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Analyzing Patterns of Points Redemption in a Loyalty Program at a Bank: The Case of a Commercial Bank in Lebanon

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Analyzing Patterns of Points Redemption in a Loyalty Program at a Bank: The Case of a Commercial Bank in Lebanon

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DECLARATION

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

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ABSTRACT

Purpose – This research attempts to analyze the impact of demographical factors and credit cardholder's criteria of clients on their credit card spending to investigate how the total spending affects accumulation of loyalty points of cardholders to after the introduction of a loyalty program

Design/methodology/approach – This study relies on a sample of 477 credit cardholders active on the bank's loyalty program over a period of 2 years. This research is deductive and quantitative in nature, and it tests 15 hypotheses linking the demographical factors and cardholders' characteristics to total spending on card and effect on client's accumulated loyalty points.

Findings – The findings show that frequency of redemption, total of points redeemed in various categories of rewards and income are antecedents of the total spending on cards after the inception of the loyalty program at the bank. There are also some minor indications of significant variations in the dependent variable with respect to gender, marital status, profession, average income and country of residence.

Research limitations/implications – The sample used for this research was small and not normally distributed but was not considered an issue since the loyalty program at the bank has been available for two years only. The process to extract the data required to execute the study proved to be lengthy and complicated and contained inconsistent records that were omitted throughout the study.

Practical implications – The findings of this research provide a valuable insight to the management of the bank subject of study and equips them with fresh information on the attributes relevant to their clients, especially those who are active on bank X's loyalty program and are continuously redeeming their collected points. It also gives a new perspective for policy makers in the financial institutions on the factors that affect the spending behavior of clients on their credit cards and the patterns behind the accumulation of loyalty points.

Originality/value – This research paper studies the potential explanatory proxies of loyalty points accumulation of cardholders to the bank, depicted in the total spending on their cards since program inception. Else than being unique of its kind in Lebanon, other studies only concentrated on the credit card spending of clients without extending the findings onto clients who active on a bank's loyalty program. This study also relies on archival data unlike other papers based on questionnaires results, thus ensuring the originality and objectivity of this paper with high reliability.

Keywords – Credit Cards, Credit Card Spending, Demographical Factors, Loyalty, Loyalty Program, Rewards Program, Redemption, Points Redemption, Cardholder.

Paper type – Research paper

List of Tables

List of Figures

List of Equations

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Elissa Bou Arbid

Table of Contents

Chapter 1 – Introduction

The financial system in Lebanon is mainly dominated by banks that supply the majority of the credit debt to the Lebanese public and private sectors. The Central Bank of Lebanon (BDL) is the only regulatory authority over all banks in Lebanon, controlling which bank enters or leaves the banking industry of the country as well as setting its regulations and codes of practice (Association of banks in Lebanon, 2018).

The Lebanese banking industry comprises 142 banks in total, divided into small, medium and large-size, privately owned commercial banks; investment banks; Islamic banks; purely Lebanese owned (32), foreign and mixed banks (Banking control commission of Lebanon, n.d.). This prominent Lebanese industry is regionally renowned for its openness and endorsement of the country's liberal economy, especially with the expansion of the Lebanese banks in diverse countries around the world through their branches, affiliated companies, subsidiaries and representative offices, not to mention their profound ongoing relationships with corresponding banks worldwide (Association of banks in Lebanon, 2018).

The Lebanese commercial banks are mainly categorized in 4 main groups, sorted by amount of total deposits by foreign currency (USD): Alpha, Betta, Gamma and Delta: A bank is categorized as Alpha when customer deposits exceed $2 Billion, Beta when the deposits are between $500 Million and $2 Billion, Gamma for deposits ranging from $200 Million to $500 Million and Delta when they are less than $200 Million (BlomInvest Bank, 2016).

One of the main success factors of the Lebanese commercial banks in Lebanon, is the adoption of both traditional and modern banking services, ranging from basic retail, corporate and Islamic banking, major consulting and insurance services to contemporary smart ATM, card services and implementation of advanced mobile and electronic banking platforms all the way to customer rewarding programs (Association of banks in Lebanon, 2018).

Financial institutions around the world are now urged to strive in delivering the best customer experience in order to convert new, preserve current and return long lost customers. Retail banks are now adopting customer journey maps in an attempt to improve the overall customer experience, starting from their most basic touchdown

at the call center level until the very first proximate contact with the bank's staff at the branch (Spark Labs, 2017)

A definition of the customer journey map was found to be "a visualization tool that shows the process a customer experiences when accomplishing a goal. The customer journey is shown over time and across multiple touch points" (Litchfield, 2017, p. 5).

Retail banks are currently on the move to create and implement the customer journey maps to identify the different opportunities aiming to improve their business activities to satisfy their clients and promote customer loyalty, a core objective of these maps. It was found that the main objectives of these rewards systems were to acquire new customers at 66%, retain existing customers at 56% and improve customer experience at 41%. Other objectives came in furthest such as increase customer satisfaction, boost customer profitability and engage clients (Forrester, 2015).

Based on this idea, retail banks are increasingly searching for ways to retain their existing clients and attracting new ones to improve their overall financial performance. One of the main ways to enhance customers' loyalty is the implementation of rewards program at the bank for their existing clientele, and intensively marketing these programs in order to penetrate new markets. Almost four out of five bank clients admit that they choose their primary bank based on its' proposed rewards program (The Financial Brand, 2016).

In respect to international practices, the types of loyalty programs in the banking sector differ from one institution to another. Some banks offer a points-based system where the enrolled members collect points and then exchange their balance for discounted items from a catalogue, or redeem their points for free flights, electrical equipment, vouchers and others (Liu, 2009). Other financial institutions reward their loyal customers with discount rates on some products they specify. The clients are selected based on the number of products they have obtained from the bank or the actual value of their ongoing business with the bank.

Another modern and easily integrated option by banks especially in Lebanon is the cashback reward system for their clients. The loyalty program members are

immediately credited with a certain amount of money in return for their collected points over time.

Among the thirty-two purely Lebanese owned commercial banks, the author's investigation resulted in finding mainly twelve banks that are known to be publically advertising and promoting their respective loyalty programs to their clients. Reward programs in Lebanon vary in offered redemption types from cashback, travel miles, gifts, vouchers, donations, merchant discounts to free bank products or services, or even sometimes a combination of some or all of these categories.

The chances of the consumers to remain in relationship with the firms that offer points-based loyalty programs increase with the expectancy of future rewarding occasions given that the cardholders will be able to redeem their points with free rewards at a later stage (Lemon, White, and Winer, 2002).

In this paper, we study the case of a Lebanese Commercial Alpha Bank, operating in the Lebanese market for more than 50 years. For the sake of confidentiality, this bank will be referred to as Bank X.

Bank X offers both retail and business banking services, ranging from debit and credit cards, personal and housing loans to business and corporate loans. The management of this bank has decided to join the trend of loyalty programs in Lebanon in 2016 and follow other major Lebanese commercial banks that also adopted these programs to promote the retention of its existing clientele, boost their spending on their credit cards and attract new potential clients through interesting offers available exclusively on their loyalty program.

Bank X's loyalty program offers the cashback, miles, gifts, vouchers and donations categories: This program is constructed on a points-based system whereas it only counts the collected points by credit cardholders obtained from the amount of money spent on their credit cards, used at merchants POS (point of sale transactions): ATM cash withdrawal transactions on debit cards are not taken into consideration in this particular system. Specifically, in this loyalty program, for each one dollar spent on any POS machine, 1 loyalty point is collected, equivalent to 1.5 miles, as arranged and regulated by the bank's management.

Consequently, this research will equip the bank's management with insightful information regarding its loyalty program. The marketing and customer service departments will then be able to use the findings of this paper to build a proper customer journey map that would eventually take the loyalty of the bank's clients into consideration and carry it forward for effective implementation. Not to dismiss the research findings stating that low points redemption rates among banks were due to lack of communication from the banks that offer these programs as well as complicated redemption procedures leading to the idea that clients sometimes face information asymmetry when dealing with different banks (Liu, 2009).

This analysis will provide insight on whether the success of the loyalty program at this bank, measured by the changes in the expenditures of the existing clients on their credit cards, is based on a set of pre-defined demographical and other banking related variables that will be discussed in a different section.

Since previous research has shown that demographical data is related to a customers' loyalty, this paper will look into an analysis covering the demographical factors of the clients who are enrolled in the current loyalty program and have redeemed their points in any of the mentioned categories at least once through this program. The investigation of the demographical variables of the current enrolled clients will grant the bank a thorough understanding of its current clientele and will be a valuable tool to allocate its loyal customers into various categories based on their demographical criteria, equipping the marketing department with updated data to target their clients with customized offerings and rewards to increase their retention rate.

Chapter 2 – Review of Literature

2.1- Literature on the Term Loyalty

In the 1940s, the concept of Loyalty was thought to be a unidimensional criterion, defined by the measurement method of a researcher. However, shortly after, two consequent separate concepts of Loyalty were discussed by the researchers. The first type of loyalty denominated as Attitudinal Loyalty (Guest, 1944, 1955), whereas the second, discussed by Cunningham (1956), would be Behavioral Loyalty.

In 1969, Day proposed that the concept of Loyalty is to become a mixture of both attitudinal and behavioral loyalty, followed by Jacoby (1971) publicizing that both types must be combined into one entity and called Composite Loyalty, whereas this type of Loyalty necessarily implicates positive attitudes, intentions and repetitive purchases (Jacoby and Chestnut, 1978). Other features such as purchases recentness and purchase amounts have been added to the previously mentioned measures of composite loyalty (Pritchard and Howard, 1997; Hunter, 1998; Matzler et al. , 2008; Kiyani et al. , 2012).

While other studies declared that Loyalty evolves in stages, Thiele (2005) argued that: "loyalty is not necessarily a series of hierarchical stages, and should not be considered to always comprise favorable attitudes, intentions and repeat purchases… Customers may exhibit or possess different degrees of loyalty".

From a different perspective, customers distinguish between the two types of loyalty they experience: the loyalty to a program, which is affected by financial incentives and loyalty to a company which is based on the value of the company in the eyes of the client (Evanschitzky et al., 2012)

2.2- Literature on Loyalty Programs

Defined as "vehicles for maintaining customer loyalty" (Uncles, Dowling and Hammond, 2003) companies are heavily relying on reward programs to expand the corporate relationship with their customers: the clients are then enrolled in such programs where they are rewarded for maintaining an on-going relationship with these firms.

These programs build customer loyalty by rewarding worthwhile customers with incentives especially those who are in favorable business segments with the firm by insuring that the clients perceive the value of their relationship with the firm and are well satisfied (Bolton, Kannan and Bramlett, 2000). Accordingly, they are building long term relationships and reinforcing their commitment to their members to lock them to their brands (Dowling and Uncles, 1997).

In a study of the impact of Loyalty programs on consumer purchase and behavior, Liu (2007) indicated that the integration of a loyalty program in a company's CRM (Customer Relationship Management) strategy can be an indicator of this firm's promise and disposition to create and maintain effective long-term relationships with its' customers regardless of the cost of such programs. Not to mention that the customers categorized as loyal are viewed as valuable assets at their particular firms: these firms believe that retaining loyal customers is cheaper than acquiring new ones (Fornell and Wernerfelt, 1987).

Recently, there has been an increase in the introduction of loyalty programs in different business fields, and the clients are increasingly more interested in joining them for the rewards they believe they will receive. In fact, consumers are encouraged to take part in loyalty programs since they recognize that enrolling in such programs means they are receiving something for nothing in return (Uncles, 1994). Sheth and Parvatiyar (1995), noted that rewards –when given- will positively encourage a company's loyal clients to repeat their purchases and deepen their relationship with this firm. Bitner (1995); Gwinner, Gremler, and Bitner (1998), added with their respective studies to the last idea that rewarding clients with free incentives somehow demonstrates a company's appreciation and acknowledgement of client's loyalty to the firm. Dorotic, Verhoef, Fok and Bijmolt's (2014) findings stated that clients' decision to redeem their collected points through a loyalty program reinforces their behavior to collect more points by spending more. They also concluded in the same study that loyalty program members who redeemed their points for a reward at least once, are more likely to increase their expenditures in amounts and frequency.

On another note, studies found that not only the rewards themselves encourage the clients to remain loyal to a firm. Blattberg et al. (2008) and Palmatier et al. (2009) findings stated that clients who redeem rewards exhibit positive attitudes towards the

rewards program and further driven to increase the frequency of purchases to obtain more points without any external pressure from the firm. Other factors that take part in the success of a loyalty program like customer service and attention to detail matter as well. This idea was supported by Bowman and Narayandas (2001), in their study in which they found that loyal clients appreciated the contact with the customer service center and found it more valuable than the reward itself, leading to the belief that a customer's sensitivity to the value of a loyalty program can be affected by the essential factors that support such a program, i.e.: customer service staff friendliness and professionalism, helpfulness and interaction.

2.3- Specific Literature on Loyalty Programs in Banks

85% of households in the United States were enrolled in at least one loyalty program out of which are credit card and miles (frequent flyer) programs.(Simon, 2007).

As a result of the increasing use of credit cards as an electronic payment method among customers, the financial industry is witnessing a huge competition among financial institutions (Subramaniam and Marimuthu 2010); encouraging the banks to advance in their services as well as attempt to comprehend their customers' preferences (Ming-Yen Teoh, Chong and Mid Yong, 2013).

Banks are finding new ways to make their operations more lucrative by encouraging their clients to obtain new credit cards offering additional customer benefits and rewards in order to gain access to new intact markets. Commercial banks around the world have adopted the Loyalty Programs trend and created different versions of reward offerings to further engage their clients in financial transactions and encourage them to increase their credit cards expenditures. (Chakravorti, 2003)

In 2006, Breitkopf concluded that card holders are using less ATM machines for cash withdrawal transactions due to the hefty charges the banks impose and are progressively using their cards for POS (point of sale) transactions: in fact, clients are becoming increasingly aware of the benefits of collecting loyalty points and benefiting from cashback rewards due to their POS transactions.

Liu (2009), in a study of credit cards reward programs in China, has detected that banks are further investing in loyalty programs in which there are three types of rewards that the cardholders can choose from: points-based gifts programs, cash back

and airline miles, whereas some programs offer all of them at once. Moreover, Verhoef (2003) conducted a study of the loyalty programs' effectiveness in financial industries, only to find that the clients who participated in an insurance company's loyalty program, showed a higher degree of likeliness to stay loyal to the firm, only making them further interested in increasing their business transactions with this firm. Supportive of this idea, Bolton, Kannan and Bramlett, in the mentioned study conducted in the year 2000, found that the clients who were members of the credit card loyalty programs at financial firms, gave less attention to their previous bad experiences with these firms once making new business decisions versus those who were non-members. Yet, their study did not prove that the loyalty programs of these firms increased the retention of their members, nevertheless they detected that there was an increase in the consumption on credit cards among members rather than non-members of these programs. Likewise, according to Carbo-Valverde and Linares-Zegarra (2011), the average spending on credit cards versus cash is larger for the clients who possess cards with loyalty programs. In fact, when referring to a study conducted in Spain regarding the same concept, these authors reported the difference in amount of card transactions among cardholders who receive and don't receive rewards with their cards and concluded that those who receive these rewards make 5.2 more card transactions than those who don't.

The existence of a loyalty program at a firm can decrease the absence of commitment from its customers and their transition to another firm, since it raises switching costs unto the clients themselves: this was explained by the observation that the consumers at a firm that offers a loyalty program, are more likely to concentrate their expenditures through one program to benefit the most of the rewards they are eligible to receive, since they are aware that such programs primarily reward the repeated purchases of its members (Sharp and Sharp, 1997). Keh and Lee (2006), also stated that credit cards issuers, i.e. commercial banks in general, should have their own loyalty programs not only to give their clients more reasons to make more purchases but also to boost their value proposition.

The characteristics of members in a loyalty program might affect the relationship between their redemption behavior and their purchasing. (Dorotic, Verhoef, Fok and Bijmolt's, 2014): clients who are active members of loyalty programs may react in different ways to the programs depending on their usage or expenditure, their own

previous involvement in the program or even their demographical factors (Kim et al., 2001; Liu, 2007; Bolton, Kannan, & Bramlett, 2000; Leenheer et al., 2007; Lemon & von Wangenheim, 2009; Magi, 2003).

The listed literature guided the researcher of this study to investigate the effect of the adopted independent variables on the total spending of the clients noting that increased credit card usage indicates advanced levels of client loyalty at the bank, whereas the cardholder is collecting more points loyalty points with every purchase on his/her card.

Liu (2009) specified that: "most of the studies related to credit card point-reward programs have been conducted in developed countries, where they are well-established" (p.405); therefore, this statement points toward the need to further research this topic in under-developed countries like Lebanon.

The main research questions intended for this analysis are as follows:

- Is there a linear association among client characteristics such as number of cards held by client, frequency of redemption of points, total points redeemed on certain reward category and the amount spent on credit cards after the inception of a loyalty program?
- Does the credit card spending, vary significantly with respect to demographical factors like gender, marital status, job occupation and income range?

There is an important aspect into this research with a growing need to dissect these research questions to expose the factors behind the increasing spending on credit cards by a client at a commercial bank in Lebanon, all while looking closely at demographical factors and other client characteristics that will be of necessary use to bankers to tailor their customer retention programs effectively.

Chapter 3 – Procedures and Methodology

3.1- Introduction

Referring again to Bolton, Kannan and Bramlett's study in 2000, it has been suggested that companies that operate a loyalty program must apply ways to compute and determine the future usage levels of their clients in order to conclude their program's durable worth and actual usefulness.

As a matter of fact, in 2003, Lal and Bell, in their study of frequent shopper programs to analyze the effects of consumer usage levels on loyalty program, have observed that the most spending clients showed minimal modification in their spending attitude in contrast with little and modest payers, knowing that both types were aware of the existence of such rewarding programs.

Ferguson and Hlavinka (2007), in their case study analysis of how banks should choose the right tools for their relationship banking strategy, have differentiated between the client's and the bank's definition of "relationship" in a long-term perspective: "while banks view relationships in terms of the number of products a customer has with the bank, consumers view relationships in terms of confidence and trust" (p. 112). The authors also stated that in order for a retail bank to remain successful in its retail banking loyalty strategy, it has to show its customers that it is concerned and cares the most for its loyal clients' wellbeing. Since members of such programs may perceive the benefits of their rewards differently, this paper is aiming to study the factors that could lead to the change in the credit card spending among active members of a loyalty program at the commercial bank, subject of this study in Lebanon.

Customer behavior has been proved to be affected by numerous influencers some of which are psychological, cultural, social and personal (Elbert and Griffin, 2017) believed to be keys in the expectation of consumption trends (Case et al., 2012).

Similarly, this paper will then focus on the demographical variables that are believed to have influence on the choice of program members on how much they use their cards, in which category they redeem their collected points and how did their spending behavior change after introducing a varied loyalty program at the bank. Recently, a close study has been conducted by Seiler, Rudolf and Krume in 2013,

entitled: "the influence of socio-demographic variables on customer satisfaction and loyalty in the private banking industry" from which the author discussed some variables below.

3.2- Selected Variables and Proposed Hypotheses

It is first important to mention that in the case of Bank X, for every one dollar spent on purchases made with credit cards, the client collects one point in return. The clients have the ability to redeem their collected loyalty balance at any point in time through any reward category they choose. Thus, the total spending on credit cards by clients is perfectly equivalent to the number of loyalty points collected per each loyalty program member.

The demographical variables to be studied at the cardholders' level have been deduced from different studies, mainly the one conducted by Seiler, Rudolf and Krume in 2013 in which these authors analyzed a set of demographical variables and their influence on loyalty: gender, age, education type and level and income range, all observed in relevance to the value of growth and achievement in one's life.

Within this study, the authors found that generally, women who pursue growth and achievement in their lives, tend to become less loyal to one institution than men. Supporting studies also observed that females generally seek variety more than males (Mitchell and Walsh, 2004). However, females made transactions on their credit cards in numbers that outperformed those made by males (Lenormand et al., 2015), reconfirmed in a study that concluded similarly: women are expected to spend more on their cards than men do (Sobolevsky et al., 2016), signifying that women are more loyal than men to the bank they deal with: From the bank's perspective, increased card usage means the clients have accumulated further loyalty points, since effective loyalty programs offered on credit cards are more likely to encourage clients on using these cards as their payment method (Ching and Hayashi, 2008), therefore, leading to this research's first hypothesis:

H_1: *Cardholder's accumulated loyalty points vary with subject's gender.*

Similarly, the same study of Seiler et al. (2013) have found that advanced age leads people to become less loyal to their respective bank, especially when they give more importance to growth and achievement in their lives as they age. On the contrary,

studies by Homburg and Giering (2001) and Evanschitzky and Wunderlich (2006) stated that people show more loyalty as they grow older. On the other side, deduced adolescents were found to favor credit cards over carrying cash money to settle their payments since this modern digital method grants them more payment flexibility (Kim and DeVaney, 2001), only meaning that an increased usage of credit cards will lead to further collection of loyalty points for this age group. Bank X should then take into consideration the age of cardholders to check whether the program members are adolescents or adults. This reflection leads to this paper's second hypothesis:

H_2: *Cardholder's accumulated loyalty points vary with subject's age.*

As for the customer's education level, their study was not able to find a direct relationship between the total credit card spending of customers to their institution in relation to their education background type and level, only indicating that this criterion needs to be further researched to examine the effect of education on customers' loyalty. Consequently, this paper will try to extract relevant information to this factor, setting grounds for the third hypothesis:

H_3: *Cardholder's accumulated loyalty points vary with subject's education level.*

With respect to their last factor, income range; Seiler et al. (2013) deduced that individuals who are after personal growth and achievement and earning high incomes are less likely to be loyal to their current institution. Yet, individuals who earned relatively high manifested significantly higher credit card acquisitions (Devlin, Worthington and Gerrard, 2007). Hence, the bank is further interested in studying the total credit card spending of high earners, formulating the forth hypothesis in this research:

H_4: *Cardholder's accumulated loyalty points vary with respect to subject's income.*

In a study delivered by Khare (2013), the marital status has also been recognized as a demographical element designating on spending behavior of individuals with differences among single and married people; confirming Limbu and Xu's study (2012) about the credit cards expenditure differences among married and non-married people (namely single, widowed and divorced): Married people showed higher usage on their credit cards than those belonging to the second category. That

being so, a cardholder's marital status and total credit card spending investigation lead to the next formulated hypothesis:

H_5: *Cardholder's accumulated loyalty points vary with respect to subject's marital status.*

For the reasons stated above, this paper will study these factors specifically in relevance to the Lebanese market while including some additional elements that the author of this paper finds significant to add depth to other findings, such as: number of active cards held per client during each year (2016 and 2017), total number of points redeemed during each year (2016 and 2017), category in which client's points were redeemed each year (2016 and 2017), redemption frequency of client each year (2016 and 2017), customer's job position (as of 2017) and place of residency (as of 2017); consequently leading to the remaining hypothesis to be tested in this paper:

H_6: *There is a significant linear relationship between number of active credit cards owned by client in 2016 and client's accumulated loyalty points.*

H_7: *There is a significant linear relationship between number of active credit cards owned by client in 2017 and client's accumulated loyalty points.*

H_8: *There is a significant linear relationship between total number of points redeemed by client in 2016 and client's accumulated loyalty points.*

H_9: *There is a significant linear relationship between total number of points redeemed by client in 2017 and client's accumulated loyalty points.*

H_{10}: *Cardholder's accumulated loyalty points vary with respect to subject's choice of points redemption category in 2016.*

H_{11}: *Cardholder's accumulated loyalty points vary with respect to subject's choice of points redemption category in 2017.*

H_{12}: *There is a significant linear relationship between frequency of points redemption by client in 2016 and client's accumulated loyalty points.*

H_{13}: *There is a significant linear relationship between frequency of points redemption by client in 2017 and client's accumulated loyalty points.*

H_{14}: Cardholder's accumulated loyalty points vary with respect to subject's profession.

H_{15}: Cardholder's accumulated loyalty points vary with respect to country of residence.

The study of the mentioned factors will be insightful in detecting the changes occurring on cardholders' expenditure rates on their credit cards during the period in which the loyalty program at the bank has been introduced (early 2016) and ongoing, therein hopefully indicating trends and key aspects of the trends behind such a program.

This overall study will equip the bank with an overall knowledge about its existing clientele base in order to launch further retention programs aiming to increase the customers' loyalty at the bank, while also attracting new clients with an updated value proposition in the future.

3.3- Philosophical Dimension and Research Orientation

In academic research, two philosophy paradigms prevail, namely positivism and phenomenology also known as constructivism. According to Easterby-Smith et al. (2008), four main categories of differences exist between both philosophical schools.

In summary, a positivist approach relies on a large sample size representative of the whole population, allowing larger room for generalization of deduced results. The researcher ensures empiricism in the study since it focuses on analysis and the use of quantitative data, obtained through observation, measurement and followed by testing. Objectivity dominates when this philosophical approach is used since the researcher is separate from the observed, noting that most positivist papers use the deductive reasoning, also titled the "top down" reasoning, making use of available theories to gravitate towards a general idea the researcher is reviewing. A deductive reasoning usually entails the proposition of research hypotheses, gathering of data and completed with an investigation of findings in the aim of authenticating or rejecting the formulated hypothesis.

On the other side of philosophical dimensions, phenomenology is used when the observer is directly involved in the research process such as in observations and collection of the data. In this case, the reality of the research is constructed and is

looked at from a holistic approach and the research is performed on a relatively small sample but in greater depth or even over an extended period of time. The researchers applying a phenomenological approach tend to rely on "bottom up" reasoning, starting their studies from one single idea, in hope of instituting new concepts.

Relevant to the discussed above, this research will implement a positivist deductive approach by using quantitative methods on secondary data collected from Bank X's records. In order to guarantee total objectivity and protect this research's validity, the acquired data is retrieved unchanged and un-manipulated. The application of this philosophical approach is known for its aptitude to generalize the findings of a study, therefore representing the whole population in time and space, while ensuring causality in the research context: linear causal relation among the dependent and independent variable(s) through statistical examination.

3.4- Research Strategy and Methodology

The main purpose of this study is to investigate the total spending of cardholders on their credit cards since the inception of the bank's loyalty program in order to deduct whether the total number of points accumulated increased with the introduction of this new rewards program.

The strategy approach to make this research is a longitudinal case study, where the total spending of the bank's clients was taken into consideration for two consequent years after the inception of the bank's loyalty program.

The research methodology selected for this paper comprises of the use of secondary archival data concerning the cardholders' spending on their credit cards since loyalty program inception (early 2016) and demographical factors in a regression model. SQL database was the main tool to collect the raw data, backed by Microsoft Excel software used to load the collected information and deploy it in an overall worksheet. The filtered information was processed through SPSS (Statistical Package for Social Scientists), one of the most efficient programs for information and data processing for statistical purposes. The data used in this research was collected from Bank X after obtaining the consent of the bank's management, under full confidentiality agreement to ensure clients' privacy due to the banking secrecy regulations that forbid access and publishing of similar delicate information.

Pertaining to what is mentioned above, the obtained data is categorized as archival, considered to be one of the most convenient types for studies similar to this one, and known to increase, objectivity, reliability, validity and robustness of the findings versus other known research methodologies like questionnaires or observations. Nonetheless, the gathering of the archival data can reveal itself uneasy due to the probabilities of receiving blank spots in the huge amounts of data entries leading to possible inaccuracies, overlaps or inaccessible elements. Similarly, the acquisition of the needed data for this study prolonged for up to two months and a half, all while ensuring full confidentiality and non-manipulation during the processing of the sheets after the special access that has been granted from several senior managers and IT staff to extract these required files, not to mention the need for extra effort to manually fill countless blanks with data from the bank's systems.

In any quantitative data based research, reliability and validity are of relevant significance to test whether the used scales measure what they are supposed to and also test for the consistency level of the performed measurement.

Inter-Rater reliability, mainly observed for qualitative data, refers to the degree of agreement between two independent variables, therefore deemed not applicable in this research. Other forms of reliability consist of the test re-test, and internal consistency reliability, the latter usually verified using Cronbach Alpha, viewed as not pertinent in this specific research, due to the fact that all data used in this study is purely archival, therefore facing no threats regarding reliability. However, in order to take a further step and ensure that the data was in fact reliable, the Cronbach Alpha rate has been extracted and revealed itself to be 0.701, an accepted indicator of reliability.

As for validity, we mention the three types relevant to this research paper: external, internal and construct validity.

External validity depicts the degree to which the findings of a research applies to the broader population, allowing the researcher to project the results of the sample to the whole population in time and space. The raw data for this research has been extracted in times of poor stability in the Lebanese territory, with ongoing changes in the economy, mainly in 2016 and 2017. For this reason, time might impose a slight threat to external validity due to the fact that during these two years, the country has

been experiencing some political turmoil regarding election laws accompanied with increasing price indexes in the Lebanese market. Not to forget the sudden increase in interest paid on deposit and saving accounts in Lebanese Pounds, encouraging banking clients to fund their saving accounts by saving more money and cutting on their expenditures. Any outliers resulting from the mentioned will be omitted to strengthen the study's external validity.

On the other hand, internal validity, primarily relevant when applying quantitative methods, accounts for how much the chosen independent variables are responsible for the variations observed in the dependent variable without any other interference. Specific to this research, one of the main threats on internal validity could be the threat of regression, a statistical occurrence during which "extreme scores tend to regress or cluster around the mean on repeated testing occasions".

As for construct validity, the degree to which the proposed theory best explains the findings of a research, this paper determined that there are no relevant threats, eliminated by the use of archival systematic data obtained from the bank.

3.5- Population and Sampling Procedures

In studies related to the banking industry, with on-going concerns of data privacy, the collection of sensitive information has showed itself to be cumbersome at many instances. For this reason, this research has used various techniques to draw the needed data from the studied population in order to read into the figures and criteria of clients from bank X enrolled in its current loyalty program.

However, it is interesting to underline the fact that the loyalty program under this study has been introduced by Bank X early on in 2016. The gathered data dates from early 2016 (since program inception) until end of 2017. Therefore, the extracted information is considered to cover all cardholders active in the bank's loyalty program whether they are resident in Lebanon or anywhere abroad, rendering the right sample that is believed to be totally representative, unbiased and assumed as accepted be generalized on cardholders who are soon to be active in this program by the start of 2018. Active reward program members acquired after end of 2017 were omitted since the retrieval and analysis of relevant data started by late end of 2017 and was only finalized by March 2018. The addition of new program members turned to be time consuming and relatively chaotic to the researcher. The selected

sample, which is same as the population is considered to be highly illustrative for the purpose of this research due to the large and diversified categories of data collected for each client. The total population size is 2,960 enrolled clients in bank X's loyalty program, leading to an exact sample size of 507 clients who redeemed some or all their points using this program, for at least once.

3.6- Proposed Model

After several and time consuming approvals obtained from the bank's management, the archival data for this research has been acquired through the bank's records and retrieved from SQL servers as well as excel reports received from the cards issuing entity, the sole acknowledged card issuer for bank X.

The retrieved records have been then grouped and summarized in excel sheets, reaching a total transactions number of 20,423 credit cards expenditure entries for 2016 and 2017.

The total number of 805 registered clients in the loyalty program by end of 2017 were labeled as accepted records, both active and inactive. A client is determined as registered when he/she activates his/her account without necessarily redeeming any of his/her collected points. Accordingly, 507 active clients have been filtered and referred to as the chosen sample of active clients. However, 30 additional entries have been omitted due to lack or inconsistency of data in some record categories such as income range, occupation, age, etc. A final sample of 477 entries, with fully integrated data records was then created, formed the initial data input in the SPSS (Statistical Package for Social Scientists), being one of the finest programs for the analysis of similar statistical data.

For highly detailed research purposes, the sample was then re-divided into two main categories. Clients categorized as individuals were differentiated from clients known to be companies, whereas individuals turned out to be a total of 455 clients and the rest, 22 observations were then shifted to the companies' category. One distinctive observation was omitted for this study, whereas the reason behind this action is discussed in section 4.2.2. In order to test the 14 aforementioned hypothesis, (H_1 to H_{14}), the beneath multivariate regression model has been established as shown in equation 3-1:

Equation 3. 1: Suggested Regression Equation for the Model

$$\mathbf{Y}\ \textit{(TSC 2017)} = \beta_0 + \beta_1 \text{ x gender of client by 2017} + \beta_2 \text{ x age of client by 2017} + \beta_3 \text{ x education level of client by 2017} + \beta_4 \text{ x income annual average of client by 2017} + \beta_5 \text{ x marital status of client by 2017} + \beta_6 \text{ x number of owned active cards per client in 2016} + \beta_7 \text{ x number of owned active cards per client in 2017} + \beta_8 \text{ x number of total points redeemed per client in 2016} + \beta_9 \text{ x number of total points redeemed per client in 2017} + \beta_{10} \text{ x number of points redeemed in reward category per client in 2016} + \beta_{11} \text{ x number of points redeemed in reward category per client in 2017} + \beta_{12} \text{ x frequency of points redemption per client in 2016} + \beta_{13} \text{ x frequency of points redemption per client in 2017} + \beta_{14} \text{ x job position of client by 2017} + \varepsilon_t$$

Where:

β_0 is the intercept

β_n are the regression coefficients ($1 \leq n \leq 14$)

ε is the error term

Table 3. 1: Screenshot of the Final Data File

branch	acont nbre	Ci	Y (16-17)	Branch	#active cards 16	#active cards 17
0002	138231	C1	$58,698	Hamra	3	6
0011	187364	C2	$50,605	Allenby	1	3
0002	179094	C3	$111,736	Hamra	4	5
0010	125261	C4	$13,137	Tarik el Jdideh	2	2

FOR 16	T. pts redeemed 16	miles pts 16	cashback pts 16	gifts pts 16
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

FOR 17	T. pts redeemed 17	miles pts 17	cashback pts 17	gifts pts 17
1	16,333	16,333	0	0
1	32,000	0	32,000	0
1	51,667	51,667	0	0
1	8,550	0	8,550	0

Gender	Annual Income USD	Country	Age	Marital Status	Education Level	Segmented profession
0	$75,000	Lebanon	61	1	1	2
0	$150,000	Lebanon	44	1	0	3
0	$75,000	Lebanon	58	1	2	3
0	$40,000	Lebanon	69	1	0	2

Chapter 4 – Findings and Analysis

4.1- Introduction

In this chapter, the characteristics of all of the chosen variables will be presented through the use of descriptive statistics followed by testing of the formulated hypothesis through a multivariate regression analysis in order to reject or accept them.

Therefore, the framework will be divided into four main sections: Section 4.2 will cover the descriptive statistics for this research. To further exploit this research, various non-parametric tests were conducted on some demographical variables due to their nominal nature, such as the Mann-Whitney U-test and the Kruskal-Wallis H-test, to be discussed in details in section 4.3.

Section 4.4 which will focus on the findings of a regression analysis, followed by the results regarding the formulated hypotheses of this research in a separate section.

4.2- Descriptive Statistics

In this section, the paper will focus on the descriptive statistics of the adopted variables, namely the observation of frequencies, means and standard deviation of variables. The skewness and the kurtosis of the data will be looked into to test the normality of the distribution.

4.2.1- Non-Metric Variables

The only non-metric variable in this research is the residence country of the cardholder as at 2017. As shown in table 4-1, the final valid sample size equals to 454 clients.

Table 4. 1: Valid Versus Missing Values for Individuals' Sample Statistics

Statistics

Country

N	Valid	454
	Missing	0

Reference to table 4-2, 93.6% of the cardholders actively enrolled in the loyalty program are currently living in Lebanon, while the rest are scattered around 10 other

countries around the world. The companies sample did not deliver information on the country from which the company operates; hence the table below is only for the individuals' category.

Table 4. 2: Country of Residence Percentages

Country

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	China	1	.2	.2	.2
	Cote D' Ivoire	1	.2	.2	.4
	Greece	9	2.0	2.0	2.4
	Lebanon	425	93.6	93.6	96.0
	Liberia	1	.2	.2	96.3
	Qatar	1	.2	.2	96.5
	Saudi Arabia	6	1.3	1.3	97.8
	Syria	1	.2	.2	98.0
	UAE	7	1.5	1.5	99.6
	UK	1	.2	.2	99.8
	United Arab Emirates	1	.2	.2	100.0
	Total	454	100.0	100.0	

Table 4-3 reports the average spending on credit cards by the individuals distributed according to the country of residence. Even though the majority of active members of this program are in Lebanon, two other countries showed an average spending higher than the one observed for Lebanon.

Table 4. 3: Average Total Spending Across the Countries

Report

Y (16-17)

Country	Mean	N	Std. Deviation
China	4252.00	1	.
Cote D' Ivoire	135258.00	1	.
Greece	64019.67	9	46903.252
Lebanon	89452.02	425	162298.982
Liberia	43974.00	1	.
Qatar	39619.00	1	.
Saudi Arabia	292960.00	6	578691.833
Syria	23791.00	1	.
UAE	282752.57	7	588263.244
UK	17638.00	1	.
United Arab Emirates	137431.00	1	.
Total	94123.96	454	184788.819

After reverting back to the original data input, the researcher determined that the average credit card spending observed for Saudi Arabia and the UAE, belong to 6 customers in Saudi Arabia and 7 in the UAE. This result demonstrates that cardholders, even when abroad, spend increased amounts on their cards and accumulate more loyalty points. It was actually determined that 2 out of 7 clients from UAE joined the program by mid of 2016 whereas the 5 others joined early on in 2017 and redeemed their points more than once. As for the clients living in Saudi Arabia, all 6 of them joined the program in 2017 and redeemed their collected points more than once. The observed results thus lead to the non-rejection of the following hypothesis:

H_{15}: *Cardholder's accumulated loyalty points vary with respect to country of residence.*

4.2.2- Metric Variables

The four moments of a distribution for the remaining metric variables will be described and interpreted in this section to test the normality of the chosen sample. To name the metric variables: Number of active Cards in 2016 and 2017, Frequency of redemption in 2016 and 2017, total number of points redeemed in 2016 and 2017, total number of points redeemed in Miles in 2016 and 2017, total number of points redeemed in Cashback in 2016 and 2017, total number of points redeemed in Gifts/Vouchers in 2016 and 2017, Gender, Average Annual income, Age, Marital status, Education level and Segmented profession and finally, the dependent variable of this study: the total spending on cards of active loyalty program members until 2017.

Since the drawn sample has been divided into two main categories: 455 individuals and 22 companies, this section will follow the same division and discuss each type separately.

While testing for normality of variables, one distinct observation turned to be an extreme outlier in the individuals' category, whereas this observation revealed a Z score of 16, and where the client behind this observation exhibited high expenditure on his credit card, accompanied by elevated points' redemption frequencies mainly

in 2017. The client has been considered to be most likely taking advantage of the loyalty program's system and therefore was omitted from this study, reducing the individuals sample size to 454 observations.

With 454 observations for the individuals' category, table 4-4 indicates that the majority of the tested variables proved to be not normally distributed, where in normal distributions, skewness is between -1 and 1 and kurtosis is between -3 and 3. In the case of this research, the variables were accepted to be left as non-normally distributed since the program at Bank X has been introduced early 2016, and the data gathered reached until end of 2017. In two years, the observations have not yet had enough time to become normally distributed, in order to display accepted ranges of skewness and kurtosis.

Moreover, heteroscedasticity tests are used to check if there is a systematic variation in the error residuals across the set of measured values in a multivariate distribution. As defined by the Oxford online dictionary of Economics (2009), The Glejser test, one of the several tests used to check for heteroscedasticity, is executed by running a regression of the absolute values of ordinary least squares residuals treated as dependent variable, effective only under conditional symmetry, guaranteed in this research. When the p-value of the regressed independent variables is higher than 5%, the latter are considered homoscedastic and functional for upcoming tests.

All tested variables proved to be homoscedastic as their p-values scored more than 5% on the Glejser test, except four variables with p-values lower than 5%: Cashback points redeemed in 2016 and Miles points redeemed in 2017, educational level and income range, considered heteroscedastic. Since the loyalty program at Bank X was introduced in early 2016, it was expected that the clients display different redemption behaviors across rewards categories due to lack of information about this program. In fact, before 2016, the Bank rewarded its clients only with Cashback paid by end of each year. Thus, clients joining the program from its inception were only familiar with the cashback category, and therefore frequently redeemed their collected points through it. In 2017, the clients grew more knowledgeable of the program's features and offers and hence executed further redemptions through the Miles category, explaining the heteroscedasticity of the Miles points redemption 2017 variable. Not to mention that the clients also come from varied education backgrounds and income levels, while it was noticed that the frequency of redemptions in 2017 scored six

times higher than 2016, meaning that a lot of new clients joined the program in 2017, explaining the heteroscedasticity of these two demographical variables. The same reasoning was applied on the companies' category where the variables taken into consideration resulted to be non-normally distributed.

Table 4. 4: Descriptive Statistics for Individuals

Statistics

		Y (16-17)	#active cards 16	#active cards 17	FOR 16	T. pts redeemed 16	miles pts 16	cashback pts 16	gifts pts 16	FOR 17	T. pts redeemed 17
N	Valid	454	454	454	454	454	454	454	454	454	454
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		94123.96	2.60	2.75	.20	10036.98	3136.75	6484.48	415.75	1.25	48613.59
Std. Deviation		184788.819	2.162	2.367	.548	42307.316	17462.794	38406.770	5795.844	.951	105549.724
Skewness		5.305	2.170	2.177	3.959	6.567	8.213	8.271	18.018	3.231	6.988
Kurtosis		34.169	6.200	6.786	22.002	49.096	77.706	73.455	348.432	17.388	63.151
Minimum		1028	0	0	0	0	0	0	0	0	0
Maximum		1675988	15	17	5	382750	201667	382750	115500	9	1270751

		miles pts 17	cashback pts 17	gifts pts 17	Gender	Age	Marital Status	Education Level	Segmented profession	AverageA.Income
N	Valid	454	454	454	454	454	454	454	454	454
	Missing	0	0	0	0	0	0	0	0	0
Mean		30743.01	15491.40	2379.19	.30	50.12	.82	.90	1.86	$122,257.71
Std. Deviation		101490.925	41007.855	10233.933	.460	13.770	.530	.686	1.079	$134,883.736
Skewness		8.015	5.199	5.654	.867	.388	-.155	.133	.113	1.766
Kurtosis		78.729	33.331	35.739	-1.255	-.229	.076	-.875	-.592	2.277
Minimum		0	0	0	0	25	0	0	0	$20,000
Maximum		1270751	376125	92500	1	100	2	2	4	$500,000

Table 4. 5: Descriptive Statistics for Companies

Statistics

		Y (16-17)	#active cards 16	#active cards 17	FOR 16	T. pts redeemed 16	miles pts 16	cashback pts 16	gifts pts 16	FOR 17	T. pts redeemed 17	miles pts 17	cashback pts 17	gifts pts 17	AverageA. Income
N	Valid	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	Missing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean		152613.55	2.45	2.45	.18	30921.05	0.00	30921.05	0.00	1.32	57612.45	41400.45	13981.82	2250.00	150000.00
Std. Deviation		140666.999	2.521	1.535	.395	94502.476	0.000	94502.476	0.000	1.323	68120.123	61098.225	47618.900	10553.435	0.000
Skewness		1.248	2.943	1.833	1.773	3.177		3.177		2.604	1.435	1.688	4.311	4.690	
Kurtosis		1.164	9.938	3.536	1.250	9.409		9.409		7.723	1.007	2.020	19.296	22.000	
Minimum		5914	1	1	0	0	0	0	0	0	0	0	0	0	150000
Maximum		527949	12	7	1	370000	0	370000	0	6	221250	204584	221250	49500	150000

4.3- Non Parametric Tests

A variation analysis conducted on demographical variables studied in this research such as: gender, marital status, education level, and segmented profession showed variations in the number of observations within each variable as follows: Man = 317 vs. Woman = 137; Single = 112 vs. Married = 312 vs. Divorced/Widowed = 30; Up to Baccalaureate 2 = 132 vs. Bachelor = 236 vs. Masters/PhD = 83; ADEJL = 48 vs. BEPP = 124 vs. CCOTR = 158 vs. DM = 92 vs. UN = 32.

For the reader's reference, ADEJL consists of Architects, doctors, Engineers, Judges and Lawyers, all grouped under one segment of professionals. The second segment, BEPP is made of Bankers, miscellaneous employees, painters and professors, while the third one CCOTR groups the Consultants, Contractors, Owners, Traders and Real estate brokers under one profession segment. Last but not least, the DM segment consisting of Directors and Managers and the UN is for Unemployed or Retired clients.

Since gender consists of 2 main components, the Mann-Whitney non-parametric test was used for this variable. The three remaining variables were tested using the Kruskal-Wallis H-test since they are formed with more than 2 components. The discussion of the tests' results follows:

Gender: As represented in table 4-6, the Z score (-2.161) indicates that there is variation in the total spending on credit cards among men and women, with significance of 0.031 ($p<5\%$) to reject the null hypothesis of the U-test: the distribution of Y (16-17) is the same across categories of Gender. Likewise, the t-test designates that the total spending of men ($106,885) exceeds the total spending of women ($64,595). These findings do not match with those of Sobolevsky et al. (2016) who concluded that women are likely to spend more on their cards than men do. However, as mentioned in the literature review, increased card usage leads to increased accumulation loyalty points, meaning that men tend to accumulate more loyalty points than women do, leading to retain this research's first hypothesis:

H_1: Cardholder's accumulated loyalty points vary with subject's gender

Table 4. 6: Mann-Whitney U-test for Client Gender

Ranks

	Gender	N	Mean Rank	Sum of Ranks
Y (16-17)	Man	317	236.25	74890.00
	Woman	137	207.26	28395.00
	Total	454		

Test Statistics[a]

	Y (16-17)
Mann-Whitney U	18942.000
Wilcoxon W	28395.000
Z	-2.161
Asymp. Sig. (2-tailed)	.031

a. Grouping Variable: Gender

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Y (16-17)	Man	317	106885.28	211104.881	11856.831
	Woman	137	64595.95	94513.031	8074.793

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Y (16-17) is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	.031	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Marital Status: Concerning the marital status, the results of the Kruskal-Wallis H-test as in figure 4-1, where p-value is less than 5%, clearly implying that the total spending on credit cards is not the same across the different categories: single, married and widowed/divorced, thus rejecting the null hypothesis.

Figure 4. 1: Kruskal-Wallis H-test for Marital Status

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Y (16-17) is the same across categories of Marital Status.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

With the aim of depicting the differences among the single, married and divorced/widowed clients in terms of their spending on their credit cards, a Mann-Whitney U-test was conducted on each pair of categories, resulting in the below table:

Table 4. 7: Mann-Whitney U-test for Marital Status Paired Categories

Single vs. Married:

Ranks

	Marital Status	N	Mean Rank	Sum of Ranks
Y (16-17)	Single	112	161.82	18124.00
	Married	312	230.69	71976.00
	Total	424		

Test Statistics[a]

	Y (16-17)
Mann-Whitney U	11796.000
Wilcoxon W	18124.000
Z	-5.102
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: Marital Status

Group Statistics

	Marital Status	N	Mean	Std. Deviation	Std. Error Mean
Y (16-17)	Single	112	40566.39	44935.945	4246.048
	Married	312	113757.75	212913.768	12053.868

Married vs. Divorced/Widowed:

Ranks

	Marital Status	N	Mean Rank	Sum of Ranks
Y (16-17)	Married	312	171.92	53638.00
	Widowed/Divorced	30	167.17	5015.00
	Total	342		

Test Statistics[a]

	Y (16-17)
Mann-Whitney U	4550.000
Wilcoxon W	5015.000
Z	-.251
Asymp. Sig. (2-tailed)	.802

a. Grouping Variable: Marital Status

Group Statistics

	Marital Status	N	Mean	Std. Deviation	Std. Error Mean
Y (16-17)	Married	312	113757.75	212913.768	12053.868
	Widowed/Divorced	30	89880.77	155807.451	28446.418

Single vs. Divorced/Widowed:

Ranks

	Marital Status	N	Mean Rank	Sum of Ranks
Y (16-17)	Single	112	66.52	7450.00
	Widowed/Divorced	30	90.10	2703.00
	Total	142		

Test Statistics[a]

	Y (16-17)
Mann-Whitney U	1122.000
Wilcoxon W	7450.000
Z	-2.789
Asymp. Sig. (2-tailed)	.005

a. Grouping Variable: Marital Status

Group Statistics

	Marital Status	N	Mean	Std. Deviation	Std. Error Mean
Y (16-17)	Single	112	40566.39	44935.945	4246.048
	Widowed/Divorced	30	89880.77	155807.451	28446.418

The collected tables show that the highest Z score was observed when difference was computed between Single and Married clients (-5.102), followed by the Z score of difference between the Single and Divorced/Widowed clients (-2.789), and lastly between Married and Divorced/Widowed clients (-0.251) all at 5% significance level. The conducted t-test indicate that married clients spent the most on their credit cards during 2016 and 2017 ($113,757), followed by Divorced/Widowed cardholders, with an average spending of $89,880 on their cards, leaving the single clients at the end with an average of $40,566 spent. The results discussed above indicate that Married cardholders spend the most on their credit cards, confirming Limbu et al. 's study in 2012 that observes a higher spending on credit cards from married people, which designates that married clients accumulate more loyalty points than other marital status categories, leading to retain another hypothesis in this study:

H_5: *Cardholder's accumulated loyalty points vary with subject's marital status.*

Educational Level: As for this variable, it has been first tested using the Kruskal-Wallis H-test as shown in figure 4-2. The test revealed a p-value level of 0.687 (p>5%), leading to retain the null hypothesis and proving that there is no difference in credit card spending across clients with different educational levels.

Figure 4. 2: Kruskal-Wallis H-test for Educational Level

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Y (16-17) is the same across categories of Education Level.	Independent-Samples Kruskal-Wallis Test	.687	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Previous studies were not able to determine the relationship between the loyalty of a bank's client and his/her educational level in terms of credit card spending. Consequently, setting grounds to reject the third hypothesis:

H_3: *Cardholder's accumulated loyalty points vary with subject's education level.*

Segmented Profession: Reference to the variable regarding the segmented professions of clients, the Kruskal-Wallis H-test shown in figure 4-3, returned with a p-value less than 5%, meaning the null hypothesis is to be rejected and indicating that there is difference in the credit cards spending across the different segments of professions in the sample.

Figure 4. 3: Kruskal-Wallis H-test for Segmented Profession

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Y (16-17) is the same across categories of Segmented profession.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

The below table 4-8 below summarizes the results when the Mann-Whitney U-test was conducted on each pair of profession segments.

Table 4. 8: Summary of Mann-Whitney U-test for Segmented Professions Paired Categories

Segment type 1	vs.	Segment type 2	Z-score
ADEJL (0) Mean Y_{ADEJL} = $70,484	vs.	BEPP (1)	-2.878
		CCOTR (2)	-1.067
		DM (3)	-0.018
		UN (4)	-0.098
BEPP (1) Mean Y_{BEPP} = $54,114	vs.	CCOTR (2)	-5.504
		DM (3)	-3.697
		UN (4)	-2.519
CCOTR (2) Mean Y_{CCOTR} = $132,449	vs.	DM (3)	-1.264
		UN (4)	-0.920
DM (3) Mean Y_{DM} = $95,891	vs.	UN (4)	-0.063
UN (4) Mean Y_{UN} = $90,306	-	-	-

The non-parametric test conducted on profession segments 1 and 2, BEPP and CCOTR resulted in the highest Z-Score, indicating that there is a significant variation between both segments, confirmed by the p-value less than 5%.

The average total spending on credit cards for the BEPP (banker, employee, painter, professor) segment indicated $54,114 during 2016 and 2017 and revealed itself to be the lowest spending segment in this research. On another hand, the segment CCOTR, mainly including business owners, contractors, traders etc… exhibited the highest mean of total spending on their cards, at a mean of $132,449 during 2016 and 2017. Surprisingly, the second highest scoring among profession segments was the UN segment which is mainly formed out of unemployed and retired clients. This result underlines the necessity of further research to be conducted regarding this matter. In view of that, it is then assumed that the total spending of clients on their credit cards varies with the type of their related profession. Self-employed professionals like contractors, traders, real estate brokers…etc. tend to show increased levels of expenditure on their cards, therefore leading to augmented amounts of loyalty points accumulated through this bank's reward program. Subsequently, $\boldsymbol{H_{14}}$: *Cardholder's accumulated loyalty points vary with respect to subject's profession* is then retained.

4.4- Regression Analysis: Testing the Constructed Model

4.4.1- Regression Analysis on Individuals Category

Known to be used as a parametric test, the linear regression model used for this research comprised of 18 different metric variables, where some of them were originally of nominal nature and then turned into metric variables in order to integrate them in the equation.

In fact, this section will start by describing the integrated variables of this model as below:

The number of active cards 2016 and 2017, the frequency of redemption 2016 and 2017, the total number of points redeemed in 2016 and 2017 and their respective categories and age are all metric variables and presented no issue in integrating them in the regression model.

As for the variable related to gender, all men were denominated as 0 and women as 1 in the individuals' category, while in the companies' category, every observation showed N/A (not applicable) since companies have no indication on the gender and this variable was therefore omitted in the companies' category of observations. Similarly, the marital status variable was turned into a metric variable after assigning 0 to single clients, 1 to married and 2 to the widowed and divorced together, them being a minority (30 observations out of 454) in the individuals' category. In the companies' category of observations, the marital status was also omitted due to its inapplicability for this type of clients.

Relevant to the education level of the client, observations showing levels equal to or below Baccalaureate 2 (consistent with the Lebanese education system) were grouped under the denomination 0, bachelor levels grouped under the denomination 1 and Masters and PhD levels under 2, all within the individuals' category, whereas in the companies' category, this variable was removed due to similar reasons mentioned above.

Last but not least, the gathered information about the professions resulted in the grouping of observations under 4 different segments: Architects, doctors, engineers, judges and lawyers were grouped under one segment called ADEJL, since they are all considered as self-employed due to the nature of their jobs, and were denominated

as 0 for metric reasons. The bankers, miscellaneous employees, painters and professors, were grouped under BEPP, and denominated as 1. This genre of clients was gathered under the same profession type since they all experience the same level of monetary remuneration, and are believed to belong to the same social class in terms of professions. On another side, contractors, consultants, business owners, traders and real estate brokers, belong to one segment titled as CCOTR, and denominated as 2. The fact that this type of clients is already on a higher scale of income and business outcome lead the author of this paper to gather them under one profession segment, noting that every single profession in this genre is the sole inventor of his/her own business.

The last two segments turned to be as follows: DM denominated as 3 including all directors and managers, and UN, indicating the unemployed/retired clients and denominated as 4. The discussed components belong only to the individuals' category since the researcher was not able to obtain business information on each company observation, therefore becoming obliged to eliminate this variable as well for the latter category.

Lastly, the income range of each observation has been individually clustered under one average income range group, described as below:

Clients with an annual income range slightly lower or equal to $25,000 have been grouped under the first average income group: $25,000. Clients earning annually between $25,000 and $50,000 were all assembled under the second average income group of $40,000 (almost average of both extremes has been taken for each created range); clients making between $50,000 and $100,000, assembled under income range of $75,000, and earners between $100,000 and $200,000 under the range of $150,000. Similarly, clients earning annually between $200,000 and $400,000 were gathered under the 5th income range of $300,000 and finally those earning more than $400,000 and up to $600,000 per annum, were convened under the last income range group of $500,000, turning this variable into metrics. On the other side, companies' observations all showed an average income level of more than $150,000 for all 22 entries. Therefore, this variable was also omitted in the regression conducted on the companies' category since it turned out to be a constant and could not be inserted in the regression model.

Consequently, the necessity of working with metric variables, all representative of the whole population has been secured, therefore allowing to conduct parametric tests such as the Enter regression analysis.

A quick check up on the Pearson correlation matrix resulted in only 3 variables indicating a Pearson Correlation level above 0.75: Number of active cards 2016 and 2017 resulted in a multicollinearity level of 0.907; total points redeemed during 2016 and total points redeemed on cashback during 2016 indicated 0.900 and total points redeemed during 2017 and total points redeemed on miles during 2017 at 0.921. These three cases are tolerated in comparison to the total number of observations displaying no multicollinearity, especially that this case is expected between variables that are quite similar, noting that total number of points redeemed on cashback and miles is already a part of the total number of points redeemed in a certain year.

When running the Enter regression analysis for the first time including all previously mentioned metric variables, the SPSS program excluded two main variables: the total number of points redeemed in 2016 and 2017. Therefore, the total number of points redeemed in 2016 and 2017 were exceptionally transformed using a logarithmic transformation in these variables. A second Enter regression was tested, which then included all the variables needed for this study. The model summary of the second regression turned to be as follows in table 4-9:

Table 4. 9: Model Summary of Regression Analysis Including Two Transformed Variables

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.898[a]	.807	.799	82858.488	1.882

a. Predictors: (Constant), AverageA.Income, Education Level, gifts pts 17, gifts pts 16, cashback pts 16, Marital Status, Segmented profession, miles pts 16, cashback pts 17, Gender, #active cards 17, miles pts 17, Age, LnPtsRedeemed17, FOR 17, LnPtsRedeemed16, #active cards 16, FOR 16

b. Dependent Variable: Y (16-17)

As indicated in the model summary table, the correlation coefficient R returned a value of 0.898, indicating the presence of a highly significant and linear correlation among the dependent and independent variables of this research. As for R-squared (R^2), the coefficient of determination, which determines the degree to which the independent variables trigger the variations in the dependent variable, resulted in 0.807, signifying that the 18 metric variables explain 80.7% of the variations in the total credit card spending per client, the dependent variable. Likewise, adjusted R-squared, which tests for the probability of increase in R^2 if additional variables were added to the regression, turned to be 0.799 or 79.9%, thus implicating that the addition of other variables to the equation will not provide further explanation for the variation in the dependent variable. The Durbin-Watson test for auto-correlation indicates whether a variable is correlated to itself back in time. In this study, the DW test resulted in a value of 1.882, indicating that the dependent variable is not auto-correlated to itself in time, where the tolerance area for this test is between 1.8 and 2.2. The results of R^2 and adjusted R^2 and Durbin-Watson test then validate the robustness of this model. Nine variables out of 18 indicated a p-level above 5% where the designated confidence interval was 90%. Nonetheless, regarding the two variables that were excluded by SPSS at first, the Log of Points redeemed in 2016 resulted in a p-value of 0.923 and the Log of Points redeemed in 2017, a Beta Unstandardized Coefficient of -5,517.868. In view of that, both variables were then excluded from the regression. The new regression coefficients were then reported in table 4-10 to discuss them in the next section:

Table 4. 10: Results of Coefficients of New Regression

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.896[a]	.804	.796	83365.630	1.887

a. Predictors: (Constant), AverageA.Income, Education Level, gifts pts 17, gifts pts 16, cashback pts 16, Marital Status, Segmented
profession, miles pts 16, cashback pts 17, Gender, #active cards 17, miles pts 17, Age, FOR 17, FOR 16, #active cards 16

b. Dependent Variable: Y (16-17)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	90.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	10372.788	18373.714		.565	.573	-19913.486	40659.062
	#active cards 16	-155.812	4515.794	-.002	-.035	.972	-7599.412	7287.789
	#active cards 17	337.226	4007.510	.004	.084	.933	-6268.544	6942.997
	FOR 16	-22448.053	11476.130	-.067	-1.956	.051	-41364.709	-3531.397
	miles pts 16	1.186	.375	.112	3.165	.002	.568	1.803
	cashback pts 16	1.834	.121	.381	15.145	.000	1.635	2.034
	gifts pts 16	4.205	.722	.132	5.825	.000	3.015	5.395
	FOR 17	159.095	5319.279	.001	.030	.976	-8608.928	8927.118
	miles pts 17	1.341	.048	.736	27.902	.000	1.261	1.420
	cashback pts 17	.756	.104	.168	7.265	.000	.584	.927
	gifts pts 17	.773	.390	.043	1.982	.048	.130	1.417
	Gender	6890.862	9025.061	.017	.764	.446	-7985.580	21767.303
	Age	134.620	340.178	.010	.396	.692	-426.113	695.352
	Marital Status	5466.062	8377.980	.016	.652	.514	-8343.765	19275.888
	Education Level	-6698.508	5885.085	-.025	-1.138	.256	-16399.176	3002.160
	Segmented profession	-3934.436	3856.807	-.023	-1.020	.308	-10291.796	2422.923
	AverageA.Income	.127	.034	.093	3.708	.000	.071	.184

a. Dependent Variable: Y (16-17)

The table above shows multiple insignificant variables to be removed one at a time, starting with the variables with the highest p-values, until p-value of all remaining are less than 5%. With each variable removed, a new regression was re-conducted to monitor the changes in the model summary and coefficients. The summary table 4-11 below represents statistical details of the 8 regressions taken to remove insignificant variables, reporting the R^2, adjusted R^2, Durbin-Watson test at each level:

Table 4. 11: Summary Table of 8 Regressions to Remove the Insignificant Variables

Steps	Omitted Variable / one at a time	R^2	Adjusted R^2	D-W Test
1	FrequencyOfRedemption2017	0.804	0.797	1.887
2	#ActiveCards2016	0.804	0.797	1.887
3	#ActiveCards2017	0.804	0.798	1.888
4	Age	0.804	0.798	1.892
5	Gender	0.803	0.798	1.887
6	Segmented profession	0.803	0.799	1.889
7	Marital Status	0.803	0.799	1.880
8	Educational Level	0.802	0.799	1.885

At the 8th regression, all 8 remaining variables presented a p-level lower than 5%. These variables are hence represented in table 4-12 below, alongside their new coefficients related to this regression analysis:

Table 4. 12: Final Regression and the Coefficients of Remaining 8 Variables

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.896[a]	.802	.799	82927.971	1.885

a. Predictors: (Constant), AverageA.Income, gifts pts 17, gifts pts 16, cashback pts 16, miles pts 16, cashback pts 17, miles pts 17, FOR 16

b. Dependent Variable: Y (16-17)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	90.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	11535.396	5688.054		2.028	.043	2159.862	20910.931		
	FOR 16	-23171.631	11139.362	-.069	-2.080	.038	-41532.474	-4810.788	.408	2.453
	miles pts 16	1.216	.342	.115	3.557	.000	.653	1.780	.426	2.348
	cashback pts 16	1.840	.116	.382	15.840	.000	1.648	2.031	.763	1.311
	gifts pts 16	4.298	.699	.135	6.149	.000	3.146	5.450	.925	1.081
	miles pts 17	1.340	.042	.736	31.734	.000	1.271	1.410	.826	1.210
	cashback pts 17	.759	.101	.168	7.540	.000	.593	.925	.890	1.123
	gifts pts 17	.770	.384	.043	2.007	.045	.137	1.403	.984	1.016
	AverageA.Income	.123	.033	.090	3.766	.000	.069	.176	.786	1.273

a. Dependent Variable: Y (16-17)

To test for multicollinearity, the level of tolerance T and the variance indication factors VIF where VIF= 1/ T and T= ($1-R^2$) where both calculated for the remaining 8 independent variables, shown in table 4-9 as well. The absence of multicollinearity amongst the variables was verified since all Tolerance levels resulted in values above 0.2 as well as VIF lower than 10.

4.4.2- Regression Analysis on Companies Category

Extending this research to the companies' category, a regression was conducted on the sample of 22 observations. The correlation coefficient R marked a value of 0.684, indicating the presence of a highly significant and linear correlation among the dependent and independent variables of this research. As for R-squared (R^2), the coefficient of determination resulted in 0.467, signifying that the 10 metric variables explain only 46.7% of the variations in the dependent variable. Comparably, adjusted R-squared, turned to be -0.017 or -1.7%. The Durbin-Watson test resulted in a value of 2.177, indicating that the dependent variable is close to being auto-correlated to itself back in time. On top of that, all of the regression coefficients returned p-values above 5% and tested as insignificant. That being the case, the whole regression analysis was then considered as not valid and the Companies category was not taken into further consideration in this paper.

4.5- Discussion of the Findings

As presented in table 4-9, the results of the multivariate regression conducted on the individuals' category indicate that all remaining variables are positively and linearly correlated with the dependent variable Y: total spending on credit card of clients active in loyalty program of Bank X, except the frequency of redemption in 2016 which is negatively and linearly associated to Y. Furthermore, all resulted p-values are below 5% and presenting no multicollinearity concerns, thus allowing the analysis and testing of remaining hypotheses.

The table also shows that the intercept β_0 is at 11,535, meaning that Total spending of credit cardholder in 2016 and 2017 (Y) is equal to 11,535 USD when all independent variables are equal to 0.

Equation 4-1 represents the final model regression summary of this research.

Equation 4. 1: Final Regression Model

Y *(Total spending on card per Client in 2016 and 2017 in USD)*

= 11,535 – 23,171 *(Frequency of Redemption 2016)*

+ 1.216 *(Points redeemed on Miles in 2016)*

+ 1.840 *(Points redeemed on Cashback in 2016)*

+ 4.298 *(Points redeemed on Gifts in 2016)*

+ 1.340 *(Points redeemed on Miles in 2017)*

+ 0.759 *(Points redeemed on Cashback in 2017)*

+ 0.770 *(Points redeemed on Gifts in 2017)*

+ 0.123 *(Average annual income of cardholder)* + Ɛ

Frequency of redemptions 2016: the frequency of redemption in 2016 per client turned out to be negatively and significantly correlated to the dependent variable Y in a linear way with an unstandardized coefficient B of -23,171. This result indicates that for every increase of one unit in the FOR in 2016, the total amount spent per client decreases by 23,171 USD, while all other variables are held at 0. In this view, there is a significant linear relationship between the frequency of redemptions in 2016 and the total amount spent on cards in 2016 and 2017 and therefore $\mathbf{H_{12}}$ is retained: *There is a significant linear relationship between frequency of points redemption by client in 2016 and client's accumulated loyalty points.*

In fact, when gathering the data for this research, the management informed the researcher that the points collected by clients during 2015 were intentionally accumulated by the bank in order to give the customers the ability to benefit from the offered rewards once the program was to be introduced in 2016. Thus, during 2016, the clients were actually redeeming points collected since 2015 and the beginning of 2016 but did not have yet the ability to accumulate large amount of points by the start of the program, and therefore explaining the negative correlation between the frequency of redemption in 2016 and the dependent variable Y.

Total number of points redeemed on Miles, Cashback and Gifts in 2016: the standardized coefficients estimate of these independent variables being +1.216, +1.840 and +4.298 respectively, indicate the presence of a positive linear relationship between these three variables and total spending on cards in 2016 and 2017. The

Miles, Cashback and Gifts 2016 are all combined under Points Redemption Category 2016, and therefore, the above cited results lead to the non-rejection of **H_{10}:** *Cardholder's accumulated loyalty points varies with respect to subject's choice of points redemption category in 2016.*

As a matter of fact, all three category types proved to be positively related to the dependent variables, which signifies that the clients who redeemed their collected points during 2016 will spend more on their cards thereafter, agreeing with Verhoef (2003), stating that clients who participated in a loyalty program exhibit higher degrees of likeliness to stay loyal to the firm and willing to increase their business with the firm.

Total number of points redeemed on Miles, Cashback and Gifts in 2017: the weights of total number of points redeemed on Miles, Cashback and Gifts in 2017 displayed positive linear correlation with Y at +1.340, +0.759 and +0.770 in turn. Same as the above, these types of redemption are also pooled under Points Redemption Category 2017. The positive linear relation of this category with the dependent variable bring about the non-rejection of **H_{11}:** *Cardholder's accumulated loyalty points varies with respect to subject's choice of points redemption category in 2017..*

Remarkably, the Miles redemption category in 2017 exhibits a higher coefficient than its precedent in 2016, while the Cashback and Gifts categories coefficients decreased. While investigating the potential reasons behind these changes from 2016 to 2017, the management indicated that during 2016, the program was considered as new and was continuously under test by the customer service department to add exciting new features to its redemption categories. For instance, a new variety of gifts was uploaded to the program's website, as for the Miles, new travel destinations were added on the go with exceptional flexibility to answer the growing demand on this category. Shortly, the clients perceived the value in redeeming their points through Miles and not Cashback, thus explaining the rapid increase of this category on the account of the others, while an increase in frequency of redemption and number of new active clients in 2017 was observed, all indicating the increase of clients' loyalty to the bank through increased spending on their cards.

Average annual income of cardholder: the coefficient of this independent variable shows a value of +0.123, signifying that it has a positive linear relationship with the total spending of clients on their credit cards in 2016 and 2017, whereby the higher the income of the cardholder, the more the spending on the credit card, leading to retain another hypothesis in this research; **H4:** *Cardholder's accumulated loyalty points varies with respect to subject's income.* This result endorses Devlin, Worthington and Gerrard (2007) literature in section 3.2 and contradicts with Danes & Hira (1990)'s study that found that lower income groups exhibit higher spending on their credit cards. Other studies that support the findings of this research include Khare (2013), Kim & DeVaney (2001) and Wang, Lu & Malhorta (2011). These findings indicate that clients with higher income are more likely to spend on their credit cards.

Chapter 5 – Conclusions and Recommendations

5.1- Introduction

In this final chapter, the following sections will include a comprehensive summary of the main findings, followed by the discussion of challenges and limitations of this research. The subsequent sections will comprise of managerial implications and recommendations on future research.

5.2- Summary of the Main Findings

The findings in this paper revolves around the investigation of the total spending pattern per client at Bank X, a commercial bank in Lebanon, in consideration of client's gender, age, education level, average annual income, marital status, number of active cards per client in 2016 and 2017, number of points redeemed per client in 2016 and 2017, number of points redeemed per client in certain rewards category in 2016 and 2017, frequency of redemption in 2016 and 2017, profession and country of residence.

It is important to remind the reader that the number of points accumulated by a cardholder is deduced exactly from the total spending on his/her credit card. Therefore, it is safe to assume that the total number of points redeemed per client in 2016 and 2017 and the total number of points redeemed per client in certain specific rewards category in 2016 and 2017 are based on amounts in USD. The average annual income of clients is also based on USD. Yet, the frequency of redemption in 2016 and 2017 is in ordinal numbers, as well as age and number of cards held by client in 2016 and 2017. The gender, education level, marital status and segmented profession were all metric variables, transformed into categories denominated each on its own to fit the non-parametric tests. The country of residence is the only non-metric variable in this study. The following describes the main results of this paper:

A descriptive approach on the country of residence determined the patterns of points redemption of clients in Lebanon and abroad and proved that client's accumulated loyalty points vary with respect to the country of residence, allowing to retain **H15:** Cardholder's accumulated loyalty points varies with respect to country of residence.

Moreover, an analysis of variances (ANOVA) was conducted on some of the demographical variables like gender, education level, marital status and segmented

profession. The most significant factors on total spending on credit cards in 2016 and 2017 per client from each variable respectively were male, married, and belonging to CCOTR profession segment, noting that the education level of the client tested as insignificant; all consequently allowing for the non-rejection of **H_1:** Cardholder's accumulated loyalty points varies with subject's gender; **H_{15}**Cardholder's accumulated loyalty points varies with subject's marital status and **H14:** Cardholder's accumulated loyalty points varies with respect to subject's profession and the rejection of **H3:** Cardholder's accumulated loyalty points varies with subject's education level. The remaining metric variables were all plugged in a multivariate regression model. On the first regression, the SPSS program excluded two variables: total points redeemed in 2016 and in 2017. For this reason, these two variables were omitted and a second regression was conducted where 8 independent variables tested as insignificant (their p-value were above 5%). The insignificant variables were omitted one at a time, starting with the one exhibiting the highest p-value, followed by a new regression and the checking of R^2, adjusted R^2 and Durbin-Watson to ensure the robustness of the obtained model. Once all remaining variables have revealed significant p-values, a multicollinearity test was conducted to ensure there is no multicollinearity among the independent variables. All remaining variables were positive and linearly correlated with the total spending on credit per client in 2016 and 2017 in USD, except the frequency of redemption in 2016 which turned to be negatively and linearly associated to the dependent variable Y. That being the case, not all formulated hypotheses were accepted, as shown in table 5-1, which is a summary of the discussed results for each hypothesis.

Table 5. 1: Summary of Results and Analysis

Hypothesis	Description	Applied Test	Result	Analysis
H_1	Cardholder's accumulated loyalty points varies with subject's gender	Mann-Whitney U-test	Retained	Gender p-value < 5%, the variable is significant. Variation in credit card spending exists between men and women cardholders. Men spend more than women, and therefore accumulate more loyalty points than women.
H_2	Cardholder's accumulated loyalty points varies with subject's age	Multivariate regression	Rejected	Age p-value > 5%, the variable is insignificant. There is no linear relationship between amount spent on cards and age of cardholder.
H_3	Cardholder's accumulated loyalty points varies with subject's education level	Mann-Whitney U-test Kruskal-Wallis H-test Multivariate regression	Rejected	Education level p-value > 5% in non-parametric tests and regression analysis. There is no difference among clients who have different education levels in terms of cards spending and loyalty points accumulation.
H_4	Cardholder's accumulated loyalty points varies with respect to subject's income	Multivariate regression	Retained	Average annual income p-value < 5%, the variable is significant. There is a positive linear relationship (+0.123) between the income variable and the dependent variable Y. Clients spend more on their cards as their income increases, and therefore accumulate more loyalty points.
H_5	Cardholder's accumulated loyalty points varies with subject's marital status	Mann-Whitney U-test Kruskal-Wallis H-test Multivariate regression	Retained	The non-parametric tests revealed that married clients spend more on their cards than widowed/divorced and single clients respectively. P-value of marital status > 5% in regression equation, variable was omitted from final model.

H_6	There is a significant linear relationship between number of active credit cards owned by client in 2016 and client's accumulated loyalty points	Multivariate regression	Rejected	P-value of this variable > 5% in regression equation, variable was omitted from final model.
H_7	There is a significant linear relationship between number of active credit cards owned by client in 2017 and client's accumulated loyalty points	Multivariate regression	Rejected	P-value of this variable > 5% in regression equation, variable was omitted from final model.
H_8	There is a significant linear relationship between total number of points redeemed by client in 2016 and client's accumulated loyalty points	Multivariate regression	Rejected	This variable was excluded from regression model by SPSS and therefore was omitted.
H_9	There is a significant linear relationship between total number of points redeemed by client in 2017 and client's accumulated loyalty points	Multivariate regression	Rejected	This variable was excluded from regression model by SPSS and therefore was omitted.
H_{10}	Cardholder's accumulated loyalty points varies with respect to subject's choice of points redemption category in 2016.	Multivariate regression	Retained	Coefficients of Miles, Cashback and Gifts scored (+1.216), (+1.840) and (+4.298) respectively, indicating a positive linear association with the dependent variables. In the first year of program inception, clients redeemed their accumulated points through the gifts category more than cashback and miles.
H_{11}	Cardholder's accumulated loyalty points varies with respect to subject's	Multivariate regression	Retained	Coefficients of Miles, Cashback and Gifts scored (+1.340), (+0.759) and (+0.770) in order. Clients redeemed their collected points

	choice of points redemption category in 2017.			more on miles rather than in other categories.
H_{12}	There is a significant linear relationship between frequency of points redemption by client in 2016 and client's accumulated loyalty points.	Multivariate regression	Retained	Coefficient of FOR2016 is (-23,171), meaning that for every increase of one unit in the FOR in 2016, the total amount spent per client decreases by 23,171 USD and this variable is negatively and linearly associated to Y.
H_{13}	There is a significant linear relationship between frequency of points redemption by client in 2017 and client's accumulated loyalty points.	Multivariate regression	Rejected	P-value of this variable > 5% in regression equation, variable was omitted from final model.
H_{14}	Cardholder's accumulated loyalty points varies with respect to subject's profession	Mann-Whitney U-test Kruskal-Wallis H-test Multivariate regression	Retained	The non-parametric tests revealed that the segment CCOTR (consultants, contractors, owners, traders and real estate brokers) spent more on their cards than all other profession segments. P-value of profession segments > 5% in regression equation, variable was omitted from final model.
H_{15}	Cardholder's accumulated loyalty points varies with respect to country of residence.	Descriptive approach	Retained	93.6% of cardholders studied reside in Lebanon. Some other countries resulted in elevated number of redemptions such as the UAE and Saudi Arabia. The accumulated loyalty points vary by client's country of residence.

5.3- Research Challenges and Limitations

Due to the fact that this research takes into consideration the loyalty program of a Lebanese Alpha Bank, special permission was required from the bank's management and marketing department in order to access highly confidential and sensitive data. A confidentiality agreement was signed by the author in order not to disclose the name of the bank and private information regarding the cardholders since the Central bank of Lebanon (BDL) imposes a severe banking secrecy law on all banks and the access

to archival data concerning clients is firmly restricted. To add, the bank subject of study did not operate its archival data through any sophisticated reporting system specialized enough to extract needed data fields. The requested data was thus extracted from different sources simultaneously while many categories needed to be filled manually. The task of extracting, filtering and analyzing the desired data turned to be lengthy and challenging, nonetheless necessary to ensure the objectivity, reliability, validity and robustness of this study. The collection of the requested records from the archival data of the bank lasted for a period of 5 weeks. Then, a filtration process followed to sort and transform the data using Excel, taking almost 4 weeks since the acquired files contained around 25,000 raw unfiltered record entries each, while the analysis using SPSS spanned over a period of 3 weeks to be finalized.

Another challenge of this study was the fact that the loyalty program at bank X is considered relatively new and not all enrolled customers had the opportunity to access their accounts and redeem their collected points for at least once through this program. This explains the small size of the sample and the challenges the author faced while running the regression analysis specifically. Also, the companies' records were found to be hard to handle due to the absence of data in the majority of the variables this research took into consideration.

5.4- Managerial Implications

Financial institutions may use the findings of this research to determine which are the factors they can take into consideration in order to improve the experience of loyalty programs for their clients. Bank X 's management can also benefit from the finding of this research to determine the best ways to target their currently active clients based on their discussed criteria in the findings section, as well as group different types of clients together based on the analyzed demographical factors.

To the author's knowledge, this research paper includes variables that were not taken into further consideration regarding loyalty programs in financial institutions in general, and banks in specific. Thus, this dissertation provides a new and updated perspective on these trendy programs.

5.5- Recommendations for Future Research

Few variables have been omitted from this dissertation, such as type of credit cards in client's possession, location of made transactions, limit of credit card, other

business activities with the bank. Consequently, the inclusion of similar variables in the designed model would serve as an enlargement of this research that may depict and discover other factors that affect a client's loyalty to a bank through the accumulation of loyalty points. It is also recommended to extend this research over a prolonged time period. Not to mention that the acquisition of larger and more diversified samples is recommended, as it may build upon the results of this paper and thus expose new findings in this field and add to the existing body of literature pertaining to this topic. And last, the inclusion of a factor analysis on listed variables in this research might lead to the discovery of new factors affecting the success of a loyalty program at a bank.

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