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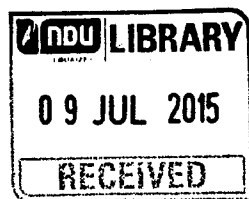
**Bordeaux Management School
Institute of International Business**

**SATISFACTION WITH MOBILE PHONE SERVICES IN LEBANON:
APPLICATION OF THE AMERICAN CUSTOMER SATISFACTION
INDEX (ACSI) IN THE LEBANESE MOBILE PHONE SERVICES
INDUSTRY**

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**A Thesis Submitted in Partial Fulfillment of the
Requirements for the Joint Degree of the Master of Business
Administration (M.B.A.) and the Master of Science in
International Business (M.I.B.)**



**NDU-Lebanon
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DECLARATION

I hereby declare that this thesis is entirely my own work and that it has not been submitted as an exercise for a degree at any other University.

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ABSTRACT

Purpose – The goal behind this research is to offer an accurate description of the perceptions and behaviors of mobile phone users in Lebanon by adapting the ACSI model to explore the antecedents and results of the end user satisfaction.

Design/methodology/approach – The data were gathered via an online survey from 232 mobile phone subscribers in Lebanon using the convenience sampling technique.

Findings – The service perceptions and customer behaviors of mobile phone subscribers in Lebanon were illustrated to an extent by the adapted ACSI model as the discriminant validity between perceived quality and customer satisfaction is compromised and argued in the Lebanese context. In particular, the model indicates that customer satisfaction with mobile services in Lebanon is negatively affected by expectations, and positively affected by perceived value and perceived quality, and is quality-driven not price-driven. It also suggests that the customers do not assess the value of mobile services based on expectations, but rather by contrasting their expectations with perceived quality. Customer satisfaction has a direct positive effect on repurchase likelihood, and no impact on price tolerance. In addition, it has a direct negative effect on customer complaints. Finally, the study has found that customer complaints have no effect on both repurchase likelihood and price tolerance.

Research limitations/implications – The results cannot be generalized to the population because of the convenience sampling method employed in this study. Ideally, it is suggested to employ more probabilistic data collection techniques. It is very important to have a longitudinal study to observe the progress of the customers' behavior over time. For the results to be contrasted with different countries' satisfaction indices, the model needs to be examined regularly, and national customer satisfaction indexing has to be carried out in various industries and sectors concurrently.

Practical implications – The enhancement of mobile services' customer satisfaction in Lebanon is suggested through the privatization and liberalization of the mobile phone sector in Lebanon, and through opening the market for further competition. The subscriber's needs must be better understood so that the mobile services' offering be improved.

Originality/value – This research is the very first study applying the adapted ACSI model in the context of mobile phone services in Lebanon. Above all, policy makers, mobile services' providers and clients may gain insights from this study. Furthermore, additional researches in the context of mobile business in Lebanon can be formed based on it.

Keywords – Telecommunication, Lebanon, Mobile phone, Customer satisfaction index, Consumer behavior, Mobile services

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LIST OF ABBREVIATIONS

All the abbreviations used in this thesis are placed here in alphabetical order:

4G: Fourth Generation

ACSI: American Customer Satisfaction index

AGFI: Adjusted Goodness of Fit Index

AIC: Akaike Information Criterion

AVE: Average Variance Extracted

BIC: Bayesian Information Criterion

BOT: Build, Operate and Transfer

CAIC: Consistent Akaike Information Criterion

CC: Customer Complaints

CE: Customer Expectations

CFA: Confirmatory Factor Analysis

CFI: Comparative Fit Index

CR: Composite Reliability

CS: Customer Satisfaction

DK: Deutsche Kundenbarometer

FTML: France Telecom Mobile Liban

GOF: Goodness Of Fit

GPRS: General Packet Radio Service

GSM: Global System for Mobile

IFI: Inclusive Fitness Initiative

LTE: Long Term Evolution

MIC: Mobile Interim Company

MLE: Maximum Likelihood Estimation

ML: Maximum Likelihood

NFI: Normed Fit Index

OPEX: Operating Expenses

OTMT: Orascom Telecom Media and Technology

PQ: Perceived Quality

PT: Price Tolerance

PV: Perceived Value

RL: Repurchase Likelihood

RMS: Root Mean Square

RMSEA: Root Mean Square Error of Approximation

SCSB: Swedish Customer Satisfaction Barometer

SEM: Structural Equation Modeling

SMS: Short Message Service

TFI: Teller Fit Index

TLI: Tucker-Lewis Index

VAT: Value Added Tax

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Chapter 1

INTRODUCTION

1.1 Overview and Significance of the American Customer Satisfaction Index (ACSI)

The information technology has highly infiltrated today's world and businesses. Moreover, the service sector has become a major part in any economy. In consequence, intangible assets have become an essential part of the modern economy. Therefore, traditional economic measurements need to be updated in a way to comply with this shift in today's economy so that these measurements may give an accurate picture of a nation's economic performance and a firm's performance. National consumer satisfaction indices were developed to provide a means to address these latest issues in the present economy and today's firms (Anderson & Fornell, 2000).

At the present time, the economic climate is characterized by the high competition among suppliers to gain customers. Customers do not contend for products anymore. As a result, the sense of economic activity is defined by customer satisfaction. The amount of production and consumption does not matter anymore as now; the main concern is how much the consumer is satisfied in the actual economy. Having a satisfied customer is the essential initiative behind an economic system where businesses compete. Therefore, growing economic prosperity in such an environment is associated with the increase in customer satisfaction. Firms, which are likely to make a customer satisfied, are much more likely to attract investors (Anderson & Fornell, 2000).

In addition to that, the quality of the products produced must be subject to measurement in a uniform and systematic way like any other economic objective since it is one of the bases of a nation's competitive advantages and an element of the criterion of living. National customer satisfaction indices provide a further precise picture of the economy since it takes the quality of the products produced into consideration (Anderson & Fornell, 2000).

ACSI is a national customer satisfaction index that is a uniform system for assessing, comparing and eventually improving customer satisfaction throughout businesses, sectors and

nations. Therefore, it can be a valuable tool for policymakers in the public and private sector, as well as for customers that are likely to make a purchase decision. Furthermore, the future financial situation of a firm in addition to its present and past performance measures can be provided using ACSI. Moreover, it has been proven that ACSI and the Return on Investment have a positive relationship. Systematic benchmarking with time and throughout businesses can be made through ACSI since it is a uniform system of assessment that can be compared. Enhancement of the quality of goods, services and economic life are direct implications of the information provided by ACSI (Ittner & Larcker, 1996; Anderson & Fornell, 2000).

1.2 Need for the Study

The Customs, VAT and telecom revenues are considered to be the cash-strapped treasury main income in Lebanon. Yearly, it is noted that the mobile phone sector contribution to the Lebanese cash-strapped treasury revenue is between \$1.2 and \$1.4 billion, which represents the third largest source of income (The Daily Star, 2014).

It should be noted that the mobile phone sector in Lebanon is under the Lebanese state control not like other countries in the Middle East which have their telecom sectors liberalized. In 2012, Lebanon recorded a rate of 89% in mobile phone penetration which is considered a very low rate in comparison to many different countries in the region (Smith, 2013). The mobile networks are actually operated on behalf of the state by two private companies which are Alfa (OTMT) and Touch (Zain). These two firms are compensated from the Lebanese state with a monthly revenue paid per subscriber, and the Lebanese treasury gets to have all the earnings collected.

Little is known about the end-user satisfaction with mobile phone services across Lebanon given the state regulatory policy, as well as with the service provided by Alfa (OTMT) and Touch (Zain) and the importance of the sector to the Lebanese economy. Likewise, the mobile phone user satisfaction's antecedents and consequences in Lebanon with regard to mobile phone services need to be explored. Unquestionably, no similar research has been carried out throughout Lebanon.

1.3 Purpose of the Study

The mobile phone user satisfaction regarding mobile phone services in Lebanon is explored in this study by adapting the ACSI model. Moreover, the antecedents and consequences of the end user satisfaction are being investigated using this same model. The subsequent objectives are expected to be achieved in this study:

- 1) To provide a description of the perceptions as well as the behaviors of cellular phone customers in Lebanon.
- 2) To suggest a series of measurements on policymakers in the public and private sector with the aim of improving the mobile phone service in Lebanon and meeting mobile phone users' expectations.
- 3) To offer valuable insights for future research.

1.4 International Application

The application of uniform, comparable, national customer satisfaction indices on a global scale and on a national scale will lead to more understanding and evolution of the quality of the products and services produced and consumed in addition to an improvement in customer satisfaction globally and nationally. Hence, national competitiveness and the standard of living of citizens will be enhanced. Moreover, these measurements are excellent indicators of economic performance and the performance of firms in today's economy; thus, they may serve as significant tools for investors, policymakers and international as well as local customers.

1.5 Organization of the Study

The first chapter of this study introduces the ACSI model and its relevant importance to today's economy. Then, it highlights the importance of the Telecommunication Sector, in particular the mobile phone sector, to the Lebanese economy, and the need to explore end user satisfaction associated with mobile phone services given different constraints. Finally, the objectives of the study are mentioned.

Chapter two offers a literature review and an overview of different topics related to the study. First, it begins by providing a summary of the mobile phone sector in Lebanon. Second, it discusses customer satisfaction. At last, the hypothetical structure of the American Customer Satisfaction Index is discussed and elaborated highlighting ACSI antecedents which consist of customer expectations, perceived quality, and perceived value, and ACSI consequences which comprise customer loyalty and customer complaints.

Chapter three covers the hypotheses formulation and the quantitative instrument used for data collection and analysis in addition to the procedures used in this research. The procedures and methodology utilized in this study are strongly discussed in this chapter.

Chapter four discusses the survey findings and reports the statistical results that allow a thorough discourse of the proposed hypothesis. Four sections are found in this chapter. The first section includes the descriptive statistics. The second section presents the results of the confirmatory factors analyses of the measurement model. The third section presents the results on hypothesized model testing. The fourth section presents the index score associated with customer satisfaction in the mobile phone sector in Lebanon.

At last, chapter five covers the study findings in addition to the study's limitations, and the study's managerial implications plus the conclusions. This chapter is composed of three sections. The first section explains and discusses the results of the study. The second section addresses the study limitations and future research. Finally, the third section includes the managerial implications.

Chapter 2

LITERATURE REVIEW

This chapter details a review of the literature and an overview of different topics related to the study. First, it begins by providing a synopsis of the mobile phone sector in Lebanon. Second, it discusses customer satisfaction. At last, the hypothetical structure of the American Customer Satisfaction Index is discussed and elaborated highlighting ACSI antecedents which consist of customer expectations, perceived quality, and perceived value, and ACSI consequences which are made up of customer loyalty and customer complaints.

2.1 Lebanese Mobile Phone Sector Overview

The GSM cellular communication was introduced to Lebanon in 1993. Two major companies were in charge of the radio study, to later design the required network architecture and implement it. These companies were, on the one hand, France Telecom (represented by its Lebanese branch, FTML and its brand name (Cellis) and a local company (LibanCell).

The implementation started out in 1994. Back then, a BOT (build, operate and transfer) contract was signed with the Hariri Government for eleven years.

The recruitment process was carried out throughout 1994, with fresh graduate operatives, and experienced personnel from the wired Lebanese telecommunication companies such as Ogero or others such as Alcatel, Ericsson and Siemens.

Problems arose in 2002. The companies were accused of not declaring all their revenues and profits to the government in a way to escape taxes. As a result, the companies no longer owned the sector, and a management contract was signed till 2005. It is witnessed that within the new management context, budget cuts were conducted and things changed a bit.

However in 2004, the contract was breached. The assets returned to the Lebanese state, and the operatives were given the choice of continuity or taking thirty months of indemnity and leaving the country for at least for five years. More than two thirds of the employees opted for

the latter choice. It became the responsibility of the remaining third to ensure a good transition and the sustainability of the network in a way not to have any impact on the customers.

A new management contract was signed for four years with FalDete to manage Cellis. FalDete was a joint venture between a Saudi company Fal and a German consulting company Detekon. On the other hand, LibanCell was to be managed by the Kuwaiti operator MTC. The mobile sector was in fact divided between two public companies (MIC1 and MIC2 with MIC referring to mobile Interim Company) and two brand names were also taken by the government Alfa and MTC respectively for MIC1 and MIC2.

Alfa and MTC started with the remaining of Cellis and LibanCell employees. The two new top managements had two major concerns: to fulfill the human resources gaps and to keep the network stability.

The recruitment process started in 2004, and gaps were consequently being filled. The personnel also managed to maintain a stable network. However, the management context gave a fixed and a limited monthly amount to the companies to run the sector. This amount was referred to as OPEX. It was actually independent of the amount of subscribers the company had and any new services. In other terms, no incentives were given by the owner (the Lebanese State) to the management to even improve. As every company in the world would seek to maximize its benefits given limited revenue, FalDete and MTC did so through budget cuts and cost reduction. In four years, almost no new services were released in the market. Hence, “demotivation” and the emigration of skilled and expert resources were the outcome.

The contract ended in December 2008, and there was a transition phase. During this period that extended till February 2009, a new bid was made yielding to MTC remaining in charge of MIC2 and Orascom-Telecom (an Egyptian operator) taking charge of MIC1, Alfa.

There was a new management context in which the monthly revenue was paid per subscriber; thus giving incentives to the company to increase its subscribers' base and enhance the quality of its services while constantly providing new services. In consequence, the whole mobile network was being replaced, new services were released like never before and enhancements were made on existing ones.

Alfa and MTC took advantage of the increased demand for mobile communications in Lebanon to enhance the existing services and introduce attractive new ones in a way to have more and more subscribers and boost these subscribers' loyalty.

Hence, the Credit Transfer service was released in 2008, followed by enhancements on the existing Prepaid Services (migration from units to dollars, freezing the credits during grace instead of clearance, adding five extra days to the active period and finally accumulating days up to one year), this in addition to the free Call Me Back service (where you can use up to forty free preset SMS in case you depleted your credit), the BlackBerry Service, the GPRS Roaming, the Third-Generation mobile services and, most lately, the LTE services.

The total subscribers of the mobile phone sector are estimated to reach about 2.6 million subscribers by the end of year 2014. Year 2013, total revenue of the Lebanese mobile phone sector was estimated to be 1.225 billion US dollars. Back in year 2013, the market shares were divided as follow: Alfa (OTMT) shares 49.12% of the market and Touch (Zain), previously known as MTC, 50.88% (GSMA Intelligence, 2013).

Finally, it should be noted that ever since the Lebanese State put its hands on the sector, the Lebanese government has been setting prices for all the mobile service operators. Furthermore, the mobile service providers must take state approval for product launches and pricing.

2.2 Customer Satisfaction

Satisfaction is associated to a product or a service or to just a feature related to any of these matters. It is the fulfillment reaction of the consumer toward the consumed product or service; thus, it is a post purchase or a post consumption experience that has offered (or is offering) a pleasing response (Oliver, 1997; Garbarino & Johnson, 1999). Customer satisfaction is defined in the literature as being a cognitive (Oliver, 1980) or an affective (Cadotte *et al.*, 1987) response, or both (Oliver, 1997; Garbarino & Johnson, 1999). Satisfaction-related definitions describing satisfaction as a cognitive response can be illustrated by the following: the post consumption evaluation of fulfillment regarding a service or a product or just a feature of any of these objects based on expectancy disconfirmation (Oliver, 1980). However, satisfaction

affective response is described as being a fulfillment assessment of the consumption experience based on an emotional feeling (Cadotte *et al.*, 1987). Satisfaction relates to an object (e.g., product or service), covers a time component (e.g., post purchase or post consumption), and involves a response (e.g., cognitive and/or affective) (Giese & Cote, 2002). In this study, customer satisfaction will be defined as the customers' reaction towards the state of fulfillment experienced upon the service consumption since customer satisfaction will be examined in a service industry context, and the customers are individuals whose reaction regarding the state of fulfillment experienced upon the service consumption indicates their level of satisfaction with regard to the service.

There are two types of satisfaction, transactional or horizontal satisfaction, and cumulative or vertical satisfaction. Transactional satisfaction is the level of satisfaction with regard to a specific service encounter or a specific post-consumption experience (Bitner & Hubbert, 1994; Anderson *et al.*, 1994). However, cumulative satisfaction is the customer's overall level of satisfaction based on all experiences and encounters with a certain organization, service or good across time (Bitner & Hubbert, 1994; Anderson *et al.*, 1994). So cumulative satisfaction is the sum of all earlier transactional fulfillment assessment, and it is updated after every encounter (Boulding *et al.*, 1993). Although transactional satisfaction provides better diagnosis data regarding a specific good or service; past, present and anticipated performance of a firm are better evaluated using overall satisfaction indicators such as national customer satisfaction indices (Anderson *et al.*, 1994). Compared to transactional satisfaction, cumulative satisfaction is a better and more accurate indicator of a service or a good upcoming consumption (Anderson, 1996). In this study, cumulative satisfaction is adopted since the customer satisfaction level regarding a set of services provided in an industry is assessed.

As a result of the high competition in the market in today's economy, businesses and organizations are becoming more concerned with customer satisfaction in an attempt to develop and sustain customer loyalty in addition to enhancing service and product quality (O'Loughlin & Coenders, 2002) which will lead to a better competitive position due to the higher degree of satisfaction developed; thus, higher profit and market share will result (Fornell, 1992). Companies can attain the so-desired competitive advantage through various objectives, namely, higher perceived quality, an enhanced satisfaction, higher commitment and more trust from the

customers which will all lead to a boost in loyalty (Shaharudin *et al.*, 2011). Firms whose customers have high levels of satisfaction are better “shielded” from the attempts of competitors than are dissatisfied customers (Kovacs *et al.*, 2011). One of the major consequences of customer satisfaction is customer loyalty in addition to positive word of mouth plus repeat sales (Fornell, 1992; Fornell *et al.*, 1996). To sum up, a firm with high customer satisfaction will benefit from increased staff performance, cheaper charges of future transactions, decreased price elasticity, improved firm reputation, and higher customer loyalty (Fornell, 1992; Anderson *et al.*, 1994).

2.3 American Customer Satisfaction Index

The American Customer Satisfaction Index (ACSI) is a national index that is a uniform system for assessing, comparing and eventually improving customer satisfaction throughout businesses, sectors and nations. The quality of services and products consumed by customers are assessed by the ACSI which provides valuable insights about the present and expected consumption experience. Furthermore, the future financial situation of a firm in addition to its present and past performance measures can be provided using ACSI. Systematic benchmarking with time and throughout businesses can be made through ACSI since it is a uniform system of assessment that can be compared. Moreover, ACSI scores may be contrasted across nations, sectors, industries and businesses (Johnson & Fornell, 1991; Fornell C, 1992; Anderson *et al.*, 1994; Fornell *et al.*, 1996; Anderson & Fornell, 2000).

ACSI is an overall measure in which the consumption experience is represented in addition to the consumer behavior. The cause and effect associations having ACSI at their center are found in Figure 1. ACSI represents the overall customer satisfaction. The antecedents of ACSI consist of customer expectations, perceived quality, and perceived value. Customer complaints and customer loyalty, which are the essential targets of this model, are the consequences of ACSI (Fornell *et al.*, 1996).

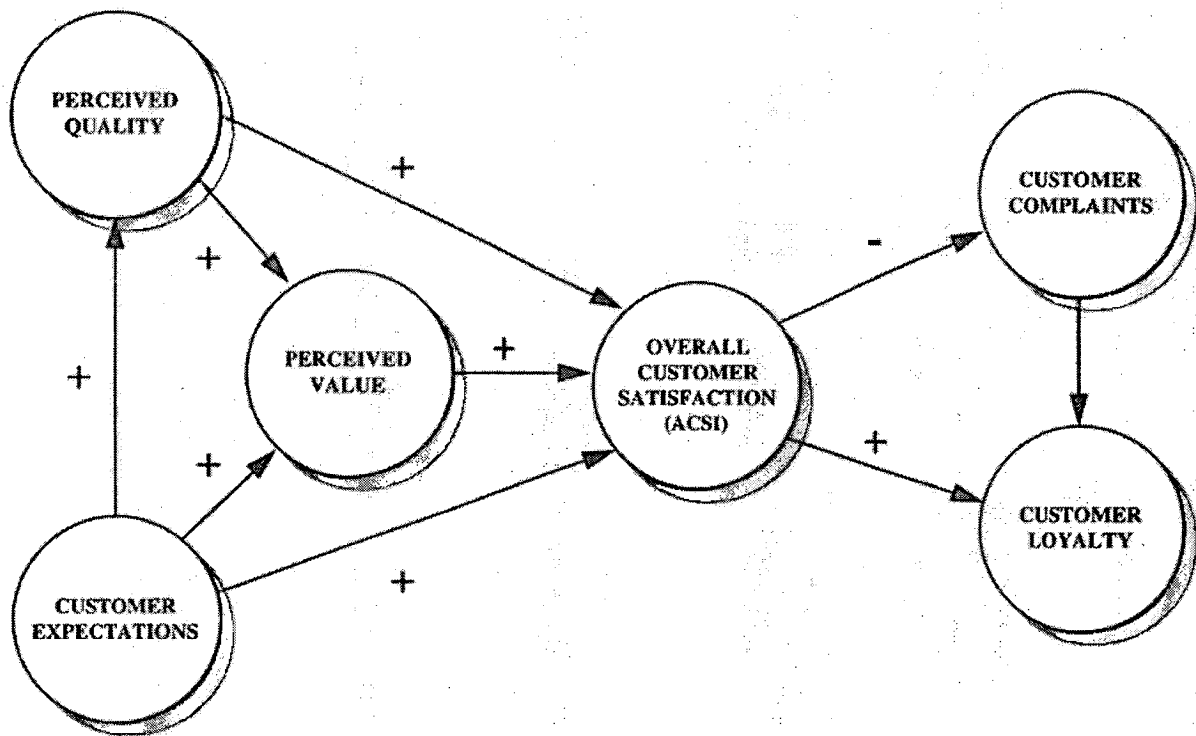


Figure 1: The American Customer Satisfaction Index (ACSI) Model (Fornell *et al.*, 1996)

2.3.1 ACSI Antecedents

As illustrated in Figure 1, customer expectations, perceived value, and perceived quality are the three antecedents of overall customer satisfaction identified as the American Customer Satisfaction Index (ACSI) (Fornell *et al.*, 1996).

2.3.1.1 Perceived Quality

Hoyer *et al.* (2001) distinguish between two types of definitions regarding quality: Level One quality definitions and Level Two quality definitions. Level One quality definitions consist of product or service characteristics that comply with preset measures and requirements. On the other hand, Level Two quality definitions consist of products and services that fulfill customers' expectations which result in customer satisfaction.

Perceived quality is the customer assessment of a product or a service performance or quality according to the customer's latest consumption experience (Fornell *et al.*, 1996). It is the

consumer evaluation of a product or service superiority, excellence or dominance, within its own category based on customer expectation; thus, if the quality is perceived to surpass expectations, perceived quality is considered to be high and vice versa (Oliver, 1993; Anderson *et al.*, 1994; Vanhamme, 2002).

Product quality and service quality are two elements of quality. According to Garvin (1987), the evaluation of product quality has to focus on eight attributes: Performance, features, durability, reliability, serviceability, aesthetics, conformance, and customer-perceived quality. However, Mudie and Pirrie (2006) have recognized four features of service quality: intangibility, variability, inseparability and perishability. All the way during the service delivery process, the quality of the service is evaluated by the customers. Every time an employee is in contact with a customer, there is an occasion for the firm to either satisfy this customer or dissatisfy him/her (Fitzsimmons & Fitzsimmons, 2006; Shahin & Janatyan, 2011). It should be noted that in the ACSI model, perceived product quality and perceived service quality are both represented by perceived quality (Fornell *et al.*, 1996).

As stated by Fornell *et al.* (1996) perceived quality is a determinant of overall customer satisfaction in the ACSI model; hence, perceived quality and overall customer satisfaction have a positive association in the ACSI model. Furthermore, a positive association between perceived quality and perceived value has been suggested in the ACSI model (Fornell *et al.*, 1996). Moreover, the direct positive association between perceived quality and customer satisfaction has been found in different empirical researches (Woodside *et al.*, 1989; Reidenbach & Sandifer-Smallwood, 1990; Cronin & Taylor, 1992; Anderson & Sullivan, 1993; Cronin & Taylor, 1994; Spreng & Mackoy, 1996; Fornell *et al.*, 1996; Dabholkar *et al.*, 2000; Cöner & Güngör, 2002; Green & Boshoff, 2002). Furthermore, the direct positive association between perceived quality and perceived value has also been found in the literature (Dodds & Grewal, 1991; Ostrom & Iacobucci, 1995; Fornell *et al.*, 1996).

2.3.1.2 Perceived Value

Perceived value is the customer judgment of a product or service quality given to the price he/she has paid and vice versa (Fornell *et al.*, 1996). In other words, it is the consumer's

assessment of the perceived sacrifice of the product or service (Bolton & Lemon, 1999). If the offering to sacrifice ratio is considered to be fair for the consumer, he/she will be satisfied with the deal (Oliver & DeSarbo, 1988). Perceived value can include brand or company image, price, and quality (Fredericks & Salter, 1998).

As stated by Fornell *et al.* (1996), one of the determinants of overall customer satisfaction in the ACSI model is perceived value. Moreover, to include price information in the ACSI, perceived value has been added to the model for better comparability especially between various prices of services and products as well as between different consumer incomes (Lancaster, 1971; Fornell *et al.*, 1996). Thus, perceived value and overall customer satisfaction have a positive relationship in the ACSI model (Fornell *et al.*, 1996). Moreover, the direct positive association between perceived value and customer satisfaction has been found in different empirical researches (Kotler & Levy, 1969; Howard & Sheth, 1969; Oliver & DeSarbo, 1988; Rust & Oliver, 1994; Fornell *et al.*, 1996; De Ruyter *et al.*, 1997; Caruana *et al.*, 2000).

2.3.1.3 Customer Expectations

Customer expectations are described as the pre-consumption experience with a service or a good that anticipates a firm's capacity to supply quality later on. Word of mouth and promotions, in addition to other non-experimental information, play a role in building this pre-consumption experience (Fornell *et al.*, 1996). So, customer expectations are the predictions of future results according to previous encounters, present conditions, or different information resources (Oliver, 1997). Predicted performance is reflected by expectations (Churchill & Surprenant, 1982). Consumers try to adjust satisfaction levels to their expectations to prevent the antipathy that could occur due to expectations and satisfaction levels deviation (Oliver & DeSarbo, 1988; Oliver, 1997). Three levels of customer service expectations have been identified by Zeithaml *et al.* (1993). These levels are desired service (ideal), adequate service (should), and anticipated service (will). Nevertheless, different researches have suggested that respondents found it very confusing to differentiate between these three levels of expectations (Tse & Wilton, 1988).

As stated by Fornell *et al.* (1996), customer expectations is another determinant of overall customer satisfaction in the ACSI model; therefore, in the ACSI model, customer expectations has a positive relationship with overall customer satisfaction since it includes in it all pre-consumption information and quality related experience which anticipate a business capacity to satisfy its customers. Furthermore, a positive association between customer expectations and perceived quality as well as a positive association between customer's expectations and perceived value has been suggested in the ACSI model. Moreover, the direct positive association between customer expectation and customer satisfaction has been found in different researches (Oliver, 1980; Oliver, 1981; Oliver & DeSarbo, 1988; Oliver, 1993; Anderson *et al.*, 1994; Fornell *et al.*, 1996; Oliver, 1997). Furthermore, the direct positive association between customer expectations and both, perceived quality and perceived value, has equally been found in the literature (Howard, 1977; Churchill & Surprenant, 1982; Fornell *et al.*, 1996).

2.3.2 ACSI Consequences

It is obvious that satisfied customers are less likely to complaint and more likely to become loyal customers. Increased consumer satisfaction will result in an increase in client loyalty and a decrease in customer complaints (Hirschman, 1970; Fornell & Wernerfelt, 1987; Fornell *et al.*, 1996). If a customer is dissatisfied, he is likely to go to a competitor or voice a complaint as revenge. However, when a customer is satisfied, he will become a loyal customer. Loyalty is considered to be a proxy for profitability (Reichheld & Sasser, 1990); hence, it is the only dependent variable in the ACSI framework (Fornell *et al.*, 1996).

2.3.2.1 Customer loyalty

A person's will to sacrifice something personal so as to reinforce a relationship is called loyalty (Reichheld, 2003) which can be described as the clear and general decision making procedure to commit to a supplier's product or service. Customer loyalty found in the ACSI framework encapsulates quality and financial sacrifices a person is willing to make when he/she is likely to repurchase from the same supplier (Fornell *et al.*, 1996; Turel & Serenko, 2006). It is the customer's aware assessment of price over quality. Moreover, it can be described as the customer's will to disburse a premium price, or just to be indifferent to price (Raju *et al.*, 1990;

Zeithaml *et al.*, 1996). Moreover, customer loyalty results in repeated sales or repurchase which leads to an increase in profitability. Therefore, since it is more probable for a satisfied customer to be a loyal customer (Bloemer & Kasper, 1995; Zeithaml *et al.*, 1996), and given that loyalty is a key for profitability (Reichheld & Sasser, 1990), increasing customer satisfaction has become essential to firms to increase their profits.

As stated by Fornell *et al.* (1996), customer loyalty is a direct result of overall customer satisfaction in the ACSI model; hence, overall customer satisfaction and customer loyalty have a positive relationship in the ACSI model. Moreover, a direct positive association has been found between customer satisfaction and loyalty in different empirical studies (Cronin & Taylor, 1992; Cronin & Taylor, 1994; Bloemer & Kasper, 1995; Fornell *et al.*, 1996; Zeithaml *et al.*, 1996; Dabholkar *et al.*, 2000; Cöner & Güngör, 2002; Fornell *et al.*, 2006).

2.3.2.1 Customer Loyalty and Retention

According to Fornell *et al.* (1996), in the context of services, loyalty as presented in the ACSI model is a positive outlook vis-à-vis a service supplier that will result in a probability of further repurchase from the same supplier and tolerance to the increase in price. However, in the marketing literature, the maintenance of transactions with a particular supplier is considered as customer retention (Turel & Serenko, 2006). In general, churn rates are used to measure customer retention rates.

Earlier studies have revealed a connection between the profitability of firms along with retention and loyalty (Dawkins & Reichheld, 1990). Information on the relationship between satisfaction, quality, customization, retention, loyalty, and profitability has also been provided in the earlier researches (Rust *et al.*, 1995; Price *et al.*, 1995).

Studies regarding loyalty generally advise that the improvement in service quality and satisfaction leads to loyalty and retention. However, this is not the case in the framework of mobile phone services industry as a result of the common switching barriers cost which is the cost involved in switching to another mobile service provider when dissatisfied. Hence, mobile operators may retain end-users for additional time. So, given these constraints, mobile end-users will continue to be connected to the same mobile service provider despite the fact that they may

not be satisfied with the mobile services, and thus be disloyal; hence, the mobile service provider will benefit from a high retention rate as a result of the switching barriers and cost (Turel & Serenko, 2006).

As demonstrated, firm sustainability rather than firm growth is driven by customer retention in the mobile services industry over time; thus, within highly competitive and overloaded markets, growth and success will be achieved through loyalty. Consequently, network operators in the mobile phone business should seek to create loyal clients (Turel & Serenko, 2006). Loyal clients will serve as unpaid promoters for the mobile phone operator by creating a virus-like impact, and praising the firm to their surroundings such as colleagues, family members and friends (Reichheld, 2003).

The ACSI model employs a uniform construct for customer loyalty in order to assess the relationship between customer loyalty and overall satisfaction. Nevertheless, switching barriers effects in the mobile phone services context (Kim *et al.*, 2004; Turel & Serenko, 2006) differentiate between the two elements of the loyalty construct. The first element is the repurchase likelihood, and the second element is price tolerance. Repurchase likelihood represents the possibility of selecting the same mobile service operator if an individual is going to buy a new mobile line. In this case, no switching barriers exist because the person is free to select any mobile operator. However, price tolerance represents the possibility of sticking with one's actual mobile operator even if it raises its rates, or if rivals reduce their rates. In this case, price tolerance is assessed with the presence of switching barriers. So, within the mobile phone services context, it is recommended to address customer loyalty using two different factors which are: repurchase likelihood and price tolerance (Turel & Serenko, 2006; Turel *et al.*, 2006).

2.3.2.2 Customer Complaints

Decreased consumer satisfaction will result in a decrease in client loyalty and an increase in customer complaints (Hirschman, 1970; Fornell & Wernerfelt, 1987; Fornell *et al.*, 1996). If a customer is dissatisfied, he/she is likely to go to a competitor or voice a complaint as revenge. However, complaints decrease when there is an increase in customer satisfaction (Richins, 1983; Singh, 1988; Scaglione, 1988).

As stated by Fornell *et al.* (1996), customer complaints is a direct result of decreased overall customer satisfaction in the ACSI model; therefore, in the ACSI model, overall customer satisfaction has a negative relationship with customer complaints. Moreover, direct negative association has been found between customer satisfaction and complaints in different empirical studies (Richins, 1983; Fornell & Wernerfelt, 1987; Singh, 1988; Scaglione, 1988; Fornell, 1992; Fornell *et al.*, 1996).

Furthermore, customer complaints are associated to customer loyalty in the ACSI framework. As stated by Fornell *et al.* (1996), a positive relationship occurs when customer complaints are handled successfully by a firm; thus, the customer who has voiced a complaint is turned into a loyal customer. On the contrary, a negative relationship occurs when customer complaints are not handled adequately; thus, this will result in customer defection.

Figure 2 illustrates the adapted ACSI model.

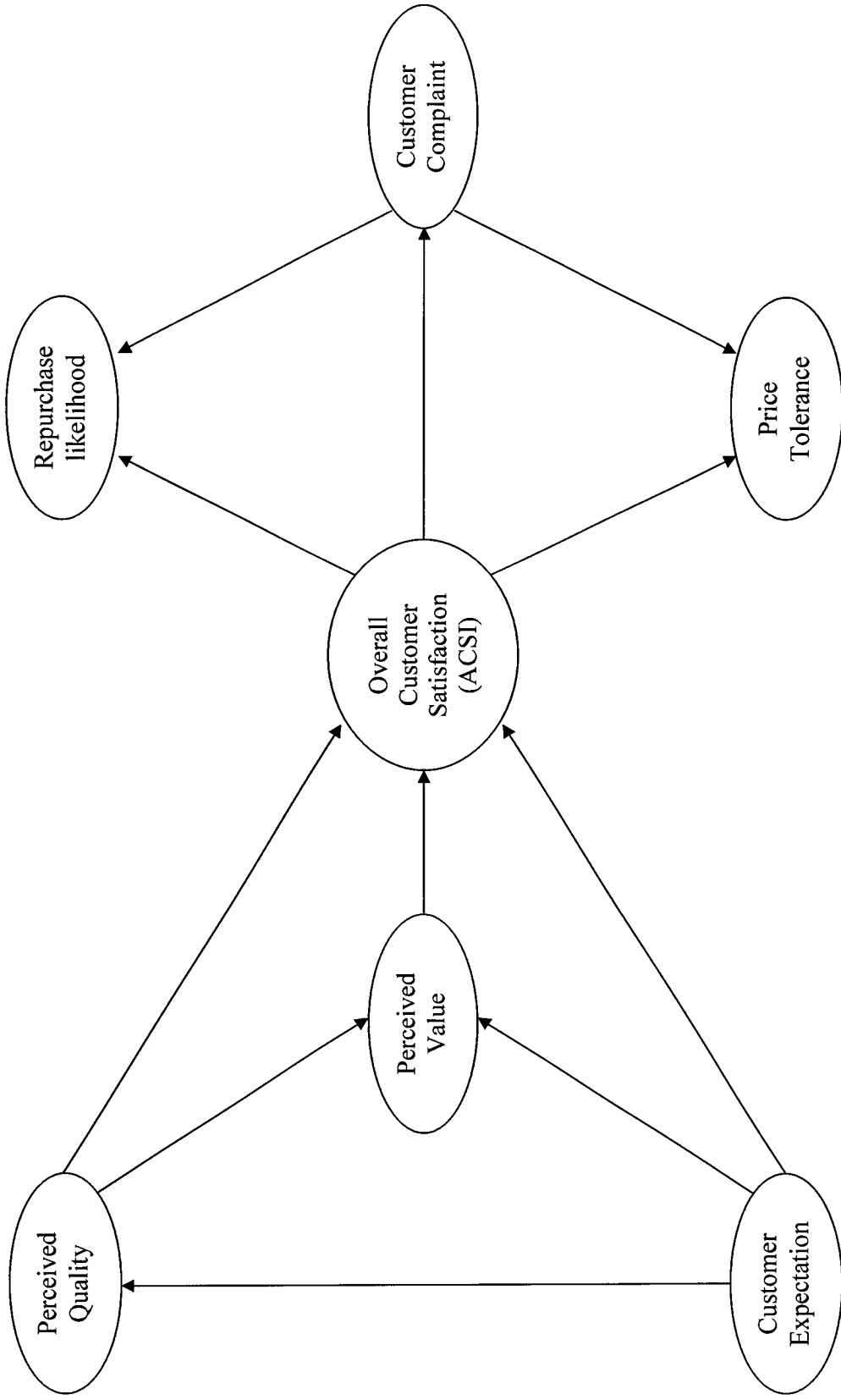


Figure 2: The adapted ACSI model (Turel & Serenko, 2006)

2.3.3 The Evolution of National Indices

In 1994, ACSI was released (National Quality Research Center, 1995). It came after the Deutsche Kundenbarometer (DK). In 1992, DK was released in Germany (Fornell *et al.*, 1996). However, the Swedish Customer Satisfaction Barometer (SCSB) was the first national customer satisfaction index. SCSB was released in 1989 (Fornell, 1992; Fornell *et al.*, 1996). Furthermore, different countries developed or are in the process of developing their own indices such as the European Union, Taiwan, New Zealand, Korea, Norway, Austria (Fornell *et al.*, 1996; Johnson *et al.*, 2001). Moreover, the ACSI model is being used by various nations in creating their own national indexes (Aydin & Özer, 2005).

2.3.4 Previous Research

The ACSI model, in addition to its modifications, has been applied in numerous researches within different sectors on a global basis. The ACSI model variations has been used to assess retailing industries (Arnett *et al.*, 2003), E-Tailers (Wen Wu & Ching Ding, 2007), e-mail systems (Dow *et al.*, 2006), fast food industry (Terblanche, 2006), communications and transportation sectors (Grigoroudis & Siskos, 2004), conferences (Gorst *et al.*, 1999), banking services (Mukherjee *et al.*, 2003), and mobile phone services (Gerpott *et al.*, 2001; Kim *et al.*, 2004; Turel & Serenko, 2006; Turel *et al.*, 2006; Awwad, 2012). These studies show the capability of this model to explore the perceptions of mobile subscribers and their behaviors regarding the services they are being provided.

2.3.4.1 Mobile Services Satisfaction in Canada

In this study, Turel and Serenko (2006) have assessed customer satisfaction and loyalty regarding mobile phone services in Canada by applying an adapted version of the ACSI model. Data has been gathered from 210 young adult participants. The empirical results have found that the customer loyalty construct is not unified, and it diverges into two elements due to the function of switching barriers in the mobile phone services sector. Moreover, the adapted ACSI model has adequately described the end-user perceptions and behaviors.

2.3.4.2 Mobile Services Satisfaction in Four Countries

In this study, Turel *et al.* (2006) have collected data from 736 participants from four different countries to assess the usage of the adapted ACSI model (Turel & Serenko, 2006) applied to evaluate customer satisfaction and loyalty of mobile service subscribers on a global basis. The study has found that the adapted version of the ACSI model (Turel & Serenko, 2006) can be successfully applied worldwide. Add to that, the study has included a country from the Middle East Region.

2.3.4.3 Mobile Service Satisfaction in Jordan

In this study, Awwad (2012) has investigated the application of the ACSI model in Jordan which is an Arabic country situated in the Middle East region. The data have been gathered from 447 mobile subscribers in three different universities in Jordan. The study has found that the ACSI model successfully describes the perceptions of the mobile subscribers and their behaviors.

2.4 Conclusion

Given the new management context of the mobile phone sector in Lebanon which is totally owned by the Lebanese state, mobile operators are receiving monthly revenue which is paid per subscriber, thus giving incentives to the managing company to increase its subscribers' base and enhance the quality of service while constantly providing new services. As a consequence, the whole mobile network is being updated, new services are being released like never before and enhancements are being made on existing ones. Alfa (OTMT) and Touch (Zain) are taking advantage of the increased demand for mobile communications in Lebanon to enhance the existing services and introduce attractive new ones in a way to have more and more subscribers, and boost these subscribers' loyalty. However, the mobile service providers must take state approval for product launches and pricing.

Customer satisfaction's major consequence is customer loyalty in addition to positive word of mouth plus repeat sales (Fornell, 1992; Fornell *et al.*, 1996). A firm with high customer

satisfaction will benefit from increased staff performance, cheaper charges of future transactions, decreased price elasticity, improved firm reputation, and higher customer loyalty (Fornell, 1992; Anderson *et al.*, 1994).

An adapted ACSI model is being used as a means of structuring the exploration of the overall customer satisfaction regarding mobile phone services in Lebanon.

ACSI is an overall measure; the consumption experience is represented in the ACSI model in addition to the consumer behavior. The cause and effect associations have ACSI at their center. ACSI represents overall customer satisfaction. The antecedents of ACSI consist of customer expectations, perceived quality, and perceived value. Customer complaints and customer loyalty, which is the essential target of this model, are the consequences of ACSI (Fornell *et al.*, 1996). The ACSI model employs a uniform construct for customer loyalty in order to assess the relationship between customer loyalty and overall satisfaction. Nevertheless, switching barriers effects in the mobile phone services context (Kim *et al.*, 2004; Turel & Serenko, 2006) differentiate between the two elements of the loyalty construct. The first element is the repurchase likelihood, and the second element is price tolerance. Previous successful applications of this model suggest the potential viability of the application of the adapted ACSI model in the Lebanese context to describe customer satisfaction associated with mobile phone services in Lebanon. Furthermore, this model provides a standardized satisfaction score that has predictive capabilities with regards to the performance of firms (The ACSI Organization, 2005).

2.4.1 Research Questions

The above mentioned arguments will be investigated by adapting the ACSI model to address two main research questions. Question number one is concerned with the application and the nomological validity of the adapted ACSI model which includes the assessment of mobile phone services' perceptions in Lebanon in addition to the end-user satisfaction:

(1) Is the user behavior associated with mobile phone services in Lebanon adequately described by the modified ACSI model?

The calculation of the Lebanese customer satisfaction index associated with mobile phone services in Lebanon is the concern of the second research question. Based on the adapted ACSI model, the computation of this index will take place. Consequently, Lebanese residents' mobile phone usage satisfaction level associated with mobile phone services can be compared to the satisfaction level of mobile phone users in other countries. Moreover, policy makers and academics may benefit from these findings as a base for future longitudinal and comparative researches. Additionally, it can set the foundation for future longitudinal and comparative studies employed by policy makers and academics. Thus, research question number two is:

(2) What is the Lebanese customer satisfaction index associated with mobile phone services in Lebanon, and where does it stand in comparison to that of other nations?

Chapter 3

PROCEDURES AND METHODOLOGY

3.1 Introduction

This chapter covers the study procedures and methodology employed. It details the hypothesis formulation and the quantitative instrument used for data collection and analysis in addition to the procedures used in this research.

The antecedents of user satisfaction associated with mobile phone services in Lebanon, as well as its consequences, are being investigated in this study. Policy makers, mobile service providers and clients may gain insights from this study. Furthermore, additional researches and benchmarking in the context of mobile business in Lebanon, especially with regards to subscribers satisfaction and loyalty, can be formed based on it. An adaptation of the American Customer Satisfaction Index (ACSI) model is applied in this study to achieve this purpose. Fornell *et al.* (1996) has developed the original ACSI model. The causal relationships having customer satisfaction as their center are adequately identified in this model. Furthermore, this model provides a standardized satisfaction score that has predictive capabilities with regards to firms' performance (The ACSI Organization, 2005).

3.2 Hypotheses

As stated above, the goal behind this research is to offer an accurate description of the perceptions and behaviors of mobile phone users in Lebanon by adapting the ACSI model to explore the antecedents and results of the end user satisfaction, and to compute the Lebanese customer satisfaction index associated with mobile phone services in Lebanon, and compare it to other nations. Therefore, the relationships that are found in the ACSI model between customer satisfaction and its antecedents and consequences are examined. Moreover, the hypotheses that are proposed are based on previous literature review and on researches that have applied this model.

3.2.1 Customer Expectations

As stated by Fornell *et al.* (1996), customer expectations is a determinant of overall customer satisfaction in the ACSI model; therefore, in the ACSI model, customer expectations has a positive relationship with overall customer satisfaction since it includes in it all pre-consumption information and quality-related experience which anticipate a business capacity to satisfy its customers. Furthermore, a positive association between customer expectations and perceived quality as well as a positive association between customer expectations and perceived value have been suggested in the ACSI model. Moreover, the direct positive association between customer expectation and customer satisfaction has been found in different researches (Oliver, 1980; Oliver, 1981; Oliver & DeSarbo, 1988; Oliver, 1993; Anderson *et al.*, 1994; Fornell *et al.*, 1996; Oliver, 1997). Furthermore, the direct positive association between customer expectations and both, perceived quality and perceived value, has been also found in the literature (Howard, 1977; Churchill & Surprenant, 1982; Fornell *et al.*, 1996). Based on the above mentioned literature, the following hypotheses are proposed:

H1: Customer Expectations (CE) has a positive relationship with Perceived Quality (PQ) of mobile phone services.

H2: Customer Expectations (CE) has a positive relationship with Perceived Value (PV) of mobile phone services.

H3: Customer Expectations (CE) has a positive relationship with Customer Satisfaction (CS) with mobile phone services.

3.2.2 Perceived Quality

According to Fornell *et al.* (1996), perceived quality is a determinant of overall customer satisfaction in the ACSI model; hence, perceived quality and overall customer satisfaction have a positive association in the ACSI model. Furthermore, a positive association between perceived quality and perceived value has been suggested in the ACSI model (Fornell *et al.*, 1996). Moreover, the direct positive association between perceived quality and customer satisfaction has been found in different empirical researches (Woodside *et al.*, 1989; Reidenbach & Sandifer-

Smallwood, 1990; Cronin & Taylor, 1992; Anderson & Sullivan, 1993; Cronin & Taylor, 1994; Fornell *et al.*, 1996; Spreng & Mackoy, 1996; Dabholkar *et al.*, 2000; Cöner & Güngör, 2002; Green & Boshoff, 2002). Furthermore, the direct positive association between perceived quality and perceived value has been also found in the literature (Dodds, & Grewal, 1991; Ostrom & Iacobucci, 1995; Fornell *et al.*, 1996). Based on the above mentioned literature, the following hypotheses are proposed:

H4: Perceived Quality (PQ) has a positive relationship with Perceived Value (PV) of mobile phone services.

H5: Perceived Quality (PQ) has a positive relationship with Customer Satisfaction (CS) with mobile phone services.

3.2.3 Perceived Value

According to Fornell *et al.* (1996), one of the determinants of overall customer satisfaction in the ACSI model is perceived value. Perceived value and overall customer satisfaction have a positive relationship in the ACSI model (Fornell *et al.*, 1996). Moreover, the direct positive association between perceived value and customer satisfaction has been found in different empirical studies (Kotler & Levy, 1969; Howard & Sheth, 1969; Oliver & DeSarbo, 1988; Rust & Oliver, 1994; Fornell *et al.*, 1996; De Ruyter *et al.*, 1997; Caruana *et al.*, 2000). Based on the above mentioned literature, the following hypothesis is proposed:

H6: Perceived Value (PV) has a positive relationship with Customer Satisfaction (CS) with mobile phone services.

3.2.4 Customer Loyalty

As stated by Fornell *et al.* (1996), customer loyalty is a direct result of overall customer satisfaction in the ACSI model; hence, overall customer satisfaction and customer loyalty have a positive relationship in the ACSI model. Moreover, direct positive association has been found between customer satisfaction and loyalty in different empirical studies (Cronin & Taylor, 1992; Cronin & Taylor, 1994; Bloemer & Kasper, 1995; Fornell *et al.*, 1996; Zeithaml *et al.*, 1996;

Dabholkar *et al.*, 2000; Cöner & Güngör, 2002; Fornell *et al.*, 2006). However, within the mobile phone services context, it is recommended to address customer loyalty using two different factors which are: repurchase likelihood and price tolerance (Turel & Serenko, 2006; Turel *et al.*, 2006). Based on the above mentioned literature, the following hypotheses are proposed:

H7: Customer Satisfaction (CS) has a positive relationship with Repurchase Likelihood (RL) from a specific mobile phone services provider.

H8: Customer Satisfaction (CS) has a positive relationship with Price Tolerance (PT) regarding a specific mobile phone services provider.

3.2.5 Customer Complaints

According to Fornell *et al.* (1996), customer complaints is a direct result of decreased overall customer satisfaction in the ACSI model; therefore, in the ACSI model, overall customer satisfaction has a negative relationship with customer complaints. Moreover, direct negative association has been found between customer satisfaction and customer complaints in different empirical studies (Fornell & Wernerfelt, 1987; Singh, 1988; Scaglione, 1988; Richins, 1983; Fornell, 1992; Fornell *et al.*, 1996).

Furthermore, customer complaints are associated with customer loyalty in the ACSI framework. As stated by Fornell *et al.* (1996), a positive relationship occurs when customer complaints are handled successfully by a firm; thus, the customer who voices a complaint is turned into a loyal customer. On the contrary, a negative relationship occurs when customer complaints are not handled adequately; thus, this will result in customer defection.

Based on the above mentioned literature, the following hypotheses are proposed:

H9: Customer Satisfaction (CS) has a negative relationship with Customer Complaints (CC).

H10: Customer Complaints (CC) has a positive relationship with Repurchase Likelihood (RL) from a specific mobile phone services provider.

H11: Customer Complaints (CC) has a positive relationship with Price Tolerance (PT) regarding a specific mobile phone services provider.

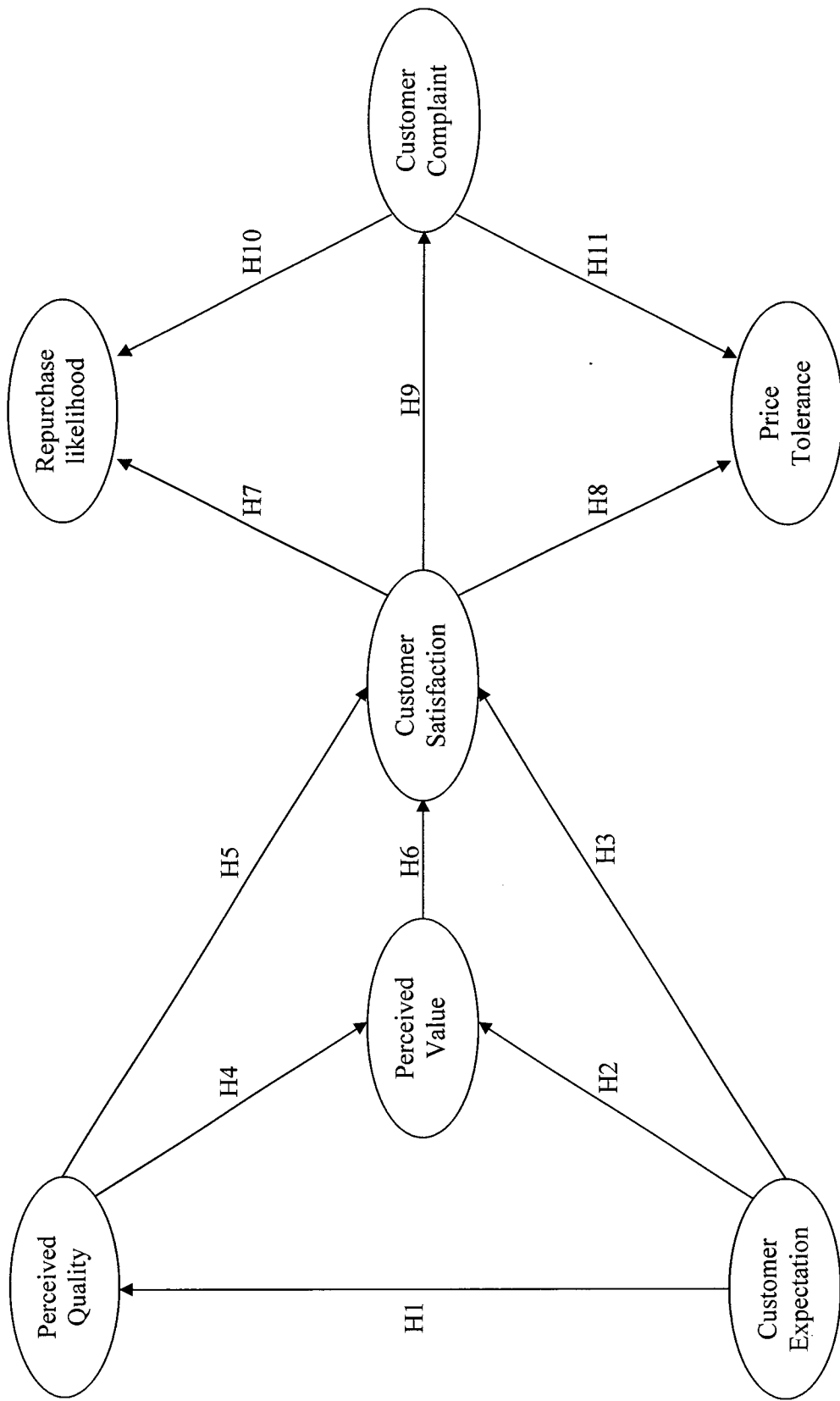


Figure 3: The Adapted ACSI Model Hypotheses

3.3 Selected Variables

The structural model is the foundation of every customer satisfaction index. The customer satisfaction construct is considered to be the center among various antecedents and consequences in the structural model (Aydin & Özer, 2005). The adapted ACSI model used in this research consists of seven latent variables. Each latent variable is investigated using several measures since it cannot be assessed directly. Customer satisfaction (CS) is the latent variable referring to ACSI, and it is the center of the adapted ACSI model. The three antecedents of customer satisfaction (CS) are customer expectations (CE), perceived quality (PQ) and perceived value (PV). Repurchase likelihood (RL), price tolerance (PT) and customer complaints (CC) are the three consequences of customer satisfaction (CS). To estimate the model, and determine the related latent variable, 15 measurement variables are employed. Data should be collected from current consumers regarding every manifest variable to evaluate the model (Fornell *et al.*, 1996; Anderson & Fornell, 2000).

3.4 Research Methodology

3.4.1 Research Design

To test the hypotheses of the study and answer the research questions, this study has employed a methodology in quantitative research. A quantitative online survey instrument has been employed for data collection. Data collection was conducted using an online survey using a convenience sampling technique; the relationships in the ACSI model were examined using statistical methods; and finally the Lebanese customer satisfaction index associated with mobile phone services was calculated.

3.4.2 Research Instrument

Related literature on the ACSI model and its application in the mobile phone sector have been reviewed to develop the research instrument (Fornell *et al.*, 1996; Anderson & Fornell, 2000; Turel & Serenko, 2006; Turel *et al.*, 2006; Awwad, 2012). In addition to that, structured interviews with the mobile phone services provider personnel have been conducted to gain

essential information related to the sector in Lebanon and to the index calculation. The techniques and instruments used in the data collection are the following:

3.4.2.1 Structured Interviews

Information about the mobile phone sector in Lebanon has been collected via interviews. Essential information has been obtained in order to compute the Lebanese customer satisfaction index associated with the mobile phone sector.

3.4.2.2 Survey Questionnaire

This study has used the survey questionnaire as the main data collection instrument. The items of the questionnaire that have been utilized to gather data are presented in Appendix A. The original survey used in the ACSI methodology developed by Fornell *et al.* (1996) has been adapted following previous literature in the context of the mobile services sector (Turel & Serenko, 2006; Turel *et al.*, 2006). It has employed the items of the questionnaire used to measure each variable have been developed and assessed previously, and exhibited fine psychometric properties (Awwad, 2012).

An English version of the survey has been employed as the instrument for this research. The questionnaire contains 18 questions, divided into 15 structured questions and three demographic questions. Only respondents who have used their mobile phone for at least 4 months were eligible to participate in the study. It is believed that this experience period is sufficient for reliable opinions and perceptions concerning the service to be formed (Turel & Serenko, 2006; Turel *et al.*, 2006). In addition to that, all respondents had to have a good command in English. Yet, some explanations have been added to clarify and increase the understanding of respondent. To measure all constructs, the ACSI model has used the Likert scale except for one construct which is customer complaints. Moreover, the ACSI employs rating scales of ten points each so that statistical issues of extreme skewedness are reduced and better discrimination by customers are made (Andrews, 1984). Values for all constructs including those of ACSI are constructed through estimated weights transformed to a zero to hundred point scale (Fornell *et al.*, 1996).

In Table 1, the 15 measurement variables from the ACSI survey are described. These 15 measurement variables have been utilized in the model estimation and identify the associated latent variable.

Measurement Variable	Latent Variable
1. Overall expectaion of quality (prepurchase)	Customer expectations
2. Expectations regarding customization, or how well the mobile phone services fit the customer's personal requirements (prepurchase)	Customer expectations
3. Expectations regarding reliability, or how often things would go wrong (prepurchase)	Customer expectations
4. Overall evaluation of quality experience (postpurchase)	Perceived quality
5. Expectations of customization experience, or how well the mobile phone servicès fit the customer's personal requirements (postpurchase)	Perceived quality
6. Expectations of reliability experience, or how often things have gone wrong (postpurchase)	Perceived quality
7. Rating of quality given price	Perceived value
8. Rating of price given quality	Perceived value
9. Overall satisfaction	ACSI
10. Expectancy disconfirmation (performance that falls short of or exceeds expectations)	ACSI
11. Performance versus the customer's ideal mobile phone services	ACSI
12. Repurchase Likelihood	Repurchase Likelihood
13. Pice tolerance (decrease) toward competitors' pricing	Price Tolerance
14. Pice tolerance (increase) toward the service provider's price	Price Tolerance
15. Has the customer complained either formally or informally about the mobile phone services?	Customer complaints

Table 1: The adapted ACSI model measurement variables (Fornell *et al.*, 1996; Turel & Serenko, 2006)

To measure customer expectations, three measures have been used. Respondents have been asked to recall the service degree of quality they estimate to have obtained based on their experience and knowledge with it. Measures regarding overall expectations, in addition to measures regarding customization and reliability, have been collected to assess the customer expectations construct.

To measure the customer perceived quality, three measures have been used. Respondents have been asked to rate their latest experience regarding the service. Measures regarding overall perceived quality, in addition to measures regarding customization and reliability, have been collected to assess the perceived quality construct.

To measure the customer perceived value, two measures have been used. Respondents have been asked to rate price according to quality, and quality according to price.

Three measures have been used in order to measure overall customer satisfaction (ACSI). Respondents have been asked to rate their overall satisfaction, the degree to which performance falls short of or exceeds expectations, and performance according to the customer's ideal service.

To measure customer complaints, one question has been used. Respondents have been asked to mention if they have, informally or formally, complained regarding the service.

To measure repurchase likelihood, one measure has been used. Respondents have been asked to rate the degree of possibility of selecting the same mobile service operator if an individual is going to buy a new mobile line.

To measure price tolerance, two measures have been used. Respondents have been asked to rate the degree of possibility of sticking with one's actual mobile operator in the event that it raises its rates, and the degree of possibility of switching to competitors if rivals reduce their rates.

Finally, respondents have been asked about their gender and age to gather demographic information using two different questions, and one additional question about the customer current service provider.

3.4.2.3 Pilot Test

Different earlier studies have shown the validity and high reliability of this instrument (Fornell *et al.*, 1996; Turel & Serenko, 2006; Turel *et al.*, 2006; Awwad, 2012). However, a group consisting of academics, mobile phone users and industry practitioners has been consulted in order to enhance the validity of the research instrument. As a result of their feedback, several

modifications have been performed to allow a better understanding of the questionnaire and an improved clarity. Overall, it has been supposed that the use of this research instrument will enable the collection of reliable and valid data that may be of assistance to answer the proposed research questions and related hypotheses.

3.4.3 Sampling

3.4.3.1 Target Population

The mobile phone users located in Lebanon is the study's target population, and they are estimated to be 2,488,664 subscribers according to GSMA intelligence (GSMA Intelligence, 2013). The market shares are divided as follow: Alfa (OTMT) shares 49.12% of the market and Touch (Zain) 50.88% (GSMA Intelligence, 2013).

3.4.3.2 Sample and Sample Size

This study has used a convenience sampling technique. The questionnaire has been posted online and hosted over the internet using the qualtrics.com website. The survey link available online through qualtrics.com has been shared via text messaging to target a wide range of mobile phone users in Lebanon.

A typical structural equation model is illustrated by the ACSI model shown in Figure 3. Maximum likelihood estimation (MLE) is the most common structural equation modeling estimation procedure. According to simulation studies, sample sizes as small as 50 are sufficient to provide stable and valid results under ideal conditions. As one moves away from conditions with very strong measurement and no missing data, there is a need to raise sample sizes so that MLE solutions are stable. Given less than ideal conditions, a sample size of 200 is recommended to offer a good foundation for estimation (Hair *et al.*, 2010).

3.4.3.3 Survey Administration

The questionnaire is a self-administered survey instrument, and the survey questionnaire has been shared with the mobile phone users in Lebanon via text messaging during the first week of July 2014. The text message contained information about the research study, some instructions and the link to the questionnaire website. Only respondents who have used their mobile phone for at least 4 months were eligible to participate in the study. It is believed that this experience period is sufficient so that reliable opinions and perceptions concerning the service are formed (Turel & Serenko, 2006; Turel *et al.*, 2006). In addition to that, all respondents had to have a good command of the English language. However, some explanations have been posted on the survey webpage for further clarification and to increase content understanding. Respondents have been asked to complete and submit the survey online. A total of 1628 text messages has been sent to mobile phone users in Lebanon asking them to complete the survey questionnaire. 232 complete responses were successfully submitted online, while another 60 were incomplete indicating a 14.25% response rate.

3.4.4 Data Analysis

SPSS was used to perform the data analysis. The data collected from the questionnaire survey has been analyzed and evaluated using the following statistical methods:

3.4.4.1 Descriptive Statistics

The demographic profile of the mobile phone users has been described using frequency count and percentages. Respondent's demographic profiles are classified as gender (male and female), age (18 – 25, 26 – 35, 36 – 45, 46 – 55, 56 – 65, and above 65 years old) and mobile service provider (Alfa and Touch).

3.4.4.2 Measurement Model

A structural equation modeling (SEM) approach is used in this study. As a multivariate technique, SEM combines features of factor analysis and multiple regressions. The interrelated

dependence relationships between several latent constructs as well as between latent constructs (variates) and measure variables can be examined at the same time using SEM (Hair *et al.*, 2010). SPSS Amos is the software that has been used to build the adapted ACSI model employed in this study so to present the variables to be assessed, and the hypothesized relationships to be tested.

To assess the measurement model of the study, a confirmatory factor analysis has been performed. It is a particular type of factor analysis where the hypothesized measurement model is tested to check if the data fits it so that the measures are consistent with the theory. A measurement of the model's goodness of fit (GOF) in addition to particular proof of construct validity have been used to determine the measurement model validity. GOF shows to what extreme the covariance matrix between the indicator objects is well reproduced in a given model.

The maximum likelihood (ML) method or estimation has been used to evaluate the goodness of fit (GOF) of the model. ML is an evaluation technique commonly used in SEM. In multiple regression, maximum likelihood estimation (MLE) is used. It is a process that consists of improving parameter estimates so that a given fit function is minimized (Hair *et al.*, 2010).

For a model to be in a good or acceptable fit, there is a predetermined set of indices that are used as a threshold. Table 2 represents the model fit indices criteria. These indices are assembled into different groups (Moss, 2009). It is recommended that a researcher uses a variety of fit indices to overcome each index limitations (Marsh *et al.*, 1996; Jaccard & Wan, 1996). The groups of fit indices include:

- RMS, relative chi square, and chi square test which are considered discrepancy functions
- IFI, TFI, NFI, and CFI which are tests where the target model is compared to the null model
- CAIC, BIC, BCC, and AIC which are GOF measures of information theory
- NCP which is a measure of non-centrality fit

Fit indices	Good Fit	Acceptable Fit
χ^2	$0 \leq \chi^2 \leq 2df$	$2df < \chi^2 \leq 3df$
χ^2/df	$0 \leq \chi^2/df \leq 2$	$2 < \chi^2/df \leq 3$
RMSEA	$0 \leq RMSEA \leq .05$	$.05 < RMSEA \leq .08$
GFI	$.95 \leq GFI \leq 1.00$	$.90 \leq GFI < .95$
AGFI	$.90 \leq AGFI \leq 1.00$	$.85 \leq AGFI < .90$
NFI	$.95 \leq NFI \leq 1.00$	$.90 \leq NFI < .95$
CFI	$.97 \leq CFI \leq 1.00$	$.95 \leq CFI < .97$

Table 2: Fit indices guideline (Schermelleh-Engel *et al.*, 2003)

The overall model fit has been reviewed to assess the measurement model. In CFA, the overall model fit shows to what extent the hypothesized latent construct represents its given indicators. Seven constructs have been assessed on the GOF and scales of measurement's validation by applying CFA in this study. The study indicated an acceptable model fit.

The construct reliability has been assessed using CFA through average variance extracted (AVE) and composite reliability (CR). To what extent the measurements of a variable are consistent is assessed through reliability. AVE is considered to be the average percentage of variation explained which indicates the convergence between the elements of a latent variable. Moreover, with SEM, CR is often used although different coefficients of reliability applied do not generate significantly distinct estimates (Hair *et al.*, 2010). The formula provided by Fornell and Larcker (1981) has been used to compute AVE and CR. All constructs' AVE have to surpass the level of 0.5, and their CR have to exceed 0.7 (Bagozzi & Yi, 1988) to have an acceptable level of reliability.

Furthermore, cronbach's alpha was also used to assess construct reliability. The correlations of each item scale representing a single construct is measured using cronbach's alpha. In general, an acceptable level of reliability is achieved with an alpha level of 0.70 and above. A low level of internal consistency in the instrument is indicated if we have a low reliability level (Cronbach & Shavelson, 2004).

In this study, cronbach's alpha, Composite Reliability (CR) and Average Variance Extracted (AVE) have been conducted to test the reliability of the measurement items related to five constructs. Based on the result, all scales have been found reliable.

To assess the validity of the scales, content, convergent, and discriminate validities have been included. Validity is how much the concept of interest is appropriately represented by a scale (Hair *et al.*, 2010). The relevance of the variables contained in a scale to the theory is assessed using content validity (Hair *et al.*, 2010). The correlation between two measures of a similar notion is assessed using convergent validity (Hair *et al.*, 2010). Good convergent validity is indicated with an estimated standard loading greater than 0.5, and an AVE equal or greater to 0.5 (Lin & Ding, 2006; Hair *et al.*, 2010). To what extent two theoretically related concept are different is assessed by discriminant validity (Hair *et al.*, 2010). The correlation among two constructs has to be lower than the square root of the AVE of each one so that to have discriminant validity (Fornell & Larcker, 1981). In this study, the validity of most of the scales is good.

By reviewing the standardized regression weights, problems of multicollinearity have been evaluated. In a research investigation, the degree to which other variables explain a specific variable is assessed through multicollinearity (Hair *et al.*, 2010). Two variables are near to be equivalent when their standardized regression weight is near one; thus, indicating a multicollinearity problem. In this study, there is multicollinearity between the two independent variables.

After the measurement model has been tested for validity, and all constructs have been tested for validity and reliability, the hypotheses have been investigated to assess the paths and the directions. The associations among the endogenous and exogenous variables have been evaluated to assess the hypotheses of the model.

3.4.4.3 ACSI Calculation

Based on the formula suggested by Fornell *et al.* (1996), the index score for the satisfaction construct (ACSI) in Lebanon has been computed. Figure 4 represents the ACSI formula where ω_i is obtained from the model, and it represents the *i*th item's unstandardized

weight, in addition to \bar{x}_i that is obtained from the ACSI construct, and it represents the i th item's average.

$$ACSI = \frac{\sum_{i=1}^3 w_i \bar{x}_i - \sum_{i=1}^3 w_i}{9 \sum_{i=1}^3 w_i} \times 100$$

Figure 4: ACSI formula (Fornell *et al.*, 1996)

The ACSI values for individual industries and sectors, as well as the overall economy, are computed by aggregating firm-level results. An industry-level ACSI is an aggregate of firm results weighted by firm sales. A sector ACSI is an aggregate of industry results weighted by industry sales. The overall ACSI is an average of the sector results weighted by each sector's contribution to the gross domestic product (Fornell *et al.*, 1996). In this research, the Lebanese mobile phone sector ACSI is the aggregate of the service providers ACSI weighted by the service provider sales.

3.5 Conclusion

The procedures and methodology utilized in this study have been thoroughly discussed in this chapter. The chapter has first presented the study hypothesis and selected variable, then discussed the research design along with the research instruments in addition to the instrument's validity and reliability. After that, the sampling plan and approach plus the data analysis statistical method have been discussed. Finally, the ACSI formula has also been presented. The findings of this study are discussed in the next chapter.

Chapter 4

FINDINGS

4.1 Introduction

This chapter discusses the survey findings and reports the statistical results that allow a deep discourse of the proposed hypothesis. This chapter consists of four sections. The first section includes the descriptive statistics. The second section presents the results of the confirmatory factors analyses of the measurement model. The third section presents the results on hypothesized model testing. The fourth section presents the index score associated with customer satisfaction in the mobile phone sector in Lebanon.

4.2 Descriptive Statistics

This study took place during the first week of July 2014. 292 mobile phone users located on the Lebanese territory have been involved in the study. 60 questionnaires have been excluded from the data analysis because they were incomplete. This has yielded 232 valid responses. There were 129 male and 103 female participants. 120 users (51.7%) were using Alfa (OTMT) as their mobile service provider, and the remaining 112 users (48.3%) were using Touch (Zain) as their mobile service provider. Table 3 outlines the study descriptive statistics.

	18 – 25 years old	26 – 35 years old	36 – 45 years old	46 – 55 years old	56 – 65 years old	Total
Male	31 43.06%	73 59.35%	17 62.96%	7 77.78%	1 100.00%	129 55.60%
Female	41 56.94%	50 40.65%	10 37.04%	2 22.22%		103 44.40%
Total	72 31.03%	123 53.02%	27 11.64%	9 3.88%	1 0.43%	232 100%

Table 3: Demographics

The largest majority of users, 53.02% (N=123), ranged between the ages of 26 and 35 years old, and the second biggest majority, 31.03% (N=72), ranged between the ages of 18 and 25. Thus, a majority of 84.05% (N=195) young adults have participated in this study. It is

believed that the young market is the consumer group that is characterized by its high likelihood to embrace and actively utilize mobile applications (Cheskin Research, 2001).

The distribution of respondents with regard to mobile service operators in comparison to the distribution of subscribers in Lebanon is represented in Table 4. It is believed that the distribution of service operators is well represented in the sample although slight differences in numbers are found.

Mobile Operator	Sample (%)	Population(%)
Alfa	51.70%	49.12%
Touch	48.30%	50.88%

Table 4: Service Operators' Distribution

4.3 Assessment of Measurement Model

The associations among the latent variables and their indicators are involved the assessment of measurement model which has been performed using the confirmatory factor analysis. The goodness of fit of the model has been evaluated using the maximum likelihood method or estimation which is an evaluation technique commonly used in SEM. The measurement model is presented in Table 5. As shown in Table 5, the necessary cut-off value of 0.7 has been exceeded by all the items' loading; thus indicating that more than 50% of the variance in an observed item is explained.

Construct	Items	Means	Std. dev.	Factor loading
Customer expectation	CE1	63.66	20.41	0.79
	CE2	66.12	18.25	0.84
	CE3	61.21	21.16	0.75
Perceived Quality	PQ1	56.34	19.60	0.82
	PQ2	57.50	19.65	0.89
	PQ3	54.53	20.53	0.84
Perceived value	PV1	45.99	20.62	0.92
	PV2	49.70	23.23	0.72
Customer satisfaction	CS1	52.50	19.42	0.90
	CS2	48.79	18.87	0.81
	CS3	50.30	19.62	0.79
Price Tolerance	PT1	74.22	20.35	0.97
	PT2	55.17	26.42	0.74
Reprchase likelihood	RL1	62.84	23.12	1.00
Customer complaint	CC1	69.40	46.18	1.00

Table 5: Measurement Model

4.3.1 Overall Model Fit

The overall model fit has been used to assess the measurement model. In CFA, what the overall model fit stands for is the extent to which the hypothesized latent construct are represented by the specified indicators. The model overall goodness of fit has been assessed using nine common model fit measurements. According to the results that are shown in Table 6, the measurement model has demonstrated a good fit with the data gathered since the model fit indexes have surpassed the respective general acceptable levels recommended in the literature by earlier research.

Fit indices	Recommended value	Indices value
χ^2	$0 \leq \chi^2 \leq 3df$	202.911
χ^2/df	1 to 3	2.475
RMSEA	< 0.05 to 0.08	0.08
GFI	≥ 0.9	0.91
AGFI	≥ 0.8	0.87
NFI	≥ 0.9	0.91
IFI	≥ 0.9	0.94
CFI	≥ 0.9	0.94
TLI	≥ 0.9	0.93

Table 6: Measurement Model Fit Indices

The model fit for the measurement model has been indicated by the value of fit indices $df = 82$, $\chi^2 = 202.911$, $\chi^2/df = 2.475$, $RMSEA = 0.08$, $GFI = 0.91$, $AGFI = 0.87$, $NFI = 0.91$, $IFI = 0.94$, $CFI = 0.94$, and $TLI = 0.93$.

4.3.2 Construct Reliability

The construct reliability has been assessed using CFA through average variance extracted (AVE) and composite reliability (CR). Furthermore, cronbach's alpha has also been used to assess construct reliability. The results of the measurement model are shown in Table 7.

Construct	Items	Factor loading	AVE	CR	Cronbach's α
Customer expectation	CE1	0.79	0.64	0.84	0.84
	CE2	0.84			
	CE3	0.75			
Perceived Quality	PQ1	0.82	0.73	0.89	0.89
	PQ2	0.89			
	PQ3	0.84			
Perceived value	PV1	0.92	0.68	0.81	0.79
	PV2	0.72			
Customer satisfaction	CS1	0.90	0.70	0.87	0.87
	CS2	0.81			
	CS3	0.79			
Price Tolerance	PT1	0.97	0.75	0.85	0.82
	PT2	0.74			
Reprchase likelihood	RL1	1.00	1.00	1.00	1.00
Customer complaint	CC1	1.00	1.00	1.00	1.00

Table 7: The Measurement Model Results

The composite reliability values have moved from 0.81 to 1 demonstrating an adequate reliability level since all the values are over the threshold of 0.70 (Bagozzi & Yi, 1988). AVE values have changed from 0.64 to 1 demonstrating an adequate reliability level since all the values have surpassed 0.50 which is the recommended level (Bagozzi & Yi, 1988). α -values have moved from 0.79 to 1 demonstrating an acceptable reliability level since the recommended level of 0.70 has been exceeded by all values (Cronbach & Shavelson, 2004). Since all the constructs' values have exceeded the suggested guidelines, the application of the scales within this analysis is considered to have an acceptable reliability. Based on the results, it has been concluded that all scales are consistent.

4.3.3 Construct Validity

Content, convergent, and discriminate validities have been included to assess the validity of the scales.

Expert judgment and careful literature review have been used to verify the content validity of the constructs.

The factor loadings have been examined to evaluate the convergent validity. The estimated standard loadings (Table 7) have ranged from 0.72 to 1. All standardized loading estimates are greater than 0.7 suggesting good convergent validity (Lin & Ding, 2006; Hair *et al.*, 2010). AVE values have ranged from 0.64 to 1 suggesting a good level of convergent validity since all the values have exceeded the recommended level of 0.50 (Hair *et al.*, 2010).

To assess the discriminant validity, the correlation among two constructs has to be lower than the square root of the AVE of each one in order to have discriminant validity (Fornell & Larcker, 1981). Table 8 represents the square roots of the AVE found in the diagonal, and the inter-construct correlations found underneath the diagonal. The square root of the AVE for PQ is less than the inter-construct correlations between PQ and CS, in contrast to the remaining constructs where the square root of the AVE for the remaining constructs is greater than the inter-construct correlations.

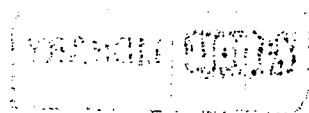
	RL	CC	PQ	PV	CE	CS	PT
RL	0.999						
CC	-0.044	1.000					
PQ	0.561	-0.148	0.852				
PV	0.467	-0.179	0.715	0.826			
CE	0.440	-0.117	0.661	0.528	0.797		
CS	0.601	-0.139	0.961	0.817	0.554	0.835	
PT	0.026	-0.006	0.087	0.020	0.079	0.012	0.863

Table 8: Average Variance Extracted and Correlations

The observation of the result indicates that the discriminant validity of the constructs is good except between PQ and CS. However, the discriminant validity between PQ and CS is to some extent negotiable. Two reasons may be proposed to argue that the validity of the model is not threatened. First, PQ and CS, the two constructs with high correlation, are dependent and independent variables; being so, significant correlation is expected. According to the clear statement of Straub *et al.* (2004), in principle component analysis, the loadings between dependent and independent variables are not significant with regard to construct validity; hence, these tests should or may be ignored (Straub *et al.*, 2004). Second, the report of high correlations between constructs was also found in previous studies that used the ACSI model or its adaptations (O'Loughlin & Coenders, 2004; Lai, 2004; Babakus, Bienstock, & Scotter, 2004; Turel & Serenko, 2006).

4.3.4 Multicollinearity

Through examining the standardized regression weights, the multicollinearity problem has been assessed. Standardized regression weights (β) for the path between PQ and CS is considered to be very high, approximately 1, with a value of 0.86; thus, indicating a multicollinearity problem. Besides the path between PQ and CS, no multicollinearity between the independent variables has been found since β for all other paths were distant from 1.



4.3.5 Altered Model

To overcome the discriminant validity issue in addition to the multicollinearity problem between PQ and CS in the initial model, the PQ construct has been dropped from the initial model, and then the altered model has been reassessed. As shown in table 9, the necessary cut-off value of 0.7 has been exceeded by all the items' loading; thus, indicating that more than 50% of the variance in an observed item is explained.

Construct	Items	Means	Std. dev.	Factor loading
Customer expectation	CE1	63.66	20.41	0.80
	CE2	66.12	18.25	0.84
	CE3	61.21	21.16	0.75
Perceived value	PV1	45.99	20.62	0.92
	PV2	49.70	23.23	0.72
Customer satisfaction	CS1	52.50	19.42	0.91
	CS2	48.79	18.87	0.80
	CS3	50.30	19.62	0.79
Price Tolerance	PT1	74.22	20.35	0.97
	PT2	55.17	26.42	0.74
Reprchase likelihood	RL1	62.84	23.12	1.00
Customer complaint	CC1	69.40	46.18	1.00

Table 9: Measurement Model of the Altered Model

4.3.5.1 Overall Model Fit

According to the results that are shown in table 10, the measurement model of the altered model demonstrated a good fit with the data gathered since the model fit indexes have surpassed the respective general acceptable levels recommended in the literature by earlier research. Furthermore, the altered model has exhibited a model fit better than the initial model.

Fit indices	Recommended value	Indices value of the initial model	Indices value of the altered model
χ^2	$0 \leq \chi^2 \leq 3df$	202.911	62.840
χ^2/df	1 to 3	2.475	1.282
RMSEA	< 0.05 to 0.08	0.08	0.04
GFI	≥ 0.9	0.91	0.96
AGFI	≥ 0.8	0.87	0.93
NFI	≥ 0.9	0.91	0.95
IFI	≥ 0.9	0.94	0.99
CFI	≥ 0.9	0.94	0.99
TLI	≥ 0.9	0.93	0.99

Table 10: Measurement Model Fit Indices of the Altered Model

The model fit for the measurement model has been indicated by the value of fit indices $df = 49$, $\chi^2 = 62.84$, $\chi^2/df = 1.282$, $RMSEA = 0.03$, $GFI = 0.96$, $AGFI = 0.93$, $NFI = 0.95$, $IFI = 0.99$, $CFI = 0.99$, and $TLI = 0.99$.

4.3.5.2 Construct Reliability

Table 11 shows the results regarding construct reliability for the measurement model of the altered model.

Construct	Items	Factor loading	AVE	CR	Cronbach's α
Customer expectation	CE1	0.80	0.44	0.78	0.84
	CE2	0.84			
	CE3	0.75			
Perceived value	PV1	0.92	0.62	0.83	0.79
	PV2	0.72			
Customer satisfaction	CS1	0.91	0.41	0.71	0.87
	CS2	0.80			
	CS3	0.79			
Price Tolerance	PT1	0.97	0.74	0.85	0.82
	PT2	0.74			
Reprchase likelihood	RL1	1.00	1.00	1.00	1.00
Customer complaint	CC1	1.00	0.33	0.35	1.00

Table 11: The Measurement Model Results of the Altered Model

The composite reliability values have risen from 0.35 to 1. All constructs have demonstrated an adequate composite reliability level with values over the threshold of 0.70 (Bagozzi & Yi, 1988) except CC whose value is 0.35. AVE values have increased from 0.33 to 1. All constructs have demonstrated an adequate reliability level based on AVE with values that have surpassed 0.50 which is the recommended level (Bagozzi & Yi, 1988) except CE, CS and CC whose values are respectively 0.44, 0.41 and 0.33. α -values have risen from 0.79 to 1 demonstrating an acceptable reliability level since the recommended level of 0.70 has been exceeded by all values (Cronbach & Shavelson, 2004). Not all the construct values have exceeded the suggested guidelines, so the application of the scales within the altered model is not considered to have an acceptable reliability. Based on the results, it has been concluded that not all scales performed consistently in the altered model.

4.3.5.3 Construct Validity

Content, convergent, and discriminate validities have been included to assess the validity of the scales.

Expert judgment and careful literature review have been used to verify the content validity of the constructs.

The factor loadings have been examined to evaluate the convergent validity. The estimated standard loadings (Table 11) have ranged from 0.72 to 1. All standardized loading estimates are greater than 0.7 suggesting good convergent validity (Lin & Ding, 2006; Hair *et al.*, 2010). AVE values ranged from 0.33 to 1 not suggesting a good level of convergent validity since not all the values exceeded the recommended level of 0.50 (Hair *et al.*, 2010).

To assess the discriminant validity, the correlation among two constructs has to be lower than the square root of the AVE of each one in order to have discriminant validity (Fornell & Larcker, 1981). Table 12 represents the square roots of the AVE found in the diagonal, and the inter-construct correlations found underneath the diagonal. The square root of the AVE for PV is less than the inter-construct correlations between PV and CS, in contrast to the remaining constructs where the square root of the AVE for the remaining constructs is greater than the inter-construct correlations.

	CC	CE	PV	CS	PT	RL
CC	0.578					
CE	-0.118	0.667				
PV	-0.178	0.526	0.790			
CS	-0.138	0.552	0.815	0.643		
PT	-0.006	0.080	0.020	0.012	0.863	
RL	-0.044	0.439	0.467	0.601	0.026	0.999

Table 12: Average Variance Extracted and Correlations of the Altered Model

The observation of the result indicates that the discriminant validity of the constructs is good except between PV and CS. However, the discriminant validity between PV and CS is to some extent negotiable since PV and CS, the two constructs with high correlation, are dependent and independent variables; being so, significant correlation is expected, and the report of high correlations between constructs was also found in previous studies that used the ACSI model or its adaptations (O'Loughlin & Coenders, 2004; Lai, 2004; Babakus *et al.*, 2004; Turel & Serenko, 2006). However, the degree of correlation has decreased in the altered model in a very significant way in comparison to the initial model.

4.2.5.4 Multicollinearity

Standardized regression weights (β) for the path between PV and CS is considered to be acceptable, approximately distant from 1, with a value of 0.71; thus, not indicating a multicollinearity problem. Moreover, no multicollinearity between the independent variables has been found since β for all other paths are far from 1. However, given that the altered model does not reveal sound validity and reliability using CFA, the results are considered biased and unreliable.

4.4 Assessment of the Structural Model

4.4.1 Initial Model

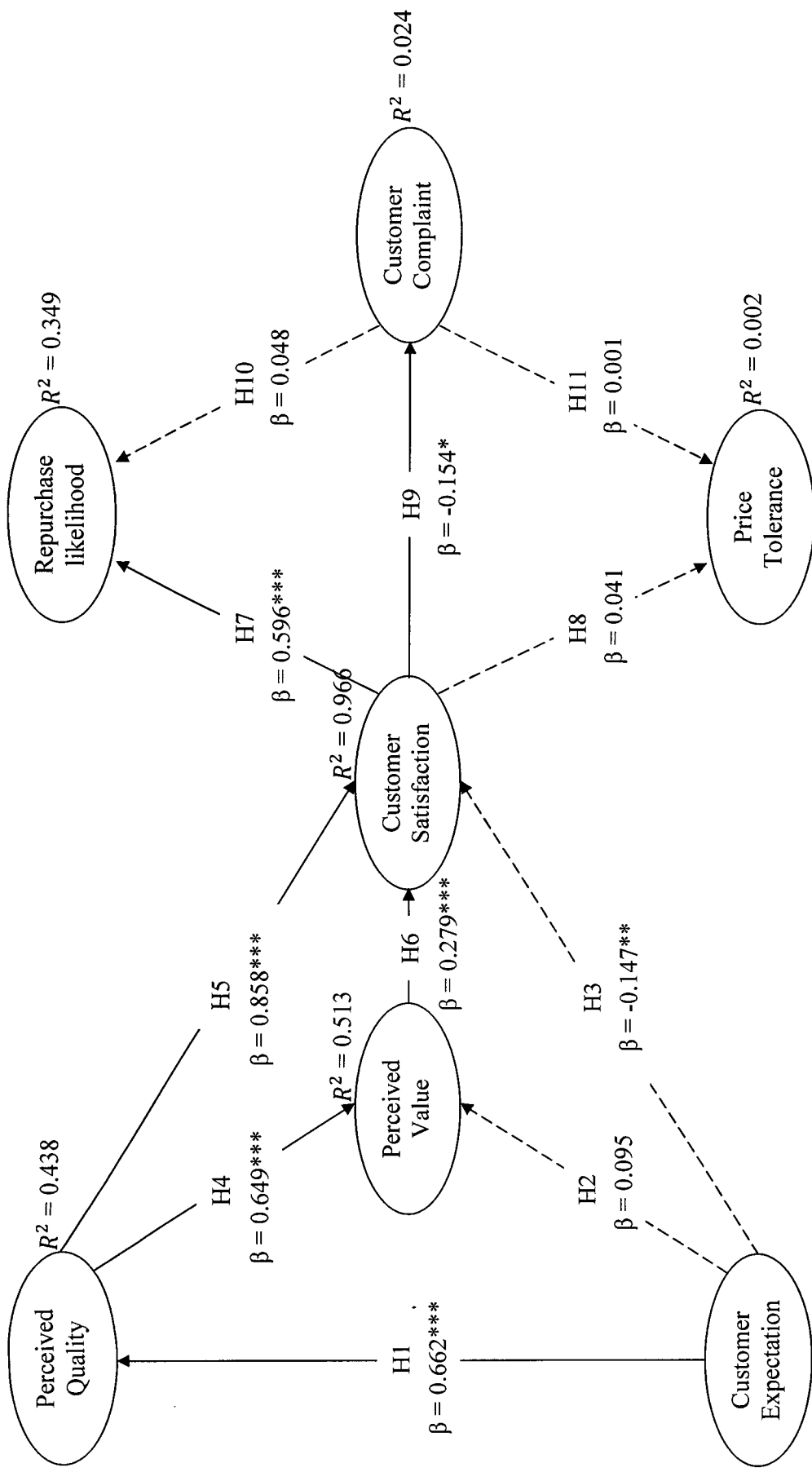
The relationships between the endogenous and exogenous variables have been evaluated to test the total of 11 hypotheses. The results are shown in Table 13.

Path	Coefficient (β)	<i>t</i> -value	<i>p</i> -value	Result
<i>H1</i> : CE → PQ	0.66	8.666 ***	0.000	Supported
<i>H2</i> : CE → PV	0.10	1.095	0.274	Rejected
<i>H3</i> : CE → CS	-0.15	2.658 **	0.008	Rejected
<i>H4</i> : PQ → PV	0.65	7.201 ***	0.000	Supported
<i>H5</i> : PQ → CS	0.86	10.331 ***	0.000	Supported
<i>H6</i> : PV → CS	0.28	4.335 ***	0.000	Supported
<i>H7</i> : CS → RL	0.60	10.081 ***	0.000	Supported
<i>H8</i> : CS → PT	0.04	0.58	0.562	Rejected
<i>H9</i> : CS → CC	-0.15	2.291 *	0.022	Supported
<i>H10</i> : CC → RL	0.05	0.878	0.38	Rejected
<i>H11</i> : CC → PT	0.00	0.01	0.992	Rejected

Notes: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; $t (p < 0.001) = 3.29$; $t (p < 0.01) = 2.58$; $t (p < 0.05) = 1.96$

Table 13: Standardized Direct Effects of the Initial Model

CE shows a positive effect on PQ ($\beta = 0.66, p < 0.001$), no effect on PV ($\beta = 0.10, p > 0.05$), and a negative effect on CS ($\beta = -0.15, p < 0.01$). Therefore, H1 is supported, and H2 and H3 are rejected. PQ has a positive effect on PV ($\beta = 0.65, p < 0.001$) and CS ($\beta = 0.86, p < 0.001$). Thus, H4 and H5 are supported. PV has a positive effect on CS ($\beta = 0.28, p < 0.001$). Therefore, H6 is supported. CS has a positive effect on RL ($\beta = 0.60, p < 0.001$), no effect on PT ($\beta = 0.04, p > 0.05$), and negative effect on CC ($\beta = -0.15, p < 0.05$). Therefore, H7 and H9 are supported, while H8 is rejected. CC shows no effect on both RL ($\beta = 0.05, p > 0.05$) and PT ($\beta = 0.00, p > 0.05$). Therefore, H10 and H11 are rejected.



Notes: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$
 Figure 5: Structural Model of the Initial Model

The structural model is presented in figure 5. H1, H4, H5, H6, H7, and H9 are supported and all of H2, H3, H8, H10, and H11 are rejected. In conclusion, six hypotheses are confirmed, and five hypotheses are discarded. The rejected hypotheses have β coefficients close to zero in addition to p -values greater than 0.05.

96.6% of the CS construct variance is explained by this model, as such indicating an important predictive power with regard to customer satisfaction. 51.3% of the variance in PV, 43.8% of the variance in PQ, 34.9% of the variance in RL, and 2.4% of the variance in CC are explained by this model. Taking into consideration the different factors affecting these constructs, these results indicate the soundness of the theory since this model fairly explains an important amount of variance.

Furthermore, the linkages related to the rejected hypotheses have been removed, and a new estimation has been done to the model to even more ensure the irrelevance of those hypotheses. As a result, the β coefficients and p -values obtained from the estimation of the new model are still significant and strong. A minor change in R^2 -values has been noted, for example, CS R^2 -value have changed from 0.966 to 0.94. Hence, it can be concluded that the remaining linkages are considered to be statistically valid.

4.4.2 Altered Model

The relationships between the endogenous and exogenous variables in the altered model have been evaluated to test the total of 8 hypotheses. The results are shown in Table 14.

Path	Coefficient (β)	<i>t</i> -value	<i>p</i> -value	Result
H2: CE → PV	0.52	7.06 ***	0.000	Supported
H3: CE → CS	0.19	2.851 **	0.004	Supported
H6: PV → CS	0.71	8.661 ***	0.000	Supported
H7: CS → RL	0.61	10.106 ***	0.000	Supported
H8: CS → PT	0.02	0.263	0.792	Rejected
H9: CS → CC	-0.15	2.208 *	0.027	Supported
H10: CC → RL	0.05	0.889	0.374	Rejected
H11: CC → PT	0.00	0.041	0.968	Rejected

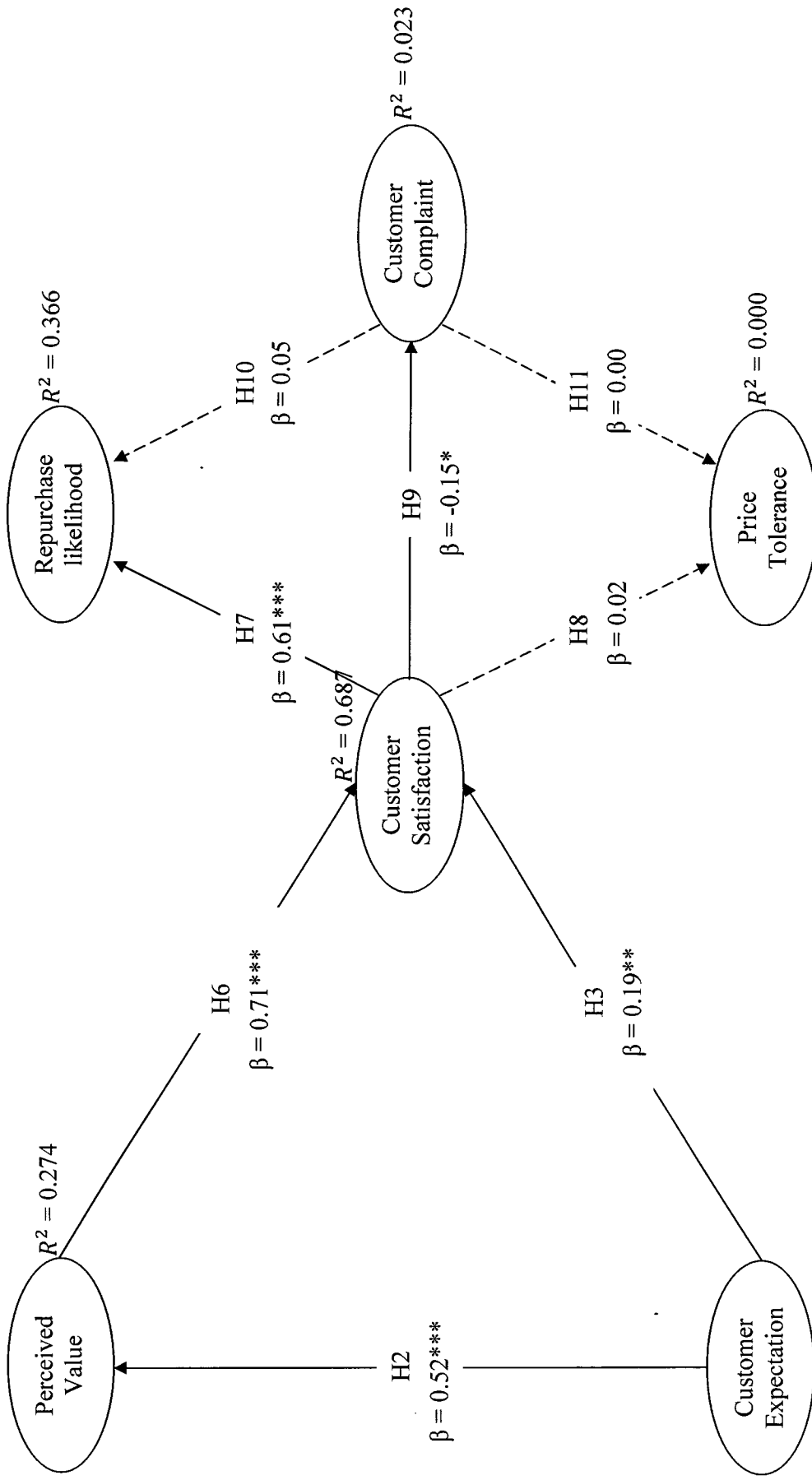
Notes: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; $t (p < 0.001) = 3.29$; $t (p < 0.01) = 2.58$; $t (p < 0.05) = 1.96$

Table 14: Standardized Direct Effects of the Altered Model

CE shows a positive effect on PV ($\beta = 0.52, p < 0.000$), and a positive effect on CS ($\beta = 0.19, p < 0.01$). Therefore, H2 and H3 are supported. PV has a positive effect on CS ($\beta = 0.71, p < 0.001$). Therefore, H6 is supported. CS has a positive effect on RL ($\beta = 0.61, p < 0.001$), no effect on PT ($\beta = 0.02, p > 0.05$), and negative effect on CC ($\beta = -0.15, p < 0.05$). Therefore, H7 and H9 are supported and H8 is rejected. CC shows no effect on both RL ($\beta = 0.05, p > 0.05$) and PT ($\beta = 0.00, p > 0.05$). Therefore, H10 and H11 are rejected.

The structural model of the altered model is presented in Figure 6. H2, H3, H6, H7, and H9 are supported and H8, H10, and H11 are rejected. In conclusion, five hypotheses are confirmed, and three hypotheses are discarded. The rejected hypotheses have β coefficients close to a zero in addition to p -values greater than 0.05.

68.7% of the CS construct's variance is explained by this altered model. 27.4% of the variance in PV, 36.6% of the variance in RL, and 2.3% of the variance in CC are explained by this model.



Notes: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$
 Figure 6: Structural Model of the Altered Model

4.5 The Lebanese ACSI of Mobile Phone Services

Based on the formula suggested by Fornell *et al.* (1996), the index score for the satisfaction construct (ACSI) in Lebanon has been computed. The index score of ALFA (OTMT) is 45.4. The index score of Touch (Zain) is 44.9. The Lebanese customer satisfaction index score associated with mobile phone services industry is 45.3 which is the aggregate of the service providers ACSI weighted by the service provider sales. Table 10 outlines several countries customer satisfaction index values associated with mobile phone services. It can be noted that the Lebanese customer satisfaction index associated with mobile phone services is the lowest. Accordingly, the customer satisfaction associated with the mobile phone services in Lebanon is in need to be improved. Though, the measures found in table 10 were made several years ago, there is a need for new measured indices in order for the benchmarking to make sense.

Mobile services	Customer satisfaction index	Year
Lebanon	45.30	2014
USA	72.00	2013
Jordan	54.53	2012
Russia	67.00	2008
Canada	55.00	2006
Singapore	59.10	2006
Finland	63.40	2006
Turkish	70.02	2004
Russia	67.00	1999
Sweden	62.00	1999
Switzerland	71.50	1997

Table 15: Customer Satisfaction Indices (Aydin & Özer, 2005; Turel *et al.*, 2006; Turkyilmaz & Ozkan, 2007; Park *et al.*, 2008; Awwad, 2012; The ACSI Organization, 2014)

4.6 Conclusion

This chapter has discussed the survey findings and has reported the statistical results that have allowed an exhaustive discourse of the proposed hypothesis. The adapted ACSI model has demonstrated a good fit, and the assessment of the measurement model suggests an acceptable reliability and validity. However, the discriminant validity between PQ and CS is compromised and argued.

An altered model has been suggested as an attempt to solve the discriminant validity issue between PQ and CS in the initial model. The PQ construct has been dropped from the initial model and the altered model has been reassessed. Although the altered model has exhibited better model fit than the initial one, the assessment of the measurement model of the altered model has not revealed sound reliability and validity.

The ACSI score associated with the Lebanese mobile phone sector is 45.3, and it is very low compared to other the customer satisfaction indices associated with mobile services in other countries. Hence, the enhancement of customer satisfaction with mobile services in Lebanon is suggested.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter covers the study findings in addition to the study limitations, and the managerial implications plus the conclusions. This chapter is composed of three sections. The first section explains and discusses the study results. The second section addresses the study limitations and future research. Finally, the third section includes the managerial implications.

5.2 Main Findings

This study has found that CE has a direct positive effect only on PQ of the mobile services. No direct effects on PV with mobile services have been registered from CE, and a negative effect has been found between CE and CS. This suggests that the effect of CE on PV is fully mediated through PQ, which means that customers do not assess the value of mobile services based on expectations, but rather by contrasting their expectations with perceived quality. This finding is similar to previous ACSI studies and information system literature. Insignificant effect of expectations on value of money has been reported by similar studies done by Fornell *et al.* (1996), Hackl *et al.* (2000), Turel and Serenko (2006), Turel *et al.* (2006) and Awwad (2012). Moreover, it has been noted by Johnson *et al.* (2001) that the association between CE and PV in several industries is unclear for the reason that CE's measures are associated to quality and not associated to value. The negative effect found between CE and CS suggests that consumer expectations are not aligned with the service offerings to an extent that is causing consumer dissatisfaction. According to the information system literature, disconfirmation (the contrast between ones expectations and the actual observed utility) has been shown to have the strongest effect on satisfaction (Bhattacharjee & Premkumar, 2004). Though the negative relation between CE and CS is significant, it is the weakest among the three determinants of satisfaction, PQ, PV, and CS. Turel *et al.* (2006) have provided a reasonable explanation of this deviation, which is service experience that moderates the strengths of the

relationship between CE, PV and satisfaction. This means that less experienced users rely on expectations for evaluating value and satisfaction, whereas experienced users rely on the observed quality for determining value and satisfaction, and their subjective quality perceptions are influenced by their expectations (Turel *et al.*, 2006). The majority of users in this study are young adults. Young adults consumer group is characterized by its high likelihood to embrace and actively utilize mobile applications; thus, they are experienced users, and as such, they strongly rely on actual quality rather than on expectations.

As for PQ and PV of mobile services, PQ has a direct positive effect on both PV and CS, and PV also has a direct positive effect on CS. Furthermore, the study shows that PQ has a strong influence on CS with mobile services much more than the influence of PV on CS with mobile services which indicates that CS with mobile services in Lebanon is quality driven not price driven. This result goes along with the opinion that puts quality at the center of formation of the consumption experience in contrast to value which is more at the center of formation of the consumer's early choice and preferences (Fornell *et al.*, 1996).

CS has a direct positive impact on RL, which indicates that as the level of CS with mobile services increases, the level of RL from a particular provider of mobile services increases. So, if the Lebanese mobile services providers want to increase RL efficiently, they should find out a way to enhance CS. This study has also found that CS has no effect on PT combined with low R^2 . This result implies that in the Lebanese context, there are other factors that affect PT. It is believed that a major factor for this result is due to the regulatory conditions in Lebanon. The Lebanese state owns the two mobile services providers and gives the management of these two public companies to private companies on a contractual basis. Furthermore, the Lebanese Ministry of Telecommunication fixes the prices of the mobile services which prohibit any competition with regard to price. As for CC, this study found a direct negative effect between CS and CC which comply with Fornell *et al.* (1996) suggestion that the incidence of complaints is decreased when there is an increase in overall customer satisfaction, and vice versa.

This study has found that CC has no effect on both RL and PT. These results may be in some measure due to the demographics of the users that have participated in this study the

majority of which is young adults. In determining technology perceptions, a major role is attributed to age (Lightner, 2003). Hence, it is believed that young adults have a high degree of familiarity with mobile applications and technologies, are more likely to complain, and tend to be more demanding in contrast to users with older age (Turel & Serenko, 2006). Accordingly, other factors may explain the complaining behavior of the young adults group of users, and these factors are not examined in this model. The general tendency to complain, trendy demanding behavior (Turel & Serenko, 2006), and mobile technology's self-efficacy which includes knowing what to ask for (Gebauer *et al.*, 2002; Boyle & Ruppel, 2004), all these are considered less instrumental factors that may explain the complaining behavior. Thus, the absence or weak impact from CC on RL and PT can be due to the non-instrumental motives inducing the complaints.

5.3 Limitations and Future Research

Despite its contribution, this study has several limitations. The result cannot be generalized to the population because of the convenience sampling methods employed in this study which is a type of non-probability sampling. Ideally, it is suggested to employ more probabilistic data collection techniques such as randomized phone based surveys. Because of the cost and time constraints, this study is mainly a cross-sectional one. It is very important to conduct a longitudinal study to observe the progress of customer behavior with time. For the results to be contrasted with the satisfaction indices of different countries, the model needs to be examined regularly, and national customer satisfaction indexing has to be carried out in various industries and sectors concurrently.

Finally, this study is done in English where only the causal associations between the adapted ACSI model has been tested. Other significant variables may be added to the structural model to be assessed for future studies. These variables may include image and word of mouth.

5.4 Managerial Implications

The strong relationship between customer expectations and perceived quality, plus the lack of relationship among customer expectations and perceived value, in addition to the negative, however weak, effect of customer expectations on customer satisfaction with mobile services suggest the significance of disparity between expectations and the services offered, and the significance of the expectations when they are compared with the experienced quality and monetary value of the mobile phone service. Hence, for further satisfaction, it is recommended that the Lebanese mobile services providers form sound customer expectations that are lined up with the needs of their subscribers, the price paid, and the real quality of the service. As a practical implication, innovative services can take advantage of this notion. It is suggested that mobile services providers better report actual bit rates and coverage problems, and so on, of the newly launched LTE (4G) services rather than over exaggerating. Moreover, mobile services providers are invited to develop sound price estimations per service especially packet based services. This will allow mobile users to practically estimate in advance the charge of utilizing a service, and line up their expectations with the real service quality and value, in addition to taking advantage of the new technologies.

It can be noted that the relation between perceived quality and customer satisfaction with mobile services is stronger than the relation between perceived value and customer satisfaction with mobile services in Lebanon. This suggests that improving the perceived value in Lebanon by reducing prices should foster customer satisfaction.

The relationship between customer complaints and repurchase likelihood is absent. Furthermore, the relationship between customer complaints and price tolerance is absent too. However, unlike what it seems, complaints are important, although they have insignificant effects on customer retention. Other user behaviors such as the word of mouth can be strongly impacted by complaints. Therefore, the way complaints are treated seems to have big importance. However, it should be noted that the complaints behavior is subject to different uncontrollable, external factors; thus, it cannot be completely controlled. Mobile services providers should try hard to minimize these factors since the operating cost is affected upon

dealing with them. Mobile services providers are recommended to professionally and adequately deal with complaints whenever they arise.

The ACSI score associated with the Lebanese mobile phone sector is 45.3, and it is very low compared to other countries' customer satisfaction indices associated with mobile services. A potential explanation of the low satisfaction level in the Lebanese mobile phone sector is due to the nature of this sector in Lebanon which is completely owned by the Lebanese state. As such, the Lebanese Ministry of Telecommunication sets the prices and employs policies that reduce efficient competition between the different mobile services providers in the country. Fornell *et al.* (1996) have noted that customers are least satisfied with public administrations and government agencies. Hence, the enhancement of customer satisfaction with mobile services in Lebanon is suggested through the privatization of the sector, and through the opening of the Lebanese market for potential investors and services providers in the mobile commerce field. An additional potential reason for the low satisfaction level in the Lebanese mobile phone sector is the age of the participants in the study. The majority of the participants were young adults. It is believed that age is a significant factor in determining satisfaction degrees (Turel & Serenko, 2006) especially in information technology (Palvia & Palvia, 1999). According to the ACSI reputable resources, younger consumers are remarkably less satisfied than older consumers over the aggregate of all services and products (VanAmburg, 2004). This suggests that mobile phone services providers have to enhance their offerings to the young adults via an improved perceptive of the needs of their subscribers.

5.5 Conclusions

The antecedents of user satisfaction associated with mobile phone services in Lebanon, as well as its consequences, have been investigated in this study. Policy makers, mobile services providers and clients may gain insights from this study. Furthermore, additional researches and benchmarking in the context of mobile business in Lebanon especially with regards to subscriber satisfaction and loyalty can be formed based on it. An adaptation of the American Customer Satisfaction Index (ACSI) model is applied in this study for this purpose. Fornell *et al.* (1996) have developed the original ACSI model. The causal relationships having customer satisfaction as their center are adequately identified in this model. Furthermore, this model provides a

standardized satisfaction score that has predictive capabilities with regards to the performance of firms (The ACSI Organization, 2005).

Concerning the first research question, the application of the adapted ACSI model has been proven to illustrate, to an extent, the service perceptions and customer behaviors of mobile phone subscribers in Lebanon. The model has demonstrated a good fit, and the assessment of the measurement model has suggested acceptable reliability and validity with concerns regarding the discriminant validity between PQ and CS which is compromised and argued. The discriminant validity issue may be due to the cultural fact that quality and satisfaction are perceived as being the same in the Lebanese culture. It is suggested to build a Lebanese customer satisfaction index based on the ACSI which includes more determinants for customer satisfaction, and additional customized factors for investigating perceived quality to better fit the Lebanese market.

In particular, the model indicates that CS with mobile services in Lebanon is negatively affected by expectations, positively affected by PV and PQ, and is quality-driven not price-driven. It also suggests that the customers do not assess the value of mobile services based on expectations, but rather by contrasting their expectations with perceived quality. CS has a direct positive impact on RL, and no effect on PT due to the nature of the Lebanese mobile phone sector which is completely owned by the Lebanese state that sets its prices. However, to increase RL efficiently, the Lebanese mobile services providers should find a way to enhance CS. A direct negative effect between CS and CC has been found. This suggests that an increase in CS should decrease the occurrence of complaints, and vice versa. Finally, the study has found that CC has no effect on both RL and PT, and this can be due to the non-instrumental motives inducing the complaints.

Concerning the second research question, the ACSI score associated with the Lebanese mobile phone sector is 45.3, and it is very low compared to the customer satisfaction indices associated with mobile services in other countries. Hence, the enhancement of customer satisfaction with mobile services in Lebanon is suggested through the privatization of the mobile phone sector in Lebanon, opening the market for further competition, and the improvement of the mobile services offering. The subscriber's needs must be better understood so that the mobile services offering can be improved.

In the context of mobile phone services in Lebanon, this research is considered to be the very first study to apply the adapted ACSI model. Above all, policy makers, mobile services providers and clients are highly likely to gain insights from this study. Furthermore, additional researches in the context of the mobile business in Lebanon can be formed based on it.

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Q14. If a competitive provider offers you the same range and quality of services as you currently receive, by how much should their prices be lower than those you are currently paying for you to change your current provider?

	1% (10)	5% (20)	10% (30)	15% (40)	20% (50)	25% (60)	30% (70)	40% (80)	50% (90)	Over 50% (100)
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q15. If your current service provider increases prices given the same range and quality of services, how much would they have to increase their prices for you to consider switching to a competitor?

	1% (10)	5% (20)	10% (30)	15% (40)	20% (50)	25% (60)	30% (70)	40% (80)	50% (90)	Over 50% (100)
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q16. Your mobile services provider:

- Alfa (1)
 Touch (2)

Q17. Select your age group:

- 18 – 25 years old (1)
 26 – 35 years old (2)
 36 – 45 years old (3)
 46 – 55 years old (4)
 56 – 65 years old (5)
 Above 65 years old (6)

Q18. Your Gender:

- Male (1)
 Female (2)