Aalto-yliopisto
Kauppakorkeakoulu

Measuring Value Drivers of E-Business - An Empirical Study

Markkinointi

Maisterin tutkinnon tutkielma

Maria Jose Del Rio Olivares

2013

Markkinoinnin laitos
Aalto-yliopisto
Kauppakorkeakoulu

Aalto University
School of Business

Aalto University, P.O. BOX 11000, 00076 AALTO
www.aalto.fi

Abstract of master's thesis

Author	María José del Rio Olivares
Title of thesis	Measuring Value Drivers of E-Business: An Empirical Study
Degree	Master of Science in Economics and Business Administration
Degree programme	Marketing
Thesis advisors	Johanna Frösén, Pekka Mattila
Year of approval	2013
Number of pages	136
Language	English

Abstract

This study examines how e-business initiatives are able to create value, from a shareholder value perspective, through four value drivers: efficiency, complementarity, lock-in and novelty. For this purpose, a theoretical framework that links these four value drivers of e-business to the shareholder value approach is built; more specifically, to the four financial value drivers of shareholder value (acceleration, enhancement and reduction in the risk of cash flows as well as augmentation of the long term value of the business). In practice, the objective of the framework is to examine a chain of linkages that connect value drivers of e-business to financial value drivers of shareholder value and consequently to a set of metrics assessing financial outcomes of firms. Then, empirical evidence is introduced to verify the validity of the previously designed framework

The data used in this study were collected through a web-based questionnaire targeted to the upper management in Finnish companies representing the media industry. The survey was sent to 319 decision makers, of which 70 completed the questionnaire resulting in a response rate of 22%. The data were analyzed using two multivariate data analysis techniques: confirmatory factor analysis and structural equation modeling.

The findings of this study suggest that e-business initiatives have an effect in the shareholder value of firms both in the short and the long term. In particular, e-business initiatives show a robust effect on shareholder value by accelerating cash flows and augmenting the long term value of the business. Based on these findings, managers should carefully examine the potential of the internet as a strategic element when it comes to strengthening bonds with customers, reinforcing the value of the brand and reducing information asymmetries with stakeholders. In order to get the benefits of online presence, managers should consider how to align e-business initiatives of their firms to their strategic objectives. From a theoretical perspective, the present study contributes to the existent knowledge in the field of e-business and strategic marketing in two ways. First, this study is the first attempt to empirically examine the value creation process in the context of e-business from a shareholder value perspective. Second, this study provides a valid and reliable scale development for the value drivers of e-business and the financial value drivers of shareholder value.

In sum, this study responds to recent requests from academics to demonstrate the impact of marketing activities, in this case related to e-business, in terms of shareholder value; hence contributing to a marketing- finance conciliation.

Keywords E-business, value drivers, shareholder value, structural equation modeling

Table of Contents

1. Introduction

This chapter begins with a brief introduction, explaining the background and importance of value creation in the context of e-businesses. Then the research problem and the objectives of this study are presented. The scope and methodology are discussed in the next section. The final section of this chapter presents the structure of this study.

1.1 Background

The use of Internet has grown exponentially on the past two decades. In 2011, more than 2 billion people have had access to Internet, representing 33% of the total population of the world (World Bank, 2012). The case of Finland is similar, as an exponential growth has been evident since 1990. In fact, the connectivity in 2011 was over 89% thus reaching more than 4.8 millions of people (World Bank, 2012b). In terms of e-commerce, 35 % of the companies of the European Union made purchases electronically and 15% of them made electronic sales. On average for the EU-27, the turnover derived from e-commerce accounted for 14% of the total turnover of firms with 10 or more employees, varying from 4% of total turnover for small firms to 19% of total turnover for large firms. In Finland, e-sales represented over 20% of the total turnover (Eurostat, 2011).

Considering the increasing relevance of internet, the efforts made by many firms to invest in the appropriate e-business initiatives seem logical (Epstein, 2004b). However, these efforts have augmented only during the past decade after the dot.com bubble burst at the end of 1999 (Ibid.). After the initial blind enthusiasm of capitalists on the so-called dot-coms, the hype was replaced by a profound concern to measure the performance of e-businesses in their success when it comes to the attraction, conversion and retention of customers (Agrawal, Arjona & Lemmers, 2001). Later, the focus for measuring the performance of e-business was broadened from only including the customer as the source of expenses and revenues into demonstrating how these businesses were able to create value for their shareholders in the overall (Epstein, 2004).

Thus, measurement performance has become critical in the context of e-business (Gunawan, Ellis-Chadwick & King, 2008). The reason is that, as competitive pressure has intensified, there is an imperative need to further understand e-business performance (Ibid.). Yet one problem that persists over time is that although several statistical tools are available online and many companies actually collect data about their website's performance, only a low percentage of these companies possess the expertise on how to use, understand and give meaning to this information (Agrawal, Arjona & Lemmers, 2001; Gunawan, Ellis-Chadwick & King, 2008). In addition, during the past decade, several practitioners and academics have been emphasizing the need for more methodological research about performance drivers (i.e. factors that influence the performance of a firm) in the context of e-business (e.g. Saini & Johnson, 2005; Amit & Zott, 2001). The reason is that the new connectivity has changed how businesses create value for customers and shareholders (e.g. transforming the rules of competition for established business) (Amit & Zott, 2001); therefore further understanding on how value is created through e-business initiatives is becoming critical nowadays.

Academic research on these topics (measurement performance and performance drivers of e-business) has been scarce, being the main problem the lack of theories and frameworks able to explain the unique features of virtual markets (Amit & Zott, 2001). There are only a few studies that empirically evaluate performance results in e-businesses (Epstein, 2004b) and even less studies about performance drivers of e-business (e.g. examining how these drivers help to execute an adequate e-business strategy) (Amit & Zott, 2001; Saini & Johnson, 2005; Epstein, 2004b).

Based on these antecedents, academic research on e-business value creation is needed; in particular assessing the contribution of online operations to firm value.

1.2 Research Question and Objectives

Despite the increasing relevance of online activities and the call from several academics of the field for more theoretical frameworks (e.g. Saini & Johnson, 2005; Amit & Zott, 2001), the process of value creation on e-businesses, and especially its impact on firm performance, is still a relatively unexplored area. In this study, the topic of value creation in e-business is first approached by developing a measurement scale for measuring the main value drivers of e-businesses and the financial value drivers of the firm. Consequently, a theoretical framework that aims to link value drivers to financial results in a context of e-business adoption is developed. In practice, the aim of this study is to empirically demonstrate a chain of linkages that connect *value drivers of e-business* to *financial value drivers of shareholder value* and consequently to a set of metrics assessing financial outcomes; differentiating the effects on the short and long term. The main contribution of this study stems from extending the current knowledge in the field of e-business by exploring step by step how e-business initiatives create value in a context of Finnish companies of the media industry.

Thus, the main research question of this study is:

> *How do e-business initiatives influence financial outcomes and shareholder value in Finnish companies of the media industry?*

The main research question is further divided into four sub-questions that are discussed in the following chapters:

- How can value drivers of e-businesses be assessed and measured? *(*Chapter 2.1)
- How can shareholder value be assessed and measured? (Chapter 2.2)
- How do value drivers of e-business affect the financial drivers of shareholder value in the short and the long term? (Chapters 4 and 5)
- How well can the financial value drivers of shareholder value explain the shareholder value of the firm in the overall? (Chapter 4 and 5)

From a managerial perspective, the objective of this study is to provide a comprehensive framework that facilitates the understanding of value creation in e-businesses; explicitly showing how e-business ultimately affects the shareholder value of the firm. In practice, this study provides a framework that abets the decision of investing in online initiatives, by showing the effects of e-business on the financial outcomes of the firm both in the short and the long term.

1.3 Key Concepts

The key concepts of this study are marketing, e-business, value driver of e-business and shareholder value. In this section, these concepts are briefly defined.

Marketing. It is widely accepted by academics that the ultimate goal of marketing is to attract and retain customers (Ambler & Roberts, 2008; Srivastava, Shervani & Fahey, 1999; Gupta & Zeithaml, 2006; Schulze, Skiera & Wiesel, 2012). However, what is more controversial among academics and practitioners is the actual concept of marketing and, more specifically, the scope of activities and efforts of the firm that are considered as *marketing*. In this regard, Ambler (2003 p. 4) proposes three ways to understand marketing depending on the broadness implicit in the concept; ranging from (1) a rather holistic view of *'what the whole firm does'* to secure customer preference and achieve higher returns to shareholders, to (2) the functional view of *'what marketing professionals do'* and to (3) a 'budgetary' view mainly related to advertising and promotion expenditures. Similarly, Doyle (2008) conceives marketing as *the management process that seeks to maximize returns to shareholders by developing and implementing strategies to build relationships of trust with high-value customers and to create a sustainable differential advantage* (p. 74). This definition explicitly emphasizes the goal of maximizing the returns for shareholders, in line with the purpose of this study. However, this definition of marketing seems to be overly narrow in its domain and perspective. Similar to the concerns expressed by Gundlach and Wilkie (2009) for the definition of marketing developed by the American Marketing Association (AMA) in 2004, the definition developed by Doyle also excludes the institutions, actors and processes beyond the organization that have been recognized as

vital components of marketing. Thus AMA's new definition of marketing conceives marketing as *the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large* (2008). Following Doyle (2008 p. 74), Ambler (2003 p. 4) and AMA (2008), in this study marketing is defined as a holistic domain composed by all the activities and efforts performed by a firm that foment customer preference, yet emphasizing shareholder value as an ultimate goal.

Value Driver of E-business. For the purpose of this study, a value driver is defined as any factor that is able to increase the total value of an e-business (Amit & Zott, 2001); consequently, the business model of a firm serves as the unit of analysis for understanding how e-business, through value drivers, creates wealth (Amit & Zott, 2001; Zott, Amit & Massa, 2010). In this study, four main sources of value creation in e-business (i.e. value drivers) are examined: *efficiency* (i.e. business model features that foster transaction efficiency), *complementarity* (i.e. business model features that facilitate bundling), *lock-in* (i.e. business model features that incentivize customers and strategic partners to engage in enduring transactions with the focal firm) and *novelty* (i.e. Schumpetarian types of innovation in the design of business models) (Amit & Zott, 2001; Zott, Amit & Massa, 2010). The main characteristic of these four value drivers of e-business is the interdependence amongst them; in other words, the presence of one of these value drivers can increase the effectiveness of any other driver. These four value drivers act as the basis for this study and they are discussed in depth in Section 2.1.

E-Business. E-business encompasses more activities than just buying and selling goods and services over the internet (Turban et al. 2008 p. 4). E-business also comprises activities related to *servicing customers, collaborating with business partners, conducting e-learning and conducting transactions within an organization* (Turban et al. 2008, p.4). In this way, e-business can be defined as the use of internet technologies for building and managing relationships with customers, suppliers, business partners and employers (Wu, Mahajan & Balasubramanian, 2003). As a result, e-business can be considered a radical technology that

has the potential to transform business models and processes (Srinivasan, Lilien & Rangaswamy, 2002) or even the entire organization (Wu et al. 2003). Following the definitions of Wu et al. (2003), Turban et al. (2008 p. 4) and considering the scope of this study, e-business is defined as the use of internet technologies that focus on creating value through features of the business model related to efficiency, complementarity, lock-in and novelty.

Shareholder Value. From a shareholder value perspective, shareholders are the owners of the firm (Lukas et al. 2005) therefore the ultimate objective for managers is to maximize shareholders' returns (Day & Fahey, 1988; Doyle, 2000 p. 22) through cash dividends and capital gains (Rappaport, 1986 p. 50). The shareholder value approach supports the idea that the value of a business is increased as managers make decisions that foment the discounted value of all future cash flows (Doyle, 2008 p. x); these cash flows are the foundation for assessing the *shareholder value* (i.e. equity) of a business (Lukas et al. 2005). The shareholder value is driven by processes that (1) Enhance cash flows, (2) Accelerate cash flows, (3) Reduce the vulnerability and volatility of cash flows and (4) Increase the residual value of cash flows; these are known as financial value drivers (Kim, Mahajan & Srivastava, 1995; Srivastava, Shervani & Fahey, 1997,1998, 1999; Doyle, 2000 p. 48). The concept of shareholder value and the four financial value drivers are further discussed in the following chapter in Section 2.2.

1.4 Methodology and Scope

The empirical section of this study is based on data collected in a survey conducted in Finland as a part of a research project of Aalto MediaMark during 2012. The data were collected in association with the Federation of the Finnish Media Industry (Finnmedia); and the target group of this study are companies of the media industry that are also members of Finnmedia. In particular, the media industry was chosen as the main target group of this study because the sector is currently in a phase of major transition. This transition period can be partly explained by the increased use of internet, globalization and increased digitalization that have vastly increased the competition in the media sector (Finnmedia,

2009). Moreover, this transition period has been exacerbated by a recent economic recession that has changed consumer behavior and the role of the media as an advertising vehicle (Ibid.). For these reasons, the media sector seems particularly interesting for evaluating how e-business, beyond a source of threatens, also represents a source of value creation.

In order to evaluate the effects of e-business on media firms, an online survey was designed. This survey covers topics such as the intensity of e-business adoption, value drivers of e-business, financial value drivers and financial performance. This study concentrates on how value is created through e-business; in particular, the focus is to measure how e-business contributes to the shareholder value of firms in terms of accelerating cash flows, enhancing cash flows, reducing the risk and increasing the residual value of companies in the media industry in Finland.

This report is composed of two sections: a theoretical background (Chapter 2) and an empirical study (Chapters 3 and 4). For the theoretical section, a framework was built to evaluate the effect of e-business (through four value drivers: efficiency, complementarity, lock-in and novelty) from a shareholder value perspective. For this purpose, two models were built: one that assesses the effect of e-business in the short term while the second assesses the effect in the long term. For the empirical study, two multivariate methods are used: confirmatory factor analysis and structural equation modeling (SEM).

1.5 Structure

Chapter 2 outlines the theoretical foundations for this study. First, the value drivers of E-business are presented. Second, the shareholder value approach is discussed as an introduction to the four financial value drivers of the firm. Finally, the interrelationships among these elements are discussed through a comprehensive theoretical framework.

Chapter 3 presents the empirical study that was conducted for assessing the effects of e-business value drivers on financial value drivers and financial performance. The data collection process, the sample characteristics and an analysis of the missing data are discussed in this chapter. In addition, the statistical methods used for conducting this study are presented.

Chapter 4 is focused on the results of the empirical study. The first section of this chapter presents the results of the measurement models evaluated with confirmatory factor analysis. The second section of this chapter presents the results of the structural models.

In Chapter 5, the empirical findings are further analyzed and compared to the theoretical bases previously discussed in Chapter 2. Then the implications of this study both for research and managers are discussed. This chapter concludes by presenting the limitations of the study and suggestions for future research.

2 Literature Review

In this chapter, the theoretical background of the study is presented. The first section of the chapter presents four value drivers of e-businesses: efficiency, complementarity, lock-in and novelty. The second section presents the shareholder value approach as an introduction to the four financial value drivers of the firm: acceleration of cash flows, enhancement of cash flows, reduction in the risk of cash flows and augmentation of the residual value of the business. In the final section of this chapter, a theoretical framework is built for this study; this framework synthesizes the theoretical bases discussed in Sections 2.1 and 2.2.

2.1 Value Drivers of E-Business

It was already the beginning of the 21st century when Doyle (2000) noticed that *"the explosion of connectivity that the Internet created has implications that promise to fundamentally change how businesses create value for their customers and shareholders"*(p. 329). In particular, one way how the use of internet has created value is by the way in which transactions are enabled; for example reducing information asymmetry among partners, enabling customizability of products and services and reducing the cost of information processing (Amit & Zott, 2001). In practice, nonetheless, there are four main business processes whereby e-business can be adopted and consequently create value (Wu et al. 2003): *Communication processes* (e.g. by improving the existing information flow within the business unit, with customers and with suppliers); *internal administration processes* (e.g. by facilitating a wide range of activities within the business such as those related to human resources and accounting); o*rder taking processes* (e.g. by facilitating customer related transactions such as those related to online ordering, payment and information); and *procurement processes* (e.g. by linking with suppliers to purchase input materials).

As a result of the use of internet technologies, both businesses and customers have benefitted. Businesses have benefitted through an enhanced market outreach, greater flexibility, lower costs structures, faster transactions and greater convenience in the overall

(Srinivasan, Anderson & Ponnavolu, 2002). Customers have also benefitted in several ways: through greater *customization* in information contents or in product features; through *greater assortments* of products; through *lower prices* due to lower operating costs and greater price competition; *greater convenience, more information available, greater assurance* and *entertainment* (Doyle, 2008 pp. 332- 334).

However, beyond the practical benefits of online operations for both the customers and the firm, there is no consensus on how the concept of *value* –regarding online activities- should be assessed. One frequent issue discussed by academics regarding e-business adoption is whether the adoption of a particular technology can affect firm performance and whether it creates a sustained competitive advantage (see Brodie et al. 2007 for a summary of academic articles concerning e-business and internet practices). In this regard, several researchers who have studied the topic e-business adoption agree that the adoption of a particular technology in itself does not provide a sustained competitive advantage because it can be easily duplicated by competitors (e.g. Wu et al. 2006; Soto-Acosta & Meroño-Cerdan, 2008; Sanders, 2007); empirically, the direct effect of e-business adoption in firm performance is ambiguous (Ibid.). Nonetheless, all of the academics previously mentioned agree that the effect of e-business adoption in firm performance is mediated by other variables; for instance *e-business capabilities* (Soto-Acosta & Meroño-Cerdan, 2008), *organizational collaboration* (Sanders, 2007), the *characteristics of the firm* and its *competitive environment* (Wu et al. 2003).

Alternatively, Amit and Zott (2001) discuss the need to integrate existing theoretical frameworks in order to develop a more comprehensive concept of value creation in the context of e-business. In their work, they define a *value driver* as any factor that is able to increase the total value of an e-business (Ibid.); in addition, they propose that the *business model* of a firm is the main locus of value creation in e-businesses. The work by Amit and Zott (2001) provides a well-grounded foundation to study the possible links between marketing activities and firm performance in the context of e-businesses through four main value drivers: efficiency, complementarity, lock-in and novelty. The main characteristic of these four value drivers is that they complement each other; thus, the presence of one of

these value drivers can improve the effectiveness of any other value driver (Amit & Zott, 2001). The four value drivers are discussed in the next sections of this chapter.

2.1.1 Efficiency

In this context, efficiency is defined as the features of a business model that foster transaction efficiency (Zott, Amit & Massa 2010). Amit and Zott (2001) propose efficiency as a value driver in e-businesses based on the Transaction Costs Economics (TCE) developed by Coase (1937) and consequently by Williamson (1975; 1979). In short, TCE is concerned with the minimization of transaction costs (Williamson, 1979). Thus efficiency is related to the concept of economizing, which according to Williamson (1991) is the best strategy for a firm. In practical terms, the value creation of efficiency emanates from the reduction of uncertainty, complexity, information asymmetry and small-numbers bargaining conditions; and is reflected in lower costs for the firm (Williamson 1975 p. 9; Amit & Zott, 2001).

According to Amit and Zott (2001) efficiency can create value in several ways. First, efficiency is related to the reduction of information asymmetries between the firm and its stakeholders; therefore creating value for all the stakeholders in a transaction (Amit & Zott 2001; Zott, Amit & Donlevy, 2000). For instance, sellers benefit by getting richer information about their customers; therefore they are in a better position to serve customers more effectively. In the same aspect, more information available and up-to-date contents improve customers' experiences by reducing search costs and therefore enhancing their decision making process. Consequently, through the abundance of information available in in internet, investors are in a position of making more informed investment choices. All of these benefits are possible due to the easiness whereby information can be communicated through internet (Amit & Zott, 2001). Second, efficiency is reflected in cost reductions related to marketing and sales, communication and distribution (Gregory, Karavdic & Zou, 2007; Amit & Zott, 2001; Zott, Amit & Donlevy, 2000). Also, e-businesses can save inventory costs due to improved information quality, which in turn, aids in generating enhanced and up-to-date stock level reports (Zhu & Kraemer, 2002). Third, efficiency is

reflected in a streamlined supply chain (Zott, Amit & Donlevy, 2000). In this regard, the key to efficiency is to strengthen each link of the supply chain as well as the ties between them, no matter the degree of outsourcing or vertical integration of the processes of the firm. In practice, a streamlined supply chain should result in reduced costs for suppliers and those related to the degree of integration of the supply chain (Zott, Amit & Donlevy, 2000). Finally, efficiency in e-business is reflected in a reduction of physical barriers, for example, space restrictions (Amit & Zott, 2001; Zott, Amit & Donlevy, 2000). As a result, it is possible to offer more products and services to customers and also provide more information and supplementary services without increasing costs.

2.1.2 Complementarity

Complementarity is defined as the features of a business model that facilitate bundling (i.e. joining products or services together) (Zott, Amit & Massa, 2010). In practice, complementarity is present when a bundle of goods provides more value than the total value of each good taken separately (Amit & Zott, 2001); alternatively, complementarity can be understood as the way how greater returns are achieved when a resource is in the presence of other resource than when is considered alone (Zhu, 2004). Complementarity does not only arise among products but also among strategic assets (i.e. specialized resources and capabilities of the firm that constitute the firm's competitive advantage) (Amit & Shoemaker, 1993); and among stakeholders within a network (Gulati, 1999) due to improved coordination between the firms involved in an alliance (Amit & Zott, 2001, see Gulati et al. 2000).

According to Amit and Zott (2001), complementarities create value by increasing the revenues of the firm. However, what is more ambiguous is how *in practice* complementarity creates higher value for the firm. Operationally, complementarities attributable to e-business can be either vertical or horizontal (Ibid.). Vertical complementarity is for example providing after-sales services, which creates value for the customer and higher revenues for the firm (and potentially more loyal customers, as well)

Thus, clicks-and-mortar businesses (i.e. an organization that engages in e-commerce or e-business activities yet their primary business operates in the physical world; Turban et al. 2008 pp. 100 - 103) can create value by complementing online offerings (e.g. after-sales services) with offline assets (Amit & Zott, 2001). Horizontal complementarity occurs when the firm offers complementary services or goods which enhance the value of the core product offered; hence creating more convenient offers for the customers. In other words, by offering complementary products, the firm aims to promote cross-selling among their customers. Nonetheless, the concept of complementarity not only refers to offerings to customers but also to complementarity among the resources of the firm. For instance, complementarities can arise when developing co-specialized resources, complementing the activities within the supply chain and harmonizing technologies within the firm (Amit & Zott, 2001). In the latter aspect, Zhu (2004) noted through an empirical study a positive link between e-commerce capabilities and IT infrastructure and how their complementarity impacts positively on firm performance. In particular, the results of this study show that the synergy between e-commerce capabilities and IT infrastructure produces three effects on firm performance: a reduction of operational costs for the firm, a positive correlation with the return on assets of the firms and a positive effect on the efficiency of the supply chain that consequently increases the inventory turnover of the firm (Ibid.). In this way, Zhu's article (2004) empirically supports Amit and Zott's work (2001) not only by showing that complementarity, as a value driver, contributes to the value of a business but also by showing a strong relationship between complementarity and efficiency.

2.1.3 Lock-in

Lock-in is defined as the features of the business model of a firm that incentivize customers and strategic partners to engage in repeated transactions and prevent them from migrating (Zott, Amit & Massa, 2010). Amit and Zott (2001) consider the notion of lock-in as twofold. On the one hand, they define lock-in as how customers are engaged in repeated transactions with the firm; on the other hand, they conceived the concept as the motivation of strategic partners to maintain and enhance their associations with the focal firm. In this way, the concept of lock-in is related to the concept of loyalty.

According to Amit and Zott (2001), lock-in can create value by increasing returns and by diminishing the risks of the firm. The logic behind higher revenues is that for e-businesses, acquisition costs of new customers are extremely high due to vast investments disbursed for launching e-business initiatives (Reichheld & Schefter, 2000). Thus, building long term relationships with customers and stimulating repeated purchases will increase revenues as the firm is able to outweigh initial investments (Srinivasan, Anderson & Ponnavolu, 2002). The second argument is that lock-in diminishes the risks of the firm. Regarding this topic, Doyle (2008 p. 58) points out that both customer loyalty and customer satisfaction reduce the risk of the firm by becoming less vulnerable to competitors' offerings. Consequently, through them, it is possible to diminish the volatility of cash flows and reduce the cost of capital of the firm, ultimately creating shareholder value.

In practice lock-in can be achieved in several ways through e-business (Amit & Zott, 2001). Lock-in can be achieved through the customization of products, services and experiences for customers (Amit & Zott, 2001; Srinivasan, Anderson & Ponnavolu, 2002; Zott, Amit & Donlevy, 2000); the logic is that the advantages of customization (e.g. minimization of search costs and perception of increased choice and higher quality) incentivize customers to revisit the website of the firm hence reinforcing lock-in (Srinivasan, Anderson & Ponnavolu, 2002). In addition, lock-in can be enhanced by stimulating cross-selling and up-selling; the reason is that, as the firm gains knowledge about their customers and their preferences, customers are less willing to defect to competitors (Srinivasan, Anderson & Ponnavolu, 2002; Amit & Zott, 2001). Online presence can also increase lock-in by building the personality and image of the brand (Srinivasan, Anderson & Ponnavolu, 2002); the argument is that a creative website design can enhance recognition and recall from customers. Lock-in can also be achieved by enabling virtual communities as they foment interactions, increase transaction efficiency and facilitate word-of-mouth and ultimately increase customer loyalty (Amit & Zott, 2001; Srinivasan, Anderson & Ponnavolu, 2002; Zott, Amit & Donlevy, 2000). Doyle (2008 pp. 57, 343) also emphasizes the impact of positive word of mouth from satisfied and loyal customers; the reason is that loyal customers attract new ones with minimum investment from the firm, ultimately

incentivizing new customers to engage in repeated transactions with the focal firm. In addition, both loyal customers and referrals generate sales growth for the firm; consequently increasing cash flows from operations and ultimately creating shareholder value (Doyle 2008, p. 57). Finally, lock-in can be enhanced through loyalty programs (Zott, Amit and Donlevy, 2000; Amit & Zott, 2001); the reason is that these programs incentivize more frequent purchases, generate greater sales in the long run and improve relationships with profitable customers by rewarding them with special bonuses (Amit & Zott, 2001; Zott, Amit & Donlevy, 2000)

Lock-in is also related to the motivation of strategic partners to maintain and enhance their associations with the focal firm (Amit & Zott, 2001). This point is particularly important in B2B companies, as noted by Turban et al. (2008 p. 280). In this regard, they note the relevance of implementing business strategies that focus on providing comprehensive e-service for business partners such as suppliers, service providers, joint venture partners and other members of a B2B community; being the ultimate objective to enhance the information flows between partners (Turban et al. 2008 p. 280). Consequently, more effective information flows with strategic partners result in increased loyalty from them and therefore more value is created for the firm (Mirani, Moore & Weber, 2001).

As noted by Amit and Zott (2001) all of the value drivers are connected to each other. In this case, they note that when an e-business is able to create lock-in, has a positive effect on the efficiency and the degree of complementarities achieved, which is in accordance with the points discussed in the previous paragraphs. Conversely, efficiency and complementarity can enhance the lock-in of the firm as these two drivers have the potential to attract and retain customers and eligible partners, therefore creating incentives to prolong their relationships with the focal firm.

2.1.4 Novelty

Amit and Zott (2001) proposed the value driver of novelty based on Schumpeter's theory of creative destruction (Schumpeter, 1942). In this context, the concept of novelty is defined as *Schumpetarian types of innovation in the design of business models* (Zott, Amit & Massa, p. 15). Innovation, as noted by Schumpeter (2004), is the strategic stimulus to economic development and defined as *the commercial or industrial application of something new* (p. xix). In this regard, innovation can be introduced through different tactics. For instance, introducing a new product or modifying an existing one, through the introduction of a process, through new markets, through new sources of supply and through new ways of commercial, business or financial organizations (Ibid.).

In the context of e-businesses, novelty creates value through innovative ways for structuring transactions, connecting partners and fostering new markets (Turban, 2008 p. 21; Amit & Zott, 2001). For instance, by connecting parties that were not previously connected, it is possible to diminish the inefficiencies of the firm and therefore, be able to capture latent needs of the customer or even create new markets (Amit & Zott, 2001). Another benefit derived from novelty is related to first-mover advantage (i.e. the advantage that a firm possesses when it is the first to introduce a new product, service, or technology, and therefore does not have competition from other companies) (Ibid.). The advantages of being the first in the market can be significant due to increased switching costs of customers and increased mindshare, brand awareness and reputation of the firm. In addition, innovators are in an advantageous position to learn and develop proprietary knowledge when compared with followers (i.e. later entrants). However, the opinion among academics regarding first-mover advantages related to online activities is divided. The argument is that achieving a sustainable first-mover advantage is complex; especially because switching costs are extremely low for customers in this context (Reibstein, 2002) and because codified knowledge is highly vulnerable to imitation from competitors (Kerin, Varadarajan & Peterson 1992). Moreover, followers can benefit from lower imitation costs, free-rider effects, economies of scope and especially from learning about the pioneer’s mistakes (Ibid.). Nonetheless, as Reibstein (2002) asserts, achieving a first-mover

advantage is not just about being the first in the business but rather be able to provide good customer support services when needed. This assertion is in line with the scope of *e-business* used in this study. In this way, it is expected that e-business initiatives have the potential to provide first-mover advantages for firms.

Novelty, argue Amit and Zott (2001), is related to the other three value drivers of e-business. For instance, these authors claim that e-business innovators are more likely to attract and retain customers and to benefit from positive feedback (lock-in); moreover, innovators are in a better position to achieve a critical mass of customers/suppliers before others do. In addition, the core innovation of some firms engaged in e-business initiatives resides in the complementarity achieved among resources and capabilities (e.g. shared databases with partner firms). Finally, some efficiency features can be the result of novel assets; for example reducing information asymmetries through information services that are innovative in certain contexts (Ibid.).

2.2 Shareholder Value

The need to demonstrate, at least partially, the contribution of marketing initiatives in financial language has been recently one of the most recurring topics among researchers and practitioners in marketing (e.g. Srivastava et al. 1997; Doyle, 2000 p. ix; Day and Fahey, 1988; Srinivasan & Hanssens, 2009; Lukas et al. 2005; Rao & Bharadwaj, 2008; Rust et al. 2004; Srivastava & Reibstein, 2005). More explicitly, as noted by Day and Fahey (1988), the challenge resides in demonstrating the value created by marketing investments when it comes to enhance cash flows, improve the potential of growth of the business and reduce the risk. Even though there is no consensus about how value should be measured when it comes to strategic initiatives, in the last decades the use of valuation approaches based on cash flows (e.g. Economic Value Added, Cash Flow Return on Investment and Shareholder Value) has been receiving greater support (Srivastava et al. 1998, 1999). The reason is that the approaches based on cash flows account for the economic value of the business, whereas accounting methods only account for the book value of a business (Day & Fahey, 1988).

In this research, I chose the Shareholder Value (SHV) approach as the main theoretical basis for evaluating how e-business creates value for the firm. Contrarily to the SHV approach, other valuation approaches based on cash flows (e.g. Economic Value added) have been criticized for having a short term focus and for not considering intangible assets or growth potential. In contrast, the SHV approach focuses on the value of the firm derived from perceived growth potential and associated risks (Srivastava et al. 1999). In this way, the reason for choosing the SHV approach is because it considers the value derived from intangibles such as brands and relationships with customers and suppliers. Thus, the SHV approach seems to be an appropriate method for evaluating how the four value drivers of e-business are able to create value that ultimately benefits shareholders, as these value drivers are considerably linked to intangible assets of the firm. In the remaining of this section, the principles of the SHV approach are presented. In addition, a brief explanation is presented in the next paragraphs on how the SHV is calculated in practice.

The SHV approach is a management philosophy that considers the maximization of shareholders' returns as an ultimate objective (Day & Fahey, 1988; Doyle, 2000 p. 23). These returns normally come in the form of cash dividends and capital gains or losses, which are reflected on the market price of a stock (Rappaport, 1986 p. 12). Consequently, the price of the stock is determined by the investors' expectations of the discounted future cash flows.

In practice, the SHV approach uses the same methodology to evaluate the economic value of any investment (or marketing strategy) as investors use to value stocks (Doyle, 2000 p. 36). This means that the economic value of an investment, or any opportunity for growth for the business, is equivalent to the anticipated cash flows discounted by the risk adjusted cost of capital (Rappaport, 1981; Rappaport, 1986 p. 50; Day & Fahey, 1988; Srivastava et al. 1998; Doyle, 2000 p. 36). In practice, to calculate the SHV of a firm, it is necessary to first determine the total economic value of the entity (e.g. the whole company or business unit); this value is called *corporate value* and corresponds to the sum of the values of the debt and equity of the entity. Alternatively, the corporate value of an entity generally consists of two components: the present value of cash flows from operations during the

forecast period (typically the first five to ten years) and a *residual value*, which is the estimate of the present value of the cash flows that the entity generates after the forecast period and usually represents the largest portion of the corporate value (Rappaport, 1986 p. 59; Day & Fahey, 1988; Doyle, 2000 p.41; Lukas et al. 2005).

$$\text{Corporate Value} = \sum_{t=1}^{h} \frac{CF_t}{(1+r)^t} + \frac{RV_h}{(1+r)^h}$$

Where:

CF_t = Net operating profits after tax (NOPAT)$_t$ - (incremental fixed investment + working capital investment)$_t$.

r = Cost of capital (weighted average of the costs of debt and equity capital)

RV_h = Residual Value of the entity in period h (present value of cash flow after the forecast period)

Thus the SHV corresponds to the equity portion of the entity and can be calculated as (Rappaport, 1986 p. 51; Doyle, 2000 p. 37):

Shareholder Value = Corporate Value – Market Value of Debt

As noted by Lukas et al. (2005), the SHV heavily depends on the assumptions and forecasts upon which is based. All of these variables (e.g. cash flows projections, cost of capital, forecast period) are quite complex to calculate as different judgments can lead to significantly different estimates of the SHV (e.g. Rappaport, 1981, Doyle, 2000 p. 40, Black et al. 1998 p. 150; Lukas et al. 2005; Rappaport, 1986 pp. 59 - 60). Nonetheless, even though the calculation of the SHV is a rather overwhelming and subjective task as it requires difficult projections, the principles of SHV creation are rather simple (Day & Fahey, 1988).

The SHV approach is based on the idea that economic value is created when the business earns a return on investment (ROI) that exceeds its cost of capital (Lukas et al. 2005; Day & Fahey, 1988; Doyle, 2000 p. 33; Rappaport, 1986 p. 65); in other words, when the business gets a higher return from their funds than if they were invested in other initiatives with similar risk (Day & Fahey, 1988). Nonetheless, in competitive markets, getting a ROI that is higher than the cost of capital will only happen when the business counts with a

competitive advantage either in cost or in product superiority (Lukas et al. 2005); otherwise, competitors reduce the profits of the focal firm to the level of the cost of capital. In short, the SHV approach is about creating a sustainable competitive advantage (i.e. a reason why customers should consistently prefer to buy from one company rather than others); consequently, the marketing strategy of a business contributes to identifying the sources of competitive advantage (Ibid.). In this way, for marketing to be considered as essential to the business, the link between marketing strategy and shareholder value must be explicitly explained (Srivastava et al. 1997; Lukas et al. 2005).

According to Rappaport (1986 p. 50) there are basic valuation parameters –or value drivers- incorporated on the calculations of the SHV. These value drivers are: sales growth rate, operating profit margin, income tax rate, working capital investment, fixed capital investment, cost of capital and forecast duration. Later, Kim, Mahajan and Srivastava (1995) when determining the market value of a business in the cellular communications industry and consequently Srivastava, et al. (1997) transformed these rather numerical value drivers into four conceptual *financial value drivers (FVDs)*. Thus, it has been largely accepted that shareholder value is driven by processes that (Kim, Mahajan & Srivastava, 1995; Srivastava et al. 1997, 1998, 1999; Doyle, 2000 p. 48):

1. Enhance cash flows
2. Accelerate cash flows
3. Reduce the risk (vulnerability and volatility) of cash flows
4. Augment the residual value (long term value) of the business

In this research, these four FVDs are used to evaluate the impact of activities related to e-business (that enhance efficiency, complementarity, lock-in and novelty), on the shareholder value of the firm. The following sections present each of the four FVDs and how each of them relates to the four value drivers of e-business discussed in the previous chapter.

2.2.1 Acceleration of Cash Flows

One of the financial value drivers (FVDs) that determine the shareholder value is the ***acceleration of cash flows***. The idea of this financial value driver is quite simple, as it makes explicitly how earlier cash flows are preferred to later cash flows due to risks and time adjustments. In other words, an amount of money received today has more value than when is received a year from now, because this money can be invested and earn a return during the investment time (Rappaport, 1981). In this way, the sooner the cash flows are received (ceteris paribus), the higher are their net present value.

2.2.2 Value Drivers of E-Business Accelerating Cash Flows

One recurrent topic discussed in the literature for accelerating cash flows is the *faster development of new products* (Srivastava et al. 1998, 1999; Doyle, 2000 p. 32); in other words, minimizing the development time for new products (i.e. from the initial idea to the final launch). For this purpose, the use of cross-functional teams is recommended to eliminate unnecessary steps of the chain (Doyle, 2000 p. 52). Srivastava, et al. (1999) also highlight the importance of an efficient supply chain (i.e. capable of confronting a fast commercialization and market penetration). The argument is that reducing the time cycle in each of the steps of the supply chain is essential to provide customers with the right products at the right time. Also related to this topic is the acceleration of cash flows by *accelerating market penetration* once the product is already launched. To achieve this objective, it is essential the use of marketing campaigns, *price promotions* and the *attraction of early adopters* in order to create and accelerate word-of-mouth; consequently speeding up the product lifecycle and ultimately accelerating cash flows (Doyle, 2000 p. 52; Srivastava et al. 1998).

In essence, these initiatives are highly related to the concept of efficiency as they focus on providing customers with the right product faster than otherwise. Similarly, through e-business initiatives it is possible to enhance transaction efficiency and streamline the supply chain of the firm (Amit & Zott, 2001) (see Section 2.1.1). Therefore, it can be expected that

the efficiency enabled by e-business initiatives has a positive impact on accelerating the cash flows of firms. Hence the following hypothesis is proposed:

$H1_a$: *There is a positive relationship between Efficiency and the Acceleration of Cash Flows.*

In addition, the brand equity of a business can make a difference when it comes to consumers' responses and the acceleration of cash flows. The reason is that, when *brand attitude and awareness* are positive, consumers are prompted to respond faster to marketing efforts towards the brand (Srivastava et al. 1998; Doyle, 2008 p. 52). Furthermore, a good brand attitude can positively influence the response of customers to new offerings. Thus, investing in the brand and in building long term relationships with customers should stimulate earlier purchases and faster referrals; in turn accelerating the cash flows of the business and creating shareholder value (Srivastava et al. 1998). Finally, cash flows can be accelerated by using *strategic alliances* (Ibid.). In this context, the major benefit of developing alliances with strategic partners is that they make possible the entrance to several markets during the same time frame, therefore accelerating cash flows (Srivastava et al. 1998).In addition, through strategic alliances, it is possible to respond faster to the latent needs of customers by taking advantage of existing networks of the firm (Ibid.).

The initiatives for accelerating cash flows discussed in the previous paragraph are mainly focused on strengthening bonds both with customers and strategic partners. For example, increasing brand awareness and brand attitude is essential for increasing the responsiveness of customers and attracting early adopters (Srivastava et al. 1998). In this regard, e-business through online communities and an attractive website can help to increase brand awareness and attitude (Srinivasan, Anderson & Ponnavolu, 2002). Similarly, due to the higher connectivity enabled by the internet, it is possible to reach and communicate more easily marketing campaigns and promotions (Ibid.). Finally, e-business can also help to leverage existing networks with strategic partners by responding faster to market needs. In this way, the following hypothesis is proposed:

H1$_b$: *There is a positive relationship between Lock-In and the Acceleration of Cash Flows.*

In summary, efficiency and lock-in seem to be the main value drivers of e-business that help accelerating the cash flows of the firm.

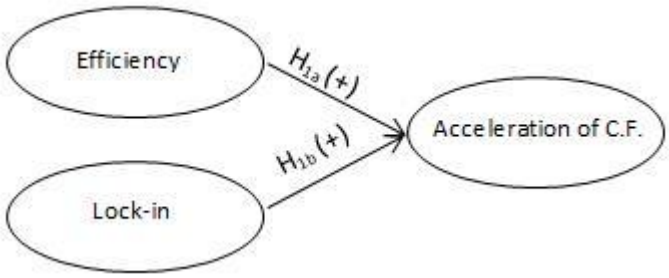


Figure 1. Hypothesized Relationships between Value Drivers of E-Business and Acceleration of Cash Flows

2.2.3 Enhancement of Cash Flows

The second financial value driver is the ***enhancement of cash flows***. This FVD establishes that *the greater the future free cash flows anticipated, the more is available for distribution for shareholders and the greater becomes the market value of the business* (Doyle, 2000 p. 48). Thus, the goal of this FVD is to augment revenues by increasing sales volume and/or prices and increase margins, partly, by reducing costs (Srivastava et al. 1999). Some authors (e.g. Rappaport, 1986 pp. 97 – 99) do not consider lowering costs *per se* as one way to enhance cash flows but rather consider a more comprehensive concept of increasing the operating profit margin. Moreover, they consider the main strategy of the business (either cost leadership or differentiation) as the main determinant on how managers should attempt to enhance cash flows. Conversely, Srivastava et al. (1998) claim that there are mainly four generic ways for improving the cash flows of a business: generating higher revenues, lowering costs, lowering the requirements of working capital and those related to fixed capital. However, the impact of marketing activities on the working and fixed capital requirements of the firm is not well understood (e.g. Srivastava et al. 1998); therefore, these two generic ways for enhancing cash flows are not further considered in this study. In summary, in this study are considered two main ways for enhancing cash flows: generating higher revenues (through sales growth and charging higher prices) and lowering costs.

.

2.2.4 Value Drivers of E-business Enhancing Cash Flows

Sales growth can be achieved, for instance, through *brand extensions*. Brand extensions are favorable for the firm in that they enable the firm to expand to related markets while not incurring in increasing costs (e.g. in advertisement) (Srivastava et al. 1998) and to strengthen the associations and awareness of the core brand (Aaker, 1996 pp. 209 - 213). Although brand extensions can also bring some disadvantages for the firm, such as damaging or diluting the core brand (Aaker, 1996 p. 208; Srivastava et al. 1998; Völckner and Sattler, 2006); features of the brand extension such as its quality (Keller & Aaker, 1992; Heath, DelVecchio & McCarthy, 2011), its fit with the parent brand (Völckner & Sattler, 2006) as well as a corporate marketing strategy based on product innovation (Keller & Aaker, 1997) can positively influence the overall success of a brand extension, consequently enhancing cash flows and creating value for the firm. *Acquiring new customers* and building strong relationships with them has also been an important topic when analyzing how to enhance cash flows through sales growth; the reason is that by leveraging the customer base it is possible to enhance revenues through up-selling or cross-selling complementary products (Srivastava et al. 1999). In addition, *cooperative venture initiatives* that involve the sharing of customers (e.g. co-branding or co-marketing alliances) are also beneficial for enhancing the cash flows of a firm (Ibid.); the reason is that these ventures can leverage each firm's existing resources, increase revenues and reduce cots (Srivastava et al. 1998). Additionally, cash flows can be enhanced through a *strong brand equity* (Ibid.); the argument is that brands with strong brand equity (i.e. well-established and differentiated brands) are associated with more responsive customers when it comes to advertising and promotions. In addition, these brands are in a better position to charge premium prices due to higher customer switching costs and loyalty (Srivastava et al. 1998).

The internet is an efficient medium for testing and refining new products due to its reach and richness (Zott, Amit & Donlevy, 2000); therefore it can be expected that e-business initiatives increase the chances of success of *brand extensions* by evaluating customers' responses and being able to modify the product and price more rapidly than otherwise. In

addition, due to the higher connectivity enabled by the internet, it is possible to reach and *acquire new customers* more conveniently. The core essence of Lock-In is to incentivize customers and strategic partners to engage in repeated transactions with the firm (Zott, Amit & Massa, 2010). Similarly, *building strong relationships with customers* and *cooperative venture*s are also focused on the goal of strengthening the bonds with customers and strategic partners; and this goal can be facilitated through e-business (Amit & Zott, 2001). In addition, e-business can help building a *well-established and differentiated brand* by creating long-lasting bonds with customers through online communities (Srinivasan, Anderson & Ponnavolu, 2002). Furthermore, as discussed in Section 2.1.2, cross-selling and up-selling are initiatives facilitated by online presence through complementarities among products and resources of the firm (Amit & Zott, 2001). These considerations lead to the following hypotheses:

$H2_a$: *There is a positive relationship between Lock-In and the Enhancement of Cash Flows.*
$H2_b$: *There is a positive relationship between Complementarity and the Enhancement of Cash Flows.*

Charging higher prices can be achieved not only by building a strong brand but also through other mechanisms; for instance, investing in product differentiation, multi branding (i.e. create two or more similar competing products by the same firm but under different and unrelated brands), creating exit barriers and through constant innovation by offering products and services that meet customer needs better than current alternatives (Doyle, 2000 p. 50). In this way, it is expected that:

$H2_c$: *There is a positive relationship between Novelty and the Enhancement of Cash Flows.*

The second way for enhancing cash flows considered in this study is lowering costs. One recurrent topic in the literature for achieving this goal is related to the enhancement of the supply chain, which in turn, is also highly intertwined with the concept of efficiency (e.g. Srivastava et al. 1998, 1999; Doyle, 2000 p. 50); the argument is that reengineering the

processes of the supply chain is necessary to lower problem incidences and lower inventory costs, ultimately resulting in higher levels of efficiency and enhanced cash flows for the firm (Srivastava et al. 1998). Another way to reduce inventory costs is to use market information to accurately forecast demand (Srivastava et al. 1998, 1999). Finally, some authors recommend to outsource those activities that add low-value in the supply chain to reduce capital investments, hence reducing costs and ultimately enhancing cash flows (Srivastava, et al. 1999; Doyle, 2000 p. 50). As discussed in Section 2.1.1 online presence can potentially help in streamlining the supply chain of the firm (Zott, Amit & Donlevy, 2000). Hence, it can be inferred that the efficiency enabled by online presence can help in enhancing the cash flows of firms. In this way, it is proposed that:

$H2_d$: *There is a positive relationship between Efficiency and the Enhancement of Cash Flows.*

In summary, the four value drivers of e-business (efficiency, complementarity, lock-in and novelty) seem to have the potential to enhance the cash flows of the firm and therefore create value for shareholders.

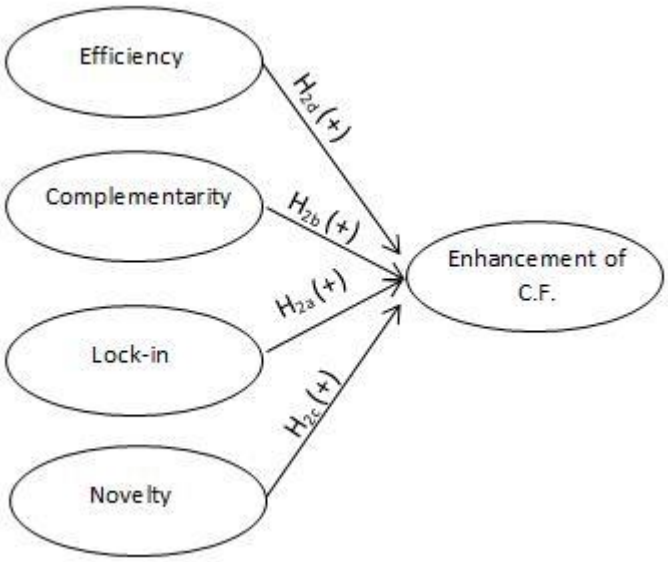


Figure 2. Hypothesized Relationships between Value Drivers of E-Business and Enhancement of Cash Flows

2.2.5 Reduction in the Risk of Cash Flows

The third financial value driver that determines shareholder value is the ***reduction in the risk associated with cash flows*** via the reduction of both the vulnerability and volatility of the business. In principle, vulnerability is defined as any occurrence that negatively affects cash flows while volatility refers to any occurrence that creates fluctuations in cash flows (Srivastava et al. 1997). As the volatility and/or vulnerability of the business diminish, the risks associated with cash flows also decreases resulting in a lower cost of capital and ultimately creating shareholder value (Ibid.).

The sources of vulnerability and volatility of a business can be grouped in three levels: the macro-environmental, the industry and the firm level (Srivastava et al. 1997). At the macro-environmental level, the most common sources of cash vulnerabilities are *changes* (e.g. in technology, social values, economic activity, politics or regulations). At industry-level, both the sources of vulnerability and volatility of cash flows are mostly linked to actions from different stakeholders (e.g. competitors, customers, distribution channels and suppliers). Finally, at the firm level, some sources of volatility and vulnerability of cash flows are poor management decisions, risky R&D activities, the firm's own supply chain as well as its marketing actions. For example, outsourcing key activities and a negative brand image can immensely increase the risks of the firm (Ibid.).

2.2.6 Value drivers of E-Business Reducing the Risk of Cash Flows

According to Srivastava et al. (1997), there are three main approaches to reduce risk. The first approach is by *managing relationships with customers, distributors and strategic partners*. In this regard, investments in market research, improvements in customer services, the implementation of loyalty programs and cross-selling are suitable methods for strengthening bonds with customers (Doyle, 2000 p. 53) and therefore diminish the risks of the business. In addition, risk can be reduced through relationships with customers and partners that avoid instability in their operations; for instance, encouraging long-term purchase contracts with customers (Srivastava et al. 1997, 1999) and committing in

relationships with partners that promote information sharing and an efficient supply chain (Srivastava, Sheravani & Fahey, 1998).

The core essence of lock-in, one of the four value drivers of e-business, is to encourage customers and strategic partners to engage in repeated transactions with the firm through e-business initiatives (Zott, Amit & Massa, 2010). In this way, it can be expected that online presence, through lock-in, can strengthen the bonds both with customers and partners and therefore reduce the risks of the firm. Therefore, the following hypothesis is proposed:

$H3_a$: *There is a positive relationship between Lock-In and the Reduction in the Risk of Cash Flows.*

The second approach to reduce the risk of a business is by *managing product innovation, design and product portfolios* by implementing initiatives that are difficult to replicate by competitors (Srivastava et al. 1997). In this regard, some mechanisms for reducing risks are through a continuous focus on product differentiation, by creating unique product bundles and by sharing components among products (Ibid.). Product differentiation can be fostered by e-business initiatives. For example, given that information asymmetries are diminished between the firm and customers through e-business (Amit & Zott, 2001) product differentiation might be communicated more easily. In this way, e-business initiatives focused on reducing information asymmetries (through features related to efficiency) and that foster innovation in the processes or products of the firm should also reduce the risk of the cash flows of the firm. These considerations lead to the following hypotheses:

$H3_b$: *There is a positive relationship between Efficiency and the Reduction in the Risk of Cash Flows.*
$H3_c$: *There is a positive relationship between Novelty and the Reduction in the Risk of Cash Flows.*

The third approach to reduce the risk of the business is by *managing demand delivery process and marketing initiatives* (Srivastava et al. 1997). In this regard, some mechanisms for reducing risks are avoiding excessive price promotions as they encourage customers to buy more unevenly and therefore generate more instable cash flows for the firm (Srivastava et al. 1998); a second mechanism is by offering customers a range of products (i.e. not depend on a single offering) in order to foment synergies (or complementarities) within product portfolios and achieve lower variance in cash flows (Ibid.; Srivastava et al. 1998; Doyle, 2008 p. 108).

As discussed in Section 2.1 and 2.2, e-business can stimulate the firm to offer a greater range of products –due to lower costs- and stimulate complementarities between products, strategic assets and networks, which in turn will reduce the risk of the cash flows. These considerations lead to the following hypothesis:

$H3_d$: *There is a positive relationship between Complementarity and the Reduction in the Risk of Cash Flows.*

In summary, it should be expected that the four value drivers of e-business –efficiency, complementarity, lock-in and novelty- can help firms to reduce the risks of cash flows.

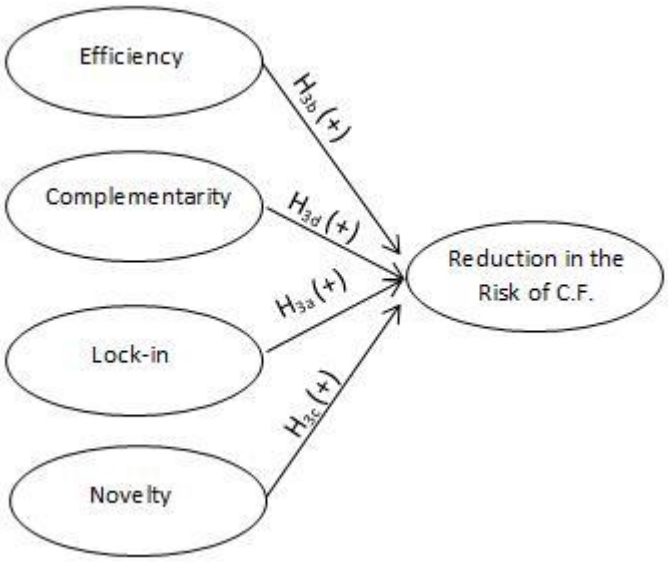


Figure 3. Hypothesized Relationships between Value Drivers of E-Business and Reduction in the Risk of Cash Flows

2.2.7 Augmentation of the Residual Value of the Business

The fourth financial value driver is the ***augmentation of the residual value (or long term value) of the business.*** Residual value is the present value of a business attributable to the period after the forecast period, and usually adds a significant part of the net present value of a business (Rappaport, 1986 p. 59). Thus, this financial driver points out the need to increase the *long term* value of the business; in contrast, the other three financial value drivers of shareholder value, previously presented, are focused on enhancing the overall value *in each period*. For this reason, some academics (e.g. Srivastava et al. 1999) consider the augmentation of the residual value of the business as the *outcome* of the first three financial value drivers regardless the planning horizon over which to project cash flows. On the contrary, Doyle (2000 p. 48) recognizes the importance of all four financial value drivers on his work. In this research, I will consider the four financial value drivers. The main reason is that one of the purposes of the empirical study is to clearly distinguish the effects of online presence in the short and the long term on the financial results of firms; therefore, it is essential to have a financial value driver that explicitly focuses on the long term.

2.2.8 Value Drivers of E-Business Augmenting the Residual Value of the Business

Two main factors that positively affect the duration of cash flows of a business are the *sustainability of a differential advantage* and the *opportunities to enter to new markets* (Doyle, 2000 pp. 52 - 53). In order to achieve a sustained competitive advantage the resources of the firm must be valuable, rare, imperfectly imitable and cannot have substitutes (Barney, 1991). Consequently, to create a sustained competitive advantage, efforts should be made to build new sources of value and to possess superior marketing expertise for tracking customers' needs (Doyle, 2000 p. 53). The argument is that when customer behavior is constantly tracked, it is possible for firms to provide superior offerings and increase customer satisfaction; in turn, superior customer satisfaction

augments customer retention and ultimately can be reflected in enduring cash flows for the firm (Ibid.).

Online presence cannot help, per se, to build a competitive advantage (e.g. Wu et al. 2006; Soto-Acosta & Mereño-Cerdan, 2008; Sanders, 2007); nonetheless e-business can potentially help to develop new sources of value. For instance, through e-business initiatives it is possible to create innovative ways for structuring transactions (Turban, 2008 p. 21; Amit & Zott, 2001), hence potentially creating new sources of value for the firm. In other words, e-business initiatives have the potential to encourage the firm to innovate in the overall. In addition, through e-business initiatives, the needs of customers can be tracked more easily (Doyle, 2000 p. 56) and even serve as complementary information for evaluating marketing initiatives in terms of their financial payoffs (Doyle, 2008 p. 336). These considerations lead to the following hypotheses:

$H4_a$: *There is a positive relationship between Novelty and the Augmentation of the Residual Value of the Business.*
$H4_b$: *There is a positive relationship between Complementarity and the Augmentation of the Residual Value of the Business.*

The second way for enhancing the long term value of the business is by entering to new markets (Doyle, 2000 p. 53). In this regard, a strong brand plays a major role in opening up new growth opportunities for the firm and influencing customers to engage in relationships with the firm in the long run (Doyle, 2000 p. 53). Analogously, loyal customers aid in the long-term growth of the firm through referrals (Srivastava et al. 1998). Thus, the overall objective of this FVD is to build a strong customer base prioritizing customer retention and eliminating the less profitable customers. The reason is that higher levels of customer loyalty drive higher revenues, lower costs, lower risks, more stable business and a lower cost of capital thus enhancing the residual value of the business. Finally, Doyle (2000 p. 53) also suggests that other ways to open new growth opportunities are investing in R&D and engaging in marketing ventures to keep up in the vanguard of the industry.

As discussed in Section 2.1, online presence can help in entering to new markets (Turban, 2008 p. 21; Amit & Zott, 2001). Therefore, it can be expected that e-business initiatives can potentially help in increasing the long term value of the business. In particular, word-of-mouth can be communicated more easily through online channels because of the efficiency whereby information is shared (Ibid.). In addition, the brand can also be strengthened through e-business. For instance, as noted by Srinivasan, Anderson and Ponnavolu (2002), a creative website can help in building a positive reputation in the mind of consumers. These considerations lead to the following hypotheses:

.

$H4_c$: *There is a positive relationship between Efficiency and the Augmentation of the Residual Value of the Business.*

$H4_d$: *There is a positive relationship between Lock-In and the Augmentation of the Residual Value of the Business*

In summary, it is expected that all four value drivers of e-business (efficiency, complementarity, lock-in and novelty) can help the business to create value in the long term.

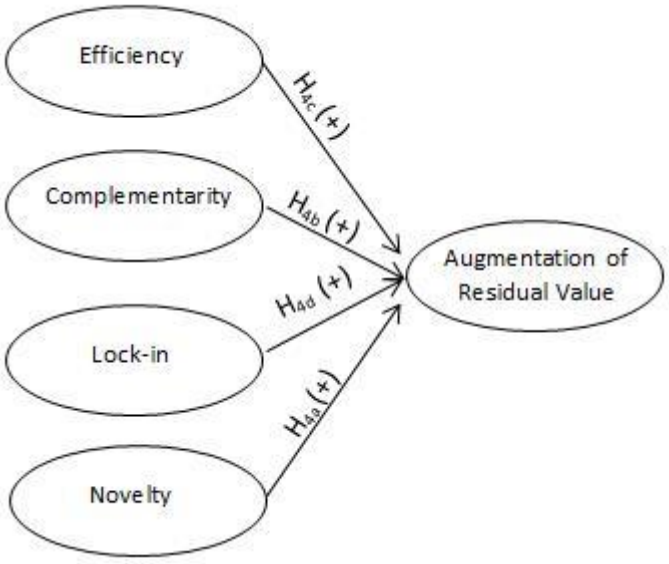


Figure 4. Hypothesized Relationships between Value Drivers of E-Business and Augmentation of Residual Value of the Business

2.3 Conceptual Framework

For achieving the ultimate goal of marketing, attract and retain customers (e.g. Ambler & Roberts, 2008; Srivastava et al. 1999; Gupta & Zeithaml, 2006; Doyle 2008 pp. 19, 61; Schulze, Skiera & Wiesel, 2012), it is necessary that the firm designs and executes businesses or operating processes that go beyond the practices that traditionally encompass the area of marketing (Srivastava et al. 1999). The reason is that when the appropriate processes are built, the organization provides superior value to customers; hence increasing the levels of attraction and retention (Ibid.). In the context of marketing initiatives conducted through the web, Amit and Zott's (2001) findings show that e-business creates value by the way in which transactions are enabled. In particular, Amit and Zott (2001) claim that value creation of e-businesses depends on four interrelated dimensions: *efficiency*, *complementarity*, *lock-in* and *novelty*. However, the challenge is to demonstrate and quantify the value created by marketing activities in terms of their impact on current outcomes and perceptions of future financial performance (Srivasta et al. 1999); and more particularly, on shareholder value (Srinivasan & Hanssens, 2009; Rust et al. 2004).

Kim, Mahajan and Srivastava (1995) and later Srivasta et al. (1997) conceptualized shareholder value into four financial value drivers (FVDs): *enhance cash flows*, *accelerate cash flows*, *reduce the risk of cash flows* and *augment the residual (long term) value of the business*. These four FVDs serve as a basis for evaluating the effects of e-business in the shareholder value of the firm. However, the first three FVDs focus on the efforts made by the firm on *each period* to increase the shareholder value while the last FVD focuses in the *long term* (Srivastava et al. 1999). For this reason, two models were built; thus, the impact of e-business on shareholder value on the short term and the long term can be assessed separately.

The links between value drivers of e-business and FVDs, illustrated in Figures 1 to 4 and explained in Sections 2.2.1 to 2.2.8, serve as a basis for the theoretical framework of this study. Moreover, and following Srivastava's et al. recommendation (1999), FVDs are

further linked to metrics related to financial performance in order to quantify the impact of FVDs on the actual results of firms.

The first model (hereafter Model 1) evaluates the effects of e-business on the short term. Based on the hypothesized relationships (previously discussed from Sections 2.2.1 to 2.2.6), Model 1 considers the four value drivers of e-business, three FVDs (acceleration of cash flows, enhancement of cash flows and reduction in the risk of cash flows) and a set of financial outcomes (sales, turnover, costs, market share, operating profit, ROA and ROI). The decision of using this set of financial metrics is because they reflect the financial outcomes of the firm of the present period (Figure 5 shows the framework for Model 1). In addition, the following hypotheses are proposed:

H_5: *There is a positive relationship between the Acceleration of Cash Flows and Financial Outcomes.*

H_6: *There is a positive relationship between the Enhancement of Cash Flows and Financial Outcomes.*

H_7: *There is a positive relationship between the Reduction in the Risk of Cash Flows and Financial Outcomes.*

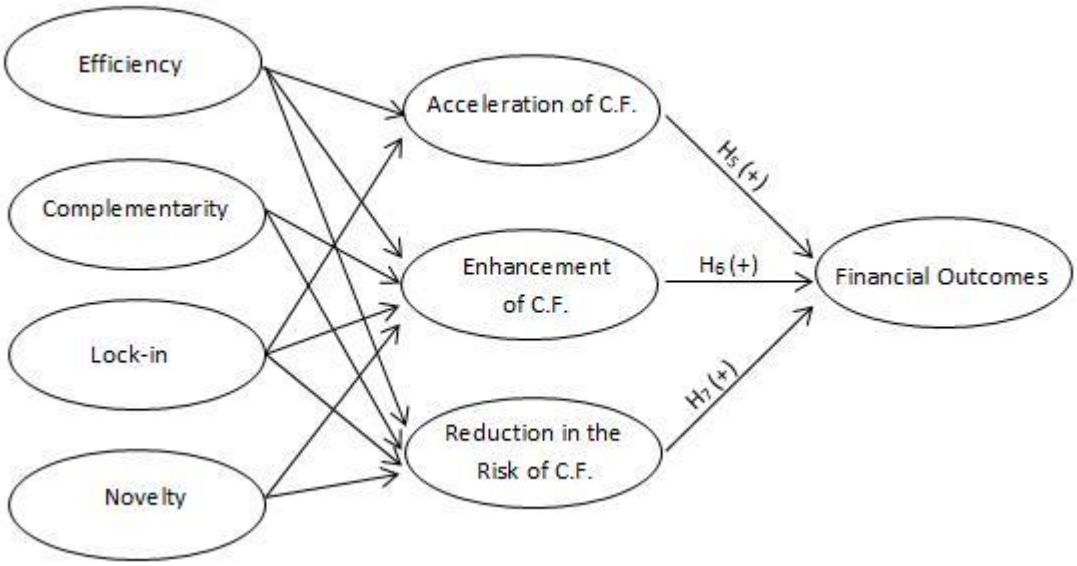


Figure 5. Theoretical Framework for Model 1

In contrast, Model 2 focuses on *the sustainability* of financial outcomes. Based on the hypothesized relationships previously discussed in Section 2.2.8, Model 2 considers the four value drivers of e-business, the last FVD (augmentation of the residual value of the business) and a set of metrics that assess financial performance. In particular, the set of metrics used in this model are focused on measuring *variations* in the financial outcomes of businesses; hence acting as a proxy on how the value of businesses changes over time. Thus, the financial metrics chosen for this model are: sales growth, variation in operating profit and variation in ROI. Moreover, these metrics partially characterize the primary value drivers of shareholder value (Rappaport, 1986 p. 50; see Section 2.2). For this reason, and for differentiating the financial construct of model 1, I named this construct Shareholder Value. Figure 6 shows the framework for Model 2. In addition, the following hypothesis is proposed:

H_8: *There is a positive relationship between the Augmentation of the Residual Value of the Business and Shareholder Value*

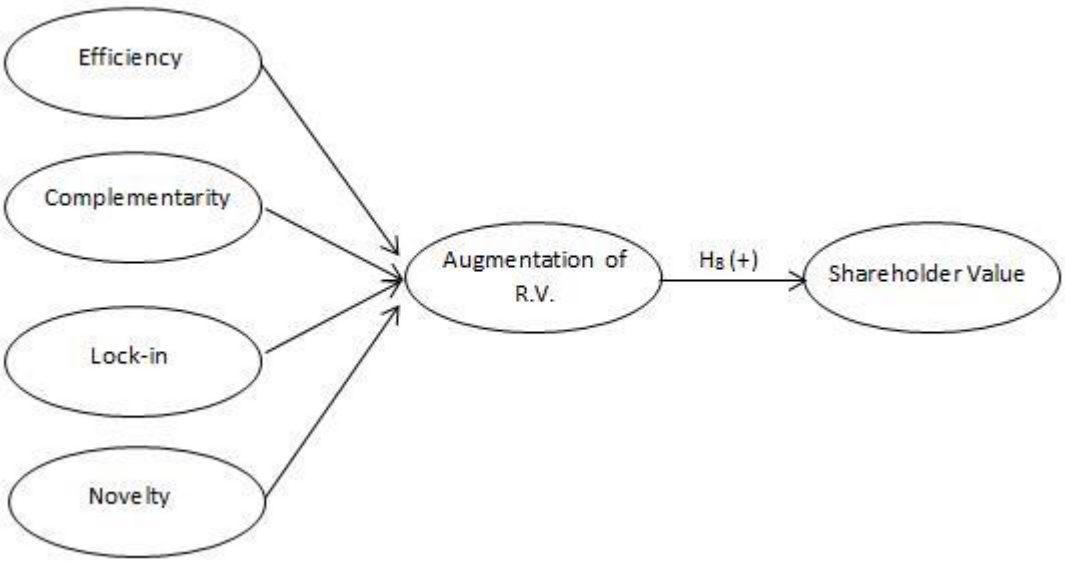


Figure 6. Theoretical Framework for Model 2

3 Research Methodology

The first section of this chapter describes how the scales for assessing *value drivers of e-businesses* as well as *financial value drivers* were developed. Then, sections 3.2 and 3.3 explain how the data for this study were collected and describe the characteristics of the sample, respectively. Section 3.4 introduces two statistical methods that were used to perform the empirical part of the study: confirmatory factor analysis and structural equation modeling. The final section of this chapter presents a brief analysis that evaluates the missing data of the database.

3.1 Measure Development

As discussed in previous sections, the aim of this study is to empirically show the impact of value drivers of e-businesses on the FVDs of shareholder value and the financial performance of firms. However, given that there are no readily available scales for assessing value drivers of e-business or the FVDs, it was necessary to develop new scales. So I developed a structured survey instrument where I designed the scales for assessing the four value drivers of e-business proposed by Amit and Zott (2001) and the four financial value drivers of shareholder value (Kim, Mahajan & Srivastava, 1995; Srivastava et al. 1997, 1998, 1999; Doyle, 2000 p. 48).

Following the procedure proposed by Churchill (1979), I created an item pool for each of the constructs. In order to conceptualize each of the constructs and for delineating each of the concepts, I consulted extant literature on each of the topics. Then, for refining the contents of the scale, a panel of three academic experts in value drivers and e-businesses from Aalto University School of Business examined the survey for face validity; based on their insights, I modified the scale items when necessary. After this procedure, I pre-tested the scale items with two senior marketing executives of the media industry for comprehension, logic and relevance. The final survey resulted in 29 questions (See Appendix D).

3.1.1 Value Drivers of E-Business Constructs

For building the item pool for the constructs assessing value drivers of e-business: efficiency (EFF), complementarity (COM), lock-in (LI) and novelty (NO), I used literature that directly focused on value drivers of e-businesses (e.g. Amit & Zott, 2001; Zott, Amit & Donlevy, 2000); in addition, I reviewed several sources for refining the scale (See Appendix A).

A set of seven EFF items measures different ways how online presence has helped businesses to use their resources more efficiently. The first three items (EFF_1, EFF_2 and EFF_3) reflect the ability of the business to reduce costs through the use of e-business initiatives; EFF_4 and EFF_5 measure how online presence has helped businesses to reduce information asymmetries. The last two items (EFF_6 and EFF_7) measure the easiness whereby businesses can offer a larger range of products and the improvement of efficiency of the supply chain, due to online presence. A set of four COM items measures how online presence has helped businesses to complement resources and activities. Eight LI items measure how online presence has helped businesses to enhance relationships with their stakeholders; the items measure different angles of customer loyalty as well as loyalty with strategic partners. Finally, a set of six NO items measures how online presence has helped to apply something new to the business and to sustain a possible first-mover advantage.

These four constructs (EFF, COM, LI and NO) measure the extent to which online presence has improved different aspects of the business. The scale for these constructs is a seven-point Likert scale where 1= not at all and 7= very much. Also an option of *can't say* was added to allow respondents to state that they do not know the response about a particular issue; hence producing a greater volume of accurate data. Appendix A contains the scale items for the value drivers of e-business as well as the references used for each of the items.

3.1.2 Financial Value Drivers Constructs

For building the item pool for the constructs assessing the FVDs: acceleration of cash flows (ACF), enhancement of cash flows (ECF), reduction of the risk of cash flows (RCF) and augmentation of the residual value of cash flows (RV), I used literature related to the shareholder value approach. I mostly used three articles of Srivastava et al. (1997, 1998, 1999) as well as Doyle (2008) and other sources for refining the scale (See Appendix B).

The items of the ACF construct measure the overall ability of the business to generate cash flows earlier in time. As discussed in previous sections, accelerating cash flows can be done by implementing different business initiatives as well as building stronger relationships with partners and customers. A set of seven ECF items measures the extent to which businesses are able to enhance cash flows in each period of time by generating more sales, charging higher prices or reducing costs when compared with their closest competitors. The RCF scale consists of six items that measure the extent to which the relationship with different stakeholders (e.g. customers and channel partners) as well as marketing strategies and contracts can diminish risk. Finally, the items of the RV construct reflect the ability of the business to increase its long term value by building a long term competitive advantage and entering to new markets.

Thus, these four constructs aim to measure the ability of the business unit to enhance cash flows, accelerate cash flows, reduce the risk of cash flows and augment the residual value of the business; when compared with their closest competitors. The scale for these constructs is a seven-point Likert scale where 1= significantly poorer than our rivals and 7= significantly better than our rivals. Also the option *can't say* was added. (Appendix B contains the scale items for the financial value drivers as well as the references used for each of the items).

3.1.3 Intensity of E-Business Adoption Constructs

To measure the intensity of e-business adoption I adapted an existing scale (Wu et al. 2003) based on the feedback of one of the experts from Aalto University. To the existing six constructs, two additional constructs that assess social media (SM) and order fulfillment (OF) were added. The items for assessing the SM construct were extracted from the 2009 AMA Social Media Survey and the items for assessing OF were adapted from Muffatto and Payaro (2004).

In this way, eight constructs measure the extent to which a business uses e-business tools for different purposes. The scale for these constructs is a seven-point Likert scale where 1= not used at all and 7= used very extensively. Also the option *can´t say* was added (Appendix C contains the scale items for measuring e-business adoption and their references).

In this report, these constructs were used to illustrate the differences in the media industry, across sectors; with respect to their use of e-business tools (see Section 3.3). Thus, the items related to the intensity of e-business adoption are only considered for illustrative purposes, and they are not included in the empirical study.

3.2 Data Collection

The data were collected as part of a project conducted within the Aalto MediaMark initiative. To specify the target population and maximize the awareness of this study, Finnmedia sent an invitation letter to its company members to participate in the survey. The survey was sent to 319 companies of which 70 completed the survey.

To gather responses, an online questionnaire was created. The questionnaire was developed at the beginning of 2012 and it was reviewed by three academics from the Marketing Department of Aalto University School of Business during March 2012. Additionally, the questionnaire was pre-tested by two senior managers of prominent companies of the media sector on April 2012.

The final survey contained six groups of questions addressing background information, the intensity of e-business adoption, value drivers of e-business, financial value drivers, financial results and contact information. The online questionnaire is presented in Appendix D. The final survey was conducted between June 6th and October 29th, 2012. In addition to the original invitation, three additional reminders were sent; the first reminder was sent on August 14th, the second on September 18th and the third on October 23rd.

3.3 Sample Characteristics

The data collected for this study include 70 responses, representing a total response rate of 22%. The respondents are mainly comprised by managing directors of the companies and the form of ownership is predominantly limited companies (97%). Table 1 shows how respondents are distributed according to the main activities of their businesses as well as the scope of operations of their companies.

In Table 1, it can be observed that the largest groups in this sample are the publishing and the printing sector that, in the overall, represent 74% of the sample. Furthermore, 10 out of the 12 companies that belong to *Multiple Activities* also operate either in the publishing or the printing sector, or both. In this way, this sample is almost entirely composed by these two sectors of the media industry. The group *Others* represents two firms engaged in Distribution and Mailing Services, one importer of Machinery and Equipment, one TV operator and two firms that did not specify their main activity within the media industry. In terms of operations, 89% of the respondents operated within Finland.

Sector	Operations			Respondents	%
	Regional	National	International		
Publishing	10	21	3	34	48.57
Printing	9	5	4	18	25.71
Multiple Activities[1]	2	10	0	12	17.14
Others	1	4	1	6	8.57
TOTAL	**22**	**40**	**8**	**70**	

Table 1. Respondents by Sector and Scope of Operations

In terms of growth, 54% of the respondents declared their markets are exhibiting negative growth. In fact, the results of the survey indicate that the *printing* sector (either as a primary activity or as part of multiple activities) is strongly overrepresented in the group of companies showing negative growth, representing over 64% of this group. One possible explanation for this result is that, as Finnmedia (2009) asserts, the printing sector is suffering from substantial overcapacity; therefore, posing a threat to the competitiveness of this sector and possibly deteriorating the market's growth potential.

	Operations			Total	%
	Regional	National	International		
New Developing Market	1	1	0	2	2.86
Growing Market	1	5	5	11	15.71
Mature Market	2	16	1	19	21.14
Regressive Market	18	18	2	38	54.29

Table 2. Respondents by Market Growth

Given that most of the companies in the sample are hardly showing any signs of growth, it is worth a deeper characterization on how companies differ in terms of intensity of e-business adoption, value drivers of e-business and FVDs; in particular, whether companies that exhibit growth are also the ones that score the highest regarding these items.

[1] This group represents SMEs or business units that are engaged in activities in more than one sector of the media industry.

The intensity of e-business adoption presents an interesting pattern as observed in Figure 7. In this graph, it can be observed that the companies exhibiting more growth are also the ones that use e-business tools more extensively. In particular, the greatest differences are accounted in the items regarding inbound communications (IC), order tracking (OT), procurement (PRO), social media (SM) and order fulfillment (OF). When analyzing the intensity of e-business adoption according to the sector of the media industry, it can be observed that the printing sector is the one that uses e-business tools the least in all the items. The group *Others* is characterized for an extensive use of e-business tools focused in internal processes (communications (INT) and administration (IA)); whereas the publishing sector leads in the use of e-business tools focused in communicating with customers (outbound communications (OC), order taking (OT) and social media (SM)). In the overall, companies of the media industry use e-business tools that are related to internal administration more extensively.

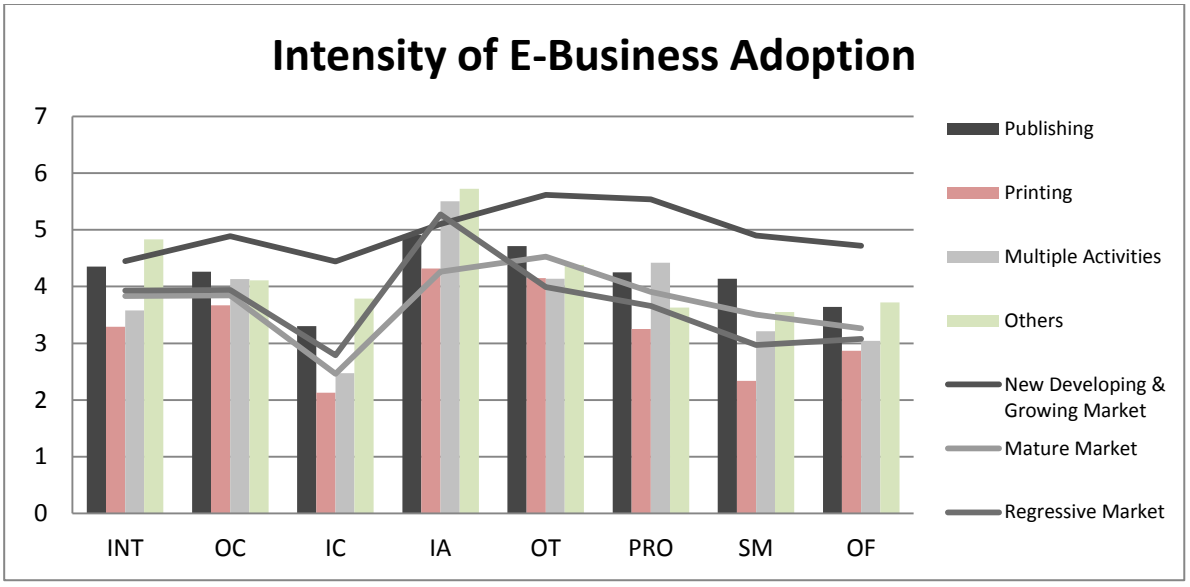


Figure 7. Intensity of E-business Adoption

When analyzing the responses with respect to the value drivers of e-business, the pattern is similar. In this case, it is evaluated how online presence has improved the business. As observed in Figure 8, the companies exhibiting more growth are also the ones that had benefitted the most from online presence. In the same way, the publishing sector exhibits

higher evaluations regarding the four value drivers of e-business. In other words, the publishing sector has benefitted the most with their e-business initiatives.

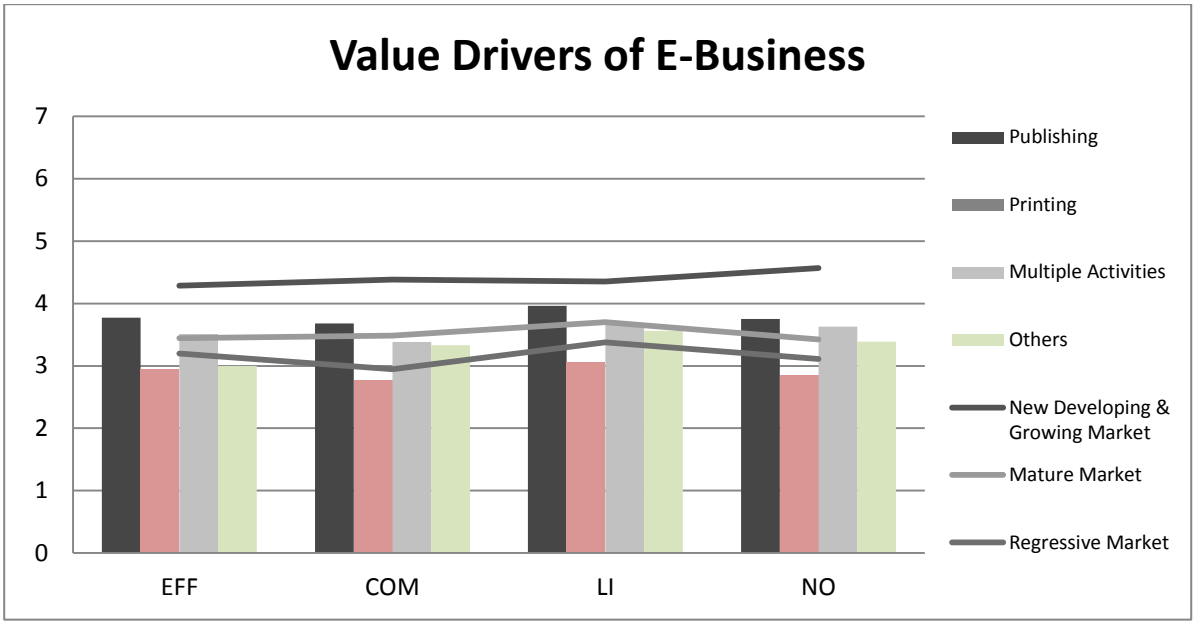


Figure 8. Value Drivers of E-Business

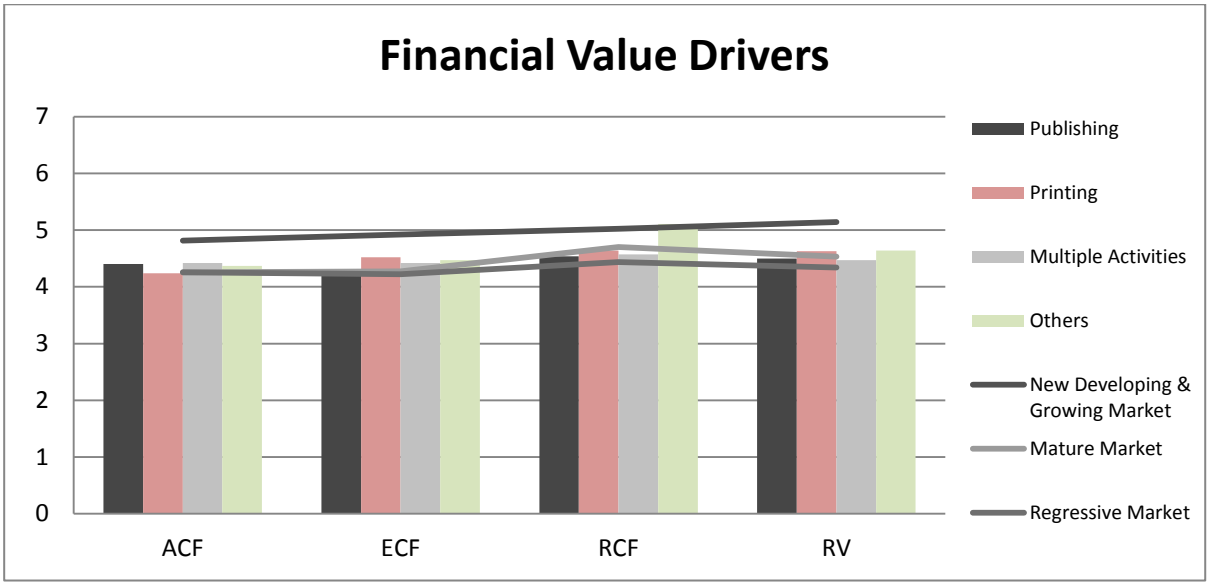


Figure 9. Financial Value Drivers

Consistent with the previous graphs, companies growing the most also exhibit the most favorable evaluations in terms of FVDs, as observed in Figure 9. On the contrary, when looking at the same responses but across sectors of the media industry, the scores are rather similar. One possible explanation for this result is that, in the set of items assessing FVDs, respondents had to evaluate their performance only against their closest competitors (i.e. against competitors of the same sector rather than evaluating their performance in *the overall*). In this way, the results of Figure 9 do not seem counterintuitive; rather, it shows that in different sectors of the media industry, the perceptions of managers regarding the performance of their firms against competitors are alike.

3.4 Methods of Statistical Analysis

In this study, a two-step SEM process was conducted; hence two multivariate techniques were used: confirmatory factor analysis (CFA) and structural equation modeling (SEM). First, CFA was used to verify the underlying dimensions in the data in terms of e-business value drivers, financial value drivers and financial performance; and to build a statistically valid and reliable measurement model for further analysis with SEM. Second, SEM was used to evaluate the magnitude of the relationships between these constructs.

The next section presents a brief introduction to CFA, describing the main characteristics of this technique. Section 3.4.2 presents the topic of structural equation modeling, first describing the main aspects of this technique; followed by two sub-sections that describe the processes and assessment indices involved in the measurement model, mainly evaluated through CFA, and the structural model.

3.4.1 Confirmatory Factor Analysis

Factor analysis is an interdependence technique used for data reduction and summarization (Malhotra & Birks, 2007 p. 646). The main purpose of this technique is to examine the underlying structure among a large number of variables and determine whether the information under study can be reduced or summarized into a smaller set of *factors* (Hair et

al. 2010 p. 94). In this context, a *factor* is a linear combination of original variables that are highly interrelated among them (Malhotra & Birks, 2007 p. 646).

Factor analysis can be either exploratory (EFA) or confirmatory (CFA). There are several similarities between EFA and CFA. For instance, the results of a CFA include estimates for the covariance among factors, the loadings of observed variables in the factors and the amount of unique variance for each variable (Hair et al. 2010 p. 693). These results can be also obtained from an EFA. However, EFA and CFA also differ in critical aspects. For example, when performing CFA, the researcher must assign in advance the variables to be grouped within each of these factors; also the number of factors must be specified beforehand (Hair et al. 2010 p. 693; Kline, 2005 p. 71; Sharma, 1996 p. 128; Long, 1983 p. 18). These specifications should be based on extant literature; therefore, CFA is a theory-driven method (Hair et al. 2010 p. 642, 693). On the contrary, the distinctive characteristic of EFA is that the factors are derived from statistical results; in other words, the underlying data provided by the researcher determine the factor structure (Hair et al. 2010 p. 693). In summary, CFA is a technique that serves to confirm or reject existing theories; in particular CFA statistics inform how theoretical specifications, in fact, fit the actual data (Hair et al. 2010 p. 693).

3.4.2 Structural Equation Modeling

Structural equation modeling (SEM) is a multivariate method that combines characteristics of other methods, such as factor analysis and multiple regression analysis (Hair et al. 2010 p. 634). Nonetheless, one characteristic that distinguishes SEM from multiple regression analysis is that the researcher can incorporate the presence of latent variables in the analysis (Ibid. p. 641). In this regard, two key terms when using SEM are *measured variables* and *latent constructs*. On one hand, a *latent construct* is an unobservable concept that can be defined in conceptual terms but cannot be directly measured; instead, is it approximately measured by multiple measured variables. On the other hand, a *measured variable* (or manifest indicator) is simply the observed value of an item and is used as an indicator of the latent construct (Hair et al. 2010 p. 635). In practice, through SEM, researchers can

simultaneously analyze a series of dependence relationships among measured variables and latent constructs as well as relationships between latent constructs (Diamantopoulos & Siguaw, 2000 Ch. 1 pp. 5-6; Hair et al. 2010 p. 635).

SEM has several similarities with other multivariate techniques; however, it also differs from them in critical aspects (Hair et al. 2010 p. 634 – 635, 641; Diamantopoulos & Siguaw, 2000 Ch. 1 p. 3). For instance, the relationships for each endogenous construct (i.e. latent construct that is dependent on other constructs) can be written similar to a regression equation; however in SEM it is possible to use latent constructs that behave as endogenous in some relationships and then as exogenous (i.e. latent construct that is independent of any other construct or variable in the model) in subsequent relationships in the same structural model. In addition, SEM resembles factor analysis as there is great similarity when interpreting the relationship between measured variables and the construct. However, one critical difference is that SEM is the opposite of an exploratory technique such as exploratory factor analysis. In fact, when using SEM researchers must specify in advance the variables that are associated with each of the constructs; therefore, all models should be developed with a strong theoretical base, especially those that try to establish causality. Another characteristic that distinguishes SEM from other multivariate techniques is that it uses the covariance matrix as input (Hair et al. 2010 p. 649; Kline 2005 p. 10; Diamantopoulos & Siguaw, 2000 Ch. 1 p. 6). Thus, the procedure of SEM consists of comparing the covariance matrix implied by the hypothesized model with the actual covariance matrix derived from the data. Thus, SEM is considered an aggregate methodology and therefore cannot predict or represent individual cases.

SEM is characterized as a method that needs larger samples than other multivariate techniques. There are several factors that affect the required sample size; as a rule of thumb Kline (2005 p. 15) asserts that a typical sample size is about 200 cases. Nonetheless, smaller samples are accepted when the population from which a sample is drawn is itself small or restricted in size (Bartlett, 2007, see Bagozzi & Yi, 2012). In addition, there are several academic publications where SEM is conducted to samples of less than 100 cases (Bollen, 1989, see Gignac 2006).

The use of SEM requires the representation of theory in terms of a model. Thus a typical model in SEM consists of two sub-models (Hair et al. 2010 pp. 637 - 638; Diamantopoulos & Siguaw, 2000 Ch. 1 p. 6): a measurement model and a structural model. In the next sections, the measurement model and the structural model are explained in detail.

3.4.2.1 Measurement Model

A measurement model is the operationalization of a set of relationships that specify how measured variables systematically represent a latent construct (Hair et al. 2010 pp. 690, 695). In practice, the measurement model is evaluated with CFA to provide a confirmatory test of the measurement theory. In the measurement model, all the latent constructs are assumed to covary with each other (Kline, 2005 p. 165); in other words, all of the correlations among latent constructs are assumed to be different from zero. In practice, the measurement model indicates how a set of measured variables represent a set of latent constructs, the relationships between variables and these constructs (factor loadings) and the relationships among latent constructs (construct correlation) (Hair et al. 2010 pp. 693 - 694). In addition, through the measurement model, researchers can get information about the validity and reliability of the measured variables (Diamantopoulos & Siguaw, 2000 Ch. 7 p. 11).

For simplicity purposes, four stages are presented for illustrating how the measurement model is built and assessed; and also to show how this study was performed. These stages are briefly presented in the next paragraphs.

1. *Defining individual constructs*: At this stage, it must be identified the items that compose each construct. For this purpose, the researcher can take scales from prior research or develop his/her own scales based on previous theory. In this study, new scales were developed (see Section 3.1); for this reason, a careful pre-testing examination was performed to verify content validity prior to confirmatory testing (Hair et al. 2010 pp. 655 - 656).

2. *Developing and specifying the measurement model*: At this stage, it must be defined how each construct comes together to compose an overall measurement model (Hair et al. 2010 pp. 656 - 657). At this stage, at least three topics must be examined: unidimensionality, items per construct and the identification of the model (Hair et al. 2010 pp. 696 - 702).

Unidimensionality should be examined by evaluating whether a measured variable is explained by one (and only one) latent construct; in this study, the cross-loadings were hypothesized to be zero to represent unidimensionality (Hair et al. 2010 p. 696; Kline, 2005 pp. 167 - 168). Regarding the items per construct, in this study all of the latent constructs are composed by at least three items to ensure construct validity and provide adequate identification for the constructs (Hair et al. 2010 p. 698; Kline, 2005 p. 172). (See Table 3 and Table 5).

A critical issue when conducting SEM is to get a result where the model is *identified*. An identified model means that the researcher gets a unique solution for the model (Diamantopoulos & Siguaw, 2000 Ch. 5 p. 2; Hair et al. 2010 p. 698; Kline, 2005 p. 105). To get a unique solution, it is necessary as a minimum requirement that the number of independent parameters (i.e. numerical characteristics of the SEM relationships) be less or equal to the number of variances and covariances amongst the measured variables; in addition, every latent variable must be assigned a scale (Kline, 2005 pp. 169 - 170, Diamantopoulos & Siguaw, 2000 Ch. 5 p. 10). Models that do not fulfill this requirement are not identified (Kline, 2005 p. 105). However, these are not the only requirements to get an identified model. Other issues that may affect in getting an identified model are the complexity of the model (Sharma, 1996) and data-related problems (Kline, 2005 p. 107). In this regard, observed variables that have high correlation (above 0.9) as well as inaccurate initial estimates for the parameters can also cause model underidentification (Kline 2005 p. 107; Diamantopoulos & Siguaw, 2000 Ch. 5 p. 11). For this reason, the researcher must check for multicollinearity between variables and be able to provide accurate initial estimates when using SEM.

3. *Designing a study to produce empirical results:* This stage relates to the researcher's decision on topics like research design, sample size and model estimation (Hair et al. 2010 pp. 657 - 664). In this study, maximum likelihood estimation (MLE) procedure and covariance matrices were used in the analysis. The sample size was defined as the number of Finnish companies of the media industry that are members of Finnmedia (in total 319 companies). For managing the missing data, the four-step process for identifying missing data presented in Hair et al (2010, pp. 44 – 63) was used (see Section 3.5).

4. *Assessing Measurement Model Validity*: When the measurement model was correctly specified and the calculations already made, I examined the validity of the constructs and the goodness-of-fit of the model using the indices presented in the next paragraphs (see Chapter 4).

For assessing *construct validity* (i.e. the extent to which a set of measured variables reflect the latent construct they are supposed to measure), the relationships between measured variables and latent construct (i.e. loadings) was examined. Standardized loadings of at least 0.5 –and ideally higher than 0.7- confirm that the measured variables are strongly related to their associated construct (Hair et al. 2010 p. 722). In addition, all the loadings should be statistically significant ($p < 0.05$) (Diamantopoulos & Siguaw, 2000 Ch. 7 p. 12).

For evaluating *convergent validity* (i.e. the extent to which the measured variables share a high proportion of variance in common), the Average Variance Extracted (AVE) was calculated. The AVE shows 'the amount of variance that is captured by the construct in relation to the amount of variance due to measurement error' (Diamanatopoulos & Siguaw, 2000 Ch. 7 p.14). This measure is expressed as:

$$\rho_v = \left(\sum \lambda^2\right) / \left[\sum (\lambda^2) + \sum (\theta)\right]$$

where:

ρ_v: AVE

λ : Indicator (measured variables) loadings

θ : Indicator error variances

As a rule of thumb, the AVE should present values of 0.5 or higher (Diamantopoulos & Siguaw, 2000 Ch. 7 p. 14).

For determining whether a latent construct was significantly different from others, discriminant validity was evaluated (Hair et al. 2010 p. 689). To assess *discriminant validity*, the AVE of each construct should be compared with the squared correlation between constructs. If the average variance extracted for each construct is greater than the squared correlation with any other construct, discriminant validity is supported (Fornell & Larcker, 1981; Hair et al. 2010 p. 710).

For assessing *reliability* (i.e. the consistency of measurement), the Composite Reliability of each the constructs under study was calculated (Diamanatopoulos & Siguaw, 2000). Composite Reliability can be computed as:

$$\rho_c = \left(\sum \lambda\right)^2 / \left[\sum (\lambda)^2 + \sum (\theta)\right]$$

where:

ρ_c : Composite Reliability

λ : Indicator (measured variables) loadings

θ : Indicator error variances

Good reliability is reflected by estimates of Composite Reliability equal or higher than 0.7 (Hair et al. 2010 p. 710).

Alongside validity and reliability, the goodness-of-fit of the model was examined. The goodness-of-fit indices are classed into three different groups: absolute, incremental and parsimony fit indices (Hair et al. 2010 pp. 664 - 669). In this regard, it is advised to use

more than one index to assess the overall fit of the model as no index serves as a definite criterion for testing the model (Diamantopoulos & Siguaw, 2000 Ch. 7 p. 11; Hair et al. 2010 p. 672; Kline, 2005 p. 134).

The most traditional absolute index to evaluate the overall fit is the *model chi-square statistic* (χ^2_M). In this context, χ^2_M tests the null hypothesis that the model has a perfect fit in the population; therefore, the goal is *not* to reject the null hypothesis (the higher is the value of χ^2_M, the worse is the model representing the data). However, this index is highly criticized among researchers due to the assumption of a perfect fit. For this reason, a set of indices should be used to complement the results of the χ^2_M statistic (Diamantopoulos & Siguaw, 2000 Ch. 7 p. 4; Kline, 2005 p. 136 - 137). A second absolute fit index is the *root mean square error of approximation* (RMSEA). The RMSEA, as the chi-square fit statistic, focuses on the differences between covariance matrices but assumes that the fit of the model is *not* perfect; in addition, RMSEA penalizes for model complexity. Values of RMSEA smaller than 0.05 indicate a good fit of the model while values greater than 0.10 indicate poor fit (Kline, 2005 p. 139; Diamantopoulos & Siguaw, 2000 Ch. 7 p. 6; Hair et al. 2010 p. 667). Another absolute fit index is the *standardized root mean residual* (SRMR); as a rule of thumb, an SRMR over 0.1 suggests a problem with fit (Hair et al. 2010 p. 667). An additional absolute fit index is the *goodness-of-fit index* (GFI). The GFI accounts for the amount of variances and covariances explained by the model; thus, it reflects how good the model represents the observed covariance matrix. The value of GFI ranges from 0 to 1, and values above 0.90 are considered as acceptable fits (Diamantopoulos & Siguaw, 2000 Ch. 7 p.10; Hair et al. 2010 p. 667). However, due to the recent development of other fit indices, the use of GFI is in decline (Hair et al. 2010 p. 667).

The incremental fit indices assess the improvement of fit of the model when compared with a baseline model (i.e. a model in which all observed variables are uncorrelated) (Kline, 2005 p. 140; Diamantopoulos & Siguaw, 2000 Ch. 7 p. 9). In this study the *non-normed fit index* (NNFI) and the *comparative fit index* (CFI) are reported. The values of NNFI and CFI range from 0 to 1, and values above 0.90 indicate a considerable good fit of the model (Kline, 2005 pp. 140, 145).

Finally, after assessing the fit of the model and verifying for possible fit problems, the researcher is in a good position to consider possible modifications to improve the model. However, model modifications should be resisted unless a clear and justified interpretation can be offered (Diamantopoulos & Siguaw, 2000 Ch. 7 p. 24).

Thus, the measurement model fit provides the main basis for further assessing the validity of the structural theory (Hair et al. 2010 p. 730).

3.4.2.2 Structural Model

After a satisfactory measurement model is obtained, the second step is to test the structural theory. In the previous section, it was shown that the emphasis of the measurement model was on the relationships between measured variables and latent constructs. In contrast, in the structural model, the focus is in the nature and magnitude of the relationships *between latent constructs*; in practice, correlational relationships are replaced by dependence relationships (Hair et al. 2010 p. 641, 729).

The first stage for building a structural model primarily focuses in representing the theory in a path diagram, identifying which latent constructs are exogenous and endogenous and assigning dependence relationships among latent constructs based on strong theoretical bases (see Chapter 4). Regarding the dependence relationships between constructs, not all of them were calculated in the structural models of this study. Some relationships were estimated (when there was theoretical support to assume that two constructs are related); while other relationships were fixed to zero (when two constructs were assumed to be not related) (Hair et al. 2010 p. 732 – 733).

The following stage was to *assess the structural model validity.* At this stage an examination of the structural model fit was conducted; also the validity of the structural model was compared with the validity of the measurement model.

For assessing the goodness-of-fit of the structural model, the same indices were used as in the measurement model (in this study χ^2_M, SRMR, RMSEA, GFI, CFI and NNFI). However, it must be noted that the structural model always shows worse fit indices than the measurement model because not all the relationships were set free. The implication is that if the fit of the structural model is substantially worse than the fit of the measurement model, then the structural theory would lack validity (Hair et al. 2010 pp. 737 - 738). Alternatively, if the fit between models is insignificant, then an adequate structural fit is supported.

In addition, the hypothesized dependence relationships were examined. In this regard, it must be checked whether the hypothesized relationships are statistically significant, in the predicted direction and show a robust standardized loading (Hair et al. 2010 p. 738).

Finally, the square multiple correlations (R^2) were examined to verify the explanatory power. In practice, R^2 quantifies the amount of variance of a dependent latent construct explained by other latent constructs (Hair et al. 2010 p. 692).

3.5 Missing Data and Imputation

The questionnaire developed for this research contained the option *can´t say* as part of the options available for each of the questions; these responses are accounted as missing data. Given that missing data can have a significant impact, especially on analysis of a multivariate nature, an examination of the missing data from the sample was performed (Hair et al. 2010 pp. 44, 659).

For this purpose it is necessary, in the first place, to determine the type of missing data (Hair et al. 2010 p. 44). Given that the sample size of this study is already quite limited, it is not possible to ignore the missing data and work only with non-missing cases. The second step of the examination involves determining the extent of the missing data (Hair et al. 2010 p.47). In other words, the objective of this stage is to determine whether the amount of missing data is low enough for not affecting the results. In the sample for this study, the overall missing data was 3.22%. Nonetheless, the missing values by item present a

significant variance. There was one item that presented an outrageous high amount of missing data (17.1% for the item ACF_5). This item was deleted from the sample and was not considered for further analysis.

The following step was to diagnose the randomness of the missing data. Missing data is considered missing completely at random (MCAR) if the missing data for a variable does not depend on any other variable in the data set or on the values of the variable itself; on the other hand, if the missing data is related to other variables, but not to the values of the variable itself, it is considered as missing at random (MAR) (Hair et al. 2010 pp. 48 - 49). For this sample, it was tested whether the missing data was missing completely at random through Little's MCAR test in SPSS. The results indicated a non-significant difference between the observed missing data pattern and a random pattern (see Appendix E). Finally, the last step was to select an imputation method. For this sample, I chose the Expectation Maximization as the imputation method. The reason is that this approach seems to be advantageous when the sample size is relatively small (Hair et al. 2010 p. 660). The imputation was made at a construct level; this means that the missing values were imputed taking only the information available from other variables of the same construct. This procedure increases the accuracy of the imputed values. With this preliminary analysis completed, it was possible to move on to analyze the results of the multivariate techniques. Appendix E shows the results of Little's MCAR test and the value imputed for each of the items considered for the empirical study.

4 Findings

In this chapter, the results of the analysis are presented and interpreted. The following sections are focused on the results of the measurement model using confirmatory factor analysis (Section 4.1) and the structural model (Section 4.2). LISREL 9.1 (Jöreskog & Sörbom, 2001) was the software used for modeling the data

4.1 Confirmatory Factor Analysis

As explained in Section 2.3, two models are developed for assessing the effects of value drivers of e-business on financial performance; the first model is focused on the impact on the short term (Model 1) and the second model is focused on the long term (Model 2).

4.1.1 Model 1

The first step of the analysis was to test a model that contained all of the measured variables of the four value drivers of e-business: efficiency (EFF), complementarity (COM), lock-in (LI) and novelty (NO); the indicators of three financial value drivers: enhancement of cash flows (ECF), acceleration of cash flows (ACF) and reduction in the risk of cash flows (RCF); and a set of financial outcomes (FO), as it was illustrated in Figure 5.

However, the first issue that became evident at that stage was the extremely high correlation among the four value drivers of e-business (see Appendix F). As mentioned in Chapter 3, the correlation among factors should not be excessively high to ensure discriminant validity. Given that the correlations among the four value drivers of e-business ranged from 0.92 to 0.96, and that the theory (Amit & Zott, 2001) supports that the four value drivers of e-business are indeed rather interrelated dimensions, the four value drivers were consequently merged into one single construct named *Value Drivers of E-Business.*

Based on this modification, Model 1 is now constituted by five constructs: one construct measuring value drivers of e-business, three constructs assessing financial value drivers and

one construct measuring financial outcomes, as illustrated in Figure 10. In addition, the hypotheses that linked each of the value drivers of e-business with the FVDs previously presented in Sections 2.2.2, 2.2.4 and 2.2.6 were modified as it follows:

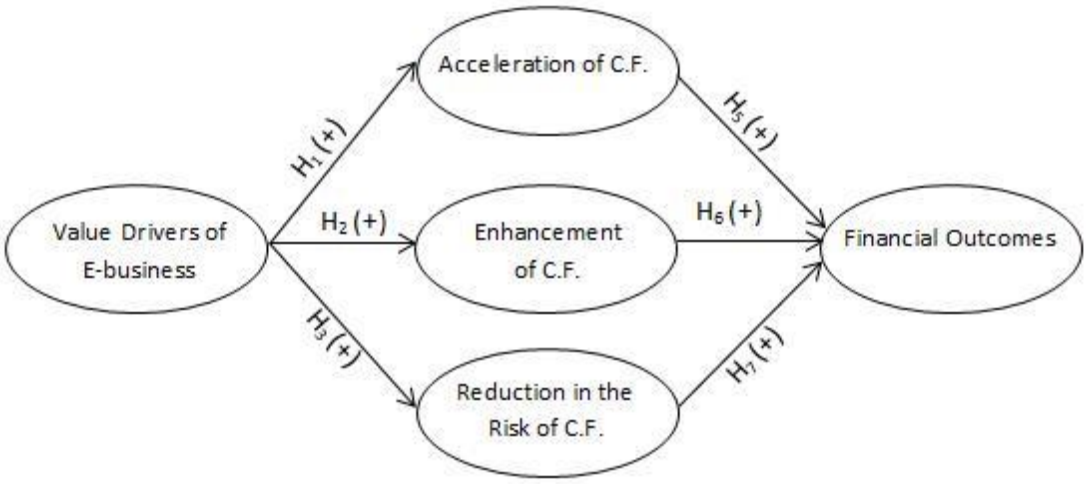


Figure 10. Model 1 with Modifications.

H_1: *There is a positive relationship between Value Drivers of E-business and the Acceleration of Cash Flows.*

H_2: *There is a positive relationship between Value Drivers of E-business and the Enhancement of Cash Flows.*

H_3: *There is a positive relationship between Value Drivers of E-business and the Reduction in the Risk of Cash Flows.*

The first measurement model tested contained all of the proposed items for the five constructs (see Appendix A and B for more information about the scales). The model was extremely complex and the results were unacceptable (χ^2 = 2139.16; df = 1117; p= 0.000; RMSEA =0.129; SRMR = 0.091; GFI = 0.512; NNFI = 0.904; CFI = 0.909). For this reason, the model was modified. The first modification was to remove the measured variables that presented a standardized loading lower than 0.6. As recommended by Kline (2005 p. 73), this condition is necessary to ensure convergent validity. In addition, the use of 0.6 as a threshold was taken from Fornell and Larcker (1981). This procedure was stepwise; in other words, one item was dropped at a time controlling the changes in the

loadings of the remaining variables and keeping at least three measured variables in each latent construct. The model that resulted from this procedure did not present major changes from the original model. Only seven items were dropped and the results were relatively unchanged (χ^2 = 1433.51; df = 809; p= 0.000; RMSEA =0.12; SRMR = 0.079; GFI = 0.567; NNFI = 0.936; CFI = 0.94). After successive modifications, the final model resulted in 28 variables grouped in five constructs.

To assess the measurement model of Model 1, the standardized loadings of the items were inspected to ensure *convergent validity*. All of the items presented high standardized loadings (above 0.59). Furthermore, as observed in Table 3 all of the items considered for the model were statistically significant.

Construct	**Items**	**Standardized Loading*****	**Construct**	**Items**	**Standardized Loading*****
	EFF_1	0.81	*Acceleration of*	ACF3	0.75
	EFF_3	0.75	*Cash Flows*	ACF4	0.74
	EFF_4	0.92		ACF6	0.65
	EFF_6	0.73	*Enhancement of*	ECF1	0.76
	EFF_7	0.80	*Cash Flows*	ECF3	0.78
	COM_1	0.77		ECF4	0.74
Value	COM_2	0.7	*Reduction in*	RCF2	0.82
Drivers of E-	COM_3	0.81	*the Risk of C.F*	RCF3	0.74
Business	LI_1	0.8		RCF6	0.59
	LI_6	0.83			
	LI_7	0.92		COSTS	0.63
	LI_8	0.87	*Financial*	NET PROFIT	0.88
	NO_1	0.85	*Outcomes*	ROA	0.95
	NO_3	0.85		ROI	0.87
	NO_5	0.80			

Table 3. Standardized Loadings for Model 1. (Standardized Loading***= All the items present t-test significant at p < 0.001).

Table 4 presents the means, standard deviations, composite reliability (ρ_c), average variance extracted (ρ_v), correlations and squared correlations between constructs. To assess the *convergent validity* and *reliability* of the constructs, ρ_c and ρ_v were calculated for each construct. As seen in Table 4, both $\boldsymbol{\rho_c}$ and $\boldsymbol{\rho_v}$ are above the generally recommended threshold (0.7 and 0.5 respectively) for all five constructs; these values indicate that the items were adequately related and their combinations as constructs were justified.

To assess *discriminant validity* in constructs, the average variance extracted of each construct should be compared with the squared correlation between constructs. If the average variance extracted for each construct is greater than the squared correlation with any other construct, discriminant validity is supported (Fornell & Larcker, 1981). As seen in Table 4, the latent construct *Reduction in the Risk of C.F.* has a strong correlation with the constructs *Acceleration of C.F.* and *Enhancement of C.F.*; therefore discriminant validity is not supported for this particular construct. Nonetheless, the construct *Reduction in the Risk of C.F* is kept as a separate construct because of theoretical reasons; in particular, there is a strong theoretical basis that supports *Reduction in the risk of C.F.* as a distinct dimension compared to *Acceleration of C.F.* and *Enhancement of C.F.* (e.g. Srivastava et al. 1998; Doyle, 2000 p. 48). For the remaining four constructs, discriminant validity is supported.

Construct	**Mean**	**S.D.**	$\boldsymbol{\rho_c}$	$\boldsymbol{\rho_v}$	**1.**	**2.**	**3.**	**4.**	**5.**
1. VD	3.51	1.80	0.97	0.65	**1.00**	0.21	0.05	0.07	0.02
2. ACF	4.46	1.09	0.76	0.51	0.46**	**1.00**	0.50	0.79	0.11
3. ECF	4.49	1.08	0.80	0.58	0.22	0.71**	**1.00**	0.79	0.14
4. RCF	4.80	1.06	0.76	0.52	0.27*	0.89**	0.89**	**1.00**	0.11
5. FO	4.16	1.36	0.91	0.71	0.13	0.33*	0.38**	0.33	**1.00**

Table 4. Scale means, standard deviations, reliability indexes, correlation matrix (below the diagonal) and squared correlations (above the diagonal) for Model 1.

Finally, the model fit for the measurement model (χ^2 = 411.82; df = 340; p= 0.0046; RMSEA =0.064; SRMR = 0.0737; GFI = 0.729; NNFI = 0.981; CFI = 0.981) can be considered as reasonably good. With the exception of the GFI, all the other indices are considered as acceptable (RMSEA and SRMR) or good (NNFI and CFI) (Hair et al. 2010 pp. 665 - 669).

4.1.2 Model 2

For Model 2, the four value drivers of e-business were also merged into one single construct named *Value Drivers of E-Business.* In this way, Model 2 is now composed by three latent constructs: value drivers of e-business (VD), augmentation of the residual value of the business (RV) and shareholder value (SHV), as illustrated in Figure 11. In addition, the hypotheses that linked each of the value drivers of e-business with the augmentation of the residual value previously (presented in Section 2.2.8) were modified as it follows:

H_4: *There is a positive relationship between Value Drivers of E-business and the Augmentation of the Residual Value of the Business.*

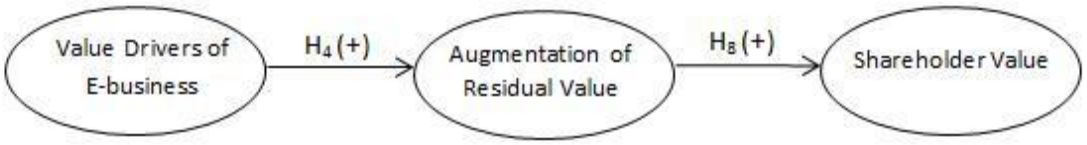


Figure 11. Model 2 with Modifications.

The initial measurement model for Model 2 contained all of the proposed items for the three latent constructs (see Appendices A and B for more information about the scales). As with the first model, this model was also relatively complex and the results were mediocre (χ^2 = 1083.35; df = 524; p= 0.000; RMSEA =0.123; SRMR = 0.071; GFI = 0.585; NNFI = 0.963; CFI = 0.966). The first modification for the model was to remove the measured variables that presented a standardized loading lower than 0.6. The model that resulted from this procedure did not present major changes from the original model; though the model fit

was slightly improved (χ^2 = 1027.21; df = 492; p= 0.000; RMSEA =0.125; SRMR = 0.07; GFI = 0.593; NNFI = 0.965; CFI = 0.967). After successive modifications, the final model resulted in 21 variables grouped in three constructs.

To assess the measurement model of Model 2, the standardized loadings of the items were inspected to ensure *convergent validity*. All of the items presented high standardized loadings (above 0.7) except for one item of the *shareholder value* construct (Sales Growth) as seen in Table 5. Nonetheless, this item was kept in the analysis for two reasons: first, to keep a minimum of three items per construct as recommended by Hair et al. (2010 p. 172); second, because sales growth is one of the main drivers of shareholder value (Rappaport, 1986 p. 50) and therefore this item possessed a strong theoretical support. All of the items considered for the model were statistically significant.

Table 6 presents the means, standard deviations, composite reliability (ρc), average variance extracted (ρv), correlations and squared correlations between constructs for model 2. The composite reliability (ρc) as well as the average variance extracted (ρv) for all the constructs are above the generally recommended threshold (0.7 and 0.5 respectively). These results suggest that the items considered for this model were adequately related and their combinations as constructs were justified; hence the *reliability* and *construct validity* of the constructs are supported. To assess *discriminant validity* among constructs, the average variance extracted of each construct should be compared with the squared correlation between constructs. As seen in Table 6, the squared correlations between constructs are rather low; in fact, the squared correlations are smaller than the average variance extracted for all cases. Therefore, *discriminant validity* is supported.

Construct	Items	Standardized Loading***	Construct	Items	Standardized Loading***
Value Drivers of E-Business	EFF_1	0.81	*Augmentation of Residual Value*	RV_3	0.8
	EFF_3	0.75		RV_4	0.74
	EFF_4	0.92		RV_6	0.8
	EFF_6	0.73			
	EFF_7	0.80			
	COM_1	0.77			
	COM_2	0.7			
	COM_3	0.81			
	LI_1	0.8	*Shareholder Value*	ΔOP. PROFIT	0.91
	LI_6	0.83		SALES GROWTH	-0.45
	LI_7	0.92		ΔROI	0.95
	LI_8	0.87			
	NO_1	0.85			
	NO_3	0.85			
	NO_5	0.80			

Table 5. Standardized Loadings for Model 2. (Standardized Loading* = All the items present t-test significant at p < 0.001).**

Construct	Mean	S.D.	ρ_c	ρ_v	1.	2.	3.
1. VD	3.51	1.8	0.97	0.65	**1.00**	0.10	0.05
2. RV	4.74	1.06	0.82	0.61	0.315*	**1.00**	0.07
3. SHV	7.06	2.00	0.83	0.64	0.224	0.357*	**1.00**

Table 6. Scale means, standard deviations, reliability indexes, correlation matrix (below the diagonal) and squared correlations (above the diagonal) for Model 2.

Finally, the model fit for the measurement model (χ^2 = 214.43; df = 186; p= 0.075; RMSEA =0.047; SRMR = 0.053; GFI = 0.792; NNFI = 0.998; CFI = 0.998) can be considered as excellent. With the exception of the GFI, all the other indices indicate a good fit.

4.2 Structural Equation Modeling

As a second step for the analysis, the structural models must be examined. In this section, potential dependencies among latent constructs are evaluated. In addition, Table 7 at the end of this chapter provides a summary of hypotheses test results for structural models 1 and 2.

4.2.1 Model 1

Figure 12 presents the structural model, standardized path estimates and fit indices for Model 1 indicating that the model fit is reasonably good (χ^2 = 489.21; df = 344; p= 0.000; RMSEA = 0.084; SRMR = 0.128; GFI = 0.699; NNFI = 0.962; CFI = 0.966).

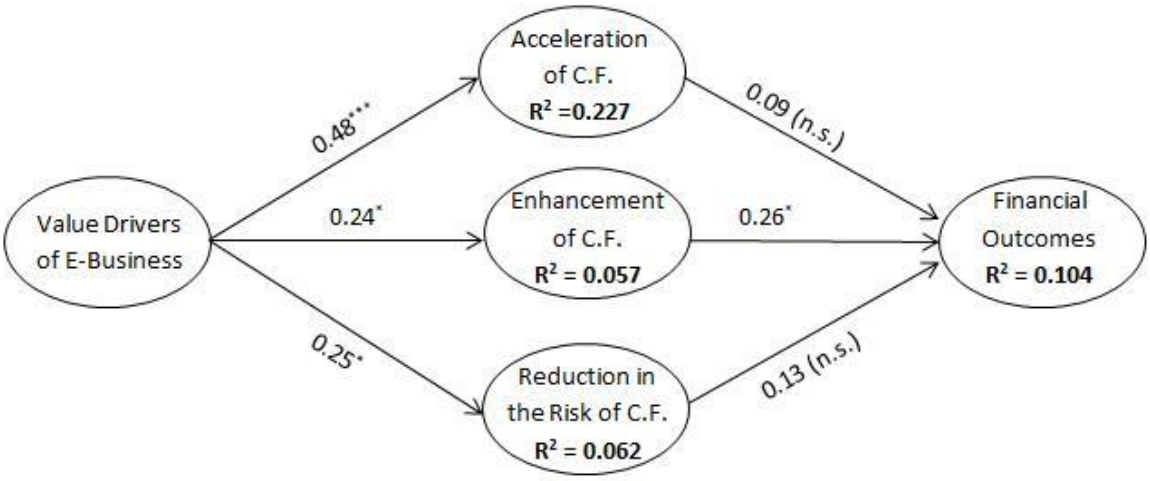


Figure 12. Structural Model 1. Standardized path estimates * = t-test significant at p < 0.05; ** = t-test significant at p < 0.01; * = t-test significant at p < 0.001.**

The structural model presented above show interesting results. First, *value drivers of e-business* have a positive and significant impact on the construct *acceleration of cash flows* (H_1: γ_{11} = 0.48, p < 0.001), *enhancement of cash flows* (H_2: γ_{21} = 0.24, p = 0.04) and *reduction in the risk of cash flows* (H_3: γ_{31} = 0.25, p = 0.028). As expected, all of these paths are positive, and consistent with underlying theory, hence supporting H_1, H_2 and H_3. In other words, these relations support the idea that investments in e-business lead to

improvements in the financial drivers of firms. The largest effect of *value drivers of e-business* is on the *acceleration of cash flows*. This result suggests that the internet is an excellent medium for enhancing information flows among stakeholders and therefore accelerating the cash flows of firms (Amit & Zott 2001; Zott, Amit & Donlevy, 2000). This insight is in line to the points discussed in Section 2.2.2.

The three constructs assessing financial value drivers (acceleration of cash flows, enhancement of cash flows and reduction in the risks of cash flows) also have positive effects on the construct *financial outcomes*. In this case, the largest effect is the cross-factor relationship between *enhancement of cash flows* and *financial outcomes* (H_6: $\beta_{4,2} = 0.26$, p = 0.028). In comparison, the cross-factor relationships between *acceleration of cash flows* and *financial outcomes* (H_5: $\beta_{4,1} = 0.09$, p = n.s.) as well as between *reduction in the risk of cash flows* and *financial outcomes* (H_7: $\beta_{4,3} = 0.13$, p = n.s.) were surprisingly low. In other words, H_6 is supported whereas H_5 and H_7 are not supported.

The explanatory power for each of the dependent constructs was examined through the square multiple correlations (R^2). The explanatory power of the three financial value drivers used in this model is reasonable. The construct *Acceleration of C.F.* presented the highest explanatory power ($R^2 = 0.227$), meaning that the construct *value drivers of e-business* explains 22.7% of the variance observed in *Acceleration of C.F.* This result is interesting as it empirically shows that almost one quarter of the variance observed in this FVD is explained only by online initiatives; hence reaffirming the idea that e-business initiatives play a critical role in accelerating the cash flows of firms. The other two financial value drivers present a more modest explanatory power as seen in Figure 12. One explanation for these results is that there are other important factors not related to e-business investments that were not taken into consideration and that also enhance cash flows (e.g. focused in lowering the requirements of working capital and those related to fixed capital) or affect the risk of firms (e.g. changes in the economic activity as well as changes in the industry condition).

Finally, the explanatory power of the construct *financial outcomes* is reasonable (R^2 = 0.104). In other words, the items that compose the constructs *Acceleration of C.F.*, *Enhancement of C.F.* and *Reduction in the Risk of C.F.* together explain 10.4% of the variance observed in the construct *Financial Outcomes*. These results shows that the scales developed for the FVDs have a reasonable power for explaining financial outcomes of firms, and therefore these scales might be further used in future studies.

4.2.2 Model 2

Figure 13 presents the structural model, standardized path estimates and fit indices for model 2. The model fit indices are extremely good (χ^2 = 215.37; df = 197; p= 0.0756; RMSEA = 0.047; SRMR = 0.063; GFI = 0.791; NNFI = 0.998; CFI = 0.998).

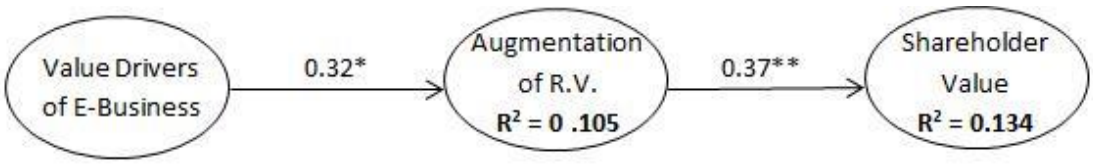


Figure 13. Structural Model 2. Standardized path estimates * = t-test significant at p < 0.05; ** = t-test significant at p < 0.01

The structural model presented above shows that the construct *Value Drivers of E-Business* has a positive and significant impact on the construct *Augmentation of R.V.* ($H_{4:}$ γ_{11} = 0.32, p = 0.015); therefore H_4 is supported. As expected, this path is robust and therefore coherent with underlying theory. This result suggests that e-business initiatives not only have an impact on the short term results of the firm, but also have the potential of increasing the long term value of the firm. This insight is in line to the points discussed in Section 2.2.8. Consequently, the construct *Augmentation of R.V.* also has a robust effect on the construct *Shareholder Value* (H_8: $\beta_{1,2}$ = 0.37, p = 0.007) and therefore, H_8 is supported.

The explanatory power of the latent constructs used in this model is reasonable. First, the construct *Augmentation of R.V.* presented a $R^2 = 0.105$; i.e. that the items of the construct *Value Drivers of e-business* explain 10.5% of the variance observed in the construct *Augmentation of R.V.* This result confirms the potential of value drivers of e-business for enhancing the long term value of firms, yet also suggests that not only initiatives related to e-business increase residual value. Finally, the explanatory power of the *Shareholder Value* construct is also reasonable ($R^2 = 0.134$). In other words, the items considered in the *Augmentation of R.V.* construct explain 13.4% of the variance observed in the *Shareholder Value* construct. This percentage was expected, as only three factors were considered for measuring the residual value of the firm. It is plausible that there are other factors, inherent to the Finnish media industry, that also impact the shareholder value of firms (e.g. potential growth of the industry). Nonetheless, the scales built for this study seem reasonably good for explaining the shareholder value of a firm.

In summary, six out of the eight hypotheses proposed were supported in this study, as seen in Table 7.

Hypothesis				**Path**	**Support**
$H_{1\,(+)}$	Value Drivers of E-business	→	Acceleration of C.F.	0.48^{***}	Supported
$H_{2\,(+)}$	Value Drivers of E-business	→	Enhancement of C.F.	0.24^{*}	Supported
$H_{3\,(+)}$	Value Drivers of E-business	→	Reduction in the Risk of C.F.	0.25^{*}	Supported
$H_{4\,(+)}$	Value Drivers of E-business	→	Augmentation of R.V.	0.32^{*}	Supported
$H_{5\,(+)}$	Acceleration of C.F.	→	Financial Outcomes	0.09	Not Supported
$H_{6\,(+)}$	Enhancement of C.F.	→	Financial Outcomes	0.26^{*}	Supported
$H_{7\,(+)}$	Reduction in the Risk of C.F.	→	Financial Outcomes	0.13	Not Supported
$H_{8\,(+)}$	Augmentation of R.V.	→	Shareholder Value	0.37^{**}	Supported

Table 7. Summary of Hypotheses test results for Structural Model 1 and Structural Model 2.

5 Summary and Conclusions

The theoretical section of this study was focused on setting the bases for building a framework that assesses the impact of e-business activities in the shareholder value of firms. According to the proposed framework, the potential of value creation of e-business depends on four interdependent value drivers: efficiency, complementarity, lock-in and novelty. To evaluate the effect of e-business on the financial results of companies, the relationship between value drivers and shareholder value was examined. In particular, the shareholder value was conceptualized into four financial value drivers: enhancement of cash flows, acceleration of cash flows, reduction in the risk of cash flows and augmentation of the residual value of the business; the first three financial value drivers focus on the efforts made by the firm on *each period* to increase the shareholder value while the last one focuses on the *long term*. In this way, the theoretical framework characterizes the value creation of e-business from a shareholder value perspective; distinguishing the effects on the short and the long term. The empirical section of this study explored the value creation process of e-business in Finnish companies of the media industry.

In the first section of this chapter, the main results of the study are discussed. Then the implications of this study, both theoretical and managerial, are presented. This chapter finishes by presenting the limitations of the study and a brief discussion about suggestions for future research.

5.1 Discussion

This study provides empirical insights on how e-business creates value for shareholders by enhancing, accelerating and reducing the risks of cash flows as well as augmenting the long term value of the business. In this way, this study responds to recent requests from academics (e.g. Srinivasan & Hanssens, 2009; Rust et al. 2004; Srivastava et al. 1997) to demonstrate and quantify, in terms of shareholder value, the impact of marketing activities; in this case, activities related to e-business. In this way, this study contributes to a rather

unexplored line of research (e.g. Amit & Zott, 2001; Zhu, 2004; Saini & Johnson, 2005) focused on value creation related to online operations (or e-business) in four ways.

First, it contributes to enhance the understanding on *how* e-business creates value. The results of the empirical study support the notion that value creation of e-business hinges on four value drivers: efficiency, complementarity, lock-in and novelty (Amit & Zott, 2001). Nonetheless, the present study shows that the value created by e-business is a one-dimensional concept rather than four separate dimensions, as suggested by extant literature (e.g. Amit & Zott, 2001); although the four values drivers played an important role in constituting *value drivers of e-business* as one concept.

In terms of *efficiency*, the results of this study showed that online presence has helped companies to reduce costs; in particular, day-to-day operational costs and development costs. In addition, online presence has also helped to reduce information asymmetries with customers, by integrating the activities of the supply chain and taking advantage of the so called no-shelf-space constraints. These results are consistent with previous research about the benefits of e-business related to efficiency (e.g. Gregory, Karavdic & Zou, 2007; Amit & Zott 2001; Zott, Amit & Donlevy, 2000). In terms of *complementarity*, the results of this study indicate that online presence facilitates the creation of synergies among strategic assets (e.g. supply chain) and among stakeholders within a network (e.g. developing co-specialized resources with other firms). These results are line with the notion that complementarities in e-business do not only arise among offerings, but also among strategic assets (Amit & Shoemaker, 1993) and among stakeholders within a network (Gulati, 1999). In terms of *lock-in*, this study shows that online presence has helped Finnish media companies to get closer to their customers through online communities and has had a positive effect on deepening the purchases of customers (i.e. stimulating up-selling). Furthermore, the results show that online presence has had a positive effect building the personality and image of the brand and improving relationships with strategic partners (e.g. providing the means for having a more effective communication). These results suggest that firms of the media sector are taking advantage of the so called Web 2.0 based on features such as collaboration, contribution and communities (Anderson, 2007). In terms of

novelty, the results of this study show that online presence has facilitated the introduction of new processes and even the entrance to new markets. A rather surprising result was that managers also believed that online presence has helped their firms in sustaining a first mover advantage over time; nonetheless, this result is consistent with the views of Amit & Zott (2001) regarding the benefits of novelty as a value driver. In the overall, it was concluded that investments in e-business initiatives indeed have the potential to create value for stakeholders through efficiency, complementarity, lock-in and novelty.

Second, this study provides empirical evidence supporting the hypotheses that value drivers of e-business have a positive effect on the shareholder value of the firm through four financial value drivers (FVDs). Nonetheless, the present study shows a surprisingly strong impact of *value drivers of e-business* in the *acceleration of cash flows*; whereas the impacts of *value drivers of e-business* in the other three FVDs, though significant, are somehow weaker. One explanation for this result is that the reduction of information asymmetries between the firm and its stakeholders produced by e-business is such, that surpasses any other benefit that e-business is able to provide for enhancing or reducing the risk of cash flows. However, given that the value drivers of e-business could not be treated as separated dimensions, it is unfeasible to track a well-grounded reason that explains this particular result. Nonetheless, in the overall, the findings of this study suggest that value drivers of e-business have a strong effect both in the short and the long term

Regarding the short term effects, the influence of *value drivers of e-business* on *accelerating cash flows* is reflected on superior brand awareness and brand attitude, enhanced networks with partners and the attraction of early adopters. In terms of *enhancement of cash flows*, a rather surprising result was found. The results of this study indicate that reducing costs is *not* significant when it comes to value creation in Finnish firms of the media industry (see Table 3 and Appendix B). Rather, the efforts of managers for enhancing cash flows are focused in generating more sales through brand extensions or the acquisition of new customers; and charging higher prices for enhanced versions of existent products. These findings suggest that the strategy of successful firms of the media industry in the sample (i.e. those exhibiting superior performance in enhancing cash flows)

can be characterized as a differentiation strategy rather than cost leadership (e.g. see Rappaport, 1986 pp. 96 - 99). Consistent with the previous findings, the results of this study show that the effect of value drivers of e-business on *reducing the risk of cash flows* is reflected in stronger bonds with customers and good relationships with channel partners as well as in a continuous focus on differentiation. Regarding the long term effects, value drivers of e-business presented a positive and robust effect on *augmenting the residual value of the business*. The effect of value drivers of e-business in augmenting the long term value of the business is reflected in building a long term competitive advantage and entering to new markets. In particular, the results of this study suggest that the most relevant aspects for building a long term competitive advantage were through a strong brand and though an enhanced customer base; on the other hand, for entering to new markets, a critical aspect was word of mouth. Thus, it can be concluded that investments in e-business initiatives have the potential to create value for the shareholders by showing a positive impact on all the financial value drivers that were examined.

Third, this study empirically examines the relative roles of each of the four FVDs (acceleration of cash flows, enhancement of cash flows, reduction in the risk of cash flows and augmentation of the residual value) either on financial outcomes of firms or on the shareholder value, as well as the associations between them. In this regard, one interesting finding was the high correlation between *reduction in the risk of cash flows* and two other FVDs: *accelerating cash flows* and *enhancing cash flows* (see Section 4.1.1) Nonetheless, one possible explanation for these results is that, even though there is a strong theoretical basis that supports each of these FVDs as different dimensions (e.g. Srivastava et al. 1998; Doyle, 2000 p. 48), the volatility in the cash flows of a firm also has an effect on the enhancement and acceleration of cash flows; therefore supporting strong correlations between the *reduction in the risk of cash* flows and the other two FVDs. In this regard, as discussed in Section 2.2.5, actions from suppliers (e.g. difficulties in meeting orders) or from competitors (e.g. special price promotions) that increase the firm's volatility, can also produce detrimental effects on the acceleration of cash flows (Srivastava et al. 1997). Likewise, benefits for customers relative to product quality and value to customers, as

discussed in Section 2.2.4 can be exploited to enhance cash flows but also to generate more stable cash flows of the firm (Ibid.).

Regarding the impact of FVDs in financial outcomes, the results of the study were relatively unexpected. In line with previous research (e.g. Kim, Mahajan & Srivastava, 1995; Srivastava et al. 1998; Doyle, 2000 p. 48), the four financial value drivers: enhancement, acceleration and reduction in the risk of cash flows as well as the augmentation of the residual value of the business; presented a positive effect either on *financial outcomes* or in *the shareholder value* of the firms under study. However one surprising result when assessing the short term effects was that only the relationship between *enhancement of cash flows* and *financial outcomes* resulted substantially robust. One possible explanation for this result is that the set of metrics used for measuring the financial outcomes –costs, net profits, ROA and ROI- was not appropriate for quantifying the effects of *accelerating* and *reducing the risk of cash flows*. For instance, the *risk* of the firm is reflected in the *cost of capital* (Doyle, 2008 p. 22; Srivastava et al. 1997). Likewise, the *acceleration of cash flows* is also tightly linked to the *risk* and hence reflected in the cost of capital (Srivastava et al. 1999; Doyle, 2000 p. 52). Therefore, the cost of capital might have been a metric that had better reflected the effect of these FVDs. However, given that the *cost of capital* is a rather difficult question for respondents to answer, it was not included in this survey (See Rappaport 1981; Doyle, 2000 p. 40; Lukas et al. 2005).

In contrast, when evaluating the long term effects, the results were satisfactory yet surprising. In other words, in this study the augmentation of the residual value of the business was adequately reflected in strong and positive changes in the operating profits ($\lambda = 0.91$) and in the ROI ($\lambda = 0.95$); but also in small decreases on sales growth ($\lambda = -0.45$). Nonetheless this result is not necessarily counterintuitive. Given that the media industry in Finland is going through a major transition (Finnmedia, 2009), managers might be skeptic about growth prospects in the long term; regardless of the potential that e-business can offer to their firms and that were strongly evidenced in this study.

Finally, this study provides a scale development for assessing value drivers of e-business and the financial value drivers of shareholder value. To the best of my knowledge, no prior attempts have been made in this direction; therefore the scales developed for this study can be extremely valuable in future research related to the assessment of value creation.

5.2 Conclusions

To conclude this study, the research questions presented in Chapter 1 are briefly answered.

- *How can value drivers of e-businesses be assessed and measured?*

  This study showed that the value creation of e-business hinges on four underlying value drivers: efficiency, complementarity lock-in and novelty. However, in this study these four value drivers were extremely interdependent; the implication of this finding is that the concept of value drivers in e-business is one-dimensional, yet composed by elements of efficiency, complementarity, lock in and novelty.

- *How can shareholder value be assessed and measured?*

  In practice, the shareholder value depends on seven drivers - sales growth rate, operating profit margin, income tax rate, working capital investment, fixed capital investment, cost of capital and forecast duration-. Nonetheless, the shareholder value has been conceptualized into four main financial value drivers: enhancement of cash flows, acceleration of cash flows, reduction in the risk of cash flows and augmentation of the residual value of the business. The first three financial value drivers are focused on the efforts made by managers on *each period* to increase the shareholder value while the last one focuses on the *long term*.

- *How do the value drivers of e-business affect the financial drivers of shareholder value in the short and the long term?*

  In the study, e-business had a positive effect on the four financial drivers. In the short term, e-business contributed to enhancing, accelerating and reducing the risks of cash flows. Nonetheless, the strongest effect in the short term was to accelerate cash flows. In the long term, e-business contributed to augmenting the long term value of the business.

- *How well can the financial value drivers of shareholder value explain the shareholder value of the firm in the overall?*

  In the study, a set of financial metrics -composed by costs, net profits, ROA and ROI- was used to assess financial outcomes in the short term. Even though the acceleration, enhancement and reduction in the risk of cash flows had a positive effect on these metrics; only the enhancement of cash flows had a positive significant effect on these metrics. Nonetheless, of the overall variation of the financial outcomes used in this study, more than 10% was explained by these three financial value drivers. For assessing the long term financial results, a set of financial metrics -comprised by sales growth, variations in operating profit and variations in ROI- was used; these metrics acted as proxy for quantifying the shareholder value of the firm. In this study, the construct augmentation of the residual value of the business showed a positive and robust effect on these metrics. Moreover, of the overall variation of this set of financial metrics, more than 13% was explained by this financial value driver. In summary, the scale development for the financial value drivers of shareholder value work reasonably well. However, more empirical evidence is further needed to verify the ability of the financial value drivers in assessing the shareholder value of the firm.

5.3 Theoretical Implications

Given the potential and pervasiveness of the internet, this research responds to the need posed both by scholars (e.g. Saini & Johnson, 2005) and practitioners for a more systematic study of performance drivers in e-business. Nonetheless, unlike extant literature, the present study considers a rather holistic view on how marketing initiatives, performed through internet technologies, add value for shareholders; by building and managing relationships with customers and strategic partners. From a theoretical perspective, the present study provides two main contributions to the relatively scant literature in strategic marketing related to e-business initiatives and its effects on firm performance.

First, to the best of my knowledge, the present study is the first study that empirically examines the value creation process in the context of e-business. The framework developed for this study explicitly integrates two prominent models: Value Creation in E-Business (Amit & Zott, 2001) and the Shareholder Value approach (Rappaport, 1986). In this way, this study responds to the need, pointed out by several academics (Srinivasan & Hanssens, 2009; Rust et al. 2004; Srivastava et al. 1997), to demonstrate the contribution of marketing activities (related to e-business) on the basis of their impact on the financial value drivers of shareholder value. Thus, the results of this study contribute to extant literature not only by clarifying but also by quantifying the contribution of e-business initiatives to the overall performance of firms: accelerating, enhancing and reducing the risk of cash flows as well as augmenting the long term value of the business.

Second, this research extends the literature on e-business and strategic marketing by providing a valid and reliable scale development for value drivers of e-business and the financial value drivers of shareholder value. The assessment instruments built for this study to assess value drivers of e-business and financial value drivers of shareholder value can be extremely valuable for future empirical research. Up to now, there were not ready-made scales for assessing these elements. Providing valid and reliable assessment tools can create incentives to develop further research about value creation processes and move towards a marketing and finance conciliation. In particular, the framework developed in this study is a step in that direction.

5.4 Managerial Implications

Nowadays, the need to demonstrate the significance of marketing initiatives to the overall financial health of firms has gradually become crucial for marketers. The reason is that, if it cannot be demonstrated that the resources allocated to marketing strategies indeed have the potential to create value that ultimately benefits shareholders, the contributions of marketers are likely to be perceived only as marginal (e.g. Srivastava et al. 1997). The findings of this study provide evidence on how marketing initiatives related to e-business have the potential to create value for shareholders. From a managerial perspective, the present study provides the following implications:

First, the present study serves to enlighten managers on how online presence, in particular through e-business initiatives, beyond a source of threats is also a source of opportunities for firms; in particular, in the media industry. In this study, it was shown that e-business initiatives are closely connected with core processes of the firm represented in this study by four financial value drivers of shareholder value. In practice, one suggestion for managers is to seriously examine the potential of the internet as a key element of the marketing strategy. In particular, the findings of this study show that e-business initiatives are particularly beneficial for reducing information asymmetries with stakeholders, strengthening bonds with customers and reinforcing the value of the brand. In order to get the benefits of online presence, managers should consider their strategic goals and reconsider how to align their online presence to their overall strategic objectives.

Second, this study showed that online presence had positive effects on the financial results of companies both in the short and long term. In this regard, the frameworks developed for this study showed in detail how online presence helps to improve a number of factors that create value for shareholders; and consequently how these factors impact the financial statements of firms. With caution, the results of the study can be used by managers for evaluating the performance of their companies with respect to these factors, evaluating their strengths and weaknesses and identifying potential areas for future growth.

5.5 Limitations

This study presents some limitations: some of them are related to the data while others are related to the research method and the scope of the study.

First, some limitations related to the data were found. For example, the data used in this study were cross-sectional. In this way, with the results of the study it was possible to examine *associations* between value drivers of e-business and the shareholder value approach; but not infer causal effects or demonstrate the long term sustainability of the relationships under study. Also, the data obtained from the companies under study were subjective rather than objective. In other words, the data obtained for this study only represent the perceptions of managers; and do not necessarily represent accurate information about performance of firms related to value drivers of e-business, financial value drivers and financial results. Nonetheless, the use of subjective data is not uncommon in this type of studies. In addition, the financial data obtained from companies were rather limited; therefore, a compromise was made between the information available and precepts of the shareholder value approach. This raises the question of whether a stricter criterion for assessing shareholder value and accurate financial data would change the overall results of this study. Lastly, one important limitation of the empirical study was related to the sample size. The target group for the empirical study is composed only by companies of the media sector that are members of Finnmedia. Therefore, the sample of the empirical study is relatively small when compared with other studies using the same quantitative approach. Moreover, the results of the study are industry-specific; in other words, the results of this study are limited to describe the value creation process of the media industry.

Second, given that a quantitative approach was used for conducting the study, the implications of the findings are rather limited. For this reason, a qualitative approach might be useful not only to complement existent knowledge but also to reveal new concepts and issues related to value creation in the context of e-business.

Finally, despite the fact that relevant concepts related to value creation were included in the research framework, it cannot be ruled out that other crucial constructs might have been excluded of the analysis. Nonetheless, being the present study the first empirical attempt for assessing value creation through e-business initiatives, a compromise between simplicity and comprehensiveness was made.

In the overall, numerous limitations were found in this study. Nonetheless, through these limitations, several suggestions for future research can be drawn. These suggestions are presented in the next section.

5.6 Future Research

This study significantly contributes to the existing knowledge on how marketing initiatives related to e-business create value that ultimately benefits shareholders. Nonetheless, several areas for developing future research are identified.

For instance, future research related to value creation should integrate a qualitative approach. A qualitative approach can be useful to complement the precepts that guided this study and also to reveal new concepts and issues related to value creation in the context of e-business. For example, a qualitative approach could be extremely valuable for exploring the synergies between online and offline assets more explicitly or for determining whether other potential dimensions of value drivers of e-business emerge.

Another recommendation for future studies is to consider potential moderators that might help to further understand value creation in the context of e-business. For example, examine the effect of market orientation (e.g. Saini & Johnson, 2005; Borges, Hoppen & Luce, 2009; Li, Chau & Lai, 2010), intensity of e-business adoption and characteristics of the firm (e.g. Wu et al. 2003), e-business capabilities (e.g. Soto-Acosta & Meroño-Cerdan 2008) or firm type (B2B versus B2C) as moderators between value drivers of e-business and the shareholder value approach; to further improve the explanatory power of the current framework.

As mentioned in the prior section, the data used for this study were cross-sectional. Therefore, one suggestion for future research would be to use longitudinal data. Even though conducting longitudinal research could be a challenging process, the use of longitudinal data would enable the analysis of causal relationships between value drivers of e-business and the shareholder value approach as well as demonstrate the long term sustainability of the relationships under study. In this regard, one idea could be to evaluate how variations in the intensity of e-business adoption of firms (adapted from Wu et al. 2003; See Appendix C) *over time* is reflected in the value drivers of e-business, and how these variations are ultimately reflected in the shareholder value of firms.

In addition, future research could be focused on linking the four financial value drivers of shareholder value to objective financial data. The use of objective financial data could be also useful to confirm the validity of the scale development for the four financial value drivers of shareholder value. In this regard, it could be useful as well to develop new and simpler ways for accurately calculate the shareholder value of firms for the purpose of quantitative studies.

Finally, an interesting next step for this research would be to develop a bigger scale study that includes firms from different sectors to generalize the results obtained in this study. The theoretical bases used for building the conceptual model and the survey are comprehensive in their scope. Hence a similar questionnaire could be used for assessing the value creation process of companies of any industry or size. In the same line, future research could be focused on cross-sectional studies that evaluate value creation of e-business initiatives in different contexts (e.g. whether there are differences in the value creation of e-business across countries). Given that the rate of internet penetration greatly differs between developed and developing countries, does the value creation process derived from e-business investments also differ between countries? Does the importance of a particular value driver greatly differ in the context of developing countries?

6 References

Aaker, D. (1996). *Building Strong Brands*. New York: The Free Press

Agrawal, V. Arjona L. & Lemmens, R. (2001). E-Performance: The Path to Rational Exuberance. *McKinsey Quarterly*, (1), pp. 30-43.

Ambler, T. (2003). *Marketing and the Bottom Line: The Marketing Metrics to Pump up Cash Flow* (2nd edition). London: Prentice Hall.

Ambler, T. & Roberts, J. (2008). Assessing Marketing Performance: Don't Settle for a Silver Metric. *Journal of Marketing Management*, Vol. 24 (7/8), pp. 733- 750.

American Marketing Association (2008). The American Marketing Association Releases New Definition for Marketing, *American Marketing Association Press Release* January 14, 2008.

American Marketing Association (2009). 2009 AMA Social Media Survey: Results and Analysis, *American Marketing Association Resource Library* February 5, 2009.

Amit, R. & Zott, C. (2001). Value Creation in E-Business. *Strategic Management Journal,* Vol. 22 (6/7), pp. 493 – 520.

Amit, R. *&* Shoemaker, P. (1993). Strategic Assets and Organizational Rent. *Strategic Management Journal, Vol. 14(1), pp.* 33-46.

Anderson, P. (2007). What is Web 2.0? Ideas, Technologies and Implications for Eduaction. JISC Technology & Standards Watch. Retrieved from: http://www.jisc.ac.uk/publications/reports/2007/twweb2.aspx

Baggozzi, R. & Yi, Y. (2012). Specification, Evaluation and Interpretation of Structural Equation Models. *Journal of the Academy of Marketing Science*, Vol. 40 (1), pp. 8 – 34.

Barrett, P. (2007). Structural Equation Modeling: adjusting Model Fit. *Personality and Individual Difference*, Vol. 42 (5), pp. 815 – 824.

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, Vol. 17 (1), pp. 99 – 120.

Black, A. Wright, P. Bachman, J. & Davis, J. (1998). In Search of Shareholder Value: Managing the Drivers of Performance. London: Financial Times Management.

Bollen, K.A. (1989). *Structural Equations with Latent Variables*. New York: John Wiley & Sons.

Borges, M. Hoppen, N. Luce, F.B. (2009). Information Technology Impact on Market Orientation in E-Business. *Journal of Business Research,* Vol. 62 (9), pp. 883 – 890.

Brodie, R. Winklhofer, H. Coviello, N. Johnston W. (2007). Is E-Marketing Coming of Age? An Examination of the Penetration of E-Marketing and Firm Performance. *Journal of Interactive Marketing*, Vol. 21 (1), pp. 2 – 21.

Churchill, G. (1979). A Paradigm for Developing Better Measures of Marketing Constructs. *Journal of Marketing Research*, Vol. 16 (1), pp. 64 – 73.

Coase, R. (1937). The Nature of the Firm. *Economica,* Vol. 4 (16), pp. 386 – 405.

Day, G. & Fahey, L., (1988). Valuing Market Strategies. *Journal of Marketing*, Vol. 52 (3), pp. 45-57.

Diamantopoulos, A. & Siguaw, J. (2000). Introducing LISREL. doi: 10.4135/9781849209359

Doyle, P. (2000). *Value Based Marketing: Marketing Strategies for Corporate Growth and Shareholder Value*. Chichester: John Wiley and Sons Ltd.

Doyle, P. (2008). *Value Based Marketing: Marketing Strategies for Corporate Growth and Shareholder Value* (2nd edition). Chichester: John Wiley and Sons Ltd.

Epstein, M. (2004) Start to Measure your E-Commerce Success. HBS Working Knowledge. http://hbswk.hbs.edu/item/4401.html

Epstein, M. (2004b). *Implementing E-Commerce Strategies: A guide to Corporate Success After the Dot.Com Burst.* Westport: Praeger Publishers.

European Commission Eurostat (2011), *Information Society Statistics.* Retrieved from: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Information_society_statistics

Finnmedia (2009). *Making the Media Sector a Winner: Strategies of the Finnish Media Sector*. Helsinki.

Fornell, C. & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research,* Vol. 18 (1), pp. 39–50.

Gignac, G.E. (2006). Self-Reported Intelligence and Life Satisfaction: Testing Incremental Predictive Validity Hypotheses via Structural Equation Modeling (SEM) in a Small Sample. *Personality and Individual Differences*, Vol. 40 (8), pp. 1569 – 1577.

Gregory, G. Karavdic, M. & Zou, S. (2007). The Effects of E-Commerce Drivers on Export Marketing Strategy. *Journal of International Marketing*, Vol.15 (2), pp. 30 -57.

Gulati, R. (1999). Network Location and Learning: The Influence of Network Resources and Firm Capabilities on Alliance Formation. *Strategic Management Journal*, Vol. 20 (5), pp. 397 – 420.

Gulati, R. Nohria, N. Zaheer, A. (2000). Strategic Networks. *Strategic Management Journal*, Vol. 21(3), pp. 203 – 215.

Gunawan, G. Ellis-Chadwick, F. King, M. (2008). An Empirical Study of the Uptake of Performance Measurement by Internet Retailers. *Internet Research*, Vol. 18 (4), pp.361 – 381.

Gundlach, G. & Wilkie, W. (2009). The American Marketing Association's New Definition of Marketing: Perspective and Commentary on the 2007 Revision. *Journal of Public Policy & Marketing*, Vol. 28 (2), pp. 259, 264.

Gupta, S. & Zeithaml, V. (2006). *Customer Metrics and Their Impact on Financial Performance*. *Marketing Science*. Vol. 25 (6), pp. 718 – 739.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis* (7th ed.). New Jersey: Pearson Prentice Hall.

Heath, T. DelVecchio, D. McCarthy, M. (2011). The Assymetric Effects of Extending Brands to Lower and Higher Quality. *Journal of Marketing*, Vol. 75 (4), pp 3 – 20.

Jöreskog, K. & Sörbom, D. (2001). LISREL 8: User's Reference Guide, (2nd edition). Lincolnwood: SSI Scientific Software International

Keller, K.L. & Aaker, D.A. (1992). The Effects of Sequential Introduction of Brand Extensions. *Journal of Marketing Research*, Vol. 29 (1), pp. 35 – 50.

Keller, K.L. & Aaker, D.A. (1997), Managing the Corporate Brand: The Effects of Corporate Marketing Activity on Consumer Evaluations of Brand Extensions, Marketing Science Institute, Report No. 97-106, Cambridge, MA.

Kerin, R. Varadarajan, P. & Peterson, R. (1992). First-Mover Advantage: A synthesis, Conceptual Framework and Research Prepositions. *Journal of Marketing*, Vol. 56 (4), pp. 33-52.

Kim, N. Mahajan, V. & Srivastava, R. (1995). Determining the Going Value of a Business in an Emerging Information Technology Industry: The Case of the Cellular Communication Industry. *Technological Forecasting and Social Change*, Vol. 49 (3), pp. 257 – 279.

Kline, R. (2005). *Principles and practices of Structural Equation Modeling* (2nd edition). New York: The Guilford Press.

Lehmann, D. (2004). Linking Marketing to Financial Performance and Firm Value. *Journal of Marketing*, Vol. 68 (4), pp. 73-75.

Li, D. Chau, P. & Lai, F. (2010). Market Orientation, Ownership Type and E-Business Assimilation: Evidence from Chinese Firms. *Decision Sciences*, Vol. 41 (1), pp. 115 – 145.

Long, J.S. (1983). Confirmatory Factor Analysis. Sage University Paper Series on Quantitative Applications in the Social Sciences, series no. 07-033. Beverly Hills and London: Sage Pubns.

Lukas, B. Whitwell, G. & Doyle, P. (2005). How Can a Shareholder Value Approach Improve Marketing's Strategic Influence?. *Journal of Business Research*, Vol. 58 (4) pp. 414 – 422.

Malhotra, N. & Birks. D. (2007) *Marketing Research: An Applied Approach* (3rd European Edition). Essex: Pearson Education Limited

Mirani, R. Moore, D. & Weber, J. (2001). Emerging Technologies for Enhancing Supplier-Reseller Partnerships. *Industrial Marketing Management*, Vol. 30 (2), pp. 101 – 114.

Muffatto, M. & Payaro, A. (2004). Integration of Web-Based Procurement and Fulfillment: A comparison of case studies. *International Journal of Information Management*, Vol. 24 (4), pp. 295-311.

Rao, R. & Bharadwaj N. (2008). Marketing Initiatives, Expected Cash Flow and Shareholders' Wealth. *Journal of Marketing*, Vol. 72 (1), pp. 16 – 26.

Rappaport, A. (1986). *Creating Shareholder Value: The New Standard for Business Performance*. New York: The Free Press.

Rappaport, A. (1981). Selecting Strategies that Create Shareholder Value. *Harvard Business Review*, Vol. 59 (3), pp. 139 – 149.

Rappaport, A. (1998). *Creating Shareholder Value: A Guide for Managers and Investors* (2nd edition).New York: The Free Press.

Reibstein, D. (2002). What Attracts Customers to Online Stores, and What Keeps them Coming Back?. *Journal of the Academy of Marketing Science*, Vol. 30 (4), pp. 465 – 473.

Reichheld, F. & Schefter, P. (2000). E-loyalty: Your Secret Weapon on the Web. *Harvard Business Review*, Vol. 78 (4), pp.105-113.

Rust, R. Ambler, T. Carpenter, G. Kumar, V. & Srivastava R. (2004). Measuring Marketing Productivity: Current Knowledge and Future Directions. *Journal of Marketing*, Vol. 68 (4), pp. 76 – 89.

Saini, A. & Johnson, J. (2005). Organizational Capabilities in E-Commerce: An Empirical Investigation of E-Brokerage Service. *Journal of the Academy of Marketing Science,* Vol. 33 (3), pp. 360 – 375.

Sanders, N. (2007). An Empirical Study of the Impact of E-Business Technologies on Organizational Collaboration and Performance. *Journal of Operations Management*, Vol. 25 (6), pp. 1332 – 1347.

Schulze, C. Skiera, B. & Wiesel, T. (2012). Linking Customers and Financial Metrics to Shareholder Value: The Leverage Effect in Customer-Based Valuation. *Journal of Marketing*, Vol. 76 (2), pp. 17 – 32.

Schumpeter, J. (2004). *The Theory of Economic Development: An inquiry into Profits, Capital, Credit, Interest and the Business Cycle – With a New Introduction by John E. Elliot*. New Brunswick: Transaction Publishers.

Schumpeter, J. (1942). *Capitalism, Socialism and Democracy.* Haper: New York.

Sharma, S. (1996). *Applied Multivariate Techniques*. New York: John Wiley & Sons, Inc.

Soto-Acosta, P. & Meroño-Cerdan A. (2008). Analyzing E-Business Value Creation from a Resource-Based Perspective. *International Journal of Information Management*, Vol. 28 (1), pp. 49 – 60.

Srinivasan, S. Anderson, R. & Ponnavolu, K. (2002). Customer Loyalty in E-Commerce: An Exploration of its antecedents and consequences. *Journal of Retailing,* Vol. 78 (1), pp. 41 – 50.

Srinivasan, S. & Hanssens, D. (2009). Marketing and Firm Value: Metrics, Methods, Findings, and Future Directions. Journal of Marketing Research, Vol. 46 (3), pp. 293 – 312.

Srinivasan, R. Lilien, G. & Rangaswamy, A. (2002). Technological Opportunism and Radical Technology Adoption: An Application to E-Business. *Journal of Marketing*, Vol. 66 (3), pp.47 – 60.

Srivastava, R., Shervani, T. & Fahey, L. (1997). Driving Shareholder Value: The Role of Marketing in Reducing Vulnerability and Volatility of Cash Flows. *Journal of Market-Focused Management*, Vol. 2 (1), pp. 49 – 64.

Srivastava, R., Shervani, T. & Fahey, L. (1998). Market-Based Assets and Shareholder Value: A Framework for Analysis. *Journal of Marketing*, Vol. 62 (1), pp. 2 – 18.

Srivastava, R., Shervani, T. & Fahey, L. (1999). Marketing, Business Processes and Shareholder Value: An organizationally Embedded View of Marketing activities and the Discipline of Marketing. *Journal of Marketing*, Vol. 63 (4), pp. 168 -179.

Srivastava, R. & Reibstein, D. (2005). Metrics for Linking Marketing to financial Performance- Report No. 05-200, Marketing Science Institute.

Turban, E. et al. (2008). *Electronic Commerce 2008: A managerial Perspective* (5th edition). New Jersey: Pearson Prentice Hall.

Völckner, F & Sattler, H. (2006). Drivers of Brand Extension Success. *Journal of Marketing*, Vol. 70 (2), pp. 18 – 34.

Williamson O.E. 1975. *Markets and Hierarchies, Analysis and Antitrust Implications: A Study in the Economics of Internal Organization.* Free Press: New York.

Williamson O.E. 1979. Transaction Cost Economics: The Governance of Contractual Relations. *Journal of Law and Economics,* Vol. 22 (2), pp. 233–261.

Williamson, O.E. (1991). Strategizing, Economizing and Economic Organization. *Strategic Management Journal,* Vol. 12 (2), pp. 75-94.

World Bank, 2012. *World Development Indicators (WDI) & Global Development Finance (GDF).* Retrieved from: http://databank.worldbank.org/ddp/home.do?Step=12&id=4&CNO=2

World Bank, 2012b. *World Development Indicators (WDI): Internet Users (per 100 people).* Retrieved from: http://data.worldbank.org/indicator/IT.NET.USER.P2

Wu, F. Mahajan, V. Balasubramanian, S. (2003). An Analysis of E-business Adoption and Its Impact on Business Performance. *Journal of the Academy of Marketing Science*, Vol. 31 (4), pp. 425 – 477.

Wu, F. Yeniyurt, S. Kim, D & Cavusgil, S. (2006). The Impact of Information Technology on Supply Chain Capabilities and Firm Performance: A Resource-Based View. *Industrial Marketing Management*, Vol. 35 (4), pp. 493 – 504.

Zhu, K. (2004). The Complementarity of Information Technology Infrastructure and E-Commerce Capability: A Resource-Based Assessment of Their Business Value. *Journal of Management Information Systems,* Vol. 21 (1), pp. 167 – 202.

Zhu, K. & Kraemer, K. (2002). E-Commerce Metrics for Net-Enhanced Organizations: assessing the Value of E-Commerce to Firm Performance in the Manufacturing Sector. *Information Systems Research*, Vol. 13 (3), pp. 275-295.

Zott, C. Amit, R. & Donlevy, J. (2000). Strategies for Value Creation in E-Commerce: Best Practice in Europe. *European Management Journal*, Vol. 18 (5), pp. 463 – 475.

Zott, C. Amit, R. & Massa, L. (2010). The Business Model: Theoretical Roots, Recent Developments, and Future Research (Working Paper No. 862). Retrieved from IESE: http://www.iese.edu/research/pdfs/DI-0862-E.pdf

Appendix A. Scale items for assessing Value Drivers of E-Business

Value Driver	*Scale items*	*Reference*
Efficiency	Reducing day-to-day operational costs *(EFF_1)*	Zhu & Kraemer, 2002
	Reducing selling and promotional costs *(EFF_2)*	Gregory, Karavdic & Zou, 2007; Amit & Zott, 2001; Zott, Amit and Donlevy (2000)
	Reducing development costs *(EFF_3)*	Gregory, Karavdic & Zou, 2007
	Enhancing information flow from and to customers (e.g. product descriptions, up-to-date information about online orders) *(EFF_4)*	Amit & Zott (2001)
	Enhancing information flow between the firm and other stakeholders (e.g. about flows of goods, investment decisions, processing information) *(EFF_5)*	Amit & Zott (2001); Zott, Amit & Donlevy (2000)
	Offering a large range of products and services (no shelf-space constraints) *(EFF_6)*	Zott, Amit and Donlevy (2000)
	Integrating (streamlining) activities of the supply chain *(EFF_7)*	Zott, Amit and Donlevy (2000)
Complementarities	Providing more easily products, services and information to different stakeholders (e.g. firm, partner firms, customers) *(COM_1)*	Amit & Zott (2001)
	Developing co-specialized resources (e.g. R&D and co-engineering initiatives that require skill sharing or exchange of know-how) *(COM_2)*	Amit and Zott (2001)
	Coordinating activities in the supply chain *(COM_3)*	Amit & Zott (2001)
	Stimulating cross-selling *(COM_4)*	Amit & Zott (2001)
Lock-in	Enhancing relationships with strategic partners (by having a more effective communication) *(LI_1)*	Turban et al. (2008) & Mirani, Moore & Weber (2001)
	Acquiring and maintaining profitable customers *(LI_2)*	Srinivasan, Anderson & Ponnavolu (2002); Reichheld & Schefter (2000); Zott, Amit & Donlevy (2000)
	Increasing customer satisfaction (by providing instant feedback and channels for communication) *(LI_3)*	Reichheld & Scheffer (2000); Srinivasan, Anderson &

		Ponnavolu (2002); Zott, Amit & Donlevy (2000); Doyle (2008); Amit & Zott (2001)
	Promoting referral marketing *(LI4)*	Srinivasan, Anderson & Ponnavolu (2002); Doyle (2008)
	Customizing products, services and experience *(LI_5)*	Srinivasan, Anderson & Ponnavolu (2002); Amit & Zott (2001); Zott, Amit & Donlevy (2000)
	Stimulating up-selling *(LI_6)*	Srinivasan, Anderson and Ponnavolu (2002); Amit & Zott (2001)
	Building the personality and image of the brand *(LI_7)*	Srinivasan, Anderson and Ponnavolu (2002)
	Getting customers involved in communities *(LI_8)*	Zott, Amit & Donlevy (2000); Srinivasan Anderson & Ponnavolu (2002)
Novelty	Facilitating the introduction of new processes and solutions *(NOV_1)*	Schumpeter (2004); Amit & Zott (2001)
	Facilitating the introduction of new offerings *(NOV_2)*	Schumpeter (2004); Amit & Zott (2001)
	Being able to create, foster and enter to new markets *(NOV_3)*	Schumpeter (2004); Turban et al. (2008)
	Introducing new ways of payment *(NOV_4)*	Schumpeter (2004); Turban et al. (2008)
	Being able to sustain first mover advantage over time (e.g. Through increased mindshare, reputation, switching costs) *(NOV_5)*	Amit & Zott (2001); Turban et al. (2008)
	Capturing latent needs of customers through communities *(NOV_6)*	Turban et al. (2008)

Appendix B. Scale items for assessing Financial Value Drivers

Financial Value Driver	*Scale items*	*Reference*
Accelerating Cash Flows	Faster development of products *(ACF_1)*	Srivastava, Shervani & Fahey (1998)
	The use of price promotions *(ACF_2)*	Doyle (2008)
	Positive brand awareness and attitude to increase responsiveness to marketing activity *(ACF_3)*	Srivastava, Shervani & Fahey (1998); Doyle (2008)
	Leveraging existing networks with partners (e.g. to respond faster to market needs) *(ACF_4)*	Srivastava, Shervani & Fahey (1998)
	Creating incentives to streamline and speed up outbound distribution *(ACF_5)*	Srivastava, Shervani and Fahey (1999)
	Attracting early adopters *(ACF_6)*	Srivastava, Shervani & Fahey (1998)
Enhancing Cash Flows	Generate more sales through brand extensions *(ECF_1)*	Srivastava, Shervani & Fahey (1998); Doyle (2008)
	Generate more sales through initiatives with strategic partners (e.g. Co-branding, co-marketing) *(ECF_2)*	Doyle (2008)
	Generate more sales through acquiring new customers *(ECF_3)*	Srivastava, Shervani & Fahey (1998)
	Charge higher prices through innovations in existing products to higher price/margin versions *(ECF_4)*	Doyle (2008)
	Charge higher prices through a well-established and differentiated brand *(ECF_5)*	Srivastava, Shervani & Fahey (1999); Doyle (2008)
	Reduce costs by simplifying your offering using information from the market *(ECF_6)*	Srivastava, Shervani & Fahey (1999); Rappaport (1986)
	Reduce costs through an effective supply chain management (e.g. Implementing JIT techniques) *(ECF_7)*	Srivastava, Shervani & Fahey (1998); Srivastava, Shervani & Fahey (1999); Doyle (2008)

Vulnerability and Volatility of Cash Flows	Long-term contracts with customers *(RCF_1)*	Srivastava, Shervani & Fahey (1997); Srivastava, Shervani & Fahey (1999)
	Stronger bonds with customers *(RCF_2)*	Srivastava, Shervani & Fahey (1998)
	Good relationships with channel partners *(RCF_3)*	Srivastava, Shervani & Fahey (1998); Doyle (2008); Srivastava, Shervani & Fahey (1997); Srivastava, Shervani & Fahey (1999)
	Avoidance of excessive price discounts *(RCF_4)*	Srivastava, Shervani & Fahey (1998)
	Offering consumers a range of products (i.e. not depend on a single offering) *(RCF_5)*	Srivastava, Shervani & Fahey (1997), Srivastava, Shervani & Fahey (1998); Doyle (2008)
	Continuous focus on differentiating products from competitors *(RCF_6)*	Srivastava, Shervani & Fahey (1997)
Residual Value of Cash Flows	Build a long term competitive advantage through to new sources of value (e.g. IT, marketing concepts, distribution channels) *(RV_1)*	Doyle (2008)
	Build a long term competitive advantage through superior marketing expertise (e.g. tracking changes in customers' needs) *(RV_2)*	Doyle (2008)
	Build a long term competitive advantage through a strong brand *(RV_3)*	Doyle (2000)
	Build a long term competitive advantage through an enhanced customer base *(RV_4)*	Srivastava, Shervani & Fahey (1998)
	Enter to new markets through investments in R&D *(RV_5)*	Doyle (2000)
	Enter to new markets through positive word of mouth from old customers *(RV_6)*	Srivastava, Shervani & Fahey (1998)

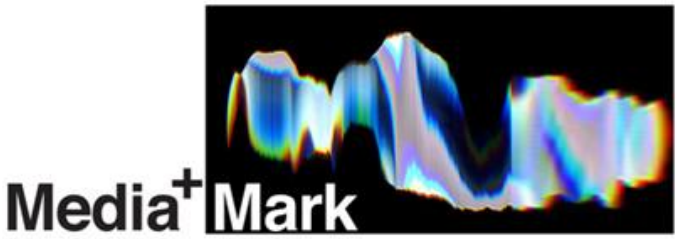
Appendix C. Scale items for assessing Intensity of E-business Adoption

Scale	*Scale items*
Internal Communications[*]	Facilitate internal communication between employees in different departments and different locations
	Regularly update employees about developments within the strategic business unit (SBU)
	Facilitate discussions and feedback on various issues of importance to our SBU
	Manage projects within SBU
	Coordinate new product development teams
Outbound Communications[*]	Provide customers with general information about our SBU (e.g. Via web sites and information boards).
	Allow customers to locate and send information to appropriate contacts within the SBU (e.g. Via accessible online directories/databases)
	Send customers regular updates about new products and other developments within our SBU (e.g. Via e-mail)
	Provide solutions to customer problems (e.g. Via Web-based service solutions)
	Provide information in response to customer questions or requests (e.g. Via searchable online databases)
Inbound Communications[*]	Send suppliers regular updates about new product plans and other new developments within our SBU (e.g. Via e-mail)
	Provide specific online information about product specifications that our suppliers must meet
	Share product and inventory planning information with our suppliers
	Permit suppliers to directly link up to our database (e.g. Via Enterprise Planning/ERP systems)
Internal Administration[*]	Perform financial and managerial accounting
	Provide reimbursements and manage payrolls
	Manage employee benefits
Order Taking[*]	Accept orders electronically from customers
	Accept payments electronically from customers
	Allow customers to track and inquire about their orders electronically

Procurement[*]	Search and locate potential suppliers online
	Place and track orders with suppliers electronically (e.g. Online order placement)
	Allow suppliers to submit bids online
	Use online marketplaces to source supplies
Social Media[**]	Understand customer insights
	Seek new growth areas
	Understand brand perception
	Test advertising and promotion/marketing creative
	Gain insights into the buying experience
	Understand drivers of loyalty
	Product development feedback
Order Fulfillment[***]	Control location and availability of the product
	Manage product delivery
	Manage returned merchandise

Sources: ([*]): Wu et al. 2003; ([**]): American Marketing Association, 2009; ([***]): Muffato & Payaro, 2004.

Appendix D. Online Questionnaire



Sähköisen Liiketoiminnan Arvoajurit Mediateollisuudessa

Kyselyn tarkoituksena on tutkia menestyksekkään verkkoliiketoiminnan arvoajureita mediateollisuudessa. Vastaa kaikkiin tämän kyselyn kohtiin liiketoimintayksikkösi ja valitsemasi päätoimialan näkökulmasta. Mikäli yrityksestäsi ei voida erottaa selkeästi toiminnaltaan tai markkinoiltaan poikkeavia yksiköitä, vastaa koko yrityksen näkökulmasta. Pienten yritysten kohdalla liiketoimintayksikkö ja yritys tarkoittavat yleensä samaa. Huomaa, että esimerkiksi asiakas saattaa omassa liiketoiminnassasi tarkoittaa useampaa toimijaa. Osallistuminen on luottamuksellista. Tutkimuksen tulokset raportoidaan ainoastaan kokonaisuuksina, joista yksittäisiä vastaajia tai yrityksiä on mahdotonta tunnistaa.
Mikäli sinulla on kysyttävää kyselyyn liittyen tai tarvitset lisätietoja, vastaan kysymyksiin mielelläni: Maria Jose del Rio, Maria.delrioolivares@aalto.fi

Osa 1: Taustatiedot

1. Mikä on liiketoimintayksikkönne pääasiallinen toimiala? *

- [ ] Aikakauslehtien kustantaminen
- [ ] Kirjojen kustantaminen
- [ ] Sanomalehtien kustantaminen
- [ ] Painaminen
- [ ] Prepress-Toiminta
- [ ] Sidonta/jälkikäsittely
- [ ] Jakelu- ja Postituspalvelut
- [ ] Koneiden ja Laitteiden maahantuonti
- [ ] Radiotoiminta
- [ ] TV-toiminta
- [x] Muu toiminta:

2. Mikä seuraavista kuvaa parhaiten liiketoimintayksikkönne markkinoita tai päätoimialaa? *

- ( ) Uudet, kehittyvät markkinat
- ( ) Kasvavat markkinat: markkinat ovat vakiintuneet, mutta kasvavat tasaisesti
- ( ) Kypsät markkinat: markkinat ovat vakiintuneet, eikä merkittäviä muutoksia enää tapahdu
- ( ) Taantuvat markkinat: markkinoiden kasvu on kääntynyt laskuun

3. Mikä seuraavista parhaiten kuvaa liiketoimintayksikkönne asemaa päämarkkinoilla? *

- Ainoa yritys markkinoilla
- Markkinajohtaja: Suurin markkinaosuus
- Haastaja: toiseksi tai kolmanneksi suurin markkinaosuus
- Seuraaja: ei kolmen suurimman joukossa

4. Yhtiömuoto *

- Osakeyhtiö
- Julkinen osakeyhtiö
- Muu

5. Liiketoimintayksikkö toimii *

- Paikallisesti / alueellisesti
- Kansallisesti
- Kansainvälisesti

Keskeytä ja jatka myöhemmin

Osa 2: Sähköisen liiketoiminnan hyödyntäminen (1/2)

Seuraavassa pyydämme arvioimaan sähköisen liiketoiminnan työkalujen (esim. verkkokauppa, asiakaspalvelua tarjoavat web-sivut, intranet, ekstranet) käyttöä liiketoimintayksikössänne yhdistämään asiakkaita, tavarantoimittajia, yhteistyökumppaneita ja työntekijöitä internetin avulla.

Sisäinen viestintä

6. Käytämme sähköisen liiketoiminnan työkaluja: *

	ei lainkaan käytössä						käytössä hyvin laajasti	en osaa sanoa
Helpottamaan sisäistä viestintää eri yksiköiden ja toimipisteiden välillä	◉	○	○	○	○	○	○	○
Pitääksemme työntekijämme jatkuvasti ajan tasalla kehityksistä liiketoimintayksikkömme sisällä	◉	○	○	○	○	○	○	○
Helpottamaan palautteen antoa ja keskustelua erinäisistä liiketoimintayksiköllemme tärkeistä asioista	◉	○	○	○	○	○	○	○
Projektien hallinnointiin liiketoimintayksikön sisällä	◉	○	○	○	○	○	○	○
Uusien tuotteiden kehitykseen keskittyvien tiimien koordinointiin	◉	○	○	○	○	○	○	○

Ulkoinen viestintä

7. Käytämme sähköisen liiketoiminnan työkaluja: *

	ei lainkaan käytössä						käytössä hyvin laajasti	en osaa sanoa
Tarjotaksemme asiakkaille yleistä tietoa liiketoimintayksiköstämme (esim. web-sivut ja sähköiset infotaulut)	◉	○	○	○	○	○	○	○
Mahdollistamaan asiakkaille oikeiden henkilöiden tunnistamisen ja kontaktoinnin liiketoimintayksikön sisällä (esim. tarjolla olevien verkkohakemistojen tai-tietokantojen kautta)	◉	○	○	○	○	○	○	○
Säännöllisten päivitysten uusista tuotteista ja muusta kehityksestä liiketoimintayksikön sisällä lähettämiseen asiakkaille (esim. sähköpostitse)	◉	○	○	○	○	○	○	○
Ratkaisujen tarjoamiseen asiakkaan ongelmiin (esim. web-pohjaisten palveluratkaisujen kautta)	◉	○	○	○	○	○	○	○
Tukipalvelujen tarjoamiseen asiakkaille (esim. verkossa olevaa tietoa asennuksesta ja vianmäärityksestä)	◉	○	○	○	○	○	○	○
Asiakkaan kysymyksiin tai toiveisiin vastaamiseen (esim. haut verkkotietokannoista)	◉	○	○	○	○	○	○	○

Viestintä yhteistyökumppanien kanssa

8. Käytämme sähköisen liiketoiminnan työkaluja: *

	ei lainkaan käytössä						käytössä hyvin laajasti	en osaa sanoa
Säännöllisten päivitysten uusista tuotesuunnitelmista ja muusta kehityksestä liiketoimintayksikössämme lähettämiseen tavarantoimittajillemme (esim. sähköpostitse)	◉	○	○	○	○	○	○	○
Tuotteidemme tarkkojen spesifikaatioden, jotka tavarantoimittajiemme on täytettävä, tarjoamiseen verkossa	◉	○	○	○	○	○	○	○
Tuote- ja inventaariosuunnitteluinformaation jakamiseen toimittajiemme (supplier) kanssa	◉	○	○	○	○	○	○	○
Antaaksemme tavarantoimittajillemme mahdollisuuden kytkeytyä suoraan tietokantaamme (esim. Enterprise planning/ERP systems)	◉	○	○	○	○	○	○	○

Sisäinen hallinto

9. Käytämme sähköisen liiketoiminnan työkaluja: *

	ei lainkaan käytössä					käytössä hyvin laajasti	en osaa sanoa
Kirjanpitoon ja taloushallintoon	◉	○	○	○	○	○	○	○
Kulukorvausten ja palkanlaskun hallinnointiin	◉	○	○	○	○	○	○	○
Työsuhde-etujen hallinnointiin	◉	○	○	○	○	○	○	○

Keskeytä ja jatka myöhemmin

Tilauksien seuranta

10. Käytämme sähköisen liiketoiminnan työkaluja: *

	ei lainkaan käytössä					käytössä hyvin laajasti	en osaa sanoa
Asiakkaiden tilausten vastaanottamiseen sähköisesti	◉	○	○	○	○	○	○	○
Asiakkaiden maksujen vastaanottamiseen sähköisesti	◉	○	○	○	○	○	○	○
Tilausten sähköisen seurannan ja tilauksia koskevien tiedusteluiden mahdollistamiseen asiakkaille	◉	○	○	○	○	○	○	○

Hankinta

11. Käytämme sähköisen liiketoiminnan työkaluja: *

	ei lainkaan käytössä					käytössä hyvin laajasti	en osaa sanoa
Potentiaalistentavarantoimittajien etsimiseen verkossa	◉	○	○	○	○	○	○	○
Tilausten tekemiseen toimittajiltamme ja näiden seuraamiseen sähköisesti (esim. verkkotilaukset)	◉	○	○	○	○	○	○	○
Sähköisten tarjousten mahdollistamiseen tavarantoimittajillemme	◉	○	○	○	○	○	○	○
Tarvikkeiden hankkimiseen sähköisiä markkinapaikkoja käyttäen	◉	○	○	○	○	○	○	○

Sosiaalinen media

12. Käytämme sähköisen liiketoiminnan työkaluja: *

	ei lainkaan käytössä						käytössä hyvin laajasti	en osaa sanoa
Ymmärtääksemme asiakkaiden näkemyksiä	◉	○	○	○	○	○	○	○
Uusien kasvualueide etsimiseen	◉	○	○	○	○	○	○	○
Ymmärtääksemme brändikuvaamme	◉	○	○	○	○	○	○	○
Mainonnan ja myynninedistämiskeinojen/luovan markkinoinnin testaamiseen	◉	○	○	○	○	○	○	○
Saadaksemme tietoa ja ymmärrystä ostokokemuksesta	◉	○	○	○	○	○	○	○
Ymmärtääksemme asiakasuskollisuuden ajureita	◉	○	○	○	○	○	○	○
Palautteen keräämiseen tuotekehitystä varten	◉	○	○	○	○	○	○	○

Tilausten täyttäminen

13. Käytämme sähköisen liiketoiminnan työkaluja: *

	ei lainkaan käytössä						käytössä hyvin laajasti	en osaa sanoa
Tuotteen sijainnin ja saatavuuden hallinnointiin	◉	○	○	○	○	○	○	○
Tuotteen toimitusten hallinnointiin	◉	○	○	○	○	○	○	○
Palautettujen tuotteiden hallinnointiin	◉	○	○	○	○	○	○	○

Keskeytä ja jatka myöhemmin

Osa 3: Internetin rooli liiketoiminnassa

14. Missä määrin läsnäolo ja toiminnot verkossa ovat parantaneet liiketoimintayksikkönne tehokkuutta seuraavilta osin? *

	ei yhtään						hyvin paljon	en osaa sanoa
Pienentämällä päivittäisiä operointikustannuksia	◉	○	○	○	○	○	○	○
Pienentämällä myynti – ja myynninedistämiskustannuksia	◉	○	○	○	○	○	○	○
Pienentämällä kehityskustannuksia	◉	○	○	○	○	○	○	○
Parantamalla tiedonkulkua asiakkailta ja asiakkaille (esim. Tuotekuvaukset, ajan tasalla oleva tieto verkkotilauksista)	◉	○	○	○	○	○	○	○
Parantamalla tiedonkulkua yrityksen ja muiden sidosryhmien välillä (esim. tavaravirroista, investointipäätöksistä, tiedonkäsittelystä)	◉	○	○	○	○	○	○	○
Mahdollistamalla suuremman valikoiman tuotteita ja palveluita tarjoamisen (ei hyllytilarajoitteita)	◉	○	○	○	○	○	○	○
Integroimalla toimitusketjun toiminnot, virtaviivaistamalla toimitusketjun toiminta	◉	○	○	○	○	○	○	○

15. Missä määrin läsnäolo ja toiminnot verkossa ovat täydentäneet liiketoimintayksikkönne toimintaa seuraavilta osin? *

	ei yhtään						hyvin paljon	en osaa sanoa
Tarjoamalla helpommin tuotteita, palveluita ja informaatiota eri sidosryhmille (esim. yrityksen sisäisille sidosryhmille, yhteistyöyrityksille, asiakkaille)	◉	○	○	○	○	○	○	○
Kehittämällä yhteisiä, pitkälti erikoistuneita resursseja yhteistyössä muiden yritysten kanssa (esim. T&K ja suunnitteluhankkeet, jotka edellyttävät tietotaidon jakamista)	◉	○	○	○	○	○	○	○
Koordinoimalla toimitusketjun toimintoja	◉	○	○	○	○	○	○	○
Edistämällä ristiinmyyntiä (olemassa olevalle asiakkaalle myydään lisätuote tai –palvelu)	◉	○	○	○	○	○	○	○

16. Missä määrin läsnäolo ja toiminnot verkossa ovat parantaneet liiketoimintayksikkönne liikesuhteita seuraavilta osin? *

	ei yhtään						hyvin paljon	en osaa sanoa
Parantamalla suhteita strategisiin yhteistyökumppaneihin (tehokkaamman viestinnän kautta)	◉	○	○	○	○	○	○	○
Kannattavien asiakkaiden hankkimisen ja säilyttämisen kautta	◉	○	○	○	○	○	○	○
Lisäämällä asiakastyytyväisyyttä (tarjoamalla asiakkaille kanavia välittömään palautteenantoon ja viestintään)	◉	○	○	○	○	○	○	○
Edistämällä viitemarkkinointia tai suosittelua (ts. promotoimalla tuotteita tai palveluita uusille asiakkaille vanhojen asiakkaiden suosittelun (word of mouth) kautta)	◉	○	○	○	○	○	○	○
Edistämällä tuotteiden, palveluiden ja kokemusten räätälöintiä	◉	○	○	○	○	○	○	○
Edistämällä lisämyyntiä	◉	○	○	○	○	○	○	○
Rakentamalla brändin imagoa ja persoonallisuutta	◉	○	○	○	○	○	○	○
Saamalla asiakkaat osallistumaan yhteisöihin	◉	○	○	○	○	○	○	○

17. Missä määrin läsnäolo ja toiminnot verkossa ovat parantaneet liiketoimintayksikön uutuusarvoa seuraavilta osin? *

	ei yhtään						hyvin paljon	en osaa sanoa
Helpottamalla uusien prosessien ja ratkaisujen lanseerausta	◉	○	○	○	○	○	○	○
Helpottamalla uusien tarjoomien lanseerausta	◉	○	○	○	○	○	○	○
Mahdollistamalla uusien markkinoiden luomisen ja kasvattamisen sekä laajentamisen uusille markkinoille	◉	○	○	○	○	○	○	○
Mahdollistamalla uusia maksutapoja	◉	○	○	○	○	○	○	○
Mahdollistamalla edelläkävijän etulyöntiaseman hyödyntämisen pitemmällä tähtäimellä (esim. Kasvattamalla mainetta, vaihtokustannuksia, tunnettuutta asiakkaiden keskuudessa)	◉	○	○	○	○	○	○	○
Tavoittamalla yhteisöjen kautta asiakkaiden piileviä tarpeita	◉	○	○	○	○	○	○	○

Keskeytä ja jatka myöhemmin

Osa 4: Liiketoiminnan Arvoajurit

Kassavirtojen nopeuttaminen

18. Miten arvioitte liiketoimintayksikkönne kykyä nopeuttaa kassavirtoja:
*****

	Huomattavasti heikompi kuin kilpailijoilla	Heikompi kuin kilpailijoilla	Jonkin verran heikompi kuin kilpailijoilla	Ei eroa kilpailijoihin nähden	Jonkin verran parempi kuin kilpailijoilla	Parempi kuin kilpailijoilla	Huomattavasti parempi kuin kilpailijoilla	En osaa sanoa
Kehittämällä uusia tuotteita nopeammin	◉	○	○	○	○	○	○	○
Käyttämällä hintatarjouksia	◉	○	○	○	○	○	○	○
Hyödyntämällä positiivista bränditietoisuutta markkinointitoimien vastaanottoherkkyyden kasvattamiseksi	◉	○	○	○	○	○	○	○
Hyödyntämällä olemassa olevia verkostoja yhteistyökumppaneiden kanssa (esim. vastataksenne nopeammin markkinoiden tarpeisiin)	◉	○	○	○	○	○	○	○
Luomalla kannusteita jakelun nopeuttamiseksi ja tehostamiseksi	◉	○	○	○	○	○	○	○
Houkuttelemalla varhaisia omaksujia (henkilöitä, jotka aloittavat uuden tuotteen tai teknologian käytön heti sen tullessa saataville)	◉	○	○	○	○	○	○	○

Kassavirtojen vahvistaminen

19. Miten arvioitte liiketoimintayksikkönne kykyä:

*

	Huomattavasti heikompi kuin kilpailijoilla	Heikompi kuin kilpailijoilla	Jonkin verran heikompi kuin kilpailijoilla	Ei eroa kilpailijoihin nähden	Jonkin verran parempi kuin kilpailijoilla	Parempi kuin kilpailijoilla	Huomattavasti parempi kuin kilpailijoilla	En osaa sanoa
Kasvattaa myyntiä brändilaajennusten kautta (luomalla tuotteita uusiin tuoteryhmiin käyttäen samaa brändinimeä)	◉	○	○	○	○	○	○	○
Kasvattaa myyntiä yhteishankkeilla strategisten yhteistyökumppaneiden kanssa (esim. yhteisbrändäys, yhteismarkkinointi)	◉	○	○	○	○	○	○	○
Kasvattaa myyntiä hankkimalla uusia asiakkaita	◉	○	○	○	○	○	○	○
Veloittaa korkeampia hintoja olemassaolevista tuotteista kehittämällä niistä kalliimpia/korkeampikatteisia versioita	◉	○	○	○	○	○	○	○
Veloittaa korkeampia hintoja vahvan ja erottuvan brändin avulla	◉	○	○	○	○	○	○	○
Pienentää kustannuksia yksinkertaistamalla tarjoamaa käyttäen hyödyksi markkinainformaatioita	◉	○	○	○	○	○	○	○
Pienentää kustannuksia tarkoituksenmukaisen toimitusketjun hallinnan kautta (esim. JIT tekniikat)	◉	○	○	○	○	○	○	○

Kassavirtoihin liittyvä riski ja kassavirtojen epävakaisuus

(Tässä kysymyksessä, arvioikaa liiketoimintayksikkönne kykyä **vähentää epävakaisuutta** -heilahtelua kassavirroissa-**ja riskiä** -mitä tahansa tapahtumia, jotka vaikuttavat negatiivisesti kassavirtoihin- seuraavilla tavoilla)

20. Miten arvioisitte liiketoimintayksikkönne kykyä vähentää kassavirtojen riskiä ja epävakaisuutta: *

	Huomattavasti heikompi kuin kilpailijoilla	Heikompi kuin kilpailijoilla	Jonkin verran heikompi kuin kilpailijoilla	Ei eroa kilpailijoihin nähden	Jonkin verran parempi kuin kilpailijoilla	Parempi kuin kilpailijoilla	Huomattavasti parempi kuin kilpailijoilla	En osaa sanoa
Pitkäaikaisilla sopimuksilla asiakkaiden kanssa	◉	○	○	○	○	○	○	○
Vahvoilla sidoksilla asiakkaisiin	◉	○	○	○	○	○	○	○
Hyvillä suhteilla tuotantoketjun yhteistyökumppaneiden kanssa	◉	○	○	○	○	○	○	○
Välttämällä liiallisia hintatarjouksia	◉	○	○	○	○	○	○	○
Tarjoamalla asiakkaille laajempi valikoima tuotteita (ts. olematta riippuvainen yhdestä tuotteesta)	◉	○	○	○	○	○	○	○
Keskittymällä jatkuvasti erottautumaan kilpailijoista	◉	○	○	○	○	○	○	○

Kassavirtojen jäännösarvo

(Tässä kysymyksessä, arvioikaa liiketoimintayksikkönne kykyä **luoda arvoa pitkällä tähtäimellä** seuraavilla tavoilla)

21. Miten arvioisit liiketoimintayksikkönne kykyä: *

	Huomattavasti heikompi kuin kilpailijoilla	Heikompi kuin kilpailijoilla	Jonkin verran heikompi kuin kilpailijoilla	Ei eroa kilpailijoihin nähden	Jonkin verran parempi kuin kilpailijoilla	Parempi kuin kilpailijoilla	Huomattavasti parempi kuin kilpailijoilla	En osaa sanoa
Rakentaa **pitkän tähtäimen kilpailuetua** uusien arvon lähteiden kautta (esim. IT, markkinointikonseptit, jakelukanavat)	◉	○	○	○	○	○	○	○
Rakentaa**pitkän tähtäimen kilpailuetua** etua paremman markkinointiosaamisen kautta (esim. asiakkaiden tarpeiden muutosten seuranta)	◉	○	○	○	○	○	○	○
Rakentaa**pitkän tähtäimen kilpailuetua** etua vahvan brändin kautta	◉	○	○	○	○	○	○	○
Rakentaa**pitkän tähtäimen kilpailuetua** valikoidumman asiakaskunnan kautta	◉	○	○	○	○	○	○	○
Laajentaa**uusille markkinoille**T&K-investointien kautta	◉	○	○	○	○	○	○	○
Laajentaa**uusille markkinoille** vanhojen asiakkaiden suosittelun kautta	◉	○	○	○	○	○	○	○

Keskeytä ja jatka myöhemmin

22. Pyydämme vielä arvioimaan, miten yksikkönne menestys suhteutuu tärkeimpiin kilpailijoihin nähden? *

	merkittävästi huonompi kuin kilpailijoilla						merkittävästi parempi kuin kilpailijoilla
Liikevaihto	◉	○	○	○	○	○	○
Myynti	◉	○	○	○	○	○	○
Kulut	◉	○	○	○	○	○	○
Nettovoitto	◉	○	○	○	○	○	○
Markkinaosuus	◉	○	○	○	○	○	○
Kokonaispääoman tuottoprosentti (ROA)	◉	○	○	○	○	○	○
Sijoitetun pääoman tuottoprosentti (ROI)	◉	○	○	○	○	○	○

23. Mikä on liiketoimintayksikkönne vuotuinenliikevaihto tuoreimpien julkaistujen lukujen mukaan (euroa) *

- ◉ 0-200 000 euroa
- ○ 200 000 - 500 000 euroa
- ○ 500 000 - 1 Milj. euroa
- ○ 1 -2 Milj. euroa
- ○ 2-5 Milj. euroa
- ○ 5-10 Milj. euroa
- ○ 10-20 Milj. euroa
- ○ 20-50 Milj. euroa
- ○ 50-100 Milj. euroa
- ○ 100-200 Milj. euroa
- ○ 200-500 Milj. euroa
- ○ 500 M - 2 Mrd. euroa
- ○ 2- 10 Mrd. euroa
- ○ 10 - 20 Mrd. euroa
- ○ 20-50 Mrd. euroa
- ○ En osaa sanoa

24. Mikä on ollut liiketoimintayksikkönnevuotuinen liikevaihdon kasvu viimeisen kahden vuoden aikana (kahden viimeisen vuoden keskiarvo)? *

- (●) Liikevaihtomme on kasvanut +500% tai enemmän vuotuisesti
- ( ) Liikevaihtomme on kasvanut + 200...+500% vuotuisesti
- ( ) Liikevaihtomme on kasvanut + 100...+200% vuotuisesti
- ( ) Liikevaihtomme on kasvanut + 75...+100% vuotuisesti
- ( ) Liikevaihtomme on kasvanut + 50...+75% vuotuisesti
- ( ) Liikevaihtomme on kasvanut + 30...+50% vuotuisesti
- ( ) Liikevaihtomme on kasvanut + 20...+30% vuotuisesti
- ( ) Liikevaihtomme on kasvanut + 15...+20% vuotuisesti
- ( ) Liikevaihtomme on kasvanut + 10...+15% vuotuisesti
- ( ) Liikevaihtomme on kasvanut + 7...+10% vuotuisesti
- ( ) Liikevaihtomme on kasvanut + 5...+7% vuotuisesti
- ( ) Liikevaihtomme on kasvanut + 3...+5% vuotuisesti
- ( ) Liikevaihtomme on kasvanut + 1...+3% vuotuisesti
- ( ) Liikevaihtomme on pysynyt samana
- ( ) Liikevaihtomme on pienentynyt - 1...-3% vuotuisesti
- ( ) Liikevaihtomme on pienentynyt - 3...-5% vuotuisesti
- ( ) Liikevaihtomme on pienentynyt -5...-7% vuotuisesti
- ( ) Liikevaihtomme on pienentynyt - 7...-10% vuotuisesti
- ( ) Liikevaihtomme on pienentynyt - 10...-15% vuotuisesti
- ( ) Liikevaihtomme on pienentynyt - 15...-20% vuotuisesti
- ( ) Liikevaihtomme on pienentynyt - 20...-30% vuotuisesti
- ( ) Liikevaihtomme on pienentynyt - 30...-50% vuotuisesti
- ( ) Liikevaihtomme on pienentynyt 50% tai enemmän vuotuisesti
- ( ) En osaa sanoa

25. Mikä on liiketoimintayksikkönne liikevoittoprosentti tuoreimpien julkaistujen lukujen mukaan? *

- (●) Alle -50%
- ( ) -50% - (-25%)
- ( ) -25% - (-15%)
- ( ) -15 % - (-8%)
- ( ) -8% - (-3%)
- ( ) -3% - 0%
- ( ) 0% - 3%
- ( ) 3% - 8%
- ( ) 8% - 15%
- ( ) 15% - 25%
- ( ) 25% - 50%
- ( ) Yli 50%
- ( ) En osaa sanoa

26. Mikä on liiketoimintayksikkönne sijoitetun pääoman tuottoprosentti (ROI) tuoreimpien julkaistujen lukujen mukaan: *

- (•) Alle -50%
- ( ) -50% - (-25%)
- ( ) -25% - (-15%)
- ( ) -15 % - (-8%)
- ( ) -8% - (-3%)
- ( ) -3% - 0%
- ( ) 0% - 3%
- ( ) 3% - 8%
- ( ) 8% - 15%
- ( ) 15% - 25%
- ( ) 25% - 50%
- ( ) Yli 50%
- ( ) En osaa sanoa

27. Miten liiketoimintayksikkönne liikevoittoprosentti on kehittynyt viimeisen kahden vuoden aikana?

- (•) Liikevoittoprosenttimme on pienentynyt huomattavasti
- ( ) Liikevoittoprosenttimme on pienentynyt kohtuullisesti
- ( ) Liikevoittoprosenttimme on pienentynyt hieman
- ( ) Liikevoittoprosenttimme on pysynyt samana
- ( ) Liikevoittoprosenttimme on kasvanut hieman
- ( ) Liikevoittoprosenttimme on kasvanut kohtuullisesti
- ( ) Liikevoittoprosenttimme on kasvanut huomattavasti

28. Miten liiketoimintayksikkönne sijoitetun pääoman tuottoprosentti (ROI%) on kehittynyt viimeisen kahden vuoden aikana?

- (•) Sijoitetun pääoman tuottoprosenttimme on pienentynyt huomattavasti
- ( ) Sijoitetun pääoman tuottoprosenttimme on pienentynyt kohtuullisesti
- ( ) Sijoitetun pääoman tuottoprosenttimme on pienentynyt hieman
- ( ) Sijoitetun pääoman tuottoprosenttimme on pysynyt samana
- ( ) Sijoitetun pääoman tuottoprosenttimme on kasvanut hieman
- ( ) Sijoitetun pääoman tuottoprosenttimme on kasvanut kohtuullisesti
- ( ) Sijoitetun pääoman tuottoprosenttimme on kasvanut huomattavasti

29.

Yhteystiedot

Haluamme vielä muistuttaa vastausten luottamuksellisesta käsittelystä. Kyselyn tulokset raportoidaan ainoastaan kokonaisuuksina, joista yksittäisiä vastaajia tai yrityksiä on mahdotonta tunnistaa. Raportti kyselyn alustavista tuloksista toimitetaan vastaajille annettujen yhteystietojen perusteella

Sähköpostiosoite *

Puhelinnumero

Asema organisaatiossa (tehtävänimike) *

Yrityksen ja edustamanne liiketoimintayksikön nimi *

Vastaajan nimi *

Keskeytä ja jatka myöhemmin

<-- Edellinen Lähetä

Appendix E. Missing Data & imputation

Little´s MCAR test

Chi Square: 1664. 282

df: 1712

Significance: 0.792

Value Drivers: EM Imputed Means

EM Means[a]

EFF1	EFF2	EFF3	EFF4	EFF5	EFF6	EFF7	COM1	COM2	COM3
3.91	3.59	2.63	4.19	3.53	3.02	3.36	4.10	2.73	3.35
COM4	LI1	LI2	LI3	LI4	LI5	LI6	LI7	LI8	NO1
3.28	3.84	3.73	4.01	3.30	3.20	3.77	4.02	3.33	3.71
NO2	NO3	NO4	NO5	NO6					
3.82	3.54	3.19	3.42	3.12					

ACF: Expectation Maximization Means

EM Means[a]

ACF1	ACF2	ACF3	ACF4	ACF6
4.26	4.14	4.63	4.52	4.22

ECF: Expectation Maximization Means

EM Means[a]

ECF1	ECF2	ECF3	ECF4	ECF5	ECF6	ECF7
4.53	4.32	4.58	4.37	4.49	4.11	4.28

RCF: Expectation Maximization Means

EM Means[a]

RCF1	RCF2	RCF3	RCF4	RCF5	RCF6
4.32	4.96	4.61	4.53	4.47	4.83

RV: Expectation Maximization Means

EM Means[a]

RV1	RV2	RV3	RV4	RV5	RV6
4.54	4.34	4.79	4.74	4.15	4.68

Financial Outcomes: Expectation Maximization Means

EM Means[a]

Turnover	Sales	Costs	NetProfit	MarketShare	ROA	ROI
4.10	4.13	4.16	4.27	4.29	4.13	4.11

SHV: Expectation Maximization Means

EM Means[a]

Sales Growth	DOP	DROI
12.71	4.17	4.30

Appendix F. Correlation between Value Drivers of E-Business

	compl	lockin	novelty	efficien
compl	1.000			
lockin	0.955	1.000		
novelty	0.952	0.953	1.000	
efficien	0.950	0.938	0.919	1.000

Appendix G. LISREL Output for Model 1.

Measurement Model

Total Sample Size(N) = 70

Univariate Summary Statistics for Continuous Variables

Variable	Mean	St. Dev.	Skewness	Kurtosis	Minimum	Freq.	Maximum	Freq.
EFF1	3.913	1.839	0.103	-0.700	1.000	8	8.497	1
EFF3	2.628	1.430	0.576	-0.594	1.000	19	6.000	2
EFF4	4.190	1.901	-0.223	-1.268	1.000	6	7.000	7
EFF6	3.015	2.055	0.688	-0.886	1.000	23	7.000	6
EFF7	3.360	1.897	0.187	-1.271	1.000	17	7.000	2
COM1	4.104	1.792	-0.151	-1.032	1.000	6	7.000	6
COM2	2.730	1.709	0.503	-1.154	1.000	24	6.000	5
COM3	3.352	1.798	0.176	-1.165	1.000	15	7.000	2
LI1	3.841	1.839	0.130	-1.094	1.000	7	7.385	1
LI6	3.768	1.749	0.108	-1.295	1.000	4	7.000	3
LI7	4.018	1.802	-0.128	-1.274	1.000	5	7.000	4
LI8	3.327	2.026	0.279	-1.369	1.000	19	7.000	4
NO1	3.707	1.847	-0.049	-1.260	1.000	11	7.000	3
NO3	3.543	1.819	-0.031	-1.259	1.000	14	7.000	2
NO5	3.423	1.811	0.236	-0.953	1.000	14	7.000	4
ACF3	4.633	1.113	0.012	-0.149	2.000	2	7.000	3
ACF4	4.520	1.057	0.173	0.017	2.000	2	7.000	2
ACF6	4.224	1.064	0.542	0.567	2.000	3	7.000	2
ECF1	4.525	1.115	-0.574	1.160	1.000	1	7.000	2
ECF3	4.585	1.043	-0.193	1.767	1.000	1	7.000	3
ECF4	4.362	1.079	-0.349	0.727	1.000	1	7.000	1
RCF2	4.957	1.069	-0.059	0.414	2.000	2	7.000	6
RCF3	4.606	0.889	-0.139	1.188	2.000	2	7.000	1
RCF6	4.829	1.191	0.077	-0.274	2.000	2	7.000	7
Turnover	4.100	1.385	-0.319	0.390	1.000	5	7.000	3
Sales	4.129	1.444	-0.439	0.257	1.000	6	7.000	3
Costs	4.157	1.326	0.048	-0.350	1.000	1	7.000	3
NetProfi	4.271	1.474	-0.151	-0.227	1.000	2	7.000	6
MarketSh	4.293	1.379	0.030	-0.295	1.000	2	7.000	4
ROA	4.129	1.307	-0.084	-0.307	1.000	1	7.000	2
ROI	4.108	1.348	-0.017	-0.097	1.000	2	7.000	3

Test of Univariate Normality for Continuous Variables

	Skewness		Kurtosis		Skewness and Kurtosis	
Variable	Z-Score	P-Value	Z-Score	P-Value	Chi-Square	P-Value
EFF1	0.372	0.710	-1.628	0.104	2.789	0.248
EFF3	1.985	0.047	-1.260	0.208	5.525	0.063
EFF4	-0.803	0.422	-5.089	0.000	26.540	0.000
EFF6	2.326	0.020	-2.415	0.016	11.241	0.004
EFF7	0.674	0.500	-5.117	0.000	26.643	0.000
COM1	-0.547	0.584	-3.209	0.001	10.598	0.005
COM2	1.754	0.079	-4.053	0.000	19.504	0.000
COM3	0.635	0.525	-4.140	0.000	17.540	0.000
LI1	0.472	0.637	-3.612	0.000	13.269	0.001
LI6	0.391	0.696	-5.379	0.000	29.086	0.000
LI7	-0.465	0.642	-5.143	0.000	26.670	0.000
LI8	1.000	0.317	-6.304	0.000	40.738	0.000
NO1	-0.178	0.859	-5.006	0.000	25.093	0.000
NO3	-0.112	0.911	-4.996	0.000	24.971	0.000
NO5	0.851	0.395	-2.754	0.006	8.309	0.016
ACF3	0.043	0.965	-0.092	0.926	0.010	0.995
ACF4	0.627	0.531	0.236	0.813	0.449	0.799
ACF6	1.879	0.060	1.088	0.277	4.714	0.095
ECF1	-1.980	0.048	1.748	0.080	6.974	0.031
ECF3	-0.696	0.487	2.260	0.024	5.590	0.061
ECF4	-1.241	0.214	1.286	0.198	3.196	0.202
RCF2	-0.215	0.830	0.880	0.379	0.822	0.663

```
     RCF3 -0.502   0.615     1.774   0.076        3.400   0.183
     RCF6  0.279   0.780    -0.372   0.710        0.217   0.897
Turnover  -1.139   0.255     0.847   0.397        2.014   0.365
   Sales  -1.546   0.122     0.646   0.519        2.807   0.246
   Costs   0.176   0.860    -0.558   0.577        0.342   0.843
NetProfi  -0.547   0.584    -0.263   0.792        0.368   0.832
MarketSh   0.109   0.913    -0.423   0.672        0.191   0.909
     ROA  -0.306   0.760    -0.452   0.652        0.297   0.862
     ROI  -0.061   0.951     0.014   0.989        0.004   0.998

Relative Multivariate Kurtosis = 1.026

Test of Multivariate Normality for Continuous Variables

            Skewness                   Kurtosis           Skewness and Kurtosis

     Value  Z-Score P-Value     Value  Z-Score P-Value      Chi-Square P-Value
    ------  ------- -------   -------  ------- -------      ---------- -------
   524.805    6.145   0.000  1049.277    3.924   0.000          53.163   0.000

Latent Variables  fo rcf ecf acf valued
Relationships
EFF1 = valued
EFF3 = valued
EFF4 = valued
EFF6 = valued
EFF7 = valued
COM1 = valued
COM2 = valued
COM3 = valued
LI1 = 1.00*valued
LI6 = valued
LI7 = valued
LI8 = valued
NO1 = valued
NO3 = valued
NO5 = valued
ACF3 = 1.00*acf
ACF4 = acf
ACF6 = acf
ECF1 = 1.00*ecf
ECF3 = ecf
ECF4 = ecf
RCF2 = rcf
RCF3 = rcf
RCF6 = rcf
Costs = fo
NetProfi = fo
ROA = 1.00*fo
ROI = fo
Path Diagram
End of Problem

Sample Size =    70


        Covariance Matrix

              EFF1       EFF3       EFF4       EFF6       EFF7       COM1
            --------   --------   --------   --------   --------   --------
    EFF1      3.383
    EFF3      1.764      2.044
    EFF4      2.654      1.930      3.612
    EFF6      2.267      1.760      2.549      4.223
    EFF7      2.455      1.601      2.784      2.332      3.597
    COM1      1.869      1.433      2.723      2.242      2.165      3.210
    COM2      1.750      1.429      1.988      1.961      1.925      1.440
    COM3      2.200      1.668      2.448      1.870      2.518      2.006
     LI1      2.300      1.640      2.537      2.212      2.094      1.879
     LI6      1.841      1.380      2.606      2.147      2.061      2.032
     LI7      2.467      1.823      2.923      2.336      2.458      2.260
     LI8      2.555      1.749      3.041      2.492      2.658      2.452
     NO1      2.199      1.642      2.733      2.526      2.247      2.133
     NO3      2.366      1.673      2.593      2.739      2.371      2.117
```

NO5	2.182	1.414	2.334	2.303	1.990	1.692
ACF3	0.387	0.183	0.432	0.634	0.390	0.649
ACF4	0.522	0.407	0.664	0.728	0.373	0.619
ACF6	0.680	0.430	0.624	0.652	0.331	0.648
ECF1	0.510	0.277	0.679	0.423	0.560	0.596
ECF3	0.102	-0.044	0.253	0.231	0.186	0.256
ECF4	0.045	-0.032	0.122	0.013	-0.137	0.117
RCF2	0.243	0.222	0.395	0.094	0.178	0.189
RCF3	0.164	0.059	0.359	0.190	0.169	0.284
RCF6	0.551	0.177	0.487	0.184	0.289	0.409
Costs	-0.219	-0.049	-0.291	0.091	-0.469	-0.046
NetProfi	0.219	0.037	0.431	0.655	0.371	0.613
ROA	0.148	0.117	0.352	0.694	0.361	0.367
ROI	0.010	-0.054	0.271	0.385	0.177	0.212

Covariance Matrix

	COM2	COM3	LI1	LI6	LI7	LI8
COM2	2.920					
COM3	1.963	3.234				
LI1	1.941	2.239	3.382			
LI6	1.649	2.002	2.114	3.060		
LI7	1.842	2.352	2.450	2.510	3.248	
LI8	2.015	2.646	2.818	2.647	2.999	4.104
NO1	1.985	2.200	2.321	2.399	2.568	2.856
NO3	2.004	2.192	2.092	2.121	2.646	2.593
NO5	1.874	2.152	2.158	2.223	2.526	2.615
ACF3	0.351	0.319	0.647	0.565	0.504	0.608
ACF4	0.446	0.431	0.798	0.407	0.601	0.643
ACF6	0.292	0.526	0.733	0.582	0.732	0.739
ECF1	0.456	0.635	0.490	0.403	0.668	0.513
ECF3	0.068	0.264	0.212	0.163	0.180	0.079
ECF4	0.041	0.091	0.218	0.074	0.112	-0.063
RCF2	0.038	0.270	0.532	0.201	0.254	0.246
RCF3	0.093	0.202	0.354	0.264	0.233	0.158
RCF6	0.314	0.308	0.425	0.261	0.441	0.376
Costs	0.159	-0.151	-0.190	-0.093	-0.307	-0.399
NetProfi	0.550	0.234	0.150	0.452	0.288	0.025
ROA	0.583	0.154	0.158	0.233	0.143	-0.101
ROI	0.456	0.062	-0.046	0.186	0.058	-0.187

Covariance Matrix

	NO1	NO3	NO5	ACF3	ACF4	ACF6
NO1	3.411					
NO3	2.534	3.308				
NO5	2.349	2.388	3.280			
ACF3	0.711	0.537	0.542	1.238		
ACF4	0.776	0.706	0.527	0.668	1.118	
ACF6	0.634	0.593	0.552	0.597	0.514	1.132
ECF1	0.728	0.859	0.416	0.590	0.546	0.537
ECF3	0.275	0.476	0.182	0.465	0.416	0.402
ECF4	0.149	0.055	0.068	0.506	0.237	0.486
RCF2	0.416	0.230	0.201	0.610	0.582	0.281
RCF3	0.394	0.217	0.219	0.433	0.463	0.352
RCF6	0.536	0.544	0.212	0.675	0.599	0.515
Costs	0.037	0.054	0.051	0.314	0.252	0.105
NetProfi	0.586	0.472	0.489	0.473	0.384	0.086
ROA	0.684	0.555	0.377	0.359	0.432	0.023
ROI	0.464	0.322	0.240	0.437	0.364	0.072

Covariance Matrix

	ECF1	ECF3	ECF4	RCF2	RCF3	RCF6
ECF1	1.243					
ECF3	0.673	1.088				
ECF4	0.684	0.666	1.165			
RCF2	0.447	0.534	0.441	1.143		
RCF3	0.396	0.481	0.243	0.577	0.789	
RCF6	0.824	0.755	0.609	0.630	0.439	1.419
Costs	0.202	0.298	0.213	0.210	0.361	0.245
NetProfi	0.342	0.507	0.394	0.186	0.346	0.250

ROA	0.381	0.418	0.325	0.266	0.385	0.240
ROI	0.230	0.480	0.416	0.418	0.469	0.265

Covariance Matrix

	Costs	NetProfi	ROA	ROI
Costs	1.758			
NetProfi	1.203	2.172		
ROA	1.066	1.617	1.708	
ROI	0.910	1.536	1.479	1.817

Total Variance = 67.806 Generalized Variance = 0.00444

Largest Eigenvalue = 35.586 Smallest Eigenvalue = 0.104

Condition Number = 18.536

Number of Iterations = 19

LISREL Estimates (Robust Maximum Likelihood)

Measurement Equations

EFF1 = 1.002*valued, Errorvar.=		1.186 , R² =	0.649
Standerr	(0.108)	(0.192)	
Z-values	9.303	6.174	
P-values	0.000	0.000	
EFF3 = 0.727*valued, Errorvar.=		0.888 , R² =	0.566
Standerr	(0.0845)	(0.175)	
Z-values	8.607	5.085	
P-values	0.000	0.000	
EFF4 = 1.178*valued, Errorvar.=		0.576 , R² =	0.840
Standerr	(0.102)	(0.103)	
Z-values	11.562	5.601	
P-values	0.000	0.000	
EFF6 = 1.022*valued, Errorvar.=		1.941 , R² =	0.540
Standerr	(0.113)	(0.370)	
Z-values	9.004	5.251	
P-values	0.000	0.000	
EFF7 = 1.026*valued, Errorvar.=		1.296 , R² =	0.640
Standerr	(0.0949)	(0.233)	
Z-values	10.811	5.557	
P-values	0.000	0.000	
COM1 = 0.934*valued, Errorvar.=		1.302 , R² =	0.594
Standerr	(0.108)	(0.330)	
Z-values	8.643	3.947	
P-values	0.000	0.000	
COM2 = 0.811*valued, Errorvar.=		1.480 , R² =	0.493
Standerr	(0.122)	(0.324)	
Z-values	6.668	4.573	
P-values	0.000	0.000	
COM3 = 0.979*valued, Errorvar.=		1.138 , R² =	0.648
Standerr	(0.0881)	(0.198)	
Z-values	11.104	5.753	
P-values	0.000	0.000	
LI1 = 1.000*valued, Errorvar.=		1.195 , R² =	0.647
Standerr		(0.256)	
Z-values		4.668	
P-values		0.000	
LI6 = 0.977*valued, Errorvar.=		0.972 , R² =	0.682

```
Standerr  (0.119)                  (0.314)
Z-values   8.206                   3.094
P-values   0.000                   0.002

     LI7 = 1.126*valued, Errorvar.= 0.473 , R² = 0.854
Standerr  (0.0919)                 (0.101)
Z-values   12.251                   4.695
P-values   0.000                   0.000

     LI8 = 1.195*valued, Errorvar.= 0.979 , R² = 0.761
Standerr  (0.105)                  (0.190)
Z-values   11.407                   5.149
P-values   0.000                   0.000

     NO1 = 1.066*valued, Errorvar.= 0.927 , R² = 0.728
Standerr  (0.106)                  (0.200)
Z-values   10.076                   4.638
P-values   0.000                   0.000

     NO3 = 1.048*valued, Errorvar.= 0.904 , R² = 0.727
Standerr  (0.0979)                 (0.155)
Z-values   10.711                   5.850
P-values   0.000                   0.000

     NO5 = 0.981*valued, Errorvar.= 1.175 , R² = 0.642
Standerr  (0.110)                  (0.179)
Z-values   8.935                    6.568
P-values   0.000                   0.000

    ACF3 = 1.000*acf, Errorvar.= 0.520 , R² = 0.580
Standerr                          (0.152)
Z-values                           3.422
P-values                           0.001

    ACF4 = 0.944*acf, Errorvar.= 0.477 , R² = 0.573
Standerr  (0.173)                 (0.141)
Z-values   5.452                   3.378
P-values   0.000                   0.001

    ACF6 = 0.783*acf, Errorvar.= 0.692 , R² = 0.389
Standerr  (0.137)                 (0.161)
Z-values   5.712                   4.309
P-values   0.000                   0.000

    ECF1 = 1.000*ecf, Errorvar.= 0.541 , R² = 0.565
Standerr                          (0.153)
Z-values                           3.538
P-values                           0.000

    ECF3 = 1.022*ecf, Errorvar.= 0.354  , R² = 0.675
Standerr  (0.137)                 (0.0868)
Z-values   7.482                   4.075
P-values   0.000                   0.000

    ECF4 = 0.897*ecf, Errorvar.= 0.600 , R² = 0.485
Standerr  (0.113)                 (0.132)
Z-values   7.933                   4.560
P-values   0.000                   0.000

     RCF2 = 0.737*rcf, Errorvar.= 0.600 , R² = 0.475
Standerr  (0.143)                (0.124)
Z-values   5.168                   4.833
P-values   0.000                   0.000

     RCF3 = 0.586*rcf, Errorvar.= 0.446  , R² = 0.435
Standerr  (0.136)                (0.0968)
Z-values   4.322                   4.607
P-values   0.000                   0.000

     RCF6 = 0.901*rcf, Errorvar.= 0.608 , R² = 0.571
Standerr  (0.127)                (0.160)
Z-values   7.092                   3.801
P-values   0.000                   0.000

   Costs = 0.685*fo, Errorvar.= 1.029 , R² = 0.414
```

```
Standerr  (0.0999)             (0.172)
Z-values   6.860               5.985
P-values   0.000               0.000

NetProfi = 1.048*fo, Errorvar.= 0.468  , R² = 0.784
Standerr  (0.0672)             (0.0733)
Z-values   15.595               6.388
P-values   0.000               0.000

     ROA = 1.000*fo, Errorvar.= 0.156  , R² = 0.909
Standerr                       (0.0609)
Z-values                        2.558
P-values                        0.011

     ROI = 0.946*fo, Errorvar.= 0.427 , R² = 0.765
Standerr  (0.110)              (0.352)
Z-values   8.578               1.213
P-values   0.000               0.225
```

Covariance Matrix of Independent Variables

	fo	rcf	ecf	acf	valued
fo	1.552				
	(0.268)				
	5.793				
rcf	0.414	1.000			
	(0.175)				
	2.369				
ecf	0.400	0.748	0.703		
	(0.189)	(0.159)	(0.233)		
	2.115	4.699	3.020		
acf	0.349	0.754	0.504	0.718	
	(0.172)	(0.143)	(0.184)	(0.220)	
	2.026	5.267	2.745	3.261	
valued	0.249	0.393	0.275	0.580	2.187
	(0.209)	(0.191)	(0.150)	(0.182)	(0.407)
	1.191	2.054	1.840	3.192	5.373

Log-likelihood Values

	Estimated Model	Saturated Model
Number of free parameters(t)	66	406
-2ln(L)	2018.076	1580.809
AIC (Akaike, 1974)*	2150.076	2392.809
BIC (Schwarz, 1978)*	2298.477	3305.698

*LISREL AIC= 2t - 2ln(L) and BIC = tln(N)- 2ln(L)

Goodness of Fit Statistics

Degrees of Freedom for (C1)-(C3)	340
Maximum Likelihood Ratio Chi-Square (C1)	437.267 (P = 0.0003)
Browne's (1984) ADF Chi-Square (C2_NT)	363.567 (P = 0.1816)
Browne's (1984) ADF Chi-Square (C2_NNT)	-94251.142 (P = 1.0000)
Satorra-Bentler (1988) Scaled Chi-square (C3)	411.823 (P = 0.0046)
Satorra-Bentler (1988) Adjusted Chi-square (C4)	0.000 (P = 1.0000)
Degrees of Freedom for C4	0.000
Estimated Non-centrality Parameter (NCP)	97.267
90 Percent Confidence Interval for NCP	(47.519 ; 155.145)
Minimum Fit Function Value	6.247
Population Discrepancy Function Value (F0)	1.390
90 Percent Confidence Interval for F0	(0.679 ; 2.216)
Root Mean Square Error of Approximation (RMSEA)	0.0639
90 Percent Confidence Interval for RMSEA	(0.0447 ; 0.0807)
P-Value for Test of Close Fit (RMSEA < 0.05)	0.335

```
Expected Cross-Validation Index (ECVI)                7.769
90 Percent Confidence Interval for ECVI               (7.422 ; 8.959)
ECVI for Saturated Model                              11.600
ECVI for Independence Model                           67.862

Chi-Square for Independence Model (378 df)        4694.345

Normed Fit Index (NFI)                                0.911
Non-Normed Fit Index (NNFI)                           0.981
Parsimony Normed Fit Index (PNFI)                     0.819
Comparative Fit Index (CFI)                           0.983
Incremental Fit Index (IFI)                           0.983
Relative Fit Index (RFI)                              0.901

Critical N (CN)                                      68.620


Root Mean Square Residual (RMR)                       0.160
Standardized RMR                                      0.0737
Goodness of Fit Index (GFI)                           0.729
Adjusted Goodness of Fit Index (AGFI)                 0.677
Parsimony Goodness of Fit Index (PGFI)                0.611

       The Modification Indices Suggest to Add the
 Path to  from      Decrease in Chi-Square    New Estimate
LI8       fo                 8.0                -0.29

The Modification Indices Suggest to Add an Error Covariance
 Between    and     Decrease in Chi-Square    New Estimate
COM1      EFF4              11.7                 0.40
RCF3       RCF2                8.9                0.24

                          Time used 6.505 seconds
```

Structural Model

Total Sample Size(N) = 70

Univariate Summary Statistics for Continuous Variables

Variable	Mean	St. Dev.	Skewness	Kurtosis	Minimum	Freq.	Maximum	Freq.
EFF1	3.913	1.839	0.103	-0.700	1.000	8	8.497	1
EFF3	2.628	1.430	0.576	-0.594	1.000	19	6.000	2
EFF4	4.190	1.901	-0.223	-1.268	1.000	6	7.000	7
EFF6	3.015	2.055	0.688	-0.886	1.000	23	7.000	6
EFF7	3.360	1.897	0.187	-1.271	1.000	17	7.000	2
COM1	4.104	1.792	-0.151	-1.032	1.000	6	7.000	6
COM2	2.730	1.709	0.503	-1.154	1.000	24	6.000	5
COM3	3.352	1.798	0.176	-1.165	1.000	15	7.000	2
LI1	3.841	1.839	0.130	-1.094	1.000	7	7.385	1
LI6	3.768	1.749	0.108	-1.295	1.000	4	7.000	3
LI7	4.018	1.802	-0.128	-1.274	1.000	5	7.000	4
LI8	3.327	2.026	0.279	-1.369	1.000	19	7.000	4
NO1	3.707	1.847	-0.049	-1.260	1.000	11	7.000	3
NO3	3.543	1.819	-0.031	-1.259	1.000	14	7.000	2
NO5	3.423	1.811	0.236	-0.953	1.000	14	7.000	4
ACF3	4.633	1.113	0.012	-0.149	2.000	2	7.000	3
ACF4	4.520	1.057	0.173	0.017	2.000	2	7.000	2
ACF6	4.224	1.064	0.542	0.567	2.000	3	7.000	2
ECF1	4.525	1.115	-0.574	1.160	1.000	1	7.000	2
ECF3	4.585	1.043	-0.193	1.767	1.000	1	7.000	3
ECF4	4.362	1.079	-0.349	0.727	1.000	1	7.000	1
RCF2	4.957	1.069	-0.059	0.414	2.000	2	7.000	6
RCF3	4.606	0.889	-0.139	1.188	2.000	2	7.000	1
RCF6	4.829	1.191	0.077	-0.274	2.000	2	7.000	7
Turnover	4.100	1.385	-0.319	0.390	1.000	5	7.000	3
Sales	4.129	1.444	-0.439	0.257	1.000	6	7.000	3
Costs	4.157	1.326	0.048	-0.350	1.000	1	7.000	3
NetProfi	4.271	1.474	-0.151	-0.227	1.000	2	7.000	6
MarketSh	4.293	1.379	0.030	-0.295	1.000	2	7.000	4
ROA	4.129	1.307	-0.084	-0.307	1.000	1	7.000	2
ROI	4.108	1.348	-0.017	-0.097	1.000	2	7.000	3

Test of Univariate Normality for Continuous Variables

	Skewness		Kurtosis		Skewness and Kurtosis	
Variable	Z-Score	P-Value	Z-Score	P-Value	Chi-Square	P-Value
EFF1	0.372	0.710	-1.628	0.104	2.789	0.248
EFF3	1.985	0.047	-1.260	0.208	5.525	0.063
EFF4	-0.803	0.422	-5.089	0.000	26.540	0.000
EFF6	2.326	0.020	-2.415	0.016	11.241	0.004
EFF7	0.674	0.500	-5.117	0.000	26.643	0.000
COM1	-0.547	0.584	-3.209	0.001	10.598	0.005
COM2	1.754	0.079	-4.053	0.000	19.504	0.000
COM3	0.635	0.525	-4.140	0.000	17.540	0.000
LI1	0.472	0.637	-3.612	0.000	13.269	0.001
LI6	0.391	0.696	-5.379	0.000	29.086	0.000
LI7	-0.465	0.642	-5.143	0.000	26.670	0.000
LI8	1.000	0.317	-6.304	0.000	40.738	0.000
NO1	-0.178	0.859	-5.006	0.000	25.093	0.000
NO3	-0.112	0.911	-4.996	0.000	24.971	0.000
NO5	0.851	0.395	-2.754	0.006	8.309	0.016
ACF3	0.043	0.965	-0.092	0.926	0.010	0.995
ACF4	0.627	0.531	0.236	0.813	0.449	0.799
ACF6	1.879	0.060	1.088	0.277	4.714	0.095
ECF1	-1.980	0.048	1.748	0.080	6.974	0.031
ECF3	-0.696	0.487	2.260	0.024	5.590	0.061
ECF4	-1.241	0.214	1.286	0.198	3.196	0.202
RCF2	-0.215	0.830	0.880	0.379	0.822	0.663
RCF3	-0.502	0.615	1.774	0.076	3.400	0.183
RCF6	0.279	0.780	-0.372	0.710	0.217	0.897
Turnover	-1.139	0.255	0.847	0.397	2.014	0.365

Sales	-1.546	0.122	0.646	0.519	2.807	0.246
Costs	0.176	0.860	-0.558	0.577	0.342	0.843
NetProfi	-0.547	0.584	-0.263	0.792	0.368	0.832
MarketSh	0.109	0.913	-0.423	0.672	0.191	0.909
ROA	-0.306	0.760	-0.452	0.652	0.297	0.862
ROI	-0.061	0.951	0.014	0.989	0.004	0.998

Relative Multivariate Kurtosis = 1.026

Test of Multivariate Normality for Continuous Variables

Skewness			Kurtosis			Skewness and Kurtosis	
Value	Z-Score	P-Value	Value	Z-Score	P-Value	Chi-Square	P-Value
524.805	6.145	0.000	1049.277	3.924	0.000	53.163	0.000

```
Sample Size = 70
Latent Variables  fo rcf ecf acf valued
Relationships
EFF1 = valued
EFF3 = valued
EFF4 = valued
EFF6 = valued
EFF7 = valued
COM1 = valued
COM2 = valued
COM3 = valued
LI1 = 1.00*valued
LI6 = valued
LI7 = valued
LI8 = valued
NO1 = valued
NO3 = valued
NO5 = valued
ACF3 = 1.00*acf
ACF4 = acf
ACF6 = acf
ECF1 = 1.00*ecf
ECF3 = ecf
ECF4 = ecf
RCF2 = rcf
RCF3 = rcf
RCF6 = rcf
Costs = fo
NetProfi = fo
ROA = 1.00*fo
ROI = fo
fo = acf
fo = ecf
fo = rcf
acf = valued
ecf = valued
rcf = valued
Path Diagram
End of Problem

Sample Size =    70
```

Covariance Matrix

	ACF3	ACF4	ACF6	ECF1	ECF3	ECF4
ACF3	1.238					
ACF4	0.668	1.118				
ACF6	0.597	0.514	1.132			
ECF1	0.590	0.546	0.537	1.243		
ECF3	0.465	0.416	0.402	0.673	1.088	
ECF4	0.506	0.237	0.486	0.684	0.666	1.165
RCF2	0.610	0.582	0.281	0.447	0.534	0.441
RCF3	0.433	0.463	0.352	0.396	0.481	0.243
RCF6	0.675	0.599	0.515	0.824	0.755	0.609
Costs	0.314	0.252	0.105	0.202	0.298	0.213

NetProfi	0.473	0.384	0.086	0.342	0.507	0.394
ROA	0.359	0.432	0.023	0.381	0.418	0.325
ROI	0.437	0.364	0.072	0.230	0.480	0.416
EFF1	0.387	0.522	0.680	0.510	0.102	0.045
EFF3	0.183	0.407	0.430	0.277	-0.044	-0.032
EFF4	0.432	0.664	0.624	0.679	0.253	0.122
EFF6	0.634	0.728	0.652	0.423	0.231	0.013
EFF7	0.390	0.373	0.331	0.560	0.186	-0.137
COM1	0.649	0.619	0.648	0.596	0.256	0.117
COM2	0.351	0.446	0.292	0.456	0.068	0.041
COM3	0.319	0.431	0.526	0.635	0.264	0.091
LI1	0.647	0.798	0.733	0.490	0.212	0.218
LI6	0.565	0.407	0.582	0.403	0.163	0.074
LI7	0.504	0.601	0.732	0.668	0.180	0.112
LI8	0.608	0.643	0.739	0.513	0.079	-0.063
NO1	0.711	0.776	0.634	0.728	0.275	0.149
NO3	0.537	0.706	0.593	0.859	0.476	0.055
NO5	0.542	0.527	0.552	0.416	0.182	0.068

Covariance Matrix

	RCF2	RCF3	RCF6	Costs	NetProfi	ROA
RCF2	1.143					
RCF3	0.577	0.789				
RCF6	0.630	0.439	1.419			
Costs	0.210	0.361	0.245	1.758		
NetProfi	0.186	0.346	0.250	1.203	2.172	
ROA	0.266	0.385	0.240	1.066	1.617	1.708
ROI	0.418	0.469	0.265	0.910	1.536	1.479
EFF1	0.243	0.164	0.551	-0.219	0.219	0.148
EFF3	0.222	0.059	0.177	-0.049	0.037	0.117
EFF4	0.395	0.359	0.487	-0.291	0.431	0.352
EFF6	0.094	0.190	0.184	0.091	0.655	0.694
EFF7	0.178	0.169	0.289	-0.469	0.371	0.361
COM1	0.189	0.284	0.409	-0.046	0.613	0.367
COM2	0.038	0.093	0.314	0.159	0.550	0.583
COM3	0.270	0.202	0.308	-0.151	0.234	0.154
LI1	0.532	0.354	0.425	-0.190	0.150	0.158
LI6	0.201	0.264	0.261	-0.093	0.452	0.233
LI7	0.254	0.233	0.441	-0.307	0.288	0.143
LI8	0.246	0.158	0.376	-0.399	0.025	-0.101
NO1	0.416	0.394	0.536	0.037	0.586	0.684
NO3	0.230	0.217	0.544	0.054	0.472	0.555
NO5	0.201	0.219	0.212	0.051	0.489	0.377

Covariance Matrix

	ROI	EFF1	EFF3	EFF4	EFF6	EFF7
ROI	1.817					
EFF1	0.010	3.383				
EFF3	-0.054	1.764	2.044			
EFF4	0.271	2.654	1.930	3.612		
EFF6	0.385	2.267	1.760	2.549	4.223	
EFF7	0.177	2.455	1.601	2.784	2.332	3.597
COM1	0.212	1.869	1.433	2.723	2.242	2.165
COM2	0.456	1.750	1.429	1.988	1.961	1.925
COM3	0.062	2.200	1.668	2.448	1.870	2.518
LI1	-0.046	2.300	1.640	2.537	2.212	2.094
LI6	0.186	1.841	1.380	2.606	2.147	2.061
LI7	0.058	2.467	1.823	2.923	2.336	2.458
LI8	-0.187	2.555	1.749	3.041	2.492	2.658
NO1	0.464	2.199	1.642	2.733	2.526	2.247
NO3	0.322	2.366	1.673	2.593	2.739	2.371
NO5	0.240	2.182	1.414	2.334	2.303	1.990

Covariance Matrix

	COM1	COM2	COM3	LI1	LI6	LI7
COM1	3.210					
COM2	1.440	2.920				
COM3	2.006	1.963	3.234			
LI1	1.879	1.941	2.239	3.382		

LI6	2.032	1.649	2.002	2.114	3.060	
LI7	2.260	1.842	2.352	2.450	2.510	3.248
LI8	2.452	2.015	2.646	2.818	2.647	2.999
NO1	2.133	1.985	2.200	2.321	2.399	2.568
NO3	2.117	2.004	2.192	2.092	2.121	2.646
NO5	1.692	1.874	2.152	2.158	2.223	2.526

Covariance Matrix

	LI8	NO1	NO3	NO5
LI8	4.104			
NO1	2.856	3.411		
NO3	2.593	2.534	3.308	
NO5	2.615	2.349	2.388	3.280

Total Variance = 67.806 Generalized Variance = 0.00444

Largest Eigenvalue = 35.586 Smallest Eigenvalue = 0.104

Condition Number = 18.536

Number of Iterations = 17

LISREL Estimates (Robust Maximum Likelihood)

Measurement Equations

ACF3 = 1.000*acf, Errorvar.= 0.540 , R^2 = 0.564
Standerr (0.159)
Z-values 3.401
P-values 0.001

ACF4 = 0.941*acf, Errorvar.= 0.499 , R^2 = 0.553
Standerr (0.201) (0.158)
Z-values 4.686 3.159
P-values 0.000 0.002

ACF6 = 0.831*acf, Errorvar.= 0.650 , R^2 = 0.426
Standerr (0.177) (0.175)
Z-values 4.685 3.717
P-values 0.000 0.000

ECF1 = 1.000*ecf, Errorvar.= 0.516 , R^2 = 0.585
Standerr (0.151)
Z-values 3.430
P-values 0.001

ECF3 = 0.949*ecf, Errorvar.= 0.434 , R^2 = 0.601
Standerr (0.170) (0.109)
Z-values 5.589 3.977
P-values 0.000 0.000

ECF4 = 0.940*ecf, Errorvar.= 0.522 , R^2 = 0.552
Standerr (0.135) (0.140)
Z-values 6.948 3.741
P-values 0.000 0.000

RCF2 = 0.874*rcf, Errorvar.= 0.378 , R^2 = 0.669
Standerr (0.164)
Z-values 2.306
P-values 0.021

RCF3 = 0.658*rcf, Errorvar.= 0.356 , R^2 = 0.549
Standerr (0.144) (0.106)
Z-values 4.581 3.359
P-values 0.000 0.001

RCF6 = 0.703*rcf, Errorvar.= 0.926 , R^2 = 0.348
Standerr (0.158) (0.198)

```
Z-values   4.460                4.678
P-values   0.000                0.000

   Costs = 0.685*fo, Errorvar.= 1.029 , R² = 0.402
Standerr  (0.106)              (0.172)
Z-values   6.479                5.989
P-values   0.000                0.000

NetProfi = 1.047*fo, Errorvar.= 0.472  , R² = 0.774
Standerr  (0.0717)             (0.0746)
Z-values   14.597               6.319
P-values   0.000                0.000

     ROA = 1.000*fo, Errorvar.= 0.156  , R² = 0.904
Standerr                       (0.0606)
Z-values                        2.565
P-values                        0.010

     ROI = 0.947*fo, Errorvar.= 0.425 , R² = 0.756
Standerr  (0.116)              (0.351)
Z-values   8.197                1.212
P-values   0.000                0.226


    EFF1 = 1.001*valued, Errorvar.= 1.187 , R² = 0.649
Standerr  (0.107)                  (0.192)
Z-values   9.315                   6.183
P-values   0.000                   0.000

    EFF3 = 0.725*valued, Errorvar.= 0.891 , R² = 0.564
Standerr  (0.0842)                 (0.175)
Z-values   8.611                   5.091
P-values   0.000                   0.000

    EFF4 = 1.178*valued, Errorvar.= 0.572 , R² = 0.842
Standerr  (0.101)                  (0.102)
Z-values   11.616                  5.602
P-values   0.000                   0.000

    EFF6 = 1.019*valued, Errorvar.= 1.947 , R² = 0.539
Standerr  (0.113)                  (0.370)
Z-values   9.034                   5.265
P-values   0.000                   0.000

    EFF7 = 1.024*valued, Errorvar.= 1.300 , R² = 0.639
Standerr  (0.0946)                 (0.234)
Z-values   10.819                  5.549
P-values   0.000                   0.000

    COM1 = 0.933*valued, Errorvar.= 1.300 , R² = 0.595
Standerr  (0.108)                  (0.331)
Z-values   8.647                   3.923
P-values   0.000                   0.000

    COM2 = 0.810*valued, Errorvar.= 1.483 , R² = 0.492
Standerr  (0.122)                  (0.325)
Z-values   6.646                   4.565
P-values   0.000                   0.000

    COM3 = 0.978*valued, Errorvar.= 1.138 , R² = 0.648
Standerr  (0.0877)                 (0.197)
Z-values   11.154                  5.768
P-values   0.000                   0.000

     LI1 = 1.000*valued, Errorvar.= 1.190 , R² = 0.648
Standerr                           (0.256)
Z-values                            4.651
P-values                            0.000

     LI6 = 0.976*valued, Errorvar.= 0.974 , R² = 0.682
Standerr  (0.119)                  (0.314)
Z-values   8.223                    3.106
P-values   0.000                    0.002

     LI7 = 1.125*valued, Errorvar.= 0.474 , R² = 0.854
```

```
Standerr  (0.0916)                 (0.100)
Z-values   12.281                   4.722
P-values   0.000                    0.000

     LI8 = 1.192*valued, Errorvar.= 0.988 , R² = 0.759
Standerr  (0.104)                  (0.189)
Z-values   11.422                   5.225
P-values   0.000                    0.000

     NO1 = 1.066*valued, Errorvar.= 0.921 , R² = 0.730
Standerr  (0.105)                  (0.199)
Z-values   10.127                   4.620
P-values   0.000                    0.000

     NO3 = 1.048*valued, Errorvar.= 0.901 , R² = 0.728
Standerr  (0.0974)                 (0.154)
Z-values   10.764                   5.833
P-values   0.000                    0.000

     NO5 = 0.979*valued, Errorvar.= 1.180 , R² = 0.640
Standerr  (0.110)                  (0.179)
Z-values   8.941                    6.580
P-values   0.000                    0.000


        Structural Equations


      fo = 0.157*rcf + 0.367*ecf + 0.132*acf, Errorvar.= 1.319 , R² = 0.104
Standerr  (0.125)    (0.167)     (0.158)               (0.263)
Z-values   1.257      2.200       0.839                 5.009
P-values   0.209      0.028       0.401                 0.000

      rcf = 0.168*valued, Errorvar.= 0.938 , R² = 0.0618
Standerr  (0.0763)                 (0.321)
Z-values   2.200                   2.923
P-values   0.028                   0.003

     ecf = 0.137*valued, Errorvar.= 0.686 , R² = 0.0567
Standerr  (0.0667)                 (0.233)
Z-values   2.057                   2.939
P-values   0.040                   0.003

     acf = 0.269*valued, Errorvar.= 0.540 , R² = 0.227
Standerr  (0.0714)                 (0.190)
Z-values   3.764                   2.843
P-values   0.000                   0.004


NOTE: R² for Structural Equations are Hayduk's (2006) Blocked-Error R²

        Reduced Form Equations

      fo = 0.112*valued, Errorvar.= 1.444, R² = 0.0188
Standerr  (0.0760)
Z-values   1.478
P-values   0.139

     rcf = 0.168*valued, Errorvar.= 0.938, R² = 0.0618
Standerr  (0.0769)
Z-values   2.184
P-values   0.029

     ecf = 0.137*valued, Errorvar.= 0.686, R² = 0.0567
Standerr  (0.0672)
Z-values   2.042
P-values   0.041

     acf = 0.269*valued, Errorvar.= 0.540, R² = 0.227
Standerr  (0.0719)
Z-values   3.737
P-values   0.000


        Variances of Independent Variables
```

	valued
	2.191
	(0.406)
	5.396

Covariance Matrix of Latent Variables

	fo	rcf	ecf	acf	valued
fo	1.471				
rcf	0.189	1.000			
ecf	0.286	0.050	0.727		
acf	0.138	0.099	0.081	0.698	
valued	0.246	0.368	0.301	0.589	2.191

Log-likelihood Values

	Estimated Model	Saturated Model
Number of free parameters(t)	62	406
-2ln(L)	2095.676	1580.809
AIC (Akaike, 1974)*	2219.676	2392.809
BIC (Schwarz, 1978)*	2359.083	3305.698

*LISREL uses AIC= 2t - 2ln(L) and BIC = tln(N)- 2ln(L)

Goodness of Fit Statistics

Degrees of Freedom for (C1)-(C3)	344
Maximum Likelihood Ratio Chi-Square (C1)	514.868 (P = 0.0000)
Browne's (1984) ADF Chi-Square (C2_NT)	422.677 (P = 0.0024)
Browne's (1984) ADF Chi-Square (C2_NNT)	-668928.691 (P = 1.0000)
Satorra-Bentler (1988) Scaled Chi-square (C3)	489.213 (P = 0.0000)
Satorra-Bentler (1988) Adjusted Chi-square (C4)	0.000 (P = 1.0000)
Degrees of Freedom for C4	0.000
Estimated Non-centrality Parameter (NCP)	170.868
90 Percent Confidence Interval for NCP	(113.907 ; 235.803)
Minimum Fit Function Value	7.355
Population Discrepancy Function Value (F0)	2.441
90 Percent Confidence Interval for F0	(1.627 ; 3.369)
Root Mean Square Error of Approximation (RMSEA)	0.0842
90 Percent Confidence Interval for RMSEA	(0.0688 ; 0.0990)
P-Value for Test of Close Fit (RMSEA < 0.05)	0.00412
Expected Cross-Validation Index (ECVI)	8.760
90 Percent Confidence Interval for ECVI	(8.313 ; 10.054)
ECVI for Saturated Model	11.600
ECVI for Independence Model	67.862
Chi-Square for Independence Model (378 df)	4694.345
Normed Fit Index (NFI)	0.894
Non-Normed Fit Index (NNFI)	0.962
Parsimony Normed Fit Index (PNFI)	0.814
Comparative Fit Index (CFI)	0.966
Incremental Fit Index (IFI)	0.966
Relative Fit Index (RFI)	0.884
Critical N (CN)	58.538
Root Mean Square Residual (RMR)	0.204
Standardized RMR	0.128
Goodness of Fit Index (GFI)	0.699
Adjusted Goodness of Fit Index (AGFI)	0.644
Parsimony Goodness of Fit Index (PGFI)	0.592

The Modification Indices Suggest to Add the

Path to	from	Decrease in Chi-Square	New Estimate
RCF6	ecf	14.2	0.60

rcf	ecf	23.7	0.86
rcf	acf	24.2	0.99
ecf	rcf	23.6	0.63
ecf	acf	18.3	0.73
acf	rcf	26.6	0.63
acf	ecf	20.1	0.63

The Modification Indices Suggest to Add an Error Covariance

Between	and	Decrease in Chi-Square	New Estimate
ecf	rcf	24.0	0.60
acf	rcf	26.8	0.60
acf	ecf	20.2	0.44
COM1	EFF4	11.6	0.40

Time used 7.379 seconds

Appendix H. LISREL Output for Model 2

Measurement Model

Total Sample Size(N) = 70

Univariate Summary Statistics for Continuous Variables

Variable	Mean	St. Dev.	Skewness	Kurtosis	Minimum	Freq.	Maximum	Freq.
EFF1	3.913	1.839	0.103	-0.700	1.000	8	8.497	1
EFF2	3.589	1.736	0.336	-0.843	1.000	7	7.590	1
EFF3	2.628	1.430	0.576	-0.594	1.000	19	6.000	2
EFF4	4.190	1.901	-0.223	-1.268	1.000	6	7.000	7
EFF5	3.533	1.859	0.114	-1.161	0.523	1	7.000	4
EFF6	3.015	2.055	0.688	-0.886	1.000	23	7.000	6
EFF7	3.360	1.897	0.187	-1.271	1.000	17	7.000	2
COM1	4.104	1.792	-0.151	-1.032	1.000	6	7.000	6
COM2	2.730	1.709	0.503	-1.154	1.000	24	6.000	5
COM3	3.352	1.798	0.176	-1.165	1.000	15	7.000	2
COM4	3.278	1.857	0.385	-1.061	1.000	15	7.000	3
LI1	3.841	1.839	0.130	-1.094	1.000	7	7.385	1
LI2	3.732	1.662	0.084	-0.945	1.000	6	7.000	3
LI3	4.010	1.559	-0.186	-0.975	1.000	3	7.000	2
LI4	3.303	1.743	0.348	-0.729	1.000	13	7.000	4
LI5	3.199	1.734	0.197	-1.226	0.953	1	7.000	1
LI6	3.768	1.749	0.108	-1.295	1.000	4	7.000	3
LI7	4.018	1.802	-0.128	-1.274	1.000	5	7.000	4
LI8	3.327	2.026	0.279	-1.369	1.000	19	7.000	4
NO1	3.707	1.847	-0.049	-1.260	1.000	11	7.000	3
NO2	3.825	1.840	-0.177	-1.198	1.000	11	7.000	3
NO3	3.543	1.819	-0.031	-1.259	1.000	14	7.000	2
NO4	3.188	2.059	0.300	-1.408	1.000	24	7.000	3
NO5	3.423	1.811	0.236	-0.953	1.000	14	7.000	4
NO6	3.120	1.645	0.134	-1.288	1.000	16	6.000	5
RV1	4.544	1.109	-0.246	0.473	2.000	4	7.000	3
RV2	4.338	1.187	-0.110	-0.316	2.000	5	7.000	2
RV3	4.794	1.222	-0.177	-0.149	2.000	3	7.000	6
RV4	4.736	0.957	-0.044	1.201	2.000	2	7.000	3
RV5	4.151	1.133	0.062	0.107	2.000	6	7.000	2
RV6	4.680	1.001	-0.379	0.273	2.000	2	7.000	1
AnnualTu	5.571	2.300	0.075	-0.815	1.000	2	11.000	1
SalesGro	12.711	3.145	-0.118	-0.801	7.000	4	19.000	1
Operatin	7.174	1.982	-0.623	0.074	2.000	2	11.000	1
DOP	4.171	1.484	-0.304	-0.694	1.000	3	7.000	2
DROI	4.296	1.385	-0.522	0.364	1.000	4	7.000	3

Test of Univariate Normality for Continuous Variables

	Skewness		Kurtosis		Skewness and Kurtosis	
Variable	Z-Score	P-Value	Z-Score	P-Value	Chi-Square	P-Value
EFF1	0.372	0.710	-1.628	0.104	2.789	0.248
EFF2	1.198	0.231	-2.216	0.027	6.347	0.042
EFF3	1.985	0.047	-1.260	0.208	5.525	0.063
EFF4	-0.803	0.422	-5.089	0.000	26.540	0.000
EFF5	0.413	0.680	-4.109	0.000	17.058	0.000
EFF6	2.326	0.020	-2.415	0.016	11.241	0.004
EFF7	0.674	0.500	-5.117	0.000	26.643	0.000
COM1	-0.547	0.584	-3.209	0.001	10.598	0.005
COM2	1.754	0.079	-4.053	0.000	19.504	0.000
COM3	0.635	0.525	-4.140	0.000	17.540	0.000
COM4	1.365	0.172	-3.392	0.001	13.372	0.001
LI1	0.472	0.637	-3.612	0.000	13.269	0.001
LI2	0.305	0.761	-2.710	0.007	7.437	0.024
LI3	-0.672	0.502	-2.875	0.004	8.719	0.013
LI4	1.237	0.216	-1.738	0.082	4.550	0.103
LI5	0.711	0.477	-4.669	0.000	22.310	0.000
LI6	0.391	0.696	-5.379	0.000	29.086	0.000

LI7	-0.465	0.642	-5.143	0.000	26.670	0.000
LI8	1.000	0.317	-6.304	0.000	40.738	0.000
NO1	-0.178	0.859	-5.006	0.000	25.093	0.000
NO2	-0.639	0.523	-4.414	0.000	19.895	0.000
NO3	-0.112	0.911	-4.996	0.000	24.971	0.000
NO4	1.074	0.283	-6.904	0.000	48.817	0.000
NO5	0.851	0.395	-2.754	0.006	8.309	0.016
NO6	0.487	0.626	-5.304	0.000	28.365	0.000
RV1	-0.884	0.376	0.963	0.336	1.709	0.426
RV2	-0.397	0.691	-0.474	0.636	0.382	0.826
RV3	-0.641	0.522	-0.094	0.925	0.420	0.811
RV4	-0.158	0.874	1.787	0.074	3.217	0.200
RV5	0.226	0.822	0.398	0.691	0.209	0.901
RV6	-1.343	0.179	0.671	0.502	2.254	0.324
AnnualTu	0.271	0.786	-2.090	0.037	4.440	0.109
SalesGro	-0.429	0.668	-2.029	0.042	4.301	0.116
Operatin	-2.130	0.033	0.340	0.734	4.651	0.098
DOP	-1.086	0.278	-1.606	0.108	3.759	0.153
DROI	-1.815	0.070	0.809	0.419	3.947	0.139

Relative Multivariate Kurtosis = 1.022

Test of Multivariate Normality for Continuous Variables

Skewness			Kurtosis			Skewness and Kurtosis	
Value	Z-Score	P-Value	Value	Z-Score	P-Value	Chi-Square	P-Value
799.922	6.676	0.000	1398.063	4.167	0.000	61.929	0.000

```
Latent Variables  shv rv valued
Relationships
EFF1 = valued
EFF3 = valued
EFF4 = valued
EFF6 = valued
EFF7 = valued
COM1 = valued
COM2 = valued
COM3 = valued
LI1 = 1.00*valued
LI6 = valued
LI7 = valued
LI8 = valued
NO1 = valued
NO3 = valued
NO5 = valued
RV3 = 1.00*rv
RV4 = rv
RV6 = rv
SalesGro = shv
DOP = 1.00*shv
DROI = shv
Path Diagram
End of Problem

Sample Size =    70
```

Covariance Matrix

	EFF1	EFF3	EFF4	EFF6	EFF7	COM1
EFF1	3.383					
EFF3	1.764	2.044				
EFF4	2.654	1.930	3.612			
EFF6	2.267	1.760	2.549	4.223		
EFF7	2.455	1.601	2.784	2.332	3.597	
COM1	1.869	1.433	2.723	2.242	2.165	3.210
COM2	1.750	1.429	1.988	1.961	1.925	1.440
COM3	2.200	1.668	2.448	1.870	2.518	2.006
LI1	2.300	1.640	2.537	2.212	2.094	1.879
LI6	1.841	1.380	2.606	2.147	2.061	2.032
LI7	2.467	1.823	2.923	2.336	2.458	2.260

LI8	2.555	1.749	3.041	2.492	2.658	2.452
NO1	2.199	1.642	2.733	2.526	2.247	2.133
NO3	2.366	1.673	2.593	2.739	2.371	2.117
NO5	2.182	1.414	2.334	2.303	1.990	1.692
RV3	0.471	0.160	0.513	0.408	0.451	0.674
RV4	0.482	0.168	0.486	0.079	0.365	0.347
RV6	0.555	0.239	0.504	0.201	0.478	0.450
SalesGro	-0.887	-0.608	-1.093	-1.568	-0.301	-1.373
DOP	0.405	0.333	0.542	0.274	0.546	0.367
DROI	0.441	0.229	0.518	0.549	0.514	0.448

Covariance Matrix

	COM2	COM3	LI1	LI6	LI7	LI8
COM2	2.920					
COM3	1.963	3.234				
LI1	1.941	2.239	3.382			
LI6	1.649	2.002	2.114	3.060		
LI7	1.842	2.352	2.450	2.510	3.248	
LI8	2.015	2.646	2.818	2.647	2.999	4.104
NO1	1.985	2.200	2.321	2.399	2.568	2.856
NO3	2.004	2.192	2.092	2.121	2.646	2.593
NO5	1.874	2.152	2.158	2.223	2.526	2.615
RV3	0.291	0.394	0.372	0.311	0.445	0.459
RV4	0.257	0.432	0.631	0.217	0.396	0.393
RV6	0.159	0.401	0.556	0.267	0.332	0.389
SalesGro	-0.599	-0.159	-0.937	-0.623	-0.670	-0.612
DOP	0.332	0.664	0.645	0.609	0.530	0.449
DROI	0.377	0.535	0.508	0.469	0.438	0.331

Covariance Matrix

	NO1	NO3	NO5	RV3	RV4	RV6
NO1	3.411					
NO3	2.534	3.308				
NO5	2.349	2.388	3.280			
RV3	0.530	0.565	0.264	1.494		
RV4	0.328	0.412	0.386	0.686	0.917	
RV6	0.462	0.389	0.314	0.794	0.569	1.002
SalesGro	-0.499	-1.096	-0.621	-1.536	-0.965	-0.969
DOP	0.471	0.453	0.221	0.366	0.405	0.272
DROI	0.423	0.535	0.118	0.503	0.387	0.328

Covariance Matrix

	SalesGro	DOP	DROI
SalesGro	9.890		
DOP	-1.951	2.202	
DROI	-1.802	1.770	1.918

Total Variance = 67.440 Generalized Variance = 10.024

Largest Eigenvalue = 35.539 Smallest Eigenvalue = 0.181

Condition Number = 14.014

Number of Iterations = 17

LISREL Estimates (Maximum Likelihood)

Measurement Equations

EFF1 = 1.005*valued, Errorvar.= 1.179 , R^2 = 0.651		
Standerr	(0.127)	(0.210)
Z-values	7.913	5.608
P-values	0.000	0.000

```
    EFF3 = 0.728*valued, Errorvar.= 0.888 , R² = 0.566
Standerr  (0.101)                  (0.156)
Z-values   7.184                    5.701
P-values   0.000                    0.000

    EFF4 = 1.181*valued, Errorvar.= 0.567 , R² = 0.843
Standerr  (0.123)                  (0.113)
Z-values   9.600                    5.027
P-values   0.000                    0.000

    EFF6 = 1.019*valued, Errorvar.= 1.955 , R² = 0.537
Standerr  (0.147)                  (0.342)
Z-values   6.939                    5.725
P-values   0.000                    0.000

    EFF7 = 1.030*valued, Errorvar.= 1.283 , R² = 0.643
Standerr  (0.131)                  (0.228)
Z-values   7.845                    5.619
P-values   0.000                    0.000

    COM1 = 0.934*valued, Errorvar.= 1.303 , R² = 0.594
Standerr  (0.126)                  (0.230)
Z-values   7.423                    5.675
P-values   0.000                    0.000

    COM2 = 0.812*valued, Errorvar.= 1.480 , R² = 0.493
Standerr  (0.124)                  (0.257)
Z-values   6.564                    5.756
P-values   0.000                    0.000

    COM3 = 0.982*valued, Errorvar.= 1.129 , R² = 0.651
Standerr  (0.124)                  (0.201)
Z-values   7.908                    5.609
P-values   0.000                    0.000

     LI1 = 1.000*valued, Errorvar.= 1.199 , R² = 0.646
Standerr                           (0.213)
Z-values                            5.616
P-values                            0.000

     LI6 = 0.978*valued, Errorvar.= 0.974 , R² = 0.682
Standerr  (0.120)                  (0.175)
Z-values   8.175                    5.563
P-values   0.000                    0.000

     LI7 = 1.127*valued, Errorvar.= 0.474  , R² = 0.854
Standerr  (0.116)                  (0.0958)
Z-values   9.700                    4.947
P-values   0.000                    0.000

     LI8 = 1.195*valued, Errorvar.= 0.984 , R² = 0.760
Standerr  (0.135)                  (0.183)
Z-values   8.857                    5.392
P-values   0.000                    0.000

     NO1 = 1.065*valued, Errorvar.= 0.935 , R² = 0.726
Standerr  (0.124)                  (0.171)
Z-values   8.556                    5.479
P-values   0.000                    0.000

     NO3 = 1.049*valued, Errorvar.= 0.906 , R² = 0.726
Standerr  (0.123)                  (0.165)
Z-values   8.558                    5.478
P-values   0.000                    0.000

     NO5 = 0.980*valued, Errorvar.= 1.183 , R² = 0.639
Standerr  (0.125)                  (0.210)
Z-values   7.810                    5.624
P-values   0.000                    0.000

     RV3 = 1.000*rv, Errorvar.= 0.539 , R² = 0.639
Standerr                         (0.149)
Z-values                          3.616
P-values                          0.000
```

```
     RV4 = 0.729*rv, Errorvar.= 0.409  , R² = 0.553
Standerr  (0.125)              (0.0943)
Z-values   5.842                4.342
P-values   0.000                0.000

     RV6 = 0.820*rv, Errorvar.= 0.359  , R² = 0.642
Standerr  (0.135)              (0.0999)
Z-values   6.080                3.590
P-values   0.000                0.000

SalesGro =  - 1.054*shv, Errorvar.= 7.864 , R² = 0.205
Standerr     (0.268)               (1.356)
Z-values     -3.937                 5.798
P-values      0.000                 0.000

     DOP = 1.000*shv, Errorvar.= 0.378 , R² = 0.828
Standerr                        (0.210)
Z-values                         1.798
P-values                         0.072

    DROI = 0.969*shv, Errorvar.= 0.205 , R² = 0.893
Standerr  (0.124)              (0.191)
Z-values   7.825                1.071
P-values   0.000                0.284
```

Covariance Matrix of Independent Variables

	shv	rv	valued
shv	1.824		
	(0.415)		
	4.399		
rv	0.472	0.955	
	(0.196)	(0.262)	
	2.412	3.651	
valued	0.447	0.455	2.183
	(0.260)	(0.207)	(0.535)
	1.719	2.204	4.082

Log-likelihood Values

	Estimated Model	Saturated Model
Number of free parameters(t)	45	231
-2ln(L)	1845.775	1631.349
AIC (Akaike, 1974)*	1935.775	2093.349
BIC (Schwarz, 1978)*	2036.958	2612.752

*LISREL uses AIC= 2t - 2ln(L) and BIC = tln(N)- 2ln(L)

Goodness of Fit Statistics

Degrees of Freedom for (C1)-(C2)	186
Maximum Likelihood Ratio Chi-Square (C1)	214.426 (P = 0.0751)
Browne's (1984) ADF Chi-Square (C2_NT)	193.092 (P = 0.3455)
Estimated Non-centrality Parameter (NCP)	28.426
90 Percent Confidence Interval for NCP	(0.0 ; 68.855)
Minimum Fit Function Value	3.063
Population Discrepancy Function Value (F0)	0.406
90 Percent Confidence Interval for F0	(0.0 ; 0.984)
Root Mean Square Error of Approximation (RMSEA)	0.0467
90 Percent Confidence Interval for RMSEA	(0.0 ; 0.0727)
P-Value for Test of Close Fit (RMSEA < 0.05)	0.560
Expected Cross-Validation Index (ECVI)	4.349
90 Percent Confidence Interval for ECVI	(3.943 ; 4.927)
ECVI for Saturated Model	6.600
ECVI for Independence Model	53.722

Chi-Square for Independence Model (210 df)	3718.511
Normed Fit Index (NFI)	0.947
Non-Normed Fit Index (NNFI)	0.998
Parsimony Normed Fit Index (PNFI)	0.839
Comparative Fit Index (CFI)	0.998
Incremental Fit Index (IFI)	0.998
Relative Fit Index (RFI)	0.941
Critical N (CN)	84.542
Root Mean Square Residual (RMR)	0.186
Standardized RMR	0.0529
Goodness of Fit Index (GFI)	0.792
Adjusted Goodness of Fit Index (AGFI)	0.742
Parsimony Goodness of Fit Index (PGFI)	0.638

The Modification Indices Suggest to Add an Error Covariance

Between	and	Decrease in Chi-Square	New Estimate
COM1	EFF4	11.5	0.39

Time used 0.811 seconds

Structural Model

Total Sample Size(N) = 70

Univariate Summary Statistics for Continuous Variables

Variable	Mean	St. Dev.	Skewness	Kurtosis	Minimum	Freq.	Maximum	Freq.
EFF1	3.913	1.839	0.103	-0.700	1.000	8	8.497	1
EFF2	3.589	1.736	0.336	-0.843	1.000	7	7.590	1
EFF3	2.628	1.430	0.576	-0.594	1.000	19	6.000	2
EFF4	4.190	1.901	-0.223	-1.268	1.000	6	7.000	7
EFF5	3.533	1.859	0.114	-1.161	0.523	1	7.000	4
EFF6	3.015	2.055	0.688	-0.886	1.000	23	7.000	6
EFF7	3.360	1.897	0.187	-1.271	1.000	17	7.000	2
COM1	4.104	1.792	-0.151	-1.032	1.000	6	7.000	6
COM2	2.730	1.709	0.503	-1.154	1.000	24	6.000	5
COM3	3.352	1.798	0.176	-1.165	1.000	15	7.000	2
COM4	3.278	1.857	0.385	-1.061	1.000	15	7.000	3
LI1	3.841	1.839	0.130	-1.094	1.000	7	7.385	1
LI2	3.732	1.662	0.084	-0.945	1.000	6	7.000	3
LI3	4.010	1.559	-0.186	-0.975	1.000	3	7.000	2
LI4	3.303	1.743	0.348	-0.729	1.000	13	7.000	4
LI5	3.199	1.734	0.197	-1.226	0.953	1	7.000	1
LI6	3.768	1.749	0.108	-1.295	1.000	4	7.000	3
LI7	4.018	1.802	-0.128	-1.274	1.000	5	7.000	4
LI8	3.327	2.026	0.279	-1.369	1.000	19	7.000	4
NO1	3.707	1.847	-0.049	-1.260	1.000	11	7.000	3
NO2	3.825	1.840	-0.177	-1.198	1.000	11	7.000	3
NO3	3.543	1.819	-0.031	-1.259	1.000	14	7.000	2
NO4	3.188	2.059	0.300	-1.408	1.000	24	7.000	3
NO5	3.423	1.811	0.236	-0.953	1.000	14	7.000	4
NO6	3.120	1.645	0.134	-1.288	1.000	16	6.000	5
RV1	4.544	1.109	-0.246	0.473	2.000	4	7.000	3
RV2	4.338	1.187	-0.110	-0.316	2.000	5	7.000	2
RV3	4.794	1.222	-0.177	-0.149	2.000	3	7.000	6
RV4	4.736	0.957	-0.044	1.201	2.000	2	7.000	3
RV5	4.151	1.133	0.062	0.107	2.000	6	7.000	2
RV6	4.680	1.001	-0.379	0.273	2.000	2	7.000	1
AnnualTu	5.571	2.300	0.075	-0.815	1.000	2	11.000	1
SalesGro	12.711	3.145	-0.118	-0.801	7.000	4	19.000	1
Operatin	7.174	1.982	-0.623	0.074	2.000	2	11.000	1
DOP	4.171	1.484	-0.304	-0.694	1.000	3	7.000	2
DROI	4.296	1.385	-0.522	0.364	1.000	4	7.000	3

Test of Univariate Normality for Continuous Variables

	Skewness		Kurtosis		Skewness and Kurtosis	
Variable	Z-Score	P-Value	Z-Score	P-Value	Chi-Square	P-Value
EFF1	0.372	0.710	-1.628	0.104	2.789	0.248
EFF2	1.198	0.231	-2.216	0.027	6.347	0.042
EFF3	1.985	0.047	-1.260	0.208	5.525	0.063
EFF4	-0.803	0.422	-5.089	0.000	26.540	0.000
EFF5	0.413	0.680	-4.109	0.000	17.058	0.000
EFF6	2.326	0.020	-2.415	0.016	11.241	0.004
EFF7	0.674	0.500	-5.117	0.000	26.643	0.000
COM1	-0.547	0.584	-3.209	0.001	10.598	0.005
COM2	1.754	0.079	-4.053	0.000	19.504	0.000
COM3	0.635	0.525	-4.140	0.000	17.540	0.000
COM4	1.365	0.172	-3.392	0.001	13.372	0.001
LI1	0.472	0.637	-3.612	0.000	13.269	0.001
LI2	0.305	0.761	-2.710	0.007	7.437	0.024
LI3	-0.672	0.502	-2.875	0.004	8.719	0.013
LI4	1.237	0.216	-1.738	0.082	4.550	0.103
LI5	0.711	0.477	-4.669	0.000	22.310	0.000
LI6	0.391	0.696	-5.379	0.000	29.086	0.000
LI7	-0.465	0.642	-5.143	0.000	26.670	0.000
LI8	1.000	0.317	-6.304	0.000	40.738	0.000
NO1	-0.178	0.859	-5.006	0.000	25.093	0.000
NO2	-0.639	0.523	-4.414	0.000	19.895	0.000
NO3	-0.112	0.911	-4.996	0.000	24.971	0.000

NO4	1.074	0.283	-6.904	0.000	48.817	0.000
NO5	0.851	0.395	-2.754	0.006	8.309	0.016
NO6	0.487	0.626	-5.304	0.000	28.365	0.000
RV1	-0.884	0.376	0.963	0.336	1.709	0.426
RV2	-0.397	0.691	-0.474	0.636	0.382	0.826
RV3	-0.641	0.522	-0.094	0.925	0.420	0.811
RV4	-0.158	0.874	1.787	0.074	3.217	0.200
RV5	0.226	0.822	0.398	0.691	0.209	0.901
RV6	-1.343	0.179	0.671	0.502	2.254	0.324
AnnualTu	0.271	0.786	-2.090	0.037	4.440	0.109
SalesGro	-0.429	0.668	-2.029	0.042	4.301	0.116
Operatin	-2.130	0.033	0.340	0.734	4.651	0.098
DOP	-1.086	0.278	-1.606	0.108	3.759	0.153
DROI	-1.815	0.070	0.809	0.419	3.947	0.139

Relative Multivariate Kurtosis = 1.022

Test of Multivariate Normality for Continuous Variables

Skewness			Kurtosis			Skewness and Kurtosis	
Value	Z-Score	P-Value	Value	Z-Score	P-Value	Chi-Square	P-Value
799.922	6.676	0.000	1398.063	4.167	0.000	61.929	0.000

```
Sample Size = 70
Latent Variables  shv rv valued
Relationships
EFF1 = valued
EFF3 = valued
EFF4 = valued
EFF6 = valued
EFF7 = valued
COM1 = valued
COM2 = valued
COM3 = valued
LI1 = 1.00*valued
LI6 = valued
LI7 = valued
LI8 = valued
NO1 = valued
NO3 = valued
NO5 = valued
RV3 = 1.00*rv
RV4 = rv
RV6 = rv
SalesGro = shv
DOP = 1.00*shv
DROI = shv
shv = rv
rv = valued
Path Diagram
End of Problem

Sample Size =    70
```

Covariance Matrix

	RV3	RV4	RV6	SalesGro	DOP	DROI
RV3	1.494					
RV4	0.686	0.917				
RV6	0.794	0.569	1.002			
SalesGro	-1.536	-0.965	-0.969	9.890		
DOP	0.366	0.405	0.272	-1.951	2.202	
DROI	0.503	0.387	0.328	-1.802	1.770	1.918
EFF1	0.471	0.482	0.555	-0.887	0.405	0.441
EFF3	0.160	0.168	0.239	-0.608	0.333	0.229
EFF4	0.513	0.486	0.504	-1.093	0.542	0.518
EFF6	0.408	0.079	0.201	-1.568	0.274	0.549
EFF7	0.451	0.365	0.478	-0.301	0.546	0.514
COM1	0.674	0.347	0.450	-1.373	0.367	0.448
COM2	0.291	0.257	0.159	-0.599	0.332	0.377

COM3	0.394	0.432	0.401	-0.159	0.664	0.535
LI1	0.372	0.631	0.556	-0.937	0.645	0.508
LI6	0.311	0.217	0.267	-0.623	0.609	0.469
LI7	0.445	0.396	0.332	-0.670	0.530	0.438
LI8	0.459	0.393	0.389	-0.612	0.449	0.331
NO1	0.530	0.328	0.462	-0.499	0.471	0.423
NO3	0.565	0.412	0.389	-1.096	0.453	0.535
NO5	0.264	0.386	0.314	-0.621	0.221	0.118

Covariance Matrix

	EFF1	EFF3	EFF4	EFF6	EFF7	COM1
EFF1	3.383					
EFF3	1.764	2.044				
EFF4	2.654	1.930	3.612			
EFF6	2.267	1.760	2.549	4.223		
EFF7	2.455	1.601	2.784	2.332	3.597	
COM1	1.869	1.433	2.723	2.242	2.165	3.210
COM2	1.750	1.429	1.988	1.961	1.925	1.440
COM3	2.200	1.668	2.448	1.870	2.518	2.006
LI1	2.300	1.640	2.537	2.212	2.094	1.879
LI6	1.841	1.380	2.606	2.147	2.061	2.032
LI7	2.467	1.823	2.923	2.336	2.458	2.260
LI8	2.555	1.749	3.041	2.492	2.658	2.452
NO1	2.199	1.642	2.733	2.526	2.247	2.133
NO3	2.366	1.673	2.593	2.739	2.371	2.117
NO5	2.182	1.414	2.334	2.303	1.990	1.692

Covariance Matrix

	COM2	COM3	LI1	LI6	LI7	LI8
COM2	2.920					
COM3	1.963	3.234				
LI1	1.941	2.239	3.382			
LI6	1.649	2.002	2.114	3.060		
LI7	1.842	2.352	2.450	2.510	3.248	
LI8	2.015	2.646	2.818	2.647	2.999	4.104
NO1	1.985	2.200	2.321	2.399	2.568	2.856
NO3	2.004	2.192	2.092	2.121	2.646	2.593
NO5	1.874	2.152	2.158	2.223	2.526	2.615

Covariance Matrix

	NO1	NO3	NO5
NO1	3.411		
NO3	2.534	3.308	
NO5	2.349	2.388	3.280

Total Variance = 67.440 Generalized Variance = 10.024

Largest Eigenvalue = 35.539 Smallest Eigenvalue = 0.181

Condition Number = 14.014

Number of Iterations = 18

LISREL Estimates (Maximum Likelihood)

Measurement Equations

RV3 = 1.000*rv, Errorvar.= 0.542 , R^2 = 0.637

Standerr		(0.149)
Z-values		3.648
P-values		0.000

RV4 = 0.731*rv, Errorvar.= 0.408 , R^2 = 0.555

Standerr	(0.125)	(0.0940)

```
Z-values   5.851                4.339
P-values   0.000                0.000

     RV6 = 0.819*rv, Errorvar.= 0.362  , R² = 0.639
Standerr  (0.135)              (0.0995)
Z-values   6.087                3.638
P-values   0.000                0.000

SalesGro =  - 1.055*shv, Errorvar.= 7.875 , R² = 0.204
Standerr     (0.268)               (1.358)
Z-values     -3.931                 5.799
P-values      0.000                 0.000

     DOP = 1.000*shv, Errorvar.= 0.393 , R² = 0.822
Standerr                          (0.213)
Z-values                           1.841
P-values                           0.066

    DROI = 0.977*shv, Errorvar.= 0.190 , R² = 0.901
Standerr  (0.127)              (0.196)
Z-values   7.693                0.968
P-values   0.000                0.333


    EFF1 = 1.005*valued, Errorvar.= 1.179 , R² = 0.652
Standerr  (0.127)                  (0.210)
Z-values   7.914                   5.608
P-values   0.000                   0.000

    EFF3 = 0.728*valued, Errorvar.= 0.888 , R² = 0.566
Standerr  (0.101)                  (0.156)
Z-values   7.183                   5.701
P-values   0.000                   0.000

    EFF4 = 1.181*valued, Errorvar.= 0.567 , R² = 0.843
Standerr  (0.123)                  (0.113)
Z-values   9.598                   5.026
P-values   0.000                   0.000

    EFF6 = 1.019*valued, Errorvar.= 1.956 , R² = 0.537
Standerr  (0.147)                  (0.342)
Z-values   6.937                   5.725
P-values   0.000                   0.000

    EFF7 = 1.030*valued, Errorvar.= 1.283 , R² = 0.643
Standerr  (0.131)                  (0.228)
Z-values   7.842                   5.619
P-values   0.000                   0.000

    COM1 = 0.935*valued, Errorvar.= 1.303 , R² = 0.594
Standerr  (0.126)                  (0.230)
Z-values   7.422                   5.675
P-values   0.000                   0.000

    COM2 = 0.812*valued, Errorvar.= 1.481 , R² = 0.493
Standerr  (0.124)                  (0.257)
Z-values   6.562                   5.756
P-values   0.000                   0.000

    COM3 = 0.982*valued, Errorvar.= 1.130 , R² = 0.650
Standerr  (0.124)                  (0.202)
Z-values   7.904                   5.609
P-values   0.000                   0.000

     LI1 = 1.000*valued, Errorvar.= 1.199 , R² = 0.645
Standerr                           (0.214)
Z-values                            5.616
P-values                            0.000

     LI6 = 0.977*valued, Errorvar.= 0.975 , R² = 0.681
Standerr  (0.120)                  (0.175)
Z-values   8.170                    5.563
P-values   0.000                    0.000

     LI7 = 1.127*valued, Errorvar.= 0.474  , R² = 0.854
```

```
Standerr  (0.116)                  (0.0958)
Z-values   9.698                   4.946
P-values   0.000                   0.000

     LI8 = 1.196*valued, Errorvar.= 0.983 , R² = 0.761
Standerr  (0.135)                  (0.182)
Z-values   8.859                   5.391
P-values   0.000                   0.000

     NO1 = 1.065*valued, Errorvar.= 0.935 , R² = 0.726
Standerr  (0.124)                  (0.171)
Z-values   8.555                   5.479
P-values   0.000                   0.000

     NO3 = 1.049*valued, Errorvar.= 0.906 , R² = 0.726
Standerr  (0.123)                  (0.165)
Z-values   8.556                   5.478
P-values   0.000                   0.000

     NO5 = 0.981*valued, Errorvar.= 1.181 , R² = 0.640
Standerr  (0.125)                  (0.210)
Z-values   7.814                   5.623
P-values   0.000                   0.000
```

Structural Equations

```
     shv = 0.505*rv, Errorvar.= 1.566 , R² = 0.134
Standerr  (0.188)              (0.365)
Z-values   2.684                4.289
P-values   0.007                0.000

      rv = 0.214*valued, Errorvar.= 0.853 , R² = 0.105
Standerr  (0.0877)                 (0.237)
Z-values   2.443                   3.601
P-values   0.015                   0.000
```

NOTE: R² for Structural Equations are Hayduk's (2006) Blocked-Error R²

Reduced Form Equations

```
     shv = 0.108*valued, Errorvar.= 1.784, R² = 0.0141
Standerr  (0.0579)
Z-values   1.868
P-values   0.062

      rv = 0.214*valued, Errorvar.= 0.853, R² = 0.105
Standerr  (0.0883)
Z-values   2.426
P-values   0.015
```

Variances of Independent Variables

```
     valued
   --------
      2.183
    (0.535)
      4.081
```

Covariance Matrix of Latent Variables

```
            shv         rv     valued
        --------   --------   --------
    shv      1.809
     rv      0.481      0.953
 valued      0.236      0.467      2.183
```

Log-likelihood Values

```
                    Estimated Model          Saturated Model
                    ---------------          ---------------
```

Number of free parameters(t)	44	231
-2ln(L)	1846.714	1631.349
AIC (Akaike, 1974)*	1934.714	2093.349
BIC (Schwarz, 1978)*	2033.648	2612.752

*LISREL uses AIC= 2t - 2ln(L) and BIC = tln(N)- 2ln(L)

Goodness of Fit Statistics

Degrees of Freedom for (C1)-(C2)	187
Maximum Likelihood Ratio Chi-Square (C1)	215.365 (P = 0.0760)
Browne's (1984) ADF Chi-Square (C2_NT)	193.870 (P = 0.3500)
Estimated Non-centrality Parameter (NCP)	28.365
90 Percent Confidence Interval for NCP	(0.0 ; 68.860)
Minimum Fit Function Value	3.077
Population Discrepancy Function Value (F0)	0.405
90 Percent Confidence Interval for F0	(0.0 ; 0.984)
Root Mean Square Error of Approximation (RMSEA)	0.0466
90 Percent Confidence Interval for RMSEA	(0.0 ; 0.0725)
P-Value for Test of Close Fit (RMSEA < 0.05)	0.564
Expected Cross-Validation Index (ECVI)	4.334
90 Percent Confidence Interval for ECVI	(3.929 ; 4.912)
ECVI for Saturated Model	6.600
ECVI for Independence Model	53.722
Chi-Square for Independence Model (210 df)	3718.511
Normed Fit Index (NFI)	0.947
Non-Normed Fit Index (NNFI)	0.998
Parsimony Normed Fit Index (PNFI)	0.843
Comparative Fit Index (CFI)	0.998
Incremental Fit Index (IFI)	0.998
Relative Fit Index (RFI)	0.941
Critical N (CN)	84.605
Root Mean Square Residual (RMR)	0.229
Standardized RMR	0.0630
Goodness of Fit Index (GFI)	0.791
Adjusted Goodness of Fit Index (AGFI)	0.742
Parsimony Goodness of Fit Index (PGFI)	0.641

The Modification Indices Suggest to Add an Error Covariance

Between	and	Decrease in Chi-Square	New Estimate
COM1	EFF4	11.5	0.39

Time used 0.874 seconds