Customer Loyalty in Mobile Banking - findings from the millennial generation

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Abstract
The purpose of this study is to investigate and explain the underlying factors that contribute to the creation of loyalty within the area of mobile banking, and their relative importance. The study is limited to the Swedish market and members of the millennial generation. To acquire the wanted primary data, this study adopted a survey strategy, where responses from 153 current and former university students were collected. Following the survey, an exploratory factor analysis was conducted, and ultimately a multiple linear regression analysis to reveal what factors that predicts loyalty. Findings show that Relationship Quality (Commitment/Satisfaction/Trust) has a positive impact on mobile banking loyalty and is the strongest determinant. A lower level of Perceived Risk also has a positive impact on mobile banking loyalty. A Net Promotor Score of 1.4 percent indicate low loyalty among millennial mobile banking customers. This study contributes to the bank marketing theory by being one of the first studies that investigate which factors that directly influence loyalty among mobile banking customers. Since millennials is the next working generation it is crucial for banks to understand how loyalty in this generation is created. As the study is focused on Swedish millennials, applicability to the general population is limited.

Keywords: Mobile banking, customer loyalty, millennials, Relationship Quality, Technology Acceptance Model, factor analysis, Sweden
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1. Introduction

During recent years technological development has reshaped several sectors, and the retail banking sector is not excluded. This development has led to a situation where customers have gone online, transforming physical bank branches into personal advisory offices and sales points instead of conducting daily bank business (Swedish bankers, 2017). This transformation has also led to a shift in how and where bank loyalty is created as digital self-service technologies nowadays serve as the main interaction between banks and customers. As customer loyalty affects profitability it is crucial for companies to understand where loyalty is created, and how loyalty is created (Reichheld, 2003).

As shown in Figure 1, the early technological transition in the retail banking sector started with the introduction of credit cards and ATM:s. This evolution moved parts of the cash handling out of the branches and made customers less cash dependent. The introduction of telephone banking made it possible for customers to carry out banking errands from a distance on a 24-hour basis. When online banking was introduced, it was the first visual self-service technology, enabling customers to carry out their banking errands from a PC. However, one of the most significant evolutions was the introduction of mobile banking, which made many of the routine banking errands accessible at anytime, anywhere (Thakur, 2014).

![Figure 1. Technological evolution of banking services. (Tieto, 2016; Devlin, 1995)](image)

Earlier research of online- and mobile banking has focused primarily on adoption, where variables and their respective effect on the acceptance of these self-service technologies has been investigated (Pikkarainen, et al., 2004; Wessels and Drennan, 2010; Laukkanen, 2016). Pikkarainen et al. (2004) found that perceived usefulness was the main factor contributing to the adoption of online banking. In other words, if a customer perceives that the technology enhances their performance while doing banking errands, the technology will be adopted. This notion is supported by Laukkanen (2016) who found that the value barrier, which is closely related to perceived usefulness, is the best predictor of technology adoption in online- and mobile banking. Furthermore, Wessels and Drennan (2010) focused their research exclusively
on acceptance of mobile banking and consumers intentions to use mobile banking. Their findings support the evidence that perceived usefulness has the most positive effect on acceptance along with compatibility. Furthermore, they found that cost and perceived risk has a negative impact on mobile banking acceptance.

While the pre-adoption perspective of mobile banking has received a lot of attention, the post-adoption perspective has not been studied to the same extent, which makes it an interesting and relevant field for further research. One of the reasons behind the absence of research could be due to the rapid technological evolution, where the broader acceptance of mobile banking services among customers has occurred during the recent years. However, along with rising adoption, researches have increased their attention towards a post-adoption perspective, investigating mobile banking and its role in customer relations. One article that takes a post-adoption perspective is the one of Arcand et al. (2017), which investigate the connection between mobile banking service-quality and mobile banking relationship quality. Their findings explain that service-quality constructs affect relationship quality, and that commitment, satisfaction, and trust are powerful determinants for relationship quality. Another study, conducted by Thakur (2014) addresses the area of customer loyalty among mobile banking customers in India, which limits the generalizability because of cultural and societal differences. Although, the findings by Thakur (2014) imply that the most important variable affecting loyalty is customer satisfaction, while usability has an indirect effect on loyalty through satisfaction as a mediator. Research about customer loyalty and mobile banking is still in its infancy and further research is needed to better understand which factors affect loyalty within mobile banking.

As banking is one of the areas where individuals cannot make their own decisions without the permission of their parents or legal guardians before reaching the age of majority, banking relationships for young individuals can be started without their consent. Since the age of majority in Sweden is 18 years, this age acts as the threshold were individuals transition from childhood into young adulthood. Beyond this threshold, individuals are responsible for their own actions, making them accessible for the banking sector as individuals who can decide upon their banking activities and connections. The current generation that is in the phase of transitioning between childhood and adulthood is the Millennial generation, which usually is considered as people that are born between 1980-2000 (Young and Hinesly 2012). As this generation has grown up with information technology, access to internet and social media, technology has become one of this generations key attributes. Building on that attribute
millennials urge for constant connectivity with immediate access to information to satisfy their needs. When it comes to loyalty within this generation a recent, large scale revealed that millennials are not as loyal to their bank as previous generations (Accenture, 2015). This will arguably create implications for banks wishing to retain them. Smith (2012) found that personalization can have a positive impact on their loyalty, but more research is needed to fully understand what drives customer loyalty within this generation.

Sweden was one of the first countries where mobile banking was introduced and is generally an early adopter of new technology, making it a good market to perform our study in. According to a survey conducted by the Swedish Riksbank (2016) over 80% of the respondents between 16-85 years of age has access to internet banking. Another study conducted by Statistics Sweden (2017), found that 90% of the respondents in the age between 25-34 were using internet banking services, and 89% had internet access through their phones. These findings support our view that a post-adoption perspective of mobile banking is suitable for the Swedish market.

1.1 Purpose and research question

The purpose of this study is to investigate and explain the underlying factors that contribute to the creation of loyalty within the area of mobile banking, and their relative importance. To further investigate this area, we propose the following research question.

- Which factors affect loyalty among millennial mobile banking customers?

To investigate this area and ultimately answer our research question we adopt a survey strategy. A self-answered questionnaire based on the literature review was created and distributed to our sample. The collected primary data was then dimensionally reduced via an exploratory factor analysis to enhance the interpretability of the responses. The factors extracted from the analysis were used as independent variables in our regression model, which sought to explain how loyalty is created in mobile banking. The study was limited to the Swedish banking market as this market has a high level of digital adoption, where a majority of the customers has access to mobile banking services through smart phones and tablets. This market was also of interest since it has the traditional retail banks with a big market share and long history. At the same time, foreign banks and niche banks has entered the market, trying to gain market shares from the big four. The sample of the study are students and former students at the Uppsala university, which we believe represent future important banking customers, and are part of the millennial generation.
The findings in our study indicate that among millennial banking customers, Relationship Quality, and Perceived Risk affects customer loyalty. When observing the Net Promotor Score calculated on our sample, these findings indicate that millennial mobile banking customers are less loyal compared to the general population.

The remainder of this thesis will proceed on the following path. Section 1.2 puts the study in its context through an introduction of the institutional background. In section 2, the theoretical foundation will be presented, models and constructs adopted from earlier research within the area of interest were used to formulate our research model and to anchor our hypotheses. Section 3 presents the methodological considerations that has been made, the design of the study, and how the study was executed. Section 4 reveals the results and findings obtained from the study. Section 5 of the thesis presents the analysis of the results obtained in the study, and the limitations applicable to the thesis. Finally, chapter 6 consists of the conclusion, theoretical contribution, managerial implications, and proposed future research.

1.2 Institutional background
This section puts the thesis in its current context, with an introduction to the Swedish banking sector, and how some of its characteristics are applicable to this thesis. Furthermore, the concept of mobile banking and its characteristics are introduced.

1.2.1 Swedish banking sector
While studying the Swedish banking sector, one of the particular characteristics is that the sector has been dominated for a long time by four big retail banks (Handelsbanken, Nordea, SEB, and Swedbank) in the traditional areas of: savings, mutual funds, mortgages and credit. However, the dominating position has been challenged during recent years as foreign banks are establishing themselves on the Swedish market, gaining market shares from the big four, and niche banks are transforming into commercial banks, offering more services to attract new customers and gain market shares (Swedish bankers, 2017).

By looking at the above-mentioned development from a customer perspective, one could argue that the technological evolution has led to a greater transparency in the banking sector, dismantling the switching barriers between banks. In Sweden, comparability between different lenders, mortgage providers, and savings offerings has never been easier. As a consequence, customers can make more well-informed decisions, which will require banks to better communicate their pricing decisions, and the value of their products and services (Deutsche Bank, 2013). If the banks do not address these topics, there is a risk for potential customer loss.
To tackle this evolution, banks have to better understand what variables contribute to the construction of customer loyalty in this modern environment, as it is cheaper to retain customers compared to attracting new ones (Hallowell, 1996).

Another interesting aspect on the Swedish banking market is the fact that all the four big retail banks offer free banking services for all students who get CSN payments deposited into their bank accounts (Handelsbanken, 2017; Nordea, 2017; SEB, 2017; Swedbank, 2017). If the banks do not know how to retain these students as customers after the discounted services are terminated, they will have given away free banking services without getting paid. As a majority of these students are a part of the millennial generation they will become the next big working generation in Sweden. This is one of the reasons why they are an interesting customer group for the banks. Along with future jobs, savings and spending will start to increase, making this generation a future profitable customer group for the banks.

1.2.2 Mobile banking

The concept of basic mobile banking has been around since the late 1990s when it was introduced in Germany in a collaboration with Deutsche Bank, with basic features accessible through mobile phones (Shaikh & Karjaluoto, 2015). However, the concept of app-based mobile banking as we know it today is the latest technological delivery channel for banking customers, and it was firstly launched in the Nordic countries during 2009 (Tieto, 2016). The development of app-based mobile banking can be traced back to the introduction of the iPhone, which introduced app-based programs for the first time and disrupted the field of handheld devices and how people accessed internet (Christensen et al., 2015).

One of the fundamental differences between traditional online banking (through computers) and mobile banking is the constant accessibility and flexibility which enables the customer to access and conduct banking activities independent of time and location (Moser, 2015; Arcand et al., 2017). Another differentiating aspect is the user friendliness, which could be connected to accessibility as mobile banking enables customers to carry out routine banking errands easily while on the go, e.g. scanning invoices with the camera on the phone or accessing the stock market. From a personalization perspective, mobile banking is also unique as it could use geolocations to optimize suggestions and offerings to customers.
2. Literature review

This chapter of the thesis will present the theoretical background on which our proposed research model (figure 3) has been constructed. The different variables are adopted from earlier research within the field of online- and mobile banking, as well as technology acceptance. From these variables five different hypothesis will be developed and presented in this chapter.

2.1 Customer loyalty

Bloemer et al. (1998) define bank loyalty as the purposive (i.e. non-random and evaluating) decision to commit to one bank, out of a set of banks over a period of time. In the scope of this study, customer loyalty refers to customers holding favorable attitudes towards their bank of choice, which is reflected in their recommendation, i.e. how likely the consumer is to recommend his or her bank to a friend or colleague.

Numerous studies have been made about customer loyalty and its link to profitability and growth (e.g. Hallowell, 1996; Reichheld, 1993; Reichheld and Teal, 1996; Matzler, 2006; Edvardsson et al., 2000), of which Hallowell and Matzler investigate loyalty in a bank setting. Though the relationship appears to be strong, loyalty does not necessarily lead to increased firm performance, but can have a negative effect for products firms (Edvardsson et al., 2000). For service firms, the effect of loyalty on firm performance was only positive (ibid). The implications are that while products firms to a large extent can rely on price to retain customers, service firms must earn their loyalty (ibid).

To build loyalty and retain customers many banks have focused on introducing innovative products and services (Meidan, 1996). However, as such innovations are often followed by associated charges, it has been argued that banks should focus more on less imitable and less tangible determinants of customer loyalty, such as service quality and satisfaction (Yavas and Shemwell, 1996; Worcester, 1997).

A customer may not always be loyal by choice, but a lack of alternative and high switching barriers can make a customer stay with a company even though he or she is not satisfied (Andreassen and Lindestad, 1998). Findings from an American study (Tesfom and Birch, 2011) reveal that bank switching barriers are experienced differently across different age groups, where older people experience higher switching barriers compared to younger people. This ultimately results in older people being less willing to switch banks even though they may not be satisfied with their service. From a practical standpoint, the authors argue that banks need
to offer more meaningful incentives to younger customers if they wish to retain them (Tesfom and Birch, 2011).

2.2 Usability

The technology acceptance model (TAM) was developed by Davis (1986) in order to determine and explain the underlying factors of computer and information systems acceptance, as well as explaining user behavior within the same area. The TAM has adapted its theoretical foundation from the theory of reasoned action, which is a more general model used to explain human behavior, while the TAM is focused on computer usage behavior. The model and its constructs has been widely used to study information systems acceptance on applications in numerous fields, on different populations, which strengthens its credibility (Yousafzai et al, 2010; Pikkarainen et al, 2004; Arcand et al, 2017). One of the key purposes with the model has been to determine the impact of external variables on users’ attitudes, intentions, and finally their actual behavior (Davis et al, 1989). As seen in figure 2, the model shows that there are two key determining variables which influences actual usage of different information systems and applications, perceived usefulness and perceived ease of use. Perceived usefulness was firstly defined by Davis (1989, p.320) as “the degree to which a person believes that using a particular system would enhance his or her job performance”, which describes if a person would, or would not use a specific system or application. The second key variable perceived ease of use was firstly defined by Davis (1989, p.320) as “the degree to which a person believes that using a particular system would be free of effort”, which in contrast to the first variable is more focused on design and user friendliness. There is also a causal relationship between ease of use, usefulness and actual usage (Dvis,1989). External variables are seen as influential variables, who affects either perceived usefulness or ease of use, and could for example involve: design features, training, and self-efficacy (Chau & Ngai, 2010).

When the model has been applied in an online banking context, earlier research has found that perceived usefulness dominates perceived ease of use and has a bigger impact on consumers technology acceptance in that sector (Pikkarainen et al, 2004). Furthermore, Yousafzai et al. (2010) also finds that perceived usefulness is the variable with the biggest impact on acceptance of online banking, where perceived ease of use can have an indirect impact on perceived usefulness. This could be linked to Davis (1989) earlier research, where it is stated that users can oversee some lack in ease of use, if the increased performance by the system or application is greater. Furthermore Davis (1989) also states that in the case of two similar systems, with the same amount of usefulness, the one with the highest ease of use would be preferred by
users. In contrast to the above mentioned earlier research, Chau and Ngai (2010) finds that both perceived usefulness and ease of use has the same impact on acceptance when studying young internet banking consumers (16-29 years). Furthermore, Chau and Ngai (2010) argues that this contrasting relationship could be described by demographical factors, where younger consumers have higher technological acceptance and experience compared to older generations. This statement can also be linked to Young & Hinesly (2012) who argued that “technology savvy” is one of the key characteristics of the millennial generation.

![Technology Acceptance model](Image)

Even though the model has been widely tested, it has also been criticized because of its simplicity of predicting intentions and actions over a wide range of technologies (Bagozzi, 2007). As both perceived usefulness and perceived ease of use are subjective and individual for each respondent, generalizability could be questioned, as there are both demographical differences among users, as well as generational differences, which are not accounted for (Davis, 1989). Another implication of the model is that it focuses on the perception of the two key variables, while it does not describe or explain how the underlying factors that form these perceptions are formed and how they can be shaped or altered (Yousafzai et al, 2010). Finally, it has been questioned if actual usage of a technological application is the terminal goal for the user, or if the technology just is a mean to reach a goal further down the road, which the model does not predict (Bagozzi, 2007).

As one of the purposes with mobile banking is to deliver constant access and make everyday banking errands available without geographical limitations for the user, it would be of great interest for the provider to deliver an application with high perceived usefulness, and high perceived ease of use. If that is the case, the application itself would only function as a mediator of the service, while the goal is to accomplish banking errands. Furthermore, if the provider
would not be able to provide an application that satisfies the customers’ needs, it would have a negative impact on the customers attitudes and intentions to use that application. Which in the long run could affect the customers loyalty towards the provider. To capture the two determinant variables from the TAM in our research model, the variable Usability has been used. Based on the previous arguments, we hypothesize:

\( H1: \) Usability has a positive impact on mobile banking loyalty.

2.3 Perceived Risk

When studying the area of mobile banking, the concept of Perceived Risk and its different constructs has been found as one of the factors affecting acceptance and adoption of new technologies. (Martins, Oliveira & Popovic, 2014; Pikkarainen et al., 2004; Chen, 2013; Arcand et al., 2017; Lee, 2009; Wessels & Drennan, 2010) The concept of perceived risk can be seen as a grouping of several risk components, and one the most common ways to break down the concept of perceived risk is the way that was introduced by Jacoby & Kaplan (1972), where they list five different components: financial, performance, psychological, social, and physical risk. As physical risk is not applicable to the context of banking it is usually excluded as one of the components affecting perceived risk, while privacy risk is introduced as it is affecting customers online (Featherman and Pavlou, 2003; Lee, 2009;). Psychological and social risks have been grouped into the component of social risk as they address similar areas of risk.

The addition of privacy risk is a natural step while analyzing risks online since technological evolution has introduced security concerns regarding identity-thefts online and misuse of financial information (Featherman & Pavlou, 2003). Privacy risks has also acted as a barrier to adoption of mobile banking as consumers are not in full control of their information e.g. credit card numbers (Pikkarainen et al., 2004). More recent concerns have also risen about privacy risks in the area of phishing, were criminals manage to obtain user information and access banks to carry out transactions (Lee, 2009). Financial risk can occur as a consequence of privacy risk when mobile bank users suffer from monetary losses due to phishing or hacking attacks (Lee, 2009). Another aspect of financial risk can occur because of fraudulent behavior on the receiving side of payments as the transaction takes place online, and where the consequences are monetary loss in this case as well (Featherman & Pavlou, 2003). Performance risk can be described as the risk occurring due to a failure in the product or service, which leads to a loss in performance, and is the component that predicts overall perceived risk best (Kaplan,
L, Szybillo, G, & Jacoby, J. 1974). In the case of online banking this risk could occur when e.g. servers’ breakdown or connectivity is lost, causing problems to carry out banking services (Lee, 2009). This risk is applicable to mobile banking as well, as it is even more dependent on wireless connections and reception compared to computers. Social risk refers to the perception by others while adopting and using products or services. Depending on how that usage is perceived by others, one’s self-esteem could be affected both positively and negatively (Featherman & Pavlou, 2003.

As mobile banking users could be exposed to all of the above-mentioned dimensions of risks, and as the variable of perceived risk has been used as one of the extensions of the TAM, we have chosen to include it as one of the variables in our model. Another reason why we believe that this variable could be of importance is the ongoing debate about user information that are being gathered from applications, and how that information is being used. Since mobile banking is not geographically limited, usage patterns based on geolocations from individual users could be mapped out and might intrude on the individual privacy. We believe that if a customer experiences that their errands carried out on mobile banking applications are not meeting their expectations from a risk perspective it would harm the relationship with that application provider. Based on the above-mentioned arguments, the following hypothesis has been formulated in the area of perceived-risk:

*H2: A sense of low Perceived Risk has a positive impact on mobile banking loyalty.*

### 2.4 Perceived Enjoyment

Enjoyment or Perceived Enjoyment is another addition to the original TAM model, which measures another dimension of technology acceptance. Enjoyment distinguishes itself as a hedonic variable compared to perceived usefulness and perceived ease of use which are more of a utilitarian nature. As a hedonic variable, enjoyment refers to the Perceived Enjoyment a user experiences while using new technology instead of looking at the gained performance or user friendliness, which the original TAM variables focuses on (Van der Heijden, 2004). Pikkarainen et al. (2004) included Perceived Enjoyment while studying acceptance of online banking and found that enjoyment has some effect on acceptance of online banking, however not statistically significant. Other research has identified that perceived enjoyment was one of the factors that affects commitment/satisfaction in mobile banking mostly, why it is of importance to consider this factor in the development of mobile banking technologies (Arcand et al., 2017).
Based on the disperse findings of how enjoyment affects different dimensions to different extent, we have chosen to add it to our model. This could be motivated by the reason that enjoyment in its hedonic nature could bring a sense of comfort to the user while using mobile banking applications. Another aspect could be that the modern technology has made it possible to include hedonic aspects more easily in mobile banking applications e.g. improved aesthetics through animations, colors, design etc. By making such improvements it could add an extra layer to the user experience on top of the dimension of usability, making the whole experience more pleasant and enjoyable. Therefore, we believe that by adding values that affects a customers Perceived Enjoyment positively, it could also strengthen the customers willingness to use such an application, and ultimately strengthen the relationship to the provider. Based on that, we propose the following hypothesis:

**H3: Perceived Enjoyment has a positive impact on mobile banking loyalty.**

### 2.5 Relationship Quality and its effect on loyalty

The importance of building and maintaining relationships with customers of service businesses is generally accepted in the marketing literature. Research indicates that the longer companies are able to sustain good customer relations, the greater the profit the customers will generate for the company (Edvardsson et al., 2000; Tsai et al., 2010). Even a marginal increase in retention rates can have a significant positive impact on future revenues (Reichheld, 1993; Reichheld and Sasser, 1990; Andreassen, 1995).

One important goal of marketing theory has been to identify key drivers of relational outcomes, as well as explaining the relationship between these key drivers and outcomes (Hennig-Thurau et al., 2002). Relational outcomes refer to two concepts, namely loyalty and positive word of mouth communication (ibid). While loyalty influence customer retention and increases the economic attractiveness of existing customers (Hennig-Thurau et al., 2002; Reichheld, 1993), positive word of mouth communication helps attract new customers (Trusov et al., 2009).

Relationship Quality can be conceptualized as the overall assessment of the strength of a relationship (Garbarino and Johnson, 1999; Smith, 1998) and several authors (De Wulf et al., 2001; Palmatier, 2008; Vesel and Zabkar, 2010; Brun et al., 2014) construe Relationship Quality to consist of three key dimensions, namely commitment, satisfaction and trust. The relationships between these dimensions and loyalty will be further described in the following sections.
2.5.1 Commitment
In relationship marketing, commitment can be defined as “an enduring desire to maintain a valued relationship (Moorman et al. 1992, p. 316), where the consumer is prepared to invest resources into the relationship and make significant efforts to maintain it (Morgan and Hunt, 1994: Eastlick et al., 2006). According to Bloemer et al. (1998) commitment is crucial for the development of true bank loyalty, i.e. loyalty based on absolute commitment. In absence of commitment, a patron to a bank is only spuriously loyal, i.e. a repetitive repurchasing behavior is directed by laziness or a lack of alternative (Dick and Basu, 1994). (Bloemer et al (1998) define bank commitment as: “the pledging of an individual to his/her bank choice".

2.5.2 Affective commitment
Commitment can be divided into three different dimensions, namely affective, calculative and normative, where each dimension implies different mindsets or motivations for maintaining a relationship. Allen and Meyer (1990) define them as follows: affective commitment is a positive emotional attachment or physical bond, calculative commitment involves a rational, economic calculation of the benefits sacrificed and losses incurred when a relationship is terminated, and normative commitment is a moral-based attachment or obligation to an organization.

From our perspective, it would seem to be more important to investigate what makes consumers want to remain in a relationship with their mobile banking provider (affective commitment), rather than what makes them feel they must (calculative and normative commitment). This notion is supported by findings from Cater and Zabkar (2009), showing that it is only the affective dimension of commitment which truly has an impact on customer loyalty. Furthermore, findings from Vatanasombut et al. (2008) indicate that affective commitment has a strong impact on customer retention in the online banking industry. Another study (Vesel and Zabkar, 2010) show that normative commitment is not as commonplace in the retail or financial service sector. Based upon these findings we will only include the affective dimension in our study.

2.5.3 Satisfaction
The relationship between customer satisfaction and customer loyalty is well addressed in marketing literature and several studies (e.g. Bloemer et al. 1998; Grønholdt et al. 2000; Edvardsen et al., 2000) point towards a positive relationship between these two factors. Findings from Gruen (1995) show that satisfaction is more important for service firms
compared to product firms, whom can rely more on price strategies, whereas service firms are more dependent upon building relationships with their customers. Gruen (1995) also found that satisfaction has a positive effect on commitment and trust, both of which are important antecedents of loyalty.

In marketing literature, satisfaction can be referred to as an emotional response to a consumption experience (Oliver, 1997). Another explanation is the one of Gruen (1995, p. 456), whom defines satisfaction as "the extent to which benefits actually received meet or exceed the perceived equitable level of benefits". In this paper, which is directed at a bank service, we will refer to satisfaction as “an affective customer condition that results from a global evaluation of all the aspects that make up the customer relationship with the service provider rather than being a transaction-specific phenomenon” (Thakur, 2014).

Oliver (1999) conclude that satisfaction plays an important part of the initial development of loyalty but loses influence as loyalty begins to set through other mechanisms, which includes the role of personal determinism and social bonding at the personal and institutional level. In other words, as consumers start to gain some sort of emotional attachments to a firm, satisfaction is no longer as important.

Some researches (Jones and Sasser, 1995; Stewart, 1997; Reichheld, 1996) have questioned the importance of satisfaction, arguing that it is not as powerful as previously shown. Reichheld (1996) in his work with Bain & Company produced some compelling evidence, that of those customers who claimed to be satisfied or very satisfied, between 65 and 85 percent will defect. A recent study (Capgemini, 2012) support these findings, showing that bank customers were prone to leave their bank even though they were satisfied. A better indicator of customer loyalty according to the Capgemini study is positive customer experience. Since the Capgemini study is not an academic study it was hard to draw any conclusions from it regarding the strength of these two measures. From our understanding of the material presented, satisfaction and positive customer experience are interrelated, meaning they affect each other, which makes it even harder to separate them and their respective impact on customer loyalty.

Theoretically, commitment and satisfaction are treated as two separate constructs, but when measured they have proven to be hard to distinguish for respondents (De Wulf et al, 2001 and Arcand et al. 2017) and will therefore be grouped together for the purpose of our study.

Building upon the identified relationship between commitment/satisfaction and loyalty we formulate the following hypothesis.
H4: **Commitment/Satisfaction has a positive impact on mobile banking loyalty.**

### 2.6 Trust

A factor that has been proposed to be an important antecedent of loyalty is trust (Reichheld et al. 2000; Pavlou, 2003; van Esterik-Plasmeijer, 2017). Indeed, trust has proven to be important for companies in building and maintaining relationships with their customers (e.g. Geyskens et al., 1996; Rousseau et al., 1998; Singh and Sirdeshmukh, 2000). It has also been proposed that trust is even more important in an e-commerce setting because the customer does not deal directly with the company or its staff (Urban et al., 2000; Papadopoulou et al., 2001), but the interaction is rather between the consumer and the technology the company is using.

Trust is a very complex concept that has been well researched in several disciplines, with several definitions proposed (Lewicki et al. 1998). Morgan and Hunt (1994) and De Wulf et al. (2001) define trust as “consumer confidence in a retailer’s reliability and integrity”. Flavian, Guinaliu and Gurrera, (2006); Mayer et al., (1995); McKnight et al., (2002) recognize trust as a multidimensional concept with three components which together define trustworthiness: competence (firm possesses the required skill and knowledge to perform tasks effectively and reliably), benevolence (caring and desire to act in the consumer's best interest) and integrity (honesty and respect of promises). Of these three components, competence (sometimes referred to as expertise) and integrity appears to be most relevant in the banking sector (van Esterik-Plasmeijer, 2017; Arcand et al., 2017) while benevolence is arguably more suitable in a charity context (Vesel and Zabkar 2010). Sekhon et al., (2004) also recognize trust as a multidimensional construct but consisting of five dimensions instead of three. Furthermore, Ennew and Sekhon (2007) make use of five dimensions to define trustworthiness of financial services. There is undoubtedly a popularity among researches to use several components to define and explain trust, but this approach is not without its flaws. Bhattacherjee (2002) found that it is empirically impossible to separate these different dimensions and instead promotes a unidimensional approach, e.g. Bart et al., (2005). Because of the difficulty to separate the different dimensions of trust we have decided to treat trust as a unidimensional construct with items reflecting both expertise and the overall perception if trust.

In addition to its impact on customer loyalty, trust has also proven to have a mitigating effect on perceived risk (Garbarino and Johnson, 1999), i.e. consumers that have a lot of trust in their company perceive the risks associated with using the company’s products or services to be less significant. Furthermore, trust can also affect how consumers react to a bad customer
experience, i.e. consumers that have a high level of trust in their bank are more likely to regard a bad experience as an exception while consumers that has little to no trust in their bank may regard a bad experience as proof to why the bank cannot be trusted (Hennig-Thurau, 2002). Findings also support a positive relationship between trust and commitment/satisfaction (e.g. Mukherjee and Nath, 2003; Arcand et al., 2017), which would indirectly result in greater loyalty because of the positive relationship between commitment/satisfaction and loyalty.

Drawing from the identified relationship between trust and loyalty and its other antecedents we propose the following hypothesis:

\( H5: \) Trust has a positive impact on mobile banking loyalty

### 2.7 Proposed research model with hypotheses

Based on the literature review and the introduction of the above-mentioned concepts we propose the following research model along with their respective hypotheses, which will act as the theoretical foundation of this study (Figure 3).

![Proposed research model with hypotheses](image)

**Figure 3. Proposed research model with hypotheses**

### 2.8 Millennials characteristics

When defining different generations into groups such as millennials, baby boomers, etc. the time frame is usually a period over 20 years. The starting point of the millennial generation is usually framed around the early 1980s, and the ending point is around the late 1990s. As argued by Young & Hinesly (2012), typical characteristics that are attributable to the millennial generation are often grouped into the following characteristics:

- Confident and self-reliant
- Technology savvy and connected
- Closely connected to family and social organizations
- Service oriented
- Effective at multitasking
- Expectant at immediate access to information

Linking these characteristics of the millennial generation with the recent technological evolution within the area of mobile banking, one can argue that the characteristics of the millennial generation has a good fit with the characteristics of mobile banking.
3. Methodology
This section of the thesis will address the methodological considerations that were taken during the research process. Beginning with the research design that shaped later decisions regarding our sample, data collection, operationalizing of the collected data, and finally the techniques that were used to analyze our dataset.

3.1 Research design
As the purpose of this study is to investigate and explain the underlying factors and their relative importance, while answering the research question: “Which factors affect loyalty among millennial mobile banking customers?”, a quantitative explanatory research design is adopted. The choice of a quantitative approach is most appropriate as we intend to collect numerical data that can be statistically tested and analyzed using statistical software.

To shape the theoretical foundation of the thesis a deductive approach was chosen, where a literature review concerning past research within our field of interest was studied and evaluated. The theoretical constructs, models and findings from the literature review were later on used to shape our formalized research model, which was used when forming our different hypotheses.

To obtain the wanted primary quantitative data for the hypotheses testing, a survey strategy was adopted, where the data collection was conducted through a self-answered questionnaire. The reasoning behind this choice of strategy was based on several different aspects. Firstly, most prior research within the field of online and mobile banking has used the same strategy, which enables us to compare our findings with earlier research. Secondly, the ability to reach out to a large group of respondents within our time-frame, and the ability to customize our sample as we wanted respondents within a specific generational cluster (millennials) is possible with this strategy. Another strength when using questionnaires is the ability to create descriptive statistics on the collected data and analyze the data statistically (Saunders et al. 2012, p.163).

Although a qualitative design with semi-structured interviews could yield the same answers as the ones from a questionnaire, interpretability and generalizability would be harder due to non-standardized answers. Another potential downside with a qualitative approach is the time-issue, it would be hard to reach out to a large enough sample within our time-frame, which would be needed to draw statistical conclusions.
3.2 Sample selection

Due to the nature of our research question which needed respondents within our sample that matched the age criteria of millennials, we decided to adopt a non-probability sampling technique. As non-probability sampling techniques are affected by certain subjective judgement, the literature review acted as support when deciding upon our sample (Saunders et al. 2012, p.281). The target population of this study is millennials from both genders living in Sweden, which lead to the decision to conduct a quota sampling, where respondents who matched our criteria were chosen. The response rate from our sample is displayed in Table 1. The obtained response rate from our questionnaire is reasonable and in line with the literature, especially as no financial incentives were offered to the respondents (Deutskens et al. 2004).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample size</th>
<th>No. of respondents</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Millennials</td>
<td>733</td>
<td>153</td>
<td>20.9%</td>
</tr>
</tbody>
</table>

3.3 Survey construction

The questionnaire used in this study (see appendix 3) was designed with an introductory section concerning gender, age, field of study/occupation, access, and usage of mobile banking to gain data about the respondents’ characteristics, which later on could be matched with our sample criteria in the data screening. The question about access to mobile banking was included as it acted as a threshold for further responses in the questionnaire, making it easy to distinguish between responses that could be used for further analysis and those who had to be dropped. Furthermore, the measurement also enabled us to assess the usage ratio of mobile banking among our respondents.

The main section of the questionnaire was divided into six different parts, where questions addressing these six key variables from our research model (Usability, Perceived Risk, Perceived Enjoyment, Trust, Commitment/Satisfaction and Loyalty) were asked. The different questions were sorted under its corresponding header with a short note to introduce and guide the respondent. Finally, the respondents were also asked about their main bank, which could be used to assess the distribution between banks and how it matched the Swedish banking market.

The questions and measurement scales used to measure the different aspects within our research were adopted from earlier research within the area, and sometimes rephrased to fit our
purpose (Davis, 1986; Pikkarainen et al., 2004; Arcand et al., 2017). The reason behind the choice to adopt earlier used questions for the questionnaire was twofold, firstly it improved the comparability with earlier research, and secondly it was more efficient (Saunders et al., 2012, p.431). To not compromise the original essence of the questions, all questions were asked in English as in the papers the questions were adopted from. This was also motivated by the fact that Swedish young adults have a high level of English comprehension. The measurement scale used for the questions in the main section of the questionnaire was a seven-point Likert scale ranging from (1) “Totally disagree” to (7) “Totally agree”. The questions in the introductory section of the questionnaire did not follow this scale as the nature of these questions are not applicable to the seven-point Likert scale e.g. access, which is measured by yes or no, and age by absolute numbers. The measurement scale for loyalty was also constructed differently using a ten-point Likert scale ranging from (1) "Not likely" to (10) "Very likely". The reason behind the change of scale for loyalty was because the main question measuring loyalty was based on the Net Promotor Score (NPS), which is a common construct to assess customer loyalty and uses the ten-point Likert scale (Reichheld, 2003).

3.4 Pilot survey

After the construction of the questionnaire a pilot survey was conducted to evaluate the questionnaire prior to the main study. It also enabled us to ensure the validity and reliability of the questionnaire (Saunders et al, 2012, p.451). Another aspect of the pilot survey was to test the medium which the questionnaire was distributed through, in this case “Google forms”. As the responses are recorded immediately after a questionnaire is finished, we could ensure that it worked properly. The data received from the pilot respondents was checked to see if the answers made sense, and if all questions had been answered properly. As suggested by Saunders et al (2012 p. 452), the pilot respondents were also given a short checklist to follow during their answering process:

- How long time did it take to complete the questionnaire?
- Were the instructions clear?
- Did you understand all the questions, if not, which?
- Was the design clear and understandable?
- Any other comments?

After the responses from the pilot respondents were received, the questionnaire was adjusted in a couple of ways e.g. a status indicator was added to the design to show the progress of the
questionnaire, one question was removed due to its similarity to another question. None of the pilot respondents had any comments on the time it took to complete the questionnaire, which implied that we would not suffer from bias were respondents do not complete the whole questionnaire due to loss in patience.

3.5 Data collection
The collection of primary data for this thesis took place during two weeks in March 2018, where invitations to the questionnaire were sent out to the sample through e-mails. To ensure that no unnecessary cross-postings of the questionnaire were done, all addresses were checked prior to the posting (Saunders et al., 2012 p.454). The invitations consisted of a short description of the purpose with the study, a prediction of the time needed to complete the questionnaire, a notation that all answers were to be treated anonymously, and that the answers would only be used in our thesis. The anonymity of the respondents was also ensured as no personal contact information was collected through the questionnaire. As the questionnaires were sent through our personal e-mail clients instead of using a web-based client, potential questions and concerns could be sent directly to us as well as giving the invitation a clear sender.

3.6 Operationalization of variables
As shown in Table 2, the different variables in our research were adapted from earlier research within its respective field, and below we will show how we choose to operationalize those variables.

Usability was constructed from two different concepts, namely, perceived ease of use and perceived usefulness. Perceived ease of use and perceived usefulness originate from the Technology acceptance model (TAM) and the items we used to measure these concepts were adopted from Davis (1986). We made some slight rephrasing of the questions to better suit our study of mobile banking but kept the essence to ensure the reliability. The decision to combine perceived ease of use and perceived usefulness to create one variable was motivated by previous research (Thakur, 2014; Arcand et al., 2017). It is also supported by Davis (1989), as he found a causal relationship between ease of use and perceived usefulness. The questions used to measure the construct of Usability was:

Usability1 (US1): Mobile banking enables me to utilize banking services more quickly

Usability2 (US2): The effectiveness of my banking activity is enhanced by mobile banking
Usability3 (US3): Overall, mobile banking is useful for me to utilize banking services

Usability4 (US4): I find it easy to do what I want using mobile banking

Usability5 (US5): My interaction with mobile banking is clear and understandable

Usability6 (US6): Overall, I find mobile banking easy to use

The dimension of Perceived Risk was constructed using a mix of security and privacy items, which were adopted from Featherman and Pavlou (2003) and Pikkarainen et al. (2004). The purpose of these items was to reflect how safe mobile banking is perceived to be by consumers. The questions used to measure the construct of Perceived Risk were:

Perceived Risk1 (PR1): I think that my privacy is protected using mobile banking

Perceived Risk2 (PR2): I trust the technology (the app) the bank is using

Perceived Risk3 (PR3): I think that transactions carried out in mobile banking are secure

Perceived Risk4 (PR4): Matters of security does not influence my usage of mobile banking

Items concerning Perceived Enjoyment were adopted from Arcand et al. (2017), van der Heijden (2004), and Pikkarainen et al. (2004). To obtain a more nuanced measurement of the construct of Perceived Enjoyment, the construct was broken down into different sub-constructs, and the following questions were used to measure Perceived Enjoyment:

Perceived Enjoyment1 (ENJ1): Using mobile banking is fun

Perceived Enjoyment2 (ENJ2): Using mobile banking is pleasant

Perceived Enjoyment3 (ENJ3): Using mobile banking is enjoyable

Commitment to the bank was measured using two items adopted from Liang and Chen (2009) and Vatanasombut et al. (2008) while satisfaction was assessed using two items adopted from Ping (1993). As mentioned in the theory section, commitment and satisfaction are grouped together due to discrimination issues and will be referred to as Commitment/Satisfaction. The following questions are the ones used to measure that construct:

Commitment/Satisfaction1 (CS1): I am committed to the relationship with my bank

Commitment/Satisfaction2 (CS2): I intend to maintain the relationship with my bank

Commitment/Satisfaction3 (CS3): Doing business with my bank makes me satisfied
**Commitment/Satisfaction4 (CS4): Overall, I am satisfied with my bank**

Items relating to trust were drawn from Bhattacherjee (2002), whom in his study investigated trust in online firms. Two items were adopted, which were used to reflect the ability/expertise of the bank and overall trustworthiness.

**Trust1 (T1): My bank is trustworthy**

**Trust2 (T2): My bank is competent in its field**

To operationalize the aspect of loyalty one main question was used, namely the one used for measuring NPS. The NPS was introduced by Fred Reichheld in his article from 2003 "The Number You Need to Grow" and have since been used in various industries to assess customer attitudes towards a company or brand. In specific terms, the NPS is a measure of how likely a customer is to recommend their company to a friend or colleague. As previously mentioned, it is structured as a scale, ranging from 1 to 10, from which the customer can choose a value that best represents how likely he or she is to recommend the company to another person. Based on their responses, customers are grouped into promotors (9-10 rating - extremely likely to recommend), passively satisfied (7-8 rating) and detractors (1-6 rating – highly unlikely to recommend) (Reichheld, 2003). To compute the NPS, the percentage of detractors are subtracted from the percentage of promotors. According to Reichheld (2003), a score of 75 percent to more than 80 percent is an indicator of world class loyalty. The NPS has proven to be useful in measuring customer attitudes towards acting as brand advocates, but not their actual behavior (Samson, 2006), which arguably limits the tools usefulness. However, Reichheld’s work with Bain & Co. has shown that promotors are more likely to repurchase or recommend a brand compared to detractors (Reichheld, 2003). Reichheld (2003) argues that the strength of the tool lies in the recommendation, because when you recommend a company to another person, you put your own reputation on the line. Consequently, the measurement used for customer loyalty was:

**Loyalty1: How likely is it that you would recommend your bank to friends/family?**

To support the NPS we decided to add two additional items to assess customer loyalty:

**Loyalty2: How likely are you to switch bank?**

**Loyalty3: If you started from scratch, how likely is it that you would choose your current bank?**
The second question was adopted from Srinivasan et al. (2002), whom investigated loyalty in an e-commerce setting (web-sites) and has been reformulated to fit our study of mobile banking. The last item concerning loyalty was not adopted from any theory but developed by ourselves with the purpose of making the respondents think about their choice of bank without having to reflect over any potential switching barriers. These two questions were used for comparability reasons, whereas Loyalty1 would act as our dependent variable as well as for calculating the NPS.

**Table 2. Summary of variables in the research model**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Adapted from</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usability</td>
<td>Davis (1986), Thakur (2014) and Arcand et al. (2017)</td>
</tr>
<tr>
<td>Perceived Enjoyment</td>
<td>Pikkarainen et al. (2004), van der Heijden (2004) and Arcand et al. (2017)</td>
</tr>
<tr>
<td>Commitment/Satisfaction</td>
<td>Liang and Chen (2009), Vatanasombut et al. (2008) and Ping (1993)</td>
</tr>
<tr>
<td>Trust</td>
<td>Bhattacherjee (2002)</td>
</tr>
<tr>
<td>Customer loyalty</td>
<td>Reichheld (2003) and Srinivasan et al. (2002)</td>
</tr>
</tbody>
</table>

### 3.7 Data handling

Since all of the primary data used in this thesis was obtained from questionnaires using Google forms, we were able to export the raw data file to SPSS before any handling begun. As the question “Do you have access to mobile banking?” was included in the beginning of the questionnaire, this question acted as a threshold for the respondents which separated the respondents who had access from the respondents who did not have access. Initially, all the data was controlled and checked for obvious errors, missing data, and mistypes. In the cases where the complete answer of the questionnaire were an obvious error, that respondent was deleted from the dataset. In the case where some data were missing due to unwillingness to answer one particular question those respondents were deleted list wise as these answers could have affected the analysis. However, since these error-respondents were few, we believe that this action will not have compromised our final result as it will not decrease our sample in a drastic manner. When outliers in the dataset were controlled for, we decided to retain those few that were observed. The decision to retain them was based on the reasoning that we wanted the responses to reflect the reality, in contrast to optimizing the sample to fit our proposed model.
3.8 Statistical techniques
To be able to further analyze and interpret the data collected from the questionnaire, two different statistical techniques were used. Firstly, an exploratory factor analysis was conducted, followed by a multiple linear regression.

3.8.1 Exploratory factor analysis
In order to reduce the initial items from the survey into sets of factors (variables) that suited our proposed research model, a dimension reduction was conducted using an exploratory factor analysis. The chosen extraction method was principal axis factoring, which is motivated by prior usage of Pikkarainen et al. (2004) in our field of interest. This choice is also motivated by the fact that Likert data violates the assumption of normality in the dataset and principal axis factoring has been proven to yield the best results in such cases (Osborne, 2014). The chosen rotation in the factor analysis was varimax rotation. Other rotation methods were tested as well, but since the varimax rotation yielded the cleanest loading patterns with best interpretability, we choose to adopt that rotation (Fabrigar and Wegener, 2010, p.70). The final scores extracted from the individual factors were later used as independent input variables in the regression analysis.

3.8.2 Multiple linear regression
To further analyze the findings from the exploratory factor analysis we adopted a multiple linear regression technique. The choice of a linear regression was motivated by our assumption that there is a linear relationship between our dependent variable and the independent variables. The main goal for the regression analysis was to reveal which variables that could predict loyalty within mobile banking, to what extent these variables affects loyalty and whether or not they were statistically significant. The dependent variable chosen for the regression analysis was “How likely is it that you would recommend your bank to friends/family?” (Loyalty1), as this is the foundation for the NPS score measuring customer loyalty. The independent variables were initially based on our proposed research model, which gave us the following regression equation:

\[
LOYALTY = \beta_0 + \beta_1 CS + \beta_2 T + \beta_3 UB + \beta_4 PR + \beta_5 ENJ + \epsilon
\]

3.9 Descriptive statistics
As shown in Table 3, among the reliable respondents from the survey 53 percent were female, and respectively 47 percent male. That distribution Corresponds with our initial goal of having
a seemingly even distribution between the two different genders, making the final analysis more representative for both genders within the millennial generation.

**Table 3. Gender**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>79</td>
<td>53.0</td>
<td>53.0</td>
<td>53.0</td>
</tr>
<tr>
<td>Male</td>
<td>70</td>
<td>47.0</td>
<td>47.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>149</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

While observing the different age groups of the respondents in Table 4, one can see that all respondents fit into the millennial generation (born between 1980-2000) with a minimum age of 19 years, maximum age of 38 years, mean age at 26 years, and the largest age group (41.6 percent) ranging from 24-28 years of age. These findings are almost in line with our expectations, however a larger percentage of the oldest age category would have been preferred to even out the distribution of the respondents even more.

**Table 4. Age representation of respondents**

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-23</td>
<td>49</td>
<td>32.9</td>
<td>32.9</td>
<td>32.9</td>
</tr>
<tr>
<td>24-28</td>
<td>62</td>
<td>41.6</td>
<td>41.6</td>
<td>74.5</td>
</tr>
<tr>
<td>29-33</td>
<td>29</td>
<td>19.5</td>
<td>19.5</td>
<td>94.0</td>
</tr>
<tr>
<td>34-38</td>
<td>9</td>
<td>6.0</td>
<td>6.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>149</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

When controlling for access to mobile banking 100 percent of the respondents answered yes, making them suitable for further analysis (Table 5). A high percentage in access was expected as the statistics from the Swedish Riksbank (2016) and Statistics Sweden (2017) were high. However, these numbers might be slightly biased as potential respondents within our sample might have rejected to answer the questionnaire if they did not use mobile banking applications. Looking at average usage of mobile banking presented in table 6, the most common answer among the respondents was weekly usage with 53.7 percent, followed by daily usage with 43.6 percent, and last monthly usage with the remaining 2.7 percent. These findings support the notion that millennials are tech-savvy, and that they are frequent mobile banking users as well.

**Table 5. I have access to mobile banking**

<table>
<thead>
<tr>
<th>Access</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>149</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 6. On average I use mobile banking

<table>
<thead>
<tr>
<th>Usage</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly</td>
<td>80</td>
<td>53.7</td>
<td>53.7</td>
<td>53.7</td>
</tr>
<tr>
<td>Daily</td>
<td>65</td>
<td>43.6</td>
<td>43.6</td>
<td>97.3</td>
</tr>
<tr>
<td>Monthly</td>
<td>4</td>
<td>2.7</td>
<td>2.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>149</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

On the question “which bank is your main bank?”, over three quarters (76.5 percent) of the respondents answered that their main bank is one of the big four Swedish retail banks, where Swedbank was the most common bank, with a share of 24.8 percent among the respondents, followed by Nordea (20.8 percent), Handelsbanken (18.8 percent), and SEB (12.1 percent) (Table 7). Following the big four banks, Danske Bank, Länsförsäkringar, and Sparbanken (grouping of all Savings banks) account for around 15 percent of the respondents, while the remaining banks account for less than ten percent of the respondents.

Table 7. Which bank is your main bank?

<table>
<thead>
<tr>
<th>Bank</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swedbank</td>
<td>37</td>
<td>24.8</td>
<td>24.8</td>
<td>24.8</td>
</tr>
<tr>
<td>Nordea</td>
<td>31</td>
<td>20.8</td>
<td>20.8</td>
<td>45.6</td>
</tr>
<tr>
<td>Handelsbanken</td>
<td>28</td>
<td>18.8</td>
<td>18.8</td>
<td>64.4</td>
</tr>
<tr>
<td>SEB</td>
<td>18</td>
<td>12.1</td>
<td>12.1</td>
<td>76.5</td>
</tr>
<tr>
<td>Danske Bank</td>
<td>8</td>
<td>5.4</td>
<td>5.4</td>
<td>81.9</td>
</tr>
<tr>
<td>Länsförsäkringar</td>
<td>8</td>
<td>5.4</td>
<td>5.4</td>
<td>87.2</td>
</tr>
<tr>
<td>Sparbanken</td>
<td>6</td>
<td>4.0</td>
<td>4.0</td>
<td>91.3</td>
</tr>
<tr>
<td>ICA</td>
<td>4</td>
<td>2.7</td>
<td>2.7</td>
<td>94.0</td>
</tr>
<tr>
<td>Skandiabanken</td>
<td>3</td>
<td>2.0</td>
<td>2.0</td>
<td>96.0</td>
</tr>
<tr>
<td>Avanza</td>
<td>2</td>
<td>1.3</td>
<td>1.3</td>
<td>97.3</td>
</tr>
<tr>
<td>ING</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
<td>98.0</td>
</tr>
<tr>
<td>Lloyds</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
<td>98.7</td>
</tr>
<tr>
<td>NAB (Australia)</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
<td>99.3</td>
</tr>
<tr>
<td>Volksbank e.V. (Germany)</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>149</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
4. Results and findings
This chapter will present the results from our study in two different parts. The first part of this section will address the exploratory factor analysis. The second part of this section will present the results from the multiple linear regression analysis, where the final findings connected to our research model will be presented.

4.1 Exploratory factor analysis
To ensure that the dataset from the survey was suited for an exploratory factor analysis, two different tests were conducted, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, and Bartlett’s test of sphericity. The KMO test was conducted on the complete model as well as for each individual item in the model, where the diagonal of the anti-image correlation matrix (see appendix 1) was studied to identify items unsuitable for the factor analysis. As stated by Kaiser and Rice (1974) all items with a KMO score below 0.5 should be treated as unacceptable and removed from the items list. Based on that cut-off point, one of the initial items from the survey was excluded from the item list. The item removed was “Matters of security does not influence my usage of mobile banking”. When running the KMO test a second time a KMO score of 0.818 was received for the complete model, and no singular items received a score below 0.5 and Bartlett’s test of sphericity was significant as shown in Table 8. These obtained results indicated that the sample was adequate, and that the dataset was suitable for a factor analysis.

Table 8. KMO and Bartlett’s Test
<table>
<thead>
<tr>
<th>Variable</th>
<th>KMO</th>
<th>Bartlett’s Test of Sphericity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</td>
<td>0.818</td>
<td>Approx. Chi-Square 1446.900</td>
</tr>
<tr>
<td>df</td>
<td>153</td>
<td>Sig. 0.000</td>
</tr>
</tbody>
</table>

When determining the number of meaningful factors in the factor analysis two different tests were conducted, the Kaiser criterion (where all factors with an eigenvalue larger than 1 is extracted), and an analysis of the scree plot (Hayton et al. 2004). The initial run of the factor analysis suggested a five-factor solution based on the Kaiser criterion, however the fifth factor had an eigenvalue of 1.006, which is right on the border of inclusion/exclusion according to the Kaiser criterion (Table 10). When observing the scree plot (Figure 4) it appears that the break in the scree plot is observable at the fifth factor, indicating that the number of factors that should be extracted in the factor analysis are four (Hayton et al. 2004).
After these initial observations of the scree plot and extractions based on the Kaiser criterion, the factor analysis was rerun with a fixed number of factors set at four instead of the initial five, which were based on the observation from the scree plot. As shown in table 10, with these settings in the factor analysis, the four factors extracted represented 67 percent of the variance among the variables extracted, where the fourth factor has an eigenvalue of 1.7 (which is well above the Kaiser criterion). The four factors obtained from the analysis represent “Commitment/Satisfaction/Trust”, “Usability”, “Perceived Risk” and “Perceived Enjoyment”. As proposed in our research model, we had initially separated the constructs of Commitment/Satisfaction and Trust in two separate variables, but when conducting the factor analysis, both Trust and Commitment/Satisfaction loaded into the same factor. However, as discussed in section 2.5, there are findings that support the interrelations between the two constructs, which is why we choose to accept the combination of the constructs instead of dropping any items. Furthermore, in the remainder of the thesis, the variable “Commitment/Satisfaction/Trust” will be referred to as “Relationship Quality”. In table 9, all the factors extracted from the analysis are presented with their respective item loadings into each factor. Factor loadings less than 0.32 are suppressed to enhance interpretability, as this loading has been seen as rule of thumb level for minimal loadings (Costello and Osborne, 2005). No cross-loadings between different factors were observed, validating a clean structure of the matrix. Relationship Quality was the factor that explained most of the variance at 34.2 percent and was loaded by six items. The second factor was Usability, which explained 12.3 percent of the variance and was also loaded with six items. The third factor was Perceived Risk,
which explained 11.0 percent of the variance and was loaded by three items. Finally, the fourth factor was Perceived Enjoyment, which explained 9.5 percent of the variance and was loaded by three different items.

Table 9. Rotated Factor Matrix

<table>
<thead>
<tr>
<th>Variable</th>
<th>Commitment/ Satisfaction/ Trust</th>
<th>Usability</th>
<th>Perceived Risk</th>
<th>Perceived Enjoyment</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS4</td>
<td>0.795</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS2</td>
<td>0.787</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS1</td>
<td>0.763</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS3</td>
<td>0.729</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>0.590</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>0.541</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US6</td>
<td>0.706</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US5</td>
<td>0.694</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US1</td>
<td>0.684</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US3</td>
<td>0.635</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US2</td>
<td>0.583</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US4</td>
<td>0.518</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PR2</td>
<td></td>
<td>0.841</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PR3</td>
<td></td>
<td>0.821</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PR1</td>
<td></td>
<td>0.766</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENJ3</td>
<td></td>
<td></td>
<td>0.908</td>
<td></td>
</tr>
<tr>
<td>ENJ1</td>
<td></td>
<td></td>
<td>0.765</td>
<td></td>
</tr>
<tr>
<td>ENJ2</td>
<td></td>
<td></td>
<td>0.701</td>
<td></td>
</tr>
</tbody>
</table>

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.a

a. Rotation converged in 5 iterations.

Table 10. Total Variance Explained

<table>
<thead>
<tr>
<th>Factor</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
<th>Rotation Sums of Squared Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total % of Variance</td>
<td>Cumulative %</td>
<td>Total % of Variance</td>
</tr>
<tr>
<td>1</td>
<td>6.158</td>
<td>34.213</td>
<td>5.754</td>
</tr>
<tr>
<td>2</td>
<td>2.219</td>
<td>12.326</td>
<td>1.832</td>
</tr>
<tr>
<td>3</td>
<td>1.978</td>
<td>10.990</td>
<td>1.575</td>
</tr>
<tr>
<td>4</td>
<td>1.704</td>
<td>9.465</td>
<td>1.417</td>
</tr>
<tr>
<td>5</td>
<td>1.066</td>
<td>5.951</td>
<td>1.162</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Axis Factoring.

To test the reliability of the complete model and of each individual factor extracted from the analysis a reliability test using Cronbach’s alpha was conducted, see Table 11. Apart from only
looking at the Cronbach’s alpha for the model and the individual factors, statistics of how a
deletion of any specific item within the model and the individual factors was also observed.
When evaluating the statistics of deletion for the model and the individual factors, none of
these would have gotten improved Cronbach’s alpha in the case of deletion of any specific
item, therefore all remaining items were kept. The Cronbach’s alpha for the complete model
was 0.879, for Relationship Quality 0.872, Usability 0.804, for Perceived Risk 0.881 and
finally for Perceived Enjoyment Cronbach’s alpha was 0.868. All these obtained alphas
indicate a high level of internal consistency and are in line with the recommended Cronbach’s
alpha values presented by Peterson (1994).

Table 11. Summarizing table over Cronbach’s’ Alpha

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire model</td>
<td>0.879</td>
</tr>
<tr>
<td>Usability</td>
<td>0.804</td>
</tr>
<tr>
<td>Perceived Risk</td>
<td>0.881</td>
</tr>
<tr>
<td>Perceived Enjoyment</td>
<td>0.868</td>
</tr>
<tr>
<td>Relationship Quality</td>
<td>0.872</td>
</tr>
</tbody>
</table>

To summarize, after the factor analysis was conducted, the scores from the four extracted
factors (Relationship Quality, Usability, Perceived Risk and Perceived Enjoyment) were saved,
and later used as input for the independent variables in the regression analysis.

4.2 Regression

Initially the results from the testing of the regression assumptions will be presented. Afterwards
the findings from our regression analysis will be presented.

4.2.1 Testing of assumptions

Firstly, the linearity between the independent variables and dependent variable was checked,
this was performed by analyzing individual scatter plots where each independent variable was
plotted against the dependent variable. When observing these four scatter plots, all four plots
seemed to have a positive linear relationship. The plot with the strongest linear relationship
was the one the dependent variable and Relationship Quality, while the plot between the
dependent variable and Perceived Enjoyment seemed to have the weakest linear relationship
(see appendix 2 for all linearity scatter plots).

Secondly, the normality assumption was checked to see if the residuals of the regression had a
normal distribution. This check was performed by observing the normal P-P plot of the
regression, where the observations should follow the normality line. As shown in figure 5, the overall tendency follows the normality line, however there are some positive and negative deviations.

![Normal P-P plot of regression standardized residuals](image)

*Figure 5. Normal P. P plot of regression standardized residuals*

Thirdly, we checked the homoscedasticity assumption to ensure that the residuals were evenly distributed. This test was conducted by observing to scatterplot where the standardized residuals were plotted against the standardized predicted value. To confirm homoscedasticity the plot should look random like a shotgun blast, while if the homoscedasticity would have been violated the plotted residuals would have a taken a cone-shaped distribution (figure 6) (Chatterjee and Hadi, 2012 p.171).

![Scatterplot to illustrate homoscedasticity](image)

*Figure 6. Scatterplot to illustrate homoscedasticity*
Fourthly, we checked the independent-errors assumption to ensure that the residuals were independent of each other. This was tested by using the Durbin-Watson statistic, were a value close to 2 indicates that the assumption has been met (Chatterjee and Hadi, 2012 p.212). As shown in table 13, the obtained Durbin-Watson statistic was 2.029, which indicates that the independent-errors assumption is not violated.

Fifthly, to check for multicollinearity among the independent variables in the regression analysis a collinearity diagnostics test was conducted as multicollinearity might be harmful for the final outcome of the regression. The collinearity diagnostics test showed VIF scores close to 1 for all the independent variables, indicating that no multicollinearity among the independent variables were present. The absence of multicollinearity is in line with theory as the factors extracted from the factor analysis using varimax rotation are orthogonal (Chatterjee and Hadi, 2012 p. 259).

Finally, the assumption of the observations was tested to see if our dataset had any biased observations that could be overinfluential in the final results. To ensure that all observations played a seemingly equally important role in predicting the regression, the Cook’s distance statistic was observed. As stated by Chatterjee and Hadi (2012 p. 112), individual observations with a Cook’s distance greater than one could be interpreted as influential and should be examined. As shown in table 12, none of the individual observations from our dataset reported a Cook’s distance statistic greater than one, indicating that the individual observations in the dataset are appropriate.

<table>
<thead>
<tr>
<th>Table 12 Descriptive Statistics over Cook’s distance statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>Cook’s Distance</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
</tr>
</tbody>
</table>

Conclusively, after conducting these different tests on the assumptions of the linear regression, the fit of the model was accepted since no great violations of the assumptions was observed, and we went through with the regression analysis.
4.2.2 Regression analysis

As the exploratory factor analysis yielded a four-factor solution, our initial proposed regression equation presented in section 3.8.2 had to be rejected and reformulated. The constructs of Commitment/Satisfaction and Trust were combined accordingly, forming the independent variable Relationship Quality. The altered regression equation is presented below.

\[ \text{LOYALTY} = \beta_0 + \beta_1 RQ + \beta_2 UB + \beta_3 PR + \beta_4 ENJ + \varepsilon \]

As shown in table 13, in the model summary of the regression one could observe that the R square obtained is 0.56, which means that 56 percent of the variance in the dependent variable is explained by the independent variables.

**Table 13. Regression analysis**

<table>
<thead>
<tr>
<th>Model summary</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>0.748^a</td>
<td>0.560</td>
<td>0.547</td>
<td>1.425</td>
<td>2.029</td>
</tr>
</tbody>
</table>

**ANOVA model^b**

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>4</td>
<td>90.985</td>
<td>44.795</td>
<td>0.000^b</td>
</tr>
<tr>
<td>Residual</td>
<td>141</td>
<td>2.031</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>145</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Coefficients^a**

<table>
<thead>
<tr>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>7.301</td>
<td>61.893</td>
<td>0.000</td>
</tr>
<tr>
<td>Relationship Quality</td>
<td>1.639</td>
<td>0.725</td>
<td>12.950</td>
</tr>
<tr>
<td>Usability</td>
<td>0.200</td>
<td>0.085</td>
<td>1.519</td>
</tr>
<tr>
<td>Perceived Risk</td>
<td>0.259</td>
<td>0.114</td>
<td>2.036</td>
</tr>
<tr>
<td>Perceived Enjoyment</td>
<td>0.100</td>
<td>0.045</td>
<td>0.813</td>
</tr>
</tbody>
</table>

^a. Predictors: (Constant), Perceived Enjoyment, Relationship Quality, Usability, Perceived Risk

^b. Dependent Variable: How likely is it that you would recommend your bank to friends/family

When the Anova (table 13) for the regression is observed, one could see that the p-value is statistically significant as p<0.01, meaning that there is a good fit within the model. As shown in table 13, the coefficients section, where the independent variables are presented, one could observe that two of the four independent variables are statistically significant, Relationship
Quality \(p<0.01\) and \(t=12.95\), and Perceived Risk where \(p<0.05\) and \(t=2.036\). Usability is not statistically significant at the 95 percent confidence level with \(p=0.131\) and \(t=1.519\). Perceived Enjoyment is far from statistically significant with \(p=0.418\). To summarize the findings from the regression analysis, one could conclude that the statistically significant coefficients (Relationship Quality and Perceived Risk) both have a positive impact on the dependent variable, which in our case represents customer loyalty within mobile banking.

### 4.3 Summary of hypotheses

After the completion of the factor analysis and the regression analysis we can conclude that out of the five initial hypotheses, two of them had to be reformulated. As shown in table 9, Commitment/Satisfaction, and Trust loaded into the same factor. Based on these findings, the variable Relationship Quality was accepted as a grouping of Commitment/Satisfaction and Trust. Furthermore, as Relationship Quality was accepted as one variable, H4 and H5 were grouped into one hypothesis, namely H4. Based on these decisions, the final research model had to be altered to fit the obtained results, leaving us with four remaining variables, were two were proven to be statistically significant. A summary of all hypotheses that were tested in the regression analysis is shown in table 16. As shown in figure 8, Relationship Quality has been added as one variable and is proved significant along with Perceived Risk.

**Figure 7. Final research model**

**Table 16. Summarizing table of hypotheses**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Variable</th>
<th>Accept/Reject</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Usability</td>
<td>Reject</td>
</tr>
<tr>
<td>H2</td>
<td>Perceived Risk</td>
<td>Accept</td>
</tr>
<tr>
<td>H3</td>
<td>Perceived Enjoyment</td>
<td>Reject</td>
</tr>
<tr>
<td>H4</td>
<td>Relationship Quality</td>
<td>Accept</td>
</tr>
</tbody>
</table>
4.4 Net Promotor Score

To calculate the NPS for the valid respondents, the input variable used was Loyalty1 as that is the question initially used by Reichheld (2003). The equation used to calculate the NPS score is shown below. The first step of the calculation was to sort the respondents into three different groups: Detractors, Passives and Promoters, the full description of the groups is shown in table 17. Secondly, the detractors were subtracted from the promoters to obtain the NPS score. The obtained NPS score in our study was 1.4 percent.

\[
NPS = Promoters - Detractors
\]

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detractors</td>
<td>40</td>
<td>27.2</td>
<td>27.2</td>
</tr>
<tr>
<td>Passives</td>
<td>65</td>
<td>44.2</td>
<td>44.2</td>
</tr>
<tr>
<td>Promoters</td>
<td>42</td>
<td>28.6</td>
<td>28.6</td>
</tr>
<tr>
<td>Total</td>
<td>147</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
5. Analysis
This chapter will provide an analysis of the results and findings presented in the previous chapter, each of the studied variables will be analyzed individually. The limitations of the study will also be presented and discussed.

5.1 Analysis of results

5.1.1 Usability
When analyzing the results of Usability as a predictor of loyalty, the regression indicates that the results are not statistically significant, meaning that the original constructs of the TAM will not play an important role in the creation of loyalty. Furthermore, these findings are contrary to our proposed hypothesis H1, which conclusively has to be rejected.

One of the potential explanations behind these findings might be related to the construction of our research model, where we tested the predicting power of Usability directly on loyalty. Even though Thakur (2014) found that Usability had a direct impact on loyalty, the findings within that study also show an indirect effect of Usability through customer satisfaction. Another potential explanation to the results on Usability might be that all of our respondents already were active users of mobile banking applications, where a majority of the respondents used mobile banking applications on a weekly basis, which could have moderated its relative importance (table 5 and 6). As stated by Bagozzi (2007), actual usage and its importance is related to a goal that is not captured within the TAM. That statement could be interpreted as Usability is taken for granted by the users, while aiming for a bigger goal. The earlier research by Pikkarainen et al. (2004) and Laukkanen (2016) focused on the acceptance and adoption of the new technology and found that Usability and its constructs was statistically significant. Based on that, it could be concluded that Usability plays a more important role in a pre-adoption phase compared to a post-adoption phase.

5.1.2 Perceived Risk
The results obtained from the regression indicated that Perceived Risk is the second strongest predictor of customer loyalty within the area of mobile banking. These findings support our hypothesis H2, assuming that a sense of low Perceived Risk will increase customer loyalty.

These findings are in line with the findings by Chen (2013), where a sense of high Perceived Risk had a statistically significant negative impact on customers intention and attitudes towards mobile banking services. Furthermore, among the findings by Chen (2013), frequent users (which our respondents could be categorized as) are found to be most concerned about the
psychological, financial, and privacy risks. Our results are also supported by the findings by Wessels and Drennan (2010), which states that a high perception of risk have a negative impact on customers intentions to use mobile banking services. Although these findings are focused on the customers intentions and attitudes, we have shown that the area of Perceived Risk also plays a statistically significant role in the creation of customer loyalty.

5.1.3 Perceived Enjoyment
The variable of Perceived Enjoyment was not found to be statistically significant in the regression, which implies that there is no relationship between customer loyalty and Perceived Enjoyment, resulting in H3 being rejected.

These findings are in line with the findings from Pikkarainen et al. (2004), which indicate that Perceived Enjoyment has no significant impact on customers’ acceptance of online banking services. As our findings are from a post-adoption perspective, it could be concluded that enjoyment does not matter to consumers regardless of the phase (pre- or post-adoption). The non-significance of Perceived Enjoyment could also be explained by the purpose of mobile banking. As the purpose is to carry out banking errands, which are utilitarian in its nature, hedonic aspects such as Perceived Enjoyment are not as important (van der Heijden, 2004).

5.1.4 Relationship Quality
As shown in the result section of the thesis, Relationship Quality was the independent variable which had the greatest predictive power in our regression model. These findings are in line with earlier research in the field of relationship marketing where all three Relationship Quality variables to some degree have proven to positively influence customer loyalty, e.g. Cater and Zabkar (2009) and Vatanaasombut et al. (2008) for commitment, Bloemer et al. (2008) and Oliver (2009) for satisfaction and Papadopoulou et al. (2001) and van Esterik-Plasmeijer (2017) for trust. These studies differ from our study in one important way: they all investigate the effect of a single variable on loyalty, while our study groups the three variables together.

While Commitment and Satisfaction were grouped together before any statistical tests were conducted, Trust was initially treated as a distinct construct. The decision to treat Trust as a distinct construct was influenced by Arcand et al. (2017) whom in their research did not experience any discrimination issues between Trust and Satisfaction/Commitment. However, the outcome of our study was different as Trust could not be separated from Commitment/Satisfaction but a discrimination issue between these two variables was apparent. This discrimination issue was earlier identified by Brun et al. (2014) and Vesel and Zabkar
What can be drawn from this is that even though these variables are treated as distinct constructs in theory, they are in practice hard to distinguish from one and other, at least for respondents.

Because of the grouping of the Relationship Quality variables, comparisons of results become impossible. We cannot say that Satisfaction, Commitment or Trust on their own explain loyalty, or whether one of the variables is stronger than any other, but only that they together have explanatory power.

5.2 Limitations

As within all research there are no studies without limitations, the following section will present some of the limitations during the process of writing this thesis.

One of the limitations with our study is that the analytical tools used to investigate relationships between the dependent variable and the independent variables (exploratory factor analysis and multiple linear regression) did not enable us to perform an analysis of the possible interrelations among multiple dependent and independent variables (Gefen et al., 2000). This was not stated as a purpose of the study, but it would have been interesting to investigate such interrelations, especially since there is ample evidence they do exist, e.g., Hennig-Thurau and Klee (1997) and Arcand et al. (2017) found a positive relationship between trust and commitment.

Another limitation with our thesis that has been observed is the limitations with our sample and its applicability on the general millennial population of Sweden. As our sample consist exclusively of students and former students, we capture only highly educated millennials, which limits generalization to the complete millennial generation. Furthermore, the obtained sample size from our questionnaire limited the amount of possible factor analyses that could be performed, as it is recommended to have a sample with at least 100 individuals if the average factor loadings are at 0.7 with three to five variables loading on each factor when conducting a factor analysis (Fabrigar & Wegener, 2012, p. 26). If the time frame for the thesis would have been longer, it could have been possible to gather more responses, which would have enabled us to conduct more analyses on different groups e.g. comparisons between different banks, genders, field of study etc. An extended time-frame could also have made it possible to reach out to a sample outside of the university, which could have improved the applicability of the results on the millennial population.
6. Conclusion and implications
This final section of the thesis concludes our study by presenting the answer to our research question. Furthermore, our theoretical contribution, and managerial implications are presented respectively. As final words we present our thoughts about further research within the area of mobile banking.

6.1 Concluding remarks
The purpose of this study was to investigate and explain which factors (and their relative importance) that affect loyalty within the millennial mobile banking generation. The results show that the construct of loyalty among millennial mobile banking customers can be explained by the variables of Relationship Quality and Perceived Risk on a statistical significant level. Commitment/Satisfaction and Trust were initially separated as two different variables in our proposed research model. However, as they were grouped into one construct during the factor analysis support the notion that these constructs can be hard for respondents to distinguish between. When observing our findings of the Net Promotor Score at 1.4 percent, one can conclude that millennials are not very loyal to their bank, which also support the earlier findings in this area.

6.2 Theoretical contribution
This thesis contributes to existing research within the area of mobile banking by testing earlier researched models, in the field of customer loyalty among millennial banking customers. Our approach to the area of mobile banking distinguishes itself from earlier research in one fundamental way as it focuses directly on the different constructs of customer loyalty, their predictability, and their relative importance instead of focusing on adoption or acceptance (Pikkarainen et al., 2004; Chau and Ngai, 2010; Wessels and Drennan, 2010; Laukkanen, 2016). This transition of research-focus towards loyalty, away from acceptance and adoption is motivated by the findings in our study as all of our respondents had already adopted mobile banking (table 5).

Secondly, it contributes to earlier research within the area of mobile banking and relationship marketing, showing that Relationship Quality (conceptualized as Commitment/ Satisfaction/ Trust) is a good predictor for customer loyalty in mobile banking (Thakur, 2014). The grouping of the Relationship Quality variables was as previously mentioned a consequence of discrimination issues between mentioned variables (see sections 2.4.3 and 5.1.4). In such way, our study supports the evidence that even though satisfaction, commitment and trust are treated
as distinct constructs in theory, they can be hard to separate for respondents (De Wulf et al., 2001; Brun et al., 2014; Vesel and Zabkar, 2010). This is something to have in mind when constructing surveys to measure the variables.

Thirdly, the thesis expands the applicability of Perceived Risk in the context of mobile banking, showing that Perceived Risk plays a significant role in explaining loyalty. From a theoretical perspective, these findings show that Perceived Risk is important both pre-adoption as found by Wessels and Drennan (2010), as well as post-adoption in the creation of loyalty. Building on this, the findings presented by Arcand et al. (2017), where items within the area of risk are found to influence trust, and indirectly loyalty through trust in the relationship between customers and their financial providers, our findings supports a direct connection as well.

6.3 Managerial implications

From a managerial perspective there are a couple of notions that we want to put forward.

The thesis shows the importance of Perceived Risk in a mobile banking context while shaping loyalty, which we believe should be emphasized on a corporate level as it could enhance the individual banks ability to retain customers. For example, by proactively marketing their high-level security and how personal integrity is protected. Another aspect within risk that could be advocated by managers is the usage of prime security solutions for the app.

From a usability perspective, we have not been able to prove that Usability has a significant impact in shaping loyalty among millennial banking customers. However, as they are characterized as being tech-savvy and constantly connected they might take the app itself as a certainty, why performance should be emphasized to strengthen the path to the ultimate goal (Bagozzi, 2007).

As Relationship Quality was found to be the most powerful determinant of customer loyalty, we have shown that millennials in Sweden does not differ that much from the general population. Banks should focus on building and maintaining strong relationships with their customers by improving the Relationship Quality. Maintaining a well-functioning and safe mobile bank is more a necessity for remaining viable in the eyes of the customer.

Finally, the continuous loyalty strengthening work is especially important towards the millennial generation as our calculated NPS score for millennials was only 1.4, compared to the reported scores from SEB and Swedbank, which were 21 and 41 (SEB, 2018; Swedbank, 2018). Furthermore, the reported scores reflect the entire private customer segment within these
banks, indicating that the older generations have a totally different approach towards loyalty compared to millennials. If that is the case, bank loyalty in the future might not be the same as it is today.

6.4 Proposed future research

A natural continuation of our study would be to include Structural Equation Modelling (SEM) to further investigate the interrelations between our investigated variables. By adopting that technique, more complicated structures could emerge, enhancing the interpretability of customer loyalty within mobile banking.

Another possible direction for future research could be to investigate how banks work with their digital services (mobile banking) to improve customer relationships. More specifically, to investigate how banks work to improve satisfaction, commitment and trust, and to find out if there are any differences in how banks approach these variables.

Another potential research direction could be to expand our study to include the entire population, which would enable comparisons between e.g. different age groups, educational levels and genders. Since our study did only capture which factors affect loyalty within the highly educated millennial banking generation it would be interesting to investigate if there are any differences between age groups concerning the variables explaining loyalty. We already know that exit barriers are experienced differently between age groups (Tesfom and Birch, 2011) so there may well be other differences to find.

Since Sweden is one of the leading countries in the world when it comes to mobile banking adoption it would be interesting to conduct a similar study in a country where the development has not come as far. While mobile banking adoption behavior is a hot topic in the developing world, post adoption behavior has not received the same attention, which makes it an interesting area to investigate.
References


### Appendix 1:

#### Anti-image Correlation Table Factor Analysis

| | U1  | U2  | U3  | U4  | U5  | U6  | R1  | R2  | R3  | E1  | E2  | E3  | T1  | T2  | CS1 | CS2 | CS3 | CS4 |
| U1 | 0.368* | -0.317 | -0.175 | -0.078 | -0.035 | 0.047 | 0.029 | -0.044 | 0.005 | 0.005 | -0.148 | -0.095 | -0.016 | 0.142 | 0.063 |
| U2 | -0.317 | 0.346* | -0.313 | -0.048 | -0.089 | -0.081 | 0.025 | 0.012 | -0.147 | -0.057 | -0.021 | 0.006 | -0.006 | 0.087 | 0.094 | -0.035 | 0.033 | -0.094 |
| U3 | -0.175 | -0.313 | 0.857* | -0.226 | 0.080 | -0.173 | -0.056 | 0.053 | 0.058 | 0.141 | 0.039 | -0.158 | -0.047 | -0.062 | -0.043 | 0.056 | -0.040 | -0.067 |
| U4 | -0.078 | -0.048 | -0.226 | 0.891* | -0.153 | 0.022 | 0.079 | -0.067 | -0.055 | -0.225 | -0.056 | 0.078 | 0.110 | 0.000 | -0.028 | -0.052 | 0.061 | -0.085 |
| U5 | -0.035 | -0.089 | 0.080 | -0.153 | 0.698* | -0.726 | -0.270 | 0.137 | 0.057 | 0.141 | -0.007 | -0.133 | -0.053 | 0.001 | -0.178 | 0.144 | 0.109 | 0.013 |
| U6 | -0.151 | 0.081 | -0.173 | 0.022 | -0.726 | 0.690* | 0.258 | -0.161 | -0.020 | -0.154 | -0.041 | 0.149 | 0.072 | -0.044 | 0.178 | -0.200 | -0.098 | -0.027 |
| R1 | -0.123 | 0.025 | -0.056 | 0.079 | -0.270 | 0.258 | 0.766* | -0.473 | -0.290 | -0.021 | -0.005 | -0.107 | 0.111 | -0.024 | 0.111 | -0.146 | -0.072 | 0.077 |
| R2 | 0.037 | 0.012 | 0.053 | -0.067 | 0.137 | -0.161 | -0.473 | 0.767* | -0.432 | 0.001 | -0.069 | 0.073 | -0.003 | -0.098 | -0.085 | 0.159 | 0.026 | 0.018 |
| R3 | 0.029 | -0.147 | 0.058 | -0.055 | 0.057 | -0.020 | -0.290 | -0.432 | 0.827* | 0.131 | 0.131 | -0.157 | -0.134 | -0.049 | 0.027 | -0.025 | 0.031 | -0.068 |
| E1 | -0.044 | -0.057 | 0.141 | -0.225 | 0.141 | -0.154 | -0.021 | 0.001 | 0.131 | 0.778* | -0.037 | -0.587 | -0.062 | 0.072 | -0.057 | 0.062 | 0.089 | -0.007 |
| E2 | 0.105 | -0.021 | 0.039 | -0.056 | 0.007 | -0.041 | -0.005 | -0.069 | 0.131 | -0.037 | 0.852* | -0.509 | -0.085 | -0.144 | -0.043 | 0.092 | -0.081 | -0.021 |
| E3 | 0.018 | 0.006 | -0.158 | 0.078 | -0.133 | 0.149 | -0.107 | 0.073 | -0.157 | -0.587 | -0.509 | 0.754* | -0.007 | 0.078 | 0.037 | -0.028 | -0.069 | 0.044 |
| T1 | 0.005 | -0.026 | -0.047 | 0.110 | -0.053 | 0.072 | 0.111 | -0.003 | -0.134 | -0.062 | -0.085 | -0.007 | 0.866* | -0.445 | 0.003 | -0.016 | 0.046 | -0.229 |
| T2 | 0.148 | 0.087 | -0.062 | 0.000 | 0.001 | -0.044 | -0.024 | -0.098 | -0.049 | 0.072 | -0.144 | 0.078 | -0.044 | 0.877* | -0.104 | 0.086 | -0.103 | -0.202 |
| CS1 | -0.095 | 0.094 | 0.043 | -0.028 | 0.178 | 0.178 | 0.111 | -0.085 | 0.027 | -0.057 | -0.043 | 0.037 | 0.003 | -0.104 | 0.820* | -0.524 | 0.238 | -0.025 |
| CS2 | -0.016 | -0.035 | 0.056 | 0.052 | 0.144 | -0.260 | -0.146 | 0.159 | -0.025 | 0.062 | 0.092 | -0.028 | -0.016 | 0.086 | -0.524 | 0.796* | -0.178 | -0.325 |
| CS3 | 0.142 | 0.033 | -0.040 | 0.061 | 0.109 | -0.098 | -0.072 | -0.026 | 0.031 | -0.089 | -0.081 | 0.069 | 0.046 | -0.103 | -0.238 | -0.178 | 0.909* | -0.238 |
| CS4 | 0.063 | -0.094 | -0.067 | -0.085 | 0.013 | -0.027 | 0.077 | 0.018 | -0.068 | 0.007 | -0.021 | 0.044 | -0.229 | -0.202 | -0.025 | -0.325 | -0.238 | 0.922* |

* Measures of Sampling Adequacy (MSA)
Appendix 2: Scatter plots linearity:

![Scatter plot 1: Relationship Quality vs. How likely is it that you would recommend your bank to friends/family with R² Linear = 0.026 and line equation y = 7.3 + 1.68x.](image1)

![Scatter plot 2: Usability vs. How likely is it that you would recommend your bank to friends/family with R² Linear = 0.017 and line equation y = 7.3 + 0.35x.](image2)
How likely is it that you would recommend your bank to friends/family.

- Perceived Risk

- Enjoyment

$R^2$ Linear = 0.017

$R^2$ Linear = 0.004
## Appendix 3: Questionnaire

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td>Years</td>
</tr>
<tr>
<td>Field of study/occupation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Use

<table>
<thead>
<tr>
<th>I have access to mobile banking</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>On average I use mobile banking</td>
<td>Daily</td>
<td>Weekly</td>
</tr>
</tbody>
</table>

### Usability

| Mobile banking enables me to utilize banking services more quickly | | |
| The effectiveness of my banking activity is enhanced by mobile banking | | |
| Overall, mobile banking is useful for me to utilize banking services | | |
| I find it easy to do what I want using mobile banking | | |
| My interaction with mobile banking is clear and understandable | | |
| Overall, I find mobile banking easy to use | | |

### Risk

| I think that my privacy is protected using mobile banking | | |
| I trust the technology (the app) the bank is using | | |
| I think that transactions carried out in mobile banking are secure | | |
| Matters of security have influence on my usage of mobile banking | | |

### Perceived Enjoyment

| Using mobile banking is fun | |
| Using mobile banking is pleasant | | |
Using mobile banking is enjoyable

Trust
My bank is trustworthy
My bank is competent in its field

Commitment / Satisfaction
I am committed to the relationship with my bank
I intend to maintain the relationship with my bank
Doing business with my bank makes me satisfied
Overall, I am satisfied with my bank

Loyalty
How likely is it that you would recommend your bank to friends/family?
How likely are you to switch bank?
If you started from scratch, how likely is it that you would choose your current bank?

Which bank is your main bank?

Thank You!