The positive influence of 3PL sustainability on end-customer satisfaction and loyalty

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Summary

Introduction
End customers become more and more aware of their environment and feelings of environmental responsibility are growing nowadays. This will affect their thinking about products they buy and use. Preferences are shown for products from environmentally orientated companies (Huang & Rust, 2011; McDonald et al., 2009; Menon & Menon, 1999; Winsemius & Guntram, 1992). Companies recognize this increasing concern from end customers next to tougher environmental legislation. In a competitive and global setting and with the knowledge that improved environmental performance has been linked to greater economic performance (Cronin et al., 2011), sustainability becomes an important business driver.

An area that may have a major effect on sustainability is logistics. Logistics can really contribute to solutions to environmental and ecological problems (Poist, 1989). Because logistics is oftentimes outsourced to third party logistics (3PL) providers, these third parties have an important role in improving the sustainability of their clients’ logistics activities. Most research written about relationships in logistics does not cover the triadic relationships between company, 3PL provider and customer (Stefansson, 2006), and especially not the end customer, while in triads all parties can reach potential savings (Beier, 1989), increase supply chain efficiency (Gentry, 1996a) and increase customer service levels (Gentry, 1996b). This study will fill the identified gap in the literature and focus on the triadic relationship between company, 3PL provider and end customer.

In general, a 3PL provider can add value to a company when it enhances the performance. One of the benefits can be improving customer satisfaction (Bask, 2001), which is closely linked to loyalty. Many studies highlight the positive relation between satisfaction and loyalty (Bloemer et al., 1999; Lichtlé & Plichon, 2008; Oliver, 1999). Taking the triadic relationship into account, this study proposes that end customers will be sensitive to the use of the 3PL provider and more specifically, the sustainability of the 3PL provider. Customers’ satisfaction and related loyalty to the company from which they buy a product will be influenced by the experience they have with the 3PL provider delivering the product. Next to sustainability, the effect of delivery costs on satisfaction and loyalty is examined.

Furthermore, end customers “have greater intentions to create and retain their relationships with those who are similar to themselves” (Zhang & Bloemer, 2008, p. 162). Actions taken by companies with regard to corporate social responsibility will affect end customers’ perception of customer-company congruence. End customers identifying themselves with the company through similar sustainability goals will likely feel more satisfied and loyal.
Research objective
This study will research the effects of sustainability of 3PL providers in triadic relationships. The goal is to test to what extent end customers care about the sustainability of 3PL providers used by companies to deliver products to the customers. The research question that will be answered is: **What is the effect of 3PL providers’ sustainability and delivery costs on end customers with regard to customer-company congruence, satisfaction and loyalty to the seller company?**

The results of this research provide companies, that outsource their logistics to 3PL providers, with insights on whether green policies and performance by their 3PL provider can add to improving their end customer-company congruence, end customer satisfaction and end customer loyalty. Improved end customer satisfaction and loyalty have many different positive results for companies such as revenues and market share growth, lower costs for acquiring new customers and increased employee retention because of job pride and satisfaction (Anderson & Mittal, 2000; Reichheld & Markey Jr, 2000).

Methodology
Based on existing literature, a conceptual model was developed containing four hypotheses. To investigate the four hypotheses, a scenario based experimental methodology with an online questionnaire was used. 192 usable responses were gathered with the internet survey. The data were analysed by means of multiple regression analysis and bootstrapping in SPSS with the help of the Preacher-Hayes script (Preacher & Hayes, 2008).

Results
**H1:** 3PL provider sustainability is positively related to a) end customer satisfaction and b) end customer loyalty with the seller. This study finds that hypothesis 1 is supported: 3PL provider sustainability is positively related to end customer satisfaction and loyalty to the seller company.  

**H2:** Delivery costs are negatively related to a) end customer satisfaction and b) end customer loyalty with the seller. Hypothesis 2a is supported: Delivery costs are negatively related to end customer satisfaction with the seller. Hypothesis 2b is not supported.  

**H3:** An increase in delivery costs leads to a smaller decrease in a) end customer satisfaction and b) end customer loyalty with the seller in case of high 3PL provider sustainability compared to low 3PL provider sustainability. Hypothesis 3 is not supported.  

**H4:** The effects of 3PL provider sustainability on a) end customer satisfaction and b) end customer loyalty with the seller are partially mediated by end customer-company congruence. The data does support the hypothesized mediation in this study and the mediator is classified as complementary mediation.

Discussion and implications
This study has contributed to filling the identified gap in the literature (scarcity of studies at the network level) by focusing on the triadic relationship between company, 3PL provider and end customer. Delivery performance (in this study measured in sustainability and delivery
costs) and improved customer service levels (in taking their responsibility with regard to environmental issues toward the end customer) leading to greater end customer satisfaction and loyalty, are concrete outcomes whereby 3PL providers can contribute to the triad, according to the findings of this study.

As this study shows, one of the activities to improve customer loyalty can be using a sustainable 3PL provider. From a practical managerial standpoint, it makes sense that when a company is partnering with a green, sustainable 3PL provider, it signals a green focus to the end customer.

Based on this study which shows the importance of 3PL provider sustainability for customer satisfaction and loyalty, seller companies should add green policies and performance demands to their vendor contractual arrangements with their 3PL providers. This study shows that companies are indeed more and more held responsible for not only their internal activities but also for their suppliers’ behaviour. Companies should invest in or demand 3PL provider sustainability and communicate it to their customers to increase end customer satisfaction and loyalty.

**Limitations and directions for further research**

There are some limitations to this study. Due to the scenario based setting of this study, the realism (and thus the external validity) of this study can be questioned. End customers’ growing awareness of sustainability and acquaintance with home deliveries of products should give researchers more chances for research in a real world setting and extend the existing literature on the effects of 3PL provider sustainability. Practical implications limited the sample to be taken from the Dutch population. It is possible that in a country with a low standard of living the results of this study would be different.

Future research should concentrate on finding another mediator of the sign of the direct effect (positive) this study found after controlling for mediation by C-C congruence. A possible second mediator could be found in consumer trust in the companies’ actions and credibility. Furthermore, further research should transfer this experiment to other retail settings than clothing, to make sure that the results can be transferred to other product classes, consumer segments or retail settings, thereby increasing the external validity of this study. Future research could investigate which end customers are willing to pay more (and how much) for sustainability in products and more specific, for sustainable delivery.
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1 Introduction

A green supply chain is important in the 21st century. Global warming issues are weekly on the news and public concerns are growing. With sustainability at home for each family, such as mini solar systems on the roof and local subsidy for green rooftops, people become more and more aware of their environment and feelings of environmental responsibility grow. This will affect their thinking about the products they buy and use. Preferences are shown for products from environmentally oriented companies (Huang & Rust, 2011; McDonald et al., 2009; Menon & Menon, 1999; Winsemius & Guntram, 1992). In today’s business, enterprises and organisations become more and more committed to environmental issues due to tougher environmental legislation and economic influences as well as an increasing concern about the environment among customers. In a competitive and global setting companies need to understand that acting in an environmentally friendly way is part of their operations (Mercer, 2002). A company has a firm base to stand on when it acts with respect and integrity to its social and natural environment (Cramer, 2005). To comply with public concerns, a strong part of companies' future is about improving the environment.

Companies facing ecological pressure from competitors, market and government are influenced to improve environmental performance and tend to implement green purchasing (Zhu & Sarkis, 2007). Capgemini Consulting state that, without the economic crisis, sustainability would have been one of the three most important business drivers for the supply chain manager in 2009 (Haarman et al., 2009), next to meeting (changing) customer requirements and globalisation. In 2010, when the economic crisis was no longer the most important business driver, sustainability was the second most important business driver after meeting (changing) customer requirements (Haarman & Schip, 2010). There is also value in going green. Research indicates that real actions to improve the environment can raise the financial health of a company. Investors believe that an ecologically aware company has a lower risk of an environmental mishap and that increases the company’s value (Gifford, 1997). In the same way an improved environmental performance has been linked to greater economic performance (Cronin et al., 2011).

It is clear that sustainability becomes more and more important for companies. An area that may have a major effect on sustainability is logistics. Logistics can really contribute to solutions for environmental and ecological concerns (Poist, 1989). Because logistics is oftentimes outsourced to third party logistics (3PL) providers, these third parties have an important role in improving the sustainability of their clients’ logistics activities. According to a report mentioned by Bigham (Bigham & Fisher, 2008) entitled “Are your company’s outsourcers improving the environment on behalf of your organization, or adding to global warming”, over 21 percent of publicly-traded companies that outsource functions have added “green policies and performance” demands to their vendor contractual arrangements in 2007, and over 94 percent plan on adding clauses or including green in their renegotiations.
processes. In research on third party logistics (3PL) users, Swaminathan (2008) reported that “Eighty-six percent of respondents agree that a green supply chain is somewhat or very important. But while users are feeling the need to do something green, there are still uncertainties around what that really means. This is an opportunity for 3PL providers to do their part in helping their customers achieve these green goals” (Swaminathan, 2008, p. 56S).

Outsourcing to 3PL providers is often part of the business. As Swaminathan (2008) mentioned demands will be made. Looking closely to the relationships in the logistics process, it is possible to identify what the role of sustainability may be. End customers have concerns about the environment. Identifying end customers as buyers from companies, then companies are sellers to end customers. This dyadic relationship between end customers and companies can be approached as a triadic relationship when 3PL providers act as intermediary. Condition therefore is that 3PL providers take care of some contact between selling party and buying party but not all contacts (Havila et al., 2004). Triadic relationships can be defined as “relationships between interfaces in the supply chains and 3PL providers, where logistic services are offered, from basic to customized ones, in a shorter or longer-term relationship, with the aim of effectiveness and efficiency” (Bask, 2001, p. 474).

In most 3PL relationships the relations are limited either to the dyadic relationship between the seller of the goods (the company) and the 3PL provider or between the buyer of the goods (being a business) and the 3PL provider (Bask, 2001; Gentry, 1996b; Marasco, 2008). Although many studies reflect the boundary-spanning role of logistics, existing research mainly focuses on dyadic relationships in a business-to-business context (Mentzer et al., 2004). Most research written about relationships in logistics does not cover the triadic relationships between company, 3PL provider and customer (Stefansson, 2006), and especially not the end customer. A literature review of 114 studies on the level of analysis used (firm, dyad and network) shows that very few studies (6 percent) exist at the network level (e.g. logistics triads) (Selviaridis & Spring, 2007). This study will fill the identified gap in the literature and focus on the triadic relationship between company, 3PL provider and end customer.

In triads, all parties can reach potential savings (Beier, 1989), increase supply chain efficiency (Gentry, 1996a) and increase customer service levels (Gentry, 1996b). The integration of and communication between the parties gives control over sustainability aspects for the companies. That is important because companies are more and more held responsible for not only their internal activities but also for their suppliers’ behaviour (Maignan et al., 2002).

In general, a 3PL provider can add value to a company when it enhances the performance. One of the benefits can be improving customer satisfaction (Bask, 2001), which is closely linked to loyalty. Many studies highlight the positive relation between satisfaction and loyalty (Bloemer et al., 1999; Lichtlé & Plichon, 2008; Oliver, 1999). Taking the triadic relationship into account, this study proposes that end customers will be sensitive to the use of the 3PL provider
and more specifically, the sustainability of the 3PL provider. Customers’ satisfaction and related loyalty to the company from which they buy a product will be influenced by the experience they have with the 3PL provider delivering the product. For example, when a customer orders a book on the internet about “What can I do to save ice glaciers?” and it is delivered by a car that is exhausting thick, dark smoke, the customer will probably be disappointed in the retailer where the customer ordered his or her book. The customer’s satisfaction with the delivery and the related loyalty to the retailer will be likely to decline and the customer will probably be looking out for other companies with a sustainable 3PL provider where the customer can order the same books.

Customer loyalty has been object of many studies (see e.g., Bloemer & Kasper, 1995; Day, 1969; Dick & Basu, 1994; Oliver, 1999). As markets become more competitive, many companies recognise the importance of retaining current customers and some have initiated a variety of activities to improve customer loyalty. Is one of those activities using a sustainable 3PL provider?

One of the six domains of corporate social responsibility database of “Socrates: The corporate social ratings monitor”, is environment. Actions taken by companies will affect end customers’ perception of customer-company congruence (Sen & Bhattacharya, 2001). Research shows that this actions with regard to corporate social responsibility within the six domains are positive for the attitude from customers to the companies and their products (Brown & Dacin, 1997; Mohr & Webb, 2005). Zhang & Bloemer (2008, p. 162) found in the organizational literature “that people have greater intentions to create and retain their relationships with those who are similar to themselves”. End customers identifying themselves with the company through similar sustainability goals will likely feel more satisfied and loyal.

1.1 Research objective

This study will research the effects of sustainability of 3PL providers in triadic relationships. The goal is to test to what extent end customers care about the sustainability of 3PL providers used by companies to deliver products to the customers.

The research question that will be answered is:

**What is the effect of 3PL providers’ sustainability and delivery costs on end customers with regard to customer-company congruence, satisfaction and loyalty to the seller company?**

The results of this research provide companies, that outsource their logistics to 3PL providers, with insights on whether green policies and performance by their 3PL provider can add to improving their end customer-company congruence, end customer satisfaction and end customer loyalty. Improved end customer satisfaction and loyalty have many different positive
results for companies such as revenues and market share growth, lower costs for acquiring new customers and increased employee retention because of job pride and satisfaction (Anderson & Mittal, 2000; Reichheld & Markey Jr, 2000).

1.2 Structure of the thesis

Chapter 2 provides a literature review, followed by a description of the methodology in Chapter 3. Next, the results are presented in Chapter 4. Chapter 5 concludes with a discussion of the results, implications for theory and practice, limitations and suggestions for further research.
2 Literature review

2.1 Sustainability

The world commission on Environment and Development cited in 1987 sustainable development as “to meet the needs of the present without compromising the ability of future generations to meet their own needs”. Together with two mayor incidents (the chemical release of a poison cloud from Union Carbide in Bhopal India in 1984 and the oil spill from the oil tanker Exxon Valdez in Alaska in 1989) this caused a new push in sustainability research. Before this turning point most literature was about ethics and isolated topics as consumer energy use and corporate culture and rituals. After the push forward, integrated corporate social responsibility, corporate citizenship and financial profits received more attention (Chabowski et al., 2011). Also words such as environmental responsibility, sustainable development and triple bottom line are used (Crittenden et al., 2011). The triple bottom line does not focus only at environmental concerns, it also covers the economic and social view. It states that the business goal is not only economic based, but also social and environmental (Sheth et al., 2011). Sometimes also reflected as the popular 3Ps interpretation of sustainability: planet, people and profit. Looking to sustainability from a marketing view, “sustainability goals strongly influence product design, communication and channel selection. From a supply chain perspective, sustainability goals strongly influence component selection, materials sourcing, production, packaging, distribution and recycle decisions” (Closs et al., 2011, p. 101).

The importance of sustainability for companies is clearly there and growing. “Sustainability is nowadays generally accepted as one of the key success factors in the long term business strategy of the firm” (Kuosmanen & Kuosmanen, 2009, p. 235). Proactive environmental strategies such as reduction of air emission, waste water and solid wastes can improve a company’s environmental situation. An improved environmental performance has in turn been linked to greater economic performance (Cronin et al., 2011). Positive economic performance effects are a decrease in costs for materials purchasing, energy consumption, fee or taxes for waste treatment and discharge (Cleveland et al., 2005; Closs et al., 2011). On the other side there are negative economic performance effects through increased investments for purchasing environmentally friendly materials and increased operational and training costs (Zhu & Sarkis, 2007). But companies have to respond to these developments by finding new ways to produce, package and deliver goods and services to end customers (Connelly et al., 2011). The scope is broad with regard to sustainability. It offers market opportunities like advantage over competition and it reduces business risk in a society where companies worldwide are being held responsible for the future of the environment. And from an economic view the decrease of resources worldwide results in an increase of cost for companies and end customers (Crittenden et al., 2011; Cronin et al., 2011). When companies are able to meet this responsibility and develop products and services in trend with the new demands, they will be
able to achieve long-term profitable growth (Closs et al., 2011; Luchs et al., 2010).

From all stakeholders like investors and policy makers, the end customer is mainly not in the foreground in regard to sustainability initiatives of companies (Sheth et al., 2011). But studies indicate that environmentally friendly end customer behaviour is growing. Attitudes of end customers are growing greener, they become more aware and competent in buying environmentally sound products (Cronin et al., 2011; Huang & Rust, 2011; McDonald et al., 2009; Menon & Menon, 1999; Minton & Rose, 1997). And after using the products, consumers show behaviour like returning bottles and cans, recycling old paper and sorting out rubbish. In the literature this environmental concern is defined as “a general attitude towards preserving the environment” (Minton & Rose, 1997, p. 38). When the end customers’ environmental concerns grow, their intentions to make personal sacrifices to slow down pollution and intentions to stop buying from companies that pollute will become stronger (Laroche et al., 2001). The liberal view on green consumerism suggest that choosing for products and services that are less harmful for the environment, is more beneficial for the environment and does not harm the end customers way of living (Moisander, 2007). Therefore, companies must take the end customer as stakeholder seriously. When they recognize the importance of the end customers’ interests and secure the support of end customers, together with support and shared values from other stakeholders, it can even lead to a synergy effect to advance sustainability (Crittenden et al., 2011).

Where some companies still do not feel the urge for sustainability, threat and/or use of regulations will increase sustainability concerns and actions taken (Chabowski et al., 2011). Although it must be said that a real commitment seems to be needed. There are many examples of companies that tried green washing of their product with misleading or unsubstantial environmental claims, which resulted in a sceptical view or even boycott of companies by end customers (Chabowski et al., 2011; Crittenden et al., 2011; Moisander, 2007).

2.2 Third Party Logistics (3PL)

Many definitions and interpretations for the concept of 3PL can be found in the literature. Some are traditional outsourcing of transportation and warehousing, and some are more complex describing the entire logistics process.

According to Marasco in his 3PL literature review of 152 articles in 33 reputable international journals of publications (Marasco, 2008), some broad definitions describe the use of 3PL for the entire logistics process or only selected activities within the logistics process that were previously performed within the organization. The more narrow definitions are stressing out the functional features of the relationship within the logistics process like management support and the duration of the relationship. Marasco (2008, p. 128) cites three definitions:
1. “Third-party logistics are activities carried out by a logistic service provider on behalf of a shipper and consisting of at least management and execution of transportation and warehousing. In addition, other activities can be included, for example inventory management, information related activities, such as secondary assembly and installation of products, or even supply chain management. Also the contract is required to contain some management, analytical or design activities, and the length of the co-operation between shipper and the provider to be at least one year, to distinguish third-party logistics from traditional “arm’s length” sourcing of transportation and/or warehousing.” Definition given by Berglund et al. (1999).

2. “3PL involves a relationship between a shipper and third party, which, compared with basic services, has more customized offerings, encompasses a broader number of service functions and is characterized by a longer term, more mutually beneficial relationship.” Definition given by Murphy and Poist (1998).

3. “3PL can be characterized by filling several features like the provision of a broad range of services, a long-term duration, joint efforts to develop cooperation, the customization of the logistics solution, a fair sharing of benefits and risks and the suggestion that 3PL incorporates strategic and not just tactical dimensions.” Definition given by Skjoett-Larsen (2000).

Key elements from the different definitions above are the beneficial nature of the relationship and the duration of the relationship. Other scholars emphasize also collaboration in understanding and defining current and potential customers’ needs and designing and developing solutions for a win-win arrangement (Beier, 1989; Mentzer et al., 1999; Skjoett-Larsen, 2000). For companies one of the benefits of using 3PL providers can be the help with green strategies. In the literature, three main green strategies are described (Cronin et al., 2009): green innovation, greening the organization and green alliances. When a company is partnering with a green, sustainable 3PL provider, it signals a green focus to the end customer.

2.3 Triads

“The term third-party logistics (3PL) has its foundation in a triadic relationship covering seller, buyer and third-party logistics provider. This triad consists of three dyadic relationships:

1. The relationship between seller and 3PL provider.
2. The relationship between buyer and 3PL provider.
3. The relationship between seller and buyer in the supply chain. (Bask, 2001, p. 473)”

For reaching a triadic relationship all members should have contact which each other. This leads to the earlier mentioned definition of Bask, describing triadic relationships as “relationships between interfaces in the supply chains and third-party logistics providers, where logistics services are offered, from basic to customized ones, in a shorter or longer-term relationship, with the aim of effectiveness and efficiency” (2001, p. 474). Gentry also
describes that the integration of 3PL providers into planning and communication can increase supply chain efficiency. A third definition is “a cooperative, three-way relationship among a buyer of goods, the supplier of those goods, and a 3PL provider moving and/or storing the goods between buyer and supplier” (Larson & Gammelgaard, 2001, p. 71). Benefits are greater flexibility, better on-time pickup and delivery performance and improved customer service levels. Furthermore, the 3PL should be a problem solver and reach experience savings in addition to goods movement. The function of the 3PL provider is a middleman in synchronizing all phases of goods movement between company and customer (Beier, 1989). And when end customers are seeking ways to execute their own daily transportation in sustainable modes (Moisander, 2007), why should end customers not expect that from the companies that deliver their goods?

2.4 End customer-company congruence

End customer-company congruence is defined as “the amount of congruence or overlap customers perceive between the company’s character and their own” (Sen & Bhattacharya, 2001, p. 226). This identification with the company shows the customers personal position on issues and their belief of the company’s position on issues.

Companies that are perceived to have a higher congruence with customers, are likely to have more satisfied and loyal customers because customer-company congruence can make end customers react positively to corporate social responsibility actions (Brown & Dacin, 1997; Sen & Bhattacharya, 2001) and are likely to be more loyal to those companies (Mohr & Webb, 2005; Zhang & Bloemer, 2008).

2.5 End customer satisfaction

Customer satisfaction has been defined in different ways. For this study customer satisfaction is conceptualized “as an overall, customer attitude towards a company” (Dimitriadis, 2006, p. 785). Attitude is the “customer’s positive, neutral or negative learned disposition, with respect to the company” (Hellier et al., 2003, p. 1764). Bloemer and Kasper (1995, p. 314) state that “in almost every definition of satisfaction is the notion of a comparison between expectations and performance”.

According to the satisfaction-profit train from Anderson et al. (2000, p. 107) “improving product and service attributes leads to increased customer satisfaction, which leads to greater customer retention, which lead to greater profitability”. So given that improving customer satisfaction is beneficial (with attention for the asymmetric and nonlinear nature of the link between satisfaction and profit (Anderson & Mittal, 2000; Dick & Basu, 1994; Zeithaml, 2000)), it is interesting to find out what 3PL providers can do to contribute to improved
customer satisfaction. Outsourcing of logistics services in general adds value when it enhances the performance of a company (Bask, 2001). “The advantages for companies to use 3PL providers are to:
- concentrate on core competencies and capabilities
- concentrate on logistic management
- improve overall performance
- find global solutions
- enable entry new markets
- control costs, investments and services
- improve flexibility
- find more cost efficient service solutions
- **improve customer satisfaction**”
(Bask, 2001, p. 472)

Improving customer satisfaction in a global environment is a competence of great importance to major companies. “The philosophy of supply chain management extends the concept of partnerships into a multiform effort to manage the total flow of goods inventory from supplier to the end customer. The chain is viewed as a whole, a single entity rather than fragmented groups, each performing its own function” (Gentry, 1996b, p. 37). Customer satisfaction is the result of the whole chain, and therefore companies cannot ignore the influence of 3PL providers on customer satisfaction. Furthermore, “the demand side of logistics capabilities (availability, timeliness, delivery quality and communication) is critical to satisfy customers because logistics personnel are often a primary customer contact (logistics delivery and/or order processing personnel as customer service specialist)” (Mentzer et al., 2004, pp. 617-618). The delivery employee is the face in front of the end customer. But customer satisfaction alone is not enough, it must lead to customer loyalty. In the literature, satisfaction is an important determinant of loyalty (Oliver, 1999). Satisfaction with the product and satisfaction with the service (e.g., transportation) are both important drivers of loyalty (Bloemer & Lemmink, 1992). “It’s not how satisfied you keep your customers, it’s how many satisfied customers you keep” (Reichheld & Markey Jr, 2000, p. 138).

### 2.6 End customer loyalty

Loyalty can be defined as: “a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behaviour” (Oliver, 1999, p. 34). Lichtlé et al. (2008) have analyzed the definitions of loyalty and their evolution. The essence is that loyalty varies according to the occasion. A consensus definition is found in: “Loyalty is perceived as an individual, constant, biased response that is coherent over time; it resists in unexpected situations and against the initiatives of competitors” (Lichtlé & Plichon, 2008, p. 136). With this definition of loyalty it
is not necessary to specify loyalty to a store, dealer, service or brand which are commonly used in the literature, see e.g. Bloemer (1992; 1999) or Dick et al. (1994).

Besides the advantages provided by loyalty mentioned in the introduction (based on Anderson et al. (2000) and Reichheld et al. (2000)), there are also resistance to counter persuasion, lack of search motivation for other products and services and positive word-of-mouth communication about the product or service (Dick & Basu, 1994). With all those benefits, it is therefore beneficial for companies to increase the number of loyal customers. But what are loyal customers? Loyal customers can be defined as “those customers who hold favourable attitudes toward an company, recommend the company to other consumers and exhibit repurchase behaviour” (Dimitriades, 2006, p. 785). This repurchase behaviour is interesting, because “the companies with the highest retention rates (evidence of superior customer value) also earn the best profits” (Reichheld & Markey Jr, 2000, p. 135). But a warning is required, the commitment of loyal customers is never total, and when the circumstances change, customers re-evaluate (Day, 1969).

Companies who struggle with higher costs (e.g. caused by sustainability) and who are not able to lower costs must search for other possibilities to compete. Developing strategies to increase customer loyalty with new and existing customers, can be beneficial (Bloemer & Lemmink, 1992). Developing relationships with customers, trying to make customers loyal, may be an effective strategy to keep customers from leaving for lower prices offered by competitors (Kaltcheva et al., 2010).

2.7 Development of hypotheses

A lot has been researched with regard to end customer satisfaction and end customer loyalty in different areas. However, end customer-company congruence, end customer satisfaction and end customer loyalty with a seller in relationship to 3PL provider sustainability and delivery costs has not received much research attention. This study will attempt to fill the identified gap in the literature and focus on the triadic relationship between seller, 3PL provider and end customer by investigating the effects of 3PL provider sustainability and delivery costs on end customer-company congruence, end customer satisfaction with and end customer loyalty to the seller.

Keeping customers has much more economic value over time than replacing customers over and over again, in other words, the relative cost of retention is lower than the cost of acquisition (Bloemer & Lemmink, 1992; Oliver, 1999). It is worth the effort to keep customers loyal in the long run, because loyal customers recommend the company to other consumers and exhibit repurchase behaviour (Dimitriades, 2006). Improved end customer satisfaction and loyalty generate positive results for companies such as revenues and market share growth and lower costs for acquiring new customers (Anderson & Mittal, 2000; Reichheld & Markey Jr,
End customers want a company that is responsive to all their needs, including the need for sustainability. 3PL providers’ sustainability can be part of the desired sustainability that customers seek in companies. When a company is partnering with a green, sustainable 3PL provider, it signals a green focus to the end customer. The goal of the company is to satisfy the end customer (Mentzer et al., 2004; Skjoett-Larsen, 2000) and satisfying the end customer with sustainability is part of that. Research suggests that end customers judge sustainable products as positive (Brown & Dacin, 1997) and prefer environmentally friendly products (Cronin et al., 2011; Huang & Rust, 2011). They are willing to choose products from companies that take their corporate social responsibility with regard to environmental issues (Luchs et al., 2010). Not only for their own part of the supply chain, but for the whole chain (Gentry, 1996b), from producing the goods to delivering the goods to the end customer. As a result, this leads to the following hypothesis:

**H1:** 3PL provider sustainability is positively related to a) end customer satisfaction and b) end customer loyalty with the seller.

Price perceptions are one of the strongest factors influencing customer loyalty and retention (McMullan & Gilmore, 2008; Sheth et al., 2011; Varki & Colgate, 2001). In the classical economic theory higher prices negatively affect purchase probability (Vöckner, 2008) and customers may switch companies for a more attractive price (Kaltcheva et al., 2010). Therefore, it is expected that higher prices will decline end customer satisfaction and end customer loyalty. Price is largely based on producing, handling and delivering costs. This study focuses on delivering costs. The 3PL provider is largely responsible for delivery costs. Furthermore, it is commonly accepted to have the delivery costs separated from the goods on the bill. This study will examine the relationship between delivery costs and end customer satisfaction with the seller. The resulting hypothesis is:

**H2:** Delivery costs are negatively related to a) end customer satisfaction and b) end customer loyalty with the seller.

Sustainability can bring higher costs, and therefore higher prices, for the end customer. As said before, it is expected that higher prices will decline end customer satisfaction and end customer loyalty. However, it is likely that there is an interaction effect between 3PL provider sustainability and delivery costs. End customers show preferences for products from environmentally oriented companies (Huang & Rust, 2011; McDonald et al., 2009; Menon & Menon, 1999; Winsemius & Guntram, 1992). An increasing group end customers is willing to pay more for sustainable goods from environmentally-oriented companies (Gupta & Ogden, 2009; Laroche et al., 2001). These end customers will likely be less sensitive to higher costs charged by environmentally-oriented companies. The influence of sustainability could reduce the negative influence of price on end customer satisfaction and end customer loyalty with the seller. It is likely that costs for sustainable delivery will be incorporated in the delivery costs.
Therefore, it is assumed that end customers are willing to pay higher delivery costs for a more sustainable 3PL provider. Research from Laroche et al. (2001, p. 514) shows that “a consumer who considers environmental issues when making a purchase is likely to spend more for green products. In fact, 80 percent said they refuse to buy products from companies accused of being polluters”. This leads to the following hypothesis concerning an interaction effect between the variables of 3PL provider sustainability and delivery costs:

**H3:** An increase in delivery costs leads to a smaller decrease in a) end customer satisfaction and b) end customer loyalty with the seller in case of high 3PL provider sustainability compared to low 3PL provider sustainability.

As said in the introduction, actions and behaviour taken by companies in the environmental domain will affect end customers’ perceptions of customer-company congruence (Sen & Bhattacharya, 2001). End customers are “likely to identify with an company when they perceive its identity to be enduring, distinctive and capable of enhancing their self-esteem” (Sen & Bhattacharya, 2001, p. 228). Research shows that these actions with regard to corporate social responsibility result in more positive customer attitudes toward companies and their products (Brown & Dacin, 1997; Mohr & Webb, 2005). Zhang & Bloemer (2008, p. 162) found in the organizational literature “that people have greater intentions to create and retain their relationships with those who are similar to themselves”. End customers identifying themselves with the company through similar sustainable goals would likely be more satisfied with the company as well. To examine this mediating role played by consumers’ perceptions of congruence between their own personality traits and the companies’ personality traits, the following hypothesis is presented:

**H4:** The effects of 3PL provider sustainability on a) end customer satisfaction and b) end customer loyalty with the seller are partially mediated by end customer-company congruence.

### 2.8 Conceptual model

This model is the sum of the described variables and relationships and is visualized in figure 1.

**Independent variables:**
- 3PL provider sustainability
- delivery costs

**Dependent variables:**
- end customer-company congruence
- end customer satisfaction
- end customer loyalty
Figure 1 conceptual model
3 Methodology

In this chapter a description of the methodology will be given. The chosen research strategy to investigate the conceptual model will be explained.

3.1 Research strategy

This study will research the effects of sustainability of 3PL providers in triadic relationships. The aim is to test to what extent end customers care about the sustainability of 3PL providers used by companies to deliver products to the customers. An aim gives a direction for the selection of research strategies (Swanborn, 2002, p. 111). In order to accomplish this aim the following research question will be answered: What is the effect of 3PL providers’ sustainability and delivery costs on end customers with regard to customer-company congruence, satisfaction and loyalty to the seller company? To answer this research question and choose the right research strategy there are three major decisions in the research strategy to make according to Verschuren & Doorewaard (1998, p. 152):

1. width versus depth
2. qualitative versus quantitative
3. empirical versus desk study

In order to generalize the outcomes of this research to a broader context a wide view would be appropriate. In the same way, to generalize the outcomes and test the significance of the hypothesized effects quantitative research would be needed. The variables end customer satisfaction, end customer loyalty, end customer-company congruence and delivery costs (a part of price) are well known, comprehensively described and widely researched (see e.g., Bloemer & Kasper, 1995; Dick & Basu, 1994; Oliver, 1999; Sen & Bhattacharya, 2001; Snitzler, 1958; Völckner, 2008). For these variables many different research methods are applicable to use. However, the variable 3PL provider sustainability is not or rarely covered in existing literature as far as the knowledge of the author reaches. Empirical research therefore, seems suitable to research this variable of 3PL provider sustainability.

Furthermore, at this moment, it is for the subjects of this study, end customers, quite difficult to judge about the sustainability of real 3PL providers who arrive at their doorsteps. Although information about companies’ sustainability levels is increasing, information about 3PL providers is mostly available to 3PL providers’ clients and not to end customers. To solve this issue, a scenario based experimental design would allow to simplify and duplicate the situation and make it comparable and comprehensible for end customers. The scenario based experimental methodology also “reduces biases from memory lapses, rationalization tendencies, and consistency factors” (Grewal et al., 2008, p. 428). Furthermore it provides an
“unequivocal assessment of causality” (Beatty & Elizabeth Ferrell, 1998, p. 186) in contrast to other methods which infer causation.

Managerial undesirability is another reason to use the scenario based design. Describing an existing company as a polluting one who is harming the environment can result in a sceptical view or even boycott of companies by end customers. Ramsey et al. (2006, p. 569) conclude their study with saying that “projective techniques are reliable, valid, trustworthy, significant and appropriate research instruments that have provided insightful reality, not valueless subjectivity relative to the research problem” and that researchers across various disciplines should be endorsed to use the powerful data elicitation capabilities of projective techniques.

Therefore, with the three decisions from Verschuren in mind and the benefits of a scenario based design, I chose to use a scenario based experimental methodology with a questionnaire, to investigate the effect of 3PL providers’ sustainability on end customer with regard to customer-company congruence, satisfaction and loyalty to the seller company.

Given that customers become more demanding with regard to supply chain transparency and sustainability issues, I believe that 3PL provider sustainability will soon become part of sustainability demands by end customers, thereby warranting the external validity of this research. Furthermore, end customers are familiar with sustainability issues and are therefore likely to be able to project themselves in the described scenario and provide valid answers.

### 3.2 Study design

The scenario based experimental methodology in this study is using a 2x2 design. The participants were therefore randomly divided in four groups. A scenario about an online clothing shop with the fictitious name Kledingshop.nl is used to situate customers without connection to a real company. The questionnaire started with a brief introduction and directions, followed by a scenario description for each group:

- Scenario 1 described high 3PL provider sustainability and high delivery costs.
- Scenario 2 described low 3PL provider sustainability and high delivery costs.
- Scenario 3 described low 3PL provider sustainability and low delivery costs.
- Scenario 4 described high 3PL provider sustainability and low delivery costs.

After reading the scenario the participants were asked how they would react in the situation described. This method assumes that participants are able to imagine the scenario and project themselves into the scenario to answer the questions. As the scenario is closely based on reality this should not be hard.
3.3 Data collection

3.3.1 Unit of analysis and population

The unit of analysis in this experiment is the end customer. The end customer’s customer-company congruence, satisfaction and loyalty to a seller company is studied after manipulating delivery costs and the level of sustainability of the 3PL provider delivering the goods to the end-customer. The population consists of all end customers in the Netherlands, however due to practical implications only a sample of the population is researched.

3.3.2 Sample and sample size

For this study an internet panel called “www.thesistools.com” is used, which is representative for the population in the Netherlands. An invitation with an internet link to a cover letter and a questionnaire is mailed. The questionnaires with the different manipulated scenarios are randomly assigned to the participants. A follow-up reminder is sent after one week. The sample size is determined with the goal of obtaining 50 respondents for each scenario. This should be a sufficient number because 20 respondents per independent variable is considered adequate for discriminant analysis (Gupta & Ogden, 2009). The total sample size is determined by the panel to acquire the 4 x 50 complete questionnaires.

3.4 Questionnaire design

The design of the questionnaire is based on multiple-item measurement scales that have been found to be reliable and validated in previous research. Only minimal modifications were made to adapt the language from the scenarios into the questions and to make the questions hypothetical. For example, the company is changed in the name of the company used in the scenario and “would be” is added. The original intent and structure have been untouched. All the responses for the interval scales were measured on seven point Likert scales ranging from 1 = strongly disagree (negative) to 7 = strongly agree (positive).

Furthermore, there are two questions to measure how many customers are familiar with the situation presented in the scenarios: buying products online and, more specifically, buying clothes online. Manipulation checks for the two manipulated variables are also included. In addition, sociodemographic data such as gender, age, education, net income and household composition is collected. Finally, credibility of the scenarios is measured.
3.5 Operationalization

In this section the instructions that the respondent received are described. Furthermore, the independent variables in the conceptual model are translated into scenario manipulations and the dependent variables in the conceptual model are translated into measurable items.

3.5.1 Instructions

Imagine you are online buying clothes from Kledingshop.nl, a shop who offers quality clothes. You select the desired clothes and choose the payment method.

“Delivery manipulation” is inserted.

“Sustainability manipulation” is inserted.

Please answer the questions on the following pages. Try to imagine the situation described above while answering the questions. Base your answers on the given information. There are no right or wrong answers, we are only interested in your opinion.

3.5.2 Delivery costs scenario manipulation

High delivery costs
The delivery costs charged by Kledingshop.nl are, on average, higher than charged by other online clothing shops. Kledingshop.nl uses an external shipping company to deliver the clothes to you. You can choose the delivery date (not earlier than the next day) and delivery during daytime or evening. If the clothes are not as desired, you can return the clothes within 14 days free of any charge.

Low delivery costs
The delivery costs charged by Kledingshop.nl are, on average, lower than charged by other online clothing shops. Kledingshop.nl uses an external shipping company to deliver the clothes to you. You can choose the delivery date (not earlier than the next day) and delivery during daytime or evening. If the clothes are not as desired, you can return the clothes within 14 days free of any charge.

3.5.3 3PL provider sustainability scenario manipulation

High 3PL provider sustainability
As agreed, the shipping company delivers the clothes to you the next morning. You receive the
package at the door and see the truck from the shipping company. You recognize the shipping company and think back to a news article you read that morning. In the article, shipping companies were compared on sustainability. The shipping company that is now delivering your clothes scored very good on sustainability, much better than other companies. The shipping company is using diesel trucks with the newest soot particulate filter which absorbs 20% more carbon black than older filters. Furthermore, all drivers followed a driving course resulting in fuel consumption savings and reduced truck exhaust emissions of 15%. Thus, the company makes large efforts to minimize its effects on people’s health and the environment.

Low 3PL provider sustainability

As agreed, the shipping company delivers the clothes to you the next morning. You receive the package at the door and see the truck from the shipping company. You recognize the shipping company and think back to a news article you read that morning. In the article, shipping companies were compared on sustainability. The shipping company that is now delivering your clothes scored very bad on sustainability, much worse than other companies. The shipping company is using diesel trucks with a conventional soot particulate filter which exhaust at least 20% more carbon black than the newest filters. Furthermore, none of the drivers followed a driving course, so fuel consumption and with that exhaustion is 15% higher than necessary. Thus, the company makes no efforts to minimize its effects on people’s health and the environment.

3.5.4 End customer satisfaction


Purchase aspects:
1. My decision to purchase clothes from Kledingshop.nl was a wise one.
2. I feel good about my decision to purchase the company’s product.
3. I am pleased that I purchased the product from the company.

3.5.5 End Customer Loyalty

Adapted from Yang et al. (2004) based on Mols (1998) and adapted from Zhang et al. (2008).

Word of mouth aspects:
1. I would say positive things about Kledingshop.nl to other people.
2. I would recommend Kledingshop.nl to those who seek my advice.
3. I would encourage friends and relatives to use Kledingshop.nl.

Repurchase intention aspects:
4. I would intend to continue to do business with the present Kledingshop.nl.
5. I would do more business with Kledingshop.nl in the next few years.
6. If I had to do it over again, I would make the same choice.

3.5.6 Customer-company congruence

Adapted from Sen et al. (2001) based on Neidenthal et al. (1985). The original 20-item scale was reduced to 6 items in order to keep the questionnaire short. The 6 items were selected based on their applicability to the current study.

To which extent do you believe the following personality trait adjectives describe you?
1. The best
2. Fair
3. Capable
4. Progressive
5. Efficient
6. Innovative

To which extent do you believe the following personality trait adjectives describes Kledingshop.nl?
1. The best
2. Fair
3. Capable
4. Progressive
5. Efficient
6. Innovative

3.5.7 Manipulation check

Adapted from Handelman et al (1999).
1. Kledingshop.nl’s delivery costs are, on average, lower than the competition’s delivery costs. (manipulation check for delivery costs)
2. The shipping company who delivers the goods, operates more sustainably than other shipping companies. (manipulation check for 3PL provider sustainability)

3.6 Data analysis

For the data analysis is chosen for multiple regression analysis in SPSS version 17. The indirect effects of sustainability on satisfaction and loyalty are analyzed with the help of bootstrapping with the Preacher-Hayes script version 4.2 August 2011 (Preacher & Hayes, 2008).
4 Results

4.1 Data description

In the next sections the collected data will be described.

4.1.1 Response rate

To test the hypotheses a total of 1000 survey invitations was sent. This resulted in the following response:

<table>
<thead>
<tr>
<th>scenario</th>
<th>invitations</th>
<th>responses</th>
<th>useable responses</th>
<th>response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 High Cost High Sustainability</td>
<td>250</td>
<td>61</td>
<td>44</td>
<td>17.6%</td>
</tr>
<tr>
<td>2 High Cost Low Sustainability</td>
<td>250</td>
<td>55</td>
<td>48</td>
<td>19.2%</td>
</tr>
<tr>
<td>3 Low Cost Low Sustainability</td>
<td>250</td>
<td>63</td>
<td>49</td>
<td>19.6%</td>
</tr>
<tr>
<td>4 Low Cost High Sustainability</td>
<td>250</td>
<td>64</td>
<td>51</td>
<td>20.4%</td>
</tr>
<tr>
<td>Total</td>
<td>1000</td>
<td>243</td>
<td>192</td>
<td>(average 19.2%)</td>
</tr>
</tbody>
</table>

With an average response rate of 19% the responses are fairly distributed over the different scenarios. That is important because unequal sample sizes across groups can decrease power (Frazier et al., 2004). To provide a more robust analysis, 51 responses were removed due to missing values.

4.1.2 Sociodemographic data

In the next tables the sociodemographics are reported.

<table>
<thead>
<tr>
<th>Table 2 gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
</tr>
<tr>
<td>female</td>
</tr>
<tr>
<td>missing</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
Table 3 age

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 or younger</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>18-25</td>
<td>13</td>
<td>6.8%</td>
</tr>
<tr>
<td>26-35</td>
<td>18</td>
<td>9.4%</td>
</tr>
<tr>
<td>36-45</td>
<td>101</td>
<td>52.6%</td>
</tr>
<tr>
<td>46-55</td>
<td>24</td>
<td>12.5%</td>
</tr>
<tr>
<td>56-65</td>
<td>20</td>
<td>10.4%</td>
</tr>
<tr>
<td>66 or older</td>
<td>14</td>
<td>7.3%</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Total</td>
<td>192</td>
<td>100%</td>
</tr>
</tbody>
</table>

The majority of the respondents is between 36-45 years old.

Table 4 education

<table>
<thead>
<tr>
<th>Education</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No education</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Primary school</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Lower vocational education</td>
<td>5</td>
<td>2.6%</td>
</tr>
<tr>
<td>Lower general secondary education</td>
<td>7</td>
<td>3.6%</td>
</tr>
<tr>
<td>Intermediate vocational education</td>
<td>26</td>
<td>13.5%</td>
</tr>
<tr>
<td>Secondary education / highschool</td>
<td>24</td>
<td>12.5%</td>
</tr>
<tr>
<td>Higher vocational education / university of professional education</td>
<td>87</td>
<td>45.3%</td>
</tr>
<tr>
<td>University of science</td>
<td>42</td>
<td>21.9%</td>
</tr>
<tr>
<td>Total</td>
<td>192</td>
<td>100%</td>
</tr>
</tbody>
</table>

45% of the respondents finished higher vocational education.

Table 5 net income per household per month

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1000 euros</td>
<td>8</td>
<td>4.2%</td>
</tr>
<tr>
<td>1000-1500 euros</td>
<td>15</td>
<td>7.8%</td>
</tr>
<tr>
<td>1500-2000 euros</td>
<td>17</td>
<td>8.9%</td>
</tr>
<tr>
<td>2000-2500 euros</td>
<td>10</td>
<td>5.2%</td>
</tr>
<tr>
<td>2500-3000 euros</td>
<td>25</td>
<td>13.0%</td>
</tr>
<tr>
<td>3000-4000 euros</td>
<td>34</td>
<td>17.7%</td>
</tr>
<tr>
<td>4000-5000 euros</td>
<td>21</td>
<td>10.9%</td>
</tr>
<tr>
<td>&gt;5000 euros</td>
<td>17</td>
<td>8.9%</td>
</tr>
<tr>
<td>No input</td>
<td>45</td>
<td>23.4%</td>
</tr>
<tr>
<td>Total</td>
<td>192</td>
<td>100%</td>
</tr>
</tbody>
</table>

It seems that 23% of the respondents were not willing to answer the net income question and 31% has a fairly modal income between 2500-4000 euros per household per month.
Table 6 household composition

<table>
<thead>
<tr>
<th>Household Composition</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 adult without kid(s)</td>
<td>43</td>
<td>22.4%</td>
</tr>
<tr>
<td>1 adult with kid(s)</td>
<td>4</td>
<td>2.1%</td>
</tr>
<tr>
<td>2 adults without kid(s)</td>
<td>53</td>
<td>27.6%</td>
</tr>
<tr>
<td>2 adults with kid(s)</td>
<td>92</td>
<td>47.9%</td>
</tr>
<tr>
<td>Total</td>
<td>192</td>
<td>100%</td>
</tr>
</tbody>
</table>

48% of the respondents live in a household of two adults with a child or children.

4.1.3 Credibility check

Due to the scenario based nature of this experiment, the respondents were asked to judge the credibility of the scenario at the end of the questionnaire. The credibility check shows that the respondents consider the scenarios somewhat realistic with an average score of M = 4.3 on a 7-point scale. The ANOVA with credibility as dependent variable and the manipulations as fixed factors, shows that the manipulations have no significant effect (delivery costs F(1,190) = 0.060; p = 0.806 and sustainability F (1,190)= 0.553; p = 0.458) on credibility for the different scenarios, which means that all scenarios were considered equally credible.

4.1.4 Manipulation checks

The questions to check the manipulations have a 7-point scale from completely disagree till completely agree. The results show that the manipulations worked as intended. With the help of ANOVA a significant effect is found for the sustainability manipulation on the sustainability manipulation check (M_{high sustainability} = 5.61; M_{low sustainability} = 1.77; F(1, 190) = 402.97; p < 0.01). Also a significant effect is found for the delivery costs manipulation on the delivery costs manipulation check (M_{high delivery costs} = 2.52; M_{low delivery costs} = 5.41; F(1,190) = 165.49; p < 0.01). In both analyses the other manipulation and the interaction effect were not significant, thus there are no confounding effects in this regard. The results show that the respondents did perceive the scenarios as intended.

4.2 Scale purification

To check whether the measures used in this research are valid and reliable, three commonly used assessments are executed; factor analysis, internal consistency check, descriptive statistics and correlations.
4.2.1 Factor analysis

The factor analysis is used to check if all items load on their respective factors. As extraction method the principal component analysis was performed and as rotation method the commonly recommended Varimax with Kaiser Normalization (Loehlin, 1998), resulting in appendix 1. The factor analysis shows that all items load on their intended factors and have factor loadings above 0.5. However, the satisfaction and loyalty items are loading on one factor, so discriminant validity could be low. In the section descriptive statistics and correlations this will be addressed.

4.2.2 Internal consistency

The internal consistency is calculated to see if the different items of each variable indeed measure the same variable. To assess each variable Cronbach’s coefficient alpha is used. A Cronbach’s alpha of 0.6 is sufficient while a Cronbach’s alpha of 0.75 is considered good (Nunnally & Bernstein, 1994; Swanborn, 2002). The results are shown in table 7.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cronbach’s Alpha</th>
<th>Numbers of items</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>.973</td>
<td>3</td>
<td>192</td>
</tr>
<tr>
<td>Loyalty</td>
<td>.981</td>
<td>6</td>
<td>192</td>
</tr>
<tr>
<td>C-C Congruence</td>
<td>.858</td>
<td>5</td>
<td>192</td>
</tr>
</tbody>
</table>

C-C congruence existed originally out of 6 items. Removing the item personality trait “the best” raises the Cronbach’s alpha from .837 till .858. Furthermore, without the item the kurtosis of C-C congruence lowers from 3.02 to 1.93. Table 7 now reveals that all Cronbach’s alpha values exceed the recommended value of 0.75 suggesting that the items of each construct indeed measure the same construct.

4.2.3 Descriptive statistics and correlations

In table 8 the descriptive statistics and correlations are shown for each construct. The skewness and kurtosis are both under 3 so the variables are normally distributed.
Table 8 Means, standard deviations and correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>Means</th>
<th>Standard deviations</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Satisfaction</td>
<td>4.04</td>
<td>1.71</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Loyalty</td>
<td>3.87</td>
<td>1.70</td>
<td>0.929**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 C-C Congruence</td>
<td>4.42</td>
<td>1.20</td>
<td>0.457**</td>
<td>0.499**</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Sustainability</td>
<td>-0.01</td>
<td>1.00</td>
<td>0.402**</td>
<td>0.410**</td>
<td>0.410**</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>5 Delivery costs</td>
<td>-0.04</td>
<td>1.00</td>
<td>-0.167*</td>
<td>-0.147*</td>
<td>-0.089</td>
<td>-0.032</td>
<td>1.000</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Note: The sustainability and delivery costs manipulations have been effects-coded.

Satisfaction and loyalty correlate very high in table 8. The variables are not sufficiently different, there is no discriminant validity between the variables. To solve this issue I will do two separate regression analyses, one with satisfaction as a dependent variable and one with loyalty as dependent variable. Multicollinearity between the independent variables is an issue when correlation coefficients raise above 0.75 (Gupta & Ogden, 2009), table 8 shows that this is not an issue in this research.

4.3 Testing of hypotheses

The hypotheses have been tested by multiple regression analysis in SPSS 17. To test the indirect effects of sustainability on satisfaction and loyalty, bootstrapping with the help of the Preacher-Hayes script version 4.2 August 2011 (Preacher & Hayes, 2008) is used. Two analyses have been conducted. One with satisfaction as dependent variable, sustainability as independent variable, C-C congruence as mediating variable and as covariates delivery costs and the interaction variable sustainability x delivery costs. The other one with loyalty as dependent variable, sustainability as independent variable, C-C congruence as mediating variable and as covariates delivery costs and the interaction variable sustainability x delivery costs. The level of confidence for confidence intervals was set at 95, the number of bootstrap resamples at 5,000 (sample size =192) and bias corrected and accelerated confidence intervals were used. The results of this testing are shown in tables 9 and 10.
Table 9 Effects of sustainability and delivery costs on C-C congruence and satisfaction

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>C-C congruence</th>
<th>Satisfaction direct</th>
<th>Satisfaction indirect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainability</td>
<td>0.491**</td>
<td>0.451**</td>
<td>0.233</td>
</tr>
<tr>
<td>Delivery costs</td>
<td>-0.220*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C-C congruence</td>
<td>0.475**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainability x Delivery costs</td>
<td>0.093</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>0.284</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.268</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-statistic (degrees of freedom)</td>
<td>18.52(4,187)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**, p < 0.01
*, p < 0.05

Table 10 Effects of sustainability and delivery costs on C-C congruence and loyalty

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>C-C congruence</th>
<th>Loyalty direct</th>
<th>Loyalty indirect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainability</td>
<td>0.491**</td>
<td>0.429**</td>
<td>0.265</td>
</tr>
<tr>
<td>Delivery costs</td>
<td>-0.178</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C-C congruence</td>
<td>0.540**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainability x Delivery costs</td>
<td>0.100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>0.314</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-statistic (degrees of freedom)</td>
<td>21.41(4,187)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**, p < 0.01
*, p < 0.05

Hypothesis 1 was: **3PL provider sustainability is positively related to a) end customer satisfaction and b) end customer loyalty with the seller.** Testing the hypothesis results in positive and significant total effects of 3PL provider sustainability on satisfaction (B = 0.684, p < 0.01) and loyalty (B = 0.694, p < 0.01). The hypothesis is supported.

Hypothesis 2 was: **Delivery costs are negatively related to a) end customer satisfaction and b) end customer loyalty with the seller.** In line with this hypothesis the effect of delivery costs on satisfaction (B = -0.220, p < 0.05) is negative and significant. Therefore hypothesis 2a is supported. There is no significant effect of delivery costs on end customer loyalty (B = -0.178, p > 0.05) The hypothesis 2b is not supported.

Hypothesis 3 was: **An increase in delivery costs leads to a smaller decrease in a) end customer satisfaction and b) end customer loyalty with the seller in case of high 3PL provider**
sustainability compared to low 3PL provider sustainability. The effects of the interaction between delivery costs and sustainability on satisfaction (B = 0.093, $p > 0.05$) and on loyalty (B = 0.100, $p > 0.05$) are not significant. Because the interaction effects between delivery costs and 3PL provider sustainability on end customer satisfaction and end customer loyalty with the seller are not significant, the hypothesis is not supported.

Hypothesis 4 was: The effects of 3PL provider sustainability on a) end customer satisfaction and b) end customer loyalty with the seller are partially mediated by end customer-company congruence.

To determine mediation, the decision tree and a step-by-step procedure for testing mediation from Zhao et al. (2010) are used.

Figure 2 is a visualization of a mediator model. Path $a$ represents the direct effect of the independent variable into the presumed mediator. Path $b$ represents the direct effect of the presumed mediator to the dependent variable. The interaction between path $a$ and $b$ represents the indirect path. This means the path where mediation through the presumed mediator is established. Path $c$ represents the direct effect of the independent variable on the dependent variable (Zhao et al., 2010).

![Diagram of Mediator Model](image)

*Figure 2 a three-variable nonrecursive causal model (Zhao et al., 2010, p. 198)*

Bootstrapping the model with satisfaction as dependent variable results in a 95% confidence interval (0.123,0.362) for the indirect effect of sustainability on satisfaction. This confidence interval does not include zero, so the indirect effect $a \times b$ (0.233) is significant and mediation through C-C congruence is established. The direct effect $c$ (0.451) is also significant ($p = 0.000$). Since $a \times b \times c$ (0.105) is positive, it is a complementary mediation according to the “Decision tree for establishing and understanding types of mediation and nonmediation” (Zhao et al., 2010, p. 201) (Appendix 3). This means the mediated effect ($a \times b$) and the direct effect ($c$) both exist and point in the same direction. Hypothesis 4a is supported.

Bootstrapping the model with loyalty as dependent variable results in a 95% confidence interval (0.149,0.392) for the indirect effect of sustainability on loyalty. This confidence interval does not include zero, so the indirect effect $a \times b$ (0.265) is significant and mediation through C-C congruence is established. The direct effect $c$ (0.429) is also significant ($p = 0.000$). Since $a \times b \times c$ (0.114) is positive, it is a complementary mediation. The direct effect and the mediated effect both exist and point in the same direction. Hypothesis 4b is supported.
5 Discussion and implications

This study has researched the effects of sustainability of 3PL providers in triadic relationships. The goal was to test to what extent end customers care about the sustainability of 3PL providers used by companies to deliver products to the customers. The formulated research question was:

**What is the effect of 3PL providers’ sustainability and delivery costs on end customers with regard to customer-company congruence, satisfaction and loyalty to the seller company?**

Based on the literature, a conceptual model was developed containing four hypotheses. After analyzing (multiple regression analysis and bootstrapping in SPSS with the help of the Preacher-Hayes script) three hypothesis were supported by the data. One hypothesis was rejected.

This chapter will give an overview of the resulting conclusions and both theoretical and practical implications will be described. Finally some limitations and directions for future research will be provided.

5.1 Conclusions and theoretical implications

This study finds that 3PL provider sustainability is positively related to end customer satisfaction and loyalty to the seller company. End customers are sensitive to the use of the 3PL provider in the triadic relationship. So end customers are serious stakeholders in sustainable issues and should be taken seriously. End customers are willing to choose products from companies that take their corporate social responsibility with regard to environmental issues (Luchs et al., 2010), especially for delivering the goods to the end customer. This is in line with Gentry (1996b) who concluded that companies are not only responsible for their own part of the supply chain, but for the whole chain, from producing the goods to delivering the goods to the end customer.

Delivery costs are negatively related to end customer satisfaction with the seller. The expectation that higher prices will decline end customer satisfaction is confirmed with this study. It is consistent with the general thoughts that higher prices negatively affect purchase probability in the classical economic theory (Völckner, 2008) and customers may switch companies for a more attractive price (Kaltcheva et al., 2010).

But delivery costs are not negatively related to end customer loyalty with the seller. The results in this study were not significant and do not meet the expectation that higher prices will
decline end customer loyalty. An explanation for this difference can possibly be found in the items of the constructs. End customer satisfaction is constructed with purchase aspects and end customer loyalty is constructed with word of mouth aspects and repurchase intention aspects. Where purchase aspects focus on the decision to purchase and satisfaction can be formed at “the notion of a comparison between expectations and performance” (Bloemer & Kasper, 1995, p. 314), delivery costs can contribute directly to the decision to (a single) purchase. End customer loyalty existing of “a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behaviour” (Oliver, 1999, p. 34), goes much deeper and (apparently) beyond the superficial nature of (delivery) costs.

Another, methodological reason, why 3PL provider sustainability is positively related to end customer satisfaction and end customer loyalty and delivery costs are only negatively related to end customer satisfaction and not significantly related to end customer loyalty, is that the costs manipulation was only using one sentence and the sustainability manipulation a whole paragraph in the scenario description. The more extensive manipulation could account for this effect (Mohr & Webb, 2005). However, this explanation is not very likely because one sentence was enough for delivery costs to be negatively related to end customer satisfaction.

3PL provider sustainability did not moderate the relationship between delivery costs and end customer satisfaction or end customer loyalty. Therefore, the results of this study do not support the theory that companies who struggle with higher costs (e.g. caused by sustainability) and which are not able to lower costs can use the level of sustainability of the 3PL provider to compete in order to keep customers loyal (Kaltcheva et al., 2010). 3PL sustainability should add more value to the product and a consumer should be willing to pay more for the delivery of the products. Research has shown that linkages are complex and that willingness to pay more not always directly returns in behaviour of paying more (Menon & Menon, 1999). In general, developing strategies to increase customer loyalty of new and existing customers, can be beneficial (Bloemer & Lemmink, 1992). For this study, this is confirmed with the positive link between 3PL providers’ sustainability and end customer loyalty but not as softening moderator for delivery costs.

The data does support the hypothesized mediation in this study. The mediator is classified as complementary mediation according to the classification model from Zhao et al. (2010). So the mediator identified, end customer-company congruence, is consistent with the hypothesized theoretical framework. For end customer satisfaction and end customer loyalty to the seller, customer-company congruence has a positive, significant, complementary, mediating effect. As this study shows, actions taken by companies in terms of sustainable 3PL positively affect end customers’ perception of customer-company congruence (Sen & Bhattacharya, 2001). Zhang and Bloemer (2008, p. 162) found “that people have greater intentions to create and retain their relationships with those who are similar to themselves”.

35
End customers identifying themselves with the seller company through the sustainable 3PL provider feel more similar to the seller company, which in turn leads to higher satisfaction and loyalty. The classification of the mediator as complementary mediation indicates that the significant direct effect is pointing to the possible existence of some omitted second mediator. If that is the case, the theoretical framework is most likely not complete.

Literature (Brown & Dacin, 1997) indicates that corporate associations (all information about a company that a person holds) influences end customer product judgements and responses. Related constructs as advertising reputation and corporate credibility influence end customers. In addition, in the triad literature for business relationships, the relationship between trust and commitment is an important element (Havila et al., 2004). Furthermore, Sen and Bhattacharya (2001) found that the perception of customer-company congruence is moderated by support of the corporate social responsibility actions taken by companies. Taken together, these studies suggest that a possible second mediator could be found in customers’ trust in the companies’ actions and credibility.

Most research on relationships in logistics does not cover the triadic relationships between seller company, 3PL provider and customer (Stefansson, 2006), and especially not the end customer. A literature review of 114 studies on the level of analysis used (firm, dyad and network) shows that very few studies (6 percent) exist at the network level (e.g. logistics triads) (Selviaridis & Spring, 2007). By studying the triadic relationship between company, 3PL provider and end customer, this study can be considered as a network level study and thus contributes to filling the identified gap in the literature. The aim of a triad is to increase effectiveness and efficiency of the supply chain. Delivery performance (in this study measured in sustainability and delivery costs) and improved customer service levels (in taking their responsibility with regard to environmental issues toward the end customer) leading to greater end customer satisfaction and loyalty, are concrete outcomes whereby 3PL providers can contribute to the triad, according to the findings of this study. This integrative process can strengthen the relationships between the partners of the triad (Marasco, 2008), increase the competitiveness (Skjoett-Larsen, 2000) and improved environmental performance has been linked to greater economic performance (Cronin et al., 2011).

5.2 Managerial implications

The results of this study provide companies, that outsource their logistics to 3PL providers, with insights on whether green policies and performance by their 3PL provider can add to improving their customer-company congruence, end customer satisfaction and end customer loyalty. Many companies recognise the importance of retaining current customers and some have initiated a variety of activities to improve customer loyalty. As this study shows, one of those activities can be using a sustainable 3PL provider. From a practical managerial standpoint, it makes sense that when a company is partnering with a green, sustainable 3PL provider, it signals a green focus to the end customer.
Based on this study which shows the importance of 3PL provider sustainability for customer satisfaction and loyalty, seller companies should add green policies and performance demands to their vendor contractual arrangements with their 3PL providers. This study shows that companies are indeed more and more held responsible for not only their internal activities but also for their suppliers’ behaviour (Maignan et al., 2002). They should take the end customer as stakeholder seriously and implement a proactive sustainable strategy to secure the support of end customers and go ahead of regulations with a real commitment. Companies with misleading or unsubstantial environmental claims, risk resulting a sceptical view or even boycott by end customers (Chabowski et al., 2011; Crittenden et al., 2011; Moisander, 2007).

Improved end customer satisfaction and loyalty have many different positive results for companies such as revenues and market share growth, lower costs for acquiring new customers and increased employee retention because of job pride and satisfaction (Anderson & Mittal, 2000; Reichheld & Markey Jr, 2000). But most corporate social responsibility initiatives for improving customer-company congruence cost money up-front for companies (Mohr & Webb, 2005) and companies’ fears that these increased costs passed along in delivery costs will lead to lower end customer satisfaction is confirmed in this study. Passing along costs for corporate social responsibility initiatives, as sustainability, directly into the delivery costs is thus not advisable. But what is then advisable? Other research indicates that companies should stress the benefits of sustainability and shift focus from price to consumer value. “When people believe that other people similar to themselves make cooperative choices by buying green, they will be more likely to buy green as well” (Gupta & Ogden, 2009, p. 387). In combination with this study, companies should invest in or demand 3PL provider sustainability and stress it to the customers to increase end customer satisfaction and loyalty to the seller company. They should not raise the delivery costs directly, but make an estimation of the costs and the potential benefits in the long run (such as revenues and market share growth, lower costs for acquiring new customers and increased employee retention because of job pride and satisfaction) and determine the right strategy.

Although government policies are not a primary subject of this study, seller companies and 3PL providers should be aware of pollution taxes and other incentives which will increase the costs directly (Huang & Rust, 2011). Investing in sustainability for that reason alone could be a motivator and research has already shown that the “benefits of green technologies may outperform the cost of such technologies” (Huang & Rust, 2011, p. 52).

3PL providers can improve their competitive position in the marketplace compared to other 3PL providers. Logistics can really contribute to improving environmental and ecological concerns (Poist, 1989). Because logistics is oftentimes outsourced to 3PL providers, these third parties have an important role in improving the sustainability of their clients’ logistics activities. They should not wait until demands for sustainability from the selling company are coming but lead the way with sustainable deliveries. As this study shows it will raise end
customer satisfaction and loyalty to the seller company and that should (further research is needed to confirm this) increase the value of the 3PL provider. In general, existing research suggests that “socially responsible actions lead to increased customer satisfaction and greater firm value” (Cronin et al., 2011, p. 163).

As said before, the variable 3PL provider sustainability is not or rarely covered in existing literature as far as the knowledge of the author reaches. Furthermore, at this moment, it is for end customers quite difficult to judge about the sustainability of real 3PL providers who arrive at their doorsteps. Although information about companies’ sustainability levels is increasing, information about 3PL providers is mostly available to 3PL providers’ clients and not to end customers. Therefore, seller companies should inform their end customers about cooperation with the sustainable 3PL provider in order to give end customers a chance to include this information in the purchase decision. In this way, seller companies can increase their competitiveness by cooperation with a sustainable 3PL provider.

5.3 Limitations and directions for future research

There are some limitations to this study. Due to the scenario based setting of this study, the realism (and thus the external validity) of this study can be questioned. Respondents were asked to imagine themselves in a hypothetical buying situation, a limitation inherent in scenario-based experiments. Next to that, “scenario based studies may evoke more cognitively based responses than the emotional reactions a person experiences when in an actual experience” (Grewal et al., 2008, p. 433). To exclude the hypothetical nature of this research and to measure a more emotional response than a more cognitively response, it is essential to bring this study into the real world and to use different methods. End customers become more and more aware of sustainability and online purchases including corresponding deliveries are growing. This awareness of sustainability and acquaintance with deliveries should give researchers more chances for research in a real-life setting and extend existing literature on the effects of 3PL provider sustainability.

Practical implications limited the sample to be taken from the Dutch population. The Netherlands have a high standard of living (rich country) compared to the global average standard of living. For many end customers the financial position will directly increase or decrease environmental concerns (Cleveland et al., 2005). It is possible that in a country with a low standard of living the results of this study would be different.

People who do not have or use a computer are not included due to the use of internet to distribute this survey. A result is that this study cannot be generalized to end customers who do not have or use a computer. Future research should use additional methods like mail and interviews to include this customers.
Future research should concentrate on finding another mediator of the sign of the direct effect (positive) I found after controlling for mediation by C-C congruence. The significant direct effect is pointing to the possible existence of some omitted second mediator. First, the measurement of C-C congruence could be intensified by increasing the number of personality traits to measure the character distance between the end customers and the company. Also the use of the Identity Overlap scale (Sen & Bhattacharya, 2001) would strengthen the C-C measurement. Once the C-C congruence is thoroughly measured, the theoretical framework can be expanded based on additional literature research. As said in the conclusions, a possible second mediator could be found in trust in the companies’ actions and credibility instead of only examining the mediating role played by consumers’ perceptions of congruence between their own personality traits and the companies’ personality traits.

Further research should also transfer this experiment to other retail settings than clothing, to make sure that the results can be transferred to other product classes, consumer segments or retail settings, thereby increasing the external validity of this study. Transferring the findings of this study based upon an assessment of similarity between the context of this research and possible other research can be dangerous (Mick et al., 1992).

Researchers should also find out, if the effort of 3PL providers in making their service sustainable, will increase satisfaction and loyalty from the seller company to the 3PL provider. In general, a 3PL provider can add value to a company when it enhances the performance and it is likely that a seller company will choose a 3PL provider that delivers value (Mentzer et al., 2004). So where it is likely that all effort to improve delivery performance and customer service levels will add value and satisfy the seller company or increase loyalty, it is not yet researched with sustainability as far as the knowledge of the author reaches. A possible research question could be: Will efforts of a 3PL provider to increase sustainability, increase satisfaction and loyalty of the seller company with the 3PL provider?

That willingness to pay more for sustainability not always directly translates into behaviour could be one of the reasons why sustainability does not moderate the relationship between delivery costs and end customer satisfaction or end customer loyalty. Other research (Menon & Menon, 1999) suggests that end customers can be divided in different segments: a more environmentally conscious market segment where higher prices can be asked and a less environmentally conscious market segment where lower prices are necessary. Future research could investigate whether this difference is applicable to the willingness to pay higher delivery costs in the context of 3PL provider sustainability as environmentally conscious behavior.

Furthermore, the delivery costs in this study were divided in high and low. Laroche et al. (2001) show that people were willing to pay up to 40 percent more for products that had been proven to be green in comparison to similar, non green, products. After the challenge of identifying which end customers are willing to pay more, future research can try to investigate how much end customers are willing to pay more for sustainability in products and more
specifically, for sustainable delivery.
Appendix 1:

Rotated Component Matrix*

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT PA1</td>
<td>.886</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT PA2</td>
<td>.887</td>
<td>.319</td>
<td></td>
</tr>
<tr>
<td>SAT PA3</td>
<td>.883</td>
<td>.308</td>
<td></td>
</tr>
<tr>
<td>LOY WOM 1</td>
<td>.884</td>
<td>.315</td>
<td></td>
</tr>
<tr>
<td>LOY WOM 2</td>
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<td>.331</td>
<td></td>
</tr>
<tr>
<td>LOY WOM 3</td>
<td>.888</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOY RIA 1</td>
<td>.911</td>
<td>.326</td>
<td></td>
</tr>
<tr>
<td>LOY RIA 2</td>
<td>.866</td>
<td>.310</td>
<td></td>
</tr>
<tr>
<td>LOY RIA 3</td>
<td>.903</td>
<td>.330</td>
<td></td>
</tr>
<tr>
<td>CC P1</td>
<td></td>
<td></td>
<td>.582</td>
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<td>CC C6</td>
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<td>.790</td>
<td></td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 5 iterations.

Abbreviations:
SAT PA 1 = end customer satisfaction purchase aspect 1
SAT PA 2 = end customer satisfaction purchase aspect 2
SAT PA 3 = end customer satisfaction purchase aspect 3
LOY WOM 1 = end customer loyalty word of mouth aspect 1
LOY WOM 2 = end customer loyalty word of mouth aspect 2
LOY WOM 3 = end customer loyalty word of mouth aspect 3
LOY RIA 1 = end customer loyalty repurchase intention aspect 1
LOY RIA 2 = end customer loyalty repurchase intention aspect 2
LOY RIA 3 = end customer loyalty repurchase intention aspect 3
CC P1 = customer-company congruence personality trait adjective the best about the respondent
CC P2 = customer-company congruence personality trait adjective fair about the respondent
CC P3 = customer-company congruence personality trait adjective capable about the respondent
CC P4 = customer-company congruence personality trait adjective progressive about the respondent
CC P5 = customer-company congruence personality trait adjective efficient about the respondent
CC P6 = customer-company congruence personality trait adjective innovative about the respondent
CC C1 = customer-company congruence personality trait adjective the best about the company
CC C2 = customer-company congruence personality trait adjective fair about the company
CC C3 = customer-company congruence personality trait adjective capable about the company
CC C4 = customer-company congruence personality trait adjective progressive about the company
CC C5 = customer-company congruence personality trait adjective efficient about the company
CC C6 = customer-company congruence personality trait adjective innovative about the company
Appendix 2:

**Figure 2a:** Establishing Mediation & Classifying Type

- **Complementary** (Mediation)
- **Competitive** (Mediation)
- **Indirect-only** (Mediation)
- **Direct-only** (Non-Mediation)
- **No-effect** (Non-Mediation)

**Evidence for:**
- **Hypothesized Mediator**
  - Yes: Likely
  - No: Unlikely
- **Omitted Mediator**
  - Yes: Likely
  - No: Unlikely

- Incomplete theoretical framework. Mediator identified consistent with hypothesized theoretical framework. But consider the likelihood of an omitted mediator in the "direct" path.
- Mediator identified consistent with hypothesized theoretical framework.
- Problematic theoretical framework. Consider the likelihood of an omitted mediator.
- Neither direct nor indirect effects are detected. Wrong theoretical framework.

**Source:** Zhao et al., 2010, p.201
References


