buyer's behavioral loyalty becomes more rationally driven in a context of heavy supplier-reliance. Furthermore, Davis-Sramek, Mentzer and Myer (2009) state that the majority of literature on commitment and customer loyalty is focused on business-to-consumer markets. They found that literature on commitment and customer loyalty in b2b markets are limited in terms of scope and context and are relatively few in number. By studying the (relative) impact of affective and calculative commitment on customer loyalty in the Dutch pig feed market, this research has made a move towards a more integrative understanding of commitment and customer loyalty in b2b markets.

Prior studies indicate that affective commitment, rather than calculative commitment, influences behavioral loyalty to a much greater extent. In contrast to prior studies, the results of this research do not support the hypothesis that affective commitment has a much greater influence on behavioral loyalty than calculative commitment. In fact, calculative commitment was found to have a numerically larger effect on behavioral loyalty than affective commitment. This indicates a promising subject for further research. Additional research could focus on a detailed analysis of the different drivers of calculative commitment in business-to-business markets. Results could enhance customer loyalty practices and improve effectiveness of loyalty programs.

At the end of the introduction part the following question was raised: should a company that is active in a market similar to the pig feed market focus on creating economic-based switching barriers, or should a company place great emphasis on the relational aspects of the relationship? Based on the findings of this research, affective commitment contributes to enhancing levels of attitudinal loyalty. One can state that feed suppliers could enhance levels of attitudinal loyalty through non-economic means. On the other hand, calculative commitment, as well as affective commitment, contributes to the enhancement of behavioral loyalty. Based on these findings, one can conclude that feed suppliers face the challenge of building loyalty programs that increase levels of affective and calculative commitment simultaneously. An efficient method to achieve this, could be the creation of a web-community of customers, through which farmers can exchange experiences, innovative ideas, and any other useful information that could help farmer to perform more efficient. By having access to the extensive customer base of their feed supplier through a web-community, farmers could easily upscale their network and gather valuable firsthand information from farmers located elsewhere in the country or abroad. A web-community could increase both levels of affective and calculative commitment. On the one hand, farmers do not only buy feed from their supplier, but also get involved in activities initiated by their supplier, stimulating a bond that is based on reasons beyond pure economic incentives. On the other hand, the feed supplier provides its customer with a valuable service, which puts the supplier in a favorable position compared to its competitors. This could have a positive influence on the rational reasoning of a farmer whether and why to continue the relationship. Further research should investigate whether this method delivers the desired effect.

8. Appendix

8.1 Questionnaire questions

In this section one can find the original questionnaire that was sent to the respondents. In section 8.2 one can find the English translations of the questions.



Mijn naam is Martijn Wiggers, 23 jaar, en student aan de universiteit van Twente. Voor mijn thesis doe ik onderzoek naar het relatieve effect van affectief commitment en calculatief commitment op klantloyaliteit in de Nederlandse mengvoermarkt voor varkenshouders. Hierbij heb ik een bepaald aantal varkenshouders nodig die mijn enquête zouden willen invullen. Deze enquête is geheel anoniem. Zou u bij het invullen van deze enquête willen controleren dat u alle vragen heeft beantwoord. Alvast heel hartelijk dank voor het invullen van mijn enquête!

Met vriendelijke groet,



Martijn Wiggers

Geef aan hoelang u aaneengesloten klant bent bij uw huidige voerleverancier:

- Pas recentelijk (minder dan 1 jaar klant)
- Langer dan 1 jaar
- Langer dan 3 jaar
- Langer dan 5 jaar

Vul in: "Ik heb de intentie om de relatie met onze huidige voerleverancier voort te zetten"

- Zeker niet
- Waarschijnlijk niet
- Waarschijnlijk wel
- zeker wel

Vul in: "Ik beveel mijn huidige voerleverancier aan bij andere varkenshouders"

- Nooit
 - Soms
 - Vaak
 - Altijd
-

Vul in: "Ik praat positief over mijn huidige voerleverancier"

- Nooit
 - Soms
 - Vaak
 - Altijd
-

Geef aan in welke mate u het eens bent met de onderstaande stellingen

	Zeer oneens	Oneens	Neutraal	Eens	Zeer eens
"Ik heb het gevoel dat ik mijn huidige voerleverancier kan vertrouwen"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
"Ik voel een emotionele betrokkenheid bij mijn huidige voerleverancier"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
"Ik identificeer mij met de waarden en normen van mijn huidige voerleverancier"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Geef aan in welke mate u het eens bent met de volgende stellingen

	Zeer oneens	Oneens	Neutraal	Eens	Zeer eens
"Ik wens de relatie met mijn huidige voerleverancier voort te zetten aangezien mijn bedrijfsresultaten tot tevredenheid stemmen"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
"Ook al zou ik aanleiding hebben om te switchen van voerleverancier, dan zou ik dit niet doen wegens de kans op nadelige gevolgen op mijn bedrijfsresultaten"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
"Ik wens de relatie met mijn huidige voerleverancier voort te zetten aangezien het bewerkstelligen van een vruchtbare relatie met een andere voerleverancier veel voeten in aarde heeft"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
"Ik wens de relatie met mijn huidige voerleverancier voort te zetten aangezien het moeilijk is een andere voerleverancier te vinden die mij kan aanbieden wat mijn huidige voerleverancier mij aanbiedt"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>



Hartelijk dank voor het invullen van deze enquête.

Met vriendelijke groet,

Martijn Wiggers

8.2 Questionnaire questions - English

Customer loyalty			
Attitudinal loyalty	"We ... recommend our current feed supplier to other farmers"	Never	
		Sometimes	
		Often	
		Always	
	"We ... talk positively about our current feed supplier"	Never	
		Sometimes	
		Often	
		Always	
Behavioral loyalty	"We have been doing business with our current feed supplier...."	Just recently	
		For more than 1 year	
		For more than 3 years	
		For more than 5 years	
		"We have the intention to continue doing business with our current feed supplier"	Certainly do not
			Probably do not
		Probably have	
		Certainly have	

Affective commitment	
"I feel that I can trust our current feed supplier"	Strongly disagree
	Disagree
	Undecided
	Agree
	Strongly agree
"I feel emotionally attached to our current feed supplier"	Strongly disagree
	Disagree
	Undecided
	Agree
	Strongly agree
"I identify with our current feed supplier"	Strongly disagree
	Disagree
	Undecided
	Agree
	Strongly agree

Calculative commitment	
"We wish to keep the relationship with our current feed supplier since it is economically beneficial for us"	Strongly disagree
	Disagree
	Undecided
	Agree
	Strongly agree
"Even if we wanted to defect to another feed supplier, we wouldn't because our losses could be significant"	Strongly disagree
	Disagree
	Undecided
	Agree
	Strongly agree
"We want to keep the relationship with our current feed supplier because of establishing a new relationship need much more resources"	Strongly disagree
	Disagree
	Undecided
	Agree
	Strongly agree
"We need to keep working with our current feed supplier since it is difficult to find another feed supplier who can provide us with the same services"	Strongly disagree
	Disagree
	Undecided
	Agree
	Strongly Agree

8.3 Reliability statistics

Behavioral loyalty

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,789	,830	2

Attitudinal loyalty

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,724	,729	2

Affective commitment

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,802	,813	3

Calculative commitment

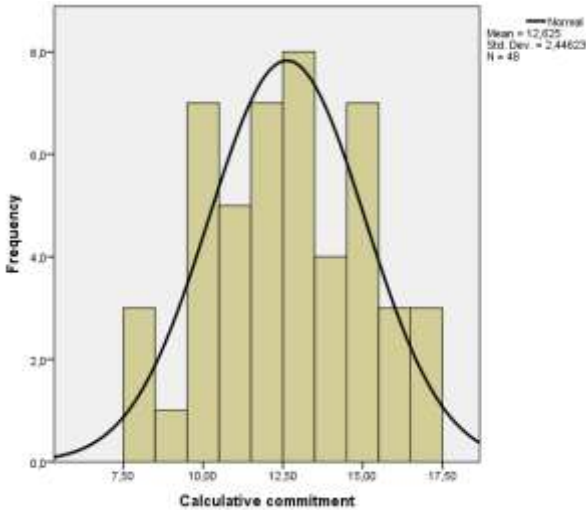
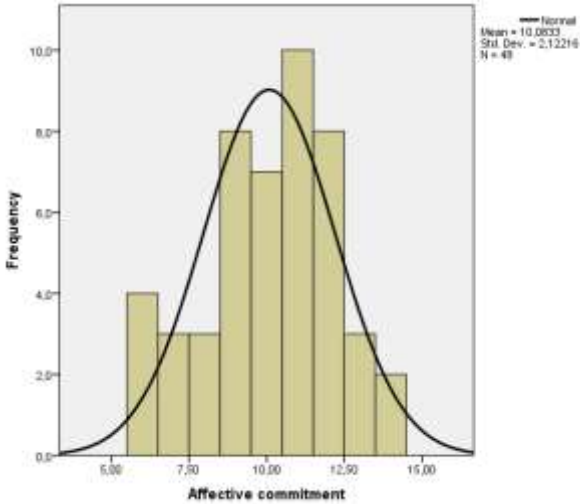
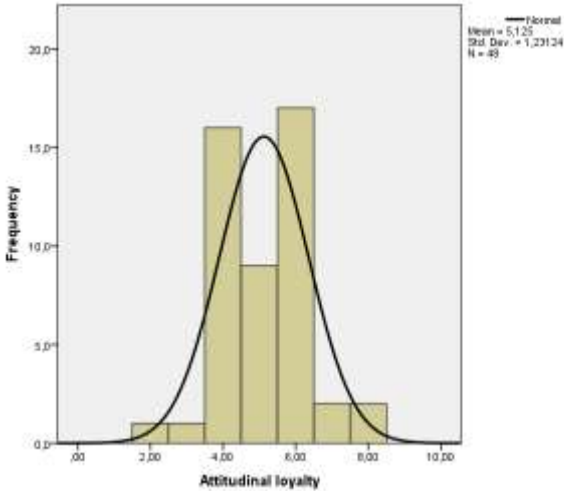
Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,761	,762	4

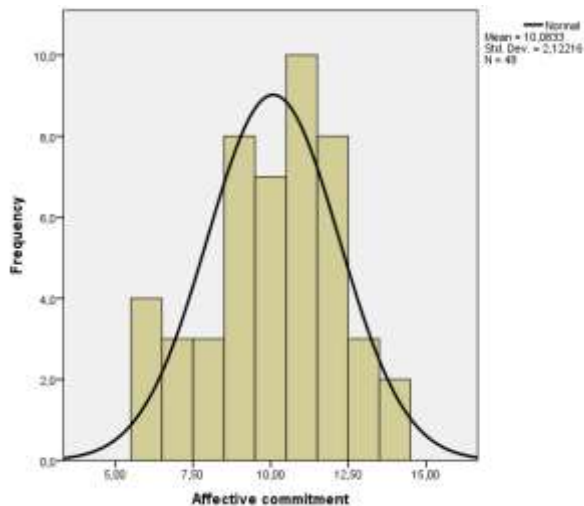
8.4 Descriptive statistics

Descriptives

		Statistic	Std. Error	
Behavioral_loyalty	Mean	6,2917	,21462	
	95% Confidence Interval for Mean	Lower Bound	5,8599	
		Upper Bound	6,7234	
	5% Trimmed Mean	6,3704		
	Median	6,0000		
	Variance	2,211		
	Std. Deviation	1,48694		
	Minimum	3,00		
	Maximum	8,00		
	Range	5,00		
	Interquartile Range	3,00		
	Skewness	-,325	,343	
	Kurtosis	-,933	,674	
Attitudinal_loyalty	Mean	5,1250	,17771	
	95% Confidence Interval for Mean	Lower Bound	4,7675	
		Upper Bound	5,4825	
	5% Trimmed Mean	5,1065		
	Median	5,0000		
	Variance	1,516		
	Std. Deviation	1,23124		
	Minimum	2,00		
	Maximum	8,00		
	Range	6,00		
	Interquartile Range	2,00		
	Skewness	,109	,343	
	Kurtosis	,088	,674	
Affective_commitment	Mean	10,0833	,30631	
	95% Confidence Interval for Mean	Lower Bound	9,4671	
		Upper Bound	10,6995	
	5% Trimmed Mean	10,1019		
	Median	10,0000		
	Variance	4,504		
	Std. Deviation	2,12216		
	Minimum	6,00		
	Maximum	14,00		
	Range	8,00		
	Interquartile Range	3,00		
	Skewness	-,323	,343	
	Kurtosis	-,515	,674	
Calculative_commitment	Mean	12,6250	,35308	
	95% Confidence Interval for Mean	Lower Bound	11,9147	
		Upper Bound	13,3353	
	5% Trimmed Mean	12,6389		
	Median	13,0000		
	Variance	5,984		
	Std. Deviation	2,44623		
	Minimum	8,00		
	Maximum	17,00		
	Range	9,00		
	Interquartile Range	4,00		
	Skewness	-,035	,343	
	Kurtosis	-,745	,674	

8.5 Histograms





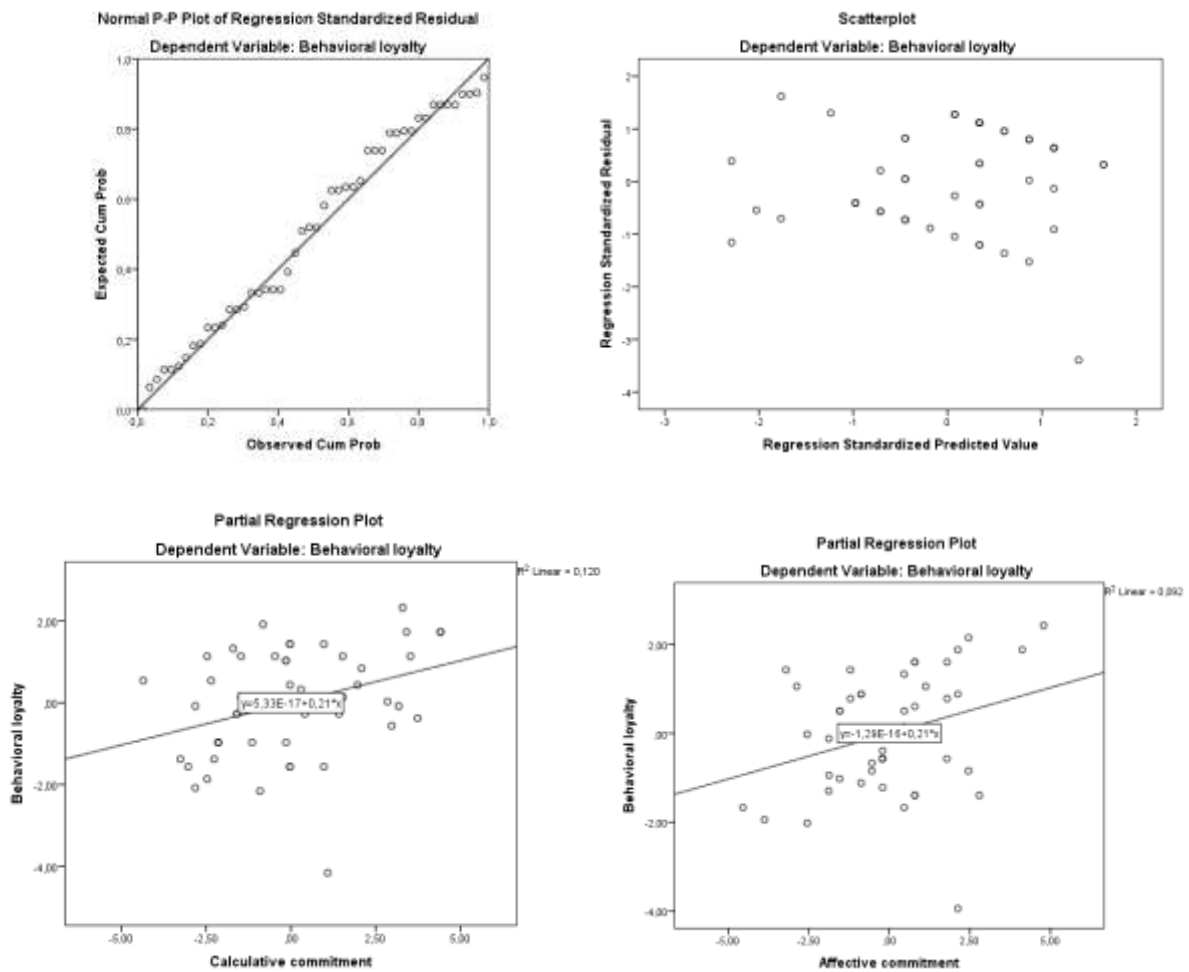
8.6 Regression assumptions

This section deals with the regression assumptions. Six assumptions must be fulfilled before running a regression analysis. These assumptions are:

1. Linearity
2. Normality
3. Homoscedasticity
4. Uncorrelated error terms
5. Independence of error terms
6. Multicollinearity

Linearity can be checked by creating a scatter plot with a fit line. In this way, it can be checked whether the fit line is positive, negative or straight. Normality can be checked by plotting a histogram with overlaying curve and by looking at the P-P plot (dots should be on or near the line). Additionally, one can calculate the z-values of skewness and kurtosis. Both methods have been executed already in the results section and have been met for all hypotheses. The histograms can be found in the appendix. The third assumption can be checked by looking at the P-P plot of the residuals. The third assumption is met when no patterns are visible. To check for uncorrelated error terms is important when time series are used. This is not the case in this research. The 5th assumption, independence of error terms is hard to prove. But since our questionnaire is based upon theories that have already proved themselves in prior literature, even when combined and used in one theoretical structure, we can assume that the assumption of independence of error terms is met. The multicollinearity assumption is checked by looking at the VIF scores. This score should not be higher than 5.

Assumptions hypothesis 5: iv: affective commitment, calculative commitment iv: behavioral loyalty

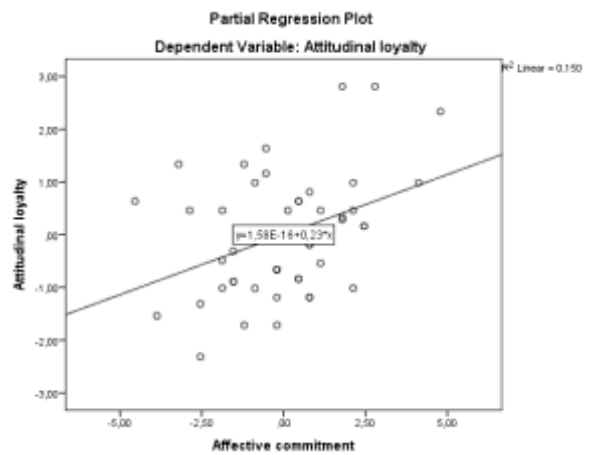
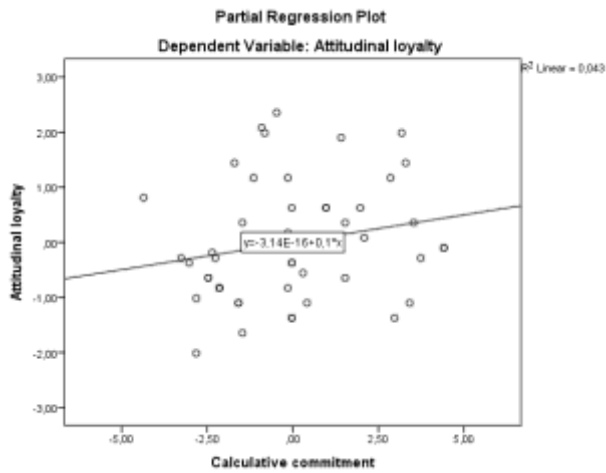
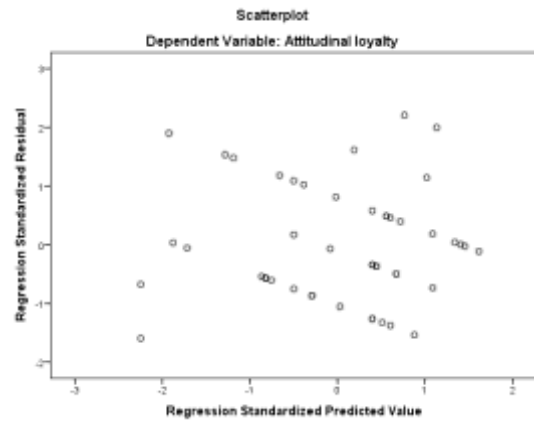
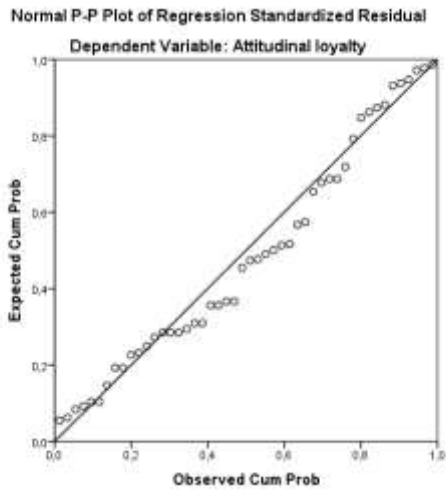


Coefficients^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	Calculative_commitment	,853	1,172
	Affective_commitment	,853	1,172

a. Dependent Variable: Behavioral_loyalty

Assumptions hypothesis 5: iv: affective commitment, calculative commitment dv: attitudinal loyalty



Coefficients^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	Calculative_commitment	,853	1,172
	Affective_commitment	,853	1,172

a. Dependent Variable: Attitudinal_loyalty

8.7 SPSS output

Regression output model 1 - IV: attitudinal loyalty, DV: affective commitment and calculative commitment

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,502 ^a	,253	,219	1,08791

a. Predictors: (Constant), Calculative_commitment, Affective_commitment

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,574	,460		1,638	,048
	Affective_commitment	,228	,081	,393	2,813	,007
	Calculative_commitment	,099	,070	,197	1,415	,164

a. Dependent Variable: Attitudinal_loyalty

Regression output model 2 - IV: behavioral loyalty, DV: affective commitment and calculative commitment

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,527 ^a	,278	,246	1,29147

a. Predictors: (Constant), Calculative_commitment, Affective_commitment

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,613	,540		1,415	,034
	Affective_commitment	,206	,096	,294	2,141	,038
	Calculative_commitment	,206	,083	,339	2,474	,017

a. Dependent Variable: Behavioral_loyalty

95% confidence intervals via bias corrected bootstrap

Bootstrap for Coefficients

Model		B	Bootstrap ^a	
			BCa 95% Confidence Interval	
			Lower	Upper
1	(Constant)	-5,514E-16	-,290	,264
	ZAffective_commitment	,294	-,053	,547
	ZCalculative_commitmen t	,339	,080	,572

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

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