Master's thesis

SUPPORTING CUSTOMER RETENTION THROUGH ANALYTICS IN BANKING INDUSTRY

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ABSTRACT

The main purpose of this master's thesis is to identify how analytics can be used supporting customer retention in the banking industry. This study consists of both theoretical and empirical parts. Theoretical section covers customer relationship management from the analytical perspective, specifies several customer retention determinants, discusses predictive modelling of customer churn and presents some possible customer retention activities. Empirical part is conducted by following qualitative research process and four semi-structured theme interviews of the case company's managers are used as the main data collection method.

Main findings reveal that customer retention is very dependent on the activities of the organization and the role of analytics will increase in banking industry in the future. Results also show that analytics could help to identify customers better, support individual branch or employee analyses, provide more accurate numbers and enable quick and more timely retention and customer relationship management actions. More attention should be paid in analysing customer behavioural data, retention planning, complaints-handling, determining retention metrics and segmentation criteria as well as monitoring efforts. In terms of analytics, the main challenge is how the existing data could be used the most efficiently to benefit the needs of company and its customers.

TIIVISTELMÄ

Tämän Pro Gradu -tutkielman päätavoitteena on tunnistaa, miten analytiikkaa voidaan hyödyntää asiakkaiden pitämisessä pankkialalla. Tutkimuksen teoreettinen osuus esittelee asiakkuuksienhallintaa analytiikan näkökulmasta, määrittää erilaisia asiakkaan pitämiseen liittyviä tekijöitä, pohtii analytiikan vaikutusta asiakkaan poistumisen ennustavassa mallintamisessa sekä esittelee asiakkaan pitämiseen liittyviä aktiviteetteja. Tutkimuksen empiirinen osuus seuraa kvalitatiivista tutkimusprosessia ja tiedonkeruumenetelmänä toimivat neljä puolistrukturoitua teemahaastattelua.

Tulokset paljastavat, että asiakkaiden pysyvyyteen liittyvät organisaation tekemät aktiviteetit ja analytiikan rooli kasvavat tulevaisuudessa. Tulokset osoittavat, että analytiikka voi auttaa tunnistamaan asiakkaita paremmin, tukea konttorin tai työntekijän suorittamista, tarjota tarkempia lukuja ja mahdollistaa nopeammat ja ajankohtaisemmat asiakkaiden pitämiseen ja asiakkuuksienhallintaan liittyvät toimenpiteet. Enemmän huomiota pitäisi kiinnittää asiakkaiden käyttäytymiseen liittyvän datan analysointiin, reklamaatioiden käsittelyyn, asiakkaiden pysyvyyden suunnitteluun sekä siihen liittyvien mittareiden ja segmentointikriteerien määrittelyyn. Pääasiallinen haaste analytiikan suhteen on olemassa olevan datan hyödyntäminen ja se, että se vastaa mahdollisimman tehokkaasti yrityksen ja sen asiakkaiden tarpeisiin.

AKNOWLEDGEMENT

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1 INTRODUCTION

This chapter provides an extensive introduction to the thesis. In the first phase, the chapter explains background of the study as well as introduces the most important literature on the field. Based on the research gap, the main objectives and questions of this study are presented in the background section, followed by the theoretical framework. Finally, the most important definitions of concepts, delimitations related to the study and the structure of the thesis are specified.

1.1 Background of the study

In the future, the ability to predict their customers' aims to switch banking service provider to a competitor's products and services becomes more and more important to banks. This ability allows banks to focus increasingly on different retention management efforts to potentially defecting customers in extremely competitive markets. Banks have started to understand the benefits of analytical tools in customer retention and their usage is growing all the time as a part of customer relationship management efforts (Larivière & Van den Poel 2004; Bruno-Britz 2008). Worldwide banks are already building churn models in order to predict if a particular customer aims to defect, since banks see it important to be able to anticipate and understand the possible needs of their customers (e g.: Mavri and Ioannou 2008). Operating one step ahead and reaching customer before the need of churn arises, bank can achieve competitive advantages. Besides decreasing prospects for organic growth, the competition is heavier than ever in various channels in banking sector. (Bruno-Brizt 2008). As a result, effective customer retention efforts have become more important than ever everywhere in banking industry.

Literature emphasizes the economic value of customer retention widely (Mavri and Ioannou 2008). In short, successful customer retention aims to decrease need for seeking new and potentially risky customers and let organizations concentrate in the needs and relationships of existing customers (Dawes and Swailes 1999). There are several advantages which can be related to long-term customers, including their tendency of buying more, and being less sensitive to prices and competitive marketing activities. Long-term customers tend to provide referrals for the company

through positive word-of-mouth communication and better knowledge, decreasing their serving costs for instance. (Mavri and Ioannou 2008). Banks should avoid customer churn since it has been widely agreed that attracting new customers is much more expensive than customer retention (e.g.: Ahmad & Buttle 2001; Van den Poel and Larivière 2004).

Banks need to understand and be able to react in possible changes of customer behaviour if they are willing to survive in a highly competitive and mature market (Lariviere and Van den Poel 2004). Markets are more open and complex than ever, and competition is increasing especially due to the entrance of different financial and insurance firms in the traditional banking market, and due the continuously extending category of products and services offered by companies (Mavri and Ioannou 2008). In the banking industry, customer needs and preferences change quickly, and traditional banking services have become increasingly online. These have increased the need to develop new kinds of customer relationship management activities. (Chu et al. 2012) Predictive analytics is used to reach customers who are more difficult to reach both in acquisition and retention purposes. As the importance of analytical tools is increasing in the industry, companies' ability to interpret the behaviour of both the individual customers and markets becomes more central all the time (Bruno-Brizt 2008). It is crucial to understand the competitive landscape and shape different kinds of customer relationship management activities based on that.

Banks have enormous amounts of data on their clients. The problem is that most of the banks does not seem to know all the possibilities data provides them in terms of managing their business on the most effective way (Bruno-Brizt 2008). The current technology enables banks to look at their customers in depth, but their organizational capabilities usually lack the ability to use the gathered data. Most of the leading retail banks in the world use analytics to some degree. However, when it comes to the predictive analytics the challenges come from the prerequisite to first formulate what the bank wants to predict and the ability to eventually implement them. However, some functionalities on the banking industry successfully utilize analytics when evaluating customer behaviour including credit analysis (Bruno-Brizt 2008).

This is also a case when it comes to the case company and for these reasons, the author sees that is meaningful to study these topics more in the perspective of the banking industry and clarify the current situation in terms of customer retention management, data usage and future expectations related to both of them.

1.2   Research questions

This study has its main focus in analytics in banking industry and its potential implications on customer retention. The importance of predictive analytics as a phenomenon has increased and in contemporary research and practice. Based on the literature review, there are still many perspectives in this field which has not been explored deep enough.

The main objective of this research is to identify how analytics can be used supporting customer retention in the banking industry. Research findings provide suggestions of the analytics for customer retention purposes. The main research question is as following:

Q: How could predictive analytics support customer retention efforts in the banking industry?

Literature determines different factors, metrics, models, strategies, programs and activities that influence in customer retention and they are covered in the literature review. It is important understand these elements to manage them effectively, measure meaningful metrics and place resources on strategically important areas. Thus, the first sub-question is as following:

SQ1: What kind of elements do affect customer retention in the banking industry?

Secondly, it is essential to know, what kind of role analytics does have in retaining customers in banking industry and especially in the case company. This will be explored more detailed in empirical part of this thesis and it investigates, current data management of the bank, banks' and employees' capabilities and skills related to usage of analytics. The second, sub-question is as following:

*SQ2: What kind of analytics is used in customer relationship manage-
ment currently?*

In addition, it is important to clarify what kind of benefits and other effects banking
industry could achieve when using the analytics. One of the goals of this research
is to study the readiness of the case company use analytics in customer retention
purposes in the future. Possible benefits, as well as employees' expectations of us-
ing analytics are studied. The third sub-question is as following:

*SQ3: How analytics could be used in customer retention purposes in
the future?*

1.3 Literature review and the research gap

Analytics can be defined as a process of analysis which is done logically, and the
used data is proceed carefully and in detail to identify causes, key factors and pos-
sible results for instance (Banerjee et al 2015). In practice, analytics is defined as a
practice which bases on facets and leads to insights and possible implications for
planning future actions in an organizational set up (Banerjee et al. 2015). Business
analytics include different kinds of skills, technologies, applications and practices
which are used for continuous improvement of business operations. The aim of busi-
ness analytics is to gain insights and drive better business planning (Banerjee et al
2013). Data analytics provide several advantages including better understanding of
business, environment and customers (Schutte et al. 2017). Analytics process can
be descriptive, diagnostic, predictive, or prescriptive in nature (Banerjee et al. 2013;
Tschakert et al. 2016).

From company's perspective the central idea of customer relationship management
is to know customers better and that way enable organization to generate and de-
liver better value to targeted customers (Morgan and Hunt 1994). The technology-
oriented perspective of customer relationship management sees customer relation-
ship management as the process, where a great amount of data is stored and ana-
lysed to extract customer insights and based on these conclusions, organizations
are able to treat their customers differently (Viljoen et al. 2005). Customer

relationship systems help in managing important relationships with customers and they can be divided in three main types: operational, analytical and collaborative solutions (Viljoen et al. 2005). According to Tsiptsis and Chorianopoulos (2010) analytical customer relationship management is about analysing customer data, which customer relationship management system has recorded aiming to better address the customer relationship management objectives and deliver the right message to the right customer. By measuring and analysing retention, company can find for instance, where and why customer defections are occurring and company can understand better, how it should improve its retention efforts.

There are many studies about customer retention in literature. Among academics it is widely recognized that customer retention is one of the central topics related to customer relationship management and relationship marketing (e. g.: Ang & Buttle 2006a; Godson 2009, p.70; Tamaddoni Jahromi et al. 2014; Peng et al. 2013; Viljoen et al. 2005). Both company and customer perspectives are discussed in previous literature. Based on the literature customer determinants might include customer loyalty, switching barriers, customer satisfaction, service quality, customer trust, customer value and relationship commitment (Tamuliene & Gabryte 2014; Peng et al. 2013; Gerpott et al. 2001; Godson 2009; Gustafsson et al. 2005; Kim et al. 2004; Kim and Yoon 2004; Ranaweera & Neely 2003; Jing-Bo et al. 2008). However, academics have not been able to agree on a definite collection of elements that effect on customer retention. Afore mentioned determinants are explained more detailed in this study especially in banking perspective. Literature review concludes several different customer retention activities such as customer satisfaction measurement process, customer retention planning process, quality assurance process, win-back process, complaints-handling, switching barrier building, bond creation, customer engagement, customer care, personalization, segmentation and monitoring customer relationships (e.g. Ang & Buttle 2006a; Mihelis et al. 2001; Buttle 2004; Winer 2001; Buttle et al. 2002; Van Doorn et al. 2010; Godson 2009; Tabasum 2018).

Literature review covers also predictive analytics in modelling customer churn or customer defection, which is opposite of customer retention. It is essential to study

customer churn more, since many firms lose half their customers every five years (Reichheld 1996). Effects of lost and inactive customers are versatile. The loss of long-term customers tends to cause more severe effects than the loss of new customers. Customer lifetime value and possible word of mouth referrals drop after losing the customer. (Griffin and Lowenstein 2001). By measuring customer retention amongst different segments, company can find where and why defections are occurring and the company can understand, how it needs to improve its retention efforts (e. g.: Godson 2009). A sample of the papers related to churn prediction in financial sector and in banking is presented in literature review. Observation methods, data collection, variable selection as well as modelling techniques are discussed more detailed to gain deeper understanding about customer churn prediction modelling in banking industry.

Literature emphasises the benefits of customer retention over customer acquisition to keep the profitable customers and maximise the profits (e. g.: Tamaddoni Jahromi et al. 2014). Customer acquisition is significantly more expensive compared to customer retention. Through customer retention management organizations can increase their knowledge of their customers, improve the ability to target customers better and decrease the number of inefficient marketing efforts for instance (Ahmad and Buttle, 2001, Hwang et al. 2004). Godson (2009) lists number of reasons to focus on existing customers, even though some academics have also seen customer acquisition as an important element in customer lifecycle (e. g. Ang & Buttle 2006b).

Even though there are several studies related to customer retention and analytics, there are only a limited number of studies which combine these both themes. There are still many issues in this field which has not been explored deep enough and from different perspectives. Comprehensive list of determinants and activities related to customer retention is not defined. Churn prediction is also studied in relatively large companies and is lacking studies related to financial companies that customer base is relatively small compared to them. The main research gap lies how predictive analytics could be used especially from customer relationship management and customer retention perspective.

1.4 Theoretical framework

The theoretical framework covers the structure and theoretical key concepts of the theoretical part of this study. The visual presentation of the framework can be found on Figure 1. Various elements suggested by different authors are collected to create the framework, since the coherent theories and core concepts combining customer retention and analytics are missing in current literature.
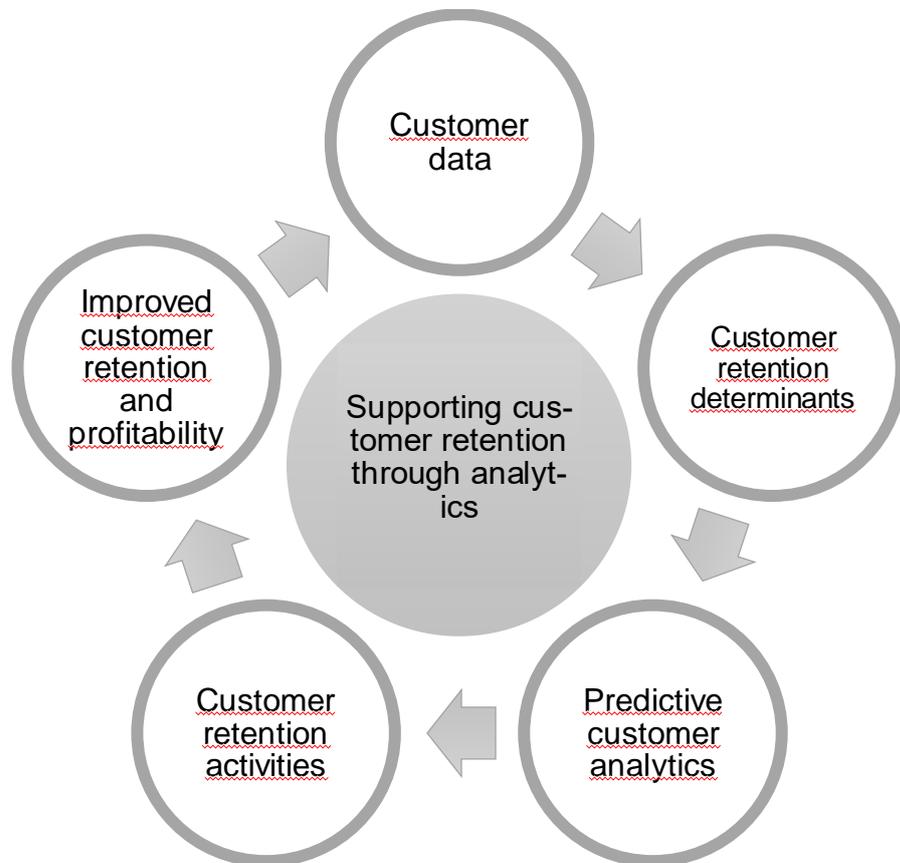
Figure 1. Graphic presentation of theoretical framework

The framework represents the retention scheme including customer analytics in to the middle of the process. Each part contains independent elements as suggested in literature and these could be implemented by practitioners. Arrows show the direction of the retention process. The process can be done only once, but it is the most efficient when it is continuous, and data is updated after each "round". Literature review addresses each of these components separately and more detailed.

First the customer data of certain customer or customer segment is collected from different data sources such as customer relationship management system. Secondly, the most important customer retention determinants are defined in banking industry. These elements are presented extensively in literature review. Third, the data is processed according to selected predictive customer analytics practises, in this case customer churn modelling. Based on the results of analysis, suitable customer retention activities are evaluated and placed into the action, which finally results in improved customer retention and increased profitability of customers. After this, the process will be started again with the same or another group, with different variables or different time. The research problem is defined as how the bank could support its customer retention through analytics. The framework suggests that analytics can influence in customer retention through retention determinants, models and activities.

1.5 Definitions

Customer retention refers to the company's ability to retain its customers over some certain period (Gerpott et al. 2001). Successful customer retention decreases the need for seeking new and potentially risky customers and at the same time it let organisations to concentrate more detailed on the needs of existing customers by building strong and sustainable relationships (Van den Poel and Larivière 2004).There are several determinants that are closely related to the customer retention and many activities that companies can make to improve the retention and their profitability.

Business analytics can include different actions "from routine tracking and monitoring of business performance and "nice-to-know" validation facts regarding the business domain to more directed diagnosis of "root cause" of business problems as well as strategic prediction about future business initiatives." (Banerjee et al. 2013)

Customer relationship management can be defined as an organisational approach that attempts to comprehend and effect on customer behaviour through

different purposeful communications to promote for instance customer acquisition, retention, and profitability (Viljoen et al. 2005).

Customer churn, attrition, turnover or defection is referred as the number of existing customers that decide to leave the brand or company due to better alternatives (Ginn et al., 2010). Defected customers do not make repeat purchases from the company and general assumption is that customers are often switched to the competitor. (Buttle, 2004; Godson 2009)

Predictive modelling is based on the usage of a set of models which aim is to predict the probability of an event occurring (Ridge et al. 2015; Manyika et al., 2011).

1.6 Delimitations

This section presents the chosen delimitations of the study. First of all, the current literature provides several different kinds of definitions of customer retention, its determinants and some predictive models that could be used in banking industry as well as some possible activities that bank could implement in its operations. Researcher was obliged to make decisions based on the best understanding of the phenomenon and leave some argued perspectives for the less amount of notice.

The research is very focused due its nature. It is a qualitative case study and conducted mainly from the perspective of a case company. However, the extensive literature review of customer retention and analytics adjusts the shortcomings of the delimited qualitative case study. Research is narrowed to the limited number of current managers of the case company. This means that the results cannot directly be adapted to the all managers within the bank or the whole banking industry. Furthermore, data collection is done by the perspective of the company and for instance customer perspective is not studied at all even though it has naturally a significant role in retention. This limitation was done, because the focus of the study lies on the company and the goal is to find solutions to use analytics supporting retention activities in the bank.

1.7 Research methodology

Qualitative research method is selected for this research, because the goal is to get a comprehensive understanding about how analytics could support customer retention efforts in banking industry and since the phenomenon has only a limited amount of prior research. The qualitative research method is not only very flexible, but it also helps testing what is already known and numerical information would not reveal the real nature of the circumstances when studying the possible support of analytics in customer retention efforts in the banking industry. (Flick 2014, 16; Saunders et al. 2009). Case study setting was selected in this research, since the goal is to get an extensive understanding about one unit of analysis and it allows the exploration of phenomenon in concrete context (Saunders et al. 2009; Puusa & Juuti 2011, 47-48; Flick 2014, 180). The data is collected directly from the employees of the case company and case study setting supports that initial setting.as well as the goal of this thesis, which is to focus on the analytics supporting customer retention and deepen the understanding about the current situation and needed activities so that analytics could be used effectively.

This study is primarily exploratory by the nature and in this study the goal is to discover how analytics could support customer retention activities in banking industry. In addition, the aim is to understand current situation, so the primary data is collected through semi-structured theme interviews for case company's current employees that are in response of customer relationship management and/or data analytics. To gather enough material, interviews will be conducted as face-to-face or telephone interviews. Interviews will be done for middle managers of the bank, because they have most likely the most comprehensive understanding of the current state of the customer relationship management, enough understanding of the business and they are in response of the results of their branch or team, so they have personal interest to improve the customer retention through analytics. It is important to interviewees know how analytics is used in their organization is using analytics at the moment. Flexible semi-structured theme interviews were chosen to data collection method enabling asking supplementary questions and gathering more data if necessary.

Theme interviews are conducted the way that the researcher has pre-planned themes and questions, but the method allows researcher to add further questions in the interview situation if needed (Saunders et al. 2009, 320; Tuomi & Sarajärvi 2009, 75-76; Hirsjärvi et al. 2009, 208-209). Since the goal of the study is to get a comprehensive understanding about how analytics could support customer retention efforts in banking industry, interviews will focus on the themes related to activities and strategies that bank uses on customer retention, customer defection and customer relationship management overall. Besides customer retention theme, the analytics perspective, the role of analytics in customer retention and the possible influences of customer retention and the business itself are covered comprehensively in the interviews. All the interviews will be recorded by the interviewer. Altogether four employees are interviewed who work on managerial positions, but who have different roles within the company and who have at least some level of experience of using analytical tools.

The goal of the data analysis will be to understand current state of customer retention management efforts and discover the possibilities how analytics can be utilized in customer retention activities in the future, the data will be analysed via qualitative methods. Both deductive and inductive approaches will be used in data analysis since, the aim is to use existing theories as they exist instead of create something completely new, but also act as an exploratory project to seek a direction for further work in bank and help understanding the current situation. This study will use content analysis, which contains several steps, as the main data analysis method. Reliability and validity of the research are also discussed in that chapter.

1.8   Structure of the study

The thesis consists of two main sections; the theoretical (chapter 2) and the empirical part (chapters 3-5) containing altogether five main chapters. The introduction chapter of this study introduces and justifies the topic of the thesis and defines the research problem. Next the chapter presents the literature review and identifies the

research gap. After that theoretical framework is introduced, key concepts are defined, and delimitations of the study are raised.

The theoretical part consists of one main chapter, which covers the phenomenon supporting customer retention through analytics and provides the theoretical background of the research. The second chapter is divided into six sub-chapters. At first customer relationship management and business analytics are explained to familiarize the reader to the topic and wider topics that customer retention and analytics also belong to. After that different kinds of customer retention determinants are discussed and determined. Then predictive analytics is covered from the customer churn modelling perspective. Customer defection is also discussed in this context. Different kinds of customer retention activities that company can run are presented and finally the effect of customer retention to profitability is discussed.

The empirical part of the study begins in the third chapter by presenting the research methodology and describing how the study has been conducted, by advocating the chosen research methodology, introducing data gathering and analysis methods. Fourth chapter presents and analyses the collected material, discusses the results of the qualitative research and links it to the theoretical part of this study. Themes related to theoretical part of this study are covered also in this part of the paper. Finally, the fifth chapter concludes the main findings of the thesis. It evaluates theoretical and managerial implications, identifies the limitations of the research and suggests future research directions.

2 CUSTOMER RETENTION AND ANALYTICS

This chapter covers the main two themes of this thesis: customer retention and analytics. These themes are important to cover more detailed since the role of both of them will increase in the future also in banking industry (Bruno-Britz 2008). Customer retention increases the effectiveness of marketing activities by creating loyal following of repeat buyers instead of constantly trying to persuade new consumers or businesses. Furthermore, customer retention boosts efficiency. The literature shows that on average, company spends six times more when acquiring new customers than retaining current ones, whereas lost customers reduce company profits enormously compared to successfully retained customers. (Rosenberg & Czepiel 1984). Data analytics helps in analysing and integrating the user's personal information, providing more extensive view of their customers' needs and through that better service and more accurate marketing for each customer segment. This will improve customer experience, generate higher revenues and support organization's decision making. (Schutte et al. 2017). The chapter follows roughly the theoretical framework (Figure 1), which is earlier presented in this thesis.

2.1 Business analytics

The aim of this business analytics chapter is to provide better understanding about the analytical process itself. Analytics can be defined as analysis of data which is done by using refined quantitative techniques (Schutte et al. 2017). Analytics is the process of analysis which is done logically, and the used data is proceed carefully and in detail to identify targeted causes, key factors and possible results (Banerjee et al. 2013). In practice, analytics is defined as a procedure which bases on facts and leads to insights and possible implications for planning future actions in an organizational set up (Banerjee et al. 2013). Banerjee et al. (2013) conclude that business analytics can include different actions "from routine tracking and monitoring of business performance and "nice-to-know" validation facts regarding the business domain to more directed diagnosis of "root cause" of business problems as well as strategic prediction about future business initiatives."

Data analytics is the process which is used to convert firms' fragmented data into action-oriented information and knowledge, and it is closely related to business analytics. Organizations use data analytics to analyse critical business data which enable them to create a better understanding of their business and environment. Personal and personalized information is stored into large databases. Data analytics helps in analysing and integrating the user's personal information, so institutions can get a more comprehensive view of their customers' needs and that way offer a better service to them. Another clear advantage that analytics enables is easier categorization of clients with a higher spending potential, which on half helps organizations do more accurate target marketing which will improve customer experience and generate more revenue and make other better fact-based business decisions. (Schutte et al. 2017).

Business analytics include different kinds of skills, technologies, applications and practices which are used for continuous iterative exploration and investigation of past business performance. The aim of business analytics is to gain insights and drive better business planning (Banerjee et al. 2013). Analytics process is can be descriptive, diagnostic, predictive, or prescriptive by nature (Banerjee et al. 2013; Tschakert et al. 2016). In the next paragraphs, different analytical approaches are discussed briefly to gain understanding the distinctions of these approaches. Additionally, these short descriptions provide useful examples how different analytical approaches can be used in different purposes in banking industry and different stages of business analytics process.

Descriptive analytics provides insights based on past information and illustrates a phenomenon through different measures that help in capturing relevant dimensions (Banerjee et al. 2013; Tschakert et al. 2016). The purpose of descriptive analytics is just to simply reveal what happened in the past or signal on what is going to happen in the future (Banerjee et al. 2013). Descriptive data can be used for summarization and visualization for exploratory purpose (Wedel and Kannan 2016). In general, based on descriptive analytics standard reports can be created. Descriptive analytics contains basic spreadsheet functions such as counts, sums, averages,

and percent changes and vertical and horizontal analyses of financial statements (Tschakert et al. 2016).

The purpose of diagnostic analytics is to examine more detailed different the causes of past results. It tries to respond to the question "why did something happen". Commonly it is used in different kinds of variance analyses and interactive dashboards to examine the roots of past outcomes (Tschakert et al. 2016). Diagnostic explanatory models can estimate relationships between variables and allow for hypothesis testing in research (Wedel and Kannan 2016). Banerjee et al. (2013) states that diagnostic analytics alone does not provide a lot of information, but with the exploratory data analysis of the existing data or some other additional data, which is collected by using tools such as visualization techniques, it can help in discovering the root causes of a problem.

Predictive analytics assists understanding the future and provides foresights by identifying patterns in historical data. Predictive analytics provides answers to the questions what will happen in the future, when and why it will happen. (Tschakert et. al. 2016). Predictive analytics uses widely statistical or data mining techniques to explain drivers of the observed. Predictive analytics involves selecting a few variables that can be used to predict indefinite values of other appropriate variables (Schutte et al. 2017). In banking it can be also used for predicting an accounts receivable balance and collection period for each customer. Predictive analytics can be used to develop models with indicators that prevent control failures or for instance in this thesis (chapter 2.4) customer churn (Tschakert et al. 2016).

The purpose of prescriptive analytics is to identify the best available option and to choose this option to achieve the targeted outcome. Prescriptive analytics can use for instance several different kinds of optimization techniques and machine learning methods. (Tschakert et al. 2016). Prescriptive analytics defines what should be done in the future to optimize business processes so that desired business objectives could be achieved. It associates decision alternatives with the prediction of outcomes. (Banerjee et al. 2013, Tschakert et al. 2016)

2.2 Customer relationship management

Analytics has very central role in customer relationship management, especially when analysing customer data patterns, extracting knowledge related to customers and optimizing customer relationships (Xu et al. 2005). The central idea of customer relationship management (CRM) is to know customers better and that way enable organization to generate and deliver better value to targeted customers (Morgan and Hunt 1994). The concept customer relationship is derived from the term, relationship marketing which have several explanations, but which can be seen to refer to all marketing activities, which aim is to establish, develop and maintain successful relational exchanges (Morgan and Hunt 1994). Simplifying, customer relationship management can be defined as an organisational approach that attempts to comprehend and effect on customer behaviour through different purposeful communications to promote for instance customer acquisition, retention, and profitability (Viljoen et al. 2005). Rabahah et al. (2011) conclude that customer relationship management can be understood as a business philosophy, a business strategy, a business process, or a technological tool, which this research primarily focuses on.

Customer relationship systems help in managing important relationships with customers. These systems have ability to collect, store and manage customer data and based on that data, customers are handled accordingly depending on their personal needs, behaviour and potentials. (Tsiptsis and Chorianopoulos, 2011). The technology-oriented perspective of customer relationship management sees customer relationship management as the process, where a great amount of data is stored and analysed to extract customer insights and based on these conclusions, organizations are able to treat their customers differently (Viljoen et al. 2005). The quality of data is essential for powerful accomplishment of customer relationship management activities. What is important to note and which companies tend to struggle often is that customer relationship system is useful for supporting retention strategies, but that the system is not a strategy in itself or provide shortcut for success, but it requires efficient and correct activities. (Peltier et al. 2013).

Customer relationship management and customer retention management are closely related. Previous literature shows that well cared customer relationships have positive effects on customer retention (e.g.: Bhat and Darzi, 2016). Customer relationship management solutions can be divided in three main types: operational, analytical and collaborative (Viljoen et al. 2005). Operational customer relationship management focuses on customer-facing business processes and it contains, for instance customer service and support related information. In analytical customer relationship management customer data is captured, stored, extracted, processed, interpreted and reported. Collaborative customer relationship management on behalf aims to support the interaction of the different stakeholders with organization. (Viljoen et al. 2005). In this research the author focuses mainly on the analytical customer relationship management and the next chapter describes it more detailed.

Successful analytical customer relationship management requires organizations to gather insights into customers, their needs through data analysis to meet organizations own goals such as improved sales or customer service practises. According to Tsiptsis and Chorianopoulos (2010) analytical customer relationship management is about analysing customer data, which customer relationship management system has recorded aiming to better address the customer relationship management objectives and deliver the right message to the right customer. The basic idea behind analytical customer relationship management is to analyse data patterns, which help in extracting knowledge and optimizing the customer relationships. Often, analytical customer relationship management involves the use of data mining models. These models aim to assess the value of the customers, understand, and predict their behaviour better. As a conclusion, the purpose of analytical customer relationship management is to enable the organisation to examine customer behavioural patterns and through that develop better marketing and for instance customer retention strategies. (Xu et al. 2005).

2.3 Customer retention determinants

To be able to act appropriately in customer retention purposes, companies need to understand elements that have effect on customer retention. Factors, which has

influence in customer retention, both from customer and company's perspective, are widely studied in the literature (Tamuliene and Gabryte 2014; Peng et al. 2016; Gerpott et al. 2001; Godson 2009; Gustafsson et al. 2005; Kim et al. 2004; Kim and Yoon 2004; Ranaweera and Neely 2003). These presented determinants and possible customer retention strategies which are presented in following sections (2.3 and 2.5), provide comprehensive theoretical base on customer retention.

Even though there are extensive studies on the customer retention, academics have not agreed on a definite collection of elements that effect on customer retention. Many authors list customer loyalty, switching costs and customer satisfaction as central key determinants of customers' motivation to maintain in a business relationship (Gerpott et al. 2001; Kim et al. 2004; Kim and Yoon 2004; Gustafsson et al. 2005; Godson 2009; Tamuliene & Gabryte 2014; Peng et al. 2016). Some scholars see that customer trust is one of the main factors which influence in customer retention (Peng et al. 2016). Furthermore, service quality or customer service perceptions and customer value are seen elements that determine retention (Godson 2009; Ranaweera and Neely 2003). Additionally, Morgan and Hunt (1994) add to the list relationship commitment which has impact on retention. Following section provides brief descriptions of the most important factors, which are mentioned in previous literature. In addition, several other emotional, cognitive and behavioural factors can be separated to affect the customer retention, but researcher does not see them that important component in banking industry.

Customer loyalty

The relationship between customer loyalty and customer retention is controversial and there exists mixed opinions in literature regarding to that. Loyalty is a broad term, and value equity, brand equity and relationship equity can be seen as three encompassing drivers of customer loyalty. Value equity is defined as customers' objective assessment of what is given up for what is received. Brand equity is customers' subjective assessment of brand image. Relationship equity is customers' general assessment of their interaction quality with firms. (Ou et al., 2017, p. 336). Typical for loyal customers is that even though they do return purchases, they not necessarily express customer engagement behaviour, for example, word-of-mouth

recommendations (Pansari & Kumar, 2017). Murali et al. 2016 assumes that customer retention as an indicator of customer loyalty. Gustafsson et al. (2006) and Kim et al. (2004) suggest that loyalty is often interpreted as actual retention, whereas some other scholars prefer arguing that loyalty and retention have a strong cause and effect connection, where customer retention is strongly determined by customer loyalty (Gerpott et al. 2001). If companies want to evaluate customer loyalty, Weinstein (2002) suggests companies to measure recency, the last service encounter or transaction; frequency, the regularity the monetary value of customer contacts, the amount that the customer has spent, invested or committed for the firm's products and services.

Customer loyalty studies three broad approaches. According to behavioural approach loyalty can be measured based on continuity, proportion or sequence of purchases and share of market (Kim et al. 2004; White & Yanamandram 2007). Attitudinal approach describes that loyalty is based on customer's psychological involvement, which means that loyalty is evaluated based on whether customers like the brand, whether they feel committed to it, recommend it to others, and have positive beliefs and feelings about it relative to competing brands (Kim et al. 2004; White & Yanamandram 2007). According to Gerpott et al. (2001) a business relationship is maintained either involuntarily or voluntarily. In involuntary customer relationship customer cannot switch supplier due to switching barriers and in voluntary customer relationship, customer stays in the relationship because one's attitude towards the supplier is positive. When the business relationship continues on the voluntary basis it is called as customer loyalty. (Gerpott et al. 2001). Integrated or combined approach combines both attitudinal and behavioural dimensions. (Kim et al. 2004; White & Yanamandram 2007). Integrated approach can be seen as a combination of customers' positive attitude towards the supplier and the repurchase behaviour (Kim et al. 2004).

Switching barriers

Switching barriers are widely discussed determinant of retention (Kim et al. 2004; Kim and Yoon 2004; Tamuliene and Gabryte 2014; Gustafsson et al. 2006). Fornell (1992) determines that "the switching barrier refers to the difficulty of switching to

another provider that is encountered by a customer who is dissatisfied with the existing service, or to the financial, social and psychological burden felt by a customer when switching to a new carrier." In other words, this means the higher the switching barrier is, the more mandatory it is to remain the existing relationships for customer (Kim et al. 2004). Kim at al. (2004) conclude that switching cost, the attractiveness of alternatives, and interpersonal relationships typically make up for switching barriers. White and Yanamandram (2007) add service recovery and inertia to the list.

Switching costs include time, money and psychological cost and they are incurred when switching the supplier (Dick & Basu, 1994; White and Yanamandram 2007). These costs also cover the service searching and evaluating costs which regional decentralization has caused. Customers may keep the existing supplier to prevent possible risks related to the supplier change even though they are not satisfied. According to Murray (1991) switching costs might be either financial, performance-related, social, psychological, or safety-related by nature. Switching cost can be seen as an obstacle, which prevents customer defection, but they can be seen factors, which contribute retaining good relationship also from the customer perspective (Morgan and Hunt 1994).

Even though this chapter concentrates most on the switching costs, since it is the most widely studied in the literature, it is necessary to define other elements of switching barriers. Relationships between people affect strongly in customer retention by creating strong boundaries between organizations and they are typically called as interpersonal relationships (White and Yanamandram 2007). Kim et al. (2004) contend that strong relationships between customers and customer service personnel decrease mobility of the customers. Attractiveness of alternatives refers to the quality of service. Central in this that the customer anticipates that the existing relationship provides in the best available alternative. Unique and differentiated services attract customers and they tend to remain with company (White and Yanamandram 2007). Service recovery means service providers ability to rectify a service-related failure including all the actions which service provider needs to make disappointed customer satisfied again (White and Yanamandram 2007). Customer care and complaints-handling processes are discussed more later in this literature

review. Inertia can be explained as the outcome, instead of a determinant of behaviour, where customer thinks that the other alternatives besides the current one is unattractive due to switching costs or other barriers to switching. On the other hand, inertia can be seen as a behavioural characteristic customer being lazy, inactive, or passive. (White and Yanamandram, 2007). Companies should pay attention on building switching barriers and they are discussed also later in the chapter 2.5.

Customer satisfaction

Customer satisfaction is one of the most usually listed determinant of customer retention in the academic literature (e. g.: Kim et al. 2004; Kim and Yoon 2004; Gustafsson et al. 2006; Tamuliene and Gabryte 2014). Several papers such as Martins Gonçalves and Sampaio (2012) and Shafei and Tabaa (2016) articles refer that customer satisfaction is "a judgment that a product or service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfilment, including levels of under- or over fulfilment" (Oliver, 1997, p.13). Many authors have seen the direct impact of customer satisfaction on customer retention (Gerpott et al. 2001; Murali et al. 2016; Tamuliene and Gabryte 2014). Murali et al. (2016) define customer satisfaction as the stage of relationship where customer expectations related to a product or service are met or exceeded as against the perceived performance of the organization. Hence, customer satisfaction is highly associated with value and price (Athanassopoulos 2000). Kim et al. (2004) list customer satisfaction to bring several advantages besides increasing retention. High customer satisfaction level improves businesses capabilities to prevent customer churn, lowers price sensitivity of customers, reduces costs of acquisition of new customers, improves effectiveness of advertising, and enhances business reputation of the organization (Kim et al. 2004). Weinstein (2002) add to this list that satisfied customers stay loyal longer, spread positive word-of-mouth messages, pay less attention to the competitive offers and offer new service ideas to the organization.

Service quality perceptions

To protect and gain market shares, companies need to outperform their competitors (Tsoukatos and Mastrojianni 2010). Banks can achieve customer longevity through delivering high quality services, so it is essential to understand service requirements

of customers and the impact of high-quality service delivery performance on customer's attitudes. Service quality can be defined as the level of satisfaction or dissatisfaction of the customer which their experience of purchase situation and the use of different service forms for them (Kim et al 2004). According to Lewis and Booms (1983) service quality is a measure which expresses how well the service level which company delivers matches customers' expectations. In other words, service quality can be seen as the comparison between delivered and expected service performance (Parasuraman et al. 1985). Tsoukatos and Mastrojanni (2010) conclude that customers' perceived relative comparison is shaped by experience and memories. Further some researchers demonstrate that service quality perceptions exceed the significance of price for customers when customers are evaluating value (Ranaweera and Neely 2003).

For this research, service quality perceptions were selected as one of the main determinants, since high-quality customer service is very essential part of implementing the strategy successfully and it involves many components from several parts of organization. To support this Levesque and McDougall (1996), emphasises the satisfaction of customer and their retention for retail banks in their research. They identified a scale of the determinants related to the service quality perceptions including not only service quality dimension, but also service features, service problems, service recovery and products used. Different service problems and the poor bank's service recovery ability have a major impact on customer satisfaction and customer's intentions to switch (Levesque and McDougall 1996).

Customer trust

Customer trust can be defined as customers confidence in an organization's reliability and integrity (Morgan and Hunt 1994). Morgan and Hunt 1994 conclude that in the literature of trust reliability and integrity are associated with different qualities such as consistency, competency, honesty, fairness, responsibility, helpfulness and benevolence. Andersson and Narus (1990) have a belief that parties can trust each other if they perform actions that will result in positive outcomes and that is their purpose in every occasion. Moorman et al. (1993) defines trust as around the same notion highlighting the controlling and sharing the valuable assets in a mutually

beneficial manner. Trust can be created by a customer observing employees' knowledge and responsiveness and especially in in online environments it has important role because consumers have only few tangible and verifiable cues regarding the service provider's capabilities and intentions (Urban et al. 2000; Chu et al. 2012; Parasuraman et al. 1988).

Relationship trust is closely related to the concept customer satisfaction and it could be understood as the customer's feeling and confidence in transaction and customer's willingness to depend to the firm. To simplify this customer satisfaction can be the premise of relationship trust's existing. If customers are not satisfied with the firm, it is very difficult for them to trust it. Jing-Bo et al. (2008) mention that many management and social psychology researchers have shown that, customers have willingness to remain in the group with trust relationships which are comparable strong, and that interaction between customers and firms increases interpersonal trust. For instance, if customer is not satisfied with the product or service of the company, relationship trust influences the customer relationship decreasing the satisfaction less. Trust reduces transaction costs by improving the relationship efficiency and increasing the customer benefit. Customer's attitudes to the firm, customer's purchase intentions, behaviour and finally customer retention rate are influenced by customer trust. (Jing-Bo et al. 2008).

Customer value

Customers tend to seek value for the price. Literature defines value as quality divided by price and the concept can also be referred either customer value, customer perceived value or price perception (Jing-Bo et al. 2008; Ranaweera and Neely 2003). Jing-Bo et al. (2008) conclude that customer value "is the product attribute, attribute preference, result preference or judgment that may have resistible or promotional influence on customers' aim". Ranaweera and Neely (2003) found out that customers see that the reasonableness of price important. This reasonableness reflects the way price is found compared to competitors (Ranaweera and Neely 2003). Every customer aim is to maximize their requirements and satisfaction and when customer receives satisfies value from the firm it increases customer retention.

When forecasting repeat-purchase intention customer value is an essential factor. (Jing-Bo et al. 2008).

Relationship commitment

Commitment is the desire for continuity illustrated by the willingness to invest resources into a relationship (Gounaris, 2005). In the literature commitment has seen affected by developed cooperative sentiments, strong preference for existing partners and propensity for relation continuity (Gournaris 2005). According to definition of Morgan and Hunt (1994) commitment is the strong belief of an exchange partner that the existing relationship with the partner is so important that it deserves maximum efforts to maintain it indefinitely. Henning-Thurau et al. (2002) argue that besides customer satisfaction and trust, relationship commitment is one of the three main dimensions of relationship quality.

Two main elements in relationship commitment are calculative or continuance commitment and affective commitment (Gustafsson et al. 2006). Affective commitment is defined as more emotional and hotter factor that can be developed through the degree of mutual or personal involvement between customer and company. It refers to the emotional tie between a customer and a firm and results in a higher level of trust and commitment. Thus, calculative commitment is categorized the colder, or more rational, economic-based reliance on product benefits. A lack of choice or high switching costs are usually dominant reasons behind the calculative commitment and making it difficult for customers to switch supplier and these can be also referred as switching barriers which have discussed earlier in this research (Gustafsson et al. 2006).

2.4 Predictive analytics modelling customer churn

Even though companies put a lot of effort on retaining their customers, every now and then existing customers decide to switch their service provider. Customer defection is the opposite of customer retention (Buttle, 2004; Godson 2009). Defected customers do not make repeat purchases from the company and general assumption is that customers are often switched to the competitor (Buttle, 2004; Godson

2009). Customer churn, attrition, turnover or defection is referred as the number of existing customers that decide to leave the brand or company due to better alternatives (Ginn et al., 2010). Churn is critical part of any business since according to Reichheld (1996) many firms lose half their customers every five years. Ahmad & Buttle (2001) present that possible reasons for defection are for instance: price, product or service, market, technology or organisation. The probability of customer churn varies over the customer lifecycle. As will be discussed later in this chapter, long-term customers tend to have a lower defection rates than relatively new customers due to the strength of the relationship determinants (Reichheld 1996).

Many organizations run acquisition-based marketing strategies caused by customer churn. In his research Reichheld (1996) found that the most successful companies in terms of reducing customer churn were those that care and cultivate customer loyalty of existing customers (Reichheld 1994). For that reason, customer retention and defection should be observed in each company. If the company wants to prevent their customers from leaving, a retention actions are required. Sometimes churning customers are difficult to recognize especially if customers defect only partially. Glady et al. (2009) suggests observing the evolution in the customer activity and compare the current activity to the past activity. For instance, for that reason, modelling churn is interesting from a retention perspective (Glady et al. 2009) and it will be discussed more detailed later in this paper.

Effects of lost and inactive customers are versatile. The loss of long-term customers tends to cause more severe effects than the loss of new customers. Customer lifetime value and possible word of mouth referrals drop after losing the customer. Typically, dissatisfied customers tell about their bad impression or experience for 8 to 10 people. (Griffin and Lowenstein 2001). Here we come to the earlier discussed issue related to the value. One of the most typical reasons for customer to defect is they experience the costs higher than the value they receive from the service provider and that their investment to the relationship is not valued enough or they have lost the connection. Usually this dissatisfied experience grows gradually over time to the point that they decide to leave instead of staying with the company. (Griffin and Lowenstein 2001).

There are some signals that possible customer defection could be recognized. Griffin and Lowenstein (2001) argue that customers might correspond to proposals slower than normally or the data flow between customers and the company might reduce. In business cases company might face difficulties accessing to upper-level management of their customer. They also mention that customers might seem to have more short-term plans for the future, they decide to discontinue some products or services or overall the business volume reduces significantly without the clear reason (Griffin and Lowenstein 2001). When these signals occur, company should find the reason for growing dissatisfaction and make actions to avoid customer churn. These actions are discussed more detailed in chapter 2.5.

By measuring customer retention amongst different segments, company can find where and why defections are occurring and the company can understand, how it needs to improve its retention efforts. Godson (2009) has assembled from the earlier literature (e. g.: Payne 2000) four approaches to determine the cause of defection: root cause analysis, trade-off analysis, competitive benchmarking and customer complaint analysis, which can be used several business areas. Root cause analysis clarify the reasons why customers have defected, whereas trade-off analysis identifies customer service areas which customer value and which promote retention. Competitive benchmarking compares the performance on competitors' actions aiming to exceed the standards of the competitors. Customer complaints analysis help company in identify trends and get warning signals of possible problems. Individual complaint might indicate broader underlying problems which are causing customer defection. Therefore, it is important to analyse complaints data at a strategic level, since it does not only disclose what is important for customers but also enable organizations to fix problems causing defection and prevent negative reputation. (Godson 2009).

Both in the practice and in literature, widely used customer defection measurement is customer defection rate, which represents the percentage share of customers who have left the firm compared to the overall customer base in the beginning of the selected period (e.g. Thomas et al. 2004; Weinstein 2002; Xiao et al. 2012). This

value presents purely the number of the customer, but it does not provide very good prediction possibilities alone, explain the root-causes or speak out the other reasons of possible changes of the value. Customer defection rates vary across customer segments and newer customers tend to have higher defection rates than longer tenure customers which means that high customer retention rate does not always proof excellent customer retention performance. Buttle (2004) suggests that companies focus on their customer retention activities to customers that bring value for the organization, since not all customers are necessarily profitable. Some customers are expensive to serve, and other customers are constantly searching for better deals and switching as soon as they find it. Buttle (2004) call these customers value-destroyers, which instead of adding value decrease it. Customer churn analysis not only help measure customer defection rate and other simple metrics, but it is important tool for instance in profitability perspective. When customer knowledge increases and competitive landscape spreads, the importance of different kinds of churn analysis growth. If company uses churn behaviour insights actively it might be able to increase its retention rates, and in long-term gain higher profits when offering the appropriate actions for its customers. (Buttle 2004)

Worldwide banks are already building churn models to predict if a particular customer aims to defect, since banks see it important to be able to anticipate and understand the possible needs of their customers (e g.: Mavri and Ioannou 2008). Operating one step ahead and reaching customer before the need of churn arises, bank can achieve competitive advantages (Bruno-Brizt 2008). In the next few sub-chapters (2.4.1 – 2.4.3), the author of this research provides a sample of the papers related to churn prediction in banking and financial sector (Table 1.) which is influenced by the research of Ali and Arıtürk (2014) and Verbeke et al. (2011), who present an encompassing overview of papers related to customer churn models in various fields.

The sample contains eight different churn prediction papers from different authors. Churn modelling papers are written between 1999 and 2012 and they are selected based on different variables and modelling techniques they represent. It is relevant to study these papers, since they bring deeper understanding how analytics and

customer retention management are handled in the previous literature. Besides these papers, there are also other papers related to this research area and more will be written in the future, since customer defection is very important topic for many companies and data collection and analysis methods are developing all the time enabling the use of more sophisticated techniques and accurate results. In this research, observation methods, data collection, variable selection as well as modelling techniques are discussed in sub-chapters.

Authors	Title and Journal	Year
Eiben, Euverman, Kowalczyk and Slisser	*Modelling Customer Retention with Statistical Techniques, Rough Data Models, and Genetic Programming*	1999
Larivière and Van den Poel	*Investigating the role of product features in preventing customer churn, by using survival analysis and choice modelling: The case of financial services*	2004
Van den Poel and Lariviere	*Customer attrition analysis for financial services using proportional hazard models*	2004
Larivière and Van den Poel	*Predicting customer retention and profitability by using random forests and regression forests techniques*	2005
Mavri and Ioannou	*Customer switching behaviour in Greek banking services using survival analysis*	2008
Kumar and Ravi	*Predicting credit card customer churn in banks using data mining*	2008
Xie, Li, Ngai, Ying	*Customer churn prediction using improved balanced random forests*	2009
Xiao, Xie, He, Jiang	*Dynamic classifier ensemble model for customer classification with imbalanced class distribution*	2012

Table 1. A sample of churn prediction papers in banking and financial sector

The selected sample of papers provide important findings related to churn prediction in financial industry. Based on these studies, can be suggested that regular observations of the possible changes in the risk values of the portfolio (Eiben et al. 1999)

and changes in specific product groups such as savings accounts which had highest defection rates (Larivière and Van den Poel 2004) might increase the customer defection rates. Results of these studies (e.g. Van den Poel and Larivière 2004; Larivière and Van den Poel 2005) also provide interesting perceptions in terms of the length of the relationships, competencies of the salesperson, stage of the lifecycle and age of the customer and the financial state of the macroeconomic environment (Mavri and Ioannou 2008; Van den Poel and Larivière 2004; Larivière and Van den Poel 2005). Van den Poel and Larivière (2004) for instance discover the probability that the customer stays with the company, excluding uncontrollable factors such as death of the customer decreases the older the relationship gets. They also find out that that men are more likely to leave the bank compared women, well-educated people in a wealthier macroeconomic environment were somewhat more likely to stay as a customer and older people were less likely to end their relationship with the financial services company (Van den Poel and Larivière 2004). Authors suggest banks to stimulate an interactive and continuous relationships with the customer to retain them. (Van den Poel and Larivière 2004, Larivière and Van den Poel 2005).

2.4.1 Churn data collection and observation methods

In customer relationship management both static (non-time varying) and dynamic (time-varying) predictive models are used. Non-time varying models include for instance demographic characteristics of the customer, whereas time-varying models consists of characteristics which include customer behaviour such as customer transactions and interactions with the firm. It is typical for models that each customer is represented with one observation. Data warehouses usually contain data about customer demographics and the behaviour information is received from a transaction database (Ali and Arıtürk 2014), but these data related predictor variables are discussed more later in the chapter 2.4.2. The next table (Table 2.) presents different sources of data other researchers have used in their studies. It (Table 2.) demonstrates also the type of observations.

Authors and years	Observation methods	Collected data
Eiben et al., 1999	Non-time varying	A database of a big mutual fund investment company containing information about more than 500.000 clients.
Larivière and Van den Poel, 2004	Time-varying	Total sample of 519.046 saving and investment owning customers of a large Belgian financial service provide.
Van den Poel and Lariviere, 2004	Time-varying	Random sample of 47.157 customers of a European financial services company that both offers banking and insurance services
Larivière and Van den Poel, 2005	Time-varying	Two randomly selected samples of 50.000 customers of a major Belgian financial services company.
Mavri and Ioannou, 2008	Time- and non-time varying	The total data set of 370 customers of major European financial services company that offers both banking and insurance services
Kumar and Ravi, 2008	Non-time varying	The dataset is from a Latin American bank that suffered from an increasing number of churns with respect to their credit card customers and decided to improve its retention system. The dataset consists of 14 814 customers.
Xie et al. 2009	Non-time varying	A database of more than 20,000 customers of a major Chinese bank
Xiao et al. 2012	Time-varying	UCI dataset (Merz & Murphy, 1995) on Germany credit scoring 1000 customer samples and the customer churn prediction data of a branch of Sichuan Telecommunication containing 3350 samples from the database.

Table 2. Data collection and observation methods in churn prediction modelling

Based on the table we can see that both non-time-varying and time-varying observation methods are used. This means that researchers have used data from the certain time point but also compared the data variables in different time periods. Common for all of the studies is that the data is obtained from some sort of database even though data could have been also gathered through survey or questionnaire (Van den Poel and Larivière 2004). Major sources of data are large financial companies. Five out of eight selected studies use data of European financial service

provider, one study utilizes data from the Latin American bank, one study obtains data from Chinese bank and one does not specify the continent of the data source. The sample sizes in these studies vary between 370 and more than 500.000 customers so samples are relatively large in volumes. (Eiben et al. 1999; Larivière and Van den Poel 2004; Van den Poel and Larivière 2004; Van den Poel and Larivière 2005; Mavri and Ioannou 2008; Kumar and Ravi 2008; Xie et al. 2009; Xiao et al. 2012)

2.4.2 Churn predictor variables

This chapter demonstrates different kinds of variables which can be used for predicting customer churn. Van den Poel and Larivière (2004) separate four sets of variables, which commonly exist in the retention literature: customer behaviour, customer perceptions, customer demographics and macroenvironment variables. In the next table (Table 3.) a sample of predictor variables that previous studies include, and which authors have assumed to have an impact on churn behaviour. Most of the studies, the research related to the customer defection concentrates on one or two predictor categories. The table (Table 3.) represents sets of variables and names more detailed some variables, which authors highlight in their studies. These variables are only a sample of all possible variables, so other studies might provide other useful variables for predictive customer churn modelling purposes.

Authors and years	Predictor variables
Eiben et al., 1999	Customer behaviour - investments, risks, transactions, profits, emotion index, duration of relation, and starting capital
Larivière and Van den Poel, 2004	Customer behaviour - duration of savings and investment products (fixed or unfixed with expiration date), capital risks and revenue risks
Van den Poel and Lariviere, 2004	Customer behaviour - product-specific ownership, total product ownership, interpurchase time Customer demographics

	- age, gender, level of education, geo-demographic data
	Macro Environment
	- prosperity, merger
Larivière and Van den Poel, 2005	Customer behaviour
	Customer demographics
	Macro Environment
Mavri and Ioannou, 2008	Customer perceptions
	- accuracy of a bank, customers' satisfaction
	Customer demographics
	- gender, customers' educational level
	Macro environment
	- service quality, interest rates
Kumar and Ravi, 2008	Customer behaviour,
	Customer demographics
	- 21 predictor variables and 1 class variable related to behaviour and demographics
Xie et al. 2009	Customer behaviour
	- account status, credit status, and the number of times the terms of an agreement have been broken
	Customer demographics
	- age, education, size of disposable, income, employment type, marital status, number of dependants, and service grade
	Account level
	- account type, guarantee type, length of maturity of loan, loan data and loan amount
Xiao et al. 2012	Customer behaviour
	- customers with good credit and customers with bad credit
	Also, some variables related telecommunications data set was determined, but they are not well-applicable in banking industry

Table 3. Sample of churn prediction variables

Different kinds of customer behaviour related variables are used to predict churn most commonly in selected articles (Table 3.). For instance, Eiben et al. (1999), Larivière and Van den Poel (2004, 2005), Kumar and Ravi (2008), Xie et al. (2009) and Xiao et al. (2012) studied customer churn by using behavioural related variables such as number of transactions, degree of different kinds of risks, account statuses, duration of savings and investment products as well as customers credit behaviour

related to customer retention and churn. Another widely studied group of variables is customer demographics (Table 3.), which include several customer demographic predictors such as age, gender and level of education (Van den Poel and Lariviere 2004; Mavri and Ioannou 2008. In their study Xie et al. (2009) also added to the list the size of disposable income, employment type, marital status, number of dependants and service grade. Table (Teble 3.) presents also studies which used variables related to customer perceptions and the macro environment. Whereas Van den Poel and Larivière (2004) studied the possible influence of prosperity and merger of financial providers, Mavri and Ioannou (2008) conducted an extensive study of customer perceptions representing the accuracy or credibility of a bank. (Mavri and Ioannou, 2008).

2.4.3 Predictive churn modelling techniques

Predictive modelling is based on the usage of a set of models which aim is to predict the probability of an event occurring (Ridge et al. 2015; Manyika et al. 2011). Predictive modelling is very applicable tool when managing customer retention. Predictive modelling can be applied in the banking industry to predict for instance the churn rate of customers or the likelihood that a customer can be cross sold another product (Ridge et al. 2015; Manyika et al. 2011).

Ali and Arıtürk (2014) conclude that there have been several studies related to churn prediction models. The initial focus of the literature has been comparison of classification methods in terms of prediction accuracy. Overall when scanning different churn models, popular methods seem to be logistic regression, decision trees, neural networks, support vector machines and survival analysis (Ali and Arıtürk 2014). What is important to not support vector machines and decision trees are widely used for predictive purposes and survival analysis are often used descriptively. Hybrid models combine multiple different classifiers and develop variants of the existing algorithms and improve prediction accuracy and decrease interpretability. (Ali and Arıtürk 2014). Different customer churn modelling techniques that are used in the sample of prediction papers are displayed in the next table (Table 4.).

Authors and years	Modelling technique
Eiben et al., 1999	Logistic regression, genetic programming, rough data analysis
Larivière and Van den Poel, 2004	Survival analysis, hazard modelling
Van den Poel and Lariviere, 2004	Survival analysis
Larivière and Van den Poel, 2005	Logistic regression, linear regression, random forests, regression forests
Mavri and Ioannou, 2008	Survival analysis including survival functions, life tables and proportional hazard models
Kumar and Ravi, 2008	Multilayer perceptron, logistic regression, decision trees, random forests, radial basis function, support vector machine
Xie et al. 2009	Improved balanced random forests, artificial neural networks, class-weighted core support vector machines, decision trees
Xiao et al. 2012	Dynamic classifier ensemble method for imbalanced data

Table 4. Modelling technique, used in customer churn prediction

There is no any universally applicable churn prediction model. When predicting customer churn, several modelling techniques can be used including traditional statistical models such as ordinary linear and logistic regression analysis, but also more developed models such as random and regression forests (e.g. Eiben 1999; Larivière and Van den Poel 2005). When evaluating modelling techniques, studies reveal that more complicated models including several phases and different modelling techniques seemed to produce better prediction accuracy (e.g. Eiben 1999; Larivière and Van den Poel 2005; Xie et al. 2009; Xiao et al. 2012.).

2.5 Customer retention activities

The next section identifies multiple possible customer retention activities which are presented in academic journals and books. These activities provide better customer understanding together with the earlier presented factors effecting on customer retention, how to retain customers more effectively from the managerial perspective. The consistent framework which outline activities related to customer retention is lacking in current literature. Customer retention is much more diverse entity than

customer acquisition and companies need to accomplish continuously different kinds of activities. Only a limited amount of research has been conducted related to the strategies and management processes that are associated with excellent customer retention performance (Ang & Buttle 2006a). Hence, it makes it especially challenging to define a coherent list of strategies or programs implemented which managers could use by promoting their customer retention.

In this research a list of possible activities is collected. Ang and Buttle (2006a) conclude that organizational processes that can be associated with customer retention, include customer satisfaction measurement process, customer retention planning process, quality assurance process, win-back processes and the complaints-handling process. In addition to that, essential part of retention management are different switching barriers, bonds and engagement that companies can create between customers and firm. Literature defines that customer care and personalization perspectives have to be remembered when managing retention and these activities are very central for the case company. Segmentation and monitoring are also added to the list, since the author sees they are essential part of customer retention when analytics is used supporting the retention. (Ang and Buttle 2006a)

Customer satisfaction measurement process

As discussed earlier in this paper, customer satisfaction has a significant role in customer retention. Mihelis et al. (2001) conclude that by measuring customer satisfaction company receives "an immediate, meaningful and objective feedback about clients' preferences and expectations. In this way, company's performance may be evaluated in relation to a set of satisfaction dimensions that indicate the strong and the weak points of a business organisation". In their paper multicriteria analysis and preference disaggregation modelling are used. They list advantages of systematic customer satisfaction measurements that include for instance ability to analyse customers' behaviour for different regions, analyse and improve different branches of the bank, benchmark competitors, increase the effectiveness of marketing activities and improve the productivity of employees which all effect on customer retention. (Mihelis et al. 2001)

Customer retention planning process

Several well recognised authors highlight the importance of planning if companies are willing to achieve desired business outcomes. For instance, Ang and Buttle refer Kotler (2003), who argues that "successful companies. . . practice the art of market-oriented strategic planning", with the clear indication that the reason of unsuccessful business might be unorganized planning disciplines. Customer retention is one of those areas that planning is essential. Planning requires that customer retention metrics and segments are defined. (Ang and Buttle 2006a). Segmentation is discussed more detailed later in this chapter (2.5). Measuring might be challenging, but Buttle (2004) concludes that companies can utilize one or more of several types of retention-related key performance indicators such as raw, sales-adjusted, or profit-adjusted customer retention metrics depending on their goals.

Quality assurance process

Company can ensure high service quality and customer satisfaction by maintaining quality assurance process. As noted in service quality perceptions, service quality can be defined the result of the comparison between delivered and expected service performance (Parasuraman et al., 1985). Service delivery performance has important impact on customers' attitudes in banking sector. For companies it is important to understand customers' service requirements to be able to deliver high quality services and reach customer longevity (Beckett, 2000; Gerrard and Cunningham, 2001). There are some studies related to the quality assurance in banking sector. For instance Tsoukatos and Mastrojianni (2010) have studied key determinants of service quality in retail banking and in their research they introduce BANQUAL-R metric which includes central elements: assurance or empathy, effectiveness, reliability and confidence and it is a combination of widely used SERVQUAL (reliability, responsiveness, assurance, empathy and tangibles dimensions) and BSQ (effectiveness and assurance, access, price, tangibles, service portfolio; and reliability) metrics. One of the key elements of high service quality is well executed customer care which will be discussed more in the coming chapters.

Win-back process

It is controversial if win-back process is retention activity, since customer has already defected. However, the author of this thesis decided to include it as one of the activities since Ang and Buttle (2006a) suggest it in their article and it is not always clear when customer is defected and when they have just become inactive when similar activities might be needed. Customer win-back is determined as the process when company revitalizes its relationships with customers who have defected (Thomas et al. 2004) focusing on the re-initiation and management of relationships with customers who have become inactive or defected from a company.

Researchers have shown that a firm has a more than 60% chance of successfully repeat selling to an active customer, a 20% to 40% chance of successfully repeat selling to a lost customer, and only as low as a 5% to 20 % shot at successfully closing the sale with a brand-new customer (Griffin and Lowenstein 2001, Stauss and Friege 1999). Also, here it is important to note that not all customers are good win-back prospects so lost customers should be segmented by win-back potential with probability of probable high returns (Stauss and Friege 1999). A well-conceived win-back plan includes 4 critical steps: grading and segmenting defected customers; researching customer's present needs; creating a plan that reinstates trust and finally measuring, understanding, evaluating and refining customers (Griffin and Lowenstein 2001).

Complaints-handling

Several authors have tried to prove that well-executed complaints-handling process has a positive effect on customer retention (e.g.: Ang and Buttle 2006a). Nyer (2000) state that complaining customers which company recovers successfully can be more satisfied, and less likely to switch than customers who have not experienced cause for complaint at all. In their study And and Buttle (2006a) find that excellence in customer retention is strongly associated with the presence of a complaints-handling process, which is documented. If complaints handling is executed effectively, it can create two kinds of benefits. Firstly, companies get a chance to fix the particular customer's trouble and to retain the customer's current and future business when customer complains. Secondly, a well-designed complaint handling process

collects and analyses complaints data over time, it identifies possible systematically and repetitively appearing problems, and fixes root causes related to products, people, processes or something else (Ang and Buttle 2006a).

Building barriers to customer switching

There are some actual tools that help companies retaining persistently high levels of customer satisfaction and loyalty. Companies that deliver superior value to customers continuously are able to keep their customers over the long term (Weinstein 2002). However, as important is to build switching barriers to prevent customers to switch to the competing service providers.

Companies can use different tactics to build switching barriers, but common forms of actions are for instance customer service, loyalty and reward programs, customization efforts and customer communities. Winer (2001) suggest firms establishing frequency or loyalty programs that provide customers rewards for repeat purchasing. Firms use relationship programs to realize customers' increasing expectations of product performance, to improve marketing communications, and be able to react changing customer needs. Winer (2001) also recommends firms to build a network or community of customers which exchange information making it difficult to leave a community. Literature provides also other useful strategies for building switching barriers. Strategic, for example, product or service bundling means that several products or services are combined into one package and offered at a single price which makes it more difficult to switch for the customer (DeSouza 1992). Active cross-selling where company sells related products to current customers or cross-promotion, in which the company gives discounts of purchasers of related products might work well as a switching barriers (Liu and Wu 2007). In addition, increasing switching costs such as termination costs might act and effective switching barrier (Ranaweera and Prabhu 2003).

Creating bonds

Companies have recognized that they need to make efforts to create bonds between customers and them besides the simple fulfilment of customers' current needs and wants (e. g.: Buttle et al 2002; Gordon 1998; Mattsson 1985). Margrath and Hardy

(1994) list some reasons for developing the closer bonding with customer and retaining customers better in that way. The list includes improved quality, reduced costs, and product satisfaction (Margrath and Hardy 1994). In their study Buttle et al. (2002) have referred several studies that summarized different forms of bonds between customers and companies and divided them into social and structural bond categories. However, it is not agreed in academic research which are types of bonds. Gordon (1998) has listed that there are 7 different forms of bond between customers and suppliers: structural bonds, brand equity bonds, attitudinal bonds, personal bonds, information and control bonds, value bonds and zero option bonds. Mattsson (1985) for his part highlights that bonds are of differing types and strengths: technical, time-based, knowledge-based, social, economic and legal bonds.

Two main categories of bonds are structural and social bonds. It is called as structural bonding when supplier and customer align their technologies, people or business processes (Gordon 1998). According to Buttle et al. (2002) structural bonds are established when both customers and supplier perform and bring resources to a mutual benefit business relationship. These types of bonds are usually more important than social bonds, since they require more trust. Different types of structural bonds include: economic, legal, time-based, knowledge-based, technological, information and control and zero option bonds. Positive interpersonal relationships, high level of trust and commitment are highly needed when creating social bonds at single- or multi-level among two or many people. Social bonds include knowledge and personal bonds. The main difference between social and structural bond is that structural bonds link organizations and social bonds link people. (Buttle et al. 2002).

Building customer engagement

Many companies have paid attention they need to raise the level of customer engagement to secure loyalty (Pansari and Kumar, 2017) and the connection of customer value management (Van Doorn et al. 2010; Verhoef 2003). According to the definition of The Marketing Science Institute (2010 p. 4) customer engagement is "customers' behavioural manifestation toward a brand or firm beyond purchase, which results from motivational drivers including: word-of-mouth activity,

recommendations, customer-to-customer interactions, blogging, writing reviews, and other similar activities". Customers who participate and connect with the brand at higher intensity are called as engaged customers. These customers have high value a firm in many ways besides to their transactions (Venkatesan 2017). Customer engagement can be increased through different customer care activities. The profitability perspective of retained customers is reviewed in the next chapter (2.6.) of this thesis.

Definitions of customer engagement vary but some authors including Van Doorn et al. (2010) emphasise the behavioural construct related to customer engagement i. Some other authors highlight the multidimensional construct of customer engagement that comprises both behavioural and psychological views (Brodie et al., 2011; Vivek et al., 2012). Vivek et al. (2012) mention that all cognitive, affective, behavioural and social aspect are all centrally related to customer engagement and for that reason it can be expressed through any of them. Vivek et al. (2012) also argue that customer engagement is customers' co-creation experiences and organization's offerings or different kinds of organizational activities that can affect the intensity of individual's participation in connection. In the literature there exists consensus that customer engagement is closely related to traditional customer management concepts such as customer satisfaction, loyalty, involvement and participation, but they not necessarily express customer engagement behaviour the same sense (Dong and Sivakumar 2017; Van Doorn et al. 2010).

Customer care

Customer service is one of the most critical factors in retaining customer. Donaldson's (1995) definition of customer care concludes that customer care involves in all the activities of the company which provide value for the customer and which increase the satisfaction, encourages patronage and loyalty between the parties. Winer (2001) state that every contact or touch point can be seen as a customer service encounter that a customer has interaction with a company. In every encounter company has a possibility to repeat business and improve customer retention or to have the opposite negative effect, which might lead to the loss of customer. Since many competing products that companies offer are quite similar from each other,

switching barriers remain relatively low and customers have no reason to stay loyal. This has led to the situation where many businesses have set their main concentration on different kinds intangible features, which are difficult to copy, and which help on differentiation from competitors. Customer care has become important differentiator between firms, and it is extremely wide in the scope including basically everything that an organization does establishing and maintaining a relationship with its customers (Godson 2009). In his book Godson (2009) refer Carson and Gilmore who divide customer care activities in tangible and intangible elements. Tangible elements include easily measurable and imitated elements that deliver customer satisfaction. Intangible elements are subjective, difficult to measure and deliver ultimate experiences (Godson 2009).

Winer (2001) states that there are two types of customer care programs that aims to improve customer service: reactive service, in which the customer has a some problem and one contacts the company to solve it, and proactive service in which company establishes communication with customers before the need of complaining or other behaviour which stimulates a reactive solution. Customer care aims to comprise for instance the pure customer service activities, product and service quality standards and measures and possible after-sales services which might include for instance maintenance or repair. The main purpose of customer service is to assure that all of the processes associated with buying and using the product or service work well, whereas product quality standards and measures secure that the product respond to specifications and fits for the purpose. The way how organization deal with its customers can be seen as service quality. (Godson 2009).

Personalization

Personalization, or customization as Winer (2001) names it, is a strategic tool which is used for product or service differentiation, especially on the highly competitive markets (Kwon & Kim 2012). Kwon and Kim (2012) state that "the fundamental objective of personalization lies in increasing the customer retention rate by providing competitive value to customers". Customization is one of the key activities or strategies which improves customer retention, satisfaction and loyalty (Winer 2001;

Kwon and Kim 2012). Personalization might concentrate of product and service development based on each customer's specific needs (Winer 2001).

Personalization can be also done in analytics perspective. Wedel and Kannan (2016) discuss about personalization in that perspective. According to them individual customer's needs are taken into account when marketing mix is adapted product or service offerings. They define three main methods of personalization: pull, passive and push personalization, where pull personalization is used when customer asks for personalized service. Passive personalization is often based on customers' earlier behaviour and it is used to response different kinds of customer activities. Push personalization sends personalized product or service directly to customers without customers' request. (Wedel and Kannan 2016) By using analytics company can effectively learn consumer preferences, adapt better offerings to consumers, and evaluate the effectiveness of the personalization (Wedel and Kannan 2016).

Customer segmentation

Customer segmentation is an important technique to understand customers better and gain accurate customer insight for decision making and strategy formulation (Tabasum 2018). The goal of segmentation is to divide customer base into discrete and homogenous customer groups based on various selected attributes, which have similar characteristics or purchasing preferences (Tabasum 2018). Different user groups need differentiated marketing strategies. For instance, first-time users, repeat customers, heavy users and former users have different purchasing behaviour is between groups. Weinstein (2002) suggests that companies could classify customer accounts for instance based on usage frequency and variety and develop effective and profitable strategies for retaining and upgrading customers in different market segments.

Customer groups can be segmented by using different segmentation criteria. Firms can segment their customers for instance based on geographic, demographic, psychographic, behavioural or financial data and create profiles of typical users to gain useful information to support planning subsequent customer attraction efforts (Weinstein 2002, Tabasum 2018). In banking sector useful segmentation criteria might

include for example demographic data like age, gender, education, occupation, income, location, psychographic characteristics, financial parameters, and transactional data associated with customer's banking transaction history i.e. buying preferences, purchase history, repayment pattern, churn history (Tabasum 2018).

The motive of segmentation might be to move customers as high level as possible to maximise the profits. All customer groups are not equal, but especially in the B-to-B-markets companies can list their best customers and identify them as the key accounts based on customer ranking, minimum sales, volume level or market share. Customer segmentation can be done by using the lifetime value concept and creating suitable marketing strategies using the segmentation results (Hwang et al. 2004). The Pareto Principle (80/20) is very useful in this context (Weinstein 2002). For these highly profitable customers, with low risk and high net worth, bank should offer best quality customer service and communication through preferred channel, on-priority grievance response and timely offers and incentives to ensure retention. There should be continuous close monitoring of churn risk and use of maximum resources to prevent churn. (Tabasum 2018). However, according to Weinstein (2002) medium users are the solid foundation of the business they should not be underestimating when evaluating their potential importance. Strategies, which increase revenues such as cross-selling or value-added services can be used to keep these customers satisfied and grow their business. Additionally, Tabasum (2018) suggests communication preferred but cost-effective channel for this customer group.

Furthermore, Weinstein (2002) notes also that companies should try to find new ways to serve their unprofitable customers and he suggests companies use technology in these purposes. Quarterly contact through e-mail or newsletters or access low-cost options such as charge free telephone numbers and websites maintains adequate communication with low-volume users. However, Weinstein (2002) also reminds that it has to be considered if all customers should be served, since not every customer is necessarily very profitable. Profitability perspective will be discussed more later in this paper (chapter 2.6).

Monitoring customer relationships

Godson (2009) recommends companies paying attention to customer retention monitoring. Conducting relationship surveys such as customer satisfaction surveys and maintaining customer databases such as customer relationship management systems are key elements when monitoring customer relationships and increasing the competitive advantages. The goal of the relationship survey is to collect feedback directly from customers or other stakeholders, which lead improvements to products and services. The collected data about customers' interactions can be stored to the database. Database allows company to measure and analyse customer related data in other words monitor customer relationships. Monitoring is important since it helps companies in following and responding selected retention related metrics such as costs, retention rates or customer defections and fulfil retention related goals. (Godson 2009).

2.6 Effect of customer retention to profitability

Literature emphasises the benefits of customer retention over customer acquisition to keep the profitable customers and maximise the profits (e. g.: Tamaddoni Jahromi et al. 2014). Many researchers have agreed that the investment required for customer acquisition is significantly higher than for customer retention (e.g. Ahmad & Buttle 2001; Van den Poel and Larivière 2004). Authors suggest widely that successful customer retention decreases the need for seeking new and potentially risky customers and at the same time it let organisations to concentrate more detailed on the needs of existing customers by building strong and sustainable relationships (Van den Poel and Larivière 2004). Furthermore, Gronroos (1994) has reported that acquisition of new customers through marketing activities is even six times more expensive for companies than retention of existing customers. Lindgreen et al. (2000) conclude that it can be even 10 times more expensive to acquire a new customer than to retain an existing customer. When it comes to profitability the cost of taking a new customer the equal level of profitability as the existing customer might be up to 16 time more expensive.

Customer retention has gained more attention among firms since the price of customer relationship management activities has decreased and predictably has increased the profitably of them (DeSouza 1992). Several authors have agreed for the significant effects on profits and they have quoted in their papers that when retention rates have been improved by 5%, company profits are typically increased by between 25 % and 85 % (e.g.: Ahmad and Buttle 2001; De Souza 1992; Ginn et al., 2010). In addition to clear saves in acquisition costs, retention activities increase organisation's knowledge of their customers, improve the company's ability to target customers better and decrease the number of inefficient marketing efforts (Hwang et al. 2004). The role of retaining customers is emphasized especially in competitive and mature markets (Ang et al. 2006b). Customer retention is considered central especially on the business relationship development, since B2B customers typically purchase significant amounts of products or services, successful retention can create remarkable financial rewards for companies. (Tamaddoni Jahromi et al. 2014)

On the other hand, some authors remind that customer acquisition is equally important with customer retention (Ang & Buttle 2006b). They state that all the companies suffer from customer attrition, so new customers must be acquired to build profits. Acquisition is needed in spite of even strong retention efforts, because more than 25% of customers may need to be replaced every year, since consumers might shift out of the targeted demographic or businesses' preferences and needs might change over time. Customer acquisitions are essential in many cases. New business start-ups and new product launches need new customers. On the other hand, when company is entering to new market area or establishing a new customer segment, they must build a customer base from the new customers. It might be profitable also when repeat purchases are infrequent or switching costs are low. (Ang & Buttle 2006b). Customer acquisition is an expensive and difficult task for companies, since it requires large investments, time and effort and companies should concentrate their efforts on retaining customers and in customer retention case a significant level of contribution can be generated from a small change in retention rate (Murali et al. 2016). According to Ang & Buttle (2006b) customer acquisition is important even though company has determined customer retention as the core strategy of the organization. Authors remind that without a well-developed, adjusted and

successful customer acquisition strategy, customer retention and development be-come irrelevant. (Ang & Buttle 2006b).

There are several reasons why current customers have higher possibility to bring higher value to the organizations compared to first time buyers. Long-term custom-ers have higher chance to enter into collaborations, which require investments from both parties, but which benefit both in long-term (Ang and Buttle 2006a; Godson 2009). Long-term customers not only buy more (Van den Poel and Larivière 2004), but the price-sensitivity of existing satisfied customers is likely lower, so company does not have to enter to the unprofitable price war (Ang and Buttle 2006a; Godson 2009). Existing customers tend to be less sensitive other competitive marketing ac-tivities (Van den Poel and Larivière 2004). Both customers and suppliers learn more about each other, which make business planning easier, since regular customers place frequent and consistent orders, helps in predicting future events and provides greater knowledge of customers decreasing serving costs (Ang and Buttle 2006a; Godson 2009, Van den Poel and Larivière 2004). Companies also benefit existing satisfied customers since they tend to give referrals. Both Godson (2009), and Van den Poel and Larivière (2004) conclude that especially word-of-mouth referrals given by existing customers are effective marketing tool since those are taken more seriously than advertising message among potential and existing customers. Long-standing customers are more forgiving if something goes wrong and if the customer complaints are processed quickly and effectively (Godson 2009). It is good to remind also that since the number of churning customers decreases also the customer re-placement costs fall. That way relationship maintenance costs decrease (Ang and Buttle 2006a).

2.7 Conclusion of customer retention and analytics

As discussed in this literature review of this thesis, analytics can support customer retention in several ways. Business analytics bases on facts and leads to insights and possible implications for planning future actions in an organizational set up (Banerjee et al. 2013). Organizations use data analytics to analyse critical business data which enable them to get a better understanding of their business and

environment. Personal and personalized information is stored into large databases. Data analytics help analysing and integrating the user's personal information, so institutions can get a more comprehensive view of their customers' needs and that way offer a better service to them. Another clear advantage that analytics enables is easier categorization of clients with a higher spending potential, which on half helps organizations do more accurate target marketing which will improve customer experience and generate more revenue and make other better fact-based business decisions. (Schutte et al. 2017).

In this thesis, customer relationship management is primarily understood as an approach that enables organization to generate and deliver better value to targeted customers (Morgan and Hunt 1994) and in the solution wise, it helps organization in managing important relationships with its customers by collecting, storing and managing data and handle customers based on their needs, behaviour and potentials (Tsiptsis and Chorianopoulos, 2011). The purpose of analytical customer relationship management is to enable the organisation to examine customer behavioural patterns and through that develop better strategies (Xu et al. 2005) for instance, in customer retention purposes.

It is essential to understand the most important determinants related to customer retention in banking industry. This thesis provides a list of elements that several authors have defined to effect on customer retention including customer loyalty, switching costs and customer satisfaction as central key determinants of customers' motivation to maintain in a business relationship (Gerpott et al. 2001; Kim et al. 2004; Kim and Yoon 2004; Gustafsson et al. 2005; Godson 2009; Tamuliene & Gabryte 2014; Peng et al. 2016). In addition, trust, service quality, customer value and relationship commitment can be seen important factors which has impact on retention from the customer perspective in banking industry.

Even though companies put an effort on retaining their customers, every now and then existing customers decide to switch their service provider due to better alternatives in terms of price, product or service, market, technology or organization (Buttle, 2001; Buttle, 2004; Godson 2009). Customer defection causes losses

especially in profitability perspective. Literature provides several different predictive modelling techniques for customer churn. Predictive customer retention modelling for instance churn prediction is challenging, but it enables bank operating one step ahead and reaching customer before the need of churn arises creating competitive advantages. (Bruno-Brizt 2008). Data is often collected in data warehouses, which include both non-time varying time-varying customer data (Ali and Arıtürk 2014). Most typically different kinds of customer behaviour and demographics related variables are used to predict churn. In addition, literature provides examples of modelling customer churn including logistic regression, decision trees, neural networks, support vector machines and survival analysis (Ali and Arıtürk 2014). When evaluating modelling techniques, studies reveal that more complicated models including several phases and different modelling techniques seemed to produce better prediction accuracy (e.g. Eiben 1999; Larivière and Van den Poel 2005; Xie et al. 2009; Xiao et al. 2012.).

From the company perspective, there are a variety of concrete activities that company can realise to improve customer retention based on the predictive customer retention management activities such as churn modelling. In banking industry, useful retention management processes include customer satisfaction measurement process, customer retention planning process, quality assurance process, win-back processes and the complaints-handling process (Ang and Buttle 2006a). Companies can build switching barriers, bonds and engagement by offering excellent customer care and personalized products and services (e.g.: Winer 2001; Buttle et al. 2002; Van Doorn et al. 2010; Godson 2009). From the analytical perspective the literature also discusses about segmentation and monitoring supporting retention (Tabasum 2018; Godson 2009).

Successfully implemented retention activities lead to the improved customer retention and decreased customer churn and need for seeking new and potentially risky customers by providing significant positive effects on profits (Van den Poel and Larivière 2004). In addition to saves in acquisition costs and inefficient marketing activities, successful retention activities can improve company's knowledge of their customers and ability to target right customers better (Hwang et al. 2004). Retained

customers are important for companies not only from the profitability perspective but they also bring value by entering beneficial collaborations, being less price-sensitive and more forgiving, helping business planning, and giving referrals (Ang and Buttle 2006a; Godson 2009; Van den Poel and Larivière 2004). Company can benefit from these advantages by systematically analysing customers, anticipating their behaviour and improving their own activities continuously based on these analyses to respond customers' occurring needs with right actions, in the right place at the right time.

3 RESEARCH DESIGN AND METHODS

This chapter covers the research context and used methodology when conducting this research. The chapter provides an understanding about the research approach, research design and data collection methods. Data analysis and reliability and validity of the research methods are discussed in the end of this chapter.

3.1 Research context

Chosen research methodology and data collection techniques are depended on the research problem. There are two widely used methodologies, which both have different processes and suggestions in terms of data collection and analysis: qualitative and quantitative research methodology. Qualitative data is based on meanings, which are expressed through words while quantitative data is based on meanings which are derived from numbers. (Saunders et al. 2009). Qualitative research method is typically used to obtain deeper comprehension of some phenomenon better. Whereas objective and numerical study can be called as quantitative research and it aims to help in discovering some earlier acknowledged phenomenon and making generalizations. (Hirsjärvi et al. 2009, 134-137)

Clear objective of the study is necessary for every high-quality research. Robson (2002) list three possible purposes of a research project: to explore, to define, and to explain. The aim of the exploratory research is to explain, what is happening, help to investigate new insights, state questions and access a phenomenon in a new light (Robson 2002, p. 59). Robson (2002, 77) suggests in using flexible qualitative strategies when collecting and analysing empirical evidence. Descriptive research intents to portray an accurate profile of persons, events, or situation and they help in explaining the phenomenon (Robson 2002, 59). According to Saunders et al. (2009, p140) the goal of explanatory research is often to gain explanation of a certain situation or problem and establish causal relationships between variables. This research is primarily exploratory by the nature, since the aim is to investigate the situation and its goal is to explore how analytics can support customer retention in banking industry.

Qualitative research method was chosen to this study to gain deeper insights about the studied phenomenon and the current state of issues. For this research, it was the most suitable research method, since numerical information would not reveal the real nature of the circumstances when studying the possible support of analytics in customer retention efforts in the banking industry (Saunders et al. 2009). However, qualitative research method with its intensive focus in specified phenomenon enabled to concentrate more detailed on the benefits of usage of analytics in customer retention (Saunders et al. 2009; Puusa and Juuti 2011, 47-48) Besides that, the selected design of the research was one of the main reasons why the author chose the qualitative method. Puusa and Juuti (2011, 47-5) explain that the design of the qualitative study is usually very flexible and open, and the study method strongly tends to emphasize perspectives and experiences of the participants and in researcher's interpretations. In this occasion, qualitative study definitely assisted in to figuring out the current situation of the company better than quantitative method.

Qualitative research method is more flexible method compared to quantitative method and it makes it possible to develop new theories. The usage of the qualitative method enables especially in investigating something what is already known earlier rather than support practices in discovering something completely new or developing empirically grounded theories (Flick 2014, 16). There exists some challenges and benefits of qualitative study, so researcher has to be very capable to stand possible changes in original research plan. The nature of the study might force changing the research design over time (Hirsjärvi and Hurme 2001, 10) and for that reason, the study method involves that the researcher has to have ability to reflex the process independently and make decisions flexibly. Researcher need to make deep observations about the studied phenomenon, interpret, analyse, and finally communicate them clearly. (Flick 2014, 15-16). On the other hand, the flexible nature of qualitative study enables the adaptation of new theories and empirical part during the research and improves the results of the research.

The qualitative research enables different kinds of research samples and often sampling decisions might be on substantive level instead of on the formal level (Flick

2014, 180). Flick (140, 180) suggests that qualitative study can be some specific case rather than random sampling. According to Robson's (2002) definition case study is "a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence". For this study a case study approach was chosen, since it focuses on a certain case or event and it helps to explore the phenomenon more deeply than quantitative research (Eskola and Suoranta 1998, 18). Selected approach permits to examine the possible support of analytics in customer retention efforts in the banking industry by narrowing the perspective and focusing on a certain company's managers of the key roles. Another advantage of the case study approach mentioned by Yin (2003, 10-11) and Koskinen et al. (2005, 157-159) is that it also helps to collect a large amount of data and conduct explicit analysis about the studied phenomenon. This was essential in order to get comprehensive understanding in analytics supporting the customer retention efforts.

Case studies enable to explore phenomenon in a concrete context and from the certain point of view (Räsänen et al. 2004, 295-297). For this study case study setting helps in revealing the best results, because the data is collected from the employees of the bank itself. According to Yin (2003, 7.) "the case study is preferred especially in examining contemporary events, but when the relevant behaviour cannot be manipulated". However, some elements have to be considered when conducting the case study. Dubois and Gadde (2002, 555) mention that in case studies the main difficulty lies on the challenge related handling the interrelatedness of the various elements. Consequently, the research, data collection and analysis require that everything has to be pre-planned and conducted throughout. Phenomenon is observed very closely and only from the certain perspective in the case study, so it is important that researcher makes sure to stay objective throughout the project (Räsänen et al. 2004, 298-299). When it comes to the generalization of the results of the case study, Yin (2003, 10-11.) discusses that individual case studies might provide only a limited support for scientific generalization, but the same approach can be used in multiple-case studies and that way they are generalizable to theoretical propositions, but not to populations or universes.

3.2   Data collection

In scientific research primary data and secondary data are the most commonly used as sources of information by researchers. Primary sources refer to the initial work of a research and the researchers collects the data by themselves. Whereas, secondary sources of data refer to the interpretations of primary data. Secondary data is usually provided by external party, such as handbooks, textbook, magazine, public databases, etc. (Cooper and Pamela 2013). The suitable, secondary data related to the case company in customer retention context is not available for the research purpose. For this reason, it is most convenient and in practice the only suitable mean for the author to collect primary data, to be able to maintain consistent standard as well as focus on the target topic of the research.

Data collection plays an important role in qualitative research and for that reason it should be planned carefully. Many authors highlight the quality and the comprehensiveness of the data and the goal, which is to make thorough analysis about the studied phenomenon. (Saunders et al. 2009, 151; Eskola and Suoranta 1998, 18) Since this study is a case study by its nature, data collection can be implemented in several different ways using one or several sources of data and data collection methods. Typical qualitative case study data collection methods include, for instance: documents, different types of interviews and observing people (Koskinen et al. 2005, 157-159). The most typically interviews, observation, questionnaires or different kind of literary sources are most widely used for data collection (Tuomi and Sarajärvi 2009, 71; Koskinen et al. 2005, 157-159).

In this study interviews are used as a data collection method. Interviews can be categorized in different ways, but the most commonly used means are structured interviews, semi-structured interviews, and unstructured interviews (Saunders et al. 2009). Structured interviews use predetermined and identical set of questions, and each question is asked in the same order and way. Semi-structured and unstructured interviews are more flexible compared to structured interviews and traditionally they are seen as qualitative interviews. Semi-structured interviews cover a list of themes and questions. Questions can be modified and added, and the researcher

can change the order of themes or questions depending on the conversation. Unstructured interviews are usually the most informal and they are proceeded without pre-defined guideline. In unstructured interviews, interviewer is required to know the topic and defined research problems thoroughly (Saunders et al. 2009, 320).

In this case the selected data collection method is semi-structured interviews. Researcher has predefined the themes and questions, but there are no answer alternatives in the interview. In the research, interviews might also have some characteristics of in-depth interviews since the aim is find out what is happening and explore possible new solutions and insights (Robson 2002). There are both open, probing and specific questions included in the interview structure (Saunders et al. 2009). Theme interview highlights interviewees' interpretations of phenomenon, meaning they have given and how these meanings are established in the interaction (Tuomi and Sarajärvi, 2009, 75-76). However, depending on each interaction and the roles and know-how of interviewee, orders and emphasises of the questions may be accustomed. General framework of the interview structure is based on the literature review, so completely unstructured interview was not considered.

Theme interviews are typical type of semi-structured interviews. As mentioned earlier, the researcher has pre-planned themes and questions for the interviewee, but the interview framework allows researcher to add further questions and switch the order of questions to create smooth discussion in the interview situation if needed (Saunders et al. 2009, 320; Tuomi & Sarajärvi 2009, 75-76; Hirsjärvi et al. 2009, 208-209). According to Saunders et al. (2009, 320) and Hirsjärvi and Hurme (2001, 40-41), theme interviews enable open discussion about the research topic and the nature of the phenomenon. It is essential for a theme interview to avoid too many pre-planned questions since the aim is to create time and space also for open discussion. Researcher should have enough knowledge about the phenomenon and crucial elements around the theme (Puusa and Juuti, 2011, 82). To keep the discussion on the topic, the most important themes should be considered. Typical for theme interviews is that hypotheses are not pre-defined but merely the goal is to find those hypotheses (Puusa and Juuti, 2011, 82).

According to Tuomi & Sarajärvi (2009, 75-76) interview themes should be based on the framework of the study in order to meet the research goals. For that reason, the themes in interviews are concentrating in the most important areas for customer retention and analytics. Appendix 1 and 2. represents interview questions and themes of interviews. The first two themes will help in mapping the current situation and position of customer retention and answering to the first sub research question related to the affecting elements of customer retention in banking industry. The aim is to help in understanding the elements to manage them effectively, measure meaningful metrics and place resources on strategically important areas. The third theme discusses about the role of the data, analytics, analytical tools in the organization and discusses about the current situation and reveal what kind of benefits, expectations, attitudes and other effects interviewees are having when considering the usage of analytics. Finally, the fourth theme digs deeper in the role of the analytics in retaining customers in banking industry. During the interview process, the researcher noticed that some interviewees should be asked different questions than others since they were experts in different areas and worked on quite different positions. Therefore, in the interview situation researcher decided to phrase some questions in a different manner based on the area of expertise of interviewees, to obtain better results and different perspectives as the semi-structured interviews allow. Despite that, the researcher had to make sure that the discussion remained on the right track and all the necessary questions were asked and answered during the interview process.

A combination both face-to-face and distance interviews was used in this research in order to collect enough data for research purposes. The researcher used theme interviews which enabled flexible interview structure and possibility to ask more questions, which helped to gather more detailed data about the research object and concentrate especially topics the interviewee had the strongest expertise. In this research face-to-face interviews were conducted in order to observe non-verbal communication better and combine several observation methods, whereas distance interviews helped to gather a more extensive sample size and enabled interview people who had enough expertise on this field. Interviewees and interviewer were working in different locations in Finland, so remarkable savings in terms of time of

organizing the interview and economical resources were obtained by organizing distance interviews. Distance interviews were conducted by using telephone. Questions were sent a few days beforehand by email and interviewees were given a chance to ask questions if they have not had understand something so that interviewees had chance to prepare themselves to the interview and answer questions as well as possible.

Literature does not provide any absolute measure for the number of interviews for a qualitative study. However, the sufficient number of interviewees is usually conducted when the last interview does not bring any remarkable new information to the collected material. (Hirsjärvi & Hurme 2009) For that reason, the researcher of this study used her own consideration in specifying the number of interviewees. Altogether 4 interviews were conducted with employees of the case company (Table 5). All the interviews were audio-recorded by using computer and researcher wrote notes during the interviews to make sure all the relevant, both verbal and non-verbal data was stored. Interviews add up to approximately 55 pages (Arial font 12, spacing 1,5) of transcribed speech and other notes. During the interview, interview questions were individuated based on the interviewees' answers to encourage interviewees to offer clarifications, examples and other details to support their answers, which helped in gathering more thorough data. Questions were open-ended, which required more thought and more than a simple one-word answers. The aim was to encourage interviewee to give a full, meaningful answer based on their best own knowledge and feelings.

Employee	Role in the bank	The length of the career	Type of interview	The length of the interview
A	Service manager in customer service team	1,5 years in case company and approx. 12 years in similar positions in different banks	Face-to-face	34 minutes
B	Manager of bank branches in City X and Town Y.	More than 14 years in different	Face-to-face	30 minutes

		banks in similar positions.		
C	Development manager of different IT-systems.	2,5 years in case company. Several years of experience both in banking industry and IT-services.	Telephone	1 hour and 18 minutes
D	Manager of bank branch in City Z	1,5 years in case company. Experience in banking industry since 1999.	Telephone	1 hour and 12 minutes

Table 5. Employee interviews

The interviews were conducted in December 2018 and in January 2019. Two interviews were organized as face-to-face and two as telephone interviews. To collect a broad range of perspectives and experiences to customer retention and the usage of analytics, the interviewees were selected from different backgrounds based on their expertise and main responsibilities which included either everyday interaction with different customer groups with some user experience of analytical tools, or a high-level experience of using and developing analytics systems in the case company.

Interviews lasted 35 to 100 minutes. Face-to-face interviews were remarkably shorter even though the number of questions remain the same. However, the researcher concluded that the notable difference was due to the respondents, their personality and how quickly they were willing to get to the actual point of the question. The pre-chosen themes were discussed during the interviews so that researcher had pre-planned main questions and sub-questions which order was determined based on the answers. When necessary, additional questions were asked in order to get more data about some opinions or procedures, and some pre-planned questions were not asked if answer was already got in previous answers. The aim was to keep the interviews situation relaxed and get interviewee feel comfortable to

answer to the questions, so interviewee set both formal and more informal questions.

The prerequisite was that each interviewed employee had to have at least some level experience in analytics to get reliable answers to support analysis. Service manager of customer service team (Employee A) was selected since the author expected this expert has a wide understanding of customer retention and activities that are required to keep customers satisfied and loyal to the firm. Author anticipated service manager use different analytical or reporting tools regularly as a part of her everyday duties. Author also assumed that the role of analytics would increase in the future in this centralized customer service team, since this team has no similar chance to know every customer as well as people in different bank branches so clarifying needs and competencies of the service manager would be a good start in developing retention strategy for the team.

Since, the largest number and especially the most important customer contacts happen in bank branches of the Case company, author decided to interview two branch managers in different kinds of bank branches to gain different perspectives and better overview of the current state of issues and the future needs of the Case company. Both managers have a long experience both working in the Case company but also other similar banks. Both managers have the main responsibility of the profit of their own branch, where the customer retention besides customer acquisition and development have a strong impact on the results. For that reason, the researcher saw they would have a clear motivation participate in the study. However, selected managers are in response of the branches that are relatively different, and they might also have different operational models and types of customers, so it is meaningful to study people in similar positions.

To gain comprehensive impression about bank's capabilities, competencies and preparedness in terms of data analytics, author decided to interview the development manager of different online banking and IT-systems (Employee C). The aim was clarifying the current situation in the perspective of the IT-department, get more detailed information about the data collection, analytical tools, customer retention

analytics and possible predictive models the bank has created. This perspective was needed since author expected that other customer-oriented employees, who are primarily determined working with customers, would not have enough understanding about the data collection and analytics systems as a service provider and developer perspective and realistic understanding was needed to give concrete suggestions for the future.

3.3 Data analysis methods

Chosen data analysis method should be suitable for the research and it should be comprehensive enough to fulfil defined research aims. Deductive and inductive reasoning are widely recognised approaches to data collection and analysis in academic research (Saunders et al. 2009, Dubois and Gadde 2002, 555). Deductive approach means that researcher investigates current and already existing theory in the field to shape the qualitative research process and select suitable data analysis methods. On the other hands, an inductive approach means that researcher tries to to build up a theory that is appropriately grounded in data and it is used in the early stages of the qualitative research when patterns, themes and categories are researcher's goals to discover from data (Saunders et al. 2009; Patton 2002, p.453) However, in this study, the researcher uses both deductive and inductive approaches since the limits between those two approaches are rarely exact and many analytical procedures combine both perspectives. The aim is to use existing theories as they exists instead of create something completely new, but also act as an exploratory project to seek a direction for further work in bank and help understanding the current situation.

Data base can be analysed in several ways and there is not only way how it should be done (Hirsjärvi et al. 2009) Essential is the researcher's ability to understand the collected data to conduct high quality qualitative research (Hirsjärvi et al 2009, 207-208). Content analysis one of the typical ways to analyze the results of the qualitative study (Tuomi & Sarajärvi 2009, 91). Content analysis is used in this study, but besides of that the researcher tries to interpret non-verbal signals when analysing responses. The aim of this kind of analysis to organize the data I compact and clear

form without losing the information which it includes (Tuomi & Sarajärvi 2009, 91). In this research analysis of the data was done by using Microsoft Word and Microsoft Excel programs.

The goal of the qualitative data analysis is increase the information, clean and clarify the data which provides possibility to make clear and consistent conclusions about the phenomenon. The basis of the qualitative data analysis lies on logical thinking and interpretation, in which the data is broke up into parts, then conceptualized and combined again to structure the logical entity. (Tuomi & Sarajärvi 2009, 107-108). Saunders et al. (2009, 490) suggest that in qualitative study data could be organized into three main types of processes: summarising (condensation) of meanings, categorisation (grouping) of meanings, structuring (ordering) of meanings using narrative. When Hirsjärvi et al. (2009) claim that analysis follows a framework which includes several steps: database, description, classification, combination and explanation. In the data analysis part of this study, several data analysis methods from different researchers (e.g. Hirsjärvi et al. 2009, Saunders et al. 2009, Tuomi & Sarajärvi 2009) are used in order to find the most suitable data analysis method. All the chosen data analysis methods are proposed especially for qualitative study and their aim is to help in throughout analysis of large amount of transcribed text data and interpreting the data in separate parts and achieve reliable results for the research aims.

Content analysis, which is used in this study, can be roughly divided in three stages: reducing, clustering and abstraction of database (Miles and Huberman 1994). Steps of the content analysis model by Tuomi and Sarajärvi (2009) are listed below and they are applied in this study when analysing the collected data:

1. Listening recorded interviews and transcribing them word by word
2. Reading transcribed interviews and familiarizing with the content
3. Searching of simplified expressions and underlining them
4. Listing simplified expressions
5. Searching for similarities and differences from simplified expressions
6. Combining expressions and forming sub-categories

7. Combining sub-categories and forming broader categories from sub-categories

8. Combining broader categories and creating constitutive concepts

After these steps results of the analysis are adapted into the theoretical framework.

3.4 Reliability and validity

Reliability and validity are essential for any scientific research to produce accurate work and avoid mistakes in empirical part of the study. Reliability refers the independency of the research and the degree of objective results, which the study provides. Validity, on the other hand, evaluates to the ability of the research method to measure what was aimed to measure. It can be argued if these terms are more accurate and useful in quantitative research and the qualitative research can only partly fulfil these demands due to its nature. Qualitative research is clearly based on individuals' subjective views. It is impossible to take the results out of the context. This leads to the situation if the interviews were repeated, the answers could easily be different even the research context is exactly the same. In addition, in qualitative research reliability may decrease if the interviewee has not been completely honest or has not understood questions correctly. Misunderstandings are possible for both parties and qualitative research leaves more chances for it compared to quantitative research. (Hirsjärvi, Remes & Sajavaara, 2009, 213; Tuomi & Sarajärvi 2009, 142-143). This research is not aimed to say a last word on how to support customer retention through analytics in banking industry. However, through a extensive literature review on the subject and the case, this research suggests some concrete ways to support customer retention through analytics in banking industry.

When it comes to the objectivity of the research, it is important to discuss about researcher's behaviour, motives and earlier experiences. The researcher can also modify the answers towards a certain trend and leave out important outliers. There is always a risk that researcher's opinions, assumptions or experiences effect on the reliability of the study, which in this case might have a minor impact on the study due to previous experience of the company. Tuomi and Sarajärvi (2009, 134-146) warn a risk of reforming the research based on the researcher's preferences. These issues mentioned in these two last paragraphs are tried to diminish as widely as

possible by taking the objective perspective and giving interviewee a possibility to ask further questions when ever needed and interviewer has had chance to specify or explain them then.

For the scope and the purpose of this study, the selected research method and number of participants can be considered to be moderately valid. In this thesis, the reliability was enhanced by using different theories related to data collection and analysis methods from several authors. For instance, Hirsjärvi & Hurme (2008, 121-123) and Tuomi & Sarajärvi (2009, 142-143) claim that combination on several sources helps in gaining best data interpretations for the specific research. It is important to note that sources of the empirical and theoretical part of this study were carefully chosen and analysed in order to improve the reliability. The data in empirical part consists of interviews of people with relevant experience in customer retention and/or analytics to collect accurate information. The research participants are all very experienced in their positions. Also, the theoretical part is comprised of academic journals, articles and other literature, which fits well in limitations of the research and which can be seen as a reliable source of information.

The way how the qualitative research is conducted plays the major role when evaluating the reliability and accuracy of the research (Hirsjärvi & Hurme 2001, 25). It is important that, the research is done correctly. The research has to follow clear structure and analysis and later results should be based on the relevant data. For these reasons, different methods and processes related to data analysis have been discussed extensively to evaluate and compare their suitability to this research. Selected methods, in terms of both theoretical and empirical data, has been described in this paper thoroughly to increase the reliability.

Besides the researcher's competencies and selected limitations of the study, one has to evaluate reliability through selected and conducted data collection methods and data itself from the research. The interviews were conducted in semi-structured way. Interviewees were able to express their ideas thoroughly and all interviews were recorded under agreed permissions and transcribed carefully into text format for analyses. Hirsjärvi & Hurme (2008, 184) highlight that the faster the data is

transcribed and analyzed - the more reliable the results of the research are. For that reason, author decided to transcribe all the data during the same day interviews were conducted, write down also non-verbal signs when possible. All the interviews were conducted within a bit more than a month so the situation in the company remained the somewhat the same and there were no significant changes in important company related issues which could affect the results. As described earlier, all the interviews were pre-planned and carefully conducted by following the literature related to the qualitative semi structured theme-interviews to ensure the high-quality data. (Hirsjärvi & Hurme 2008, 184-185)

Although the researcher followed the reliable data analysis process, there are limitations which have to be considered when assess the validity of the data. Regarding the data sample and selected interviewees, the research participants are all from the same case company and from different managerial positions, which might pose a limitation of the generalization of the research. Since all the participants work in managerial roles and not all the managers in similar roles are interviewed there are some perspectives uncovered not only in different geographical areas but also in some business perspectives or some other levels of organization. Perspectives of interviewees are dependent on the current situation of Finnish banking industry and the technology is developing forward quickly, so it is unclear how quickly steps in customer retention management through analytics can be achieved. Although each response is reliable, the comparability of semi-structured interviewees might not be completely consistent as the questions were altered according to situational conditions and the respondent's area of expertise to gain as broad overview of the situation as possible. Interviews are context-based, so it is also possible that interviewees say one thing in one situation and something else in another situation. Furthermore, although all interviewees were more or less familiar with analytics and reporting tools, they present different level of expertise with the tool and how often they used it.

4 ANALYSIS AND FINDINGS

In this section the main findings from the empirical part of the research are analysed, discussed and connected with the theory. Chapter is divided into themes that could be derived from the interview materials. The chapter begins with describing customers and their relationships in the case company. It is followed by the broad description of the state of data collection and analytics the case company uses and finally possible future expectations and implications of the customer retention are covered.

Firstly, the current situation of the customer relationship management is explained so that the reader gets comprehensive understanding of different kinds of customers the bank has and understands the importance of customer relationship management in the organization and how are they maintained. This is followed by sections which concentrate on the customer retention and analytics perspectives.

4.1 Customer relationship management in the case company

The main customer groups of the bank are all kinds of consumer groups, small and medium sized enterprises and relatively small-scale customers who operate on agriculture and forest industries. Different bank branches have different kinds of customer bases. In City X the main customer groups are private customers but also businesses. The branch is more than one hundred years old, and there are customers in different stages of their lifecycle, whereas in City Z, the branch is less than 2 years old, and the major customer base consists on business customers, which were purchased from another bank in Finland. Also, this branch is spreading its operations and moving stronger to the private customer markets. Both branches are located in relatively large cities but in different parts of Finland from the geographical perspective. There might be significant differences between branches due to the location, which also determines the structure of the management and some selected strategies and operational activities.

The case bank aims to keep close and easily approachable relationship with its customers. This aim is also essential part of the strategy, brand and core values of the bank. The interviewee B highlights the humanity approach by telling that customers

are seen as people not as numbers in each interaction even though the company is very result oriented. Every customer has his or her own contact person, office employees know their customers and their needs personally and they are familiar with the macro environment of the bank. All the interviews agree that the contact person has very important and accountable role whether customers continue their relationship with the bank or not. The researcher of this study considers that this might have both positive and negative impacts since running errands becomes a lot easier when the contact person does not always have to begin ever meeting from the scratch, but on the other hand when the employee leaves for some reason, it might also trigger customer leave also.

4.2 Customer retention management in the case company

The case company makes several efforts to maintain customer relationships. All the interviewees responsible of customer contacts (A, B, D) conclude that the most important effort is contacting customers regularly and actively; organizing face-to-face meetings to get to know customer's plans well in advance, communicating important news related to the bank and fixing possibly occurring problems as quickly as possible. Besides contacting customers actively, bank organizes different kinds of topical events for its customers. When mirroring these responses to the theory these are very activities which centrally not only bring sense of good customer care, but also build barriers to customer switching, creates bonds and increases customer engagement (e. g. Buttle 2002; Gordon 1998; Vivek et al. 2012).

Customer care, personalization, value creation and differentiation are important issues in customer retention management for the case company. In their responses interviewees consistently emphasize the importance of keeping customers satisfied, trustful and loyal. They tell that the role of word-of-mouth communication especially in smaller towns cannot be underestimated as part of the business development and marketing strategy. The theory part of this thesis suggests for instance that word-of-mouth recommendations are signal successful customer engagement efforts (Marketing Science Institute 2010) which on the other hand improves not only customer retention but also customer acquisition. Interviewee D summarizes that:

> -- *"customers who are loyal, trustful and satisfied recommend our bank to their acquaintances, which makes it for us easier to acquire new customer. Overall it creates good vibes around us in the town. It brings more pull than push".*

As noted in literature review of this research, service quality can be defined the result of the comparison between delivered and expected service performance (Parasuraman et al., 1985). Value, the bank intends to offer for its customers, is strongly related to that the high-quality service they offer their customers. Customers assume they can trust to get appropriate advice for their own situation. Interviewee B expresses:

> --*" we cannot just sell something. We need to find solutions, services and products which help customer take care of his economy and help him to prosper."*

Of course, it should be also important that dealing with bank is easy. Interviewee B continues:

> --*" no one thinks that he wants to go to bank, but it is necessary -- and the customer has to get good advice and dealing issues with bank has to be straightforward and easy."*

This points out the fact that the case company does a lot to create a feeling that customer get value for the money which is essential for the customer retention perspective. As discussed in theoretical part of this thesis the quality assurance process it is essential to know customers' service requirements and understand the impact of service delivery performance on customers' attitudes in banking sector (Gerrard and Cunningham, 2001; Beckett, 2000). In the researcher's opinion the managers in branches are keeping this well in their mind when running their business.

Competing banks have similar products so differentiation in terms of products offering in banking industry is difficult. This is also discussed in theoretical literature review of this thesis (Godson 2009) related to customer care activities. As noted earlier personal customer service is important for customer from value receiving as well as customer satisfaction, loyalty and trust perspectives. Personal contact person correctly offered products and services as well as quick solutions to different

problems are important elements for the case company when creating sense of personalization in service offerings in banking industry.

The case company has taken this superior customer service as their primary mean of differentiation. As discussed in the theoretical part of this thesis, intangible features such as high-level customer care is one of the most important activities in retaining customers (Winer 2001). Interviewee A tells that the bank moves upstream by opening new branches and offering different kinds of everyday banking services face-to-face in multiple different locations. This differs remarkably from strategies of other banks which tend to reduce the number of unprofitable physical offices and increase their online banking services.

The case bank relies that this differentiation strategy, which differs a lot from the strategies of many other bigger banks in the industry, attract customers. Besides these branches in multiple locations in Finland, the case bank also has centralized customer service centre. Interviewee A, who is in response of the centre, highlights the importance of internal trust of the organization meaning that it does not matter if personal contact is done face to face in branch office or either via telephone or electrical channels when the sense of personal service is the same. All in all, the case bank relies strongly its brand and the expertise of its personnel when acquiring and retaining customers, which is central in customer relationship management which goal is to understand and influence customer behaviour through meaningful communications (Viljoen et al. 2005).

What is important to mention, interviewees (B, D) raise the profitability point of view on the frame. According to them customers might be willing to pay a bit more about their products to get high quality customer service. This is important since profits seems to be low due to relatively low interests in Finnish financial markets and competition is otherwise very intense. Margins create a significant piece of banks' results, so customer's willingness to pay more allows banks to avoid harmful price wars. In addition, the literature review supports this claim since satisfied and loyal customers tend to be less price sensitive and responsive to the competitive marketing activities, company can avoid price wars and that way concentrate maintaining

relationships instead of acquiring new customers in higher price (e.g. Ang and Buttle 2006a; Godson 2009; Van den Poel and Larivière 2004).

The case bank has a long-term strategy which targets strongly to growth in different business operations and revenue. To gain these goals the case bank should follow the claim of Ang and Buttle (2003) who argue that planning, defining retention metrics and segmenting customers are essential for successful customer retention. The case bank has goals related to the number of the customers and the new customers they are pursuing. These goals are followed actively and when needed necessary activities are made to keep up in these goals. Strategy is updated if needed and one of the central themes has related also customer defection prevention. Recently, customer retention has also gained a lot of attention at least in City X, which has many long-term customers. This branch has merged with many smaller branches a couple of years ago and customers from these branches are mostly not engaged with the current bank or its employees, so the defection is problem in that sense. Interviewee B tells that this issue has been discussed and possible ways to affect these customers are considered actively in different levels of organization. On individual customer level, the case bank has determined that keeping an active contact with potential churner so the possible next actions can be planned. Researcher notes that interviewee B does not tell how these potentially churning customers are selected. More work in this area is needed in the future.

The situation is different in branch in City Z where its oldest customers are still at the beginning of their customer lifecycle. Branch manager D denies that they even have any kind of problem related to customer retention. Customers who have defected are according to him, churned due the long geographical distance between the branch and their location. Interviewee D actually avoids answering the question related to planning, which might indicate that the issue has not been discussed properly in this branch and it should be started to handle, otherwise the branch will be in trouble when customers actually proceed to the point of their lifecycle that they start looking for other options and defecting. As discussed in theory part earlier, the probability to churn increases in later stages of the lifecycle (e.g. Van den Poel and Larivière 2004).

As concluded comprehensively in theoretical part of this thesis, monitoring customer relationships has central role in customer retention. Both satisfaction surveys and maintained customer relationship management systems support customer retention (Godson 2009). The case bank has certain standardized metrics they use measuring customer relationship and the extent of it through analytical tool. The case bank monitors the retention by measuring the net quantity of customers actively per bank branch monthly. Both the number of new customers and the number of defected customers are measured as well as the number of active customers, who use their account, online bank and payment cards regularly, as well as the number of passive customers, who have left the case bank. According to interviewee C, the case bank has a reporting system, which shows the activity level of the customers or certain services. The possible decrease in these numbers can be seen in system and possibly use for retention purposes. Branch managers can monitor, who has certain products and services and how many kinds of products some specific customer owns. Interviewee C points out that it should be a goal of any kind of business to have profitable long-term customer relationships and be able to compete with other banks, so even though customer retention as a term is not that extensively measured, different aspects of retention are monitored different operations.

According to Interviewee C, last year operations of the case company were tracked from the time period of last past ten years. One customer retention theme related part of the analysis was monitoring a group of customers, their activity and retention in different branches and customer groups. Interviewee C did not open the results more, but it can be seen a good sign that company actually has made some effort taking a sample and mapping the current situation from that perspective. Besides that, the case bank executes a nationwide customer satisfaction survey once a year. The theoretical part of this thesis discusses briefly customer satisfaction surveys and their meaning to the companies. Mihelis et al. (2001) conclude customer satisfaction measurements can help company receiving feedback about preferences of their clients and help evaluate strengths and weaknesses of the business. Branches do not measure customer experiences separately, but customer service manager (A) and branch managers (B and D) follow customer satisfaction by checking

customer feedbacks and results of annual measures of this afore mentioned customer satisfaction survey. The results of this survey are comparable with other branches and previous years. The researcher of this study suggests branch managers also considering collecting feedback from individual customer contacts so different perspectives and especially the instant feedback could be received.

The case bank has advanced and predetermined procedures how unsatisfied customers should be handled. As discussed in the theoretical section of this thesis effective complaints handling processes are essential part of successful customer retention (e.g. And and Buttle 2006a) generating a possibility to fix the certain problem of the customer or collecting and analysing complaints data over time, identifying systemic and repetitive problems, and fixing root causes of problems in different products or services (Ang and Buttle 2006a). However, in the case company possible customer feedbacks are treated according to branches own operational modes. Both branch managers tell that bank tries to fix possible mistakes as soon as possible, apologize and compensate them when needed. The case bank does not have an uniform system which all branches follow, so this indicates that complaints handling could have been done better and retention managed that way more efficiently.

Other factors also support the fact that there might have a need to improve the customer complaints handling processes. There is no system which combines customer feedback and other information related to customer relationship management. Current customer relationship management system includes possibility to write notes, but according to interviewee D it is very vulnerable, gives a huge chance of human errors and overall is not very useful since employees do not write enough notes neither read previous comments, due to the fact that bank operates so contact person and specific branch focused way. Employees do not assume that some other person could handle their customers. This is also a cultural issue and operational modes become more and more necessary to update since the centralized customer service team is taking a wider role in customer service activities and they do not know every customer personally.

4.3 Customer defection management in the case company

Regular contacting of customers is the key also when trying to control customer defection. All the respondents agree strongly that it is important to be visible and active. Interviewee B and D emphasize the importance of being present in different kinds of events and participating in activities of different associations which are in relationship with the bank. Also knowing the customer and keeping their services updated is seen important when preventing customer churn. When customer changes their bank both branch managers (Interviewees B and D) tell that they are calling and asking what did go wrong and if something could be still done so that the customer would not leave. However, it is difficult to change the opinion and win the customer back. As noted in the theory part of this thesis chances winning customer back are low and anyway not necessarily all the customers even are good win-back prospects (e.g. Griffin and Lowenstein 2001, Stauss and Friege 1999)

It is very challenging to notice if customer is going to leave. Interviewee B tells that it is impossible to see if the usage of some services is decreasing or customer is using some other services than earlier. This contradicts with the fact that interviewee C tells that the case bank has a reporting system, which shows the activity level of the customers in certain service and possible decrease in these numbers can be seen in system and use for retention purposes. Interviewee D mentions that they can monitor balances of accounts, but in reality, it is not possible keep track on to thousands of customers and trail reasons of possible changes of them. Here the role of analytics would be very useful and make tracking a lot easier.

The case bank has an analytics tool which enables monitoring customer defection. However, any kind of models or centralized indicators are not developed for track defection so far, but it is possible that branches monitor it their own ways. Currently the number of active customers indicates if customer activities are needed for the branch. If the number is decreasing or not increasing enough, numerical data is available and can be obtained by using the analytical tool. However, interviewee C reminisces that usually branch managers tend to have some sort of feeling of possible reasons and observations they have made in recent months and analysis,

possible decisions and actions are made mostly of based these experiences. However, data is available for supporting this, which makes it also possible to improve retention activities through analytics.

4.4   Data and analytics as a part of business operations

Data and analytics have important role in everyday business of the case bank. Interviewee C tells that the primary source of data are different IT-systems of the bank. The data is stored to the data warehouse where data is archived and used in business reporting. All the data related to transfers between accounts, loans, investments etc. store data to the data warehouse and can be connected to the specific customer and used in several ways. The data which is in the data warehouse can be easily brought together and used in different kinds of analysis or marketing purposes. The analytics system enables creating segments or the data can be used for instance monitoring the results of the branch, the development of number of loans or service fees. Data can be used to list overdue credits on customer level and based on these lists bank can start contacting customers and collecting their outstanding loans. When customer runs transactions in mobile or online bank, bank collects anonymized data. This data can be used for aggregated reports, to see customer paths etc. but individual customer level data is not collected in different electrical services so that for instance it cannot be seen if there are differences in online behaviour between different service users. There are also smaller scale systems related to reservation of meetings or electronic signatures, which not track or store any kind of data.

The case bank has a lot of data which different regulations require them to collect for example identify customers who are willing to make investments or who has risk get involved with money loundering. However, according to General Data Protection Regulation, banks or other companies are not allowed to collect, store and use data which are not appropriate for the purpose of maintaining and developing a product or service. The data which is collected is strongly related to customer demographics such as age and customer behavioural data, customer perceptions or environmental variables have not been really measured. Legislation also obligates track some

customer behaviour such as credit rating and creditworthiness. There the starting point of data collection has been primarily the requirement of public officers not the business development, even though it is important the quality of the credit base remains high.

The case bank uses analytics and reporting tool which enable large possibilities analysing different kinds of data from the data warehouse. Especially people at business support of the bank and managers at different levels of the organization use this tool. They also have another reporting and analysing tool, which has similar and completely different kinds of features. Bank also uses other commercial and widely used analytics tools to analyse the traffic on their webpage. Interviewees C and D mention that in some branches' employees track their sales manually for instance by using basic spreadsheets.

The quality of data is essential for powerful accomplishment of customer relationship management activities (Peltier et al. 2013). The question related the quality of data verification raises clearly some hesitation during the interview. Interviewee C gives an answer, but it is very inconsistent, and he dithers with some issues. The conclusion of the answer is that the quality of the data is ensured primarily by reconciling and cross-checking data when refining data. When interpreting the data versatile expertise in data analytics and different products is needed. What could be inferred is that there might be some issues which should be still proceed further in this area of data management.

According to interviewee C the case bank utilizes unitary set of indicators, which not only measure and evaluate economical numbers of different business areas but also the employees of the bank and their know-how, the development of the key customers. Interviewee C does not unveil the set of indicators more detailed but tells that it is balanced and utilized bank wide. The case bank has a lot of data which is available for branch managers when evaluating the development of the business. The goal is to be profitable so measuring the development of the results is essential. What was interesting to note, all the interviewees agree that bank's goals are ambitious when it comes to the growth and development of the results. In that sense

would be natural that analytics, which has adjuvant influence in business, is used actively. Interviewee D says that data does not have any significant role in decision making.

Employees use their own consideration in financing negotiations while making pricing decisions of the specific customer. There is not machine or analytics tool which make a suggestion terms of a loan. Interviewee C evaluates the role of analytics in decision making:

> -- *"The role of analytics has moderate role in decision making in case company. The situation could be possibly worse."*

It is easy to agree with this interviewee. The case bank has developed actively more extensive and bank wide meters, which they use for measuring the development of the business. When thinking about co-operation with different users of analytics in the case company, some important observations can be made. Interviewee A is extremely concerned how will be the sales of her team documented since now bank branches own their customers, branches are evaluated based on their customer contacts and sales and customer service team main responsibility is support these branches at the moment. Interviewee B on her half sees the situation in her branch very good since many business support and management positions are located in City X also and she can easily find a helping hand if needed. Interviewee D also gets help using tools and ready-made reports when asking. It could be interpreted that he sees that all the information and help are available for people who dares to ask it. Interviewee C assumes that the main challenge can be spotted when discussing if developed solutions correspond needs of employees and customers and help maintaining customer relationships. However, the organization is quite small so even the feedback from the individual user can be taken into an account when developing systems.

The role of analytics will increase in all possible business areas in bank in the future. Interviewee C speculates that next steps in terms of analytics should be taken in areas of customer service, and marketing and sales targeting. For this customer segments and individual customers' situations and behaviour should be analysed better. The researcher sees that the case bank has good tools, but more completed

analysis could be made to support branches in their customer relationship management, even though they also have easy access to it. The fact is that the primary task of sales people and office employees is maintain customer relationships not necessary learn by heart how to use analytics software in every possible situation. When comparing to the situation of competitive banks the standing of the case company is terms of utilizing analytics in customer relationship management is relatively good since even people who are in response of the profits have good impression of the environment, regular contacts with customer and the notion of the situation in branch. Researcher believes that this situation will change when the bank case grows and branch managers working environment changes.

4.5 Employees' knowledge and experiences of analytics

Because one of the goals of the thesis was also survey employees understanding of analytics and how they see it could be utilized, interviewees were asked to determine customer analytics as they understand it. Interviewees A, B and D clearly show some signals that they were uncertain determining it. However, responses cover different divisions of customer analytics well even though the term analytics might occur a bit fuzzy to these respondents. Interviewee A strongly concentrates on segmenting perspective and possibilities segmenting can bring up, but she also mentions credit scoring perspective. Interviewee B determines that customer analytics should help in seeing better what kind of customers the case bank has and who buys and what and also help in contacting customers. Interviewee D for his part understands that customer analytics should be as automatized data as possible, which should be utilized as customer service purposes and it should help discovering the current situation of the specific customer. Interviewee D hopes that customer analytics would increase the automation and facilitate information search. Whereas interviewee B desires that in some day customer analytics help contacting customers and offering them right services. Based on these responses, researcher concludes that understanding is on somewhat good level and interviewees were able to recognize central themes of customer analytics.

Analytical tools are widely used in the case bank among business support, branch managers and all the upper level managers. Interviewee C tells that people who are in customer contact have access to these reporting solutions. It is a whole different story if these people use these tools in reality. Interviewee B tells that she tends to hand out reports the analytical systems have provided, so her employees also see the results of their work in numerical form. The usage of analytics among interviewees is categorized in table (Table 6). Table (Table 6) demonstrates levels and purposes how analytics is used, but that was not a surprise for the researcher, since the aim was also interview people from different backgrounds. Interviewee C masters all the systems due to his work, both branch managers use analytical tools weekly and they utilize from that. Service manager (interviewee A) would need more support when using analytics so that the customer service team could benefit from that also.

	Level of using analytics	Purpose of using analytics
Interviewee A	Basic. Monthly usage. Ready-made lists.	Uses lists which are sent from another department of the bank. Also tracks the number of customer contact and response rates for phone call etc.
Interviewee B	Intermediate. Uses every week. Both older and newer analytical tools. Knows that something new is also coming soon.	Uses sales reports, customer segments, lists of customers who have defaulted loans. Hands out reports in the branch.
Interviewee C	Advanced. Uses analytical tools every day. Knows tools and knows how to develop them.	Develops and improves analytical tools so that these tools could be used to support the business. Analyses sales, controls credits and revenues and everything related to that with the help of these tools. Uses tools when developing different banking services. one of his main responsibilities

Interviewee D	Intermediate. Uses every week. Uses independently only a new analytical tool. Uses also spreadsheet actively and ready-made reports and lists provided by business support.	Uses lists of customers based on their services, and volumes etc. in customer meetings and when evaluating key accounts and planning their service strategies. Uses analytics also as a tool of risk management tracking customers' payment history and defaulted loans

Table 6. Usage of analytics

It is interesting to note that besides the analytical and reporting tool branches also have their own analytical systems they have created. Branch manager D tells that they have used spreadsheet for monitoring their sales offers and realized sales. However, this system monitors only past events and does not really help with predicting future. Spreadsheet has helped to keep an account the book of offers and their value and the success percentage in negotiations with customers and offers, which on its half has helped to realize how many offers or negotiations have to be made to achieve desired outcomes. He assumes that the branch in City Z is the only branch which does that and based on the interviews similar system is not used in other branches. The researcher of this thesis suggests that these kinds of practises should be shared and used as a starting point when planning the future actions in terms of analytics.

When it comes to usage of analytics tools together with other banking IT-systems, both interviewee B and D wish that the analytical tool functions better with other systems. Systems are separate and functionalities are still troublesome. According to Interviewee D it would be a clear benefit if customer relationship management system could notify the user for instance in that case that customer belongs to the top 10 customers in volumes in some branch. On the other hand, it should be easier to get more advanced information about customers. Now the users have to know exactly what they are looking for and it is very time-consuming and tough besides everything else states Interviewee B.

4.6   Benefits and expectations related to analytics

Interviewees raise some concrete benefits related to analytics they have experienced when the usage of analytics have increased. Interviewee B emphasizes the importance of continuous sales monitoring, reacting and development of actions based on the results it provides, because negative results have to be taken seriously and actions have to be done immediately. Especially, risk management related issues have become easier when the new analytics tool has been introduced and the branch manager has got access to the most recent daily payment data. Interviewee D also mentions that real time data provides access to see the state of loans and enables the immediate contact with customer when problems occur. Analytical tool provides the access to the most important key performance indicators and help in seeing how the business is developing. Branch manager (D) adds that analytical tool enables comparison between branches on the nationwide. Researcher of this study considers that this action probably helps this relatively new branch also tracking if it is doing things correctly by benchmarking numbers of other branches.

Literature emphasizes strongly the profitability perspective of customer retention over customer acquisition (e.g. Ahmad & Buttle, 2001; Van den Poel and Larivière 2004). Interviewees were asked to consider and compare the role of analytics in customer acquisition and customer retention. Interviewee A speak out directly that analytics should be used customer retention in the first hand. According to her there are several service providers who sell customer segments and it is very easy to buy those if needed. On the other hand, the data which the case bank has, concerns existing customers even though the analytics is not used advanced enough to the retention purposes. Interviewees B, C and D agree with Interviewee A that analytical tools should be primarily used for customer retention purposes. However, interviewee B also mentions that there are some analytical tools which could help in customer acquisition as well, but she does not have any experience of those. Researcher assumes that in this context Interviewee B talks about widespread analytical tools such as Google Analytics which tracks traffic on the webpages. Interviewee A and C highlights how important it is to use data to support the service of existing customers and upselling. This claim is supported also in literature,

according to which long-term customers tend to have lower price-sensitivity and they tend to buy more, they are easier and less expensive to serve and they provide referrals (Van den Poel and Larivière 2004; Ang and Buttle 2006a; Godson 2009).

It should be a starting point that analytical tool provides positive effects on the profits and revenues for the case company. In the perspective of customer service team, Interviewee A wished support from the analytical tool selecting appropriate customer segments in purpose of contacting customers what is a good point indeed, since different customer segments need different customer service strategies (Tabasum 2018). Interviewee A sees that analytical tool should help in spotting customers whose number of services is decreasing. Even though customer retention perspective is highlighted, interviewee B wishes also more tools for customer acquisition and help in cross-selling, increasing the extent of sales of current customers and profits. She hopes the analytical tool would be easier to use, it would become more illustrative and it would give an access to better sales reports and daily sales numbers. Interviewee C expects that in the future analytics would help targeting marketing and communication efforts more efficient manner to specific customer segments. He refers that in this context this could be used specifically in online services targeting needs for some distinct product or service based on the online behaviour. Interviewee D mentions that he expects analytics bring up the most important customer relationships and help targeting resources contacting and maintaining those relationships in superior level. Table (Table 7) presents strengths, weaknesses, opportunities and threat that interviewees mention related to analytics in case company and which could be used also for the customer retention purposes at some level.

Strengths	Weaknesses
Helps identifying customers Helps analysing how individual branch is doing Helps analysing how individual sales person is doing More accurate numbers Quick actions are possible based on results	The analytical tool is partly very troublesome and clumsy to use. The current system does not provide sales per employee or the branch. The user needs to have experience extensively from different operations and this specific tool to able to use it efficiently Details are missing

Opportunities	Threats
Employees get motivated and challenged	Some employees might get stressed because they get to know if they sell reasonably
Results are easily measurable	
Automatic solutions for customers	Competitors that have more advanced solutions and systems and which does not have bureaucratic organizations
Fewer employees are needed in routine tasks which release capacity to the business development	
	Legislation is very strict
Analytics enables better business development which brings value, better products and services for customers	People and media are very sceptic how companies are using their data

Table 7. SWOT analysis of analytics

SWOT-analysis of analytics in the case company provides interesting points of views. Interviewees see that analytics could help identifying customers, analysing how individual branch or employees are doing in terms of sales for instance. Besides these, interviewees believe analytics provide more accurate numbers and enables quick and more time accurate retention and customer relationship management actions based on results. On the other hand, interviewees expect that the motivation of employees increase due to new challenges and easily measurable results, analytics release time for business development and that way brings value for the company and its customers and creates better products and services for customer in the future. Employees have very good understanding of the current situation and possibilities analytics can create and support customer retention efforts. It provides very good starting point when analytics tools are started to use increasingly.

There are also some weaknesses and threats related to analytics. Interviewees (B and D) see that users need extensive experience of analytical tool and other operations to be able to use it effectively. They also complain missing details they widely use in branches. The case company should definitely pay attention for these facts and develop tools more user-friendly and respond to the needs of employees. Interviewee B mentions that analytics might cause extra stress for sales people since it provides very direct feedback if employees sell enough and correctly. Interviewees are also generally concerned about possible reputation losses, since people are very concerned how their data is used. Both employees and customers have be thought when implementing analytical tools. Customer service touch points play

important role when customers concerns are respondent and bank should be able assure its customers that analytics is made to improve the service and customers' experiences.

Interviewee C notes that the main development areas in terms of analytics lie on the area how the existing data could be used more effectively. The case bank has a lot of data about the services their customers use, but the data how customers are using their online services, which would be easy to track by using modern tools, is still lacking and one of the most crucial development areas in the future. Because different kinds of mobile solutions and online banking systems have developed so the extent and speed those are adapted and used is giving signals if the development has gone on the right track. The case bank does not apply or utilize behavioural data for instance personalizing their services based on this kind of data. Accounts are tracked and customer's paying behaviour is analysed for instance when making credit decisions for a long time. This is the core business of the bank and it has been done for decades.

When asking about the environmental characteristics effecting bank's operations and how those are measured, the answer is very superficial, and it can be interpreted that interviewee C does not see this perspective that important. The case bank is not having any automatic tracking for instance monitoring the effect of changing opening hours. Bank uses gut feeling to anticipate possible changes and events which could affect the need of the number of employees in centralized customer service centre. However, it is not predicted through any analytical system. Interviewee C states:

> --"so many kinds of issues could be analysed, and I know many banks have done customer flow analysis in planning how to develop the network of branches. But as I said, we are a small actor and we have to do and concentrate on relevant issues--."

Based on this response and other issues he mentions related to the volumes of the bank, can be interpreted that interviewee C is quite satisfied with the level of analytics is used, even though there are several issues which could be done much better. He tells that the utilization of the data is the main issue which should be

improved. He also sees that they should collect more data how customers use different electrical banking services and how those are used. However, here the GDPR, limitations related to it and emergence of new challenges for every business have to be mentioned in this context. Legislation also limits what kind of data can be collected if it is not essential for service maintenance and development.

4.7 Customer retention management in the future

Predictive analytics is used in some level when evaluating risks related to credits, interests, markets or if bank has enough liquidity, which are not traditionally categorized very closely related business operations of customer retention. Interviewees agree that predictive analytics systems or algorithms are not utilized in the bank from the customer service perspective and there is a lot of work and solutions to made in the future. It is clear that this should be developed and the data, which is available should be exploited keeping the customer perspective in mind. Interviewee C sees that electronic services which have been developed in recent years and which have prerequisites to generate massive amounts of data could be a good starting point when predictive analytics is developed. Interviewee D wishes that predictive analytics would help especially for service of business customers, whose processes are usually time consuming and predicting how their business is developing is very challenging. In customer retention purposes interviewee D suggest that data from customer satisfaction surveys and customer behavioural data for instance related to ended services could be combined and these results analysed in the perspective of possible analogues.

Interviewee A concludes that analytics should primarily signal if customer is becoming passive by any means. Interviewee B and D express the same issue. If the number of products or services or volumes in euros are decreasing, information should be received immediately in specific bank branch, Interviewee D continues. For a typical customer, it is concerning if the salary is not transacted to the bank anymore. It is usually the first sign that customer has opened services to the other bank and in that case, there could be still a chance to prevent the churn and retain the customer by contacting customer and update the current situation Interviewee A

explains. The importance being in time is highlighted in many responses. Interviewee B concludes:

> --"the earlier customers' issues could be accessed in advance, the better trust and customer loyalty could be achieved and customers could get wow-feelings when we could anticipate issues more."

Interviewee B say that it would be amazing to be able to predict customer behaviour and the needs which might occur in the future for instance based on clicks in webpage and online bank. When following the current strategy and vision of the case company certain issues become essential when the bank grows. It becomes more difficult know every customer personally, and respond customers' needs just in time with suitable products and services so also more needs of using analytics are occurring along with the growth. Segmentation needs to be accurate, so that it would respond to the needs of the employees and enable efficient sales. Interviewee B sees that even more attention should be paid to the differences between different generations. Interviewee B also believes that in the future, analytics would have a very important role for customer service team which maintains relationships with uncountable number of customers, and which does not have any chance to know every customer personally, but which has to provide sense of personalized service in every customer interaction.

Interviewee B would like to investigate why customers are finishing some of their services. Because the number of customers changes, Interviewee B says that reasons behind these changes should be tracked more detailed. She says that these is no information available if leaving customers are changing the bank or if they just change the bank branch. The difference is quite significant depending whether the customer is leaving or just changing to the customers of the other branch due to the more convenient location for instance. It would be very important to get more information about this. She also raises one very interesting action which bank has previously done. They have monitored family relationships between their customers, and it has helped them to get more information about their customers. She hopes that it could be done better also now, since for instance when customer passes away, it is quite difficult to preserve their properties in the bank if their beneficiaries

have not strong bonds with the bank. So, there analytics could help tracking if there are passive customer groups which could be activated so find new potential customer segments. Here it is very important to notify that legislation limits possibilities how the data can be processed.

Interviewee D on his half sees that significant improvements in customer satisfaction surveys should be done. He does not say directly that he or his branch has received inappropriate feedback but mentions it several times that now results are not very reliable since anyone can go and fill the form whether one is customer or not. He suggests that feedback form should be sent and filled immediately after the meeting so that results were more valid and could be targeted correctly. However, this measures the satisfaction in individual meeting instead of overall satisfaction of the bank. Advantages would be that the feedback could be received immediately, and possible mistakes can be learned and fixed faster. On the other hand, it might cause extra stress for some employees if every meeting is evaluated separately. The researcher of this study suggests that both could be used parallel in the future.

4.8 Role of the analytics in the banking industry

Interviews reveal that there are big differences between banks on the level of analytics usage in Finland. Based on responses can be seen that case company is not any trailblazer in these functions. However, the case company is smaller in scale which provides it opportunities operate more flexible way. The current model where analytics is not used too much is good in that sense that often parameters are very demanding, customer relationship management system does not communicate well with analytical tool and somebody is needed to fill gaps or fix problems between different steps. When organization is small and people know each other and their customers personally, one person can make decision, solve different issues easily and the process is actually faster. This also makes it easier to manage different kinds of reputation risks which is very central theme in banking business. Interviewee D highlights that in future the worst competitors will be companies that have more advanced solutions and systems, which do not have bureaucratic

organizations and can make things quickly and straightforward without employing too many people.

Researcher of this study decided to evaluate how interviews saw the role of the analytics in banking industry based on the interviews (Table 8). Overall interviewees A, B and D seem to be very happy with the support they received when they used analytical tools and if faced any problems with that.

	Attitude
Interviewee A	Does not really see that customer service team could benefit from the analytics. Someone else makes a decision who is contacted and why and interviewee say that she does not have a mandate make these kinds of decisions based on an-alytics.
Interviewee B	Waits eagerly for new solutions and possibilities analytics could bring. Sees that when the bank is growing the need for analytics is increasing.
Interviewee C	Sees that the role of analytics is increasing in banking industry and especially centralized customer service could benefit from that
Interviewee D	Sees that analytics should be developed keeping customer perspective in mind. The situation is pretty good now, but he also hopes that in the future analytics could benefit the organization even more especially in centralized customer ser-vices.

Table 8. The role of analytics in the future

All the interviewees agree that the role of the analytics will increase in the future. Interviewee A, who works as a customer service team manager is a bit reluctant and suspicious to see how analytics could help her or her team in the future. She understands the role is increasing also in her team, but it is perceptible that she is not extremely interested to learn to use it. She sees that she does not really use analytics by herself, but someone else uses and makes decisions concerning her team based on it. Besides that, all the other interviewees (B, C and D) see that the analytics should be used specially to benefit customer service team. Both branch managers (B and D) have positive attitude towards analytics and they hope that it will bring benefit every day work with customers. Interviewee B sees that the need of analytics will become concrete when the bank grows. These kinds of interviewees help to understand the need better since everything will be written down and

documented. Interviewee C analyses the role from the different perspective, but he sees that analytics will change the banking business and the case company has to be able to be part of this change, but there is still a lot to do.

When thinking about the resources of the bank, resources of the case company are obviously more limited compared to many competitors of the bank. This is primarily due to the size of the bank. However, the situation is not hopeless since, the technology is developing quickly in IT-sector enabling small size companies enter and operate on the competitive markets by using similar tools with bigger actors there. There are ready-made solutions which need less resources such as Google Analytics but also tools which require more advanced development skills. Massive investments are not needed so in that sense the situation is good, but still continuous updating of tool requires to have people, who has enough time and competency to use and develop tools when needed. The most important is that companies have willingness and capabilities to develop themselves continuously changing environment.

5   DISCUSSION AND CONCLUSIONS

In this chapter of the thesis, main findings based on the theoretical discussion as well as empirical analysis and findings are presented. After this, theoretical contributions, as well as managerial implications and research limitations are discussed further. Finally, future research directions are presented.

5.1   Summary of the main findings

The main objective of this research was to identify how analytics can be used managing customer retention better in the banking industry. Thus, the main research question of this thesis was as following:

> *Q: How could analytics support customer retention efforts in the banking industry?*

The next three sub-questions provide an answer for this main research question by discussing both empirical and theoretical results of this thesis and providing some recommended actions for implementation. The goal of the first sub-question was to discover different elements that effect on the customer retention in the banking industry. The first question was as following:

> *SQ1: What kind of elements do affect customer retention in the banking industry?*

Important customer retention determinants include customer loyalty, switching barriers, customer satisfactions, service quality perceptions, customer trust, customer value and relationship commitment (Gerpott et al. 2001; Kim et al. 2004; Kim and Yoon 2004; Gustafsson et al. 2005; Godson 2009; Tamuliene & Gabryte 2014; Peng et al. 2016). Literature review identifies multiple possible customer retention activities from the company perspective. The list of activities includes customer satisfaction measurement process, customer retention planning process, quality assurance process, win-back processes, the complaints-handling process, switching barriers, bonds and engagement, customer care, personalization, segmentation and monitoring (e.g.: Ang and Buttle 2006a; Winer 2001; Buttle et al. 2002; Van Doorn et al. 2010; Godson 2009). Successfully implemented retention activities lead to the

improved customer retention, decreased customer churn and declined need for seeking new and potentially risky customers by providing significant positive effects on profits (Van den Poel and Larivière 2004).

The case bank aims to keep close and easily approachable relationship with its customers, and it makes several efforts to maintain customer relationships. The most important customer retention efforts of the case bank are contacting customers regularly and actively; organizing face-to-face meetings to get to know customer's plans well in advance, communicating important news related to the bank and fixing possibly occurring problems as quickly as possible. The case company has taken this superior customer service as their primary mean of differentiation. It is stated in the theoretical part of this thesis that customer service is one of the most critical factors in retaining customer (Donaldson 1995). Good service is difficult to imitate, and it helps in differentiation from the competitors and builds higher switching barriers and stronger customer engagement (Godson 2009; Buttle et al. 2002; Winer 2001; Vivek et al. 2012). The case bank organizes different kinds of events for its customers, which support these retention activities even more. Value creation, customer care and personalization are important issues in customer retention management for the case company. Satisfied and loyal customers are important for the case bank in customer retention and profitability perspectives. The literature emphasizes service quality perspectives even over the significance of the price when customers are evaluating the value of some service provider or service (Ranaweera and Neely 2003) and suggests that different quality assurance processes such as SERVQUAL metrics can act as a good indicator by providing accurate information (Tsoukatos and Mastrojianni 2010).

Customer retention has been important agenda in some branches of the case bank, but some other branches are still lacking clear strategy in terms of customer retention. Authors highlight the importance of planning if companies are willing to achieve desired business outcomes (e.g.: Ang and Buttle 2006a). For that reason, retention management should be paid more attention within the case bank and taking advantage of analytics more actively in the future. Godson (2009) recommends companies paying attention to customer retention monitoring. Monitoring is important

since it helps companies in following and responding selected retention related metrics such as costs, retention rates or customer defections and fulfil retention related goals (Godson 2009). The case bank measures customer retention by few metrics including the net number of customers. It organizes an annual customer satisfaction survey, which results are comparable between branches and time periods. Relationship surveys such as customer satisfaction surveys and customer databases maintenance such as customer relationship management systems are key elements related to customer relationships monitoring and competitive advantages increase (Godson 2009). Complaints handling process of the case bank is determined, but execution is strongly dependent on branch and the activeness of its employees. Documentation of complaints is not working in the optimal level. Well-executed, documented complaints-handling process has a positive effect on customer retention creating benefits fixing particular customer's problem and collecting and analysing complaints data over time and identifying possible systematically appearing problems (Ang and Buttle 2006a).

Secondly, it was essential to discover, what kind of role analytics does have in retaining customers in banking industry, and especially in the case company, including current data management of the bank, banks' and employees' capabilities and skills related to usage of analytics. The second sub-question was as following:

> *SQ2: What kind of analytics is used in customer relationship management currently?*

As discussed earlier in this thesis, analytics can support customer retention in several ways. Business analytics bases on facts and leads to insights and possible implications for planning future actions in an organizational set up (Banerjee et al. 2013). Both data and analytics have important role in everyday business of the case bank. Data is collected from different data sources and stored in the data warehouse. The case bank uses analytics and reporting tools which enable large possibilities analysing different kinds of data from the data warehouse. The analytics system of the case bank enables segmenting, monitoring numerical results of the bank and tracking overdue credits in individual customer level. For instance, segmentation is an important for companies in terms of understanding customers better and

gaining accurate customer insight for decision making and strategy formulation (Tabasum 2018).

Business analytics include different kinds of skills, technologies, applications and practices which are used for continuous iterative exploration and investigation of past business performance. Analytics can be descriptive, diagnostic, predictive, or prescriptive by nature. (Banerjee et al. 2013; Tschakert et al. 2016) Branches have their own analytics systems such as spreadsheets they use tracking their sales. These simple descriptive analytics tools display the past and signal the future development (Banerjee et al. 2013). Employees see that concrete benefits of analytical tools have created so far include continuous monitoring of sales, quick reacting and development of action based on the results it provides. Risk management has become easier and managers has access to the real-time payment data in a daily level and other important key performance indicators which help diagnosing past results and predict future development. In addition, analytics have enabled better benchmarking between different branches in the organization.

The case bank has a shared customer relationship management system, which provides important data from customers. Successful customer relationship management helps organization in managing important relationships with its customers by collecting, storing and managing data and handle customers based on their needs, behaviour and potentials (Tsiptsis and Chorianopoulos 2011). Besides that, when customer runs transactions in mobile or online bank, the case bank collects anonymized data. This data can be used for aggregated reports, to see customer paths etc. but individual customer level data is not collected in different electrical services. In addition, the case bank uses other commercial and widely used analytics tools to analyse the traffic on their webpage. Legislation and regulations limit possibilities to use data. Current data is strongly related to customer demographics and measuring customer behavioural data, customer perceptions or macroenvironmental data has gained less attention. To be able manage relationships better, case company should collect more customer data and including behavioural patterns which could support in developing better strategies (Xu et al. 2005) for instance, in customer retention purposes.

The data analytics has moderate role in decision making in the case bank. Commonly, organizations use data analytics to analyse critical business data which enable them to get a better understanding of their business and environment (Schutte et al. 2017). The case bank has developed actively more extensive and bank wide meters, which it uses for measuring the development of the business. Analytics is just a tiny part of the everyday work of the case bank's employees. Interviewed employees get enough support using tools, but more support would be needed in term of using the whole potential of analytics. Interviewees believe that the role of analytics will increase especially for customer service, marketing and targeting purposes due to the environmental changes and increasing competition in the future. The level of understanding of analytics is quite good among interviewees. Analytics tools are used in different purposes, but they are mainly used in the case bank among business support, branch managers and all the upper level managers.

Based on the analysis of empirical results can be argued that analytical tools should be primarily used for customer retention instead of customer acquisition purposes. This claim is also supported by the literature which states that investments required for customer acquisition are much, even 10 times, higher compared to customer retention (e.g. Gronroos 1994; Ahmad & Buttle 2001; Van den Poel and Larivière 2004). Successfully implemented retention activities lead to the improved customer retention and decreased customer churn and need for seeking new and potentially risky customers by providing significant positive effects on profits (Van den Poel and Larivière 2004). In addition to saves in acquisition costs and inefficient marketing activities, successful retention activities can improve company's knowledge of their customers and ability to target right customers better (Hwang et al. 2004). Retained customers are important for companies not only from the profitability perspective but they also bring value by entering beneficial collaborations, being less price-sensitive and more forgiving, helping business planning, and giving referrals. Company can benefit from these advantages by systematically analysing customers, anticipating their behaviour and improving their own activities continuously based on these analyses to respond customers' occurring needs with right actions, in the right place at the right time.

Finally, it was important to clarify what kind of benefits and other effects banking industry could achieve when using the analytics. One of the goals of this research, was to study the readiness of the case company in terms of usage of analytics in customer retention purposes in the future. Possible benefits, as well as employees' expectations of using analytics are studied widely in the empirical part of this thesis. The third sub-question was as following:

> SQ3: How analytics could be used in customer retention purposes in the future?

All the interviewees agree that the role of the analytics will increase in the future. Concretely, results reveal that interviewees see that analytics could help in identifying customers better, support in analysing how individual branch or employees are doing, provide more accurate numbers and enable quick and more time accurate retention and customer relationship management actions. In addition, analytics can provide new motivating challenges and improves business development, bring value for the company and its customers and create better products and services. These expectations of interviewees are well in the line with the collected literature both related to analytics and customer relationship management, which goal is to know customers better and that way enable organization to generate and deliver better value to targeted customers (e.g.: Morgan and Hunt 1994). The main challenge in terms of analytics lie on the area how the existing data could be used more effectively.

Interviewees prefer that analytical tool is easier to use, it becomes more illustrative and it gives an access to better sales reports and daily sales numbers in the future. Additionally, they wish that the analytical tool could function better with other systems and it would provide more advanced information about customers if customer is becoming passive by any means. Interviewees mention that they expect analytical tools help to customer service of existing customers, cross-selling and upselling. Analytical tool should support in selecting appropriate customer segments in purpose of contacting customers and enabling efficient sales better. Moreover, results reveal that in customer retention purposes there is a need for analytical tool to

provide information and help spotting customers whose number of services is decreasing. Interviewees wish that the reasons behind the decrease of services could be tracked in the future. This would be very important since the theoretical part of this thesis discusses broadly the effects of lost and inactive customers. By measuring customer retention amongst different segments, company can find where and why defections are occurring and the company can understand, how it needs to improve its own retention efforts (e.g.: Godson 2009) Furthermore, analytics should bring up the most important customer relationships and help targeting resources contacting and maintaining those relationships in superior level. The literature concludes that the bank should provide best quality customer service and communication through preferred channel, on-priority grievance response and timely offers and incentives to ensure retention of highly profitable customers, with low risk and high net worth (Weinstein 2002).

Predictive analytics is not yet used for customer retention purposes, but different kinds of electronic services which generate massive amount of data, provide a good starting point for the development of these systems in the case bank. Interviewees hope that tracking of customers online behaviour could help in predicting customer behaviour and the future needs. According to collected literature, predictive analytics could help in assisting to understand the future and providing foresights by identifying patterns in historical data (Tschakert et. al. 2016). On the other hand, the empirical analysis of the thesis suggests that data from customer satisfaction surveys and customer behavioural data for instance related to ended services could be combined and these results analysed in the perspective of possible analogues. Theory of churn prediction modelling demonstrates that different kinds of variables can be used together for predicting customer churn effectively (e.g.: Van den Poel and Lariviere 2004; Mavri and Ioannou, 2008). Overall, data should be used more on customer relationship management besides traditional operations which analytics have been used for a long time.

Based on the empirical analysis seems that the case bank has good tools, but the full potential of those tools is not utilized. The case bank has very ambitious goals in terms of growth and results. The role of analytics grows, since the centralized

customer service team is taking a wider role in customer service activities without possibility know every customer personally. More should be done in terms of retention planning activities, determining metrics and variables, which the case company should follow regularly especially on different online channels. The case bank should focus more on behavioural data, customer perceptions or macroenvironmental data besides analysing customer demographics. The literature emphasizes especially the importance of behavioural data in customer retention management and churn prediction (Eiben et al. 1999; Larivière and Van den Poel 2004, 2005; Kumar and Ravi 2008; Xie et al. 2009; Xiao et al. 2012).

5.2   Theoretical contributions

Advantages of customer retention are unarguable. Dawes and Swailes (1999) conclude that successful customer retention management decreases company's need for seeking new and that way potentially risky customers. Customer retention management also allows organizations to focus more precisely on the needs of their existing customers (Dawes and Swailes, 1999). Many of the elements of customer retention are unarguable and furcate, so this thesis helps future researches by determining a comprehensive list of determinants and activities which are essential in customer retention management perspective in banking industry. This list of determinants and activities can be implemented also in other industries.

Customer retention papers primarily focus on customer retention perspective, comparing different determinants, so this paper brings valuable contribution focusing on especially the customer churn prevention. When thinking about predictive modelling of customer churn this research provides a list of papers, which covers customer churn modelling in banking industry especially in large financial enterprises. Different kinds of churn data collection and observation methods as well and churn predictor variables and churn modelling techniques are discussed. Analysis section discusses the customer retention phenomenon from the relatively small company perspective and highlights the importance of actions which could help controlling the churn in this kind of organization. This paper also provides an extensive list of

activities in banking industry which is not determined in earlier literature related to the customer retention.

There have been limited number of studies which have both combined customer retention and predictive analytics perspectives in banking industry. Both themes are central in marketing literature and especially the importance of predictive analytics is increasing also according to this study. There are still many issues in this field which has not been explored deep enough, so there was a clear need for this study and findings it provides. Predictive analytics as a concept is wide and in customer relationship management perspective somewhat new and fuzzy so the theoretical part of this helps defining the concept in banking industry from customer relationship management perspective. The paper discusses several techniques for data analytics and provides an extensive list which could be used in different purposes also when studying different kinds of phenomenon related customer retention and relationship management in banking industry.

5.3 Managerial implications

This study provides insights both regarding customer retention and analytics. It highlights determinants and practical activities that the case company could utilise and benefit from in their customer retention. The framework of customer retention through analytics is provided in this thesis, which helps managers realize that retention has to be done continuously by using relevant data to gain best possible results. Additionally, the study provides support in selecting suitable observation methods, data collection, variable selection as well as modelling techniques for customer churn modelling. Effectiveness, efficiency and profitability perspectives of customer retention are discussed widely in this thesis. The results of the analysis highlight the importance of well executed customer care in successful customer retention management. Results of interviewees support that claim and highlight also the profitability perspective. These theoretical and empirical results help managers understand how important it is to focus on customer retention of the company when trying to achieve the long-term success for the company.

The aim of the case company is to keep close and easily approachable relationship with its customers, and it is also essential part of the strategy, brand and core values of the bank. Analytics itself provide challenges on that area, since it is often understood cold and distant. However, analytics offer many opportunities that managers could use in work improve the customer experience. Analytics can support employees in keeping track frequency when customers are contacted and remind organizing new meetings with customers regularly. In addition, managers can use analytics assists predicting possibly occurring problems more rapidly and maintain high level customer care.

This study highlights the positive effects of analytics. According to empirical part of this study analytical tools can create managers and employees several advantages including for instance continuous monitoring of sales, quick reacting and development of action based on the results. For managers, analytical tool can provide the access to the most important key performance indicators and help in benchmarking how the business is developing compared to other bank branches. Results declare that analytics could help managers to identify customers better, support in analysing how individual branch or employees are doing, provide more accurate numbers and enable quick and more time accurate retention and customer relationship management actions. Analytical tool can support in spotting customers whose number of services is decreasing, help to customer acquisition besides retention, support cross-selling and increase the extent of sales of current customers and profits. In banking industry risk management has become easier, when managers have gain access to the real-time payment data in a daily level and other important key performance indicators, but more could be done especially in terms of usage of analytics in customer relationship management.

Customer retention is very dependent on the activities of the organization. Managers should remember that retention activities should be executed all the time, not only when problems occur. It can be suggested that especially in bigger organization where employees cannot know their customers personally, organization should create an extensive and integrated plan how customer retention activities should be planned, measured and monitored in different units. This would not only help

creating better customer experiences but also predicting and decreasing customer churn and allocating customer retention activities just in time. Analytical tool might help in indicating if customer is becoming passive signal customer aims to leave so needed activities can be done. Responding customers' needs in the right place and right time would be an important competitive advantage for the case company in the future.

Different branches of the case bank have diverse customer bases which need versatile retention activities. Very central is that the level of customer service should not be decreased because of usage of analytics. Analytics help in providing accurate numbers and information to support retention. Results of this study reveal that monitoring customer relationships has central role in customer retention. Both satisfaction surveys and maintained customer relationship management systems support customer retention well (Godson 2009). Some standardized metrics are used measuring customer relationships at the case company, but more should be done when determining relevant metrics. Researcher suggests that bank should measure customers activity and behaviour more frequently in the future. Data for segmentation purposes is available, so bank could also segment its customers in smaller units and target selected activities in retention purposes. Besides annual customer satisfaction surveys, researcher suggests that managers would consider collecting feedback from individual customer contacts so different perspectives and especially the instant feedback could be received. Complaints handling processes could be done better, since based on empirical results of this study the case bank does not have a consistent system, which all branches follow.

The researcher sees that bank has good tools, but more completed analysis could be made to support branches in their customer relationship management, even though they also have easy access to it. The fact is that the primary task of sales people and office employees is maintain customer relationships not necessary learn by heart how to use analytics software in every possible situation. Researcher suggest bank share the best practises across the different bank branches. The main challenge related to the analytics and communication can be spotted when discussing if developed solutions correspond needs of employees and customers and help

maintaining customer relationships. Empirical part of this thesis reveals, for instance that predictive analytics systems or algorithms are not utilized in the bank from the customer service perspective so there is a lot of work and solutions to made in the future. The case company should pay more attention to the amount of training their employees need to use the tool effectively. In addition, the tool should be developed so that it is more user-friendly and responds better to the needs of employees.

Managers should pay attention if the full potential of analytics and collected data is utilized. Banks collect versatile data from their customers both voluntarily and due to different kinds of regulations. In banking sector, data is used for different objectives such as segmentation, credit management and tracking results, but seems that it could be implemented more customer relationship management purposes. There are several systems that collect both anonymized and customer-specific data. Besides customer demographics, tracking and analysing customer behavioural data, customer perceptions and macroenvironmental data could reveal important factors in different channels, which could help in managing customer retention. The researcher suggests especially monitoring customer behaviour in the near future. That way company could gain valuable insights on paths customers follow between systems and what kind of information should be provided in customer service purposes such as personalized product and service offerings or seeing if customers are getting passive by any means.

Finally, managers should be aware that the importance of analytics is increasing in the future in different operations. In decision making data has somewhat moderate role at the moment, but when mirroring the level of data usage to the ambitious goals of the bank, data should be used more actively since it is available, and it would make decision making more transparent and effective. In the future, it becomes more difficult know every customer personally, and respond customers' needs just in time with suitable products and services when the case bank grows. The study demonstrates that analytical tool can benefit for customer retention purposes and help in decreasing the customer churn providing relevant information effectively. Results reveal that analytics can help in identifying customers better, analysing how individual branch or employees are doing, providing more accurate numbers and

enabling quick and more time accurate actions. Concretely, when the bank is growing culture and operational modes become more and more necessary to update since the centralized customer service team is taking a greater role in overall customer service.

The case bank should also consider improving their procedures related to customer feedbacks and customer relationship management. Current customer relationship management system includes possibility to write notes, however, interviews reveal that the full potential of this opportunity is not used. There is a chance of human errors and overall the current system is not useful since neither employees do not write enough notes or they do not read them, due to the fact that bank operates so specific person and branch centralized wise. This means that employees should be trained to adapt also the new way of doing in terms of case bank is growing and other employees can handle assigned customers of them. The most important is that companies have willingness and capabilities to challenge and develop themselves continuously in the changing environment.

5.4 Research limitations

This section demonstrates the chosen delimitations of the study. First of all, the current literature provides several different kinds of definitions of customer retention, its determinants and models that could be used in banking industry as well as some possible activities that bank could implement in its operations. The literature also covers extensively different kinds of studies of customer retention models and the most beneficial strategies in other industries that could be applied in banking industry, but due to the restricted resources and the limited time framework, the researcher was obliged to make decisions based on the best understanding of the phenomenon and leave some argued perspectives for the less amount of notice.

The research is very focused since it is a qualitative case study and conducted only from the perspective of a case company. However, the researcher compounded comprehensive literature review about customer retention and data analytics adjusts the shortcomings of the delimited qualitative case study and results can be seen relatively reliable. Research is narrowed to the limited number of current

managers of the case company, so the results of this study cannot directly be applied to the all managers within the bank or the whole banking industry. Furthermore, data collection is conducted by the perspective of the company and for instance customer perspective is not studied at all even though it has naturally a significant role in retention. However, this limitation is selected in order to gain more data about the current situation of customer retention management, the usage of analytics and preparedness of possible increase of predictive analytics in the bank. If other methods could have been used, the results might have possibility to reveal other underlying issues. For instance, if the empirical data would have been collected through more than one source or using multiple different methods: for example, by customer surveys and employee interviews or observing and interviewing employees in different organizational levels. Although, this would have required a lot more time and resources, which were restricted in this case.

5.5 Future research directions

When thinking about future research directions both academic and case company perspective this research provides many starting points which should be studied more in detailed. First, from the customer retention perspective of the case company, it would be essential to determine suitable metrics which is starts to monitor. For this more research should be done, since literature does not provide any extensive list of metrics which could be utilized in relatively small banking companies to prevent customer churn. Covering the same theme, when studying the literature related to the different customer retention activities, it became clear that it was somewhat fuzzy which activities are necessary when supporting customer retention. Similarly, it is indefinite which activities improve retention and prevent customer churn most efficiently, so it should be studied wider in the future.

Secondly, it would be interesting to study more customer retention in small and medium sized companies in different industries. Most of the samples of academic research are large in size, which of course provides better possibilities for generalization and more reliable research results. However, organizations are very different, and hierarchies are lower in smaller companies, so retention processes are different between small and large companies. Small organization and limited number of

customers also provides different setting for the relationship so these kinds of relationships should be studied more in customer retention perspective.

Based on the results of this study, analytics provide different kinds of possibilities for companies to improve their operations efficiently on the grounds of numerical data it provides. It would be meaningful to study customer retention in different customer segments more in the banking industry. There are many academic studies which cover retention among segments which are created based on the different demographical or behavioural variables. However, there are only a limited number of studies where sample is segmented based on the psychographic, or environmental factors or customer perceptions. The behavioural aspect was especially highlighted in the responses of the empirical part of this study in the context of how retention activities could be targeted to the customers better based on their behaviour on the web page or in the online bank.

This research has been conducted from the company perspective. However, other perspectives such as customer perspective should be also studied to increase the knowledge of customers' needs. In the future it becomes essential to study how customers and other stakeholders of the bank see the role of analytics. It is interesting to study what kind of issues customers find important when selecting their banking service provider and if they decide to stay as the customer or switch to the customers of some other bank.

The original plan was to conduct this research as a quantitative case study, using customers behavioural data collected from the webpages and online bank and determine factors, which could help predicting upcoming events and managing customer retention is the future. However, the researcher had to change the research plan and perspective when appeared that the data was not available for this purpose. In the future, more research in this field should be made and the online behavioural data of customers should be collected and analysed also in customer retention purposes.

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APPENDICES

Appendix 1.

Interview framework for Interviewees A, B and D

Haastattelukysymykset

Haastateltavan taustatiedot
1. Nimi:
2. Rooli yrityksessä:
3. Työskentelyhistorian pituus organisaatiossa tai vastaavanlaisissa työtehtävissä:

Asiakkuuksien pysyvyyteen liittyvät taustakysymykset
4. Minkälaisia asiakkaita organisaatiolla on?
5. Miten kuivailisit pankin suhdetta asiakkaisiin?
6. Miksi uskot asiakkaan valitsevan pankin muiden pankkien sijaan?
    a. Miksi olemassa olevat asiakkaat haluavat jatkaa pankin asiakkaina?

Asiakkaiden pysyvyyteen liittyvät elementit
7. Minkälaisia toimenpiteitä pankki tekee asiakassuhteiden ylläpitämiseksi?
    a. Mitä asiakastyytyväisyyden, uskollisuuden ja lojaliteetin luominen merkitsee pankille?
    b. Minkälaista arvoa pankki tuottaa asiakkailleen?
    c. Minkälaista yksilöllistä palvelua pankki tarjoaa asiakkailleen?
    d. Miten pankki pyrkii sitouttamaan asiakkaansa?
8. Miten asiakkaiden pysyvyyttä seurataan tällä hetkellä?
    a. Minkälaisia lukuja ja kuinka usein pankki seuraa asiakkaiden pysyvyyteen liittyen?
    b. Onko pankilla käytössä jotain malleja tai mittareita asiakkaiden pysyvyyden seuraamiseksi? Jos kyllä, minkälaisia?
9. Miten pankki suunnittelee asiakkaiden pysyvyyteen liittyviä toimenpiteitä?
10. Minkälaisia strategioita ja aktiviteetteja pankki käyttää estääkseen asiakkaitaan vaihtamasta pankkia?
    a. Miten pankin jättäneisiin asiakkaisiin reagoidaan?

11. Miten asiakkaiden kokemuksia ja näkemyksiä mitataan?

   a. Miten pankki reagoi asiakkaiden palautteisiin ja tyytymättömiin asiakkaisiin?

   b. Miten tyytymättömiä asiakkaita kohdellaan ja miten tietoa käytetään hyväksi?

Analytiikka

12. Millaista dataa käytät työssäsi?

   a. Onko sinulla mielestäsi riittävä pääsy erilaisiin datalähteisiin?

   b. Millainen rooli datalla on päätöksenteossa yksikössäsi?

13. Miten määrittelisit asiakasanalytiikan?

14. Käytätkö työssäsi mitään analytiikka- tai raportointityökaluja?

   a. Jos kyllä, mitä ja kuinka kauan olet käyttänyt näitä?

   b. Minkälainen rooli analytiikkatyökalulla on päivittäisessä työssä?

   c. Miten analytiikkatyökalu toimii mielestäsi muiden järjestelmien rinnalla?

15. Tiedätkö kuka organisaatiossa käyttää analytiikka- ja raportointityökaluja?

   a. Pitäisikö yhteistyötä analytiikkatyökalua käyttävien tahojen välillä jotenkin mielestäsi parantaa? Jos kyllä, miten?

16. Uskotko, että analytiikkatyökalusta on jotain konkreettista hyötyä organisaatiolle?

   a. Minkälaisia muutoksia analytiikkatyökalu on tähän mennessä tuonut organisaatioon ja asiakastyöhön?

   b. Minkälaisia hyötyjä toivoisit analytiikkatyökalun tuovan organisaatiolle?

17. Minkälaisia odotuksia analytiikkatyökaluun ja sen hyödyntämiseen liittyy?

   a. Miten analytiikkatyökalu voi helpottaa ja/tai vaikeuttaa työtä?

   b. Minkälaisia muita vahvuuksia ja mahdollisuuksia analytiikkaan liittyy?

   c. Minkälaisia uhkia ja haasteita analytiikkaan liittyy?

Analytiikan rooli asiakkaiden pitämisessä

18. Näetkö, että analytiikkatyökalu on hyödyllisempi uusasiakashankinnassa ja/vai olemassa olevien asiakkaiden pitämisessä?

   a. Millä perusteella?

19. Miten asiakkaiden pysyvyyttä pitäisi mielestäsi seurata analytiikan avulla?

    a. Minkälaista dataa asiakkaista pitäisi mielestäsi kerätä asiakkaiden pysyvyyttä ajatellen?

    b. Mitä asioita pitäisi mitata tai parantaa?

    c. Minkälaista hyötyä näiden asioiden mittaamisesta olisi pankille asiakkaiden pitämisessä?

20. Toivoisitko, että pankissa hyödynnettäisiin ennustavaa analytiikkaa entistä vahvemmin?

    a. Jos kyllä, millä liiketoiminnan osa-alueilla?

    b. Miten ennustava analytiikka voisi auttaa asiakkaiden pitämisessä?

Onko jotain muuta, mitä haluaisit sanoa?

Appendix 2.

Interview framework for Interviewee C

Haastattelukysymykset

Haastateltavan taustatiedot

1. Nimi:
2. Rooli yrityksessä:
3. Työskentelyhistorian pituus organisaatiossa tai vastaavanlaisissa työtehtävissä:

Datan kerääminen

4. Mistä kaikista lähteistä asiakkaista kerätään dataa?

    a. Onko dataa helppo yhdistää eri lähteistä?

    b. Missä muodossa data on?

5. Minkä tyyppistä dataa kerätään?

    a. Minkälaista demografista dataa kerätään?

    b. Minkälaista asiakkaiden käyttäytymiseen perustuvaa dataa kerätään?

    c. Minkälaisia asiakkaan tileihin tai tuotteisiin perustuvia tietoja kerätään?

    d. Miten asiakkaiden kokemuksia ja näkemyksiä mitataan? Onko asia-kaspalautteiden, asiakastyytyväisyysmittausten lisäksi käytössä jotain muita tapoja?

    e. Miten pankin ympäristöön liittyviä asioita, esim. pankin aukioloaikojen vaikutuksia mitataan?

6. Minkälaisia työkaluja tai järjestelmiä pankilla on käytössä datan kerää-miseksi, varastoimiseksi ja analysoimiseksi?

    a. Mitä näistä itse käytät ja millainen rooli työkaluilla on päivittäisessä työssäsi?

    b. Miten eri järjestelmät toimivat yhdessä?

7. Olisiko datan keräämistä mahdollista vielä laajentaa?

    a. Jos kyllä, miten?

8. Miten datan laatu varmistetaan?

9. Miten data mielestäsi ohjaa pankin päätöksentekokulttuuria?

    a. Kuka tekee datan perusteella päätöksiä?

    b. Pitäisikö datan roolia päätöksenteossa mielestäsi lisätä tai vähentää?

Asiakkaiden pysyvyyden seuraaminen

10. Miten asiakkaiden pysyvyyttä seurataan tällä hetkellä?

    a. Minkälaisia lukuja tai mittareita pankki seuraa asiakkaiden pysyvyy-teen liittyen ja kuinka usein?

    b. Miten asiakkaiden poistumista seurataan?

    c. Pitäisikö seurantaa mielestäsi muuttaa jotenkin?

11. Miten pankki suunnittelee asiakkaiden pysyvyyteen liittyviä toimenpiteitä ja minkälainen rooli sinulla on suunnittelussa?

12. Näetkö, että analytiikkatyökalu on hyödyllisempi uusasiakashankinnassa ja/vai olemassa olevien asiakkaiden pitämisessä?

    a. Millä perusteella?

Analytiikka

13. Tiedätkö ketkä kaikki organisaatiossasi käyttävät analytiikka- ja raportointi-työkaluja?

    a. Pitäisikö yhteistyötä analytiikkatyökalua käyttävien tahojen välillä jo-tenkin mielestäsi parantaa? Jos kyllä, miten?

14. Minkälaista konkreettista hyötyä analytiikkatyökalusta on organisaatiolle?

   a. Onko esimerkiksi uuden analytiikkatyökalun käyttöönotto tuonut jotakin positiivia tai negatiivisia muutoksia organisaatioon?

15. Minkälaisia odotuksia analytiikkatyökaluun ja sen hyödyntämiseen liittyy?

   a. Miten näet, että analytiikkatyökalu helpottaa ja/tai vaikeuttaa sinun tai esimerkiksi pankin konttoreiden työtä?

   b. Minkälaisia muita vahvuuksia ja mahdollisuuksia pankki voi saavuttaa käyttämällä analytiikkatyökalua tehokkaasti esimerkiksi kilpailijoihin nähden?

16. Minkälaisia uhkia ja haasteita analytiikan hyödyntämiseen liittyy?

Ennustava analytiikka ja mallintaminen

17. Käytetäänkö pankissa ennustavaa analytiikkaa jossain liiketoiminnan osa-alueilla?

   a. Jos kyllä, millaista ja miten paljon?

   b. Kuka ennustavaa analytiikkaa käyttää?

18. Onko pankilla käytössä jotain asiakkaiden pysyvyyttä ennustavia tai muita asiakaskäyttäytymistä ennustavia malleja?

   a. Jos ei, pitäisikö pankin kehittää asiakkaiden pysyvyyteen liittyen malleja?

19. Minkälaisia valmiuksia pankilla on mallien kehittämiseen?

   a. Mitä resursseja mallien kehittäminen vaatisi?

   b. Pitäisikö jotain lisätä, jotta mallien kehittäminen voisi olla mahdollista?

   c. Voisiko mallien kehittämisestä olla jotain hyötyä?

Onko jotain muuta, mitä haluaisit sanoa?