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**IMPACT OF FINANCIAL DISTRESS ON UK BANK
PERFORMANCE AND CUSTOMER LOYALTY:
AN EMPIRICAL STUDY**

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Wales

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DECLARATION

This work has not previously been accepted in substance for any degree and is not being currently submitted in candidature for any degree.

Signed.....(Leonard Ngwa N.)

Date.....

This thesis is the result of my own investigations, except where otherwise stated. Where correction services have been used, the extent and nature of the correction is clearly marked with a footnote (s). Other sources are acknowledged by footnotes giving explicit references. A bibliography is appended.

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ABSTRACT

In the light of the global financial crisis of 2007 which is considered to be the worst since the Great Depression of the 1930s, it is evident that no bank is too big to fail. There have been a number of corporate failures in recent years, including instances in the United Kingdom. These events, therefore, motivated this study in terms of emphasising the need to apply financial distress prediction models to examine the performance of UK banks.

This work aims at empirically examining and analysing the performance of UK retail banks amid the financial crisis, covering three periods: before, during and afterwards. In doing so, the accuracy of Altman's financial ratios of early warning statistical distress prediction models was examined. Both primary and secondary data were employed to find answers to the research questions.

The first result indicated that Altman's ratios: leverage, solvency and turnover ratios significantly discriminated the three crisis periods. Yet, Altman's model had high misclassification error rate and less predictive power during the crisis than before and afterwards. With regards to the performance of banks, the result revealed that banks performed better in terms of profitability, liquidity and activity ratios for pre and post crisis than during the crisis.

Additionally, researchers have become increasingly interested in linking marketing variables such as satisfaction, trust and loyalty to financial performance. While profitability ratio is commonly confirmed to be a significant predictor of performance, loyalty constructs are not generally assessed in this manner in the profit link framework. This implied that loyalty has not been shown to have a direct impact on financial performance. Hence, since both loyalty and profitability play vital roles to determine the success of banks, they should be fully considered before performance is established.

In this thesis, an extension of past profit link research to include nonfinancial variables was considered. This research examined the link between satisfaction, trust and loyalty, and overall financial performance. The overall empirical findings provided evidence of a positive relationship of loyalty and levels of relative profitability. Nevertheless, satisfaction and trust were not statistically related to profitability in the UK retail banking sector.

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
ANOVA	Analysis of Variance
BHPS	British Household Panel Survey
BOE	Bank of England
BOS	Bristol Online Survey
BP	Bank Performance
CAMEL	Capital Adequacy, Asset Quality, Management, Earnings, Liquidity
CC	Customer Commitment
CL	Customer Loyalty
CS	Customer Satisfaction
CT	Customer Trust
D&B	Dun and Bradstreet
DA	Discriminant Analysis
DEA	Data Envelopment Analysis
EPS	Earnings Per Share
FCM	Financial Change Model
FD	Financial Distress
FRA	Financial Ratio Analysis
FSA	Financial Service Authority
GDP	Gross Domestic Product
HSBC	Hongkong Shanghai Banking Corporation
IMF	International Monetary Fund
MANOVA	Multivariate Analysis of Variance
LSE	London Stock Exchange
MDA	Multiple Discriminant Analysis
NPL	Net Performing Loans
NPV	Net Present Value
NR	Northern Rock
PBIT	Profit Before Interest and Taxes
PLC	Public Limited Company
ROA	Return on Assets

ROE	Return on Equity
ROI	Return on Investment
SFA	Stochastic Frontier Approach
TA	Total Assets
UAE	United Arab Emirates
UK	United Kingdom
US	United States
WOM	Word of Mouth

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CHAPTER 1: INTRODUCTION

1.0 Introduction

This chapter gives an overview of the study. First, the background of the research achieved the origin of failure prediction studies in today's world of uncertainty and extreme volatility, which lead to many failures of big companies around the world. These failures and economic uncertainties significantly affect the relationship between users and providers (Burns and Rensburg, 2012). Therefore, businesses are challenged to discover fresh ways of keeping clients and making them unique from competitors. Second, the research problem and queries are explained. This was followed by a list of research aim and objective, justification of research, contribution, delimitation and assumptions. Lastly, a structure and outline of the research are in brief listed.

1.1 Background of Research

The past two decades have witnessed an extraordinary increase in the number of financial distress episodes, both in developed and developing nations. Apparently, the term “financial distress” and failure are used in the negative connotation to imply the financial situation of a company confronted with a temporary lack of liquidity and with the difficulties that ensure a company to fulfil its financial obligations on a maturity date (Gordon, 1971, p. 349 and Davydenko, 2012). In other words, Beaver (1966) defined financial distress as the inability of a company to pay its financial obligations as they become due. In the same vein, Beaver et al. (2006) identified a company with large overdraft funds, in which the overdraft is not to pay dividends or corporate debt, as the company experiences financial distress.

So, the query to analyse the impact of the financial distress on banking performance has become increasingly important for economies, academics and other practitioners. Financial regulators have aimed at developing schemes, policies and tools to prevent failure or distress from happening; since investors and depositors aim to protect themselves from losing their money in the event of bank failure. Consequently, constant evaluation of financial performance is one of the most vital domestic activities in every enterprise as well in the banking sector (Jasevičienė et al., 2013, p. 190).

According to Riley and Young (2014) the performance of the UK economy has been poor from the time when the financial crisis began in 2007. At the end of 2013, UK GDP was still roughly

2 per cent lower than it had been at its most recent peak at the start of 2008. Likewise, in the next years of the recent financial collapse and economic downturn of 2008-2009, Gregg et al. (2014) documented that the UK labour market has reacted differently to previous recessions; since output has remained weak below peak for longer periods, actual wages have fallen significantly and with no sustained recovery noticeable at least five years on from the start of the crisis. Nevertheless, Riley et al. (2014, p. 3) suggested some reasons in explaining the fall in UK's productivity growth as a result of credit constraints by banks, the especially aftermath of the recent financial crisis which acted as a weakness towards productivity growth. In addition, Bell and Young (2010) uncovered evidence of this substantial tightening in the credit supply in the UK economy from mid-2007 and suggest that SME loans rose during the crisis period, with a considerable increase from mid-2008.

In general, the banking sector is the backbone of economic development for most countries. Being the primary sector of providing liquidity to individuals, entrepreneurs and other houses, the banking sector is the most affected sector during a financial crisis in a nation. This is probably because banks lend to other banks more freely, lack of trust among them and high rate of leverage or debt ratios in their Balance Sheet, in the light of the on-going global financial crisis of 2007-2008, which is considered by scholars to be the worst since the Great Depression of the 1930s (Reinhart and Rogoff, 2013). The effects of the recent crisis cannot be overemphasized, because it led to prolonged unemployment, housing foreclosures and significant decline in business investments and customer spending (Reinhart and Rogoff, 2009; Amalia and Ionut, 2009). Cecchetti (2009) confirmed that the banking sector was the most affected when the financial crisis erupted. In addition, the on-going global financial crisis has posed great challenges to financial systems and governments around the globe, including the United Kingdom. Between late 2007 and early 2010, the UK government's rescue package pumped in over a trillion pounds to protect the British financial sector. For example, in 2009 the government purchased shares in banks and direct loans to banks amounted to £117 billion, representing a liability of £5,530 for every household living in the country (Kirkup and Conway, 2009).

Furthermore, several European and US banks recorded considerable losses in assets and customer confidence during the 2007-2008 financial crises because the crisis affected customers economically and psychologically. Due to this, most banks in Europe and US were affected severely since they are interrelated in one way or the other, consequently bank customers are affected. This is where trust comes in and the relationship is established by both parties. Personal bank customers and other individuals who greatly experienced personal loss due to the

effects of the recent financial crisis are more likely to have paid close attention to its details than people who merely observed the crisis spread out but were not personally affected. Gritti (2010) argued that ‘for those who had the carpet pulled swiftly under their feet’, it will take the financial service institutions a long period of time to rebuild meaningful relationships with such customers. The crisis led to a high rate of redundancy; drop in earnings, loss of interest on savings, inability to raise a mortgage and other distressful events. In these, individuals who were affected may feel highly involved with the crisis and to be deeply interested in the information about the event.

As a result, bank customers became more cautious; not wanting to spend on premium products and services anymore, even if they still could afford to do so. Recent studies indicate that customers only buy necessities, switch to cheaper bank brands and have a more rational view on marketing promotions by comparing different products and services from diverse financial providers based on price and compromising quality (Nistorescu and Puiu, 2009). Nevertheless, the magnitude of the crisis and government assistance to banks from totally collapsing highlights the importance of having a sound and appropriate mechanism or policy response to limit future crisis occurrence. Consequently, there is a need to evaluate the performance of the banking industry before, during and immediately after the recent financial crisis, in order to avoid subsequent challenges.

Financial distress issues have become more and more important as the competition between financial institutions have been totally conflicting in relation to performance. More and more banks are seeking better schemes through the aid of credit scoring models and hence, discriminant analysis techniques have been widely utilized in different credit evaluation processes (Youssef, 2009). Therefore, classification and prediction problems have gained more awareness over the past decades. Financial institutions, especially banks have been the most affected financial intermediaries in countries around the globe. A bank’s most important undertaking is to collect credit from different sources and lend money to small houses and other entrepreneurs.

Previous studies in this area have attempted to develop early warning models with some degree of predictive power in order to detect financial distress or failure before it actually occurs. The detection of companies functioning under a situation of financial difficulties is frequently done by employing financial ratio analysis (Fitzpatrick, 1931). Prior to developing quantitative measures of the performance of companies, qualitative criteria were established by rating agencies to assess the credit-worthiness of particular merchants (Foulke, 1961). Later on, a good

number of studies in predicting the health of firms were introduced which concluded that failing firms demonstrate significantly different variable measurements from those of continuing firms (Merwin, 1942, p. 191). For instance, Beaver (1966) studied financial ratios in order to predict bankruptcy in firms, using cash flow ratios and confirmed that ratio analysis can be a useful tool in predicting financial failure (Rushinek and Avi, 1987, p. 93).

Since Beaver (1966) and Altman (1968), a significant body of research have applied accounting ratios in predicting corporate failure. However, most recent studies are based on market information to measure financial distress risk. For instance, Campbell et al. (2008) utilized the estimated probability of financial distress obtained from a hazard model to examine distress risk priced equity markets. Further, Shumway (2001), Agarwal and Taffler (2007), Agarwal and Taffler (2008) employed discrete hazard technique to compare accounting-based versus market-established models for UK firms. While there is extensive evidence on the performance of different methods; including hazard and logistic regression models in countries such as the United States and the UK, little evidence is known about the ability of the Z-score model developed by Altman (1968) to predict financial distress in UK retail banking covering before, during and after the financial crisis of 2007. This is probably due to the lack of information required to develop appropriate models to forecast financial distress in banks. While it is acknowledged that macro variables such as deregulation, absence of information among bank customers, homogeneity of banking businesses, government and political interventions are some of the causes of bank failures, micro-related ingredients (for example, uncontrolled lending, corruption, fraud, inadequate management, rigid competition has also contributed to bank failures (Chijoriga 1997, 2000; Liou and Smith, 2006, Chijoriga, 2011).

Thus, there is a direct need for predicting the health of commercial enterprises since the consequences of business bankruptcy may contribute to big losses, both financially and non-financially. The recent financial crisis of 2007-2008 proved that no business or bank is “Too Big to Fail”. According to Neophytou and Molinero (2004), the recent changes in the world brought about by the impact financial turmoil. This was evident on companies, regardless of their sizes or industries, which led to more bank failures than ever before. As a result, models that could attempt to accurately predict business failure in time are of increasing importance and may be quite useful to shareholders, policy makers, suppliers, customers, employees, governments among others. Predicting business failure in recent times has been a lively and challenging event that has functioned as a momentum for many academic studies over the last three decades. Attempts to predict business failure continues to be of interest from political economy, management, finance and accounting perspectives (Johnsen and Melicher, 1994). Nevertheless,

widely applied techniques to predict business failures or risk of default were the classical statistical techniques, data mining and machine learning techniques. To this date, there has been little or hardly any previous studies conducted on the impact of financial distress on the performance of UK retail banks covering before, during and after the recent financial crisis of 2007-2008. In addition, even in other countries, there have been few studies carried out in the area of retail banking performance covering the recent crisis period.

Therefore, this research provided the rationale in applying Altman's significant ratios on the performance applicable to UK retail banks covering before, during and after the recent financial crisis of 2007-2008. Second, the study provides evidence on the relationship between customer loyalty constructs and financial performance. This provides useful information on how customer loyalty is able to predict future bank performance. Therefore, the study makes an effort to reconfirm the original financial distress model developed by Altman (1968) for retail banks in the UK using Multiple Discriminant Analysis (MDA).

1.2 Research problem

According to Simon (2011) the research problem is the core of a doctoral dissertation because; it explains the rationale, validates its importance, determines the research design, and ensures the dependability of the research. When getting into financial distress, companies face one of two potential conflicts. This can be identified either as cash shortage on the assets side of the balance sheet or as a debt outstanding in liabilities (Altman, 1968). These two conditions nevertheless draw similar outcomes, that is, a situation where cash flow is insufficient to cover current obligations. This forces companies into negotiations with creditors about rescheduling on debt payment during periods of financial distress restructuring. In summation, the recent financial crisis of 2007-2008 severely impacted banks all over the globe and showed that no bank is "Too Big to Fail".

Previous research on the impact of financial distress on the performance of retail banks in the case of crisis concentrated on comparisons between models in predicting failure or suffering. Seeing the devastating shock of the recent financial crisis of 2007-2008 which posed numerous failures, risks and dynamic changes to retail banks in the UK, there is a demand to identify empirically, the evaluation of these banks in order to devise a suitable early warning tool to predict financial distress in general for the banking industry and in particular for UK retail banking.

This introduction (background) section highlights two fundamental considerations; which are of extreme significance in studying the performance of financial institutions in UK context before, during and after the recent financial crisis of 2008.

1.2 Contribution of the study

This thesis provided three noteworthy contributions to knowledge. First, this study extended the original work of Altman's in predicting financial distress, by reconfirming the predictive accuracy of Altman's (1968) original model covering the three financial crisis periods (before, during and afterwards) using UK data. Second, this thesis developed a new conceptual model relevant to customers and bank performance. Third, this research successfully tested the customer loyalty questionnaire to examine the relationship between customer satisfaction, trust, loyalty and profitability which led to valuable and verified empirical findings.

Reconfirming Altman's original model- recognizing business failures and early warning signs of moving towards financial distress are important to both businesses, analysts and practitioners, since poor performance or business failures may lead to potential severe consequences such as huge losses and financial distress costs for both private individuals and the society. Consequently, research on business failure has shown that not all businesses fail in an unpredicted way. However, the financial crisis may cause the failure of a business overnight, therefore, warning signals of a business in relation to failure arise much earlier than the actual failure; thus, these signs could be applied to predict business failure in progress. While Altman's models have proven to be useful for manufacturing firms, the model has not been proven to act well for financial companies, such as banks (Douglas et al., 2010, p. 4). This study brings an original contribution to practice by testing Altman's model, using multiple discriminant analysis in the UK retail banking industry within the financial crisis, covering before, during and afterwards.

A new conceptual model- Second, an examination of the interaction of banks and their customers in terms of establishing a link between customer loyalty and financial performance is of significant importance. Thus, another intended contribution of the current research lies in its assessment of a comprehensive customer loyalty framework based on a flow of effects from the customer satisfaction, trust, loyalty and bank financial performance. Therefore, this current research contributes to theory in the service encounter literature, by intensifying the effects of customer loyalty constructs to financial performance, using a bank survey to capture the perceptions of customers.

Empirical and robust findings-This study has identified three clear customer loyalty dimensions for retail banking, of which two dimensions show great significant relationships with bank performance (profitability). In summation, the valuable findings reveal that a negative relationship exists between customer satisfaction and customer loyalty, which is different from the held hypothesised relationship in the service profit chain literature. Nevertheless, customer trust was found significant with loyalty. The final findings show that customer loyalty has a positive relationship with financial performance.

1.4 Research Aim, Objectives and Research Questions

Aim

The first aim of this study is to investigate, empirically examine and analyse the impact of financial distress on UK retail bank performance covering before, during and after the recent financial crisis of 2007-2008. In other words, the broad purpose of this study is to assess how UK retail banks performed before, during and after the recent financial crisis. In doing so, the effectiveness of the existing statistical model comprising Altman's (1968) ratios is critically evaluated. Second, the research aims to examine the drivers of customer loyalty that are beneficial to both customers and banks in evaluating their performance in the UK retail banking industry. From this point, the researcher develops a survey instrument (questionnaire) to capture customer loyalty perceptions using UK bank customers. Subsequently, a variety of statistical tests are conducted with the collected data. The main purpose of this is to provide an understanding of the relationship between customer loyalty constructs in relation to customer trust, satisfaction and bank performance. Therefore, this study attempts to reconfirm Altman's financial distress model in predicting bank performance before, during and after the financial crisis in order to improve future bank performance, loyalty, trust, satisfaction and for investors in the banking sector to maximize the benefits. The specific research objectives developed to fulfil the identified aims of the study are as follows:

Objectives

1. To examine the relationships between Customer Satisfaction, Trust and Customer Loyalty.
2. To examine the extent to which Customer Loyalty can predict Bank Performance.
3. To test the predictive power of Altman's MDA technique in predicting financial distress before, during and after the financial crisis.

4. To explore relationships existing between financial crisis and Bank Performance measured in terms of profitability, liquidity, solvency and efficiency ratios.

Based on the aim and objectives, the following research questions were formulated.

Research Questions

According to Black (2012, p. 101) a research question guides the inquiry of a study by narrowing and focusing the purpose statement, thus drives the investigation and implementation of the research.

Specific Questions

- What relationships exist between Customer Satisfaction, Trust and Customer Loyalty?
- Is customer loyalty sensitive to predict bank performance?
- Does the application of Altman's 1968 Multiple Discriminant Analysis (MDA) provide a better method for predicting financial distress in the context of UK retail banking?
- Is there a relationship between Financial Crisis and Banking Performance measured in terms of standard financial ratios (profitability, liquidity, leverage and solvency)?

1.5 Data and Methodology

Numerous studies have utilised financial ratios to predict the health of companies, such as debt ratio, profitability, liquidity, sales, leverage and solvency ratios. In addition, there is a substantial body of the literature that has examined different methods applied to performance evaluation.

Recent empirical studies, particularly in the US have increased their attention on corporate failure prediction using multiple discriminant analysis (MDA). The model for predicting the health of companies in this thesis was first proposed by Altman (1968). Edward Altman first examined five significant financial ratios in predicting bankruptcy or failure by comparing observations across manufacturing firms three years before the actual failure. To examine the performance of banks covering the financial crisis period, the empirical part of this study comprises six main UK retail high street banks, with Altman's significant original ratios over the period 2004-2013 extracted from FAME and Bloomberg databases. The logic for selecting these six UK retail banks is; all of them are established UK banks with headquarters based in London. Second, the majority of the banks have sizes in terms of assets over £1million as at 2013, and lastly, all are public limited companies with their shares listed on the London Stock Exchange.

In order to test the perception of bank customers on the degree of loyalty and satisfaction with their main banks, a survey instrument was developed. A pilot study was conducted to validate

the survey questions in order to examine the research questions of the study. The survey questions were piloted using 40 individuals who were bank customers. The input from these customers determined if the research questions were appropriate for this study. Furthermore, to conduct secondary data analysis, financial ratios were used to assess the health of UK banking performance covering the crisis period. For before crisis period, the time frame between 2004 and 2006 was employed because that period was relatively free from the crisis and could produce distinctive values for financial ratios. Therefore, these temporary periods represent the division between the events of the 2007 to 2009 occurrences as reported in the literature. A quantitative method was then applied to provide answers to the research questions.

1.6 Justification of the Research

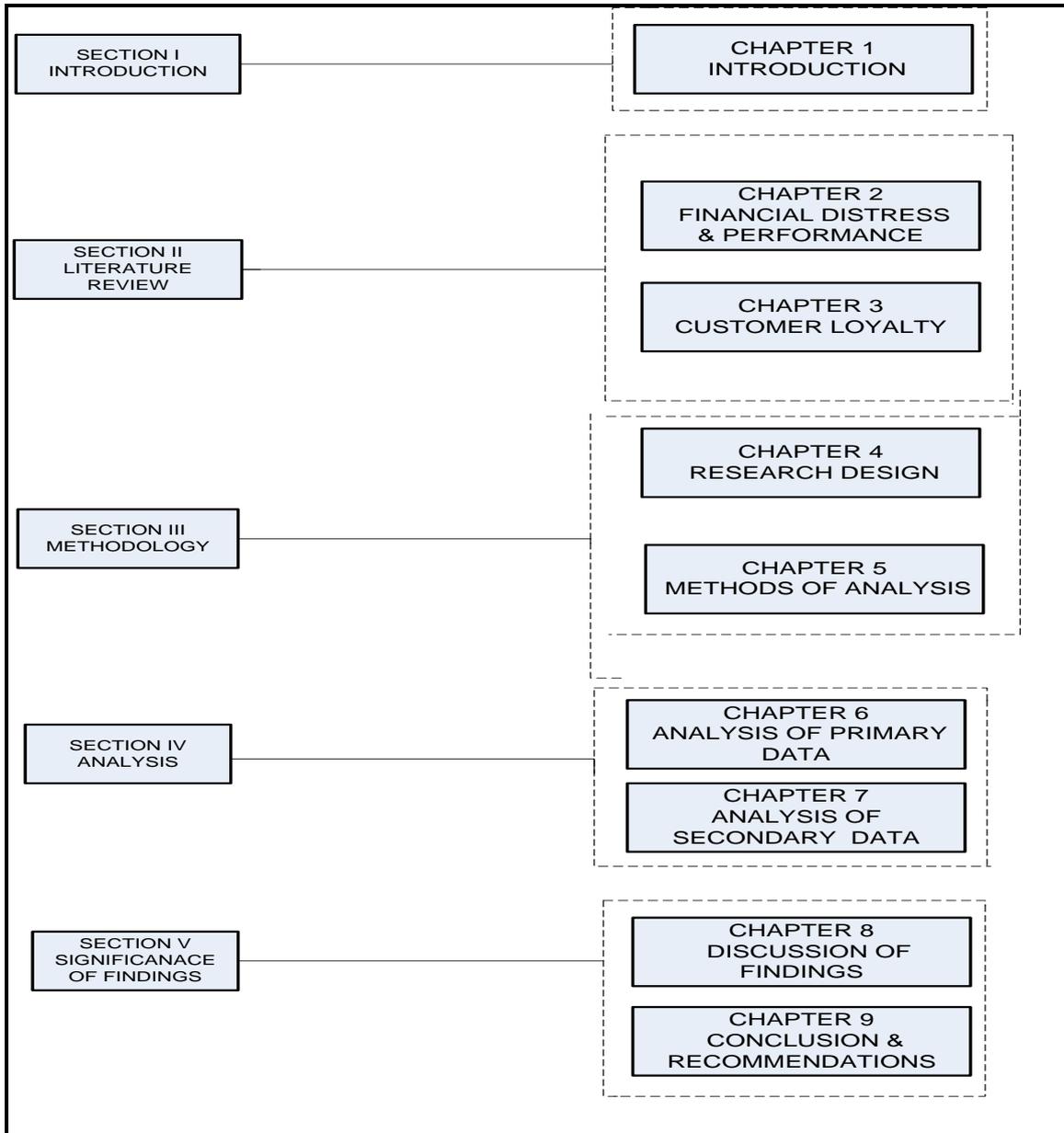
Assessing financial performance will enable managers: to examine the success or failure of their managerial decisions that have been occurring before, during and after the crisis; to understand better their management usefulness and provide them with valuable information to improve their performance and finally, it helps to measure the success rate of such decisions compared to their competitors during the same period. Additionally, it is vital for project managers to understand how the project itself supports the organization's strategies, and how the project will impact or influence the organization's key plan and growth (Alfan and Zakaria, 2013). Furthermore, financial performance measures are intended to assist operations, analyse their activities from a financial point of view and to provide useful information required to make good management decisions. However, non-operational activities are essential for better management decisions since financial performance measures alone do not provide all the answers.

Berger and Humphrey (1997, p.175) documents, that the entire idea of measuring bank performance is to separate banks that are performing well for those performing poorly. Thus, they emphasised that "assessing the performance of a financial institution can notify government policy by evaluating the outcomes of deregulation, mergers and market structure on efficiency.

The original model of Altman (1968) is chosen to examine the performance of the UK retail banking sector over the financial crisis of 2007/2008 for several reasons. First, this research reconfirmed Altman's (1968) model. His study happens to be the most referenced in the literature and has become the benchmark of comparison for subsequent developing models for managers, researchers and practitioners to predict the health of companies (Agarwal and Taffler, 2008). However, only a few studies were conducted on Altman's (1968) model in the UK retail banking sector within the recent financial crisis. Altman and Hotchkiss (1993) reported that "further tests of his model are needed on a broad cross-section of distressed and non-distressed

firms”. In addition, previous studies suggested that such models be reproduced in other business environments in order to test the predictive power of the model (Altman ,1993, p. 206).

1.7 Structure of Research



Source: Developed for this Research

Figure 1 Structure of Research

The above figure 1 presents the structure of this study; Chapter 1 is an introduction to the thesis, which includes the background of the study, aim and objectives of the study, research questions, research problem, original contribution, data and methodology, justification of the study, organization and conclusion. Chapters 2 and 3 provide the theoretical background and review the

empirical literature on models to predict banking performance and examine relationships between customer loyalty constructs. Chapter 4 and 5 covers the research methodology adopted in this study and provides an explanation of the research design, the philosophy that guides the research, the targeted population, sampling procedure and ethical considerations of the survey instrument. The methodology section describes the data collection methods used and comprise the questionnaire development and design, validation, the reliability of the instrument and a brief discussion of the data analysis procedure. In addition, this chapter focuses on the application of MDA in UK retail banking sector.

Chapter 6 and 7 presented and analysed both primary and secondary data respectively. Primary data were subjected to internal consistency (reliability test) while secondary data was subjected to ensure multivariate assumptions (normal distribution, independence of variable), descriptive statistical tests. Chapter 8 discusses the findings of the thesis, thereby summarizing the key findings and finally, Chapter 9 concludes and recommends future work.

Finally, references of some papers produced from this study are accepted in peer reviewed journals and presented at conferences are also provided at the end of Chapter 9 of this study.

Chapter Summary

To summarise Chapter 1, this chapter laid the foundation and theoretical background for the thesis. It introduced the concepts of financial distress, bank performance and customer loyalty for the research. The chapter gave an overview of the research problem, the contribution of the study, research aim and objectives, research questions, the methodology was described and justified, and organization of the research was presented. The main aim of the thesis was to examine the impact of financial distress on the performance of UK retail banks and identify factors that affect customer loyalty. This will be done by capturing bank customer perceptions regarding satisfaction, trust and loyalty with their banks. On this groundwork, the thesis can proceed with a detailed description of the research. The next chapter will provide a critical review of the literature in relation to defining financial distress and financial performance, bank customer loyalty relationships and discussing models in predicting failure or distress.

CHAPTER 2: LITERATURE REVIEW I

FINANCIAL DISTRESS AND FINANCIAL PERFORMANCE

2.0 Introduction

As highlighted in section 1.8, this thesis provides an overview of the relevant literature on models to predict financial distress as well as the relationships between customer loyalty constructs and the bank. The purpose of the literature review is to situate the research to form its context or background, and to provide insights into previous studies (Blaxter et al., 2010, p. 124). Similarly, Hart (1998, p. 1) defines the literature review as “the use of ideas in the literature to justify the particular approach to the topic by selecting the methods that the research contributes something new”. Therefore, this chapter is divided into two main parts; the first part (Chapter 2) provides a critical review of the relevant literature on financial distress and financial performance, while the second part (Chapter 3) reviews the literature on the relationship existing between customer loyalty constructs and financial performance. This distinction is drawn here, in the case of the former, to highlight the evidence of bank performance in relation to profitability, liquidity, return of equity and sales growth employing models to predict financial distress with respect to financial ratios analysis, while the latter deals with the perception of UK retail bank customers in terms of loyalty and satisfaction as predictors of bank performance. As a result, it is significant to provide relevant research into what financial ratios and statistical models can be used to accurately predict financially distressed companies in UK retail banking before, during and after the most recent global financial crisis.

2.1 Definitions of key terms used in business failure prediction

2.1.1 Financial Distress

The significance of ‘financial distress’ is the subject of this part. After the inspection of some definitions of financial distress used in empirical work, the thesis definition will be considered relevant to the field.

Ever since the 1960s, ‘failure’ and ‘bankruptcy’ have been mostly employed in studying corporate collapse. Even though these terms are applied interchangeably, ‘financial distress’ together with ‘failure’ are preferred in this study for the following reasons. The issue of financial distress and/or failure implies that companies are financially fragile, but do not become legally bankrupt all the time (Gilbert et al., 1990; Perry et al., 2005).

In line with this assertion, financial distress provides a broader dimension of the phenomenon under scrutiny since it fits the design of this study.

In most Social Science studies, defining the key concepts of the research is always considered significant but very challenging. In the same way, to establish a clear understanding of financial distress and retail bank performance is the initial and most obvious challenge for researchers due to different views. Apparently, the term “financial distress” and failure are used in the negative connotation to imply the financial situation of a company confronted with a temporary lack of liquidity and with the difficulties that ensure a company to fulfil its financial obligations on a maturity date (Gordon, 1971, p. 349 and Davydenko, 2012).

Amongst the earliest definitions of failure or distress is that enclosed in the work of Beaver (1966). Beaver defined financial distress as the inability of a company to pay its financial obligations as they become due. In addition to this claim, Beaver et al. (2006) also identified a company with large overdraft funds, in which the overdraft is not to pay dividends or corporate debt, as the company experiences financial distress. However, Beaver’s (1966) definition of financial distress does not provide information regarding the costs involved in periods of financial distress. Kordestani et al. (2011) offered an elaborate definition: that financial distress occurs when a company is having operational, managerial and financial difficulties leading to a reduction of the value of the company (cash out flow outweighs the cash inflow). Pustylnick (2012) on the other hand, believed that they are two types of financial distress situations; which involves negative net present value (NPV) and negative cash flow, in which the cash deficit could occur at any time due to a rise in operational cost.

Nevertheless, it is imperative to give a clear distinction between failure and distress. Taffler (1982, p. 343) defines failure as receivership, voluntary liquidation (creditors) and winding up by court order or equivalent. Beaver (1966, p. 71) states that financial failure is the inability of a firm to pay its financial obligations as they mature. Altman (1968, p. 4) presents a more simplistic definition and highlights four generic terms that are commonly found in the literature, namely: failure, insolvency, default and bankruptcy. According to him, ‘failure’ means the realised rate of return on invested capital, with the allowance of risk consideration, is significantly and continuously lower than the rates of similar investments. Insolvency is a term that depicts negative performance and indicates a chronic rather than a temporary situation of significant lack of liquidity. Therefore, a firm finds itself in a condition when its total liabilities exceed a fair valuation of its total assets (real net worth of the firm is negative).

Default, on the other hand, is closely associated with distress and always involves the relationship between a debtor of a company and a creditor. This situation is frequent when a company misses the schedule of loan repayment. Finally, Bankruptcy is defined as the net worth position of an enterprise. However, with the above claim, these terms are similar since they involve the inability or difficulty to pay at a maturity date. Altman (1968) concludes that financial distress occurs when a company experience difficulties in meeting its payment. Usually, financial distress is determined in terms of failure, insolvency, default, bankruptcy, or restructuring, dependent on certain aspects such as the underlying methodology and the aims and objectives of the overall research. As a result, it will be good to understand the various limitations in defining financial distress which is made in the preceding paragraphs.

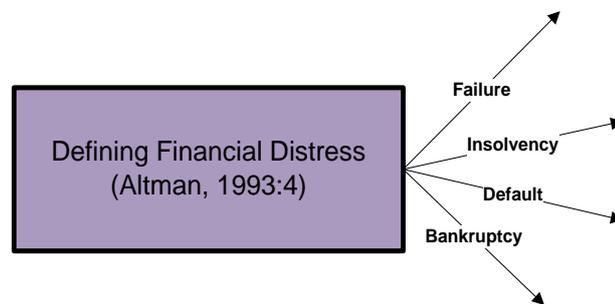


Figure 2.2 Four generic terms commonly used interchangeably in the literature

Table 2.1 Summary Definitions of Financial Distress from Literature

Authors	Definition	Explanation
Altman (1968)	Situations where firms are likely to become insolvent or otherwise experience difficulties meeting payments.	Insolvency arises when individuals or businesses have insufficient assets to cover their debts or are unable to pay their debts when they are supposed to.
Andrade and Kaplan (1998)	A situation when a company does not have the capacity to fulfil its liabilities to the third party (Identifying distress as a default in debt repayment from a period of financial illness and require taking corrective actions in order to overcome the troubled condition).	Default- when a debtor violates a condition of an agreement with a creditor. Financial illness- where a bank faces difficulty in raising cash to other firms-liquidity).
Antonia, Domingo and Howard (2011)	Financial distress occurs when promises to creditors are broken or honoured with difficulty.	These difficulties range from inability to pay bills, technological insolvency and bankruptcy.

<p>Baldwin and Mason (1983)</p>	<p>A crucial event whose occurrence separates the time of a company's financial health to the time of financial sickness and requires corrective actions in order to overcome the troubled situation.</p>	<p>When a firm's business deteriorates to the point that it cannot meet its financial obligations, the firm is said to have entered a state of "financial distress".</p>
<p>Brown, James and Mooradian (1994)</p>	<p>Classify a company being distressed if it is going to implement restructuring measures with the purpose of avoiding default of a debt contract.</p>	<p>Restructuring- Companies in default divest its assets in order to raise cash and pay the debt. The most effective action in order to avoid bank runs or failure, Datta and Datta (1995).</p>
<p>Edward I. Altman (2006)</p>	<p>A situation when a firm's total liability exceeds fair valuation of its assets and the real net worth of the firm is negative.</p>	<p>Net real worth – a situation of subtracting total liabilities from total assets. It is also known as shareholder equity, book value or liquidation value</p>

<p>Elebuta (1999)</p>	<p>When banks are not able to meet customers, shareholders and the whole economy, demand due to financial instability at any point in time, the bank is said to be financially distressed. This leads to liquidity crisis thus, posing significant stress to the company</p>	<p>Liquidity crisis: a situation whereby depositors demand larger withdrawal than normal and banks are forced to borrow funds at an elevated interest rate.</p>
<p>Hendel (1996)</p>	<p>“The likelihood of bankruptcy, which depends on the level of liquid assets as well as on credit availability.</p>	<p>Liquid assets include: cash, short-term investments, account receivables, Inventories (stocks).</p>

<p>J. Pindado et al. (2008)</p>	<p>An event where earnings before interest and taxes, depreciation and amortization (EBIT) are lower than its financial expenses for two years.</p>	<p>The company is therefore faced with a situation in which it cannot generate enough funds for its operational activities to comply with its financial obligations.</p>
<p>Miller and Modigliani (2004)</p>	<p>A firm is in financial distress at a given point in time when its soft assets (the liquid assets of a firm) are not sufficient to meet the current requirements of its hard contrast (Long-term investments).</p>	<p>Liquid assets: they involve cash and other assets readily convertible into cash without significant loss of capital. Long-term investments –It is an act of buying and holding a security for a term more than one year. (For example, stocks).</p>

<p>Opler and Titman (1994)</p>	<p>A costly event that affects the relationship between debt- holders and non-financial stakeholders.</p>	<p>Financial distress is seen as costly because it creates the tendency for firms to do things that are harmful to customers, suppliers and employers.</p>
<p>Purnanandam et al. (2005)</p>	<p>A company is in financial distress when it misses interest payment or violates the debt covenant.</p>	<p>Financial distress is determined as a state between solvency and insolvency.</p>
<p>Sandeep, Anthony and Anand (2003)</p>	<p>A situation where a firm has insufficient cash flow to meet the payments on its debts.</p>	<p>Their definition is consistent with that of Gilson, John and Lang, (1990); Wruck et al (1990).</p>

Source: Author's designed for Study of Literature

Table 2.1 examines similarities and differences from diverse studies in defining financial distress from existing literature. Utilizing the grounded theory, the terms appeared the most widely cited in the literature and they comprise of 14 different studies as seen in the above table. However, it should be worth noting that these themes and authors are subjectively selected and are coming from the literature to attempt a more concise definition of financial distress. They include insolvency (Altman et al., 1968) liabilities not fulfilled (Andrade and Kaplan, 1998); Difficulties (Antonia et al., 2011), financial sickness (Brown et al., 1992) restructuring measures (Mason et al., 1983); financial instability (Elebuta, 2006), negative real world (Altman, 2006); likelihood of bankruptcy (Hendel, 1996); EBIT < financial expenses (Pindado et al., 2008); soft assets < hard assets (Miller and Modigliani, 2004); costly event (Opler and Titman, 1994); violating debt covenants (Jarrow and Purnanandan, 2005), insufficient cash flow (Sandeep et al., 2003); weakness to meet goals and targets (Smith and Wall, 2005).

The definition of financial distress can be summarized by the author of this study in relation to the above themes to mean “the inability or difficulties wherein, real net worth of a company is negative, which becomes costly for the firm and affects the relationship between debt holders and stakeholders due to insufficient cash flow to meet payments at maturity dates and requires restructuring measures to attain its goals and targets”. Andrade and Kaplan (1998) mentioned that financial distress is a situation when a company does not have the capacity to fulfil its liabilities to the third parties. Altman (1968) argues that financial distress is a broader concept than insolvency and refers to firms that are probably to become insolvent or rather experiencing difficulty meeting payments. This rather simplistic definition does not explain how it might tackle tasks or what “insolvency” might mean. Smith and Wall (2005) gives an interesting definition because they focus on the word “distress” to mean the inability, and weakness that stops an organization to meet up its desired goals and targets.

2.1.2 Causes of Financial Distress or Failure

What factors are responsible for bank distress or failure?

This section discusses the causes of financial distress or failure. When companies fail, they tend to display financial and non-financial signs of deterioration. The financial signs include over-trading and excess inventories while the non-financial signs involve bad management and economic downturn (Mills and Robertson, 2003, p. 156). Argenti (1976) affirmed that most companies fail for generally similar reasons and roughly in a similar manner. Argenti (1976) identified three essential factors in the failure process which have been left out in the literature of corporate failure: first, specific defects in the company's management and business practices. Second, major mistakes made by management in subsequent years of the business because of specific defects. Finally, failure signs and symptoms start to appear, apparent as financial and non-financial issues.

In line with this, Argenti (1976) highlighted that the most important factor of failure is the financial ones, where the various liquidity ratios begin to worsen, leverage to increase, sales versus fixed assets to decline, Altman's Z, cash flow versus debt, price earnings ratio constantly falls. Other studies found that the primary causes of banks' failure are banks' weak operations, capitalisation, poor risk management, and external factors (Suntraruk, 2010, p. 103-104). According to Andrade and Kaplan (1998), who used highly leveraged transactions which become distressed, and demonstrates that high leverage is the primary cause of financial distress. Denis and Denis (1995) mentioned that poor firm performance is the primary cause of financial distress for their leverage recapitalisation.

In line with the above claim, some researchers believed that higher leverage brings about agency costs due to divergent interest between shareholders and debt holders which increase the total costs of the company so that, leverage may be negatively linked to performance (Jensen and Meckling, 1976 and Myers, 1977). In contrast, Taffler (1982) mentioned that the probability of financial distress has several causes such as holding liquid assets, high fixed costs and others. Taffler (1983) presented an incomplete explanation of the causes of financial distress since these causes vary from one company to another. Calomiris and Wilson (1998) studied the behaviour of New York City Banks during the interwar period (the 1930s) and found that banking distress was an informed market response to observable weaknesses in particular banks.

Colvin, Jong and Fliers (2013) studied 143 Dutch banks during the 1920s financial crises, of which 37 failed. They concluded that bank choices in balance sheet composition, corporate governance and shareholder liability regimes were found to have a significant impact of experiencing distress. They went ahead to claim that banks bore higher probability to encounter distress if there were highly leveraged, had chosen to adopt shareholder liability regimes with unpaid capital, as a consequence were likely to experience financial distress.

According to Jahur and Quadir (2012), the common causes of financial distress and business failure are often a complicated mix of symptoms. They reported that ‘the most significant causes of financial distress in infant companies are capital inadequacy where the business never started with enough capital and have struggled from the first day’. Their claim is supported in this research by the theory of bank capitalization which enable companies to hold a certain amount of capital to serve as a means by which losses may be absorbed. Furthermore, Galloway and Jones (2006) identified that the lack of management expertise or skills for recruiting suitable workforce and wrong investment decisions as significant causes of financial distress since some of the investment decisions involve huge cash outflows.

Other scholars (for example, Jahur and Quadir, 2012) insisted that, the importance of risks associated with innovation has a high degree to drive a firm to financial distress ‘especially where the innovation and competitive products reduce the attractiveness of the company’s products and services’. Consequently, innovation can either provide a firm competitive boundary to its rivals or ruin the firm. Even though most companies depend on financial performance as the key indicator of financial health, it is important not to ignore managerial and operational indicators.

Some studies have attempted to establish relationships between management turnover and firm performance and found that management changes are frequently viewed as symptoms of external and internal organizational crises. Additionally, other empirically studies found that the CEOs may be the reason behind financial distress after managerial changes and thus report no improvement in firm performance (For example: Schwartz and Menon, 1985; Farrel and Whidbee, 2003; Kaplan, 1994). In contrast, other studies revealed that management change and CEO turnover drives operational performance in companies after the management dismissal. Also, some studies indicated that management turnover is a feasible incentive mechanism for future

improvement (Neumann and Voetman, 2005 and Denis, 1995). On the other hand, some researchers reported no significant effect of management quality in predicting financial and operational performance after the managerial change has taken place in the company.

With these differences in opinion among scholars about what actually predicts failure or drives poor financial and operational performance, a recent study by Varan et al. (2012, p. 112), provides empirical evidence after examining the Turkish commercial banking sector from 2000-2001, during the 1994 financial crisis using probit regression analysis to predict the probability of bank failure. Their results show that during unstable economic conditions and financial distress periods both failed and survived commercial banks show differences in managerial changes. Firstly, failed banks have a significantly higher proportion of management changes than surviving commercial banks. However, Varan et al. (2012, p. 103-112) study is of no doubt very significant in predicting financial distress or failure literature and creates room for extension of research, but the sample period employed (i.e. 2000-2001) appears too small when compared with other significant empirical and practical studies in this area of study. (For example, Altman (1968, 1977, and 2008 respectively) employed a 5 and 10-year period in order to allow enough time for data accuracy, reliability and validity.

In contrast, Milton and Schwartz (1963) conducted a study on a New York bank, the Bank of US and attached great importance to the later 1930 banking crisis. They argued that many bank failures resulted from unwarranted “panic” and that distressed banks were in a larger measure of illiquid rather than insolvent. Nevertheless, Charitou et al. (2004, p. 466) examined 51 matched pair of both failed and non-failed public and industrial firms in the UK from 1988-1997 and highlights that the factors that lead businesses to failure vary; high interest rates, recession, heavy debts and industry-specific variables, such as government regulation and nature of operations.

Caprio and Honohan (2008, p. 10) on the other hand identify five distinctive interrelated features that are responsible for bank vulnerability. This includes the highly leveraged nature of modern banks, the degree of maturity transformation (or liquidity creation), very short-term nature of the bulk of their liabilities, opaque nature of bank assets, and the fact that their liabilities are denominated in fiat currency. Caprio and Honohan (2008) emphasized the role played by high leverage as a factor to banks' vulnerability. While leverage ratios on a stand-alone basis are related to the probability of distress,

they do not provide additional information about the likelihood of future bank distress over and above what is already controlling risk-based capital ratios (Kevin, Samandari and Christopher, 2009, p. 4). Therefore, much policy effort focuses on limiting leverage through capital adequacy regulation. This study focuses on high leverage as a proxy of financial distress.

Recent literature contributes to the belief that debt magnifies the negative effects of an economic downturn or business failure (Graham et al., 2011, p. 821). Some researchers argued that the bias nature of tax systems towards debt encourages companies to use excessive debt (Modigliani and Miller, 1961).

Table 2 Summary of key studies examining relationships between financial distress and firm performance <Insert Table-see appendix E>

Jensen (1989) and Ofek (1993) (cited in Lee, Koh and Huh, 2010) argued that a firm's leverage positively impacts the degree of financial distress. Tin Koon Tan (2010) who emphasizes that firms with high leverage have relatively low equity levels, implying lower management ownership. Jensen and Meckling (1976) supported this view, they suggests that, firms not 100% owned by their managers incur agency costs since managers of these firms are less likely to make finest decisions and more likely to engage in risky projects, if those projects don't pay off, then the firm will face financial distress in the long run.

Similarly, Wruck (1990) cited in Opler and Titman (1994) points out that financial distress can increase firm values by forcing managers to make difficult maximization choices. Furthermore, some significant economists for example, Bronars and Deere (1991); Perroti and Spier et al. (1993) confirm that financial distress can also improve a firm's bargaining power with its unions and other stakeholders that earn economic rents. Such combined and questionable debate calls for further investigation and this current study aims to enrich the literature, especially with regard to the banking industry. Although traditional evidence suggests that financial distress can cause significant losses in some cases and encourage value maximization, it is quite difficult to quantify the overall costs and benefits of financial distress (Opler and Titman, 1994).

However, Altman (1984) examined a number of sampled firms that went bankrupt. Altman measured the decline in sales relative to others in their industry, and the latter measured the deviation between the actual earnings of the firm and forecasts of their

earnings over a three-year period prior to bankruptcy. Altman (1984) found that part of the observed drop in sales is likely to have contributed to financial distress. In other words, the causality of the observed sales decline and financial distress may be opposite of that believed by the study.

Narasimhan (2011) conducted an out-of-sample test during the recent 2008-2009 Recession and reported that higher leverage and lower bond ratings amplified the occurrence of financial distress during this period. Wang and Moines (2012, p. 115) conclude that firms with negative residual cash are more likely to experience financial distress since they are similar, have higher leverage, but weaker pay off capacity, less profitable and generate lower cash flows.

The above causes of financial distress or failure in companies have a significant consequence. The immediate effect lies on the costs of business failure which is examined in the literature of business failure prediction.

In summary, this section dealt with the causes of financial distress or failure. After a relevant review of the available literature on the causes of corporate financial distress or failure, it can be concluded that the current empirical research emphasized that high leverage is the most important cause of financial distress or failure. The following section reviews the financial performance of banks during the financial crisis.

2.2 Banking in the United Kingdom

Media reports that, the British public's attitude towards the banking industry has deteriorated sharply since the event of the recent financial crisis, with both the integrity and the competency to the banking industry being called into question (Worcester 1997; Wray, 2008; Crowley, 2010). The media placed the crisis principally in the major US, UK and Western European banks that have capitalized on loopholes in regulatory systems to take on excessive risk activities (Taylor, 2009; Verick and Islam, 2010). The consequences of such actions led to huge losses in bank assets, low profitability and liquidity ratios, high leverage ratios and increase in default rates during the crisis period. These losses incurred by the major US and UK banks led to liquidity and credit shortages that paralysed the entire financial system (Kottasz and Bennett, 2014, p. 3). Between late 2007 and early 2010, the UK government rescue package rose over a trillion pounds on protecting British financial sector. For example, in 2009 the government purchased shares in banks and direct loans to banks amounted to £117

billion, representing a liability of £5,530 for every household living in the country (Conway, 2009).

2.3. Financial Performance versus Financial Crisis

How threatening is it for a company to become financial distress? While it is true that not all financially distressed companies will end up bankrupt, it is equally true that all bankrupt companies would have been financially distressed for some time. Therefore, financial distress in companies can lead to problems that can reduce the efficiency of management. This is evident in that as companies attempt to minimize firm value and maximize shareholder value, the equivalent managers who are responsible to shareholders might transfer the value from creditors shareholders, thus resulting in a conflict of interest between them (Bhunja, Khan and Mukhuti, 2011, p. 210). The following paragraph examines the impact of financial crisis on corporate performance.

In the midst of the recent financial crisis, it is critical to examine the role of the central bank during the crisis to improve safety measures and efficiency of the payments. Without these efforts, the Lehman shock could have induced a complete termination of financial transactions (Masaaki, 2012, p. 3). In some cases, the financial crisis triggered by deposit runs on banks such as Northern Rock bank in the UK and caused other important systematic financial institutions to become distressed.

A large number of banks, especially US-American banks and European banks experienced severe losses directly or indirectly due to the devaluation of securitized loans at the same time in 2007 and 2008. This phenomenon has been described by Recklies (2009) as bursting of the subprime bubble or “subprime crisis”. In line with this, Laeven and Valencia (2008) describe it as “ongoing global liquidity crisis that originated with the US subprime crisis”. The crisis had major impacts, ranging from a loss of confidence between banks and more importantly from customers in banks, that later affected their loyalty and trust negatively in the entire banking sector. Some researchers believed that the effectiveness of governments is one of the most crucial elements of interpersonal trust (Rothstein and Stolle, 2008; Levi and Valerie, 1998; Delhey and Newton, 2005).

Holger and Spaliara (2014) examined the impact of the financial crisis on the performance of UK manufacturing firms over 2008-2009 periods. They employed a large panel data covering the recent financial crisis and estimating models for export

markets to a large depreciation of sterling in 2007-2008. They found that the impact of financial factors in the decision to become an exporter changed during 2008 and 2009. In addition, similar results indicate that financial variables are highly important in predicting the export market entry, especially during the global financial crisis.

Constant evaluation of financial performance is one of the most vital domestic activities in every enterprise as well in the banking sector (Jasevičienė et al., 2013, p. 190). Tambunan (2011) document that an industry which has global markets is affected by the global crisis, thus, the recent financial crisis has affected the financial performance of industries (Agustini and Viverita, 2011). Several studies conducted research on comparative performance in the banking sector before and after the recent financial crisis by employing key performance indicators such as profitability, liquidity, credit risk, and solvency ratios (Mercan et al., 2003; Jeon and Miller, 2004 and 2005; Anouze, 2010).

Similarly, Xiao (2011, p. 6) compares the performance of 9 French banks during the 2006-2008 global financial crisis with 48 large banks in advanced Europe. He measures bank profitability in terms of operating income on average assets (ROA) and return on average equity (ROE), asset quality is measured non-performing loan (NPL) and coverage ratio. Leverage is defined as assets over shareholder's equity. Xiao (2011) found that French banks were less profitable than their European peers before the crisis but were crushed less hard by the crisis. However, both groups showed no signs of deleveraging from their pre-crisis levels. Similarly, Beltratti and Stulz (2009) studied the bank stock returns across the world during the financial crisis period from July 2007 to the end of December 2008. Their study showed that large banks with more deposit financing at the end of 2006 display significantly higher stock returns than during the crisis.

El-Bannany (2008) investigated the determinants of intellectual capital performance for UK banks over the period 1999-2005. By measuring the performance of intellectual capital in UK banks using multiple regression analysis, findings showed that standard variable; bank profitability, bank risk, bank efficiency and barriers to entry have a significant impact on intellectual capital performance. Nevertheless, there is a limited conclusive evidence to support a direct link between intellectual capital and financial performance. For this reason, Curado, Maria and Bontis (2014) examines the link between intellectual capital components and financial performance among 9 Portuguese

banks, across three temporal periods on either side of the financial crisis (before, during and after). They employed a longitudinal study design combining a survey and objective performance ratios within the temporal periods. They found that intellectual capital average scores are good predictors of future banking performance. However, their study is limited on financial performance; since they never considered non-financial performance variables. On the other hand, Cornet, McNutt and Tehranian (2010) analysed the internal corporate governance mechanism and the performance of US banks before and during the financial crisis. Their finding suggests that larger banks faced the biggest losses during the crisis. Furthermore, Dietrich and Wanzenreid (2011) examined how macroeconomic variables, bank-specific characteristics and industry-specific characteristics affect the profitability of Swiss commercial banks covering a period from 1999 to 2009. Their findings provide some empirical evidence that the recent financial crisis had a significant impact on the profitability of banks.

Recently, Kahle and Stulz (2012) assess the economic importance of alternative theories in impaired access to capital in explaining firm investment and financial policies during the recent financial crisis and reported that the effect of curtailed supply of bank credit on changes in capital expenditures by non-US financial firms compared to the impact of leverage-related financial fragility of firms before the occurrence of the crisis. Nevertheless, during this period, English commercial banks performed principally as “credit banks”, mainly providing industrial customers with short-term finances (Capie and Collins, 1999).

Again, other studied the real effects of the decline in bank health during the recent financial crisis on bank performance ratios and corporate investment. For instance, Almeida, Campello, Laranjeira and Weisbenner (2009) and Duchin, Ozbas and Sensoy (2010) conducted a study on the impact of the recent financial turmoil on corporate investment. They found that corporate investment declines significantly following the outbreak of the financial crises. In line with this, Berger and Bouwman (2010) examined the effect of pre-crisis bank capital ratios on bank’s capability to survive financial crises, market shares and profitability during financial crises. Their results show that capital help banks of all sizes during banking panics, since higher capital increases their likelihood to survive.

In contrast, Varan et al. (2012, p. 103) in a recent study of the Turkish banking sector investigated the causes and consequences of managerial turnover during the 2000-2001

financial crisis and found that bank failure can be predicted by managerial turnover, thus management turnover of failed banks did not improve performance. However, Varan et al. (2012) time frame of their study is questionable since if given enough time (above 5 years), their result could be different. Accordingly, Denis and Denis (1995) determine that CEO turnover decision improves operational performance after managerial dismissals, due to the changes in accounting policies. Aivazian et al. (2004) emphasize the above view that management turnover is a viable incentive mechanism to improve firm performance.

Crane et al. (2008) argued that the measurements need to be reviewed in relation to each other and to other non-operational activities. On the other hand, Anouze (2010, p. 3) reviewed the impact of financial crisis, banks, health and financial regulation on banking performance in the Gulf region for the period 1997-2007. His overall finding shows that Conventional banks performed well during the political crisis, whereas, Islamic banks performed better during the financial crisis. Specifically, the result confirms that large and medium size GCC commercial banks are more efficient than the medium size (Anouze, 2010).

Numerous international studies have attempted to explain the performance of banks during crisis periods (for example; Xiao 2009, Graham, Hazarika and Narasimhan / date unknown). Xiao (2009) examined the performance of French banks during 2006-2008 financial crisis using both quantitative and qualitative analyses and reported concerning profitability that French banks were less profitable than their European peers before the crisis, but were crushed by the crisis. He emphasized that during the crisis, both French banks and their European counterparts had a decline in the NPL ratio in 2007, thus suggesting less provision to cover more problem loans. Bettrati and Stulz (2009) reviewed the literature from the period and found little similar evidence to this claim. Their study is based on the performance of banks from July 2007 to December 2008 in order to find out whether bank performance is related to bank-level governance, country-level legislation, and bank balance sheet and profitability characteristics before the credit crisis. Using conventional indicators of good governance, they concluded that banks with shareholder-friendly boards performed poorly during the crisis.

Other authors such as Peni, Emilia, Vahamaa, and Sami (2011, p. 19-35) conducted a study on the effects of corporate governance on bank performance during the financial crisis of 2008, using US publicly traded banks. The mixed findings suggest that banks

with stronger corporate governance were associated with high profitability in 2008 and had negative effects on stock market valuation amidst the crisis. They claim that banks with stronger corporate governance practices had substantially higher stock returns in the outcome of the market meltdown.

Yana (2010) examines the determination of firm performance of New Zealand public listed companies over the period 1996-2007 using a regression model to explore a number of performance proxies including; return on assets (ROA), economic profit (EP) and Tobin's Q in order to ascertain what factors determine firm performance. He found that size is the most significant factor determining firm performance, followed by growth and leverage having weaker relationships. The results have supported previous studies' findings to some extent.

A similar review of the literature has been conducted in UAE banking sector drawing a comparison of before and after the global crisis. Hassan and Al-Mazrooei (2007) examined the risk management techniques and practices of UAE banks, Zaabi (2011) studied the emerging market by using the Z-score model of Altman (1968) to predict bankruptcy of major Islamic banks in the UAE, Zaki et al. (2011) investigated the probability of distress prediction of UAE financial institutions and Al-Tamimi (2012) explored the relationship between corporate governance practices and performance levels of UAE banks. Furthermore, some external studies on the impact of the financial crisis are also mentioned in this section.

Wang (2009) examined the relation between inside ownership and banks in the U S during and after the current financial crisis. Dietrich and Wanzenried (2011) examined factors that impact the profitability of Swiss commercial banks over the period from 1999 to 2009. Their result indicates that the financial crisis has a significant effect on bank profitability. Moreover, Berger and Bouwman (2010) carried a study how the monetary policy affects total bank liquidity creation before and after the crisis. Their findings show that the liquidity creation tends to be high before the financial crisis. This is evident in the work of Vazquez and Federico (2012) that examined bank funding structures and concluded that banks with weaker structural liquidity and higher leverage in the 2007-2009 pre-crisis period were more likely to fail afterwards.

Recently, Alfian and Zakaria (2013) examined the performance of construction companies in Malaysia before, during and after the crisis period using financial ratios and Altman Z-score. Their results show that the financial performance of the

construction companies in Hong Kong has been deteriorating very fast in the few years. Abdulle and Kassim (2012) conducted a comparative analysis on the impact of the 2007/2008 global financial crisis on both Islamic and conventional banks in Malaysia, covering a five year period (2006-2010) and they divide the sample period as before, during and after the financial crisis by employing three performance indicators, including profitability, liquidity and credit risk ratios. The study finds no significant difference in profitability and credit risk within both bank types. This is different from the findings of Abdulle and Kassim (2012) and explained why the financial crisis affected banks differently.

Finally, other studied the real effects of the decline in bank health during the recent financial crisis on bank performance ratios and corporate investment. For instance, Joen and Miller (2004 and 2005); Almeida, Campello, Laranjeira and Weisbenner (2009) and Duchin, Ozbas and Sensoy (2010) conducted a study on the impact of the recent financial turmoil on corporate investment. They found that corporate investment declines significantly following the outbreak of the financial crises. In line with this, Berger and Bouwman (2010) also examined the effect of pre-crisis bank capital ratios on bank's capability to survive financial crises, market shares and profitability during financial crises. Their results show that capital helps bank of all sizes during banking panics, since higher capital helped banks to increase their likelihood survive.

Jeon and Miller (2004) conducted a study on the effect of the Asian financial crisis on Korean nationwide banks between 1998 and 1999 using a panel regression technique. By covering before, during and after the Asian financial crisis of 1998, they found that most Korean nationwide banks were severely hit by the Asian crisis though most banks recovered somewhat in 1999. In addition, equity to assets correlates positively with bank performance. However, their evidence was limited to the nationwide banks in Korea, where generalization may not be made. To clarify this, Jeon and Miller (2005) conducted a similar study using a panel regression technique to examine the performance of domestic and foreign Korean banks before, during and after the Asian financial crisis. By considering how profitability differed and why those differences exist between banks, they found a positive correlation between equity to assets with domestic banks, but not foreign banks. Additionally, foreign-currency deposits significantly and relatively correlate with domestic Korean bank performance. They concluded that domestic banks suffered more from the Asian financial crisis than their foreign counterparts. Their finding supports evidence that the performance of banks

deteriorated drastically during the financial crisis, and most banks begin to recover afterwards.

2.3.1 Financial Leverage and Bank Performance

The term financial leverage refers to the use of debt in a firm's capital structure, most significantly when a firm uses debt rather than, only equity finance to realize returns of shareholders (Moles, Roberts and Kidwell 2011, p. 128-129). Similarly, financial leverage refers to a change in capital structure that is caused by an increase or decrease in the ratio of debt to equity (Ojo, 2012).

In an ideal world, bank performance in finance literature has no universally accepted definition. Nevertheless, some previous studies have attempted the definition of bank performance. For example, according to the European Central Bank (ECB) (2010) bank performance refer to the bank's ability to generate sustainable profits. In other words, Mirzaei and Moore (2015) argue that the efficient description of bank performance shall include significant information that can affect users of bank services. To them, bank performance should contain a set of measures relating to bank competition, bank efficiency, bank profitability and bank stability. In the expressions of Salami and Adeoti (2007), bank performance encompasses the quantity and quality indicators which are influenced by the profitability of the business and the risk involves for assessing and evaluating the achievement of goals and objectives through the maximization of the owner's wealth.

The literature on bank performance has identified a variety of measures in describing bank performance. Based on the definition put forward by the European Central Bank (ECB) (2010) in an attempt to describe bank performance in a particular case. Therefore, in this study, the researcher defines bank performance as profitability which is measured using return on assets (ROA), return on equity (ROE) and return on investment (ROI).

There is an unambiguous relationship between financial leverage and bank performance. The issue of the impact of leverage on corporate performance has been debated and relevant in the corporate finance literature. The research on the aforementioned argument has been quite active since the emergence of Modigliani and Miller's (1958) capital structure irrelevance theorem. Ever since Modigliani and Miller

(1963), a central question in corporate finance asked why, if debt provides a large tax advantage, firms do not use debt more intensively.

Graham (2000) found that by leveraging up to the point at which marginal tax benefits begin to decline. However, according to the Trade-off theory of capital structure, the costs of financial distress should offset the benefits of the tax shield. From a theoretical point of view, this impact is highly based on the binding role of debt since debt finance reduces the moral hazard behaviour by decreasing “free, cash-flow” and raising the pressure on the managers to perform (Jensen, 1986). As a result, Jensen and Meckling (1976) and Myers (1977) argued that firms with a higher leverage may improve their performance. However, on the other side, a highly leveraged firm means higher agency costs because of divergent interest between shareholder and debt holder which increase the total cost of the company, so the leverage may be negatively linked to performance.

A survey of the empirical literature on this debate showed the lack of agreement on the link between high leverage and corporate performance. Therefore, the literature provides a rather disagreement on the relationship between leverage and corporate performance. As a result, theoretical evidence claims that agency resulting from the conflicts of interest shareholders-debt holders suggested that a higher leverage is correlated with a lower performance (Laurent Weill, 2007, p. 251). It is, therefore, fundamental to understand the meaning of leverage in this study.

Financial leverage can be defined as the use of various financial instruments or borrowed funds to increase the potential return of an investment (Peterson, 1994). His definition was supported by the Pecking Order Theory of capital structure developed by Donaldson (1961) and was further modified by Myers (1985) in order to provide a description of corporate financial behaviour. Myers means that companies prioritize their sources of finance, according to the principle of least effort, thereby raising equity as a means of last resort. However, numerous papers argue that a trade-off exists between the benefits and costs of debt. The benefits include interest tax deductions (e.g. Scott, 1976) cited in Graham, Hazarika and Narasmhan (2011) and disciplining managers of low growth firms with free cash flows by committing the firm to give out the free cash flow as interest payment (Jensen, 1986). Critics of LBOs argued that most of the gains to equity holders arise because of the tax savings (for instance, Lowenstein, 1985) and the expropriation of non-equity stakeholders such as employees and bondholders and have expressed effect about the effect of financial distress on the

ability of LBO firms to remain competitive in the event of an economic downturn. The aforementioned assumption is in accordance with the traditional trade-off theory of capital structure, which implies that the costs of financial distress should offset the benefit of the tax shield.

Graham et al. (2011) carried out a number of investigations into the Great Depression era and suggests that the tax benefits of debt were small during the Depression era because corporate tax rates were low (Maximum ranged from 12% to 19% during the 1930s). They find that high leverage significantly increase the risk of entering financial distress during a depression era. The factors which were tested by Graham et al. (2011) during the depressed periods include financial leverage, macroeconomic factors, age, liquidity, size, profitability, investments and volatility. They observed that a pre-depression leverage is a positively significant predictor during economic downturns since it constrains corporate activity.

In line with this argument, Berger, Ofek, and Yermack (1997) agreed with their view by emphasizing that other debt, benefits such as monitoring managerial entrenchment and agency problems may have been comparatively important. Consequently, Bernanke (1983) builds on a debt-deflation theory of Fisher (1933) and reports that outstanding corporate bonds and notes nearly doubled in the 1930s. Bernanke (1983) develops an interesting hypothesis about negative effect of debt during the Depression era and points out that, unexpected wealth redistribution away from debtors reduces collateral and, therefore, reduces the amount of capital that they can borrow, thus raising the possibility that debtors might have difficulties in completing existing or initial new positive NPV projects.

Opler and Titman (1994) examines firm performance during financial distress periods from 1972-1991 using firm-level data, Balance sheet and Income statement from Standard and Poor COMPUSTAT PSD and other research files. Performance measure variables include sales growth, stock returns, and changes into operating incomes relative to industry averages. Their result shows that, there is a positive relationship between the financial condition and firm performance in industry downturns, and highly leveraged firms tend to lose market shares and operating profits than their competitors during the financial crisis. Equally, Bernal-Verdugo (2013, p. 22) carried out a study on Mexican banks using financial dataset from 2006 to 2010 in order to examine the extent to which the impact of financial distress affect the performance and behaviour of firms

which they have lending relationships and find that within two years following a bank distress shock, firms face a rapid deliveries and balance sheet restructuring process. Similarly, Asgharian (2002) tested the relationship between firm performance and financial distress using Swedish firms and find that high leverage firm in distressed industries face relatively lower stock returns.

In contrast, Bergstrom and Sundgren (2002), using financially distressed firms in Sweden find that the relation is negligible. However, following important argument in the literature on capital structure, a few empirical studies have been carried out to analyse the relationship between financial leverage and corporate performance. The major difference between them comes from the definition corporate performance (Mahakud and Kumar 2009, p. 36). There is a first strand of studies using accounting measures of performance. For example, Majumdar and Chhibber (1999) sampled Indian companies and tested the relationship between leverage and corporate performance. In order to assess performance, they adopted an accounting measure of profitability and return on net worth and observed that a significant negative relationship exists between leverage and corporate performance.

In contrast, Kinsman and Newman (1999) use various measures of performance in a sample of US firms, based on accounting information (firm value, cash-flow, liquidity, earnings, institutional and managerial ownership). They carry out regression analyses on leverage on the aforementioned set of performance measures. Their results show strong relationships exist between leverage and some of the measures of performance like cash-flow and the link with firm value. However, this work is criticized due to the use of much contested measures such as liquidity, but also with their joint inclusion in the regression. There is a second strand in the relevant literature that expands on different measures of performance. For example, Pushner (1995) conducted a study of Japanese firms in order to analyse the relationship that exists between financial leverage and corporate performance in accordance with the influence of equity holders. Corporate performance here is measured by using a production frontier to estimate factors such as total productivity; in which performance is equal to the residual of OLS estimate. His result showed a negative relationship between leverage and corporate performance. This agrees with the studies of Majumdar and Chibber (1999) in the first strand.

Away from this, Nickell, Nicolitsas and Dryden (1997) cited in (Mahakud and Kumar, 2009, p. 36) observed a positive link between financial pressure and productivity growth. Equally, Weill (2008) emphasized that the relationship between leverage and corporate performance varies across countries and the legal system of the country has the major consequence of the determination of corporate performance. It is believed that several attempts to detect financial symptoms of unsuccessful businesses began in the early 1930s (for example, Fitzpatrick, 1931 and Merwin, 1942). Nevertheless, prediction of corporate distress events in firms originated in the US and gathered momentum from 1970 onwards (Altman and Hotchkiss, 2006). It is worth noting that the combination of financial ratios and statistical techniques have now made it possible to forecast the likelihood or financial health of companies with some degree of success. (Mills and Robertson, 2003, p. 156).

Banks play a leading role in the circulation of funds from one economic unit to another. However, there are still fundamental challenges and issues that are still restraining their performance. A related issue is that some UK retail banks were in financial difficulties in meeting up with financial obligations during the recent crisis. This is possibly because, their core function and regulatory changes allow them to lend more freely, thus, exposes them to a wider array of risks (Kaminsky and Reinhart, 2000; Tornell and Westermann, 2002). Therefore, no bank is too large or small to fail since their role is constrained with poor financial management, unfavourable macro and micro environments, economic turbulence, high debt, high interest rates, restrictive monetary policy and inadequate capital structure (Denis and Denis, 1995; Segarra and Callejon 2002; Sheppard and Chowdhury, 2005; Pompe and Bilderbeek, 2005).

The banking sector in recent years has been under serious financial difficulties during the global financial crisis that brought a large number of English retail banks-including several European and Asian banks to the brink of collapse. These weaknesses brought about by the financial crisis prompted concerns regarding the safety of financial institutions, states, against the possible non-anticipated risks associated with periods of uncertainty (International Monetary Fund, 2009). According to Shirai (2009), the world economy is currently suffering a global financial crisis that has become severe since the second half of 2008. Therefore, the need for financial distress prediction models to enable stakeholders such as investors, creditors, managers, auditors, government authorities to take preventive or corrective measures to avoid or mitigate potential losses which may arise (Keasey and Watson, 1987).

2.3.2 Determinants of Financial Performance

One of the main factors that can influence the performance of companies is capital structure, since deteriorating returns occur with when utilizing further debt in order to get the tax shield or deduction since bankruptcy costs exist (Zeitun and Tian, 2007, p. 42). Therefore, several related variables could affect a company's financial performance, such as debt maturity and a tax rate that influences company's performance (Alfana and Zakaria, 2013, p. 147). However, Barclay and Smith (1995) and Ozkan (2002) declared that not only does the level of leverage of a firm affect corporate performance and failure or distress but also its debt maturity structure.

In line with this claim, Schaintarelli and Sembenelli (1997) conducted a study for Italian and UK firms on the effects of debt maturity structure on profitability. Their findings show a positive relationship between initial debt maturity and medium term performance. In summary, Stohs and Mauer (1996) concluded that the debt structure could have a significant impact on both failure risks and corporate performance. Yet, empirical evidence suggested that, besides capital structure, other factors such as firm age, size, growth, risk, tax rate economic activities and other macroeconomic environmental factors of a country or industry.

Previous research has focused on the US exploit incidents of bank financial distress originating abroad to quantify the effects on the performance and behaviour of domestic firms. For example, Chava and Purnanandam (2011) reveal that adverse capital shocks to banks affect the performance of their borrowers negatively. In addition, firms that primarily rely on capital from banks suffer larger valuation losses during periods of financial distress and consequently experienced higher decline in their capital expenditure and profitability as compared to firms that had access to public-debt market.

The historical debate about British retail banks in periods of financial distress in relation to performance and ending to other banks or clients is an area of growing concern. Since 1990, several studies have revealed that the banking sector in general and retail banks in particular has experienced several technical, legislative and financial changes (King, Nuxoll, Yeager, 2006), yet research into the recent cases, resolution and early prediction of financial distress has slowed. Recent evidence suggests that over three out of every five member states of the IMF had experienced banking problems, severe enough to be regarded as the systematic or at least borderline systematic (Lindgren et al. 1996; Caprio et al., 2005), but the magnitude of these crises varied. While there is

growing literature which examines the causes of extreme forms of financial distress such as high leverages, mortgage defaults and repossessions, this literature does not consider behavioural or psychological factors. For instance, Boheim and Taylor (2000) used British Household Panel Survey to study household financial problems over the period 1991-1997 and they report that previous experience of financial distress is significant and positively associated with the current financial position of households.

Joen and Miller (2005) conducted a similar study on the performance of domestic and foreign banks in Korea prior, during and immediately after the Asian financial crisis (1998-1999), examining how the profitability of those banks differed and considering factors that explain why these differences exist. They found that, the performance of Korean banks deteriorated significantly in 1998 with most banks recovering fairly in 1999. On the other hand, foreign banks did not experience the same negative effect on their return on assets and equity. In addition, equity to assets had a positive correlation with domestic banks, but not foreign banks. More interestingly, bank performance, measured as ROA and ROE performed quite badly. Finally, foreign-currency deposits significantly and negatively correlated with domestic Korean bank performance.

Recently, Georgantopoulos and Tsamis (2013) investigated the financial performance of Greek Commercial banks during the financial crisis (2007-2011) by employing financial figures and financial ratio such as efficiency ratios, return on assets and net interest margin as performance indicators. Using correlation and regression as analysis techniques, their results indicate a weaker statistically significant financial performance during the crisis period than expected when compared to the pre-crisis period (2002-2007).

Equally, Georgantopoulos and Tsamis (2012) centered their study on discovering the capacity of a selected group of financial ratios to predict before tax earnings on a quarterly basis of the Greek banking sector. They sampled eight Greek commercial banks for the pre-crisis period (2002-2007). The construction of the variables was drawn from quarterly published financial data (i.e. Balance sheet and Income Statements) and they adopted a multiple linear regression technique. Generally, their empirical evidence strongly suggested that a number of financial ratios were significant predictors of short-term banking profitability and efficiency at a quarterly level and also provided vital information regarding short-term large banking institutions in terms of total assets and market shares. Nevertheless, during this period, English commercial

banks performed principally as “credit banks”, mainly providing industrial customers with short-term finances (Capie and Collins 1999).

Previous studies reported that performance measurement, when done correctly, will help the company to focus on the right things, in the right place, at the right time. Broadbent (1999, p. 25) highlights that financial indicators of performance include; revenue growth, market profitability, returns on sales, working capital turnover, return on capital employed, return on equity and cash flows. In another study, Zeitun and Tian (2007) claim that there are many related variables that will affect a company’s performance, such as debt matures and the tax rate that influences company’s investment opinion. In contrast to the above claim, Gleason et al. (2005) attempt to ascertain the relationship between culture, capital structure and performance, using data from retailers in fourteen European countries. They reported that the performance of retailers does not depend on culture only, but also that capital structure influences performance.

Naceur, and Goaid (2010) conducted a study to investigate the impact of bank’s characteristics, financial structure and macroeconomic indicators on net interest margin and profitability in the Tunisian banking sector from 1980-2000. Their findings show that high net interest margin and profitability tend to be associated with banks that hold a relatively high amount of capital. Additionally, empirical evidence supports that macroeconomic variables have no impact on Tunisian banks’ profitability operating above the optimal level. However, a positive impact was observed between stock market development and bank profitability.

Ashton (1998) reported on the efficiency of the UK retail banking sector over the period 1984-1995 using a time trend to measure average technical change. A panel data (SUR) estimator is applied to the models of bank production based on translog cost function. His research shows that a negative significant technical change for the production models of the larger bank group, but insignificant for the intermediation models.

Berger et al. (2000) estimate cost and profit frontier in order to compare the efficiency of banks in France, Germany, Spain, UK and US. They concluded that cost and profit efficiency turn to be higher for domestic banks than for foreign banks in three countries (i.e. France, Germany, UK). In contrast, in the case of US, they show that domestic banks are, on average less cost efficient than foreign banks. In line with this, Kosmidou et al. (2005) sampled 36 domestic and 44 foreign banks operating in the UK, employing a statistical cost accounting method in order to scrutinize the relationship between profits and asset-liability composition. The results indicate differences between high

profit and low profit banks, as well as between domestic and foreign banks. Again, Kosmidou et al. (2004), using a multi-criteria decision aid methodology they found that domestic banks exhibit higher overall performance as compared to foreign banks over the period 1996-2002. In a similar manner, Kosmidou et al. (2006) examine how foreign banks differ from domestic banks in the UK by using a logistic regression analysis and discover that, domestic banks are characterized by higher returns on equity (ROE), net interest revenue to total earning assets, loans to customer and short-term funding. They also compare the performance of large and small UK banks and demonstrated that small banks exhibit higher overall performance compared to larger ones.

Furthermore, Drake (2001) employs a frontier methodology and a panel data for the main UK banks over the period 1984-1995 to investigate the relative efficiency and to examine productivity change within the banking sector. The results show important insight into the size-efficiency relationship and offer a viewpoint on the evolving structure and competitive environment within which banks operate. Consistent with this claim, Webb (2003) applies Data Envelopment Analysis to investigate the efficiency of large UK retail banks over the period 1982-1995, and find lower mean inefficiency with reduced levels of efficiency for all banks in the sample and falling overall long run trend over the period of analysis.

Equally, Admed et al. (2009) examined the efficiency dynamics and financial reforms' effects on the Pakistani banking sector from 1990-2005. They employed a data set of 20 domestic, commercial banks in Pakistan using Data Envelopment Analysis (DEA) – Malmquist Index of Total Factor Productivity (TFP). This idea was initiated by Caves et al. (1982) which measures the total factor productivity change over time between two data points. Berg et al. (1991) and Veeman et al. (2000) used non-parametric frontier, where they employed deposits, labour and capital as inputs and loan advances and investments as outputs. Their sample was divided into three periods, pre-reform period (1991-1997), first-reform period (1998-2001) and second-reform period (2002-2005). With data from State Bank of Pakistan annual reports, their results showed that the first phase of reforms 14.3% decrease in technological changes along with factor productivity of 12.2% yet technical efficiency increased to 2.1%. The second reform phase reported an increase in total factor productivity, technological change and technical efficiency change by 17.4%, 14.6% and 2.4% respectively. These results,

however, supported their hypothesis that the financial reforms of the Pakistani banking sector improved efficiency.

Likewise, Sufian (2006) applied DEA window analysis technique to investigate the long-term trend in efficiency of 29 banking groups in Singapore during the period 1993-2003. The input vector includes total deposits, which consist of deposits from customers and other banks, fixed assets and total loans, which include loans to customers and other banks, while other income consisted of fee and commission incomes and other non-interest operating income as output vectors. His results revealed 88.4% of Singapore banking groups' overall technical efficiency during the early part of the study period, before increasing significantly during the later period.

Al-Obaidan (2008) suggests that large banks in the Gulf region are more efficient than small banks, while Tarawneh (2006) argues that the bank with higher total capital, deposits, credits and assets does always justify that the has bank better profitability performance. Therefore, his claim that the financial performance of banks will strongly and positively influenced by the operational efficiency bank size and asset management. In the developing world, a number of studies have measured the performance of banks in Africa. For example: Tarawneh (2006) measured the performance of Oman Commercial banks and categorized the banks based on performance using financial ratio analysis to examine the impact of asset management, operational efficiency and bank size on the performance of Oman Commercial banks. The findings indicated that bank performance was strongly and positively influenced by asset management, operational efficiency and bank size.

In the Gulf, Samad (2004) examined the performance of seven locally incorporated commercial banks during the period 1994-2001 using financial ratios, to evaluate credit quality, profitability and liquidity performances. A student's t-test was employed to measure the statistical significance for the measures of performance. The findings suggested that commercial banks in Bahrain were relatively less profitable, less liquid and were exposed to greater credit risk than wholesale banks.

Furthermore, Kiyota (2009) employed a two-stage procedure to investigate the profit efficiency and cost efficiency of commercial banks operating in 29 Sub-Saharan Africa countries during 2000-2007. The study employs the estimation of profit and cost efficiency, financial ratios and the Tobit regression to provide cross-country evidence on the performance and efficiency of African commercial banks. The results, based on

the on a range of performance ratios suggest that foreign banks tend to outperform domestic banks in terms of profitability and cost efficiency.

In addition, several studies have employed a comparative performance analysis technique between Islamic and conventional banks in terms of profitability, liquidity and credit risk ratios. For instance, Iqbal (2001) employs a cross-country technique to compare the performance of 12 Islamic and 12 conventional banks covering the period of 1999 to 1998 using both trend and key ratios. In general, then finds that, Islamic banks were more profitable, capitalized and stable with profitability ratios when compared with those of international standards.

Abdu and Samad (2004) compared the performance of 6 Bahrain's Islamic banks and 15 conventional banks during the Gulf War period (covering 1991-2001) using profitability, liquidity and credit risk ratios. Profitability was measured in terms of returns on assets (ROA) and returns on equity (ROE). Liquidity measured in terms of net loans to asset ratio, liquid assets to deposit and short-term funds. The findings show that there is no significant difference between the Islamic and conventional banks regarding profitability and liquidity. Nevertheless, the study concludes that there exists a significant difference in credit performance within the study period.

2.3.4 Prediction Models in Financial Distress

Bank distress or failure threatens the economic system as a whole. Consequently, it is critical to predict bank financial distress in order to prevent or minimize the negative effects on the economic system. This section will therefore discuss the classification of corporate failure prediction models, the problems regarding these prediction models, and the existing financial distress models which relate to financial institutions. Some of the existing models will be employed in the empirical chapters.

2.4.1 Accounting-based and Market-based Models

Since the pioneer research conducted by Beaver (1966) and Altman (1968), there has been significant interest in predicting financial distress and bankruptcy. Several studies in the literature consider accounting-based variables to predict the financial health of companies (for example, Altman (1968); Z-score, Ohlson (1980); O-score and Zmijewski (1984) models). Among these models, Altman's (1968) Z-score model occurs to be the most popular model among practitioners, managers and other shareholders in US firms for predicting financial distress (Charalambakis et al., 2009, p. 3). Taffler (1983) built on Altman's (1968) model by applying to UK firms. Taffler

(1983) employs a linear regression model using historical accounting data to analyse the health of UK firms. Shumway (2001) argues that accounting-based variables alone cannot accurately predict financial distress or bankruptcy.

2.4.1.1 Review of UK Prediction Studies

The UK is regarded as a major worldwide economic market. This is probably because; the London Stock Exchange has a massive volume of transactions with other major international exchanges around the globe, such as New York, NASDAQ, Tokyo and Toronto stock exchanges (Charitou et al., 2004, p. 467). On a similar note, Taffler (1984) claims that the United Kingdom provides an ideal environment for successful development of statistical models that could help to alleviate the assessment of a company's performance and solvency state over a certain period. Other studies have supported the above claim and confirmed that the UK is considered as a major player in the economic market.

However, most failure prediction model studies have utilized US data in an attempt to extend Beaver's (1966) univariate approach and Altman's (1968) multiple discriminant analysis model, normally called MDA. For example; Deakin (1972) and Altman et al.(1977). Therefore, the popularity of Altman's (1968) MDA model is absolutely significant in the British failure prediction studies. Several models emerged in the UK in the late 1970s and 1980s. Taffler (1983, 1984) cited in Charitou et al (2004, p. 467) reviews a well known UK-based Z-score model for analysing the financial health of firms listed on the London Stock Exchange and believes that despite the statistical advancement which occurred during this early period, MDA of Altman (1968) remains the most popular and widely used technique for predicting financial distress in the UK.

In line with the above claim, Citron and Taffler, 1992; Carcello et al. 1995; Louwers, 1998; Citron and Taffler 2001, 2004) mentions that Z-score models are used as tools in assessing firm financial health in going concern research. In contrast, Ohlson (1980) raised questions regarding the restrictive statistical requirement imposed by MDA model. Also, the researchers did not consider cash flow information in explaining financial distress, regardless of the increased interest in cash flow reporting in the UK at that point in time (Accounting Standard Board FRSI 1991, 1996; Charitou and Vegas, 1998). Agarwal and Taffler (2007) evaluated the performance of Taffler's Z-score

model and concluded that UK-based Z-score model has the ability to predict distress risk for UK firms.

Other UK based studies have examined debt as an indicator of financial distress. For example, Rio and Young (2005, p. 186) provide evidence on the extent to which UK households consider unsecured debts as an indicator of financial distress using evidence from 1995 to 2000 from the British Household Panel Survey (BHPS). Their findings suggest that the most important factors affecting the likelihood of a household reporting, debt as a burden in 2000 where the level of mortgage income gearing, the level of financial wealth of households.

To the author awareness, these studies have concentrated on individual households and other sectors in the UK economy. In order to predict corporate distress or failure in the UK, Taffler (1982, p. 342) identifies the risk of failure of British companies by raising a number of issues related to the use of multivariate statistic techniques in accounting and finance areas thereby, highlighting some of the methodological weaknesses in existing studies. His assertion is in line with what we are to ascertain in respect to how effective is MDA in predicting financial distress in the context of the UK retail banking industry?

Soumunen and Laitinen (2012, p. 44) highlights that early studies on the concept of financial distress prediction research has focused on failed and non-failed firms one to five years before failure, with its goal to distinguish between financially viable and financially distressed firms. Reporting in this new era of bank turbulence, insolvency and bankruptcy has created a new agenda. Over the years, both theoretical and empirical research has been undertaken in developing early-warning models to predict distress in firms and to measure changes in the financial health of companies. For example, the studies of Beaver (1966); Altman (1968); Deakin (1972); Argenti (1976), Ohlson (1980); Robertson (1988), Cole, and Lin (2000); Taffler and Agarwal (2008) have developed predictive models of financial distress in firms. The aforementioned studies imply a definite use of potential financial ratios as predictors of financial distress. In general, ratios measuring profitability, liquidity and solvency existed as the most significant indicators.

Robertson's 1983 Financial Change Model (FCM)

Empirical evidence revealed that variables and variable coefficients change over time within models, hence affecting model stability (Barnes, 1987). In addition to

statistically oriented techniques, other models have emerged in predicting the financial health of a company. Robertson (1983) developed a model which measures changes in financial health. Consequently, it is based on the aforementioned limitations of statistical methods in predicting a company's health over time that Robertson (1983) attempts to measure changes in the score year-on-year. He developed a model known as the financial change model (FCM) whereby, he used key ratio categories including cash flow to identify changes in the financial health and allows examination of the individual ratio movements in order that corrective action can be taken (Mills and Robertson, 2003, p.166). This model (FCM) has stood the test of time, because the cash flow ratios were significant to measure overall changes in a company's financial health. However, Altman's work does not contain any variables on cash flow while John Robertson's work does. Again, it can be noted that John Robertson's work holds the view that financial change is paramount in assessing the health of companies. Unlike Robertson's work, Altman (1968) argued that if a company is bankrupt at a set date, then the change does not matter.

In contrast, Morrison (1997) asserted that the linear regression discriminant analysis developed by Taffler et al. (1984) is the best-known technique employed in the UK. It is worth mentioning that financial change model (FCM) takes a similar form to Altman's 1968 model where the total scores are found. The following ratios are referred to by using R1 to indicate ratio 1 through R5 to indicate ratio 5 (Mills and Robertson 2003, p. 167).

$$R_1 = (\text{Sales} - \text{Total Assets}) / \text{Sales}$$

$$R_2 = \text{Profit before Taxation} / \text{Total Assets}$$

$$R_3 = (\text{Current Assets} - \text{Total Debt}) / \text{Current Liabilities}$$

$$R_4 = (\text{Equity} - \text{Total Borrowings}) / \text{Total Debt}$$

$$R_5 = (\text{Liquid Assets} - \text{Bank Borrowings}) / \text{Creditors}$$

Agarwal and Taffler (2008) compared their linear discriminant analysis with the market-based BSM model developed by Shumway (2001). They reported that the Z-score and market-based models have the ability to predict failure in firms. In line with this claim, Agarwal, Taffler (2007) in another assessment of distress risk of the Taffler Z-score model over a 25-year period in the UK. They concluded that their model had the ability to predict distress risk for UK companies.

In a recent study, Chrisitidis and Gregory (2010) employed Shumway (2001) and Chava and Jarrow (2004) dynamic logic models by providing pure accounting-based and market-based models and they finally expanded the work of Campbell et al. (2008) by including macro-economic factors. They concluded that interest rates and risk free rate of inflation are important variables. Additionally, consistent with Chava and Jarrow (2004), they included the industry effect in their model and found an increase in the predictive power, as industry effect appears more significant than other variables.

Lennox (1999) on the other hand, applied the logit and probit models using a sample of 90 bankrupt firms. He reported that the variables with the highest predictive power were profitability, leverage and cash flow. He further claimed that his model outperformed the typical MDA approach. Charitou, Neophytou and Charalambous (2004) examined the incremental information content of operating cash flow in predicting financial distress in the UK. Employing neural networks and logit methodology on a matched pair sample of 51 failed and non-failed UK public companies over the period 1988-97, the result indicated cash flow, profitability and financial leverage variables produced an overall accuracy of 83% one year prior failure.

International Studies

2.4.1.2 Altman 1968 Original Model

One of the most significant applications of the financial statement is to ascertain areas for future investigation. Consequently, Campbell et al., (2004) claimed that the success of any model which is developed to signal corporate failure rest in its ability to predict events with a high degree of accuracy. There has been considerable empirical research on the ability of financial ratios to assess firm performance and financial distress.

The Z score Model

To begin with, one of the pioneer studies is that of Beaver (1966) who identifies 30 financial ratios comprising of six groups of significant ratios, namely, cash flow, net income, debt to total asset, liquid asset to current debt, and turnover ratios (Beaver et al., 2011, p. 17). Beaver (1966) using a univariate analysis found that all six ratios had significant explanatory power relative to a single model of random prediction. However, the earliest study utilizing multivariate data analysis for the prediction of failure was conducted by Altman (1968) by employing a set of significant financial ratios as possible predictors of corporate failure. His study used sixty-six (66) corporations from manufacturing industries made up of bankrupt and non-bankrupt

firms and 22 ratios from five categories, specifically, liquidity, profitability, leverage, solvency and activity accounting ratios. Five significant ratios were then selected from the rest for their performance in the prediction of corporate bankruptcy.

To understand the limitations of using the Z-score model in predicting financial distress (default, failure, insolvency and bankruptcy), it is imperative to understand the Z-score itself. The Z-score is a predictive model of default that was developed by Edward Altman in 1968 which uses a multiple discriminant analysis (MDA) technique derived to differentiate or discriminate between data points based on some measurable characteristics.

The Z-score is calculated as follows:

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + X_5$$

Where:

- X_1 = Working Capital/Total Assets
- X_2 = Retained Earnings/Total Assets
- X_3 = EBIT/Total Assets
- X_4 = Market value of Equity/Book value of Debt (Liabilities)
- X_5 = Sales/Total Assets

The above financial ratios can be used independently to assess credit or default risks. Professor Edward Altman from his original data classifies all data points with a Z score greater than 2.99 as solvent (non-failure), all data points with Z-scores less than 1.8 as insolvent (failure) and in between there was a combination of default and non-default. Altman defined three zones on the aforementioned basis:

Table 2.2 Altman Z score classification

Zones	Score
Safe	$Z > 2.99$
Grey (Ignorance)	$1.8 < Z < 2.99$
Distress	$Z < 1.8$

These three zones have proved to effectively predict financial distress over one or two years, but less successful at longer periods.

The strength of Z-score model

Some unanswered questions emerged from the selection of the aforementioned financial ratios which calls for concern.

- *Upon what ground or theory were these ratios selected?*
- *Why is cash flows not considered in the analysis?*

These two significant questions, assist us identify the gap and limitation in the literature when using Altman (1968) model. Consistent with the above questions, Beaver et al. (2011, p. 18) argues that there are several issues, such as how many ratios to use? Which ratios to use and what weights to assign to them? However, it is of no doubt to acknowledge the accuracy of the Z-score model in predicting failure one year before the event since it correctly classified 95% of the total sample a year prior to bankruptcy. Nevertheless, the percentage of the accuracy declined as the number of years increase before bankruptcy. Consequently, Agarwal and Taffler (2005) in forecasting the ability of the Z-score model reaffirms that this technique rarely forecast future events correctly or when it is done, the ability to measure their true *ex ante* (before the event) is lacking. They suggested that this is probably due to type I and II errors (i.e classifying failed firms as non-failed and potential failures that do not fail respectively). For example, the Bank of England model (1982) classified over 53% of its 809 company sample as potential failures in 1982, soon after it was established (Agarwal and Taffler, 2005).

Predicting financial distress is one of such areas since researchers have identified useful contribution of financial ratios in predicting financial distress. Even until now, financial ratios are still the key sources of distinguishing between the good and bad (Noor, Takiah and Omar, 2012, p.1537). In contrast, some studies (for example: Campbell et al., 2008; Ashbaugh-Skaife et al., 2006; Lee and Yeh, 2004 and Merton, 1974), have employed corporate governance measures such as board composition, ownership structure, management compensation and director's characteristics and found that corporate governance measures are helpful in predicting. In a similar note, corporate governance has long been recognized as one of the main factors associated with financial distress: ownership concentration and poor corporate governance (Johnson et al., 2000; Rajan and Zingales, 1998).

All such models or techniques assume that evidence of financial distress can be perceived in early stages and traced in selected ratios (Bardia, 2012 p. 57). Consequently, "it can be predicted by taking suitable actions immediately to either avoid the risk of huge loss or benefit from this information" (Wild et al., 2007, p. 540).

In addition, a timely prediction of financial distress is important for all parties concerned: managers, shareholders, workers, lenders, suppliers, clients, the community, government and other stakeholders (Dimitras, Zanakis and Zopounidis, 1996).

The lessons from bankruptcy or financial distress are severe, costly and have other negative consequences for companies, regulatory authorities and managers. As for the projects and the stakeholders such as investors, banks and suppliers, detecting early signs of financial distress could prevent the bankruptcy event. Detecting these signs as early as possible could be tremendously helpful, especially with small stakeholders in order to safeguard them from the takeover attacks by bigger companies.

Models to predict financial distress lay in the trend of selected financial ratios which presumes that evidence of financial distress can be traced in selected ratios and distress can be detected at the early stages. Therefore, this is done by taking appropriate actions immediately either avoid huge loss or capitalize on this information. There is a variety of methods developed and used to predict financial distress in companies. These techniques may play a significant role in bringing the firm to fail. From the literature of predicting bankruptcy or failure, most researchers have employed financial ratios as part of the process. Most of the derived models are based on multivariate techniques of statistical analysis (Bhunia and Mukhuti, 2011, p. 782).

Several recent studies have served to emphasize the need for a timely model to predict financial failure; the parameters are fully in the manufacturing and constructing industries. For example, Campbell et al. (2008) has shown that financially distressed firms have delivered low returns in the US. In a similar study, Charitou et al. (2004, p. 469) found that market value of distressed firms declines substantially prior to their ultimate collapse. Although the substantial volume of research has been published worldwide since the pioneering work of Beaver (1966), research interest has declined in the recent years. A majority of predictive studies in the UK uses Altman's MDA technique. Nevertheless, despite the popularity of the MDA method, some questions are hereby raised concerning the restrictive statistical requirements and its coefficients imposed by the model (Ohlson, 1980).

If it is possible to recognize failing companies in advance, then the appropriate actions to reverse the process can be employed before it is too late (Taffler, 1982, p. 342). Consistent with this claim, Mason and Harris (1979) who carried out a study within the construction industry in the UK mentions that the economic and social damages resulted

from the failure of construction businesses go beyond the obvious and quantifiable costs to the company owners, creditors and employees. It is, therefore, significant to recognize any potential company failures at the earliest opportunity possible so as to take corrective action.

But how is financial distress predicted? This question is of curiosity not only to researchers and managers, but also to external stakeholders of the company. Nevertheless, most researchers have turned their attention to bankruptcy prediction rather than predictive probability of financial distress models in UK firms (Mousheerl, 2011, p. 5).

Prediction of company failures has been well researched using developed country data (Beaver 1966; Altman 1968; Deakin, 1972; Wilcox 1973; Ohlson 1980; Taffler 1983; Boritz Kennedy and Sun, 2007). Similarly, Ohlson (1980, p. 109) and Taffler (1982) states that the prediction of company failures has been well researched in the US with published studies concerned industrial enterprises generally (Altman, 1968; Deakin, 1972, 1977; Blum, 1974; Altman et al., 1977; Ohlson, 1980), small firms (Edmister, 1972), banks (Sinkey, 1979), insurance companies (Trieschmann and Pinches, 1973)' stockbrokers (Altman and Loris, 1976), building societies (Altman, 1977) and railroads (Altman, 1973). However, related work in other environments has generally been limited.

To the author's knowledge, the only documented study undertaken in UK's construction industry is that of Mason and Harris (1979), and also Taffler (1980) who provides a critique with respect to the construction industry in the UK. Therefore, this study attempts to fill this gap in the literature by extending related work to UK retail banking industry before, during and after the recent financial crisis.

These aforementioned studies have been developed in the academic literature with the use of several techniques such as multiple discriminant analysis (MDA), logit, recursive partitioning, hazard, probit and neural network models. Despite the variety of models available to predict the health of a company, a survey of literature reveals two significant issues, namely that the majority of international predictive studies, researchers and business communities often rely on Altman (1968) MDA and Ohlson (1980) models (see. Boritz et al., 2007; Altman, 1984; Charitou et al., 2004), for some reasons that will be examined in the preceding paragraphs. Consistent with this belief, Agarwal and Taffler (2005) emphasized that the traditional Z-score technique for

predicting corporate financial distress, is still a well-accepted tool for practical financial analysis since it is discussed in details in most standard texts and is widely used both in academic literature and by practitioners. Furthermore, Altman (1993, p. 179) concludes that the original model is still cited and more important it is being studied in the classroom and applied in a variety of situations by practitioners.

Beaver (1966) presented empirical evidence that certain financial ratios, most probably cash flow/total debt, brought about significant statistical signals well before actual business failure. Altman (1968) extended Beaver's (1966) analysis by initiating a discriminate function which combines financial ratios into multivariate analyses. Altman, Edward (1968) found that five of his ratios outperformed Beaver's (univariate analysis) cash flow/total debt well before actual business failure. Altman, Haldeman, and Narayanan (1977), updates the original Altman (1968) study, by simply considering data from the period 1969-1975 and sampling fifty-three failed firms and about the same number of non-failed firms. Their results raised some claims that remained unanswered. Again, according to Altman (2000) in general, ratios measuring profitability, efficiency and solvency played the most significant role to predict failure.

However, the order or significance is not comprehensible since almost every study sites different ratios as being significant in predicting financial distress or failure. For example, Hossari and Rahman (2005) reported net income and total assets in their study as the most popular financial ratios. Accordingly, Beaver (1966) found that cash flow/net income appear more significant in predicting corporate failure within one year. In contrast, Altman (1968) reduced the original twenty-two variables to five significant independent variables: efficiency, profitability and solvency were significant to predict financial distress five years before the bankruptcy.

Ohlson (1980) disagreed with the above claim made by Altman (1968) and raised questions about the MDA model, especially regarding the restrictive statistics imposed by the model (Ohlson, 1980). Therefore, in order to overcome the limitation, Ohlson (1980) developed a logistic regression model to predict company failure. This he did by using the logic model and US firms to employ an estimate of the probability of failure for each firm. He claims that the logistic regression technique overcomes some of the criticisms of Altman (1968) MDA which needs an assumption of a normal distribution of predictors and thus, suffers from the arbitrary nature of identifying non-failed matching firms (Wang and Campbell, 2010, p. 335).

Again, Ohlson (1980) claims that previous studies have not been able to consider at what point companies enter bankruptcy (Ohlson 1980, p. 110). Nevertheless, Ohlson (1980) selected industrial firms from the period 1970-1976 that had traded on the US stock exchange for at least 3 years using nine independent variables that he assume should be helpful in predicting bankruptcy,. He then used a logistic function to predict the probability of the firm using each model. He found that it was possible to identify four basic factors as being statistically significant in affecting the probability of failure: size of the company, measure (s) of financial structure, profitability measurement, and current liquidity measures. However, he provided no justification for the choice of selection.

It is of no doubt that these aforementioned studies should be acknowledged with respect to their significance in developing predictive models to enhance effective decision making in companies. Koh and Brown (1991) mentioned that corporate financial distress models may help auditors to identify high-risk firms in the planning stages of the audit and assist enable them plan specific audit procedures aimed at evaluating the appropriateness of a going concern opinion.

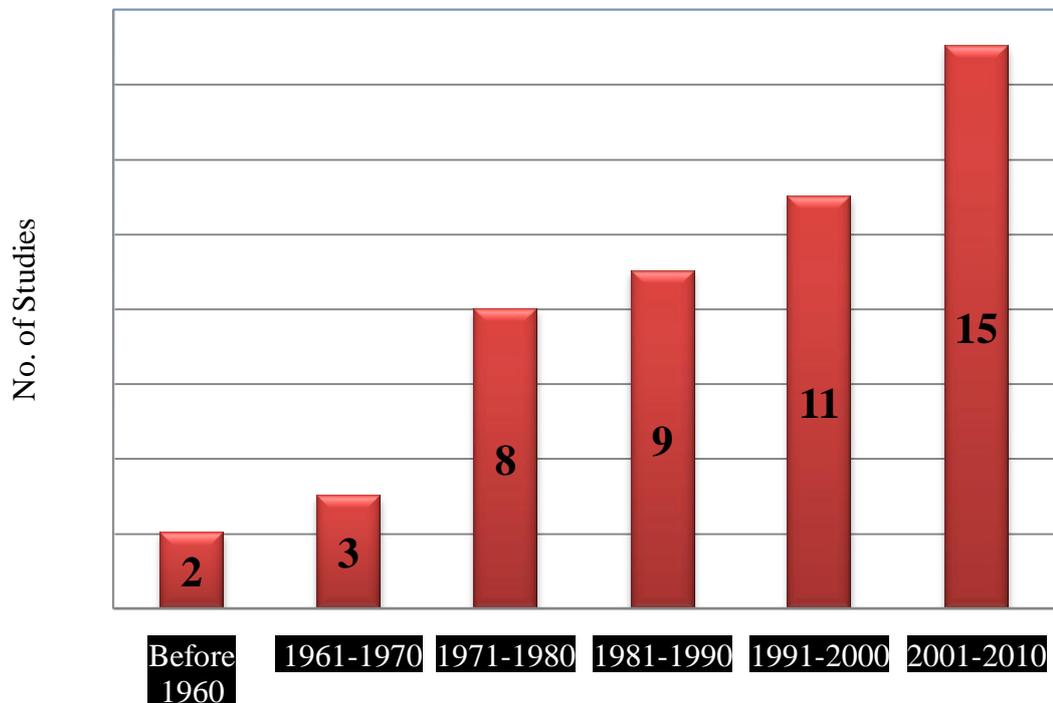


Figure 2.3 Number of significant failure prediction studies and sample size over time

Source: (Designed for this study of previous studies)

The above figure indicates that the number of predictive studies with a majority of the US has peaked (1961-1970). To the author's knowledge and from other sources cited in previous research (for example; Charitou et al., 2004, p. 470) that the number of studies increased rapidly, indicating growing interest in the area of predicting financial distress or failure in order to lessen enable policy makers, financial analyst, bankers, and other stakeholders to make concise decisions.

Nevertheless, Beaver (1966) original work must be acknowledged in the literature, since it laid the foundation for studies in corporate failure prediction to emerge. It is from this that Altman (1968) became the pioneer who introduced multivariate techniques into the field of corporate collapse prediction, resulting in a methodological change in Russia-based modelling of business failure (Balcaen and Age 2006; Hossari and Sheikh, 2005).

Altman (1968) performed an in-depth analysis of the work of Beaver (1966) by developing a discriminate function which combines ratios in a multivariate analysis. Altman (1968) found that his five original ratios (Working Capital/TA, RE/TA, EBIT/TA, Market value to equity/ Book value of debt and Sales/TA) outperformed Beaver's (1966) cash flow to debt ratio. Ohlson (1980) pointed out that the MDA of Altman model involves restrictive statistical requirements imposed by the model (Ohlson, 1980). To overcome the limitations, Ohlson (1980) employed logistic regression to predict company failure.

Lam (2004) identified 16 financial statement variables based on previous studies in the forecast of financial performance. They include current assets/current liabilities, net assets/total assets. Net income/net sales/total assets, total sources of funds/total uses of fund, research expense, pre-tax income/net sales, and current assets/common shareholders' equity, current shares traded, capital expenditure, earnings per share (EPS), dividend per share (DPS).

Chen et al. (2000) used financial ratios in companies' annual reports to examine the forecasting issues in Chinese stock market, by using six financial ratios as explanatory variables: current ratio, sales/total assets, total debt/total assets, net income to total assets, and net income on equity and net income/sales. Wu and Lu (2001) chose 21 financial ratios as indicators, and finally employed a step-wise regression technique to analyze them, whereby, six variables were significant in predicting financial distress in Chinese companies: growth in net income, return on assets, current ratios, long-term

equity, working capital/total assets and sales/total assets. Their findings show that industry factors and corporate size played a significant role in affecting the financial distress, since the cost of financial distress increased and asset size of the enterprise had a negative relationship with financial distress cost.

In addition, Fulmer, Moon, Gavin and Erwin (1984) also used a step-wise multiple discriminate analysis to evaluate 40 financial ratios applied to a sample of 60 companies, 30 failed and 30 non-failed (successful). Their model focused on small firms and the research reported a 98% of accuracy rate in classifying the examined companies one year before actual failure and 81% accuracy more than one year before bankruptcy. Sharma and Mahaja (1980) developed a failure process model to predict business failure over a five-year period before the actual failure. The sample consisted of 23 failed and 23 successful companies during the period 1987-1970. Similarly, Mensah (1983) attempted to predict failure 2 to 5 years before it occurs with a sample consisting of 11 financially distressed companies and 35 successful companies for the period 1975 to 1978. Mensah (1983) found that the percentage of forecasting in the second year before failure was only 3.3%.

Zavgren (1985) employed seven financial ratios and logistic regression utilizing a paired sample data of 45 successful and 45 failed companies. The result showed a 99% of the model's accuracy to predict failure. In a similar study, Altman, Marco and Varretto (1994) compared the performance of the linear discriminate analysis and neural networks to predict failure on 1000 Italian companies during a period of 1982 to 1992. They reported 90% acceptable accuracy rate when employed both statistical techniques (linear discriminate analysis and neural network).

Furthermore, a recent study conducted by Altman (2012) re-examined Altman (1968) Z-score technique employing three samples: 68 failed companies during the period 1969-1975, 110 failed companies during 1976-1995, and 120 failed companies during the period 1997-1999. Altman (2012) reported that the accuracy of the discriminant model ranges from 82% to 94% in the first year before financial distress, while in the second year the accuracy range between 68% and 75%.

In a relevant study, Ginoglou, and Aogastos (2002) employed 16 financial ratios for 20 failed companies and 20 successful companies listed in the Greek Stock Exchange between the periods 1981-85, they employed a linear probability model, logit and discriminate to report the overall predictive rates of the models. The result indicated an

accuracy rate of 75%-85% of failed companies and 95% -100% for successful companies.

In the Middle East, there are several studies that examine predicting financial failure or financial distress.

Al-Hindi (1991) employed discriminate analysis, selecting 6 financial ratios to develop a model that predicts the full erosion of capital of the public industrial enterprises in Egypt. The result indicated 99.9% accuracy in four years before failure and 90% in the fifth year before accuracy. Similarly, in a more recent study, Al-rajaby (2006) attempted to develop a statistical model to predict financial failure of listed companies during the period 1991-2002. Employing data from Oman public listed companies, a matched pair sample design of 26 companies and 25 financial ratios. Utilizing both discriminate and logistic regression techniques, the result indicates an accuracy prediction rate of 96%.

However, the researchers weren't able to indicate changes in the financial health of companies in the context of UK retail banking performance before, during and after the crisis era. Therefore, the purpose of this study will attempt to fill this gap in the literature by providing literature on the relationship between financial distress and UK retail bank performance before, during and after the crisis. Suntrarak (2012) provides a review regarding statistical methods applied to financial distress and concludes that the ability of models to predict financial distress in firms is doubtful in terms of its usefulness and limitations of the sample, statistical techniques, and validity of outcomes in order to alleviate biased outcomes.

2.4.2 Financial Ratio Analysis

Can financial ratios accurately predict financial distress of UK retail banks before and after the crisis, and if so which of these ratios are more significant in explaining financial failure?

Early attempts to employ financial ratios in predicting corporate failure emerged in the 1930s, for example, (Fitzpatrick, 1931 and Merwin, 1942, p. 99). The absence of statistical tools in early studies made it easier and less complicated. Fitzpatrick (1931) attempted to explore systems of corporate failure by investigating the failure of 20 failed firms linked to manufacturing and trading industries during 1920-1929 in the US. He employed a trend analysis technique of ratios of failed firms. He found that net profit to net worth, net worth of fixed assets, net worth of debt, and quick ratios were significant ratios to predict failure.

Ratio analysis refers to the process of determining and presenting the relationship of items and groups of items in the statements (Avarind and Nagamani, 2013). Other previous studies concluded that, “Ratio can support management in its basic functions of forecasting, planning coordination, control and communication”. Gibson (1982) mentions that financial ratios when used and interpreted properly can be effective in assessing the liquidity, profitability, and debt position of a company. Chen and Shimerda (1981) examined the effectiveness of financial ratios to predict the company’s future strength. Taffler and Tisshaw (1977) on the other hand, mentioned that because such ratios are less subject to “window dressing” by companies, they can be an early signal of going concern problem.

Compared to previous literature in applying ratio analysis as a technique to measure performance, FRA is a significant and an effective tool in distinguishing high performing banks from others, and compensate or controls for differences in size effect on the financial variable being studied (Samad, 2004).

More importantly, financial ratios enable us to discover unique bank strengths and weaknesses, which on its own inform bank profitability, liquidity and credit quality (Webb and Kumbirai, 2010, p. 32). In addition, ratio analysis, and related predictive studies (E.g. Z-score model) can be exceptionally useful techniques when measuring the overall financial health of a company. However, when employing ratios as a benchmark for assessing the financial health of a company repeatedly over time, caution should be taken given that they do not provide any long term benefit (Brigham and Houston, 2007). First, though accounting data in financial statements is subject to manipulation and backward looking, they are the only technique to provide detailed information on the bank’s overall activities (Sinkey, 2002). Second, Robert (2003, p. 16) argued that ratios are constructed from accounting data, which means they are subject to interpretation and manipulation. In addition, the industry combined ratio does not establish within a reasonable degree of certainty that a company performs normally is well managed. Despite these limitations, the positive impact of the FRA in respect to performance cannot be overemphasized. For that reason, this study intends to employ Z-score model (MDA) as a statistical technique to provide added value and credibility to assess the performance of UK retail banks before, during and after the financial crisis period.

One of the most significant applications of financial statements is their ability to look into the future of a company or project, a view that is based on the findings of financial

statements (Bardia, 2012). Financial ratios have long been employed to predict bankruptcy in companies. Early studies, for example, Beaver (1966) is credited for being the first to propose the univariate model to attain the probability of predicting bankruptcy in firms with the use of financial ratios. From the 6 financial ratios Beaver selected among 29, he found that the best predictive variable was cash flow against total debt, followed by debt ratio and then return on assets for five years before actual failure. This study is not going to elaborate the definition of the above significant ratios of Beaver (1966) study since this study was based on Altman (1968) MDA and ratios analysis.

The author of this study argues that financial ratios found significant in early studies have greatly changed compared to recent significant ratios. For example, Altman (1968) improved on the Beaver's univariate technique of analysis by using the well-known Z-score model with financial ratios based on MDA to conduct a study on 33 healthy firms and 33 failed firms and found that liquidity, profitability; solvency, activity and leverage ratios were significant in predicting bankruptcy. Similarly, Deakin (1972) employed financial ratios used by Beaver (1966), but employed MDA in order to put forward an alternative model to predict failure. The result found that it is relatively possible to identify a large number of potential failures up to three years before actual filing of bankruptcy by the company. Accordingly, Ohlson (1980) employed financial ratios based on a logit model and concludes that four basic factors have a significant effect on the probability of failure within a year: company size, financial structure, performance and current liquidity.

Literature argues the controversy involved in the selection of financial ratios. In general, there is no theory to select ratios. However, Chijoriga (2011, p. 136) assumes that selected ratios depend on practical use of the problem in question, the ability to improve the discriminant power of models, frequency and general acceptability of the ratios in relation to their intended use and popularity in the literature and less importantly appeal to the researcher. Therefore, In order to predict corporate failure or financial distress in the UK, this study will employ financial ratios due to their ability to tackle the problem in question, frequency in previous research literature, performance ability and practical ability to improve the power of MDA.

Asterbo and Winter (2012, p. 2) employed accounting data and Altman's Z-score as a measure and found that "ratios of solvency, liquidity, profitability and leverage tend to serve as the most significant indicators of impending bankruptcy. It is imperative to

define these significant ratios accordingly in detail, in order to give a clear understanding of what category each type belong and justify why they are significant in the literature. This is done in the following section.

2.4.2.1 Liquidity ratio

This ratio measures the ability of a company to meet its short-term obligations. This ratio is very significant because failure to meet up with such obligations can lead to bankruptcy. In other words, it refers to the solvency of the company's total financial position. The higher the liquidity ratio, the more able a company is to pay its short-term obligations. Therefore, the need to achieve a satisfactory liquidity position is vital for survival (Mills and Robertson, 2003, p. 126). This includes:

Current ratio which is equal to current assets/current liabilities

Quick (acid –test) ratio which is equal to (current assets-inventory) /current liabilities

Stock turn measures the number of times stock is 'turned over' on average in a given period (usually a year). Calculated by cost of sales/stock

Debtor week's ratio shows the number of weeks on average that debtors take to pay their invoices. Calculated by multiplying debtors by the number of weeks in the period.

2.4.2.2 Profitability ratio

An analysis of liquidity ratio alone is totally inadequate to obtain a well balanced view of a company's performance. Profitability on the other hand, refers to the ability of a company to earn income. Similarly, it measures how a company's return compares with its sales, assets, investments, and equity.

Profitability measures the firm's ability to generate earnings. Therefore, the more profit a firm can generate, the greater the availability of liquidity or funds to run the company both in the short and long run periods. Conversely, many companies face financial distress when they have negative earnings. Consequently, profit is often used as a predictor of financial distress events (Khunthong, 1997). Employing the logit model, Plat and Plat (2002) found that EBIT margin is a significant variable to predict financial distress in the automobile industry. In line with Platt and Platt (2002), Peters et al. (2002b) also found out that EBIT margin is significant in predicting the likelihood of distressed companies. This study examines two types of profitability ratios based on their popularity in the literature or previous studies: Earnings before interest and taxes (EBIT) and Returns on Equity (ROE).

Another important variable is ROE, which shows the returns on equity employed by the company. ROE measures the ability of a company to utilize its assets in order to generate earnings for shareholders. Gestel et al. (2006) utilizes the Least Square Vector Machine to determine creditworthiness of companies and found that ROE is one of the three most significant inputs to predict the health of the firm. Consistently, Khuthong (1997) reported that ROE is one of the most significant variables to predict failure two and three years before actual failure in Thailand companies.

Consequently, stockholders have a special interest in this ratio because ultimately, it leads to cash flows. The following ratios are involved:

- Gross profit margin, which gives an indication of the average profit margin achieved by a company. It is calculated by expressing profit before interest and taxation (PBIT) as a percentage of sales revenue (Mills and Robertson, 2003, p. 122).
- Net operating income which is equal to operating income/net sales
- Return on total asset (ROA) which is calculated by net income (PBIT) /average total asset. The higher the ratio, the better for the company.
- Return on equity (ROE) which equal to net income/ shareholders' equity.
- Return on investment (ROI) which is measured by net income/average total assets.

2.4.2.3 Efficiency ratios

Financial analysis uses debt ratio to assess the relative size of debt load of a company and the company's ability to pay off its debts. In other words, these measures the extent of debt in relation to total assets. They show the percentage of total funds obtained from creditors. This ratio includes:

- Debt to total assets which measures the percentage of the firm's assets which is financed with debt; average total liabilities/average total assets.
- Debt to equity ratio, which equal total liabilities/stockholders' equity.
- Equity to total assets which is equal to shareholders' equity/total assets (Delta Publishing, 2006, p. 76).

2.4.2.4 Activity ratios

This ratio directly or indirectly measures the reliance of a company on a debt. The empirical results show that a company with high debt and inadequate equity base are more prone to failure/sickness (Ram Avtar Yadav, 1986, p. 74).

There are various statistical and non-statistical methods and models, at both micro and macro level developed to enable stakeholders get information on whether the business entity is moving to and what chances it has to continue as a going concern. Most authors have based their analysis on financial ratios. Apparently, they utilize previous research results to generate models to apply to country's specific condition. These derived models, mostly employ multiple discriminant analysis, logit and probit analysis. This method examines various financial ratios to bring about the financial weaknesses of a company in advance of failure. *Are financial ratios best predictors of financial distress?* In answering such a question, we need to critically review the literature on financial ratios in predicting financial distress.

They measure how quickly various accounts are converted into money or sales. In addition, they measure how efficient a firm uses its assets (Gallagher and Andrew, 2006, p. 96). These ratios include:

- Accounts receivable turnover, which is equal to net sales/average accounts receivable.
- Accounts receivable period (the number of days purchase in receivables which equals to 360 days/accounts receivables turnover.
- Inventory turnover, which equals to Cost of goods sold/average inventory.
- Number of days inventory which equal to (inventory/cost of goods sold

2.5 Conceptual Framework of Bank Performance

According to Neuman (2006, p. 74), "a theoretical framework is at the widest range and opposite extreme from empirical generalizations". It is a more formal or substantive theory, and thus include many substantive theories that may share basic assumptions and concepts in common. Very few or no study has attempted to examine the impact financial distress in UK retail banking performance before, during and after the global financial crisis. This study, however, attempts to fill this gap in the literature. In this study, financial ratio theory, in general, is examined first, followed by the theoretical framework of financial ratios applied to business failure prediction. Bridgham and Ehrhardt (2008) argue that the four basic financial statements are derived from the balance sheet, the income statement, retained earnings statement and cash flow. Initially, financial ratios are one of the most recognized predictors that have been used to predict the livelihood of the firm's failure since the 1930's (Suntraruk, 2010, p. 31). For example, the studies of Fitzpatrick (1931); Altman (1968, p. 590); Ang, Cole, and Lin (2000), Beaver (1966, p. 167), Charitou, Neophytou, and Charalambous (2004); Deakin (1972), Nam and Jinn (2000) and Ohlson (1980). Still, ratio analysis can reflect

the financial performance of a company; they are subjected to window-dressing (Casey and Bartczak, 1985; Lee and Yeh, 2004); Opler and Titman, 1994).

Therefore, a large number of items in the financial statements are not easy to analyse how the company is performing just by looking at these items. Theoretically and practically, it is necessary to group items in the balance sheet to make interpretation of financial ratios, easier and more precise. Several models related to the prediction of business failure and financial distress have been proposed. Again, (e.g. Beaver, 1966; Altman, 1968; Deakin, 1972; Ohlson, 1980). However, little or no research has been conducted in the banking and finance sector. Significant failure prediction techniques from the literature include (1) ratio analysis, (2) multiple discriminant analysis (MDA), and conditional probability analysis. These methods will be critically examined in the following section. Considering the goal to discover failure or distress early enough before it occurs, the recent financial crisis of 2007-2009 has exposed large banks to the brink of collapse. Therefore, researchers have increasingly developed models to predict the health of companies.

While some well-established models in this area of study have been applied extensively by most practitioners and researchers to predict financial distress or failure, for instance, the well-known model of Altman (1968) multiple discriminant analysis on thirty-three bankrupt and thirty non-bankrupt manufacturing firms, using significant ratios: (1) Working capital/Total Assets, (2) Retained Earnings/Total Assets, (3) Earnings before Interest and Taxes/Total Assets, (4) Market Value of Equity/Total Liabilities, (5) Sales/Total Assets. These ratios revealed to be significant in Altman's (1968) original model and had the ability to predict bankruptcy to two years prior failures (Altman, 2000). In line with this, similar variables are in the context of UK retail banks in order to test their performance.

2.5.1 Hypothesis Development

It emerged from previous research that financial and non-financial institution's market-to-book ratios indicates high statistical significance by utilizing Altman's five ratios listed in the literature review. Therefore, presumed hypotheses for this research were:

H_{1a} There were significant differences in financial distress prediction before, during and after the recent financial crisis among the predictor variables using Altman's financial ratios.

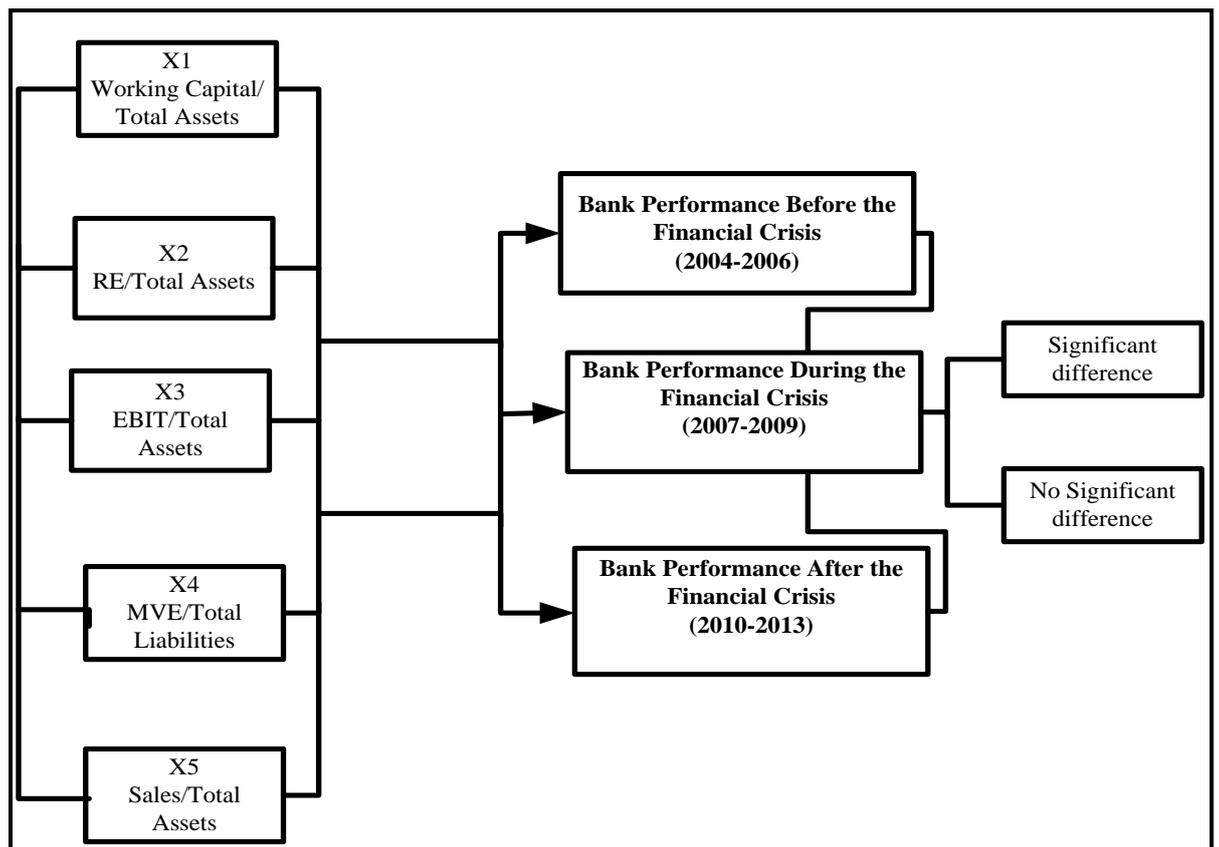
H₀ There were no differences in financial distress prediction before, during and after the recent financial crisis among the predictor variables using Altman's financial ratios.

H_{2b} The five variables identified by Altman's model can be sensitive to predict financial distress in banks after the crisis.

H₀ The five variables identified by Altman's model are not sensitive to predict financial distress in banks after the crisis.

H_{3c} UK Retail Banks performed better before and after the crisis than during the crisis.

H₀ There were no differences in the performance of UK Retail Banks before and after the crisis than during the crisis.



Source: Authors' estimated model

Figure 2.4 Research Model for Altman Ratios and Bank Performance

Where:

X_1 = Working capital/Total Assets. Measures liquid assets in relation to size of the company

X_2 = Retained Earnings/Total Assets. Measures profitability (age and earnings power)

X_3 = Earnings before Interest and Taxes/Total Assets. Measures operating efficiency

X_4 = Market Value of Equity/Total Liabilities. Measures solvency of the company

X_5 = Sales/Total Assets. Measures total asset turnover

Chapter Summary

In brief, Chapter 2 identified and thoroughly review the theoretical or conceptual aspects of the literature of financial distress prediction to uncovers research questions or hypotheses that are significant to examine in the later sections. Furthermore, based on previous studies, Chapter 2 identified several ratios as significant predictors in financial distress models. Profitability, liquidity, solvency, leverage and activity ratios were found significant in predicting financial distress. Nevertheless, there was no decisive decision or theory on which the ratios were selected in predicting the likelihood of financial distress or failure. In reality, the order of importance of each ratio is not clear since most of the previous studies cited different ratios being the most significant indicator of financial distress or failure. Therefore, most researchers selected financial ratios as predictors of failure or financial distress based on the popularity and predictive ability of the ratios in previous failure prediction studies (Muller, Steyn-Bruwer and Hamman, 2009). Concerning the definitions of financial distress, there is no particular definition of financial distress. However, a majority of early predicting studies have concluded that companies facing difficulties in meeting financial obligations and having huge overdrafts are considered to be in financial distress (Beaver, 1966).

The next Chapter, Chapter 3 will review the literature on the factors influencing customer loyalty, satisfaction, trust and bank performance in the banking industry.

CHAPTER 3: LITERATURE REVIEW II

CUSTOMER LOYALTY

3.0 Introduction

This chapter examines the influence of perceived financial distress and customers' attitude towards banking in The UK. Here, the study evaluates the impact of financial distress if any, on bank account customers before, during and after the crisis.

The banking industry plays a pivotal role in providing funds to other sectors of the economy, individuals and small businesses, so it is fundamentally based on trust, sustained by attitude and managed by complex financial management skills and psychology of human relation (Samson, 2009, p. 81). The most recent financial crisis of 2007 is considered by scholars, economics and governments to be the worst financial in history since the Great Depression of the 1930s (Abdulla and Debab, 2012, p. 546; Reinhart and Rogoff, 2012). This is probably because it resulted in the collapse of giant financial institutions in the world, for instance, Lehman Brothers and Northern Rock mortgage lenders. In addition, this era has also seen numerous bailouts by national governments.

Some scholars describe this period as that of a systematic banking crisis whereby, many country's financial sectors experienced a large number of defaults during the crisis and most financial institutions were faced with difficulties meeting contract datelines. Consequently, bad debt rose sharply, leading to decrease in assets and an increase in liabilities in their balance sheet totals. Furthermore, some of this distress stems from deposit runs on banks. For example, in August 2007, around 11 percent of Northern Rock Bank's total retail deposits were withdrawn in three days worth £3 billion of deposits (David et al., 2009, p. 13). A large number of bank failures occurred, particularly in US banks most probably due to the devaluation of securitization of mortgage loans in the same period in 2007 and 2008.

Many banks recorded considerable losses in assets and customer's confidence during the 2007-2008 financial crises, since the crisis affected customers not only economically, but also psychologically. Bank customers became more money minded by not wanting to spend on premium products and services anymore, even if they still could afford to do so. Recent studies indicate that customers only buy necessities, switch to cheaper brands and have a more rational view on promotion by comparing different products and services from diverse providers based on price, compromising quality (Nistorescu and Puiu, 2009).

Again, the crisis had a major impact on the economic system, from the loss of confidence between banks as well as from customers in banks by which bad impacts on the entire economy occurred. However, the lack of trust is not only due to the poor performance of banks.

Before the crisis, UK banking sector had a sound public reputation. Indeed, a review of the bank image, reputation literature from Worcester (1997) suggests that, the image of the banking sector in the 1960s and 1970s was as good as gold, as sound as dollar sterling (Worcester, 1997, p. 146). In general, recent research has found that the prior reputation of an entity significantly impacts public perceptions of corporate social responsibility for the harmful crisis (Grumwald and Hempelmann, 2010). For this reason, bank customers with low initial perception of the banking sector's reputation might give banks 'the benefit of the doubt' by readily accepting negative information as confirmation of their prior assessment (Kottasz and Bennet, 2014, p. 5). However, Kumar et al. (2012, p. 36) claims that banks need to have a good understanding of their customer behaviour so that appropriate marketing strategy directed towards relationship building. Therefore, there is more to be done by bank managers to restore trust and confidence in than the financial performance of their companies

As the literature indicated, the more the customers trust the service provider, the higher the perceived value of the relationship (Walter, Holzle, and Ritter, 2002). Consistent with this argument, Gounaris (2005) emphasizes that the quality of bank services is influenced indirectly by trust, therefore trust is the basis of the banking industry and perceptual features influence the customers' choice of bank.

3.1 Bank-Customer Relationships

The relationship that banks have with their customers plays a vital role in the circulation of funds from savers to borrowers. Therefore, this relationship is strengthened when banks are willing to provide quality products, less expensive products/services and provide good customer service. Peterson and Rajan (1994, p. 5) define banking relationship to be a “close and continued interaction between the bank and a firm that may provide a lender with a voice about the affairs of the firm”. Consequently, a strong banking relationship is valuable to bank clients because they enable clients to obtain funds that would otherwise not be available to them in the public markets (Kaufman et al., 2003, p. 2). In the same vein, Rodrique-Fernandez et al. (2013) define bank relationship as “the association between a bank and customer that goes beyond the execution of simple, anonymous, and financial transaction”. However, Ongena and Smith (2000) raised doubts on how important a close relationship between a bank and customer actually is. Garland (2001, p. 246) highlights that relationship length is an essential driver of profitability in New Zealand’s personal retail banking experience, in which regional banks offer most valuable retail customers some benefits such as client fee waivers, lottery prize draws, bonus points and most importantly loyalty programs.

Instability in the banking industry was led by the economic downturn. Due to this, most banks in Europe and US were affected severely since they are interrelated in one way or the other, consequently bank customers are affected. In line with this, it is important as a customer to ask as many questions as possible as the bank asks about you. This is where trust comes in and the relationship is established by both parties. Personal bank customers and other individual who greatly experienced personal loss due to the effects of the recent financial crisis are more likely to have paid close attention to its details than people who merely observed the crisis spread out but were not personally affected. Gritten (2011, p. 99) claim that ‘for those who had the carpet pulled swiftly under their feet’, it will take the financial service institutions a long period of time to rebuild meaningful relationships with their customers. The crisis led to a high rate of redundancy; drop in earnings, loss of interest on savings, inability to raise a mortgage and other distressful events. With this, the affected individual may feel highly involved with the crisis and to be deeply interested in the information about the event. Hence, memories of the bank’s responsibility for the crisis may be strong among this group of people (Einwiller et al., 2010). Similarly, recent studies show that those personal bank customers and other individuals who are fully familiar with the financial crisis either by

reading, viewing television reports or engaging in conversations about it will probably remember the state of affairs surrounding the event (Alba et al., 1991).

Garland (2001) emphasized the need for banks in New Zealand to maintain a long-term relationship. In line with this, Storbacka et al. (1994) believes that youthful customers are unprofitable initially if they have small account balances yet will become profitable in the long run, consequently, they consider lasting relationships with customers are especially vital for banks. Further, in keeping long-term relationships with customers will generate revenue for banks by increasing profit margins. In addition, Piccoli et al. (2003) concludes that to retain customers, companies need to properly manage long-term relationships with customers in a trusting way for shared benefits which in turn will lead to an increase in banks' performance through customer satisfaction, customer loyalty and decrease costs of acquisition, hence increasing profitability. Alternatively, King and Burgess (2008) reported a mixed result regarding this claim raised by Piccoli et al. (2003). Yet, customer relationship management is important for the survival of most companies. Just as customers need to be honest with their banks, banks also need to be honest with their customers about what they can do for their customers now and in the future (Koury, 2009). Today, banks have moved away from a transaction-based marketing approach to a more relationship-based approach that has its core the recognition of a lifetime value of the customer. These relationships that banks have with their customers played a significant role in moving funds from savers to borrowers (Elijah et al., 2003, p. 3).

Petersen and Rajan (1994, p. 5) define a banking relationship as a "close and continued interaction between a bank and a firm that may provide a lender with sufficient information about product and services, and a voice in the firm's affair. According to Fama (1985), a bank which actually loan to a firm or customer, learns about the borrower characteristics than do other banks as cited in (Sharpe, 1990). Eduardo et al. (2013) defines a relationship between a bank and customer as one that goes beyond the execution of simply unspecified and financial transactions. However, according to the literature on relationship banking, it is unclear how important a close relationship between the customer and the bank essentially is (Onbena and Smith, 1998).

Nevertheless, customers' commitment offers several benefits to companies such as protecting the company under service failure (Pedersen and Nysveen, 2001). Some indicators from the literature that usefully predict banking distress ranges from declining output, fluctuation in inflation and exchange rates, high leverage ratios,

negative sales and a fall in net income. According to Hardy and Pazarbasioglu (1998), the primary direct indicator of banking sector soundness and the likelihood of financial distress is based on the level of bank capitalization. That is the amount by which a bank's asset exceeds its liabilities. Bernanke, 1983; Calomiris and Manson, 2003) argued that bank distress is not associated only with bank failures, but from macroeconomic consequences resulting from reduced supply of loans and deposits, and most importantly an increase in the share of nonperforming loans. Therefore, there is the need for a bank to undertake research in order to measure customers' expectations, and consistently fulfilling these gaps where appropriate (Parasuraman et al., 1998).

It is imperative to understand the types of customers a bank has. Bank customers can be grouped into personal account bank customers and corporate account bank customers. The latter provides the greatest profit opportunity for the bank (Tyler and Stanley, 1999; Zineldin, 1995) than the preceding. Nevertheless, little or no research has been studied on the impact of financial distress on customers' attitudes and behaviour in the UK banking industry, which is one of the objectives this study will examine. This study assumes that if customers' attitudes, beliefs, perceptions, and other social and psychological factors associated with financial distress are empirically tested, their result will provide alternatives and additional information to bank managers, policy makers and other stakeholders in curbing future financial distress. Field theory provides a basis for this concern's framework. According to Lewin (1951), field theory assumed that in any circumstance, there are both driving and retaining forces that influence any changes that may occur.

The driving forces involve those forces that tend to initiate a change and keep it going in terms of competition and earnings, while restraining forces involves acting to decrease the ability to save money, but an increase in the withdrawal of his/her deposit account (Samson, 2009, p. 82). Nevertheless, this gap is breached when the sum of driving forces equals the sum of restraining forces. Field theory is significant; according to Kassarijian (1973) since it improves understanding toward customer's cognitions, affective reactions and behaviours in times of perceived financial distress in the banking industry.

3.1.1 Customers Loyalty

Customer loyalty is considered to be one of the key aspects that will help a company to sustain its long-term success (Kuusik, 2007). In addition, Ehigie (2006) believes that

customer loyalty is critical to the success of businesses in today's competitive marketplace, including banks. Fisher (2001) emphasized that a loyal customer is one that will stay with the same service provider, is likely to take out new products with the bank and is likely to recommend the bank's services.

Furthermore, Rhee and Bell (2002) highlights that customer loyalty is an important aspect of a shoppers' behaviour, hence, are significant to the health of stores. Previous studies have identified that customer satisfaction is the main consequence of customer loyalty. Since the beginning of the 20th century, research shows that customer loyalty as a means of building strong brands has been the focus of academic research (Fornell, Johnson and Anderson, 1996; Parasuraman et al., 1996). Rai, Kumar and Medha (2012) points that the age of competition, customers' expectation and building of long-lasting loyalty bonds with customers seem to be the only means of sustained profitability and growth. In line with this, Reichheld and Sasser (1990) confirmed that loyalty, in one or more forms reduces costs to acquire additional customers, lowers-price sensitivity and decreased costs to serve customers who are familiar with the firm's service delivery system. Consequently, acquiring customers is 5-12 times more expensive than retaining a current customer and, thus, reducing customer attrition from the most profitable customers by 5% can double the profit of a bank (Fisher, 2001). Therefore, maintaining customer satisfaction and loyalty is very vital to the retail bank continuous existence, since no bank can remain in business without loyal customers and thus, customer loyalty has several benefits as a result of their satisfaction as enumerated by previous studies (Abdullah, Manaf and Owolabi, date unknown/no date). Such benefits include, increased in profit, reduction in service costs, better understanding of financial affairs, positive words of mouth and readiness to pay charged price and leaning on one bank to build a solid relationship (Levesque and McDougall, 1996; Arbore and Busacca, 2009). In addition, Healy and Thomas (1999) assert that customer loyalty is important to an organization since it serves as a retention strategy. Further, loyalty is defined as a consumer's overall attachment or commitment to a service provider (Lim, Widdows and Park, 2006).

According to marketing literature, customer loyalty can be defined in two different ways; first, loyalty is defined as an attitude (Jacoby and Kyner, 1973; Day, 1969; Yi, 1991), while different feelings of a customer create an overall attachment towards a product, service or organization (Fornier, 1994). Earlier studies classify customer

loyalty as behaviour (Dick and Basu 1994; Jacoby and Chesnut, 1978), which indicates actual repeat purchasing behaviour or the likelihood to repeat a product or service purchases from the provider. However, recent studies attempt to measure customer loyalty from attitudinal aspects including cognitive and affective components. Dick and Basu (1994) view customer loyalty as the relationship between relative attitude and repeat patronage. Their claim is made on the basis that relative attitude measures are likely to provide a robust indication of repeat patronage than the attitude toward a brand measured in isolation. Day (1969) claims that behaviour, loyalty lacks attachment to brand characteristics, and they can be immediately captured by another brand that offers a better deal.

However, Day's (1969) study did not provide a clear understanding of behaviour. Jones and Earl (1995) clarify this assertion by classifying customer behaviour into intent to repurchase, primary and secondary behaviours. Intent to repurchase was ranked superior to other attributes to indicate future behaviour. The primary behaviour depending on the type of industry or company consists of five constructs namely, recency, frequency, amount, retention and longevity, while secondary behaviour includes customer referrals, endorsements and spreading the word to others are extremely important forms of customer behaviour for a company. Nevertheless, these constructs only provide a picture of measurement over time, in that sometimes they can send the wrong signals.

In other words, (Walsh, Evanschitzky and Wunderlich 2008, Oliver, Rust and Varki, 1997) defines loyalty as a "deep held commitment to re-buy or re-patronize a preferred product or service continually in the future, repeat purchase, despite any situational influences and marketing efforts that might cause switching behaviour". Kandampully et al. (2000, p. 346) supports that, "a loyal customer" is a customer who repurchases from the same service provider whenever possible, and who continues to recommend or maintain the positive attitudes towards the service provider. However, their definition of loyalty is limited to the attitudinal aspects of a customer. Other researchers have highlighted the attitudinal dimensions of loyalty (Dick, Basu 1994, Jacoby, Kyner, 1973; Oliver, Rust and Varki, 1997).

On the other hand, Picon et al. (2014, p. 746) argues that loyalty is conceptualized as repeat purchase behaviour. They suggest that people may repeat their purchasing out of

habit because some barriers such as switching cost and a shortage of attractiveness of alternatives prevent them from switching providers. In the same vein, Bendapudi and Berry (1997) point out that customers may maintain a relationship with the service provider by obligation, developing a false loyalty without having any positive feeling toward their provider.

Rai and Srivastava (2012) suggested that “customer loyalty is a psychological character formed by the sustained satisfaction of the customer coupled with emotional attachment shaped with the service provider that leads to a state of willingly and consistently being in the relationship with preference, patronage and premium”. Similarly, customer loyalty is the “result of a company’s creating a benefit for customers so that they maintain a relationship and increase repeat business with the company (Anderson and Jacobsen, 2000). Additionally, a loyal customer is defined as one that stays with the same bank, is likely to take out new products and services with their bank and, when speaking to others, is likely to recommend their service (Fisher, 2001, p. 77). Hence, Jones and Sasser (1995) emphasized that customer loyalty is the feeling of attachment to or affection for a company’s product or service above and beyond that of competitors in the marketplace. Consistently, Caruana (2004) highlights that a customer may attain the psychological state (affective and/or cognitive) as a relation of the firm’s rational strategy, thus the customer may voluntarily maintain a relationship on the foundation of benefits he or she receives during the relationship. She concluded that true loyalty is a positive attitude toward the firm. Further attempts have been made to define customer loyalty as behavioural which involves continuous to purchase services from a provider, referral, increasing the scale or scope of a relationship and an act of recommendation (Yi, 1990); Hallowell, 1996); Homburg and Giering, 2001).

With these conflicting approaches to conceptualize loyalty, Oliver (1999) presents a straightforward explanation that “a positive attitude toward that provider is precisely what ensures a repeat purchasing behavior in the future, thus customers are loyal because they really wish to maintain the relationship”. Notwithstanding, with the purpose of covering these two approaches of conceptualizing loyalty, and following the definitions provided by Gremler, Brown, Bitner and Parasuraman (2001) and Picon et al. (2014), this study conceptualizes loyalty toward specific providers as a multidimensional concept. For that reason, loyalty is seen as an intention of future behaviour to which a customer aim to repeat their purchase, express a positive

attitudinal willingness toward the service provider, and consider the single option for transactions in future. Most importantly, these approaches are proposed to assist in the conceptualization of loyalty that has been correlated to customer satisfaction and other performance predictors such as profitability and cash flow.

3.1.2 Customer Satisfaction

This section deals with the concept of customer satisfaction in the banking industry by highlighting its measurement from previous research in relationship management. Before proceeding further on how to measure customer satisfaction (CS), it is required that we attempt the definition of the phrase “customer satisfaction”. It is a term often used in business and commerce studies explaining the measurement of products and services of a company to meet its required goals and objectives (Jayaraman and Shankar, 2010, p. 399). It is imperative to draw a distinction between satisfaction and loyalty. Customer satisfaction is often confused with customer loyalty (CL). Customer satisfaction occurs when customers weigh their perception of actual service performance against their expectations and any differences between the two generates high satisfaction, high dissatisfaction or zero dissatisfaction (Oliver, 1980). In other words, “customer satisfaction is the assessment of pre-purchase expectation of a product or service, with the results reached after the act of repurchases (Lemon, White and Winer 2002). Put another way, customer satisfaction is the collection outcome of the customer’s perception, evaluation and psychological reaction to the consumption experience with a product or service (Khalif and Liu, 2003). Together with Wirtz and Lee (2003), satisfaction leads to positive word of mouth, repeat purchase, loyalty, retention, and increase in long-term profitability for the organization and customers.

However, none of these aforementioned definitions explain the behavioural and attitudinal aspects of customer satisfaction. Therefore, other researchers present an elaborate definition and suggest that “satisfaction is an overall customer attitude or behaviour towards a service provider, or an emotional reaction towards the difference between what customers expect and what they receive, regarding the fulfilment of some desired goals or need” (Hoyer and MacInnis, 2004, Hansemark and Albinsson, 2004). Wrstbrook, Newman and Taylor (1978) explains that satisfaction is an emotional or feeling reaction towards attributes such as surprise, pleasure and relief. However, Jones and Sasser (1995) argued that the relation between CS and CL reacts differently according to time and circumstances.

However, Liang and Wang (2004, p. 57) report about the importance of products and services in the measurement of customer satisfaction and argue that there is more to customer satisfaction than just products and services, since the quality of products and service is not sufficient to improve customer satisfaction in the banking industry. Therefore, customer satisfaction should include all levels of measurement, including functional and emotional benefits that are the most powerful purchase motivators (Liang and Wang, 2004, p. 60).

Jayaraman and Shankar (2010, p. 398) measured customer satisfaction using quantitative methods through the delivery of service quality in the banking industry in Malaysia. Their findings show that Assurance has a positive relationship, but no significant impact on customer satisfaction. In addition, tangibles have a positive relationship and significantly impacts customer satisfaction, while Responsiveness have a positive relationship but does not impact customer satisfaction. Other researchers assume that higher customer satisfaction leads to greater customer loyalty (Yi, 1991; Anderson and Sullivan, 1993; Boulding et al., 1993) which in turn leads to higher future revenue (Fornell, 1992; Botton, 1998).

3.1.3 Service Quality

Service quality is vital in establishing customer's experience and is seen as one of the critical success factors that influence the competitiveness of an organization. Therefore, a bank can differentiate its self from rivals by providing high service quality even during the crisis. Zeithaman and Biltner (2003) attempts to measure by how well a delivered service matches the customer's expectations, therefore, the outcomes of using quality services include banks understanding and improving operational processes, identifying future problems and systematically establishing reliable, valid and potential services in order to match performance with customer wishes (Kumar et al., 2012, p. 226).

3.1.4 Trust

Recent studies have consistently discussed trust as a significant factor regarding economic growth, particularly the vital role it plays in financial intermediation during unstable periods. Related literature suggests that several situations brought about by distrust between banks in the path of the recent financial crisis could be linked to the virtual breakdown of the interbank market. This declaration is consistent with the

studies of Guiso et al. (2004, 2008) that severe panic and long-run decline in financial markets is brought about by a decline in trust. However, they failed to distinguish between general trust and institutional trust. In Spain, Rodrique-Fernandez et al. (2013, p. 6) asserts that institutional trust theory links trust to institutional performance.

Further, trust in banks has significantly declined since the onset of the financial crisis of 2007 and therefore rebuilding trust appear to be priorities within the banking system today to regain trust. In business studies, “trust” has been found significant for building and maintaining of relationships (Deb and Chavali, 2010). Early research has defined trust in different ways, for instance, Moorman et al. (1992) defines it as the “willingness to rely on an exchange partner in whom one has confidence”. Similarly, early research associate “trust” with a confidence with the other’s intention motives (Lewicki et al., 1998).

Regulatory measures and supervisory initiatives are being undertaken by the authorities. Nonetheless, the increasing pressure of regulation does not appear to have immediate effects towards restoring required trust in the banking sector (Eduardo et al., 2013). Therefore, banks must earn the highest trust levels in order to retain customers, acquire new customers, win more businesses and create genuine loyalty (Ernst and Young, 2014). According to Edelman Barometer (2011) the financial sector, including banks and other financial services is the lowest among with respect to trustworthiness. Therefore, without trust, bank customers are hesitant to let banks manage their assets or guide their financial decisions and of course less likely to remain loyal to brands when trust erodes. In addition, the negative impact of the recent financial crisis of 2007 can certainly be blamed for eroding trust in the banking sector in general and in UK main high street banks in particular. This is evident in today’s world as economies continue to struggle from the effects of the crisis in their expansion. For instance, Ernst and Young (2014) reported that nearly 40% of the surveyed respondents in Europe and U.S changed their main bank in 2010, where a quarter of them reports loss of trust as a main reason. While banks have always sold the idea of trust, they will now take more concrete steps to back it up (American Banker, 2011). In addition, trust in the banking sector can be regained (Edelman Trust Barometer, 2011). However, trust levels in the banking sector in particular remain a critical aspect of the customer experience for most UK high street banks. Consequently, banks should be aware that they are other factors besides trust that are draining away customer loyalty to their banks.

Knell and Stix (2009) study whether trust in Austrian banks has declined during the global financial crisis by assessing factors that determine the level of the bank trust. Their results show that the degree of individual information does not influence trust and that the extension of deposit coverage in 2008 had a positive effect on trust. Knell and Stix (2009) suggested that trust in banking is mainly affected by “subjective” variables such as the perception of bank customers’ economic and financial condition, and by future outlooks in relation to the perception of inflation and Euro currency stability.

Wang and Emurian (2004) assert that several researchers have evidenced the difficulty in defining trust. In contrary, Fukuyama (1995) attempts a definition of trust as “the expectation that arises within a community of regular, honest and cooperative behaviour, based on commonly shared norms, on the part of other members of the community “. In addition, Schoorman et al. (2007) reports that trust is an aspect of the relationship with the natural character. However, their definition does not explain what natural character implies. Nassima et al. (2012) further gives a clear definition of trust in terms of its social context to focus on behavioural attributes. Trust has been subjective to a wider field of discipline ranging from the field of psychology, sociology and business. Nevertheless, Lumsden and Macky (2006) assume that modern society would not be possible without trust.

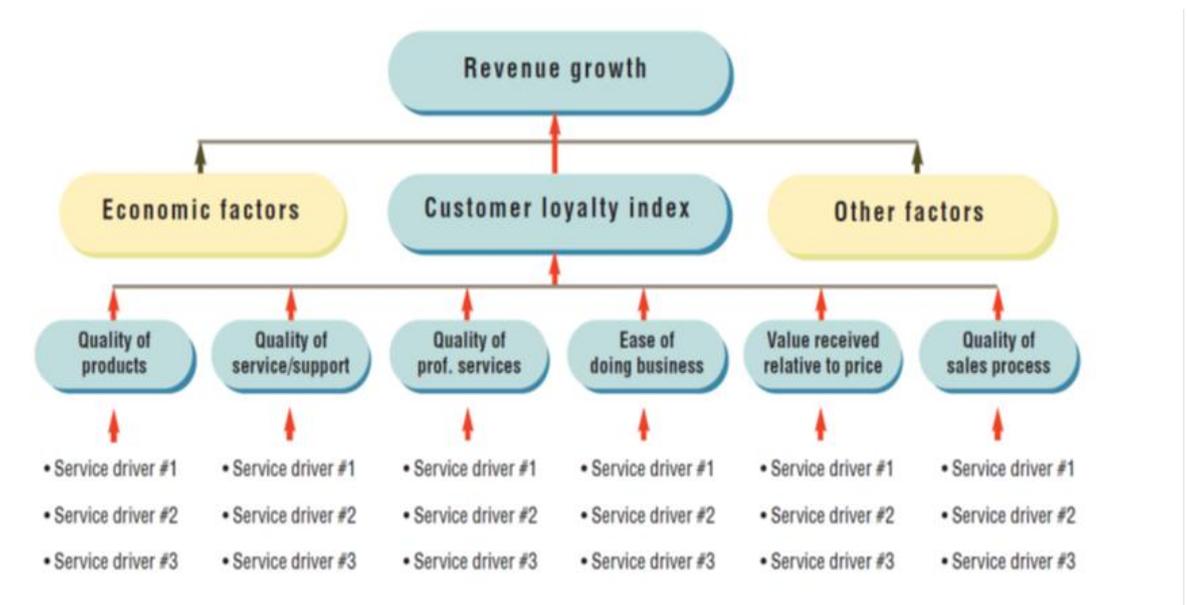
In Central and Eastern Europe, Mishler and Rose (2001) examined institutional trust along several dimensions, including trade unions, parliament, the police, and courts. By employing regression techniques, they analysed institutional trust and found that perceptions of corruption and economic performance are in contrast much more significant.

3.2 Dimensions of Customer Loyalty in banking

According to Clark (1997), customers are more likely to be loyal if there is a customer-oriented climate, which consist of identifying the genuine needs of customers and designing products and services to meet those needs (Bridgewater, 2001). Hence, personalizing services, by understanding what they like or dislike and then ensuring that they get exactly what they expected (Szmigin and Carrigan, 2001).

Loyalty for banks is gauged by tracking customer accounts over a defined time period and noting the degree of continuity in patronage (Yi and Jeon, 2003). However, measuring customer loyalty and its determinants into different markets and countries

may bring out significant variance in the explanation of loyalty (Ball, Coelho and Machás, 2004). That is why it is important to take precautions before arriving at a reliable measure of loyalty. In the same light, Kroenert et al. (2005) identifies the ambiguous conceptualization and measurement of customer loyalty due to its specific nature and lack of information necessary for business decision, they suggests that customer loyalty measurement should incorporate recommendation, purchase intentions, and future purchase levels. With this in mind, Kroenert, Spalding, Cooper and Liz (2005, p. 25) identified and proposes a model of the drivers of customer loyalty, which in turn lead to revenue growth in companies. The subsequent figure presents this relationship;



Source: Kroenert et al. (2005, p. 25).

Figure 3.1 The Drivers of Customer Loyalty

In addition, several studies have attempted the measurement of customer loyalty in the banking sector over time and arrived at different conclusions. The degree of loyalty of a customer can be estimated by tracking customer accounts over defined time periods and noting the degree of continuity of patronage (Fry et al., 1973). However, bank patronage can be traced from customer banking experience from when they became an account holder, therefore, bank customer earlier experiences influence current patronage. Hallowell (1996, p. 28) claims that loyalty behaviour, including relationship continuance, increased scale or scope of the relationship, and recommendation (word of mouth) is a consequence of customers' beliefs that the quantity of value received from the service provider greater that available from other providers. Using regression

analysis, his findings show that customer satisfaction may be responsible as much as 37 percent of the difference in customer loyalty. In addition, an increase in profit resulting in an increase in customer satisfaction, hence, customer loyalty only if a hypothesized causality exists. Yet, Hallowell (1996) provides no evidence to predict actual customer behaviour. On the other hand, Baumann et al. (2005) considered an alternative study with the purpose of modelling both current and future behaviours (“share of wallet”) measures of customer loyalty in the retail banking industry. By using a survey of 1.924 retail banking customers, their result supports the findings of previous studies, showing that attitudes are limited predictors of behaviour. However, they concluded that intentions are only poorly correlated with actual behaviour.

In the less developed world, Ehigie (2006, p. 494) investigated the impact of factors such as perceived service quality, customer satisfaction as predictors of customer loyalty to financial institutions in Nigeria. Ehigie (2006) employed both qualitative and quantitative techniques consisting of 18 participants for focus groups and 24 respondents who are account holders for an in-depth interview. The quantitative research included 247 bank customers. His findings showed that the perception of service quality and satisfaction are significant predictors of customer loyalty, with customer satisfaction contribution more. His work is credited for employing both quantitative and qualitative data, which eliminates the weaknesses of each technique as highlighted by (Kumar, 2011). Nonetheless, his research employed only two main determinants of loyalty (satisfaction and perceived service quality), which is a limitation.

In another empirical study, Bowen and Chen (2010) investigated the attributes that will increase customer loyalty in the hotel industry. They drew samples for both focus groups and a mail survey to hotel customers in the US. Their results showed a close relationship between customer satisfaction and customer loyalty. However, they assert that satisfaction is not the only factor that influences loyalty. Their findings support empirical evidence that there exist a positive relationship between satisfaction and loyalty.

Most recently, Noyan et al. (2014, p. 1221) proposed a model to provide a clear understanding of the antecedents of customer loyalty in Turkey major supermarket chains. By analysing 1530 customer surveys using Structural Equation Modelling, their findings indicate that customer satisfaction among others appear to be the most

important antecedent of customer loyalty. They measured customer loyalty using three different constructs, including; intent to continue shopping, intent to increase repurchase and intent to recommend the store. Their result is consistent with the studies of Geyskens, Steenkamp and Kumar (1999); Kandampully et al. (2000); Mittal and Kamakura (2001); Cheng and Wang (2009), and Picon, Castro and Roldan (2014). In line with this claim, the following section presents an account of previous studies that attempt a link on the determinants of customer loyalty.

3.3 Customer Satisfaction-Customer Loyalty Association

H₀: There is no significant relationship between customer satisfaction and loyalty

Over the years, several researchers have pointed that customer satisfaction influences the factors that indicate customer loyalty or in other words, long-term direction of a relationship (Geyskens, Steenkamp and Kumar,1999; Mittal, Kamakura, 2001;Mittal, Ross and Baldasare, 1998). Consistently, the relevant market literature discusses the impact of customer satisfaction on customer loyalty. Many studies have found that customer satisfaction influences purchase intentions and as well as post-purchase attitude (Yi 1990, p. 104). In the same light, both management and marketing literature have suggested that there is strong empirical evidence underpinning theoretical issues when exploring the linkages between customer satisfaction, customer loyalty and profitability (Storbacka, 1994). This relationship can be seen in the following figure 4 below;



Figure 3.2 Relationships between Customer Satisfaction and Loyalty
(Authors’)

The service management industry argues that customer satisfaction is as a result customer’s perception of the perceived value of a transaction or relationship whereby, value equals perceived service quality relative to price and customer acquisition costs (Blanchard and Galloway, 1994; Heskett et al., 1990, and Zeithaml et al., 1990). Accordingly, the positive assessment of a product or service that a customer gets is a

major factor to continue a relationship with the company, which serves as an important pillar that upholds loyalty (Chen and Wang, 2009).

Furthermore, Rust and Zahorik (1991); Roth and Van der Velde (1990, 1991), examines the relationship between customer satisfaction to customer retention in the retail banking industry and reported a similar relationship. Kandampully et al. (2000, p. 346) empirically pointed that there is a positive relationship between customer satisfaction and customer loyalty. Similarly, Buttle and Burton (2001) provide an understanding of the nature of customer loyalty and the antecedent effect of service dissatisfaction. They found that, satisfaction is one of the antecedents of loyalty, and that when service failure occur, the recovery process is likely to have a greater impact on loyalty than the original service failure (p. 217). As demonstrated by Khan (2012) that customer satisfaction has a significant impact on customer loyalty. Likewise, Kim and Yoon (2004) employed a binomial logit model comprising of 973 mobile users in Korea and confirmed that the source of customer loyalty is customer satisfaction and that the cost of switching providers is significant within mobile businesses. Further, other empirical studies advocate that customer satisfaction has a direct impact on customer loyalty (Yen and Gwinner, 2003); Wang and Lin, 2006); Bassey, Okon and Umorok, 2011).

Most recently, Picon, Castro and Roldan (2014) proposes a multiple mediation model of the relationship between satisfaction and loyalty in order to examine the determinants of perceived switching costs and perceived lack of attractiveness of alternative offerings on 74 insurance companies in the service sector. By employing a sample of 748 customers through a variance-based structural equation modelling, the results indicated to a greater extent that, perceived switching costs and the perceived lack of attractiveness of alternative offerings are significant mediators in the relationship between satisfaction and loyalty. However, an extensive body of literature links the idea of switching costs to customer loyalty and switching behaviour. They claim that the costs of switching a provider affect the loyalty of a customer, thus hindering them to switch to another provider even when satisfaction with the current provider is low (Ngobo, 2004).

Furthermore, Lin and Wang (2005) conducted an empirical validation study in a mobile commerce in Taiwan. By using a sample (questionnaire) of 255 users of m-commerce systems and a structural modelling technique, they found that customer loyalty was

affected by perceived value, trust, and customer satisfaction, with customer satisfaction playing a vital role in the relationship of perceived value, habit, trust to loyalty. Their empirical evidence, that customer satisfaction is a crucial construct of customer loyalty is supported by previous findings (Smith and Wright, 2004, Kamakura et al., 2002). Similarly, Eshghi, Haughton and Topi (2007) investigated the determinants of the propensity to switch wireless service providers in the US telecommunication industry. Their findings uphold the claim as exhibited in previous studies that a strong relationship exists between customer satisfaction and customer loyalty. However, little evidence has been made to explain how this relationship affects financial performance.

On the other hand, previous studies have found no direct correlation between satisfaction and loyalty (Bloemer and Kasper, 1995; Oliver, 1999). Additionally, other studies indicate that this positive association fails when generalized. Their claim is supported by the fact that customer satisfaction does not always lead to customer loyalty, particularly after loyalty has been attained and unsatisfied customers still stay loyal (Oliver, 1999). Other researchers, for instance, Ganesh, Arnold and Reynolds (2000); Bloemer and Kasper (1995), investigated the relationship between customer satisfaction and brand loyalty. Their finding revealed mixed evidence that the relationship between consumer satisfaction and brand loyalty is not simple and straightforward.

The recent debate on the relationship between customer satisfaction and loyalty show that merely keeping customers satisfied is not enough to sustain loyalty (Jones and Sasser 1995). Oliver (1999) declares that, it is possible for a customer to be loyal without being satisfied (for example, when there are few other choices elsewhere) and to be highly satisfied and yet not be loyal. Similarly, Shankar et al. (2003) confirmed that it is possible for a customer to be loyal without being highly satisfied. On the other hand, Heiller et al. (2003) argued that a mixture of positive and negative bonds may influence customers to switch, even though customer satisfaction with the company may not be relatively high. These mixed conclusions in extant literature to explore the relationship between customer satisfaction and loyalty are blurred and require further assessment.

3.4 Customer Satisfaction, Customer Loyalty and Financial Performance

Without understanding the relationship between customer satisfaction, customer loyalty and financial performance, it is difficult for businesses to decide whether or not to invest valuable resources to initiate ways to improve loyalty, hence financial performance (Kroenert et al., 2005, p. 22). The literature which explores the relationship between customer satisfaction, customer loyalty and the financial performance of companies is divided into two main groups that is, the first group examines the service management literature, whereby customer satisfaction influences customer loyalty which in turn affects financial performance (Cunninghamser, 1990; Zeithaml, Parasuraman and Berry, 1990; Anderson, Fornell and Lehmann, 1994; Storbacka, Strandvik and Grönroos, 1994; Rust, Zahorik and Keiningham, 1995). Likewise, Kish (2002) and Duncan and Elliot (2002) advocated that there is a link between customer loyalty and organization profitability, considering that any organization with loyal customers enhance considerable competitive advantage.

In summary, Jones and Earl (1995, p. 5) declared that high levels of satisfaction will greatly increase customer loyalty, which in turn will increase performance. They emphasized that customer loyalty is the single and most significant driver of long-term financial performance. This evidence is supported by Reichheld and Sasser (1990) that true loyal customers are satisfied customers. However, customer satisfaction brings about cost to the company (Ittner and Larcker, 1998). These links are presented in the following figure 3.3 below:



Figure 3.3 Link between Customer Satisfaction, Loyalty and Financial Performance
(Authors’)

Previous research suggests that customer loyalty is one of the most important marketing constructs regarding profit impact of maintaining a loyal customer base (Oliver, 1999). Some early researchers in the management and marketing domains attempted to establish relationships between customer satisfaction, customer loyalty and profitability. For instance, Hallowell (1996, p. 27), discusses the relationship between customer satisfaction, customer loyalty and profitability. He found a link between customer

satisfaction, customer loyalty and profitability. He argued that customer satisfaction influences customer loyalty, which in turn affects profitability. This is in line with the views of Anderson and Fornell (1994); Gummensson (1993); Heskett et al. (1990); Heskett et al. (1994); Reicheld and Sasser (1990) and Schneider and Bowen (1995). Several studies see customer satisfaction and loyalty as a key performance indicator as being an important element of business strategy and profitability (Oliver, 1999; Reichheld, 1993; Zeithaml, Berry and Parasuraman, 1996). The literature points that a 5% increase in customer retention leads to 25% to 95% increase in net present value (NPV) in over 14 industries (Reichheld, Markey and Hopson, 2000).

Chi and Gursoy (2009) examined the relationship of both employee satisfaction and customer satisfaction on Hospitality Company's financial performance, using the service-profit-chain framework as a theoretical base. They highlighted that a satisfied customer turns to a loyal customer, over time, will lead to higher sales, hence, higher financial returns to the company.

In addition, Nelson et al. (1992) demonstrated this assumption statistically among hospitals and came out with similar conclusions. Gustafsson and Johnson (2002) believed that through creating an integrated customer measurement and management system that focus on quality, customer satisfaction and loyalty, companies will be able to improve their financial performance. Consistently, Yang and Peterson (2004) indicate that customer satisfaction is vital since it is an antecedent of customer loyalty and loyalty is an antecedent of customer retention which is an important determinant of the financial success of the company.

Further, literature confirmed that customer loyalty leads to firm profitability, since customer loyalty has positive influences on firm product- marketplace performance (Anderson and Mittal 2000; Fornell 1992) and financial performance (Anderson et al., 2004; Gupna and Zeithaml, 2006) thereby, generates the wealth of shareholders (Anderson et al., 2004). The literature supports this assertion for several reasons. First, according to (Reichheld and Sasser, 1990), loyal reduces customer acquisition cost, since the cost of acquiring a new customer is 5-9 times greater than maintaining or retaining an existing one.

Reichheld (1993, p. 70) claimed that "when a company consistently delivers superior value and wins customer loyalty, the market share and revenue increases, and the cost of acquiring and serving customers decreases". Regardless of this argument, there is mixed empirical evidence to which customer loyalty and satisfaction explains a

company's level of financial outcomes. For instance, Reinartz and Kumar (2002, p. 87) analysed 16,000 individual and corporate customers over a four-year period and they found that customers who buy steadily over time from a company are necessarily cheaper to serve and less sensitive to price. Previous accounting research fails to demonstrate a consistent relationship between customer loyalty measures and financial performance.

In New Zealand, Garland (2001) conducted an empirical study on non-financial drivers of customer profitability in personal retail banking. Utilizing a survey instrument among 1100 personal retail bank customers of a regional bank, they confirmed that older customers and wealthier ones appear to be more profitable giving credibility to the long-term value of the customer. They concluded that the length of relationship is a crucial driver of profitability along with gaining a share of customer's personal retail banking business as possible.

Lately, top management has started to believe that not only tangible assets, such as plant and equipment, raw materials and finished products but also intangible market-based assets on financial performance and contribute to shareholder wealth. Several studies have explored the link between customer loyalty constructs and firm financial performance (see, for example, Rust, Lemon and Zeithaml, 2004). Specifically, other studies have demonstrated a strong link between customer loyalty and firm profitability (Anderson et al., 2004; Ittner and Larcker, 1998). A handful of previous studies reveals that customer retention is the key driver of customer lifetime value, consequently, firm financial profitability (Gupta et al., 2004; Reichheld and Sasser, 1990). On the other hand, Keiningham et al. (2005) examined the link between customer satisfaction and profitability across institutional securities in North America and Europe. By employing 81 telephone satisfaction surveys, their findings indicated that customer acquisition is the key driver in a rapidly growing market. In general, customer retention is likely to be the key driver of the financial performance of a firm, but the linkage between retention and firm performance will depend on the categories in which such firms operate.

3.5 Theoretical Framework and Hypothesis Development of Bank Loyalty

The theoretical framework is a summary of the literature review and provides an overview about the topic and indicates the proposition that customer satisfaction leads to customer trust, loyalty and eventually leads to improved bank performance. These

hypotheses will be tested in empirical research. The theoretical framework is based on the literature review of customer satisfaction, trust, loyalty and bank performance, and this framework surround the association among them suggested by the hypothesis below in order to be employable for the final empirical research, testing and analysis. In this framework, the relationships among customer satisfaction, trust, loyalty and bank performance will be tested whether they are significant or not, and how strong are these associations supposed by the literature review.

Due to the recent financial crisis, many banks recorded considerable losses in assets and customer's confidence during the 2007-2008 financial crises, since the crisis affected customers not only economically, but also psychologically. Bank customers become more money minded by not wanting to spend on premium products and services anymore, even if they still could afford to do so. Recent studies indicate that customers only buy necessities, switch to cheaper brands and have a more rational view on promotion by comparing different products and services from diverse providers based on price, compromising quality (Nistorescu and Puiu, 2009). These raised questions about marketing variables such as customer satisfaction, trust and loyalty that can be used to predict future bank performance. The model framework is illustrated in figure 3.4, and the hypotheses are shown by the direction of arrows in the model.

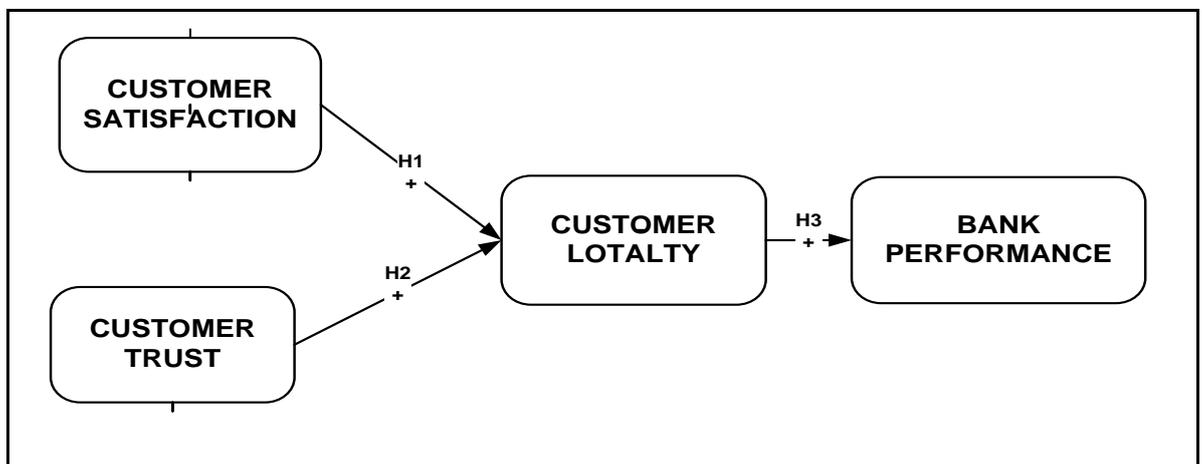


Figure 3.4 Theoretical Frameworks for Customer Loyalty Constructs and Bank Performance

Hypotheses:

H₁: Customer Satisfaction is positively associated with Customer Loyalty

H₀: No relationship exist between Customer Satisfaction and Customer Loyalty

H₂: Customer Trust is positively associated with Customer Loyalty

H₀: No relationship exists between Customer Trust and Customer Loyalty

H₃: Levels of Customer Loyalty are positively related to levels of Performance (profitability).

H₀: No relationship exists between Customer Loyalty and Performance (profitability).

Chapter Summary

To summarise Chapter 3, this thesis provide theoretical evidence that, the more satisfied the customer with the products and service, the more likely are they to recommend and have a certain degree of trust with the company, which thereby enhance financial performance. In constrast, if a customer is dissatisfied with the products or services, it can lead to doubts in the competencies of the company and customers are less likely to trust the company. Moreover, the more satisfied a customer with the bank, the more likely they will trust the bank. Equally, after a critical examination of the available literature on financial distress, customer loyalty constructs and financial performance in relation to the financial crisis, this study develops two conceptual frameworks. In order to analyse the state of the art in theory and research, the first framework consist of three main hypotheses about the performance of UK retail banks over the financial crisis periods (before, during and after), while the second conceptual framework established the relationship between customer satisfaction, trust, loyalty and financial performance. Consequently, Chapter 2 and 3 identified and reviewed the conceptual/theoretical dimensions of the literature and identify research questions and hypotheses from a new theoretical standpoint. Chapter 4 will discuss the methodology; research design, research methods to answer the research questions and their limitations and presents the philosophical stance for the research.

CHAPTER 4: RESEARCH METHODOLOGY

RESEARCH DESIGN

4.1 Introduction

Chapters 2 and 3 identified several research questions: this chapter on its part, describes the methodology employed to provide data to investigate the research questions. An introduction to the methodology was presented in section 1.5 of Chapter 1. Therefore, this chapter aims to build on that introduction and provide assurance that appropriate procedures were followed. This chapter also describes the applied methodology in the design of the survey instrument, data screening and research methods employed to collect data which were used to answer the research hypotheses. In addition, this section examines the research design of the empirical study; describes the data used, a pre-test of survey questions, provides some descriptive statistics and justification for using a particular approach.

It appears from this research that financial distress can be reasonably predicted before the crisis event using various methodologies. It also comes into view that a majority of authors of previous research with high statistical significance employed financial variables from balance sheets, profit and loss statements, and other financial reports to analyse bank performance within crisis periods.

4.2 Research Methodology

Research is defined as a “process of finding solutions to a problem after a careful study and analysis of the situational factors” (Sekaran and Bougie, 2009). Specifically, research can be defined as the process of collecting, analysing and interpreting information to provide answers to research questions. In other words, Gray et al. (2007) believe that a research methodology is the study of the research process; the principles, methods and strategies in gathering, analysing and interpreting the results.

Research methodology can be seen as a way to systematically solve the research problems. In addition, Catherine (2009, p. 14) defined research methodology as an “overall approach to studying your topic and includes issues you need to think about

such as constraints, dilemmas and ethical choices”. Grix (2001, p. 36) argues that research methodology is concerned with a discussion of how a particular piece of research should be undertaken and which can be understood as the critical study of research methods and their use. Recently, Kumar (2011) confirmed that research process must possess as far as certain features: the procedures used to find answers to relevant questions, appropriate and justifiable; procedures adopted are methodical, the conclusion of the findings is correct and can be verified and finally, the procedures used must have undergone critical examination.

Furthermore, research can be classified into two main groups based on the approaches and process taken to find answers to research questions: quantitative and qualitative research.

Kumar and Promma (2005) suggested that quantitative research design is a more structured and rigid methodology in nature in which the design is typical to produce the findings in the form of numerical data. The variables are presented and analysed to frequency distributions, cross-tabulations or statistical techniques suitable for the research. Hence, the final conclusion of the quantitative research is more analytical in nature since it makes assumptions and conclusions by means of testing the strength and degree of relationships among sampled variables.

Unlike quantitative research, qualitative research is a more unstructured type of research with a more flexible approach, since it provides more emphasis to words in collecting and analysing data as compared to quantitative research. Therefore, qualitative research deals with investigating the experiences, feelings, meaning, perceptions and behaviours of a phenomenon (Kumar, 2005; Bryman, 2008). This chapter first discusses the research beliefs in relation to research philosophy which has certain influences on the research design as a whole. The Triangulation approach is considered most appropriate for this study. Opinion surveys are employed as a primary data source while secondary data was generated from financial reports (financial statements, Balance sheets, Profit and Loss accounts, cash flows and literature review). The descriptive financial ratio analysis is utilized to describe and analysis the performance of six main high street UK retail banks (Lloyds Bank PLC, Barclays Bank PLC, Royal Bank of Scotland PLC, Santander Bank PLC and Co-operative Bank PLC) before (2004-2006), during (2007-2009) and after (2010-2013) the financial crisis.

In addition, to statistically examine whether there is any difference between the above periods. The ANOVA and Kruskal-Wallis tests were employed to test the hypotheses and evaluate differences in means of these three periods. The Regression and Correlation analysis are also considered to examine the degree of central tendency within various periods. The selection of financial ratio analysis technique for this research was motivated by a review of past studies on banking performance in the UK. The importance of financial ratio analysis cannot be overemphasized, FRA is a significant and an effective tool in distinguishing high performing banks from others and compensates or controls for differences in size effect on the financial variable being studied (Samad, 2004).

More importantly, financial ratios enable researchers to discover unique bank strengths and weaknesses, which on its own inform bank profitability, liquidity and credit quality (Webb and Kumbirai, 2010, p. 32). In addition, ratio analysis, and related predictive studies (e.g. Z-score model) can be exceptionally useful techniques when measuring the overall financial health of a company. However, when employing ratios as a benchmark for assessing the financial health of a company repeatedly over time, caution should be taken given that they do not provide any long-term benefit (Brigham and Houston, 2007). First, though accounting data in financial statements is subject to manipulation and backward-looking, they are the most appropriate to provide detailed information on the bank's overall activities (Sinkey, 2002). Second, Robert (2003, p. 16) argued that ratios are constructed from accounting data, which means they are subject to interpretation and manipulation.

4.3 Research Philosophy

Research philosophy is very important, as it determines the approach, strategies and methods to be employed. Social science research can be explanatory, exploratory and descriptive (Zikmund, 2003). In seeking to answer the research problem and attain the purpose for this research, this study is designed to provide a comprehensive picture of financial distress and customer loyalty in the banking sector, thus, examining the indicators of bank financial distress during crisis period from the review of existing literature. Moreso, this study attempts the impact of financial distress on UK retail banking performance in relation to customer loyalty and satisfaction during and after the recent financial crisis. Consequently, a combination of explanatory and descriptive research will form the basis of this study. Given the aforementioned distinguishing

attributes and selection criteria of two widely accepted research paradigms in the social sciences, a quantitative method was the approach to this study.

There exist many research philosophies. For example, Positivism, Realism, Interpretivism, Objectivism among others. However, this research concentrates one main paradigm which is positivism. A positivist stance dominates the research since it uses a deductive approach to empirically test the relationships among the identified variables in the theoretical model. Furthermore, among different types of research techniques that exist in social science, namely, experiments, surveys, observation, and secondary data studies, this study employs surveys (primary data) and secondary data techniques.

The essence of adopting an opinion survey for this research was because they provide a quick, efficient and accurate means of assessing sufficient information about a given sample, and this technique is suitable where there is a lack of secondary data (Zikmund, 2003). In addition, Bristol Online Survey (BOS) was used to meet a great number of bank customers and thus overcome the possibility of low response rate and slow speed of return from respondents which appear to be the major weaknesses of survey methods. Conclusively, a backup strategy to administer questionnaires in person for immediate feedback at bank branches is adopted.

4.3.1 Research problem identification and formulation

This section presents the research problems and formulation of methods to contribute towards achieving the purpose of the study. It is vital to know that a research problem, as the term simply does not necessarily mean that something has gone wrong; A research problem can simply indicate an interest in an issue or area of study and an attempt to find possible answers might help to improve the existing situation (Cavan, Delahaye and Sakeran, 2001, p. 62). For this study, the research problem is the impact of corporate failure in the performance of UK retail banking within the financial crisis and customer loyalty constructs in relation to financial performance. The following figure (4.1) below presents this relationship. Furthermore, the research objectives and research questions are presented.

Research Objectives

1. To examine the relationships between Customer Satisfaction, Trust and Customer Loyalty.
2. To examine the extent to which Customer Loyalty can predict Bank Performance.
3. To test the predictive power of Altman's MDA technique in predicting financial distress before, during and after the financial crisis.
4. To explore relationships existing between Financial Crisis and Bank Performance measured in terms of profitability, liquidity, solvency and efficiency ratios.

Research Questions

Specific Questions

- What relationships exist between Customer Satisfaction, Trust and Customer Loyalty?
- Is customer loyalty sensitive to predict bank performance?
- Does the application of Altman's 1968 Multiple Discriminant Analysis (MDA) provide a better method for predicting financial distress in the context of UK retail banking compared to Richard Taffler 1983 and John Robertson's 1983 models?
- Is there a relationship between Financial Crisis and Banking Performance measured in terms of standard financial ratios (profitability, liquidity, leverage and solvency)?

4.4 Research design

After the careful identification and formulation of the research problem and a description of the process, it is imperative to develop the research design. Previous studies advise that a research should have a clear plan to answer the precise research questions and hypotheses put forward by the research (Saunders et al., 2000). In addition, Yin (2003) supported this claim by stating that "a research design is a logic of collecting data to specifically answer research questions". In line with this, Hair et al. (2006) identify that there exist two main types of research designs to conduct a study; quantitative and qualitative designs. There has been a serious debate on which approach is appropriate for social science research. Hair et al. (2003) assert that choosing a research design depends on the research problem in the study. Therefore, the design is

meant to structure the research in a certain way that will address and define the research questions (DeVaus, 2001).

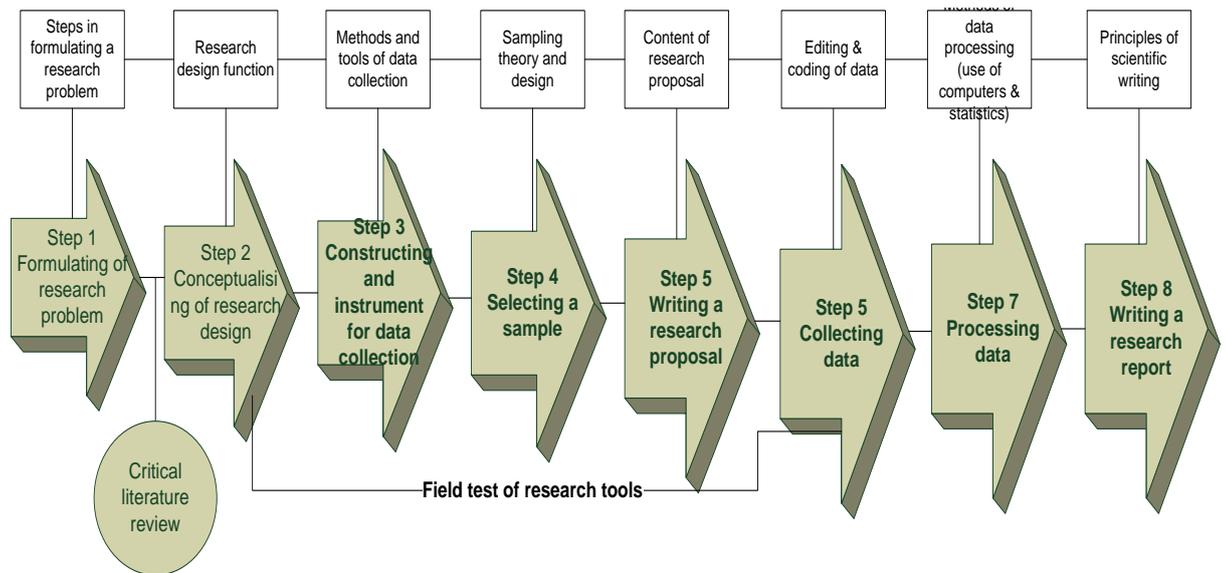
Further, a research design is a plan, structure and strategy of the investigation so conceived as to obtain answers to research questions and problems (Kumar, 2011, p. 94). This is consistent with Zikmund (2003, p. 65) notion that a research design is a plan specifying the methods and procedures for collecting and analysing the needed information. Again, Saunders et al. (2007, p. 131) emphasize that research design is the ‘general plan of how you will go to answer your research question(s) and contains clear objectives derived from the research question(s). Simply stated, a research design equips a researcher with appropriate means and methods for solving the research problem (Davis, 2005, p. 135). Similarly, Punch (2006, p. 47) states that a research design helps researchers ‘connect the research questions to data’. The significance of the research design in research cannot be overemphasized. Therefore, the following section elaborates on the operational steps (process) of research. However, the author of this study frames the methodology in a three stage approach, including

- Questionnaire design
- A pilot and main opinion survey
- Secondary data analysis

These stages are briefly explained and justified in the following sections of the study. The first stage involves operational measures, which is achieved after a thorough review of the literature in order to measure similar approaches and design the questionnaire draft for pre-testing.

The first part will demonstrate an understanding of research methodology (dimensions, types and methods). The second part is the focus of this study, and it demonstrates the methods used and empirically justifies why the approach is useful in the research.

The objectives of this research are to investigate the impact of financial distress in the UK retail banking sector and how customer loyalty is affected to establish if any relationships between financial performance, to examine how effective is Altman (1968) Multiple Discriminate Analysis (MDA) in predicting financial distress before, during and after the crisis period in the UK context. In order to achieve the aforementioned research objectives, this study predominantly uses the quantitative approaches or techniques. The research process is presented in the following diagram for better understanding,



Source: Adapted from Ranjit Kumar (2011, p. 22)

Figure 4.1 Operational Steps and Research Methodology

In Kumar (2011), the research process consists of 8 operational steps. In this study, we include an overview of the impact of financial distress on UK retail banking performance before, during and after the recent financial crisis between step 1 and 2.

Step 1: As seen in the above diagram, the first operational step consists of reviewing the literature, identifying variables and constructing a hypothesis. This study formulates and clarifies the research problem in order to decide on what we are about to find out. This aids us to identify the gaps in knowledge. After the idea is generated, they are being transformed into clear research questions and hypotheses. This step is relevant in Chapter 1.

Step 2: Here, this study concentrates on a research design which is workable, valid and manageable. After a thorough review of the literature on the impact of financial distress on bank performance, the study will apply both quantitative and qualitative research methods since they counteract the weaknesses of each other.

Step 3: This step is the first practical phase in conducting our study and involves the various instruments used in collecting data. For example, observation forms, interview schedules and questionnaires. Both structured and unstructured questionnaires will be a source for collecting primary and secondary data by using the field-testing tool.

Step 4: consists of a sample population and design. The study used a random sampling since it is appropriate to make generalizations from the sample findings and the typical statistical test applies to the data.

Step 6: At this operational step, data are actually collected by mailing out questionnaires bearing in mind ethical issues that may arise.

Step 7: Quantitative data were analysed at this stage with the use of computer programs, for example, Statistical Package for Social Science (SPSS).

Step 8: This was the final stage after completing all the earlier steps of the research. The researcher hopes to submit the entire thesis and give some time for the presentation (Viva).

Therefore, in choosing a methodology for this research, quantitative research technique gained ground. The quantitative technique involves the measurement and analyses that are easily replaceable by other researchers (King et al., 1994, p. 3). In addition, quantitative research includes identifying general patterns and relationships among variables, testing hypothesis and theories and less importantly, making predictions based on the results (Ragin, 1994, p. 132-136).

This following section (4.4.1) elaborates on the dimensions of research, the types of research and the research methods. In the end, the focus of the research is presented.

4.4.1 Dimensions of research

There exist several extensive schools of thought in the history of modern philosophy (in relation to positivism, anti-positivism, realism, interpretivism, and rationalism) that come to describe 'how people come to know what they know'. Mark Saunders et al. (2007, p. 102); McMurray and Neuman (2006, p. 24) categorize researchers into two main groups: That is, some who use research to advance general knowledge are engaged in basic research, while others who use research to solve specific problems are slotted into applied research'. This claim is supported by Cavana, Delahaye and Sekaran (2001), Davis (2005) and Zikmund (2003). Therefore, as pointed out by the above problem, this study is designed to attempt providing answers to business failure prediction and performance before, during and after the financial crisis period. More importantly, this study aims to ascertain if Altman's Z-score model can effectively predict financial distress in the UK banking sector before, during and after the financial crisis period. Consequently, applied research will serve the purpose of this research.

Descriptive research on the other hand, aims to provide descriptive information (for instance, on age, gender, social status) by employing numerical data on the problem (Cavana et al., 2001; Punch, 2006) while explanatory research aims at identifying the causes of the phenomenon being studied (Punch, 2006 and Zikmund, 2003).

4.4.2 Typology of research

It is usually accepted by researchers that there exist three basic types of research based on its goal to attain (Davis 2005, Neuman 2006). Neuman (2006, p. 35); Cavana, Delaheye and Sekaran (2001, p .111) describe this type of research as ‘hypothesis testing’. Similarly, Panneerselvam, (2004, p. 6) assert that, “exploratory research provides a basis for general findings and lay the foundation for the formulation of different hypotheses of the research problem”. In line with this, Saunders et al. (2007, p. 133) conclude that there exist three main types of research: explanatory, exploratory and descriptive research. Robson (2002, p. 59) on the other hand, defines an exploratory study ‘as a valuable means to ascertain what is happening, to seek new insights, to ask questions and to assess phenomena in a new light’. Recently, Kumar (2011, p. 11) has given a more simplified definition of an exploratory study from a viewpoint of the study objectives ‘to explore an area or phenomena where little is known’. Therefore, the results provided by such a study can be used as a foundation for further research.

Another type of research which is carried out with specific objectives to result in definite conclusion and stand out to describe the characteristics of the respondents in relation to particular practice/culture and other attributes is considered in this study (Panneerselvam, 2004, p. 7). Another significant element of research design is how data are collected. Consequently, it is essential to discuss about selecting relevant research methods for this research. The following section examines this aspect.

4.5 Methods of Analyses

Cohen, Manion and Morrison (2007) define research methods as a simple set of instruments that are employed for data collection and analysis. In the same light, Creswell (2013, p. 16) states that the importance of research methods involve the forms of data collection, analysis, and interpretation which researchers propose for their studies. According to Zikmund (2003, p.65), research methods or strategies can be divided into four main categories: surveys, experiments, secondary data studies and observation. No research strategy is inherently superior or inferior to another (Saunders et al., 2007, p. 135).

There are two main groups of research methods which are commonly employed and worth discussing here: quantitative and qualitative methods.

Ideally, for a researcher with the motive of obtaining measurable findings, or evaluating them by experimental design and pre-or-post test measures, a quantitative method is appropriate. For instance, most statistical studies and survey tools are mainly classified as quantitative studies.

On the other hand, any research which seeks to establish a meaning of a phenomenon from the views of participants, a qualitative method will be suitable (Creswell, 2013, p. 19). For example, narrative design and open-ended interviews are typically employed. Neuman (2006) emphasizes that each method has its strengths and weaknesses. However, this provides a need for mixed methods approach which involve the collection of both quantitative and qualitative data sequentially in the design, in order to provide a better and more complete understanding of the research problem than either quantitative or qualitative data alone. In other words, the research commences with a broad survey in order to generalize the results of a population and later focuses on open-ended interviews to collect views about the phenomenon in question (Bryam, 2008; Creswell and Clark, 2011).

For this study, the quantitative method was employed, as the purpose is to examine non-financial performance variable (customer satisfaction, trust, and loyalty), using an opinion survey in order to test its validity and predictability in the performance of retail banks in the United Kingdom.

4.5.1 Triangulation

According to Lisa, David, and Debra (2011, p. 1), triangulation is a research technique used by qualitative researchers to check and establish the validity by analysing a research question for multiple perspectives. They further classify triangulation into data, investigator, theory, methodology and environmental triangulation. For this study, we employ data triangulation which involves employing different sources of information in order to increase the validity of this research. This approach is considered in this study because; it is perhaps the most popular and easiest approach to implement. However, Patton (2002) argues that caution should be taken regarding misconception of the triangulation that the goal of this technique is to arrive at consistencies across data sources or approaches.

Overall, triangulating data for this research brings with it some advantages, including “increasing confidence in research data, creating innovative ways to understand the

phenomenon, reveals unique findings, challenging established theories and providing a clearer understanding of the research problem” (Thurmond, 2001, p. 254).

4.6 Source and Data Collection Methods

There are two main types of data in research, primary and secondary data. Primary data are collected for the specific purpose of answering the research problem in question. On the other hand, secondary data are attained from publicly available databases (FAME and Bloomberg) to be utilized in quantitative research, similar to this study. For example, from government publications, relevant literature, financial statements (balance sheet, income and expense statements and cash flows). The data collection for this study involved both primary and secondary data aforementioned. Here, primary data come from an opinion survey instrument of UK retail bank customers.

4.6.1 Primary Data Collection

The collection of primary data was made with the use of a questionnaire. The construction of the research instrument was prepared after thorough and in-depth review of the existing literature. The questionnaire consisted of five parts: the first part stated the purpose of the research; the second part was made up of respondent personal information or characteristics (age, gender, bank type, etc.) and consists of six questions. The third, fourth and fifth parts comprise questions used to measure customer loyalty constructs (satisfaction, trust, and commitment). The opinion survey aimed to measure the perception of UK bank customers regarding their loyalty. The author developed a single survey instrument consisting of 40 questions in order to examine customers’ loyalty in relation to UK retail banking performance. From the 40 questions, 35 items represented the determinants of customer loyalty. The rest 5 questions represented the demographic characteristics of respondents.

4.6.1.1 Research Instrument Development

Amongst several methods used in obtaining primary data, a questionnaire was considered a standard instrument employed in international studies, since validity is confirmed by Sharnaz (2013). This study utilized one main research instrument. A questionnaire was used as a survey instrument for primary data collection, the reason being that it is easy and quicker to generate response about a phenomenon over a sample population.

The survey was designed to obtain bank customers responses about their banking experience and levels of loyalty to their respective banks. Items from of each construct are generated from previous research. The survey is then piloted, refined where necessary.

The entire customer opinion survey was administered to ascertain the level of loyalty with their respective banks. The essence to conduct an opinion survey on this subject matter was to evaluate the significance for banks know the perceptions and level of loyalty of the customer in terms of commitment satisfaction. The opinion survey commenced with an introductory section highlighting the purpose of the study and a brief statement of instructions and confidentiality issues. In order to assess the performance of all the loyalty constructs, the items were transformed into statements and measured against perceived bank performance at a 5-point Likert scale (Likert, 1932) ranging from (1) “Strongly disagree” to (5) “Strongly agree”. In addition, customer satisfaction items were measured using a different scale ranging from (1) “Not at all satisfied” to (5) “Extremely satisfied”. The wordings of the questions were guided by Churchill’s (1979) procedure for scale development.

The questionnaire was categorized into five main sections: the first section contains the demographic characteristics or background information of respondents (gender, age, bank type, and longevity). Section two consists of customer satisfaction items, the third section measures customer trust, the fourth section comprises a customer commitment and the final section examines the financial crisis and bank performance. After the questionnaire was developed using both online and self-administered procedures, a pilot study was carried out including 50 respondents in between July to September, 2014.

4.6.1.2 Pilot Study

The main rationale of the pilot study is to gather valuable information about the survey instrument (Saunders et al., 2007). Therefore, it provides a chance to undertake a preliminary analysis of the scales, reliability and validity of the survey instrument. Prior to conducting any factor development, a preliminary factor analysis is done to understand the basic properties of the data. This analysis comprises of the following steps, though not limited:

- Reversing coding items
- Missing data analysis

- Measuring departures from normality based on skewness and kurtosis
- Examining descriptive statistics such as mean, median, mode, range and standard deviation.

In order to provide answers to the second aforementioned research question, a questionnaire draft was pre-tested. The main reasons to conduct a pilot study is to identify and remedy any possible errors in designing questionnaires before administering the main survey and also to refine and revise the questionnaire in order to ensure the validity and reliability of measures as well as making it more user-friendly (Flynn et al., 1990; Cavana, Delahaye and Sekeran, 2001; Diamantopolos and Winklofer, 2001; Beck and Hungler, 2005). Finally, the pre-test can also be used to estimate the rate of responses to the questionnaire and subsequently determines the size of the main study. As a result, the pilot study is widely recognized as an indispensable part of the data collection process.

After drafting the quantitative questionnaire, it was piloted with bank personal customers in order to find any biases/shortcoming/weaknesses in the designed questionnaire. The pilot study was conducted on forty bank customers. The printed version of the questionnaire was distributed to bank customers, who later provided answers to the questions and returned them.

Furthermore, the questionnaire was piloted on customers who were interested and had knowledge about their banks. Two of them were bank staff of Lloyds and TSB banks, who were professionals in the banking industry. The printed version of the questionnaire was given to them and a date was set to return the questionnaire. This was done on a voluntary basis. This indicates that the printed version of the questionnaire was piloted in total on forty bank customers, who were different from the actual respondents, although comparable to members of the population from which the actual sample will be drawn (Bryman and Bell, 2003).

After finalizing the questionnaire, its online version was designed using Bristol Online Survey (BOS) database and piloted with a group of friends and colleagues who personal account holders to check how the online data, from the answered questionnaire was collected in the database in order to avoid any technical difficulty with data collection during its online transfer to other databases such as SPSS, excel and word for data analysis. The preliminary results of the pilot studies were analysed. With respect to the comments and answers provided by respondents, further development of the questionnaire was effected. The general overview was that the initial version of the

questionnaire was brief, accurate, and understandable by individuals, nicely prepared, and did not contain spelling mistakes. The final version of the questionnaire was the product of some small corrections made after the pilot study was conducted and a thorough discussion with my supervisors. The corrections included some rephrasing of some questions in order to avoid negative wordings and making the words more understanding of bank customers who had little banking knowledge.

After conducting and refining the questionnaire, to ensure that the targeted sample size is achieved, a total of 400 questionnaires were distributed to bank customers wherein, 300 surveys were web based using Bristol Online Survey (BOS), and the rest 100 surveys were self-administered to respondents at bank entrances and in community centres around London.

A purposive sampling technique was employed. Unlike a random sampling method, a purposive sampling (non-random) has the ability to find respondents who can and are willing to provide the required information by virtue of knowledge and experience (Tongco 2007 and Garcia 2006). In addition, all customers who took part in the survey were bank account holders, were 18 years and above and have the background knowledge of the research problem (Creswell, 2003, p. 185). The collected data with valid responses were processed using a statistical program (SPSS) in order to test the hypotheses of the study.

4.6.2 Secondary Data Collection

In line with this, secondary data are retrieved from UK high street banks annual reports from 2004 to 2013 (covering a ten year period). Out of twenty-five banks compiled by the BoE as of July, 2014, only the six main UK retail high street banks are considered as a sample for this study, first, since all of them are established UK banks with headquarters based in London. Second, all of them are of similar sizes in terms of assets, and lastly, all are public limited companies with their shares listed on the London Stock Exchange.

This study employs a Multiple Discriminant Analysis (MDA) with financial ratios methodology similar to Altman's (1968) work, to devise a bank in financial distress formula and use variables available or quantifiable from annually bank financial reports. We believe that developing a model with publicly available data will not only answer our research questions, but will provide significant value to the regulatory authority, managers, financial analysts, and the banks themselves.

Empirical research has developed a wide range for the measurement of financial distress; typical examples to predict bankruptcy include Beaver (1966); Altman (1993) and Shumway (2001). In line with Altman's (1968) Z-score (MDA) and Taffler's (1983) models, we construct our own indicator of financial distress at the company's level. The justification for developing a model similar to that of Altman (1968) is that, Altman's (1968) model is perhaps the best known of the early studies among researchers, practitioners, managers, financial analysts and other stakeholders. His model was developed by combining five significant ratios reflecting accounting and market data, namely liquidity, profitability, financial leverage, solvency and sales activity. In addition, his model considers the entire profile of characteristics common to the relevant firms as well as the interaction of these properties (Altman, 2007, p. 592). Therefore, its accuracy outperforms other predictive models. This data approach is consistent with Altman (1968) MDA. To do this, the researcher extracted raw secondary financial data on the six main UK retail high street banks' annual report from the Bank of England database, FAME database and Bloomberg database between 2004 and 2013. FRA is a significant and an effective tool in distinguishing high performing banks from others, and compensates or controls for differences in size effect on the financial variable being studied (Samad, 2004). More importantly, financial ratios enable the researcher to discover unique bank strengths and weaknesses, which on its own inform bank profitability, liquidity and credit quality (Webb and Kumbirai, 2010, p. 32). In addition, ratio analysis, and related predictive studies (.e.g. Z-score model) can be an exceptionally useful technique when measuring the overall financial health of a company. However, when employing ratios as a benchmark for assessing the financial health of a company repeatedly over time, caution should be taken given that they do not provide any long term benefit (Brigham and Houston, 2007). First, though accounting data in financial statements is subject to manipulation and backward looking, they are the only technique to provide detailed information on the bank's overall activities (Sinkey, 2002). Second, Robert (2003, p. 16) argues that ratios are constructed from accounting data, which means they are subject to interpretation and manipulation.

These years were chosen because the banking industry in general and UK retail banks in particular experienced serious financial distress due to the impact of the recent financial crisis. In addition, this period provides enough time to acquire sufficient data for the research. The sensitivity of the empirical results with respect to the selection of

time period for this research is investigated by employing statistical techniques such as MDA, Regression Analysis and Descriptive Analysis in SPSS.

4.6.2.1 Data Description

The following section presents a triangular data approach with a data source from more than one source (primary and secondary sources). The data set of this study comprises of six main UK high street retail banks (Lloyds Bank PLC, Barclays Bank PLC, RBS PLC and H.S.B.C PLC, Santander Bank PLC and Co-operative Bank PLC). Banks performance evaluation is based on banks' ratio analysis. A key information tool for bank analysis is the financial statement, which include the Balance Sheet and Profit and Loss accounts. Generally, ratios can be classified into two broad classes: financial and non-financial ratios. A handful of studies has employed the more detailed and commonly used financial ratios (liquidity ratios, capital adequacy ratios, profitability, efficiency ratios, leverage ratios and market value ratios) which are further divided into smaller groups of ratios (Jasevičienė 2012). In particular, other researchers assert that there exist significant ratios used to measure the profitability of commercial banks: Return on Asset, Return on Equity and Net Interest Margin (Murthy and Sree, 2003).

4.6.2.2 Sampling

Recognizing the principle of "Too Big to Fail", this study selected only big sized banks. The reason to adopt this selection was because large banks are behind the latest crisis. This can be seen in the fact that, in order to improve their profitability, they are tempted to become riskier in their activities. This approach is evident and consistent with Massai and Jouini (2012). The principle behind is due to the fact that many European banks were hit during the 2008 global financial crisis. Despite this, banks do not seem to learn from the lessons of the past crisis. The survey utilizes the total sampling period of 2004 to 2013 (10 years) with the justification that, this period will provide adequate time to accurately predict financial distress and for proof of the study's outcomes.

This study initially selects a random sample for both failed and successful UK retail banks from January 1, 2004 through December 2013. A sample of the top six main high street banks was chosen based on the value of their assets at the close of the 2013 fiscal year. In addition, the choice of this sector is motivated by the impact of the recent financial crisis on the banking sector, which they were the most affected financial sector

in the UK. In addition, the number of account holders that they hold also motivates our choice. However, the fact that all banks in the UK could not be considered for this research constraints the validity of the study, since only six banks (Lloyds Bank PLC, Barclays Bank PLC, RBS PLC, H.S.B.C PLC, Santander Bank PLC and Co-operative Bank PLC).

4.6.3 Ethical Considerations

It is essential that none of the respondents “suffer physical harm, pain, embarrassment or loss of confidentiality” when conducting a research study (Cooper and Schindler, 2006, p. 118). Therefore, the researcher ensured that all respondents who took part in this study never suffered physical harm, discomfort, loss or pain, embarrassment and loss of confidentiality. Since part of the question was web based using Bristol Online Survey, there was no loss of privacy or confidentiality issues because responses were anonymous. With respect to self-administered questionnaires, respondents were assured that their personal information will remain protected and used only for research purposes. Without such assurance, it would have been difficult to proceed with data collection and fulfil the purpose of this research study.

Chapter Summary

In summary, this chapter presented the research design and data collection methods, including research aims and objectives, pilot studies, ethical issues and introduction to some statistical tools within the contexts of the literature. Concerning the instruments of data collection, an opinion survey was proposed to gather data using UK bank customers. The rationale of using a survey instrument for primary data collection was because, they provide a quick, efficient and accurate means of assessing sufficient information about a given sample. A pilot study was conducted to test the reliability and wordings of the questionnaire. Another technique that will be employed to analyse the secondary data is MDA. This technique provides a better way to discriminate between different periods and because there is growing support of its use. In this case, this research will reconfirm the predicting power of Altman’s model using the MDA. Overall, explanatory and descriptive research designs are considered in this thesis due to the nature of the problem in question. The next methodology chapter discusses the application of multiple discriminant analysis and other analysis techniques employed for

the studying (including factor analysis, multiple regression analysis and Kruskal-Wallis analysis).

CHAPTER 5: METHODS OF ANALYSIS

5.0 Introduction

This chapter discusses the assumptions of multivariate analysis techniques including multiple regression, factor analysis and principal component analysis, Kruskal-Wallis and MDA, limitations, variable selections and the statistical significance of the models are also presented. The rationale in choosing a principal component analysis as a better technique, rather than factor analysis in summarising the data is discussed in details.

5.1 Factor Analysis

Factor analysis is a data reduction technique that reduces the data set into a manageable size while retaining much of the original information (Field, 2013). In the same vein, factor analysis is a statistical method used to describe variability among observed variables in terms of potentially lower unobserved variables known as factors (Schreiber et al., 2006). According to Bartholomew, Knott and Moustaki (2011) factor analysis is a multivariate dimension reduction technique which functions on the idea that measurable and observed variables can be reduced to fewer latent variables that share a common variance and are observable. Thus, the broad purpose of factor analysis is to summarise the data in order to interpret and understand relationships and patterns relating to shared variance. The advantage is that, factor analysis helps to isolate constructs and concepts, since it uses mathematical procedures for the simplification of interrelated measures to identify patterns in a set of constructs (Child, 2006). Fields (2013) noted that there exist two main factor analysis techniques; Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). CFA is employed to confirm research hypotheses and employs path analysis diagrams to symbolize variables and constructs, while the aim of EFA is to determine complex patterns by exploring the dataset and testing predictions (Child, 2006). In the words of DeCoster (1998) EFA is employed when the aim of the researcher is to uncover the number of factors which influence the variables and to analyse which variables go together. Overall, the main purpose of factor analysis is that, it attempts to ascertain the simplest method of interpreting the observed data (Harman, 1976). Thus, only factor analysis can estimate the underlying constructs and relying on several assumptions for the estimates to be accurate .

The extraction technique employed in this study is Principal component analysis (PCA). Principal component analysis like factor analysis, is basically a method of data reduction that aims to produce a small number of derived variables that can be utilised in place of the larger number of original variables to simplify data analysis (Landau and Everitt, 2004). In other words, both approaches summarise and uncover any patterns in a multivariate set of data, by reducing the complexity of the data.

It is important to provide a distinction between factor analysis and PCA, and the rationale for choosing the PCA method rather than factor analysis for this study. Although factor analysis and PCA attempt to explain a set of data in terms of a smaller number of dimensions, their procedures used in summarising and uncovering constructs are essentially identical. Ideally, Guadagnoli and Velicer (1988) confirmed that the solutions derived from PCA differ little from those generated by a factor analysis method. Factor analysis, unlike PCA, starts with a hypothesis about the correlation structure of the variables that account for the interrelationships of the variables though not for their full variance. However, PCA doesn't make any assumptions regarding the covariance matrix from which the data was derived and merely transforms the data (Landau and Everitt, 2004), whereas factor analysis estimates original factors by relying on various assumptions for the estimates to be accurate. Furthermore, these two methods significantly differ from the communality estimates used within the data. That is, factor analysis derives a mathematical model from which factors are estimated, while PCA simply decompose the original data into a set of linear variates (Dunteman, 1989).

Unlike factor analysis, PCA is concerned only with establishing linear components within the data set and how specific variables might contribute to that component (Fields, 2013, p. 639). Despite these differences, both approaches are similar in some aspects, since they are both pointless if the observed variables are almost uncorrelated (Landau and Everitt, 2004). Since the main purpose of this study is to summarise and identify linear components in the data, PCA will be an appropriate method to indicate how specific variables (trust and satisfaction) contribute to the component (loyalty). PCA is preferred rather than factor analysis for several reasons PCA is a psychometrically sound procedure and less complex conceptually than factor analysis, and bears several similarities to discriminant analysis (Fields, 2013).

This study employed PCA, which is a multivariate method used to reduce a large number of variables to a set of core fundamental factors. This was conducted using Exploratory Factor Analysis (EFA). The rationale for using this technique is numerous. First, the PCA is useful for studies that involve few or hundred of variables and questionnaire items which can be reduced to a smaller set, to obtain underlying concepts, and facilitate interpretations (Rummel, 1970). Second, PCA makes it easier to focus on key factors rather than considering too many constructs that may be insignificant, thus, factor analysis places the variables into meaningful categories.

In order to analyse the questionnaire, PCA was considered suitable for this study since it identified clusters of variables and assisted in constructing the questionnaire to measure the underlying variable (customer loyalty). In addition, the main aim of applying factor analysis was to reduce the number of questions to a more manageable size while retaining as much as the original information as possible. Consequently, in this study, 29 items in the questionnaire were decomposed into 11 factors related scores that explained similar variations in the observed variables. Four items made up satisfaction (Overall satisfaction, Service Quality Satisfaction, Product satisfaction, I find it difficult to inform my bank that I want to switch), trust had three items (Overall loyalty was affected by financial crisis, the financial pushed me to consider spreading my accounts, the origin of my bank influence my loyalty), while loyalty had four items (I have complete trust in banks in terms of financial stability, I have complete trust that my bank has good security procedures, I have a strong personal relationship with my bank, I will remain with my bank even when they are in crisis).

The correlation of these item scores were greater than 0.3 as recommended by Fields (2013), indicating that they met the guidelines in selecting the factors. The EFA method was employed to establish customer satisfaction, trust and loyalty dimensions in the UK banking industry. This technique involved five vital steps; preliminary analysis, assessment of the suitability of data for factor analysis, factor extraction, factor rotation and factor interpretation. Specifically, the preliminary analysis of EFA derived the subsequent statistical outputs: descriptive statistics, correlation matrix, KMO measure of sampling adequacy, communalities, Bartlett's Test of Sphericity, total variance explained by factors, scree plot and component matrix (These outputs are discussed in details in the analysis chapter, Chapter 6).

To perform factor analysis, previous studies suggest requirements that must be followed. Based on this, it is recommended for data to be normally distributed and correlations to be greater than 0.30, eigenvalues greater 1.0 before conducting this technique, in order to avoid multicollinearity (that is, when factor loadings overestimate constructs with values greater than 0.90). Although the correlation between individual variables is important in factor analysis, there are diverse opinions and numerous guiding rules of thumb cited in the literature. Tabachnick and Fidell (2007) recommended checking for the correlation coefficients over 0.30. On the other hand, Hair et al. (1995) suggested the accepted loadings using another rule of thumb as ± 0.30 = minimal, ± 0.40 = important, and ± 0.50 = practically significant. If no correlations go beyond 0.03, the researcher should consider using another appropriate statistical method (Hair et al., 1995 and Tabachnick and Fidell, 2007). In a practical sense, correlations of 0.30 indicates that the factors account for approximately 30% relationship within the data and also indicates that a third of variables share too much variance (Williams et al., 2012). Consequently, correlations of 0.30 have been successfully and widely used in the literature, since it indicates that the factors account for roughly 30% of the relationship within the data.

5.2 Multiple Discriminant Analysis

The best methodology to employ in conducting prediction studies and financial analysis is Discriminant Analysis (Skomp, Cronnan and Seaver, 1986). However, in attempting to make a choice of an appropriate technique for analysis, researchers sometime encounter the problem that involves categorical dependent variables and a number of metric independent variables (Hair, et al., 1992). In this case, Multiple Discriminant Analysis is an appropriate statistical method that has the ability to combine two or more groups simultaneously. Unlike multivariate analysis of variance (MANOVA) where the independent variables are the groups and the dependent variables are the predictors, MDA analysis has the ability to predict group membership in naturally occurring groups. Several variables are included in the study to see which ones contribute to the discrimination between groups. According to Klecka (1980, p. 5), Multiple Discriminant Analysis (MDA) “provides a powerful technique to examine differences between two or more groups of objects simultaneously with respect to several variables and is used in a range of fields including psychology studies, political sciences, sociology and in many social sciences. Likewise, MDA is a statistical technique used to

classify an observation into one of several prior groupings dependent upon the observation's individual characteristics (Altman, 1968, p. 591).

Equally, MDA is a multivariate technique where the independent variables are the predictors and the dependent variables are the groups. In the same vein, Hair et al. (1992, p. 90) confirms that a Discriminant Analysis involves "deriving the linear combination of two or more independent variables that will discriminate best between the prior defined groups". In addition, this statistical technique has the ability to maximize the between-group variance relative to the within-group variance and expressed as a ratio of between groups to within group variance.

Therefore, in order to get the combined scores for each individual in the group, MDA multiplies each benchmark each independent variable by its corresponding weight and add these products altogether (Stevens, 2002). To achieve the results for each group, Sharma (1996) suggests that the discriminant scores should be averaged for all individuals in the groups to obtain the "centroids" (weighted means). In this case, our study includes two centroids since we have two qualitative groups, "Distress" and Non-Distress. If the difference between group centroids is large, this means that the statistical model utilized to discriminate between distress and non-distress can be used to accurately predict membership of different periods we are considering (covering before, during and after the crisis) employing the same methodology. Further, MDA has been utilized extensively in the financial literature. For instance, Durand (1941), who examines the risk elements in consumer instalment financing; Walters (1959) who categorized firms into high or low price-earnings ratios; and Altman who conducted studies to predict bankruptcy in firms (1968, 1977, 2000).

5.3 Application of Multiple Discriminant Analysis (MDA)

In an attempt to apply the MDA technique, Keckla (1980, p. 8) suggests some basic assumptions that should apply before computation of data. According to Hair et al. (1992), the first stage is the derivation stage, which consists of a number of steps, including variable selection, computational method, and statistical significance. These steps are explained in the following sections.

Variable Selection

In order to apply MDA, the study had to identify both independent and dependent variables (distress and non-distress) where emphases are placed on the dependent

variables. The effectiveness of the MDA depends on the extent to which the groups differ significantly on the variables. Therefore, the decision to select particular variables for as potential discriminators or predictors are critical to the success of the MDA (Brown and Wicker, 2000). Hence, in this study, the dependent variables will be the status of UK retail banks categorized to “distressed”, and “non-distressed” covering the aforementioned temporal periods.

On the other hand, the independent variables are believed to be the best to discriminate between groups or separate groups into different categories that is, distress and non-distress. According to Sharma (1996); Brown and Wicker (2000, p. 212) and Mazzocchi (2008, p. 5), these independent variables refer to predictors or discriminator variables that provides the best discriminating between two or more groups. Brown and Wicker (2000) recommend that researchers should take caution when selecting discriminators or predictor variables (independent) that are not highly interrelated because, if the variables are highly correlated with each other, they will likely load on the same function and, thus, not contribute in a unique way to discriminate within the group. In addition, researchers should restrict the predictor variables to those that have major theoretical and empirical relevance in order that importance is placed on the basis of theory, past research, and other convincing justification (p. 213).

In this study, the author employs Altman’s (1968) five significant ratios as independent variables with an addition, variable since these ratios were proven to be highly significant in predicting financial distress and due to their popularity in the previous literature (Asterbo and Winter, 2012, p. 2; Altman 2002, 2012). However, Chijoriga (2010, p. 136) and Brigham and Houston (2007) argues that selected ratios depend on practical use of the problem in question, the ability to improve the discriminant power of models, frequency and general acceptability of the ratios in relation to their intended use and caution should be taken when benchmarking over time less importantly appeal to the researcher.

In order to apply MDA method, the study should specify both dependent and independent variables where the emphases should relate to the dependent variable first, since dependent variables could be two or more groups or categories (Hair et al., 1992). In this study, the dependent variable the status of UK bank performance before, during and after grouping into distress and non-distress. On the other hand, the independent variables are considered as the best predictors to separate groups into different

categories, distress and non-distress Mazzocchi (2008). Sharma (1996) and Mazzocchi (2008, p. 5) describe these variables as discriminator or predictor variables that offer the best discrimination between two or more categories. Therefore, this study employed the following independent variables based on Altman's (1968) original ratios.

1. X1 stands for liquidity ratio
2. X2 stands for profitability ratio
3. X3 stands for efficiency ratio
4. X4 stands for solvency ratio
5. X5 stands for turnover (sales) ratio

Definition of variables

X1. Working Capital/Total Assets (WC/TA): it examines the net liquid assets of a company relative to the total assets, and measures the company's ability to well manage the liquidity, the net liquid assets, or working capital is defined by subtracting current assets from current liabilities. In addition, liquidity and size effects are explicitly considered. According to Altman's model, this ratio appears to be the least important contributor to discriminate between the two groups (Altman, 2000).

X2. Retained earnings/Total Assets (RE/TA): this ratio examines the retained earnings relative to total assets and measures the cumulative profitability of companies. It accounts for the total amount of reinvested earnings and/ or loss of a company over its entire life. Equally, RE/TA ratio measures the leverage of a company. Therefore, companies with high RE to TA have financed their assets through profit retention and have not used much debt.

X3. Earnings Before Interest and Taxes /Total Assets (EBIT/TA): it examines the company's ability to generate profits from its asset base. In other words, this ratio measures the productivity of the firm's assets, independent of any tax or leverage factors.

X4. Market Value of Equity/ Total Liabilities (MVE/TL): this ratio measures how much the firm's assets can decline in value before the liabilities exceed the assets and the company becomes insolvent. According to Altman (1968, p. 595), this ratio appears to be more effective predictor bankruptcy.

X5. Sales/Total Asset (S/TA)

This ratio employs net sales or turnover to total assets and measures management's capacity to deal with competitive conditions. It is also examining the sales generating activities of a company.

The computation technique

There exist two main estimation techniques that can be utilized in MDA. First, there is the direct method that involves computing MDA of entering the variables altogether at the same time in spite of their discriminating power. Hair et al. (1992) suggested that the computational way is suitable when the researcher is not interested to find out which predictor variables have more discriminating power over the dependent group. The second technique is the stepwise method; which involves finding the predicting or discriminating power of each independent variable one at a time (Keckla, 1980). The purpose of this method is to eliminate independent variables that do not significantly contribute to the discrimination function. In other words, this method is required when there are many independent variables and we want to identify those variables that have a significant validity for the function or equation. Therefore, independent variables with more discrimination power are added to other variables that are believed to predict group membership, especially when considering a large number of independent variables.

This study applied the direct method, where all the independent variables (predictors) are entered simultaneously. The direct method is used because this study attempts originally to test the applicability of MDA using Altman's significant ratios to discriminate between distress and non-distress categories, and for the reason that there are only five independent variables ($X_1 \dots X_5$) to be measured. Another significant issue to be considered in the application is the use of Statistical Package for the Social Science (SPSS) software. Unlike other more complicated software for data analysis, SPSS has a greater advantage since it enables the researcher to score and to analyse quantitative data very quickly and in many different ways (Bryan and Cramer, 1997, p. 16). Consequently, this study will be able to identify which ratio (s) contributes more to model and then affect the overall financial performance of UK retail banks before, during and after the recent financial crisis.

Statistical significance

It has been noted that researchers and scholars share different opinions towards statistical significance. Some researchers accept the conventional criterion of 0.05 (Hair et al., 1992, Sharma, 1996; Stevens, 2003; Fields, 2013), whereas other scholars accept the significance at levels of .02 and .03 if they have good reasons for the findings. For the purpose of this research, the researcher anticipates to accept or reject hypotheses at 0.05 of the level of significance since this level is accepted in social science (Fields, 2013, p. 71).

Cutting Score

Subsequent to testing the significance of results, the study will set certain classification of categories in order to set the cutting scores. A cutoff score is defined as “the score against which the each individual’s discriminant score is judged to determine into which group the individual entity should be classified” (Hair et al., 1992). In line with this definition, Altman (1968) classified all data points from his original data with a Z score threshold greater than 2.99 as solvent (non-failure), all data points with Z-scores less than 1.8 as insolvent (failure) and in between there was a combination of default and non-default. Specifically, $Z > 2.99$ is considered as a safe zone, $1.8 < Z < 2.99$ (grey or ignorant zone) and $Z < 1.8$ (distress). These three zones have proved to effectively predict financial distress over one or two years, but less successful at longer periods.

Consequently, in this case, those entities whose Z-scores are below this threshold ($Z < 1.8$) are classified in the distressed group, between the upper and lower threshold ($1.8 < Z < 2.99$) are classified as grey zone, whereas those above the threshold ($Z > 2.99$) are classified in the non-distress group. In line with the above description, since the two groups of this study are equal, the researcher interprets the cutoff points from the group centroids (means).

Interpretation

After identifying the cutting scores, the last stage in applying MDA involves examining the relative importance of each predictor variable to discriminate between groups. In practice, the discriminant coefficient weights happen to be one of the commonly used techniques for the interpretation of MDA function. Predictors with comparatively larger weights generally contribute more to the discriminating power of the function. In

addition, the sign of the coefficient (either positive or negative signs) contributes to the discriminating function as well (Norusis, 1985 and Mazzocchi, 2008). Equally, other ways to interpret MDA functions will be examined in the discussion of the results and findings section of the study.

Chapter Summary

To summarise Chapter 5, this methodology chapter has presented the procedures employed in the current research. The logical procedures that were utilised to test the research hypotheses of this study were examined. In reviewing the literature on which statistical techniques are suitable for analysing the perceptions and complex phenomena, factor analysis appeared robust to most researchers who are interested to reduce and define constructs in a meaningful way. Consequently, factor analysis was considered suitable for this study, since it identified clusters of variables and assisted in constructing the questionnaire to measure the underlying variable (customer loyalty). Looking at the best methodology for conducting prediction studies, there is a lack of agreement among researchers over the favourite method to employ. Nonetheless, several studies have revealed that, MDA is the best methodology to employ in conducting prediction studies and financial analysis (Skomp, Cronnan and Seaver, 1986; Altman, 2000; Agarwal and Taffler, 2008). Besides, MDA is the most popular parametric method used among researchers. However, some few problems still face researchers in testing the accuracy of the model, such as Type I and Type II errors. The table below (Table 5.1) presents a summary of the aforementioned procedures.

Table 5.1 Summary of Research Methodology	
Aim of Research	To evaluate the overall bank customer loyalty in terms of satisfaction, trust, perception and attitude levels before and after the recent financial crisis.
Approach	Face-to-face and online survey
Secondary Data source (s)	Quantitative (FAME and Bloomberg databases)
Instrument	Questionnaire
Targeted Respondents	400
Targeted Audience	Personal account customers of UK six main high street banks (Barclays, Lloyds, HSBC, Santander, RBS and Cooperative Bank).
Location	London
Period	1 st of July to the 31 st of September, 2014

Source: Developed for this Research.

In the next chapter, the analyses of two sources of data collection (primary and secondary data) are described along with a presentation of the results.

CHAPTER 6: ANALYSIS OF PRIMARY DATA

6.0 Introduction

This chapter presents an analysis of data. Chapter 7 will discuss analysis the findings presented in Chapter 6. The main goal of this first empirical section is to ascertain new unpublished links and additional information about the relationships between customer loyalty constructs and financial performance. Therefore, the research is based on quantitative analysis, because the methodology enables creating hypotheses to test and make statistical inferences from the results (Bauer-Beracs, 2006).

Before discussing the findings, it is important to review the rationale and purpose of this thesis. Furthermore, this chapter analyses primary and secondary data whereby primary data was carried out using a questionnaire and secondary data came from bank financial statements. The main objective of the questionnaire is to examine the perceptions of customers towards loyalty to their banks in relation to bank performance. This is done through a semi-structured questionnaire participated by 225 respondents. Further, respondents were given assurance that all the data collected will be used for research purposes only and their confidentiality will be maintained.

The results of primary data will be presented starting with a review of the sample, the response rate of the survey instrument and descriptive statistics. In addition, a detailed discussion of the preliminary data analysis, reliability and validity, and factor analysis results are presented. Data analysis comprised the following steps; data preparation, data analysis and reporting as suggested by Malhotra (2010). Two main types of data, analysis were applied, namely; primary and secondary data Analyses. For primary data analysis, four main statistical analyses: descriptive analysis, factor analysis, multiple regression analysis and descriptive statistics. On the other hand, secondary data analysis was conducted using descriptive analysis, ANOVA (Kruskal-Wallis Test), multiple discriminant analysis and correlation analysis. Both primary and secondary data were analysed using Statistical Packages for the Social Science (SPSS) version 20. Data cleaning process was done to make sure that the data met the assumptions of parametric test that will be discussed later in this chapter. Descriptive statistics were used as evidence for data cleaning, whereby no outliers and errors were examined from the data, therefore data were observed clean for analysis.

6.1 Descriptive Statistics

To begin, primary data involve a detailed account of the demographic profile of the respondents in the study. It is presumed that the attributes of the respondents influence their behaviour and responses to the survey questions.

6.1.1 Response Rate

As earlier highlighted in chapter three of this study about the procedure and response rate of the survey instrument, a total of 400 questionnaires was administered both self-administered and using online database involving bank customers in the UK, out of which 227 were returned resulting in a 56.75 percent response rate. Following the data editing process, 2 responses were found uncompleted and were deleted from the final responses. Therefore, the final sample size adopted in this study was 225 valid respondents (56.25 percent). This meant that the sample size and response rate satisfied the criterion of validity requirement.

6.1.2 Demographic Profile of UK Retail Bank Customers

The profile of respondents is examined in terms of age, gender, bank type, length of stay with the bank, the type of bank products that customer hold, the frequency of using bank products and services and the factors that influence bank choice. In table 6.1, the gender of respondents is presented below.

Table 6.1 Gender of Respondent

Gender of Respondents				
Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	95	41.9	42.2	42.2
Male	130	57.3	57.8	100.0
Total	225	99.1	100.0	
Total	225	100.0		

The demographic profile of the respondents in Table 6.1 shows that, 57.8 percent were males and 42.2 percent were females, indicating that there were more males who took

part in accessing overall loyalty with their banks as compared to their female counterparts. Further, based on the valid responses, over 58 percent of the population were male respondents, indicating a clear evidence of gender disparity in UK retail banking. However, the number of male (130) and female (95) respondents was closed, suggesting that there was an almost equal distribution of gender between males and females. The following Pie Chart shows the percentage of gender respondents:

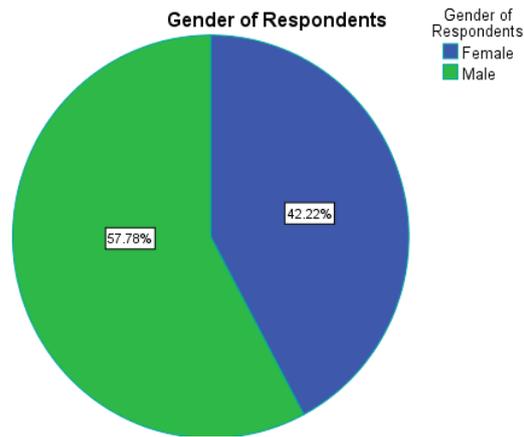


Figure 6.1 Pie Chart for Gender of Respondents

With regards to the age group of respondents, Table 6.2 presents the age groups of respondents ranging from 18-25 years, 26-34 years, 35-44 years, 45-54 years, 55-64 years, and above 65 years.

Table 6.2 Ages of Respondents

Age of Respondents					
Age Range		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	65 and above	1	.4	.4	.4
	55-64	4	1.8	1.8	2.2
	45-54	13	5.7	5.8	8.0
	35-44	49	21.6	21.8	29.8
	26-34	91	40.1	40.4	70.2
	18-25	67	29.5	29.8	100.0
	Total	225	99.1	100.0	
Total		225	100.0		

Table 6.2 shows the age range of the respondents. 40.4 percent of the respondents were between 26-34 years old, indicating the highest percentage and showing that most of them were already considered as young adults. 29.8 percent of the respondents were between 18-25 years old while 21.8 percent of respondents were between 35-44 years old. The possible reason for the skewed age group (35-44) may be that, a majority of respondents were in the working and active population, thus, had limited time to participate in the survey. 5.8 percent of respondents consist of the 45-54 age groups. Lastly, only 0.04 percent, i.e. 1 respondent was in the 65 and above age group. The diversity of the maturity of the respondents reflects several implications in the actual study's findings. Therefore, in relation to age brackets, the researcher may suggest that a considerable number of bank customers could be among the young adult group of the population. This could be visualized diagrammatically in figure 6 below:

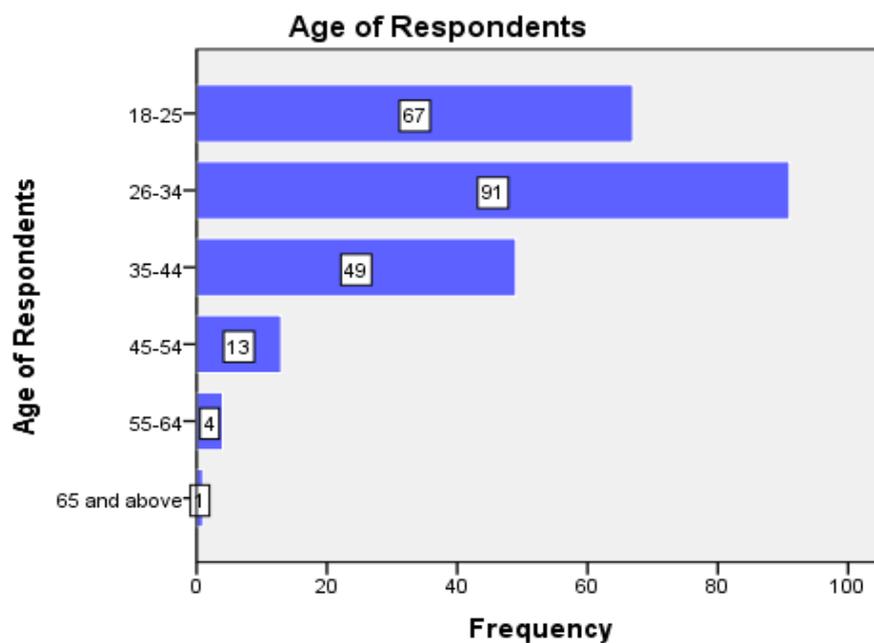


Figure 6.2 Bar Chart for Age of Respondent

Table 6.3 presents the results of the respondents according to their bank types. For all banks in the sample (Cooperative Bank, Santander, Llyods, TSB, Barclays, RBS and HSBC), respondents were to choose more than one bank type. The rationale behind this was to classify respondents according to their respective banks.

Table 6.3 Respondents Bank Type

Bank Type				
Bank Names	Frequency	Percent	Valid Percent	Cumulative Percent
Other	42	18.5	18.7	18.7
Cooperative Bank	5	2.2	2.2	20.9
Santander	21	9.3	9.3	30.2
Lloyds Bank	52	22.9	23.1	53.3
TSB	13	5.7	5.8	59.1
Barclays	54	23.8	24.0	83.1
RBS	13	5.7	5.8	88.9
HSBC	25	11.0	11.1	100.0
Total	225	99.1	100.0	
Total	225	100.0		

The banks each respondent belonged are given above. Out of 225 valid responses, 24 percent were customers of Barclays bank, 23 percent were Lloyds bank customers, 11 percent were HSBC customers, 9 percent belonged to Santander bank, 6 percent were of RBS and TBS, while only 2 percent of respondents were of the Cooperative bank. Furthermore, 19 percent were in other banks out of the study sample of respondents were in more than one bank. This could be visualized diagrammatically in a bar chart below (Fig. 6.3).

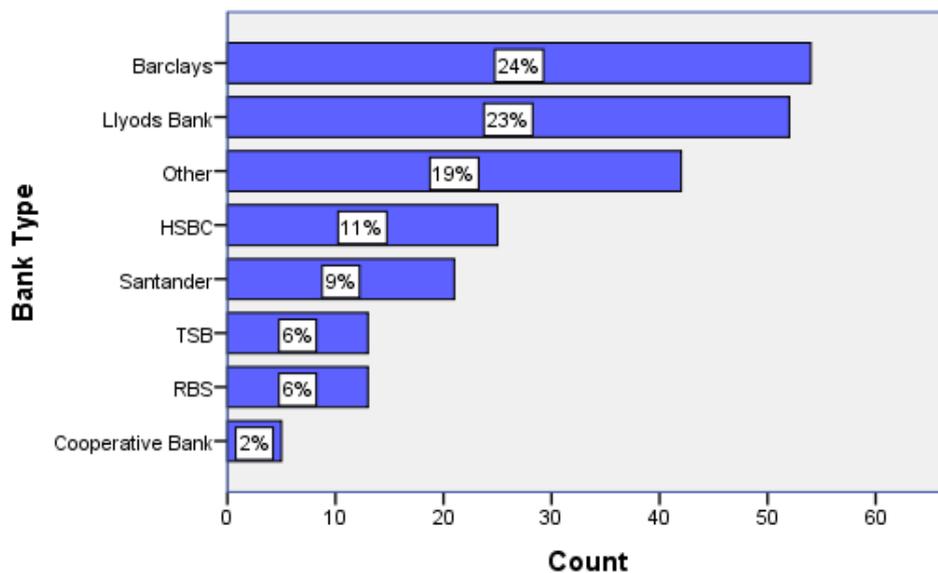


Figure 6.3 Bar Chart for Respondent Banks Type

To investigate the key factors influencing respondent’s choice of bank (s), Table 6.4 presents the descriptive statistics regarding their bank choice. These reasons, among others were the origin of bank, location, ease of access, quality of service, reliability and other factors.

Table 6.4 Key Factors influencing choice of retail bank

Factors of Bank Choice				
Factors	Frequency	Percent	Valid Percent	Cumulative Percent
Other	2	.9	.9	.9
Origin of Bank	7	3.1	3.1	4.0
Location	64	28.2	28.4	32.4
Ease of access	55	24.2	24.4	56.9
Quality of Service	50	22.0	22.2	79.1
Reliability	47	20.7	20.9	100.0
Total	225	100.0		

Table 6.4 provides that the distribution of the perception of respondents with regards the key factors influencing their choice of main retail bank (s). In this light, a majority of respondents (28.4 percent) revealed the location of the bank as the main reason for choosing a particular retail bank, closely followed by ease of access (24.4 percent), quality of service (22.2 percent), reliability (20.9 percent) and origin of the bank (3.1 percent). Other factors than those listed above comprise just 0.90 percent, suggesting respondents have strongly agreed that the main reason for customer's choice of the bank is the location and ease of access. This information is presented in figure 6.4 below:

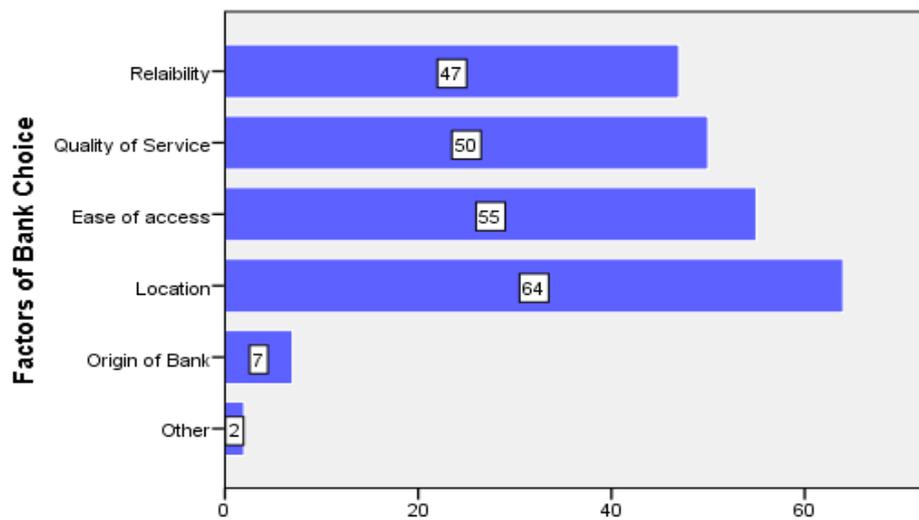


Figure 6.4 Bar Chart for Factors influencing Respondent's Bank Choice

Furthermore, it was important to investigate the number of years respondents have been with their respective banks. The rationale was to understand whether the longevity of bank customers influences their satisfaction, trust and loyalty. These descriptive results are presented in Table 6.5 for better comprehension.

Table 6.5 Number of Years with Bank

Bank Years				
Years	Frequency	Percent	Valid Percent	Cumulative Percent
Above 20 years	8	3.5	3.6	5.8
10-20 years	54	23.8	24.0	29.8
5-10 years	43	18.9	19.1	48.9
Less than 5 years	115	50.7	51.1	100.0
Total	225	99.1	100.0	
Total	225	100.0		

Table 6.5 above shows the distribution of the respondents in terms of their length of stay with their banks. Herein, it confirms that 51.1 percent of respondents have been with their banks for less than 5 years, while 24.0 percent of respondents have been with their bank within 10-20 years and 19.1 percent (43) of respondents have been with their main bank within 5-10 years. Most interestingly, only 3.6 percent (8 respondents) has been above 20 years with their main bank, indicating that very few customers look to change their bank in the first five years with their main bank, however, as dissatisfaction

turn to increase over time. This is reported diagrammatically on a bar chart below (Fig. 6.5):

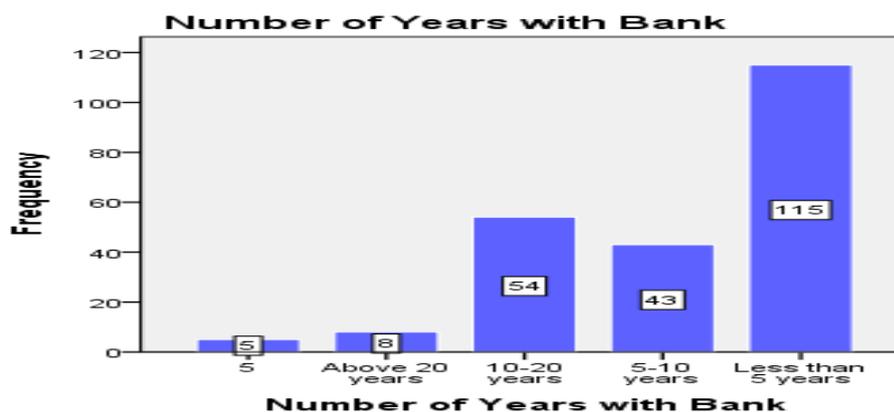


Figure 6.5 Duration of the relationships the main bank per respondents

In addition, Table 6.6 presents the type of products offered by banks. The products include, among other customer accounts, insurance, loans, mortgages and others. The rationale to investigate which products do customers normally utilise with their banks and to find out if they were satisfied with the products offered by their respective banks.

Table 6.6 Bank Customers with Multiple products and Provider

Type of Products offered by banks				
Type of Products	Frequency	Percent	Valid Percent	Cumulative Percent
Others	7	3.1	3.1	3.1
More than one	98	43.2	43.6	46.7
Customer Account	69	30.4	30.7	77.3
Insurance	19	8.4	8.4	85.8
Mortgages	6	2.6	2.7	88.4
Loans	26	11.5	11.6	100.0
Total	225	99.1	100.0	
Total	225	100		

Table 6.6 shows the distribution of respondents in terms of the products they hold with their main bank. On a whole, 43.2 percent of respondents reported that they hold two or

more products with their main bank, closely followed by customer account (30.7 percent), loans (11.6 percent), insurance (8.4 percent) respectively. This may suggest that customers buy more products or retail banks offer a variety of products to their customers. The following figure 6.6 diagrammatically presents this information using a bar chart;

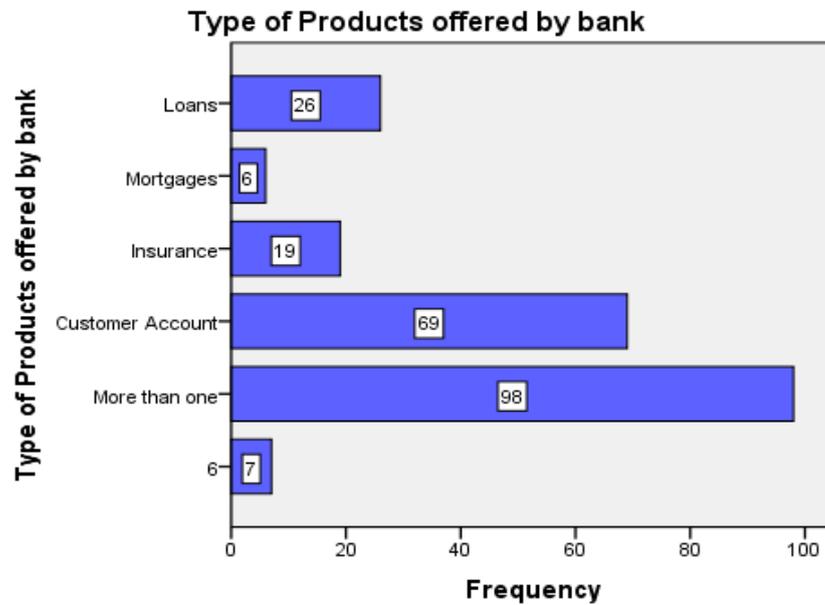


Figure 6.6 Bar Chart for Type of products that Respondents hold with the bank

After investigating the type of products offered to customers, Table 6.7 presents the frequency of using the products. The frequency of usage included once per month, a couple of times per month, five or more times per week and more than once a day.

Table 6.7 Frequency of using bank services by Respondents

Frequency of using services				
Duration	Frequency	Percent	Valid Percent	Cumulative Percent
Once per month	4	1.8	1.8	1.8
A couple of times per month	25	11.0	11.1	12.9
Five or more times per week	54	23.8	24.0	36.9
Once or twice per week	98	43.2	43.6	80.4
More than once a day	44	19.4	19.6	100.0
Total	225	99.1	100.0	
Total	225	100.0		

Table 6.7 shows the frequency of using bank services by respondents. 43.6 percent of respondents assume that they use a bank service once or twice per week, closely followed by 24.0 percent reveal that they use bank services five or more times per week, 19.6 percent use bank services more than once a day and finally, 11.1 percent of respondents confirmed that they use bank services a couple of times per month.

The bar chart in figure 6.7 diagrammatically illustrates this information below:

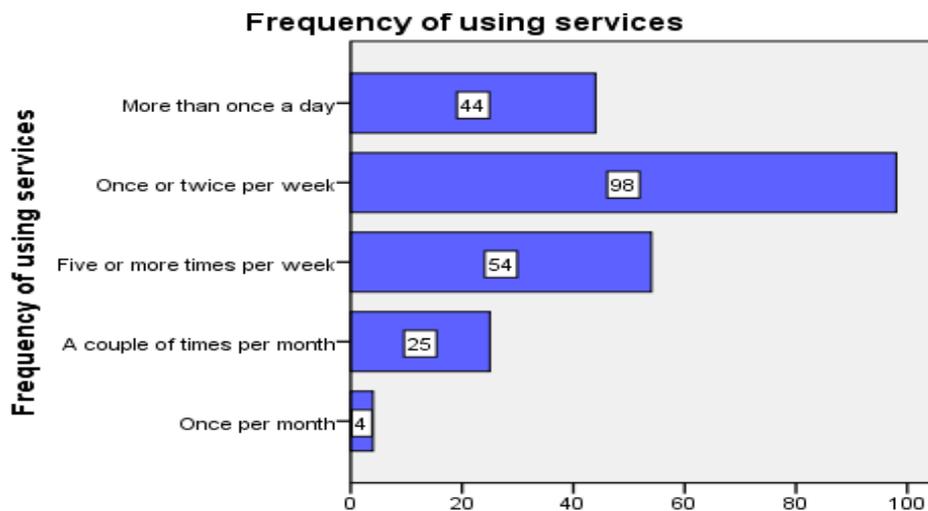


Figure 6.7 Bar Chart for frequency of using bank services by Respondents

In order to find out whether bank customers were relatively unlikely to switch their bank (s), Table 6.8 present the results indicating a “No”, “No but planning to change” and a “Yes” response. The purpose of this question was to understand whether customers will remain loyal to their banks in future. This implies that a majority of customers (98 respondents) at least use bank products or service once or twice per week. However, the frequency of using bank services does not capture loyalty in full, since a customer may frequently use a bank service due to convenience, switching costs and word-of-mouth. Hence, the fact that they frequently used bank services does not make them loyal customers because loyalty is built over time.

Table 6.8 Bank Customers are relatively unlikely to switch providers in the next five years

Bank Switch by respondent				
Responses	Frequency	Percent	Valid Percent	Cumulative Percent
No	166	73.1	73.8	73.8
No, but planning to change	28	12.3	12.4	86.2
Yes	31	13.7	13.8	100.0
Total	225	99.1	100.0	
Total	225	100.0		

Figure 6.8 below presents the results using frequency counts for better comprehension:

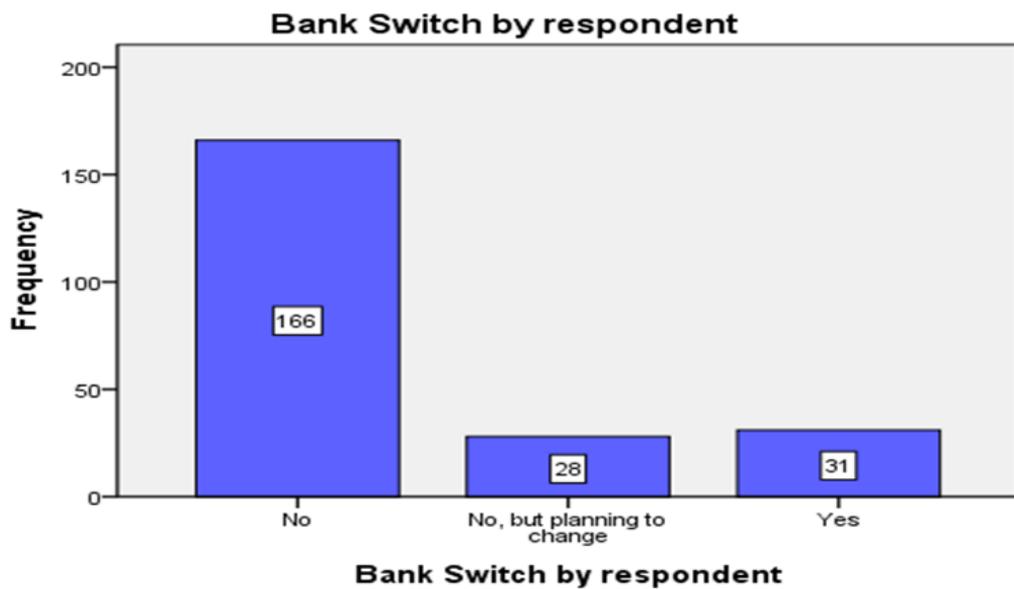


Figure 6.8 Bar Chart for bank switch intentions by Respondent

Finally, respondents were asked to provide the most important reason (s) to maintain their banks. Some of the reasons listed included bank staff attitude, financial stability, pricing of products and services, transparency and service quality. The frequency count results are presented in Table 6.9 below.

Table 6.9 Reason for maintaining relationships with banks

Most important reason to maintain a bank				
Reasons	Frequency	Percent	Valid Percent	Cumulative Percent
Attitude of bank staff	14	6.2	6.2	6.7
Financial stability	52	22.9	23.1	29.8
Pricing of Products and Services	26	11.5	11.6	41.3
Transparency	19	8.4	8.4	49.8
Service quality	113	49.8	50.2	100.0
Total	225	99.1	100.0	
Total	225	100.0		

Table 6.9 indicates the reasons for maintaining relationships with the bank by respondents. 50.2 percent of respondents suggest service quality as the most important reason for them to maintain their main bank. While financial stability is ranked second (23.1 percent), followed by prices of products and services (8.4 percent), then the attitude of bank staff appears to be the least factor for maintaining relationships with their bank. This information is represented diagrammatically in figure 6.9 below;

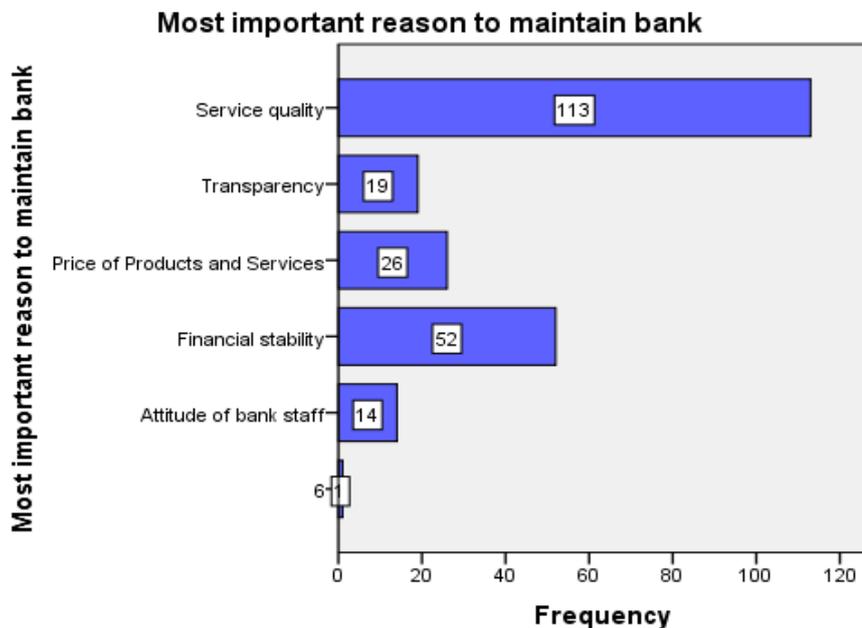


Figure 6.9 Bar Chart of Respondents for maintaining bank relationships

6.2 Correlation between variables

In order to establish an understanding between demographic data and the dependent variable (customer loyalty), Pearson's Correlation Matrix was conducted to test if any significant relationships exist between the constructs. The correlation results are presented in Table 4.10 with the use of a bivariate command in SPSS to conduct the analysis. To this effect, Coopers and Schindler (2003) and Fields (2013) recommends that when the correlation coefficient (r) is a ± 1.00 , there is a perfect positive or negative correlation between the variables. However, when $r = 0.01$ it shows a very weak relationship and if $r = 0.9$ it indicates a very strong correlation since it is closer to 1. Consequently, if $r = 0$, it reveals that there is no relationship between the variables.

The relationships between age of respondents and the number of years with their banks (.3) as shown in table 6.10 below was significant at 0.01 level ($p = 0.000$) in a two tailed test. This positive relationship was as a result of the fact that some respondents had more than one account in different banks and therefore saw no need to change banks. In addition, a majority of respondents (40.1%) were within the age group of 26-34 as shown in table 6.2 above. Since this group is the most active population and potential earners, banks during the crisis had to target them to stay within the banks with various promotional campaigns. However, the magnitude of this relationship was not strong due to the level of data involved (correlation increased with sample size).

Age also had a negative correlation (-.005) with factors of bank choice at 0.05 level of significance ($p = .010$) as shown in table 6.10 below. The main factor of bank choice was location as shown in table 6.4 above. This negative relationship was as a result of the fact that bank services have evolved especially the 21st century. The customer does not need to go to the bank to withdraw, transfer and print bank statements, since internet banking has enhanced the way banks operate with their customers. However, the magnitude of this relationship is weak due to the fact that, the accounts of several customers were created by their parents when they were still children, so a choice of a particular bank or location may appear insignificant.

The above section presented the correlation results for demographic variables in relation to continuous variables for this study. The aim is to ascertain whether any statistical relationship exists between the variables. The following Table 6.10 illustrates these relationships using factors such as gender of respondents, age of respondents, number of years with bank, bank switch by respondents, Overall satisfaction and Product satisfaction.

Table 6.10 Correlation Results for Demographic and Continuous Variables

Correlations Results for Primary Data Variables												
		Gender of Respondents	Age of Respondents	Number of Years with Bank	Bank Switch by respondent	Overall satisfaction	Product satisfaction	Frequency of using services	Factors of Bank Choice	Bank Type	Service Quality Satisfaction	Most important reason to maintain a bank
Gender of Respondents	Pearson Correlation	1										
	Sig. (2-tailed)											
	N	225										
Age of Respondents	Pearson Correlation	-.065	1									
	Sig. (2-tailed)	.330										
	N	225	225									
Number of Years with Bank	Pearson Correlation	.006	.289**	1								
	Sig. (2-tailed)	.931	.000									
	N	225	225	225								
Bank Switch by respondent	Pearson Correlation	.113	.029	.078	1							
	Sig. (2-tailed)	.091	.666	.246								
	N	225	225	225	225							
Overall satisfaction	Pearson Correlation	.069	-.081	-.029	.016	1						
	Sig. (2-tailed)	.302	.226	.660	.814							
	N	225	225	225	225	225						
Product satisfaction	Pearson Correlation	.053	-.025	-.026	.089	.536**	1					
	Sig. (2-tailed)	.433	.707	.693	.182	.000						
	N	225	225	225	225	225	225					
Frequency of using services	Pearson Correlation	-.022	.067	-.055	-.052	-.103	-.001	1				
	Sig. (2-tailed)	.739	.318	.413	.434	.123	.989					
	N	225	225	225	225	225	225	225				
Factors of Bank Choice	Pearson Correlation	-.005	-.114	-.025	.046	.051	.004	.054	1			
	Sig. (2-tailed)	.941	.088	.713	.494	.442	.955	.423				
	N	225	225	225	225	225	225	225	225			
Bank Type	Pearson Correlation	.034	-.170*	-.082	.033	.014	-.079	-.012	.177**	1		
	Sig. (2-tailed)	.609	.010	.220	.625	.840	.237	.853	.008			
	N	225	225	225	225	225	225	225	225	225		
Service Quality Satisfaction	Pearson Correlation	.118	-.128	-.127	.019	.701**	.491**	-.098	-.051	-.047	1	
	Sig. (2-tailed)	.077	.056	.056	.774	.000	.000	.142	.449	.487		
	N	225	225	225	225	225	225	225	225	225	225	
Most important reason to maintain bank	Pearson Correlation	.046	.116	.081	.056	-.076	-.113	.019	.123	.198**	-.065	1
	Sig. (2-tailed)	.492	.081	.225	.399	.254	.090	.782	.065	.003	.334	
	N	225	225	225	225	225	225	225	225	225	225	225

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

6.3 Measurement of Customer Loyalty

As discussed in Chapter 2 of this thesis, this study adopts the combination of the behavioural and the attitudinal constructs in the concept of loyalty rather than observing it from a single viewpoint. Therefore, this research defines “customer loyalty” as the extent to which customers demonstrate their attitudes and repeat purchase behaviours in order to disclose the depth and breadth of their relationships with a bank. This study employs seven customer loyalty items, mostly based on Jones and Sasser (1996), Reichheld (1996), Kim et al. (2003) and Ernst and Young (2012). A 1-5 scale was used (“strongly disagree” to “strongly agree”). In order to fit the banking context, minor changes in wording of some items were necessitated.

Factors Influencing Customer Loyalty in UK Retail Banking

6.3.1 Factor Analysis for Customer Loyalty Constructs

This study employed factor analysis, which is a multivariate method used to reduce a large number of variables to a set of core fundamental factors. It is often advisable to screen data thoroughly before conducting any statistical analysis in order to check underlying problems such as multicollinearity and outliers within the data. In order to ensure that the individual variables used in forming each composite construct for customer loyalty, a factor analysis was performed using Principal Component Analysis (PCA). Factor analysis is a data reduction technique that reduces the data set into a manageable size while retaining much of the original information (Field, 2013). In the same vein, Factor Analysis is a statistical method used to describe variability among observed variables in terms of potentially lower unobserved variables known as factors (Schreiber et al., 2006).

However, it is recommended for data to be normally distributed and correlations to be greater than 0.30, eigenvalues greater 1.0 before conducting this technique, in order to avoid multicollinearity (that is, when factor loadings overestimate constructs with values greater than.9). Furthermore, questions that required more subjective responses or opinions were omitted to focus on factual statements concerning customer’s perception and experience with bank products and services. For example, questions about how often they use a service, types of products they hold and how long they have been with their banks did not appear to provide a direct measure of customer loyalty constructs. Therefore, a total of 29 items in the instrument was reduced to a few factors with regards factor score that explained the variance in the observed variables. This was conducted using Exploratory Factor Analysis (EFA). This technique involved five vital steps; preliminary analysis, assessment of the suitability of data for factor analysis, factor extraction, factor rotation and factor interpretation. The preliminary EFA

generated the following SPSS outputs: descriptive statistics, correlation matrix, KMO measure of sampling adequacy and Barlett's Test of sphericity, communalities, total variance explained, scree plot and component matrix.

In the subsequent section, the descriptive, skewness and kurtosis results and the factor analysis results are examined in details.

6.3.1. 1 Characteristics of Primary Data and Descriptive Statistics

Table 6.11 consists of the descriptive statistics for each construct with regards their mean, standard deviation, number of observations (N), skewness and kurtosis. Descriptive statistics and correlation matrix for all variables are presented in this section to offer insight into each variable used in the analysis and illustrating the relationships between all variables. Each model uses ROE as the dependent variable that includes profits from all samples.

Skewness and Kurtosis

In this study, univariate normality was evaluated through observing the skewness and kurtosis statistics generated using SPSS as shown in the Table below 6.11. Although the Kolmogorov-Smirnov test has been designed to compare the data to a normal distribution using the same mean and standard deviation (Mooi and Sarstedt, 2011), it is argued that the Kolmogorov-Smirnov test only indicate whether the null hypothesis of the normal distributed data should be rejected or accepted. Therefore, researchers are advised to use skewness and kurtosis measures to examine the normal distribution of data, because skewness shows the extent to which the data is systematically distributed (Hair et al., 2014). The skewness of a distribution provides information about the proportion while the kurtosis specify the peaks of the distribution. The skewness and kurtosis in a perfectly normal distribution is observed with a value of zero (Tabacknick and Fidell, 2007).

A general guideline for some studies of skewness is that if the number of is greater the +1 or less than -1, it indicates that the distribution is significantly skewed. While for kurtosis, a distribution greater than +1 means the distribution is too peaked and if less than -1, it means a flat distribution (Hair et al., 2014, p. 54). However, Hair et al. (2006) and Tabacknick and Fidell (2007) argue that critical values of ± 2.58 (at 0.01 significance level) show deviation from normal distribution. Based on the recommendation of Tabacknick and Fidell (2007), individual items measuring customer satisfaction, trust and loyalty items of skewness and kurtosis were within the recommended range of ± 2.58 . This implies that most items were realistically normally distributed.

Table 6.11 Descriptive Statistics of Specific Items							
Descriptive Statistics							
	N	Mean	Std. Dv	Skewness		Kurtosis	
	Stat.	Stat.	Stat	Stat.	Std. Error	Stat	Std. Error
Overall satisfaction	225	3.44	.864	-.804	.162	1.070	.323
Service Quality Satisfaction	225	3.48	.902	-.498	.162	.348	.323
Type of Products offered by banks	225	4.01	1.341	-1.178	.162	.451	.323
Product satisfaction	225	3.27	.973	-.528	.162	.397	.323
Overall, the financial crisis affected my trust in banks	225	3.84	1.755	1.691	.162	3.653	.323
I have complete trust in banks in terms of financial stability	225	3.58	1.045	-.445	.162	-.412	.323
I have complete trust that my bank has good security procedures	225	3.93	.901	-.532	.162	-.296	.323
I have complete trust on information about the performance	225	3.61	.900	-.566	.162	.160	.323
I trust that my bank will pay my deposits upon demand	225	3.27	.969	-.300	.162	-.201	.323
I am confident doing business with my bank within the last 12 months	225	3.61	.890	-.180	.162	-.504	.323
I am satisfied in terms of interest rates	225	3.07	.991	-.079	.162	-.285	.323
I have a strong personal relationship with my bank	225	3.35	.869	-.377	.162	.153	.323
I am proud to be a customer of my bank	225	3.00	1.042	-.278	.162	-.509	.323
My bank identifies me as an individual	225	3.18	1.105	-.327	.162	-.354	.323
I find it difficult to inform my bank that I want to switch	225	3.51	1.018	-.377	.162	-.275	.323
I will remain with my bank even when they are in crisis	225	3.30	1.012	-.270	.162	-.289	.323
The relationship with my bank has been constantly increasing	225	3.16	.930	-.618	.162	.124	.323
Valid N (listwise)	225						

Looking at the column of the mean in Table 6.11 above, the item (measuring satisfaction) that “I find it difficult to inform my bank that I want to switch” had the highest with mean value = 3.51, next was “service quality satisfaction with mean value =3.48, followed by “overall satisfaction” with mean = 3.44, then, “Product satisfaction” with mean value = 3.27 and the “The financial crisis pushed me to consider spreading my accounts” with the lowest mean value = 2.88. Consequently, these variables from the descriptive statistics suggest that they have a strong influence on the customer loyalty perception of bank customers given that they had the highest means.

The initial data was tested using two-factor analysis requirements, Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) measure of sampling adequacy and Bartlett’s test of sphericity. The KMO test of 0.631 was established as shown in the Table 6.12 below: Kaiser (1974) recommends that values greater than 0.5 are acceptable. However, Hutchenson and Sofroniu (1999) suggest that KMO values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values above 0.9 are superb, hence, 0.631 was

adequate to conduct factor analysis for this study. Furthermore, Bartlett’s test of sphericity was utilized to test the strength of the relation among the variables. The aim of conducting the Bartlett’s test of sphericity is to examine the null hypothesis that the variables were uncorrelated. Herein, the p-value = 0.000 was significant and less than the threshold at a 0.05 level (Tabachnick and Fidell, 2007) and hence, the null hypothesis was rejected indicating that the variables in the population correlation matrix were uncorrelated.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.631
Bartlett's Test of Sphericity	Approx. Chi-Square	605.880
	Df	45
	Sig.	.000

With regards that communalities associated with the customer loyalty data as displayed in Appendix C, which showed that the least value of communality was 0.388 and the variable with highest communality was, “The financial pushed me to consider spreading my accounts” (0.87). This suggested that variables were well fitted with each other. Principal Component Analysis (PCA) was used to determine the initial solution. This technique was preferable because it allowed for the reduction of the data set to a more manageable size while retaining as much as the original data. The first part of factor extraction process is to determine the linear components within the dataset (eigenvalues). The unrotated solution is useful in assessing the improvement of interpretation due to rotation. The unrotated solution in Table 6.13 depicts a total of 61.525 percent of variance allowing 38.475 percent of the variation to be explained by the other 16 components. The selection of these variables was done by employing the Kaiser’s criterion and scree plot, which sorts factors with eigenvalues greater than or equal to 1. With regards to table 6.13 below, the first nine components had eigenvalues over 1 and accounted for 61.525 percent of total variation, with the first component accounting for 14.736 percent of the variation before rotation, the second component explained 8.728 percent of the variation and the third component explains 7.354 percent of the variation. After rotation, (see appendix) the first factor accounts for only 13.439 of the total variance (compared to 8.855 and 8.525 respectively). Consequently, based on the total variation explained criterion, a maximum of 9 loadings could be extracted from the combined data set since they met the Kaiser’s criterion.

Table 6.13 Total Variance Explained for Customer Loyalty Constructs						
Total Variance Explained by Factors						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.684	14.736	14.736	3.684	14.736	14.736
2	2.182	8.728	23.464	2.182	8.728	23.464
3	1.839	7.354	30.819	1.839	7.354	30.819
4	1.587	6.350	37.169	1.587	6.350	37.169
5	1.434	5.735	42.904	1.434	5.735	42.904
6	1.302	5.209	48.114	1.302	5.209	48.114
7	1.239	4.957	53.071	1.239	4.957	53.071
8	1.084	4.335	57.406	1.084	4.335	57.406
9	1.030	4.120	61.525	1.030	4.120	61.525
10	.996	3.986	65.511			
11	.972	3.890	69.401			
12	.869	3.476	72.877			
13	.824	3.295	76.172			
14	.760	3.040	79.212			
15	.713	2.850	82.063			
16	.703	2.810	84.873			
17	.651	2.605	87.477			
18	.577	2.308	89.786			
19	.561	2.246	92.031			
20	.487	1.950	93.981			
21	.449	1.798	95.779			
22	.425	1.698	97.477			
23	.272	1.089	98.567			
24	.204	.817	99.383			
25	.154	.617	100.000			

Extraction Method: Principal Component Analysis.

Therefore, Stevens (2002) recommends the use of a scree plot to determine the actual number of factors to retain when the sample (N) size is above 200. Research suggests that the scree plot technique is more reliable when selecting factors from the data set. This is evident at the point of inflexion on the curve, enabling the determination of number of factor loadings to be retained, while the loading factors after the point of inflexion indicate that each factor accounts for a smaller amount of variations hence should not be retained.

According to Fields (2013), the plot shows an elbow break between the steep slope of the big factors and gradually losing off of the rest of the factors, and scree is formed at the foot of a mountain. The scree plot in Figure 6.11 below indicates a point of inflexion after the third component and thus only the first three factors with larger eigenvalues from the graph were adequately considered as descriptors of the variations in this data set.

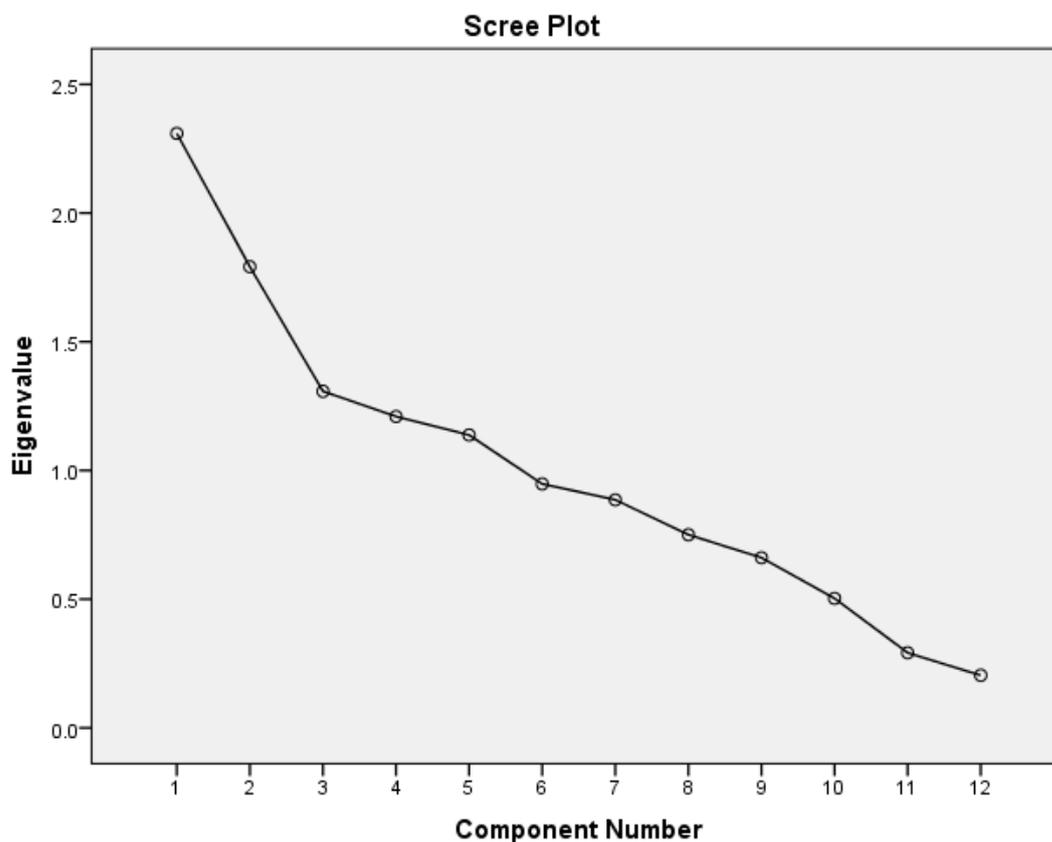


Figure 6.10 Scree Plot of combined Customer Loyalty Constructs

The following section 6.3.2 presents in detail the internal consistency with regards to reliability and validity of the key loyalty constructs for this study. This was done using factor analysis and Cronbach’s alpha (α) techniques.

6.3.2 Internal Consistency of Loyalty Constructs

6.3.2.1 Reliability and Validity

This section is required to establish the internal consistency of the key customer loyalty constructs in the study. In order to check for reliability and validity of the research instrument, factor analysis and Cronbach’s alpha (α) techniques were employed. According to Field (2013, p. 666), factor analysis has three main uses: first, to understand the structure of a set of variables, second, to construct a questionnaire to measure the set of variables and lastly, to reduce a data set to a more manageable size while retaining as much as the original information as possible. Its strength comes from the ability to solve the problems of outliers and multicollinearity found in the data. Further, in order to test the internal consistency of the questionnaire items, Cronbach’s alpha technique was employed; where α value above 0.70 shows that the scale is reliable to measure what it set out to measure (Kline, 1999). Therefore, a total of customer loyalty constructs Cronbach’s alpha value = 0.748 as shown in the Table 6.14 below, were considered reliable to provide consistency of results over time.

In order to establish the reliability of the three constructs of customer loyalty subsequent to the EFA procedure, those items that loaded on each construct were transformed into three new variables and described as customer satisfaction, customer trust and customer commitment respectively. After the transformation procedure, the constructs subjected to testing the reliability of scale, employing Cronbach's alpha technique, resulting in an overall scale of $\alpha = 0.748$ for 9 items as depicted in Table 6.14.

In summary, a varimax rotation enabled the reliability of the financial ratios loaded with items. Most of the variation in factor two was explained by the items, "I have knowledge about the recent financial crisis of 2007" (0.736), followed by "I am proud to be a customer of my bank" (0.627), "I have valuable knowledge that some people were affected more than others" (0.680). A close examination of these three items led to their interpretation as the factor customer commitment.

Item-Total Statistics				
Loyalty constructs	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Service Quality Satisfaction	22.82	17.183	.524	.708
Product satisfaction	23.03	17.146	.474	.717
Looking to the future how satisfied are you to remain with your bank	23.09	17.269	.456	.720
I am satisfied in terms of interest rates	23.23	19.518	.162	.773
Overall satisfaction	22.86	16.593	.650	.687
My bank identifies me as an individual	23.12	16.478	.470	.718
I find it difficult to inform my bank that I want to switch	22.79	17.166	.440	.723
The relationship with my bank has been constantly increasing	23.14	17.703	.428	.725

Cronbach's Alpha = 0.748

6.4 Measurement of Bank Performance

In this section, an extraction of bank performance constructs for analysing the research data is presented. This is done by utilizing EFA to examine the measurement of bank financial performance. In addition, a structural equation modelling (SEM) was used to test the link between customer loyalty constructs and bank financial performance (BP) as discussed in Chapter three.

6.4.1 Factor Analysis of Bank Performance Variables

The same procedure was followed in order to select reliable and valid constructs of bank performance variables. The process involved five steps; preliminary analysis, assessment of the suitability of data for factor analysis, factor extraction, factor rotation and factor interpretation. The preliminary EFA generated the following SPSS outputs: descriptive statistics, correlation matrix, KMO measure of sampling adequacy and Bartlett's Test of Sphericity, communalities, total variance explained, scree plot and component matrix. In the following paragraph, the results of factor analysis will be examined in details.

The Kaiser-Meyer-Olkin Measure of sampling adequacy is 0.644, which is above Kaiser's (1974) recommendation of 0.05. The value of KMO is "almost marvellous" as described by Hutcheson and Sofroniou (1999). Consequently, the evidence suggests that the sample size is adequate to derive distinct and reliable factors.

Bartlett's test of sphericity was conducted to test whether the correlations between the ratios are sufficiently large for factor analysis to be appropriate. In order to examine the null hypothesis that the financial ratios were uncorrelated, the p-value = 0.000 was significant and less than the threshold at a 0.05 level (Tabachnick and Fidell, 2007) and hence, the null hypothesis was rejected indicating that the variables in the population correlation matrix were interrelated.

Table 6.15 KMO and Bartlett's Test for Bank Performance		
KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.644
Bartlett's Test of Sphericity	Approx. Chi-Square	39.799
	Df	10
	Sig.	.000

With regards communalities associated with bank performance data as displayed in the appendix, it demonstrates that the least value of communality was 0.382 and the variable with highest

communality was, “RE/Total Assets” (0.793) which measures the bank profitability. This suggested that bank ratios were well fitted with each other.

The unrotated solution in Table 6.15 depicts a total of 66.391 percent of variance allowing 33.609 percent of the variation to be explained by the other components. The actual selection of ratios was conducted using Kaiser’s criterion and scree plot, which sorts factors with eigenvalues greater than or equal to 1. With regards to table 6.16 below, the first two performance indicators had eigenvalues over 1 and accounted for 66.391 percent of total variation, with the first component accounting for 45.255 percent of the variation before rotation; the second performance indicator explained 21.163 percent of the variation. After rotation (see appendix), the first factor accounts for 43.567 percent of the total variance and the second ratio 22.823 percent. Consequently, based on the total variation explained criterion, a maximum of 2 loadings out of 5 ratios were extracted from the combined data set since they met the Kaiser’s criterion.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.261	45.227	45.227	2.261	45.227	45.227	2.178	43.567	43.567
2	1.058	21.163	66.391	1.058	21.163	66.391	1.141	22.823	66.391
3	.955	19.105	85.495						
4	.417	8.333	93.829						
5	.309	6.171	100.000						

Extraction Method: Principal Component Analysis.

The scree plot in figure 6.12 indicates a point of inflexion after the second component and thus only the first two factors with larger eigenvalues from the graph were adequately considered as descriptors of the variations in this data set.

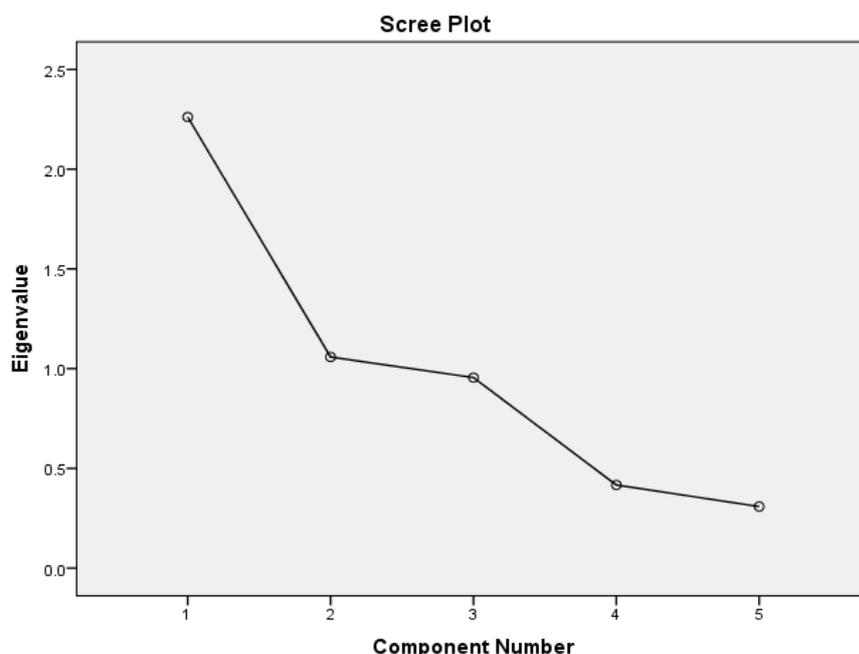


Figure 6.11 Scree Plot of combined Key Performance Indicators (KPI)

6.4.2 Multiple Regression Results

Correlation and multiple regression analyses were conducted to examine the relationship between bank performance (profits) as the dependent variable and various potential customer loyalty construct (customer satisfaction and trust) as independent or predictor variables. Table 6.17 summarizes the descriptive statistics and analysis results. The model summary consists of two models.

6.4.2.1 Results of the Relationship between Customer Satisfaction, Trust and Loyalty

Model 1 depicts the relationship between customer loyalty as dependent variable and customer satisfaction and trust as potential predictors of loyalty.

Table 6.17 Summary Model of the Relationship between Customer Satisfaction, Trust and Loyalty				
Model summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.278 ^a	.078	.069	.5353

a. Predictors: (Constant), Satisfaction, Trust (CS and CT)

b. Dependent Variable: Loyalty (CL)

As can be seen in the column labelled 'R' indicates the values of the multiple correlation coefficient between the predictor variables-satisfaction and trust and the outcome (loyalty). When the predictors were entered simultaneously into the model, a simple correlation value

(.278) was realized. The next value gives the value of R Square (R^2) which shows how much of the variance in the dependent variables (CL) is explained by the predictors (CS and CT). In this case, the R^2 value is .078, which means that CS and CT account for 7.8% of the variation in CL. Therefore, the inclusion of both customer satisfaction and customer trust in model 1 has explained a small proportion of the variation in customer loyalty.

Equally, the adjusted R^2 gives some idea of how well model 1 generalizes the actual value of the observed. That is $(.078-.069 = 0.09$ or 0.9 %) meaning that if the model were derived from the population rather than a sample, it will account for approximately 0.9% less the variance in the outcome and since the adjusted value (.069) is much closer to the observed value R^2 (.078) suggesting that the cross-validation of this model is very good.

The next result is the ANOVA, which tests whether the model is significantly better to predict the outcome than using the means as best guess. Table 6.18 presents the regression result output for model 1.

Table 6.18 ANOVA Results of Relationship between Customer Loyalty and Customer Satisfaction and Trust					
ANOVA ^a					
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	5.610	2	2.805	9.828	.000 ^b
Residual	63.361	222	.285		
Total	68.971	224			

a. Dependent Variable: Loyalty

b. Predictors: (Constant), Satisfaction, Trust

The ANOVA Table 6.18 tests the null hypothesis whether the model was able to make actual predictions. In other words, the null hypothesis is that the model 1 has no explanatory power to predict the outcome. Particularly, the F statistics indicate the ratio of the improvement of the prediction that results from fitting the model, relative to the inaccuracy that still exists in the model. In this case, F-ratio is 9.805, $P < 0.01\%$. So, the results reveal that model 1 significantly improved the ability to predict the outcome and also significantly fit the overall data. As a result, the F values and significant value confirm that the two predictors (X) are indeed different from each other and that they affect customer loyalty (Y) in a different manner.

Since ANOVA does not tell about the individual contribution of the outcome variables in the model, the coefficients results provides these estimates of the regression model 1 parameters which are reported in Table 6.18, indicates which of the independent variables contributes most in predicting the outcome.

Table 6.19 Results of Relationship between Customer Loyalty and Customer Satisfaction and Trust							
Coefficients							
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	2.338	.284		8.242	.000	1.779	2.897
1 Trust	.249	.058	.275	4.272	.000	.134	.364
Satisfaction	-.052	.054	-.062	-.961	.338	-.157	.054

As can be seen in Table 6.19, the b value indicates the relationship between customer loyalty and each predictor (trust and satisfaction). A positive value indicates that there is a positive relationship between the predictor and the outcome, whereas a negative coefficient relates to a negative relationship. In this case, customer trust has a positive relationship (.249) with customer loyalty in Table 6.19, which is also significant at 0.01 percent. This significant relationship is due to the fact that, customer trust is a subjective and a mutual relationship concept. It may be difficult for the customer to trust the bank, but once that trust has been gained, the customer now has a personal attachment towards the bank which is revealed from repeated purchase of the bank's products and services. These repeated purchases and personal attachment of the customer to the bank is considered as loyalty. Likewise, trust is all about customer's confidence which is also uncovered through their personal attachment and repeated purchases.

On the other hand, customer satisfaction had a negative effect on customer loyalty. This is presented in Table 6.19 above. This negative relationship was not significant at 0.01 percent. From the statistics of Table 6.19 above, the coefficient of satisfaction is -0.052 which is equivalent to -05.2 percent. This implies that, an increase in customer satisfaction by 1 unit, customer loyalty will decrease by -05.2 percent. This negative insignificant relationship was based on the fact that, customer satisfaction is all about evaluation of the service they receive. This evaluation may be good or bad. However, this evaluation is not a willingness for a customer to have a personal attachment products and services, which may cause them to have an intention to repurchase bank products and services. In addition, customer satisfaction is a temporal phenomenon or situation specific in which a customer might receive a service and he/she is satisfied. Nevertheless, this short-term satisfaction is not an indication that the customer is loyal to the bank.

In summary, trust is built over time customer and the mutual relationship between the customer and the bank leads to loyalty. Whereas, satisfaction is not built on long-term relationship, therefore, it is not significant to influence loyalty.

6.4.2.2 Results of the Relationship between Customer Loyalty and Profitability

Model 2 refers to the final model which tests the relationship between bank performance (Profits) and customer loyalty. In order to test the relationship between customer loyalty constructs and profitability, a stepwise regression analysis is conducted. Table 6.20 presents the output results of regression model using profitability as the dependent variable and customer loyalty constructs as predictors. Given that this model involved the entering method where all variables are entered simultaneously. In this case, out of three independent variables only customer loyalty (CL) has been considered since the other predictors (trust and satisfaction) did not significantly contribute to the variance of the dependent variable (profitability).

Model summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.362 ^a	.131	.082	12.046

a. Predictors: (Constant), Trust, Satisfaction, Loyalty

b. Dependent Variable: Profitability

The adjusted R^2 gives some idea of how well the model generalizes the actual value of the observed. An adjusted R^2 value of 8.2% differs relatively with R Square value, meaning that if the model were derived from the population rather than a sample, it will account less than the variance in the outcome, suggesting that the cross-validation of this model is fairly good. Furthermore, the result of ANOVA, which tests whether the model is significantly better to predict the outcome than using the means as best guess. Table 6.21 presents the regression output for the model.

ANOVA ^a					
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1178.689	3	392.896	2.708	.050 ^b
Residual	7835.824	54	145.108		
Total	9014.514	57			

The ANOVA Table 6.21 provides summary results of a test of significance for R and R² using F-statistics. Therefore, R, R² and the adjusted R² for this model are based on the linear combination of customer loyalty constructs to predict bank profitability is essentially significant at 0.05 %. The F statistics indicate the ratio of the improvement of the prediction that results from fitting the model, relative to the inaccuracy that still exists in the model. In this case, overall F-ratio is 2.708, P <0.05%. So, the results reveal that the model fairly significantly improved the ability to predict the outcome and also significantly fit the overall data. As a result, the F values and significant value confirm that all predictors (X) are indeed different from each other and that they affect profitability (Y) in a different manner. In order to determine which independent variables were significant in predicting the outcome variable, the coefficient results are examined. The coefficients show the strength of the relationship between the dependent and independent variables.

Model	Unstandardized Coefficients		Standardized Coefficients		T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta				Lower Bound	Upper Bound
	(Constant)	1.189	14.073					.085
Loyalty	7.832	2.994	.346		2.616	.012	1.830	13.834
Satisfaction	.126	2.229	.007		.057	.955	-4.342	4.595
Trust	-4.906	2.715	-.239		-1.807	.076	-10.349	.538

Dependent Variable: Profitability

As can be seen in Table 6.22, the signs of the coefficients indicate the direction of the relationship. In this analysis, customer loyalty and customer satisfaction have a positive *b* value (7.832, .126, respectively) indicating a positive relationship while customer trust has a negative *b* value (-4.906) indicating a negative relationship with the dependent variable (profitability). The result suggests that customer loyalty and satisfaction, increase significantly with profitability. However, the predictors are associated with a standard error indicating to what extent the values will vary across different samples. This is done by looking at the *t* statistics, which test whether the *b* value is significant, therefore making a significant contribution to the model. The smaller the significant value the greater the contribution of that value. In this case, the *t* value of loyalty is (2.616) with (p-value =.012) at the 0.01 level of significance where as customer satisfaction and trust have as *t* value (2.616,-1.807) with (p-value =.955, .076, respectively) is above 0.05 %. The results reveal that customer loyalty is a significant predictor of profitability. In addition, the *t*-statistics confirm the magnitude that customer loyalty had more impact than customer

satisfaction and trust in predicting bank profitability. Equally, the standardized coefficients confirm that importance of the predictor in the model. In this case, the standardized beta value of customer loyalty (CL) is .346, and for customer satisfaction and trust are (.007,-.239, respectively) indicating that customer loyalty has a fairly stronger correlation with profitability, hence, having a significant impact in the final model than customer trust and satisfaction.

The relationship is due to the fact that high levels of loyalty for current customers will reduce price elasticities, lower costs of attracting new customers and enhance the reputation of the bank. This implies that current customers will be willing to purchase in the future and will recommend their bank (s) to friends and relatives. Ideally, banks with a stronger customer loyalty base will be reflected in the economic returns and steady flow of future cash flow (Reichheld and Sasser, 1990). Besides price, bank customers may consider the value of the bank's product attributes of brand image, viability, product and service qualities. As a result, banks that provide high levels of such characteristics are expected to enjoy the benefits of customer who will remain loyal, repeat purchases and recommend the bank's products and services through word-of-mouth (Zeithmal, 2000; Anderson and Mittal, 2000; Anderson and Sullivan, 1993).

In addition, since the net present value of the expected margin of customers reflects the asset value of the bank, as the longevity of customers increase, the value of the bank's customer assets and future profitability will also increase. Thus, costs will decrease and profit margins will increase, since loyal customers are more familiar with the transaction procedures of their banks. As a consequence, the banks find current loyal customers cheaper to deal with (Reinartz and Kumar, 2002). This is consistent with the findings of Riechheld (1993, p. 70) who support that, when a company consistently delivers greater value and wins customer loyalty, market share and revenue increases, while acquisition costs and serving customers decreases. On the other hand, to achieve customer satisfaction, banks may consider to maintain satisfaction by providing price discounts which will lead to a negative between satisfaction and sale prices. As a result, Edvardsson et al. (2000) provide evidence that satisfaction and loyalty are negatively correlated to product sales, but positively related to service prices.

Chapter Summary

To summarise Chapter 6, primary data were presented and analysed using tables, charts and graphs. The results of the study were also introduced. The data sampling, data screening, measurement was reported. The essence for screening the data was to remove outliers that may influence the results of this study. Focusing on the presentation and analyses of primary data collected using surveys, the researcher identified all necessary statistical tests to be used in discovering what factors influence satisfaction, trust, loyalty and bank performance in the retail banking industry. The demographic characteristics result of respondents was presented in the

form of tables and figures. The results were discussed and synthesised in line with the literature. Although the literature assumes that customer satisfaction significantly influence loyalty, using multiple regression analysis technique, the results show that as customer trust increases while customer satisfaction decreases significantly with customer loyalty. The most possible reason for this may be due to switching costs involved and the regulatory structure of banks in the UK. However, each of these predictors is associated with a standard error indicating to what extent the values will vary across different samples. On the other hand, as customer satisfaction decreases, customer loyalty also decreases holding customer trust constant.

The next chapter, Chapter 7 will analysis and present the secondary data using MDA technique. The data were collected for 10 years (2004-2013) from Bloomberg and FAME databases as discussed in Chapters 5.

CHAPTER 7: ANALYSIS OF SECONDARY DATA

7.0 Introduction

This chapter contains the analysis of collecting data in order to address the research questions and hypotheses of this study. The findings in this chapter, flowing from the analysis of data are discussed in detail in the next chapter, Chapter 8. The discussion of the findings is situated within the context of the literature review in Chapters 2 and 3, as well as the methodology discussed in Chapters 4 and 5 of this study.

7.1 Integrating Financial Distress Prediction Model using MDA for UK Retail Banking

After examining the descriptive empirical results, this section presents the empirical modelling and final results of the secondary data. This is done by developing a preliminary model of bank performance prediction of the UK banking sector for the period of January 2004 to December 2013 by utilizing annual data for selected high street retail banks in the UK.

7.1.1 Components of MDA Results

This section examines the procedures and results for secondary data of the study. The main aim is to construct a reliable performance prediction model for retail banks in the United Kingdom. Thus, the first step is to look at the descriptive power of the independent variables (predictors) followed by examining the correlation between those predictor variables. The next step is to test the estimation models in order to uncover the accuracy and reliability of the models by examining the misclassification results.

Secondary Data and Sample

Bank financial statement, balance sheets and income statements will comprise the main source of information for the secondary data analysis as discussed in Chapter Three. The following variables are employed to conduct this study and attain the required results by applying Multiple Discriminant Analysis (MDA) and Trend Ratio Analysis (TRA) using SPSS. Appendix D shows the data collected from the financial statement of six UK retail high street banks, namely; Barclays Bank Plc, Lloyds Bank Plc, RBS Plc, H.S.B.C Plc, Santander Plc and Cooperative Bank Plc.

This study considers the performance of the aforementioned banks covering before crisis data (2004-2006), during a crisis (2007-2009) and after crisis data. These three periods of each side of the recent financial crisis are chosen because Curado, Maria and Bontis (2014) considered the same time span in order to demonstrate the trend of ratios. Furthermore, prior research believes that two or three years could be an appropriate time in predicting financial distress (Altman,

1977; Eidleman, 1995; Lynn and Wertheim, 1993). Nevertheless, other studies suggest that, a span of a gap of five years is required (Cleverly and Harvey, 1990). Further, a ten year period (2004-2013) was preferred because it covers the recent financial crisis of 2007-2008. This provides a suitable time frame to examine the performance of retail UK banks before, during and after the crisis.

The sample of banks selected in this study came from the same industry and area, which assist in controlling other variables. In order to conduct MDA, SPSS will comprise the main software to be utilized in the study as aforementioned in Chapter 5.

This section comprises two sub-sections which examine secondary data analysis techniques and outcomes achieved. The first section discusses the assumptions of the DA or MDA, followed by the results of MDA covering three periods of the crisis. Before providing the assumptions of MDA for this study, it will necessary to present the purpose of conducting MDA.

The assumptions that, the relationships between all pairs of predictors must be linear, multivariate normality must exist within groups, and the population covariance matrices for each variable must be equal across groups were checked and all were met except the assumption of homogeneity of variances (for before and after crisis dataset) was not met. However, had it been a greater percentage of data never met the aforementioned assumptions, and then logistic regression may have been preferred since it usually involves less violation of assumptions. Table 7.1 consists of the descriptive statistics for each bank performance (BP) construct with regards their mean, standard deviation and number of observations (N).

Table 7.1 Descriptive Statistics of Altman Ratios			
Altman Financial Ratios			
Performance Ratios	Mean	Std. Deviation	N
Working Capital/Total Assets	.029803354736	.0364179990971	60
RE/Total Assets	.026168213131	.0187909151243	60
EBIT/TOTAL ASSETS	-.008120583108	.0177950896189	60
Market Value of Equity/ Total Liabilities	.045769043250	.0277746098486	60
Sales/Total Asset	.04044118928	.015947290926	60

From the descriptive statistics in Table 7.1, the mean, standard deviation and the number of observations (N) are described in the data altogether. The mean value column indicates that, “Working Capital/Total Assets” with mean value = 0.029803354736, RE/Total Assets

(0.026168213131), EBIT/Total Assets (-.008120583108), Market Value of Equity/ Total Liabilities (0.045769043250) and Sales/Total Asset (0.04044118928) had different means. Consequently, these variables from the descriptive statistics explain that they are different in size and Market Value of Equity/ Total Liabilities which measure solvency of banks had the highest mean.

7.2 Characteristics of Secondary data and Descriptive Statistics

There are several databases used in empirical studies as explained in Chapter 4. This study uses FAME and Bloomberg databases for financial institutions (UK retail banks) in order to obtain financial and accounting information for secondary data analysis. FAME and Bloomberg databases provide yearly information on accounting ratios. This study covers six main UK high street retail banks listed on the London Stock Exchange (LSE) anytime during the period 2004-2013. In addition, for banks to be included in the sample, they should meet additional requirements: should be listed on the LSE for at least 24 months before portfolio formation.

- Only established banks with headquarters (domiciled) in the UK and having sufficient data in Bloomberg database are considered.

- Only banks with large asset sizes over £1million were included in the analysis.

Consequently, banks with insufficient data (missing values) were excluded and the final sample consisted of six main retail UK high street banks.

The test found statistical evidence that significant differences exist between Market Value of Equity/ Total Liabilities and Sales/Total Asset. Therefore, the Pearson Correlation test was able to reject the null hypothesis for the Altman's ratios, since there was enough evidence to suggest some degree of significance between the predictor variables covering before, during and after the recent financial crisis period.

Table 7.2 Summary Descriptive Statistics for Independent and Dependent Variables

Predictors	Before Crisis		During Crisis		After Crisis		F	Test Statistics	Accept H ₀ /Reject H ₀
Working Capital/Total Assets	.022600778575	.0459998314348	.002819939861	.0314777125415	.020737629073	.0321656724314	.876	.427	Accept
RE/Total Assets	.034069940250	.0142153270978	.025894816333	.0141431164865	.032595773600	.0153438141938		.799	.459
EBIT/Total Assets	.013728394700	.0212418939291	.022034584222	.0175394480372	.001881270773	.0056821695055	8.31	.001	Reject**
Market Value of Equity/ Total Liabilities	.099258805848	.0291232831965	.043911427470	.0333849191401	.042559653523	.0251270577272	11.6	.000	Reject**
Sales/Total Asset	.051476246625	.0075416674490	.040433367889	.0154959124033	.031757178333	.0073233327810	9.68	.001	Reject**
Notes: *Significant at 5% level; **Significant at 1% level									

Table 7.2 provides the descriptive statistics of the independent (financial ratios) dependent variables (before, during and after crisis groups). The mean values of the independent variables (Working Capital/Total Assets, RE/Total Assets, EBIT/Total Assets, Market Value of Equity/Total Liabilities, Sales/Total Asset) appear to differ significantly. Working Capital/Total Assets for before crisis data set has the smallest mean and standard deviation (-.013728394700 and .0212418939291 respectively), which is slightly different from that of during a crisis (-.022034584222 and .0141431164865) and after the crisis (.001881270773 and .0056821695055 respectively). Furthermore, three out of five independent variables (EBIT/Total Assets, Market Value of Equity/Total Liabilities, Sales/Total Asset) indicate significant values at the 0.1 % level of significance (.001, .000, .001 respectively). The null hypothesis that there is no difference between the independent variables for the before, during and the after the crisis groups is rejected, while Working Capital/Total Assets, RE/Total Assets results support the null hypothesis. In this study, the descriptive statistics provide sufficient evidence to say that there exist differences within groups in our sample. The following section investigates the stability of the parameters or coefficients to provide evidence whether there is any structural break or change throughout the sample.

Stability Test of Data

To evaluate the stability of the parameters employed in this study, the recursive coefficients are examined using Eviews 8 version. Visual estimation of recursive coefficients can be helpful in evaluating the stability of the model over time (Chow, 1960). As a result, it is imperative to conduct a formal statistical diagnostic test in order to identify patterns and break points in the parameters and also to test the null hypothesis of the model stability. The recursive coefficient estimates have been employed since a visual evaluation can be achieved clearly and easily where the changes or breaks sets in. Unlike estimating the coefficients diagrammatically, the Chow test has a limitation in that it assumes that the break date is known before examining the data. Consequently, this study employs the

The main purpose of conducting the stability test (recursive coefficients) is to provide evidence that one or more of the coefficient estimates or parameter changed at some point in time in the sample period. As presumed, if the coefficients are stable over time, then the author expects that as time increases, the recursive parameter estimates should stabilize at some level. On the other hand, unstable coefficients are observed if there appear to be a sharp break in the behaviour of the sequence before and after a period. In other words, the assumption is that the parameters of

explanatory variables are constant over time and as such, the stability of the coefficients could be established by calculating the recursive coefficient estimates and investigating the plots. In essence, the plots, the standard errors and the zero lines provide information regarding the stability of the estimates in the model equation and the significance of the coefficients. In an attempt to examine the performance of the UK retail banking before the crisis, during the crisis and afterwards, descriptive statistics in a graphical form are examined, interpreted and cross-checked to search for signals of structural breaks (change) in the data. Figure 7.1 below illustrates the performance of UK retail banks using Balance sheet data from 2004 to 2013 and covering the recent financial crisis period.

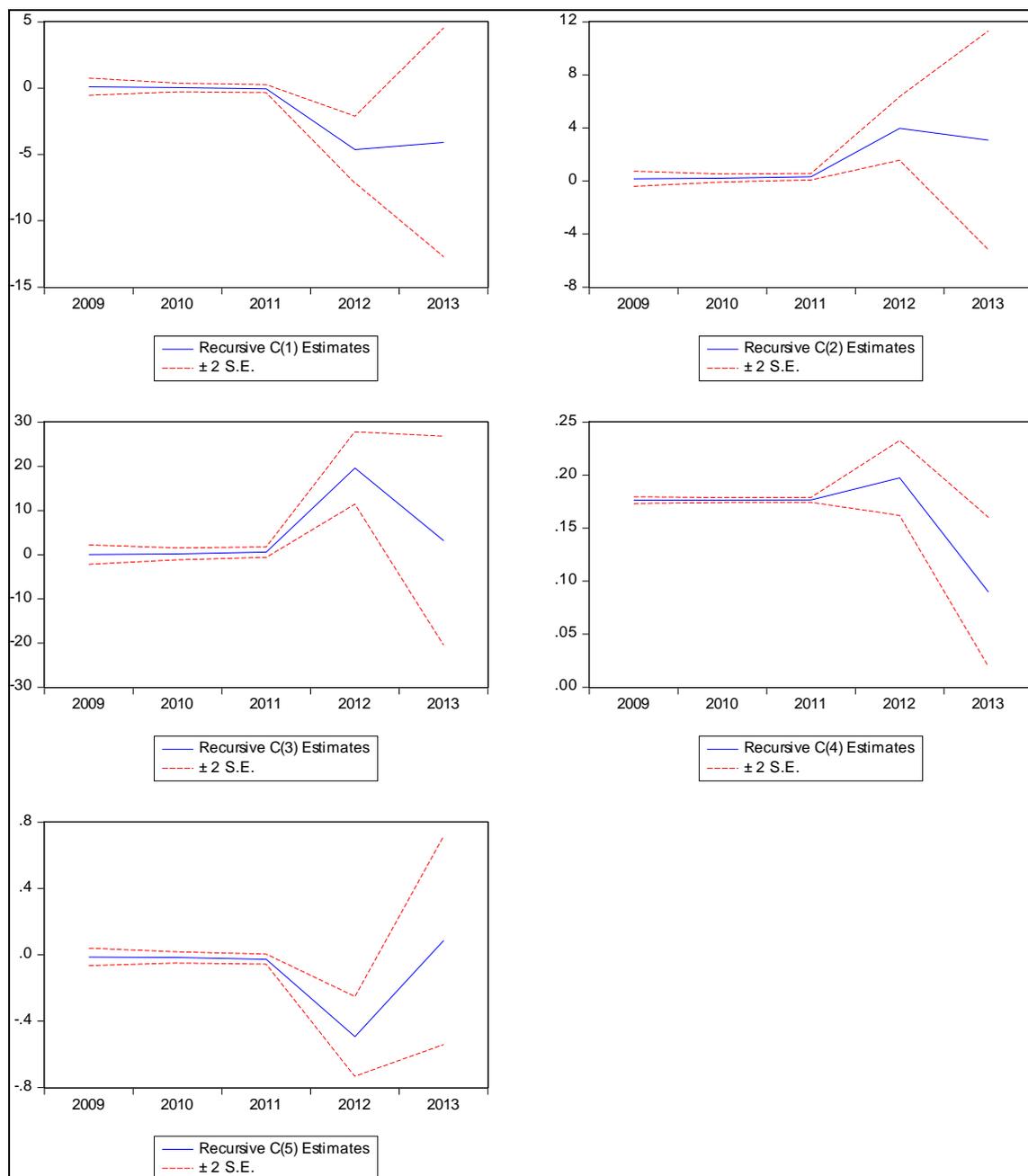


Figure 7.1 Recursive Coefficient Stability Test

As can be seen in the figure 7.1 above, there is evidence of the stability of the coefficients from 2004 to 2006 (before crisis dataset). The negative impact of the financial crisis led to a change in the trough since the period was severely impacted by the crisis. Approximately, prior to the period where the crisis is observed most evident, there is another break date or change in 2009. To conclude, there is enough statistical evidence to suggest that the estimated coefficients comprising of financial ratios (profitability, liquidity, leverage, activity and efficiency) show structural changes or breaks before 2009 and after 2012 respectively. The estimated coefficient table is presented in Appendix C of this study. However, because the coefficients have not been stable throughout the sample period and due to the fact that there exist some degree of instability in the coefficients or data used for some years (especially in 2009 and 2012), this study recommends that future studies should employ other statistical stability diagnostic tests like the CUSUM, Chow test and Ramsey test to capture the structural breaks in when using time series, cross-section or panel data. The next section 7.2.1.1 reports the analysis of variance test in order to compare the means of the three crisis periods (before, during and afterwards).

7.2.1.1 Analysis of Variance (ANOVA).

ANOVA is a statistical technique used to compare means of two or more samples of employing the F-distribution (Field, 2009). This technique tests the null hypothesis that samples are drawn from the same population. The following formula is used to explain this: $F = \frac{\text{Explained Variance}}{\text{Unexplained Variance}}$ or $F = \frac{\text{Between-group variability}}{\text{Within-group variability}}$.

Here, the main objective is to establish the variables which are most appropriate to construct an efficient bank performance prediction model for financial distress. To accomplish this, the data were analysed with the use of SPSS 20. This was done through discriminant analysis command, where the predictors were tested by comparing the equality of means utilizing Wilks lambda and associated F-test. The smaller the Wilks lambda, the greater the difference between the average values of each predictor for before, during and after the crisis groups. In the Table of 'Tests of Equality of Group Means' which compares the mean values of univariate ANOVA's for each group or variable to see if there are significant univariate differences between means. Here, EBIT/Total Assets (p-value. 001), Market Value of Equity/ Total Liabilities (p-value 0.00).

The first assumption of normal distribution of data was satisfied as a requirement for conducting MDA. In order to test the second requirement which is the independence of variables, the feature values of one entity should not affect any other entities in the study sample (Grimm and Yarnold, 1998). In order to perform this test, this study examines the correlation and independence between different ratios in the sample, Table 7.3 illustrates the Correlation Matrix between the predictor variables for before, during and after the crisis dataset. In common, the

matrix exhibits low correlations between the independent variables. The highest correlation was observed between EBIT/Total Assets and Working Capital/Total Assets. However, other variables indicate a low correlation, which suggest that the data met the assumption of independence or no significant correlation. Further, there is a great interaction between the variables. With regards to this outcome, the assumption of independence of variables is accepted to a greater extent that satisfies running MDA.

Table 7.3 Pooled Within-Groups, Matrice						
Pooled Within-Groups						
Variables		Working Capital/Total Assets	RE/Total Assets	EBIT/TOTAL ASSETS	Market Value of Equity/ Total Liabilities	Sales/Total Asset
Correlation	Working Capital/Total Assets	1.000				
	RE/Total Assets	.003	1.000			
	EBIT/TOTAL ASSETS	.578	-.018	1.000		
	Market Value of Equity/ Total Liabilities	.060	.341	-.042	1.000	
	Sales/Total Asset	.012	.503	-.033	.413	1.000

7.2.1.2 Analysis of the Independent Variables

In this study, the test of the relevance of the independent variables is done in two diverse ways. First, the mean between the distressed and non-distressed bank's financial ratios are studied for a ten year period (2004-2013) covering before, during and after the crisis. The validity of the predictor variables is examined using Kruskal-Wallis (non-parametric test) at 0.05% or 95% level of significance. These independent variables were selected based on previous performance and bankruptcy prediction studies (Altman 1968, 2000, 2002; Taffler 1983; Li, 2012) and significance in predicting group membership. The Kruskal-Wallis test was conducted on all the predictor variables in order to gain a strong explanatory power for the financial distress model. The main reason for using a non-parametric test as an alternative for ANOVA is because the data doesn't meet the assumptions of parametric tests as discussed in the previous section. Therefore, Fields (2013) recommends a non-parametric test be conducted if data is not normally distributed. The results of this test will be discussed in detail in the subsequent section.

7.2.1.3 Kruskal-Wallis Test Results

Before running this test, the study ensured that several assumptions are met. Unlike the assumptions of parametric test (normal distribution and homogeneity of variance), non-parametric test considers fewer assumptions, such as, independent random samples from two or more observations whereby, the observation of one group should not have any bearing on the observation of another group or sample. In this case, I have ensured that samples are independent of each other by separating Altman's original ratios into three groups or samples. To summarize, though there exist other non-parametric tests, for instance, Mann-Whitney test is not considered here because it deals with only two periods. Therefore, Kruskal-Wallis test is suitable and reliable to bring out if any significant differences exist between groups.

In order to decide whether there is enough evidence of differences between predictor variables of before, during and after the crisis, the study calculated the sample rank means and medians in order to examine which one is lower. This test was performed with the following hypothesis for before, during and after periods, as well as the independent variables:

H_0 Rank Means and Medians of all independent variables are equal for all groups

H_a Not all Rank Means and Medians are equal for all groups

From the Kruskal-Wallis output and results displayed below (Table 7.4), the test statistics reveal that, there seem to be differences among independent variables for before, during and after crisis groups. Working Capital/Total Assets mean rank for before crisis is (28.39), during crisis (25.67), after crisis (35.71); RE/Total Assets for before crisis is (33.00), during crisis (27.44) and after crisis (30.92); EBIT/Total Assets mean rank for before crisis is (22.97), during crisis (23.75) and after crisis (41.21) respectively; MVE/Total Liabilities mean rank for before crisis (43.83), during crisis (24.22) and after crisis (25.21); finally, Sales/TA before crisis is (41.22), during crisis (28.28) and after crisis (24.13).

In addition, the statistical test shows that only EBIT/Total Assets, MVE/Total Liabilities and Sales/Total Assets with p-values (.001, .001 and .006 respectively) appear to be significantly different from other variables within the groups. Consequently, the results are significant at the 1 % level and which suggest that, there exist satisfactory evidence to reject the null hypothesis (H_0) that the rank means and medians of all independent variables are equal for all groups in favour of the alternative hypothesis (H_a) of at least three significant differences of the independent variables within groups.

Table 7.4 Results of Kruskal-Wallis Test for Independent Variables within Three Groups					
Ranks					
Variables	Before/During/ After	N	Mean Rank		
Working Capital/Total Assets	Before crisis	18	28.39		
	During crisis	18	25.67		
	After crisis	24	35.71		
	Total	60			
RE/Total Assets	Before crisis	18	33.00		
	During crisis	18	27.44		
	After crisis	24	30.92		
	Total	60			
EBIT/TOTAL ASSETS	Before crisis	18	22.97		
	During crisis	18	23.75		
	After crisis	24	41.21		
	Total	60			
Market Value of Equity/ Total Liabilities	Before crisis	18	43.83		
	During crisis	18	24.22		
	After crisis	24	25.21		
	Total	60			
Sales/Total Asset	Before crisis	18	41.22		
	During crisis	18	28.28		
	After crisis	24	24.13		
	Total	60			
Test Statistics for Altman Ratios					
	Working Capital/Total Assets	RE/Total Assets	EBIT/TOTAL ASSETS	Market Value of Equity/ Total Liabilities	Sales/Total Asset
Chi-Square	3.776	.934	15.057	15.021	10.274
Df	2	2	2	2	2
Asymp. Sig.	.151	.627	.001**	.001**	.006**
a. Kruskal Wallis Test					

In order to rank the predictor variables by their respective Z statistics, which gives an overview of how financially distressed they are relative to each other, the Z statistics were examined. The

more negative the Z statistic is, the most financially distressed that variable is expected to be, and vice versa. The classification of the variables is shown below.

Table 7.5 Test of Z Values for between group variables					
Test Statistics ^a					
Statistics	Working Capital/Total Assets	RE/Total Assets	EBIT/TOTAL ASSETS	Market Value of Equity/ Total Liabilities	Sales/Total Asset
Mann-Whitney U	157.000	195.000	91.000	83.000	88.000
Wilcoxon W	328.000	495.000	262.000	383.000	388.000
Z	-1.500	-.534	-3.177	-3.380	-3.253
Asymp. Sig. (2-tailed)	.134	.594	.001	.001	.001
a. Grouping Variable: Before/During/ After					

Table 7.5 indicates the Z-Values for Altman’s original variables. RE/Total Assets have the smallest absolute Z-Value (-. 534). This size indicates that the mean rank for RE/Total Assets differed least from the mean ranks for all observations (N). This suggests that this predictor variable was somewhere in the “grey zone” or “safe zone” and thus, was not significantly different within the groups (before, during and after the crisis).

On the other hand, Market Value of Equity/ Total Liabilities had a highest negative Z-Value (-3.380), Sales/Total Asset (-3.253) and EBIT/Total Assets (-3.177) respectively, which indicates that Market Value of Equity/ Total Liabilities was one of the most financially distressed predictor variable and provide sufficient evidence that differences exist with the groups. For this reason, Market Value of Equity/ Total Liabilities, Sales/Total Asset, and EBIT/Total Assets with high negative Z statistics are given a state of financially distressed variables

Table 7.6 Predictor Variables Placed in Distress, Grey and Safe Zone based on Z Statistics		
Cut-off	Predictor variables	Z Stat.
Distress Zone	EBIT/Total Assets	-3.177
	Market Value of Equity/ Total Liabilities	-3.380
	Sales/Total Asset	-3.253
Grey Zone	Working Capital/Total Assets	-1.500
Safe Zone	RE/Total Assets	.594

Source: Author's estimation of Z statistics

7.3 Results of Multiple Discriminant Analysis

After utilising SPSS software to analysis the results of the data, the results of the results of the group prediction, classification, the statistical significance of results and their accuracies will be addressed in discussing the results of MDA. Summary of MDA results for before, during and after crisis period SPSS output are available in Appendix B.

Discriminant analysis is a useful statistical technique to predict group membership based on observed characteristics of each case. Ideally, MDA is intended to identify the most critical financial variables, for determining the most desirable credit risk. In addition, MDA ranks the critical discriminant variables according to their relative discriminating power and enables the measurement of borrowers' performance for each and all the combined ratios (Rushinek and Avi, 1987, p. 95),

There are several other purposes for DA and/or MDA:

- To classify cases into groups using a discriminant prediction equation.
- To test a theory by observing whether cases are classified as predicted.
- To investigate differences between or among groups.
- To determine the most parsimonious way to distinguish among groups.

- To determine the percent of variance in the dependent variable explained by the independents.
- To determine the percent of variance in the dependent variable explained by the independents over and above the variance accounted for by control variables, using sequential discriminant analysis.
- To assess the relative importance of the independent variables in classifying the dependent variable.
- To discard variables which are less related to group distinctions
- To infer the meaning of MDA dimensions which distinguish groups based on discriminant loadings.

7.3.1 Testing Assumptions of MDA

In order to run MDA, it is required that the data satisfies the critical assumptions of multivariate analysis normality, including normality and independence of variables. With regards to normality, Klecka (1980) suggest each group to be drawn from a population that has a normal distribution, thus authorizing the precise computation of the test of significance and likelihood of group membership. Hence, this is a major assumption for running MDA since this technique is so robust in checking if a sample is normally distributed. However, Stevens, (2003) argues that normality for each separate variable is essential, although not sufficient for a multivariate condition to take place. Therefore, every variable must be normally distributed. In order to test the normality, this study utilizes the histogram, normal probability plots and Box plots exhibited by SPSS that indicates the distribution of standardized data. Figure F and G in Appendix 4.2 demonstrate that the standardized dataset are normally distributed with mean values closer 0.00 and standard deviation closer to 1.0.

In this result, financial distress is used as a categorical variable in three periods coded as 1= 'Before crisis', 2= 'During crisis' and 3= 'After crisis.' This study attempts to discriminate between the three periods on each side of the financial crisis on the basis of several independent or predictor variables.

Therefore, in MDA, the Y variable (qualitative) and the X variables (quantitative) are considered in such a way to maximise the differences between groups. Since this study has three dependent groups (before, during and after the crisis), MDA is considered a robust technique. Similarly, this study considers Altman's financial ratios (Working Capital/Total Assets, RE/Total Assets, EBIT/Total Assets, Market Value of Equity/ Total Liabilities, Sales/Total Asset) that will hopefully discriminate between the groups of the categorical variables.

Table 7.7 Summary of numbers, classification errors, and percentages of distress and non-distress cases that MDA was able to predict correctly						
Time of Prediction	Overall Cases Correctly Predicted		Bank Performance Correctly Predicted Groups			
	Number	Percentages	Non-Distress		Distress	
			Error Classification	Percentages	Error Classification	Percentages
Before & During crisis	36/60	66.7%	38.9%	61.1%	27.8%	72.2%
During and After crisis	36/60	76.2%	33.3%	66.7%	16.7%	83.3%
Before and After crisis	42/60	81.0 %	16.7%	83.3%	20.8%	79.2%

Table 7.7 shows the Standardized Canonical Discriminant Coefficient results for before, during and after the crisis. This is useful to identify ratios that serve as good predictors of the dependent variable utilizing the yardstick of 0.30. Regarding the Standardized Canonical Discriminant Coefficient results, the table below shows that, only the coefficients of Market Value of Equity/ Total Liabilities and Sales/Total Asset reveal obsolete values greater than 0.30 for before and during crisis data set, all coefficients for during and after the crisis and before and after crisis data sets, indicating that they are good predictors of non-distress and distress of UK retail banks.

Furthermore, in order to check the relative importance of the coefficients and their rank order, the Structural Matrix results can be employed. This is done in MDA by measuring the simple linear correlation between the predictors and independent variables. This indicates how variables are close to the discriminant function. The higher the values of the coefficients, the higher the relative importance of the variable as compared to other variables in the discriminant function (Keckla, 1980, p. 31). Consequently, the contribution of each coefficient is measured by its degree in spite of the sign of the coefficient.

Table 7.8 Standardized Canonical Discriminant Function Coefficients			
Predictors	Before and During crisis	During and After crisis	Before and During crisis
Working Capital/Total Assets	.275	.765	.333
RE/Total Assets	-.282	.418	.483
EBIT/Total Assets	-.044	.510	.389
Market Value of Equity/ Total Liabilities	.647	.330	-.313
Sales/Total Asset	.654	-.558	-.801

Structure Matrix	
Rank Order for Before and During crisis variables	Function
	1
Market Value of Equity/ Total Liabilities	.797
Sales/Total Asset	.757
RE/Total Assets	.377
Working Capital/Total Assets	.316
EBIT/Total Assets	-.202

Structure Matrix	
Rank Order for Before and After crisis variables	Function
	1
Sales/Total Asset	-.754
Market Value of Equity/ Total Liabilities	-.526
EBIT/Total Assets	.471
Working Capital/Total Assets	.325
RE/Total Assets	-.125

Structure Matrix	
Rank Order for During and After crisis variables	Function
	1
Working Capital/Total Assets	.636
EBIT/Total Assets	.545
Sales/Total Asset	-.260
RE/Total Assets	.132
Market Value of Equity/ Total Liabilities	.108

Figure 7.2 Summary of ranking order of Coefficients using the Structure Matrix Discriminant Function for Before, During and After crisis Using Altman's Financial Ratios

The results showed that, Market Value of Equity/ Total Liabilities (Solvency ratio) is ranked highest for the before and during crisis data set, closely followed by Sales/Total Assets (Turnover). EBIT/Total Assets (Productivity ratio) have the lowest, according to ranking order, Whereas Sales/Total Asset (Turnover ratio) ranked highest, closely followed by Market Value of Equity/ Total Liabilities (Solvency) for before and after crisis data set. The least ranked ratio in order is RE/Total Assets (Profitability ratio). On the other hand, Working Capital/Total Assets (Liquidity ratio) ranked highest, closely followed by EBIT/Total Assets (Productivity ratio) for during and after data set. The least variable in ranking order is Market Value of Equity/ Total Liabilities (Solvency ratio).

In summary, since Market Value of Equity/ Total Liabilities (Solvency ratio) has the biggest impact on the dependent variable, the first function could be named as solvency function which denotes that, solvency ratio is a leading factor for predicting UK retail banking performance before and during the crisis and may lead to their financial distress or non-distress. While turnover ratio takes the lead to predict bank performance into distress or non-distress for before and after crisis data sets. However, solvency ratio continues to be dominant for before and during, and during and after data sets. These rankings have significant implications that will be discussed in details in the discussion/conclusion chapters of this thesis.

Significance of the Discriminant Function

In order to establish the relationship between the independent variables of liquidity, profitability, productivity, solvency and turnover and dependent variables, on one hand, and the dependent variables of group membership (distress or non-distress) on the other hand, certain measures should be applied to the data sets. Wilks' Lambda utilized to test the significance of the discriminant function or the statistical significance of the discriminating model. Wilks' Lambda shows the proportion of the total variance in the discriminant scores not explained by differences among groups. A small lambda indicates that the group means appear to differ and the associated significance value tells us whether the difference is significant. Therefore, the purpose of employing Wilks' Lambda is to test whether there is a significant group difference (before, during and after the crisis) depending on the predictor's variables liquidity (X1), profitability (X2), productivity (X3), Solvency (X4) and Turnover (X5). Table 13 shows the results of Wilks' Lambda for before and during crisis, before and after and during and after data sets. Wilks' Lambda and its P value indicate that there is a significant difference in the

predictor variables used in that function. In this case, Wilks' Lambda is significant for all periods except for before and during crisis data set is 0.834 with a P value = 0.336 which is greater than 0.05% level of significance. Wilks' Lambda results for during and after crisis is 0.678 with P value = 0.012, and finally, during and after the crisis Wilks' Lambda is 0.764 with P value = 0.073. Bank ratios were in disturbance due to the recent financial (before and during the crisis data set) and performing certain activities that made it difficult for the model to predict their actual membership at that particular time. In summary, the smaller the Wilks Lambda value is, the higher the relation between the predictor variables and a dependent variable.

Table 7.9 Wilks' Lambda Results for Before, During and After Crisis

Before and During crisis				
Wilks' Lambda				
Test of Function(s)	Wilks' Lambda	Chi-square	Df	Sig.
1	.834	5.703	5	.336

During and After crisis				
Wilks' Lambda				
Test of Function(s)	Wilks' Lambda	Chi-square	Df	Sig.
1	.764	10.089	5	.073

Before and After crisis				
Wilks' Lambda				
Test of Function(s)	Wilks' Lambda	Chi-square	Df	Sig.
1	.678	14.590	5	.012

Eigenvalues and Canonical Correlation

An eigenvalue indicates the proportion of variance explained (between-groups sums of squares divided from within-groups sums of squares). A larger eigenvalue is associated with a strong function. Table 7.9 below indicates the summary of the eigenvalues for before, during and after the crisis data sets. The eigenvalue for before and during the crisis was 0.198, during and after the crisis is 0.476 and before and during crisis 0.309. In addition, these eigenvalues are supported by the canonical correlation which indicates a correlation between the discriminant scores and the levels of the dependent variable. A high correlation indicates that a function discriminates well. From 0.407 for before and during crisis, to 0.486 for before and after crisis, to 0.568 for during and after crisis, thus, this indicates an increasing strength of the relationship between the independent variables and dependent variable following the crisis periods.

Furthermore, in order to how many cases were classified in before crisis, during and after the crisis, another result indicated differences in cases correctly classified in the overall model. The following table shows the percentage of correct classifications for the three crisis periods. The classification results reveal that 65% of cases were classified correctly into “before”, “during” and “after crisis” groups. “During” and “after crisis” groups were classified with slightly better accuracy (67.7%) than “before crisis” group (61.1%). Even though “during” and “after crisis” groups have equal percentages of classification (66.7%), “during crisis” group correctly classifies cases with a lower classification error (16.7%) than before and after crisis groups (27.8% and 20.8% respectively). Therefore, the result suggests that the MDA model has the ability to predict crisis events slightly higher with higher accuracy than before and after crisis data groups. Table 7.9 below reports the classification SPSS output results for the three crisis periods.

Table 7.9 Overall Classification Results for Before, During and After Crisis						
Classification Results ^a						
		Before, During and After crisis.	Predicted Group Membership			Total
			Before crisis	During crisis	After crisis	
Original	Count	Before crisis	11	5	2	18
		During crisis	3	12	3	18
		After crisis	3	5	16	24
	%	Before crisis	61.1	27.8	11.1	100.0
		During crisis	16.7	66.7	16.7	100.0
		After crisis	12.5	20.8	66.7	100.0

a. 65.0% of original grouped cases correctly classified.

In this thesis, a reliable model which differentiates the three periods of the recent financial crisis (covering before, during and after the crisis) in the UK retail banking sector over the period 2004-2013 has been examined by using MDA technique. Altman's Z-score variables measuring liquidity, profitability, productivity, solvency and turnover ratios) have been utilized to differentiate between the aforementioned periods of the financial crisis. The aim is to identify which ratios were significant to predict financial distress over the crisis periods. The variables employed in this study provide useful information in relation to the financial status of the UK banks during crisis periods. Therefore, such findings are important for regulatory authorities, financial analysts, investors and other company officials.

7.4 Evaluating the Performance of Banks within the Financial Crisis

The most vital measurement of a company's performance is financial performance. When companies increase performance, their financial performance will increase respectively (Fauzi and Idris, 2010; Butt et al., 2010). In their study of Malaysian construction companies before, during and after the crisis period, Alfian and Zakaria (2013, p. 147) mention that financial performance measures are intended to help operations analyse their activities from a financial standpoint and provide useful information required to implement good management decisions. Therefore, constant

evaluation of financial performance is one of the most fundamental domestic activities in every company as well in the banking sector (Jasevičienė et al., 2013, p. 190).

Several studies conducted research on comparative performance in the banking sector before and after the recent financial crisis by employing key performance indicators such as profitability, liquidity, cash flows, credit risk, and solvency ratios (Beaver, 1966; Altman, 1968; Taffler, 1987; Mercan et al., 2003; Jeon and Miller, 2004 and 2005; Anouze, 2010; Xiao, 2011). The aforementioned studies entail a specific potential of selecting ratios as predictors of distress or failure. Generally, financial ratios measuring profitability, liquidity, leverage and solvency seemed to prevail as a most important indicator. However, Altman (2000, p. 7) affirm that the order of their importance is not clear since almost every study cited a different ratio as being the most significant indicator of existing problems.

How did UK retail banks perform before, during and after the recent financial crisis?

This study examines significant financial ratios from the literature to examine the performance of UK retail banks from 2004-2013, covering the recent financial crisis. This study also suggests that profitability, liquidity, efficiency, activity and total loans to deposit ratios are among the significant variables that can determine the likelihood of distress in the case of UK retail banks. A mixture of ratio measurement can reveal financial performance in several aspects. In general, there are five ratio measurement categories to determine several aspects of financial performance. These ratios include profitability ratio, liquidity ratio, activity ratio, debt ratio, and market ratio. The following financial ratios were discussed in detail in Chapter 2 of this thesis.

Data and definition of variables

7.4.1 Profitability Performance

The first financial ratio that has relative importance of the financial performance of banks is profitability. According to the literature, the key proxy to evaluate the robustness for profitability is ROE (Mirzaei 2013, p. 32). Profitability measures the firm's ability to generate earnings. Therefore, the more profits a firm can generate, the greater the availability of liquidity or funds to run the company both in the short and long run periods. However, many companies face financial distress when they have negative earnings. Consequently, profit is often used as a predictor of financial distress events (Khunthong, 1997).

In general, bank profitability is usually measured by ROA, ROE, NIM, and Tobin's Q and expressed as a percentage of internal (bank-specific) and external (macroeconomic)

factors (Hossem 2013, p. 330). Return on Equity (ROE) which is widely used in accounting and finance literature is employed in this study. In this study, ROE is defined as Net Income/ Shareholders Equity. The higher the ROE, the more efficient is the performance of banks. Gestel et al. (2006) utilize the Least Square Vector Machine to determine creditworthiness of companies and found that ROE is one of the three most significant inputs to predict the health of the firm. Consistently, Khuthong (1997) confirms that ROE is one of the most significant variables to predict failure two and three years before actual failure in Thailand companies. Furthermore, stockholders have a special interest in this ratio because ultimately, it leads to cash flows (Mills and Robertson, 2003, p. 122). The total result and output of profitability ratio is shown in the following table and graph.

Bank Name	Before Crisis (2004-2006)			During Crisis (2007-2009)			After Crisis (2010-2013)			
	BARC Equity	20.12	20.71	24.56	20.50	14.63	22.39	7.16	5.56	-1.19
HSBA Equity	16.15	16.93	15.64	16.27	5.11	5.13	9.53	10.78	8.19	8.89
LLOY Equity	23.14	23.47	26.26	28.24	7.17	10.73	-0.72	-6.06	-3.35	-2.07
RBS Equity	17.01	15.24	15.89	15.66	43.44	-5.28	-1.47	-2.66	-8.50	14.36
Santander Equity	N/A	11.01	7.56	0.47	1.88	8.52	1.87	2.24	-25.10	N/A
Coop Equity	1.56	10.46	2.18	21.21	17.38	19.05	16.44	7.24	7.33	7.17

Source: UK Retail Banks Annual Reports 2004-2013 (Income and Expenditure statements, Balance sheet and Cash flow statements).

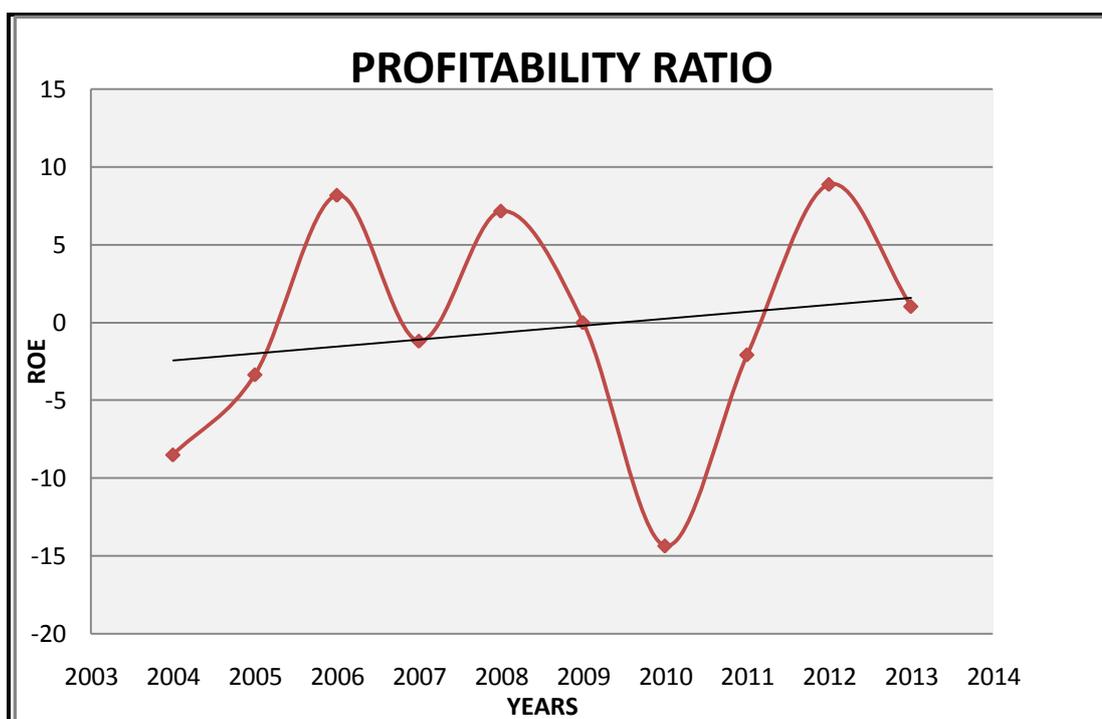


Figure 7.3 Profitability Graph (2004-2013)

It is evident from Table 7.10 and trend graph for all UK retail banks employed in our sample that their profitability ratios measured by ROE showed an increase before the crisis (2005 and 2006), but signalled a significant decrease during the crisis (2007). More interestingly, immediately after the crisis, the trend shows a decline in profitability for all banks in 2010, probably due to the ongoing effect of the crisis, and later in the graph indicates a sharp increase of profitability performance from 2011 onwards. Nevertheless, from the table I above, some banks like Santander plc and Co-operative bank plc respectively, profitability, performance ratios began to fall as early as 2004. In addition, Lloyds plc is able to achieve the highest profits (23.14%). This result is consistent with previous studies which examine the performance of banks. For instance, Cornet, McNutt and Tehranian (2010) analysed the internal corporate governance mechanism and the performance of U S banks before and during the financial crisis. Their finding suggests that larger banks faced the biggest losses during the crisis. Furthermore, Dietrich and Wanzenreid (2011) examined how macroeconomic variables, bank-specific characteristics and industry-specific characteristics affect the profitability of Swiss commercial banks covering a period from 1999 to 2009. Their findings provide some empirical evidence that the recent financial crisis had a significant impact on the profitability of banks. Similarly, Peni, Emilia, Vahamaa, and Sami (2011, p. 19-35) conducted a study on the effects of corporate governance on bank performance during the financial crisis of 2008, using US publicly traded banks. Their mixed findings suggest

that banks with stronger corporate governance were associated with high profitability in 2008, and had negative effects on stock market valuation amidst the crisis. However, Xiao (2011) finds that, French banks were less profitable than their European peers before the crisis, but were crushed less hard by the crisis. However, both groups showed no signs of deleveraging from their pre-crisis levels.

7.4.2 Liquidity Performance

Profitability ratio cannot evaluate financial performance single-handedly. Liquidity ratio measures the ability of a company to meet its short-term obligations when due. This ratio is significant because failure to meet up with such obligations can lead to bankruptcy or failure. In this study, Net Cash flow/Total Liabilities is used as an important liquidity measure. The higher the liquidity ratio, the more able a company is to pay its short-term obligations. Therefore, the need to achieve a satisfactory liquidity position is vital for survival (Mills and Robertson, 2003, p. 12).

The total result and output of liquidity ratio is shown in the following table and graph.

Table 7.11 Liquidity Performance Trend (%)

Bank Name	Before Crisis (2004-2006)			During Crisis (2007-2009)			After Crisis (2010-2013)			
BARC Equity	-0.04	0.00	-0.01	-0.02	0.01	0.05	-0.01	0.02	-0.01	NA
HSBA Equity	0.02	0.05	0.00	0.00	0.04	0.00	0.04	0.03	0.00	0.02
LLOY Equity	0.03	0.02	-0.03	0.04	0.01	-0.03	0.00	NA	-0.07	-0.05
RBS Equity	0.00	0.01	0.00	-0.01	0.00	0.01	0.02	0.01	-0.06	0.00
Santander Equity	0.02	0.00	0.02	0.02	-0.01	-0.02	0.01	0.00	-0.01	NA
Coop bank Equity	-0.02	-0.01	-0.10	-0.07	-0.08	0.00	0.02	-0.02	0.01	0.04

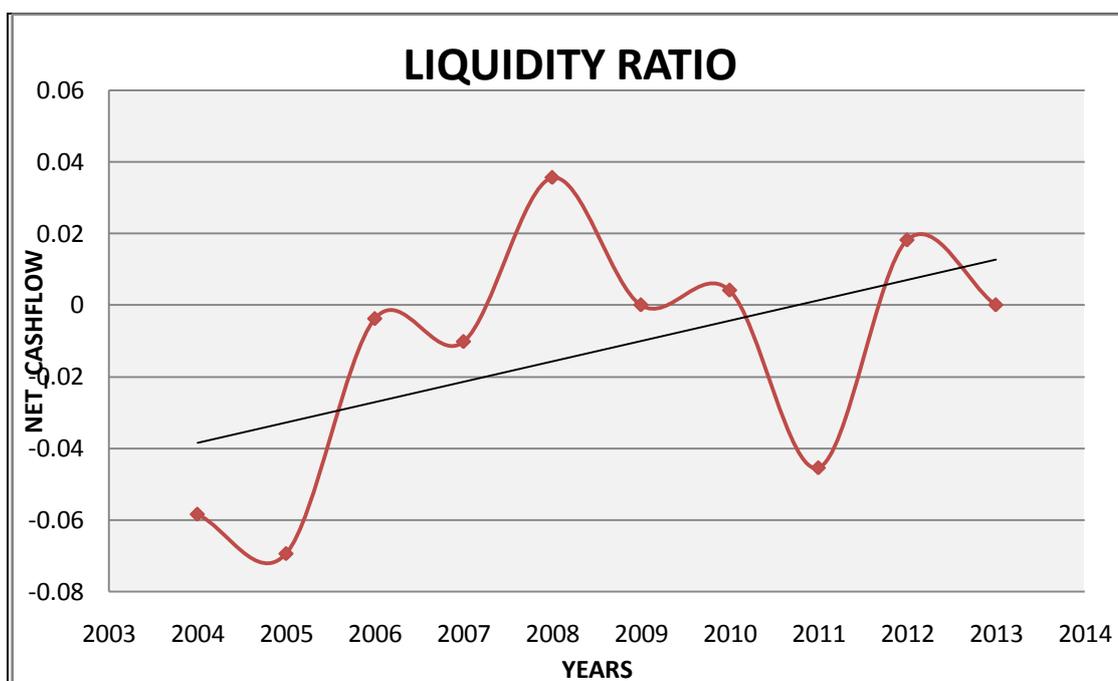


Figure 7.4 Liquidity Graph (2004-2013)

The major source of funding for banks comes from customer's deposit accounts which is the least expensive source of funds as compared to sources such as borrowing or liquidating investment securities portfolios. In general, liquidity refers to the ease of converting an asset into cash. This is done in order that banks meet their financial obligations in time. Therefore, it is poor liquidity that easily leads to most bank distress or failures. However, high liquidity ratio may suggest to depositors that the bank is liquid, thus increasing their confidence towards the bank. From the above liquidity graph in figure 7.4, the findings show a significant increase before and after the crisis. The ratios for these two temporary periods are considered satisfactory. An increase suggests that most banks were solvent between 2005-2006 and 2012-2013 to meet up with financial obligations. However, this ratio showed some signs of worsening during the crisis (2007 and 2009 especially). The effect of the recent financial crisis cannot be overemphasised since it led to the closure of large banks such as Northern Rock (UK) and Lehman Brothers (US).

In addition, a low liquidity ratio observed during the crisis period may be explained by the fact that there were underperformed assets and an increase in default rates. Therefore, the banking industry's capacity to pay short term liabilities decrease as a result of the financial crisis, the risk of distress or failure will increase. Nevertheless, the liquidity ratio trend reveals that most banks held enough cash from 2008 to 2009 which suggests

that they restricted lending activities to other banks and bank customers during the crisis periods.

7.4.3 Efficiency Performance

Financial analysis uses debt ratio to assess the relative size of debt load of a company and the company's ability to pay off its debts. In other words, this ratio measures the extent of debt in relation to total assets. This study employs Debt-to-Equity ratio=Total Debt/Shareholder Equity as a measure for efficiency ratio (financial leverage). This ratio is also known as solvency or gearing ratio. They show the percentage of total funds obtained from creditors. This ratio includes debt to total assets which measures the percentage of the firm's assets which is financed with debt; average total liabilities/average total assets, debt to equity ratio, which equal total liabilities/stockholders' equity and equity to total assets which is equal to shareholders' equity/total assets (Delta Publishing, 2006, p. 76).

Bank Name	Before Crisis (2004-2006)			During Crisis (2007-2009)			After Crisis (2010-2013)			
	BARC Equity	0.08	0.04	0.04	0.04	0.04	0.06	0.06	0.05	0.06
HSBA Equity	0.11	0.07	0.08	0.05	0.04	0.04	0.04	0.04	0.06	0.05
LLOY Equity	0.05	0.06	0.09	0.08	0.08	0.16	0.17	0.19	0.16	0.13
RBS Equity	0.10	0.10	0.11	0.08	0.10	0.10	0.11	0.08	0.08	0.08
Santander Equity	0.03	0.04	0.06	0.00	0.04	0.08	0.12	0.11	0.12	NA
Coop.bank Equity	0.17	0.13	0.18	0.20	0.23	0.19	0.20	0.22	0.24	0.22

Source: UK Retail Banks Annual Reports 2004-2013 (Income and Expenditure statements, Balance sheet and Cash flow statements)

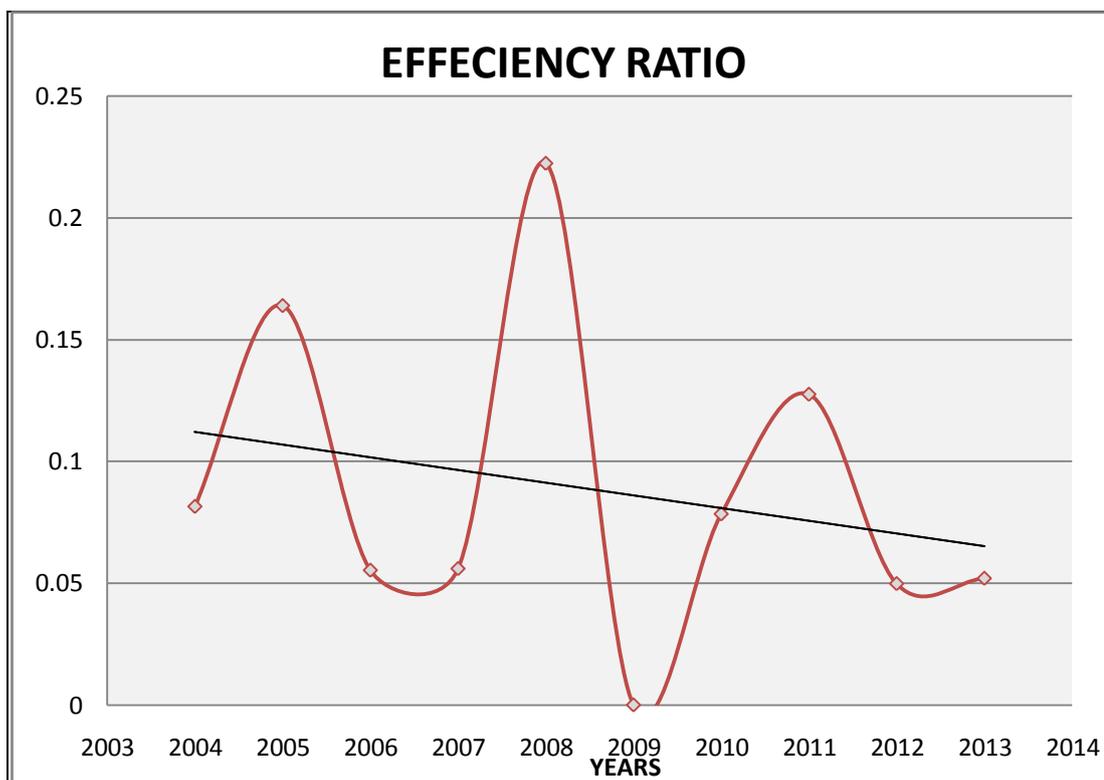


Figure 7.5 Efficiency Ratio Graph (2004-2013)

The leverage ratio is measured as the debt-to-equity ratio for this study. This ratio is significant since it assesses the risk associated with lending to other companies. The higher the ratio, the greater the risk involved. From the leverage ratio graph above, it is evident that during the crisis (2009), there was a significant increase in leverage ratio for all banks, probably because most banks lend to others leading to greater risk. However, it is observed leverage performance, decreased after the financial crisis (2010-2011), probably due to the fact that most banks suffered from the recent crisis. Nevertheless, since lending is the most profitable function of retail banks, from 2010 to 2011, it seems that most banks increased their leverage ratios. This result is empirically supported by Graham et al. (2011) who carried out a number of investigations into the Great Depression era using macroeconomic factors, age, leverage, liquidity, size, profitability, investments and volatility. They prove that high leverage significantly increases the risk of entering financial distress during a depression era.

7.4.4 Activity Performance

This measures how quickly various accounts are converted into money or sales. In addition, they measure how efficient a firm uses its assets (Gallagher and Andrew, 2006, p. 96). This study uses Sales divided by Total Assets as an activity ratio measure. This ratio measures the efficiency of a company. In other words, this ratio directly or indirectly measures the reliance of

a company on a debt. The empirical results show that a company with high debt and inadequate equity base are more prone to failure/sickness (Yadav, 1986 p. 74).

Table 7.13 Activity ratio trend (2004-2013)										
Bank Name	Before Crisis (2004-2006)			During Crisis (2007-2009)			After Crisis (2010-2013)			
	BARC Equity	0.04	0.03	0.04	0.03	0.02	0.03	0.03	0.03	0.03
HSBA Equity	0.06	0.06	0.06	0.06	0.05	0.04	0.04	0.04	0.03	0.03
LLOY Equity	0.06	0.06	0.06	0.06	0.05	0.04	0.04	0.04	0.04	0.04
RBS Equity	0.05	0.04	0.05	0.02	0.02	0.02	0.03	0.02	0.02	0.03
Santander Equity	0.08	0.08	0.07	0.08	0.07	0.03	0.08	0.07	0.06	NA
Coop bank Equity	0.04	0.03	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03

Source: UK Retail Banks Annual Reports 2004-2013 (Income and Expenditure statements, Balance sheet and Cash flow statements).

Table 7.13 above shows the activity or efficiency ratio of all banks in involved in this analysis over a ten year period (2004-2013). Net Income divided by Total Assets is considered here.

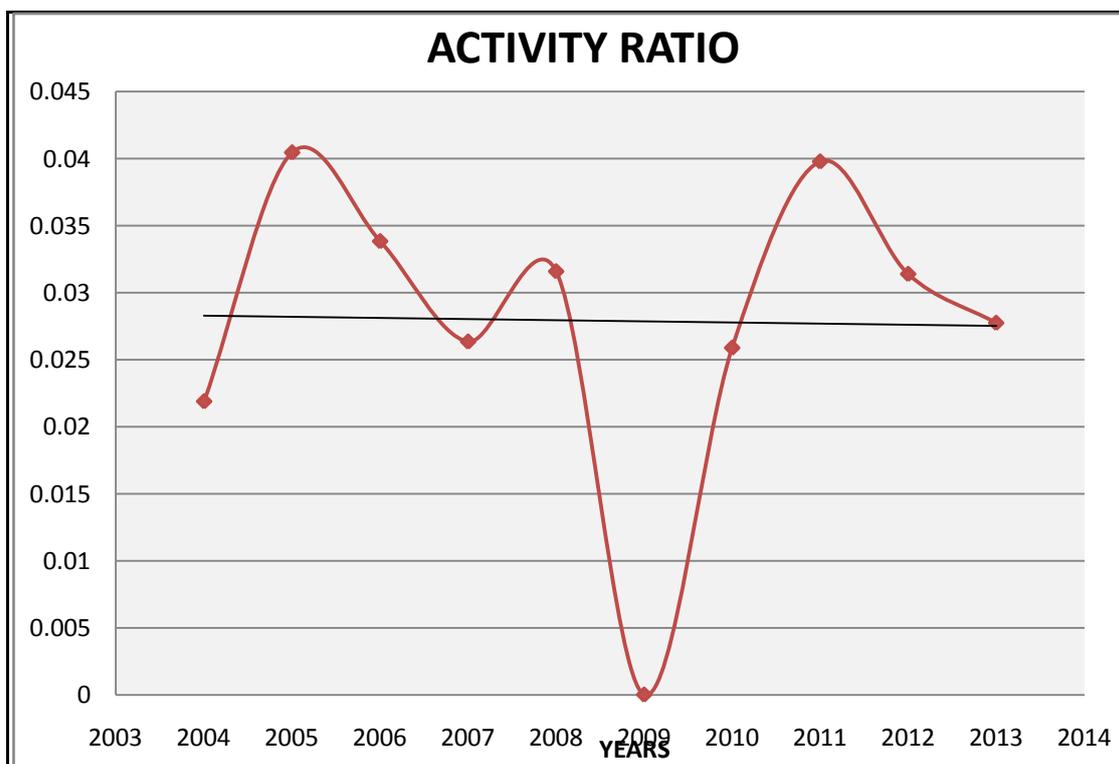


Figure 7.6 Activity Performance Trend (%)

This ratio is also known as efficiency ratio and measures the relative efficiency of banks in relation to assets. It is also an important ratio since it determines whether the management of these banks are doing well in terms of generating enough cash or revenue from available resources. Net income is observed from the above trend graph and Table 7.13 to have significantly increased before (2004-2006) and after the crisis (2010-2013), as compared to during the crisis (2007 and 2009). This suggests that banks were severely affected by the recent crisis. However, this ratio helps to distinguish between good banks and bad banks, good managers and bad managers in the event of crises.

7.5 Kruskal Wallis Test for Bank Performance and Financial Crisis

To test whether UK retail banks performed (profitability, liquidity, leverage, and efficiency) differently over the financial crisis, Kruskal-Wallis test was performed to find out if the differences between groups are so large that they are unlikely to have occurred by chance. Since the data of this study do not meet the requirement for a parametric test, Field (2013, p. 242) recommends a non-parametric test when the data are not normally distributed. This test is appropriate for use when the study wants to compare three or more conditions and each condition is performed by a different group is independent of each other. Had it been the data met the conditions of a parametric test, then, Analysis of Variance (ANOVA) is preferable because it is more powerful than Kruskal-Wallis. In this case, before the crisis (2004-2006),

during the crisis (2007-2009) and after the crisis (2010-2013) were conducted using SPSS version 20. The results are presented in Table 7.14 below.

Table 7.14 Kruskal-Wallis Test for Before, During and After crisis Data			
Ranks			
Independent Variables	Before/During/ After	N	Mean Rank
PROFITABILITY	Before crisis	11	39.05
	During crisis	21	36.90
	After crisis	28	22.34
	Total	60	
LEVERAGE	Before crisis	11	29.91
	During crisis	21	27.76
	After crisis	28	32.79
	Total	60	
ACTIVITY RATIO	Before crisis	11	42.00
	During crisis	21	31.05
	After crisis	28	25.57
	Total	60	
LIQUIDITY	Before crisis	11	25.09
	During crisis	21	31.62
	After crisis	28	31.79
	Total	60	

Source: SPSS Output for Kruskal-Wallis Results Developed for this Research

Table 7.15 Test Statistics for Kruskal-Wallis

	PROFITABILITY	LEVERAGE	ACTIVITY	LIQUIDITY
Chi-Square	11.572	1.008	7.020	1.293
Df	2	2	2	2
Asymp. Sig.	.003	.604	.030	.524

To interpret the output, Field (2013, p. 249) suggests that only the test statistic, its degree of freedom and its significance be reported. In this case, the Kruskal Wallis test was conducted to evaluate differences among the three financial crisis periods (covering before, during and after) on median change for profitability, liquidity, activity and leverage ratios. The proportion of variance in the ranked dependent variables accounted for by the independent variables reveals

that, the mean rank for before the crisis, during the crisis and after crisis appears to differ. The highest mean rank was in before crisis (39.05), closely followed by during crisis (36.90), and lastly by after crisis (22.34) for profitability ratio. Furthermore, the result shows that there is a significant difference in the medians, with greater chi-square (χ^2) values for profitability (11.572) and activity ratios (1.020), and p-values. 003 and. 030 respectively at the 0.05 % level of significance. This indicates profitability and activity ratios significantly differ over 2004-2013 for all banks in the sample. However, liquidity ($p = 0.524$) and leverage ($p = 0.604$) ratios indicate no differences in performance over 2004-2013.

Chapter Summary

In summary, this chapter has reported the quantitative results of the research by displaying the secondary data in appropriate forms. This chapter further presented and analysed secondary data findings on UK retail bank performance before (2004-2006), during (2007-2009) and after the financial crisis (2010-2013). The goal was to reconfirm the accuracy of Altman's original model in light of the recent financial crisis. Specifically, this chapter achieved the various ways of measuring bank profitability. Bank profitability has been widely measured in finance literature by ROA, ROE, NIM, and expressed as a percentage of internal (bank-specific) and external (macroeconomic) factors (Hossem 2013, p. 330). Return on Equity (ROE) which is widely used in accounting and finance literature is employed in this study. After conducting the analysis using MDA to distinguish between the crisis periods, the results showed an increase in the predicting power in discriminating between the independent and dependent variables. Banks performed better before and after the financial crisis than during the crisis. Statistically, it was observed that there were differences in UK bank performance between before, during and after the financial crisis with financial ratios such as profitability, liquidity, solvency and activity ratios significantly influencing the MDA model. Finally, since the data never met the requirement for conducting a parametric test, a non-parametric technique known as the Kruskal-Wallis test was performed to find out if the differences between groups are so large that they are unlikely to have occurred by chance. The results ranked the banks according to their performance covering before, during and after the financial crisis.

Having presented and conducted data analysis, the discussion of findings will now be examined. The details of these findings are synthesised in line with the literature in the next section, Chapter 8.

CHAPTER 8: DISCUSSION OF FINDINGS

8.1 Introduction

The findings of this study and how they are associated with prior research is discussed in this chapter. As highlighted in section 1.8, this section of the thesis focuses on discussing the empirical findings. The study highlights all relevant observations that can be drawn from the literature review in Chapters 2 and 3. Consequently, this chapter discusses the proposed research objectives, hypotheses and validates empirical results. In addition, a discussion of each variable used and their relative implications of the analysis are included. The resulting output of the data analysis was discussed and compared with findings of other scholars across the globe. Most of the results confirm existing knowledge and some of the findings added considerably on existing knowledge. The findings are consistent with banking practices, although part of the findings suggest areas of improvement for future research.

Firstly, the researcher focuses on the relationships between customer loyalty constructs and bank performance. Secondly, the study focuses on the hypotheses related to predicting financial distress before, during and after the crisis. Thirdly, this study provides empirical findings related to the performance of banks over the financial crisis periods. Finally, the study discusses empirical findings related to the predictive power of the Altman model in UK retail banking.

8.2 Customer Satisfaction and Trust that influence Customer Loyalty

The first research objective was to examine the relationships between customer satisfaction and trust as independent variables (predictors) and customer loyalty as the dependent variable (outcome). Given the multidimensionality of customer satisfaction and trust, this objective resulted in the formulation of two hypotheses (H_1 and H_2), the first hypothesis (H_1) required examining the relationship between customer satisfaction and customer loyalty in the UK retail banking sector. Using linear regression analysis, the study observed that customer satisfaction does not significantly influence customer loyalty. The regression model in Table 6.19 above shows a negative relationship between customer satisfaction and customer loyalty. Customer satisfaction constructs were defined in the data analysis section using factor analysis. So, the results established that there were four factors explaining customer satisfaction among UK retail banking sector, namely; overall satisfaction, product satisfaction, service quality, and intention to stay with the bank. The results support the observation by Chen and Wang (2009) that the positive assessment of a product or service which a customer gets is a major factor to continue a

relationship with the company, which serves as an important pillar to uphold loyalty. However, in the conceptualization of service quality, Parasuraman et al. (1988) suggested five dimensions of service quality: Reliability, Assurance, Tangibility, Empathy and Responsiveness.

Satisfaction had a negative significant impact on customer loyalty. This implies that, the more customers are satisfied with the bank products and services, the less loyal they become. This result can be seen from the linear regression results Table 6.19. The most likely reason for such an inverse relation is that, customer satisfaction deals with the perception and evaluation of the reaction of a customer from using bank products and services, which is in contrast to customer loyalty that deals with repeat purchasing. The customer may be loyal without being satisfied and may be highly satisfied and yet not be loyal. Moreover, customer loyalty is a function of many variables of which satisfaction is just one (Jones and Sasser, 1995). Likewise, the magnitude of the relationship between customer satisfaction and loyalty is due to the fact that, banks may have targeted less price-sensitive customers, especially during the recent financial crisis. Based on this, banks position themselves as service-service institutions, thus pricing their products and services at higher levels immediately after the crisis. These inflated prices on goods and services will discourage intention to repurchase and the ability for customers to recommend their bank(s) to friends and relatives within the specific context of the UK. This result matches those of (Ganesh, Arnold and Reynolds 2000; Bloomer and Kasper, 1995). Jones and Sasser (1995) for instance, provided evidence that merely keeping customers satisfied is not enough to sustain loyalty. Equally, Ittner and Larcker (1998, p. 27) found little evidence between levels of customer satisfaction and margins or return on sales.

Similarly, Oliver (1999) and Shankar et al. (2003) declares that it is possible for a customer to be loyal without being satisfied and to be highly satisfied and yet not be loyal. Previous studies have found no direct correlation between satisfaction and loyalty (Bloemer and Kasper, 1995; Oliver, 1999). However, the finding disagreed with those of (Smith, Wright 2004, Kamakura et al., 2002) who stated that satisfaction is a crucial construct of customer loyalty and is supported by previous findings. Equally, Bowen and Chen (2010) investigated the attributes that will increase customer loyalty in the hotel industry. They drew samples for both focus groups and mail surveys to hotel customers in the US. Their results showed a positive relationship between customer satisfaction and customer loyalty.

The second hypothesis (H₂) was to examine the relationship between customer trust and customer loyalty. The results indicated that trust had a different effect on customer loyalty. From the results, the F statistics and the significant values confirmed that the two predictors

(satisfaction and trust) were indeed different from each other and that they influenced customer loyalty in different ways. Customer trust had a positive relationship with customer loyalty while customer satisfaction had a negative relationship. The results showed that as the level of trust increases, the level of loyalty also increases. In line with this, Knell and Stix (2009) suggested that trust in banking is mainly affected by “subjective” variables such as the perception of bank customers’ economic and financial condition, and by future outlooks in relation to the perception of inflation and financial stability. Limited literature exists on comparative analysis between customer trust and customer loyalty. Nonetheless, Schoormann et al. (2007) concluded that trust is an aspect of relationship with a natural character.

8.3 Relationship between Customer Loyalty and Bank Performance

The second research objective sought to establish whether there existed a significant relationship between customer loyalty and profitability in the UK retail banking sector. An Analysis of Variance (ANOVA) test was conducted to examine this research objective: that customer loyalty was sensitive to predict bank performance (profitability). This study employed seven customer loyalty items, mostly based on Jones and Sasser (1996), Reichheld (1996); Kim et al. (2003) and Ernst and Young (2012). The most reliable customer loyalty dimension that explained variation in bank performance (profitability) in the UK retail banking sector was captured in the rotated matrix as discussed in Chapter 4 using factor analysis included overall loyalty, service quality satisfaction, overall satisfaction, product satisfaction respectively. This suggested that customers were overall loyal due to satisfaction, in terms of service quality, followed by product satisfaction and overall satisfaction.

In this case, the results revealed that customer loyalty was a significant predictor of profitability. In addition, the correlation coefficient and t-statistics confirmed the extent that customer loyalty had more impact than customer satisfaction and trust in predicting bank profitability, though the strength of the relation was not strong enough (that is, correlation of 0.346), the closer the correlation value to 1.0, the stronger the strength of the relationship (Coopers and Schindler (2003) and Fields (2013). Equally, this was evident from the standardized coefficients, the t-statistics and significant values (p-value <0.05). Based on the positive relationship between loyalty and profitability, a bank’s population of customers may contain persons who either cannot remain loyal, given the service levels, pricing of bank products or services and switching costs involved or will never make profits. To obtain profit, banks will target customers who: are likely to recommend the bank to friends and relatives (by word-of-mouth), have the intention to repurchase and the willingness to remain with the bank for a longer time, and this will increase profits, being a source of returns to shareholders of the bank (Hallowell, 1996).

The findings between customer loyalty and performance (profitability) are consistent with those of (Reichheld, Sasser 1990, Zeithaml, Parasuraman and Berry 1990, Anderson, Fornell and Lehmann 1994, Storbacka, Strandvik and Grönroos 1994, Rust, Zahorik and Keiningham, 1995). Related findings were reported by Reichheld (1993) who confirmed that “when a company consistently delivers superior value and wins customer loyalty, the market share and revenue increases, and the cost of acquiring and serving customers decreases”. Likewise, Kish (2002); Duncan and Elliot (2002) advocates that there is a link between customer loyalty and organization profitability, considering that any organization with loyal customers enhance considerable competitive advantage. However, satisfaction and trust did not significantly predict performance since they explained a small proportion of variability in financial performance. This implies that bank customers may be satisfied and trust the bank’s products and services, yet still not remain loyal over time due to the environment in which banks operate today. So, satisfaction and trust are not the only factors necessary to sustain loyalty and profitability in the banking industry. Consequently, banks should take into consideration factors other than trust and satisfaction to maintain loyalty and drive profitability.

Furthermore, the findings that customer loyalty and bank performance were positively related is supported by Chi and Gursoy (2009) who demonstrated this evidence with respect to employee satisfaction and customer satisfaction on Hospitality Company’s financial performance, using service-profit-chain framework as a theoretical base. They highlighted that a satisfied customer becomes a loyal customer, and over time, this will lead to higher sales, hence, higher financial returns to the company. These links have conceptualized and are of empirical relevance to the assessment of performance in the UK retail banking sector. They presumed that customer loyalty in particular had a positive influence over bank profitability.

8.4 The predictive ability of Altman’s Model before, during and after the financial crisis.

The third research objective was to test the predictive power of Altman’s MDA technique in predicting financial distress before, during and after the financial crisis. This section also attempts to answer the research question: What are the implications of the financial crisis on the predictive ability of Altman’s model? The main reason was to test whether the Multiple Discriminant Analysis technique (MDA) had good predictive power within the recent financial crisis.

Since the main goal of this study was to reconfirm the relevance of the MDA model using Altman’s financial ratios to predict financial distress in the UK retail banking sector within the financial crisis, and to identify critical financial ratios with significant predictive ability, the

hypothesis that: there were significant differences in predictability before, during and after the crisis with regards to financial ratios was tested.

The following Altman's (1968) ratios were employed in the model; Working Capital/Total Assets, EBIT/Total Asset, RE/Total Assets, Market Value of Equity/ Total Liabilities and Sales/Total Asset. The model was constructed using panel data based on 60 observations for all banks over a ten year period (2004-2013). The 'dependent variable' was 0=distress and 1= non-distress.

According to the results of descriptive statistics presented in the data analysis, Chapter 7, the results proved that among the overall ratios employed in the model, only statistically significant ratios, three out of five contributed significantly to predict the outcome (distress and non-distress) for before, during and after crisis periods. These ratios included; Market Value of Equity/Total Liabilities which measures the solvency ratio of the company, Working Capital/Total Assets which measures liquidity ratio and Sales/Total Assets which measures turnover of assets in relation to sales.

However, in terms of comparing the ranking for the crisis periods of before and during, during and after and before and after crisis, the following statistical conclusions could be reached using Kruskal Wallis as depicted in Chapter 7 of the thesis. The results showed that Market Value of Equity/Total Liabilities had the highest negative Z-Value (-3.380), Sales/Total Asset (-3.253) and Earnings Before Interest and Tax (EBIT) /Total Assets (-3.177) respectively, which indicated that Market Value of Equity/ Total Liabilities was one of the most financially distressed predictor variable and provided sufficient evidence that differences exist in the predictive ability with the groups. For this reason, Market Value of Equity/ Total Liabilities, Sales/Total Asset, and EBIT/Total Assets with high negative Z statistics were given a state of financially distressed variables. Charalambakis et al. (2009) found similar results that the combination of sales/total assets, profitability, financial risks (with relative size, excess returns) and stock return volatility best captured the variation in the actual probability of bankruptcy.

Moreover, the test of equality of group means also confirmed the significance of the best ratios which contributed to the overall prediction. For before and during crisis data sets (2004-2009), only Market Value of Equity/ Total Liabilities (solvency) with a p-value less than 0.05% (.046) was observed significantly to discriminate between the groups.

For during and after crisis data sets, test of equality of group means indicated that only working capital (liquidity) was able to discriminate between groups since it had p-value less than 0.05% (0.31). Finally, the test of equality of group means for before and after the crisis yielded the best results since three out of the five ratios significantly discriminates the groups. EBIT/TA with p-value less than 0.05% (.028), Market Value of Equity/Total Liabilities (.013) and

Sales/TA (.010) generating a significant Wilks Lambda (.004) value for the overall model. These findings showed that Market Value of Equity/ Total Liabilities (solvency ratio) was the most important variable which contributed to predict financial distress and non-distress in the periods of the crisis (before, during and after). This finding is related to the study conducted by Charitou et al. (2004) who found that the market value of distressed firms declines substantially prior to their ultimate collapse.

The findings provided evidence that the stability of financial ratios has an impact on the ability of banks to continue as going concern (Taffler and Tisshaw, 1977). Profitability ratios provide a reasonable measure of management effectiveness in value creation, while leverage or debt offers historical reason for a company's failure. This implies that, solvency ratios were sensitive predictors of financial distress or failure before the actual event. This proposition is consistent with Noor, Takiah and Omar (2012) who concluded that financial ratios are still the key sources of distinguishing between the good and bad.

Overall, working capital/total asset which measures the net liquid assets of a firm relative to the total capitalization was the least important contributor to discriminate between the two groups. This is consistent with the work of Altman (1968 and 2000) who developed models to predict bankruptcy in US manufacturing firms and found that net liquid assets ratio was the least important contributor to the discriminant function of the model. The findings, however, differed with those of Hossari and Rahman (2005) who reported that net income and total assets were observed to be the most significant financial ratios. Equally, Beaver (1966) found that cash flow/ net income appeared more significant in predicting corporate failure within one year.

The third hypothesis was that: Altman's model is accurate to predict financial distress in UK retail banks within the crisis. The hypothesis was tested at a 5 % level of significance. The research question was: Does the application of Altman's 1968 Multiple Discriminant Analysis (MDA) provide a better method for predicting financial distress in the context of UK retail banking? In order to achieve this objective, the classification results of MDA in this study will be discussed.

The descriptive statistics revealed the classification accuracy together with the type I and type II errors between the two groups. The highest accuracy rate for the financially distressed cases for before and during crisis data set (2004-2007) was 72.2 percent with a misclassification error of 27.8 percent and non-distress 61.1 percent with type I and type II errors of 38.9 per cent. The overall classification accuracy for both groups was 66.7 percent. For during and after the crisis (2007-2013) data set, the model was able to predict accurately 83.3 per cent for the distress group with a lesser classification error of 16.7 per cent, and for the non-distress group 66.7 percent of cases with a slightly high classification error rate of 33.3 per cent. The overall model

predicted both groups with an accuracy of 76.2 per cent higher than that of before and during data set (2004-2007).

Finally, 79.2 per cent and 83.3 per cent of cases were correctly classified into distress and non-distress groups with 20.8 per cent and 16.7 per cent of misclassification error for before and after data set (2004-2006 and 2010-2013) respectively. The overall classification for before and after crisis data set to increase to 81.0 per cent, suggesting that the model was not good enough to predict the outcome (distress and non-distress) due to the effect of the crisis.

The summary of these findings showed an increasing power of the overall prediction from 66.7% for the periods before and during crisis to 76.2 % for the periods during and after the crisis, and finally to 81.0 % for the period before and after the crisis. Equally, the classification results through the different crisis periods also established that MDA was able to predict group membership correctly for distress group (during and after the crisis) with low classification error than it was able to predict non-distress cases. The model predicted 83.3% of distress cases correctly with 16.7 % of misclassification error for during and after crisis period, while it predicted correctly membership for non-distress cases by 66.7% to a high misclassification rate of 33.3% for the same crisis period. Altman (1968) and Gutzeit and Yozzo (2011) have acknowledged that the Z score model generated a large proportion of “false positives”, also referred as type II errors or the incorrect classification of the company as bankrupt candidate. This tendency has worsened over the decades since the Z-score model was introduced, especially with the financial crisis period. The analysis of this research reconfirmed this finding most recently. Equally, related findings were reported by Agarwal and Taffler (2005) who tested the ability of the Z-score model and reaffirmed that this technique rarely forecast future events correctly or when it is done the ability to measure their true ex ante (before the event) is lacking. They suggested that this is probably due to type I and II errors. One important characteristic emerging from these findings for both crisis periods was that the classification accuracy rates indicate a steady decline when the time away from the financial crisis increases.

The first possible reason for the high rates of classification errors observed within the crisis periods may relate to the fact that most banks had shown a flexible attitude to existing customers who breached loan terms during the financial crisis. Equally, some companies had their loans changed through negotiations, while others had their payments of debt postponed. With the advent of the global financial crisis, the UK government may have assisted in improving the situation in the banking sector, which has significantly reduced high rates of financial distress or failures. This has accounted for high rates of Type II error for all retail banks in this study.

This has significant implication for the banking sector in particular and other industries as a whole. Before distress episodes or crisis periods, banks would be able to liquidate assets to meet their obligations. As a result, the difficulty faced by banks to meet up with obligations for before crisis results could contribute to the low predictive power to correctly classify cases into distress and non-distress. These results provided answers to the third research question as to whether the Altman's original model could accurately predict financial distress within the financial crisis when applied to UK retail banking.

8.5 The Performance of Banks before, during and after the Financial Crisis

The final objective of this study was to test the relationship existing between financial crisis and financial performance measured in terms of profitability, liquidity, solvency and efficiency ratios. Equally, this section tests the hypothesis (H5): UK Retail Banks performed better before and after the crisis than during the crisis.

To examine this objective, the study examined a panel data of 10 years to capture bank performance within the recent crisis.

This section provides a complete discussion of findings using descriptive analysis of selected financial ratios in terms of estimated means and standard deviations for six UK retail high street banks as discussed in Chapter 5. Significant financial ratios had been used in a realistic way to measure the performance of UK retail banks before, during and after the recent financial crisis. In examining the financial health of banks, significant ratios measuring; liquidity, profitability, productivity, leverage, solvency and activity ratios have been widely employed by numerous practitioners and researchers around the world, since they proved effective to detect financial distress in companies.

In this research, the normal conditions were best described by the periods before and after the financial crisis. In order to test these hypotheses, it was ideal to look at the three crisis periods and the interaction variables.

Consequently, the implications and the findings of this study are discussed. From the Kruskal-Wallis test, the results are discussed in details making inferences to previous literature on bank performance within crisis periods. The proportion of variance in the ranked dependent variables accounted for by the independent variables reveals that, the mean rank for before the crisis, during the crisis and after the crisis appeared to differ. The highest mean rank was in before the crisis (39.05), closely followed by during the crisis (36.90), and lastly by after the crisis (22.34) for profitability ratio. Furthermore, the result showed that there was a significant difference in

the medians, with greater chi-square (χ^2) values for profitability (11.572) and activity ratios (1.020), and p-values.003 and.030 respectively at 0.05% level of significance. This indicated that profitability and activity ratios were significantly affected differently over 2004-2013 for all banks in the sample. However, liquidity ($p = 0.524$) and leverage ($p = 0.604$) ratios indicate no differences in performance over 2004-2013. These analyses are mainly directed to bank managers; however, regulators may need different information in order to help them develop a strong and healthy environment. In addition, investors want to know when and where to invest their money in a way that maximizes their returns.

When looking at the results covering the three temporary periods of the crisis as discussed in Chapter 7 (section 7.7), it was seen that profitability, liquidity and activity ratios were severely affected during the crisis period (2007-2009). However, the effects are not significant for all banks and for, the periods of the crisis. This suggested that banks performed better before and after the crisis than during the crisis. Therefore, since profitability, liquidity and activity proved to be the most affected ratios during the crisis, the study proposes examining the factors that stand behind these ratios. These findings were consistent with Beltratti and Stulz (2009) who studied bank stock returns across the world during the financial crisis period from July 2007 to the end of December 2008 and reported that large banks with more deposit financing at the end of 2006 displayed significantly higher stock returns than during the crisis.

Profitability measures how a company's return compares with its sales, assets, investments, and equity. Therefore, the more profits a firm can generate, the greater the availability of liquidity or funds to run the company both in the short and long run. According to Khunthong (1997) many companies face financial distress when they have negative earnings, therefore, profits are often used as predictors of financial distress events. From the results, it can be seen that there were positive effects of the variables in periods after the crisis (2010-2013) as presumed by the study. It is evident from the trend graph for all UK retail banks employed in this study that their profitability ratios measured as ROE showed an increase before the crisis (2005 and 2006), but signalled a significant decrease during the crisis (2007). More interestingly, after the crisis we observed a sharp increase in profitability performance from 2010 onwards. This was in line with Victoria and Scharfstein (2009); Berger et al. (2009), Glass et al. (2014) and Cornet, McNutt and Tehranian (2010) who found that larger banks faced the biggest losses during the crisis. Similarly, Anouze (2010) conducted a study on the performance commercial banks in the Gulf region before, during and after the financial and political crisis and found that the Qatari bank's performance declined significantly during the financial crisis.

Nevertheless, in some banks like Santander plc and Co-operative bank plc respectively, profitability performance ratios fell sharply as early as 2004. In addition, Lloyds PLC was able to achieve the highest ROE (23.14%). This may be due to the fact that the bank reduced its financial costs with a resulting increased amount of shares before the financial crisis (2004-2006) than during and after the crisis. Similarly, the UK government may have assisted to prevent banks from completely failing.

The profitability trend of UK retail banks indicates that ROE started decreasing from early 2007 to 2009. The ROE was highest in 2005 and 2006 (before the crisis) but decreased to its lowest during the crisis for all 3 years (2007-2009). This implies that before the crisis, ROE was higher than during the crisis period. Surprisingly, immediately after the crisis (2010) ROE declined faster than before the crisis. The reason behind this may be due to the fact that post-crisis period, was extremely difficult for the UK retail banking system, since debt provisions (the sharp increase in required reserves) were the main reason for longer than expected poor ROE results. The results of this study were similar to studies done on banks in the United Arab Emirates (Anupam, 2012).

From the leverage trend graph indicated in Chapter 7, it was evident that during the crisis (2009), there was a significant increase in leverage ratios for all banks, probably because most banks lend to others leading to greater risk. Equally, during the crisis (2007-2009) the liabilities of UK retail banks roughly increased, suggesting a high level of borrowing and burden to the Bank of England. However, it was observed that leverage performance, decreased after the financial crisis (2010-2011), probably due to the fact that most banks suffered from the recent crisis and restricted lending to firms and other banks. It could also mean that the UK government injected funds or recapitalized the banking system in order to resist the financial crisis. Nevertheless, since lending is the most profitable function of retail banks, from 2012-2013, it is presumed that most banks increased their leverage ratios.

For liquidity trend, the results indicated that most banks were partly solvent before the crisis (2004-2005) and a sharp fall in liquidity between (2006 and 2007), an improvement in the trend in (2008) and immediately after the crisis (2011-2013). This was partly due to the intervention of the Bank of England and regulatory authorities to maintain a stable amount of liquidity to resist the effect of the crisis on UK banks. However, this ratio showed some signs of worsening by 2010. The effect of the recent financial crisis cannot be overemphasized since it led to the closure of large banks such as Northern Rock (UK) and Lehman Brothers (US). In addition, a low liquidity ratio observed during the crisis period may be explained by the fact that there were underperforming assets and increase in default rates.

In summing up, to compare between bank performance before, during and after the crisis, this study employed the Kruskal-Wallis test (non-parametric), an alternative to ANOVA test. Kruskal-Wallis test was used to rank the data rather than their raw values and calculate the statistics. The result rejected the null hypothesis that; there were no differences in terms of profitability, liquidity, efficiency and activity ratios for bank performance before, during and after crisis periods and favoured the alternative hypothesis that there were significant differences in bank performance before, during and after the financial crisis. The following results of the hypotheses testing showed that only one (H_1) was not supported by the data. The other five hypotheses were supported. Table 8.1 below demonstrates the results of test hypotheses of this study.

Table 8.1 Summary of Hypothesis Testing	
Research Hypotheses	Results
H_1 : Customer Satisfaction is positively associated with Customer Loyalty	Not Supported
H_2 : Customer Trust is positively associated with Customer Loyalty.	Supported
H_3 : There is a significant positive relationship between Customer Loyalty and Bank Performance	Supported
H_{1a} : There are significant differences in financial distress prediction before, during and after the recent financial crisis among the predictor variables using Altman's financial ratios.	Supported
H_{1b} : Altman's model can accurately predict financial distress in retail banks before, during and after the crisis.	Supported
H_{1c} : UK Retail Banks performed better before and after the crisis than during the crisis	Supported

Chapter Summary

To summarise Chapter 8, the findings of the thesis were presented and discussed in the light of existing theories and past empirical research and has further laid the foundation for the origin of the conclusions of the study. The results reveal that profitability, liquidity and activity ratios were severely affected during the crisis than before the crisis and banks were able to hold on to liquidity immediately after the crisis. This is evident in the downward trend of profitability and liquidity ratios in 2007 and 2009 respectively for all banks. In addition, significant changes in trend emerged after the financial crisis in 2007, and reached its failure point in 2009, leading to falling profitability, low liquidity, net income and increasing leverage (debt) in the UK retail

banking sector. Out of six main hypotheses proposed, five were accepted and only one was rejected. The results and conclusions drawn from this thesis are generalised to the extent of data gathered for this study. Therefore, the objectives of this research were attained to a greater extent because only one hypothesis (Customer Satisfaction is positively associated with Customer Loyalty) was not supported.

The next Chapter will conclude theoretically by providing a recap of the research design, research problem and questions, and show the extent to which the research objectives have been met. Theoretical and Managerial Implications and recommendations of the study shall be provided.

CHAPTER 9: CONCLUSION AND RECOMMENDATION

9.0 Introduction

This chapter brings the study to a close by presenting key conclusions based on the analysis, interpretations and discussions in Chapter 8. In addition, the chapter presents the author's reflections and the study's original academic contribution to knowledge as well as a critique of the research. This chapter is made up of seven sections; the following figure 9.1

summarizes the content of this study

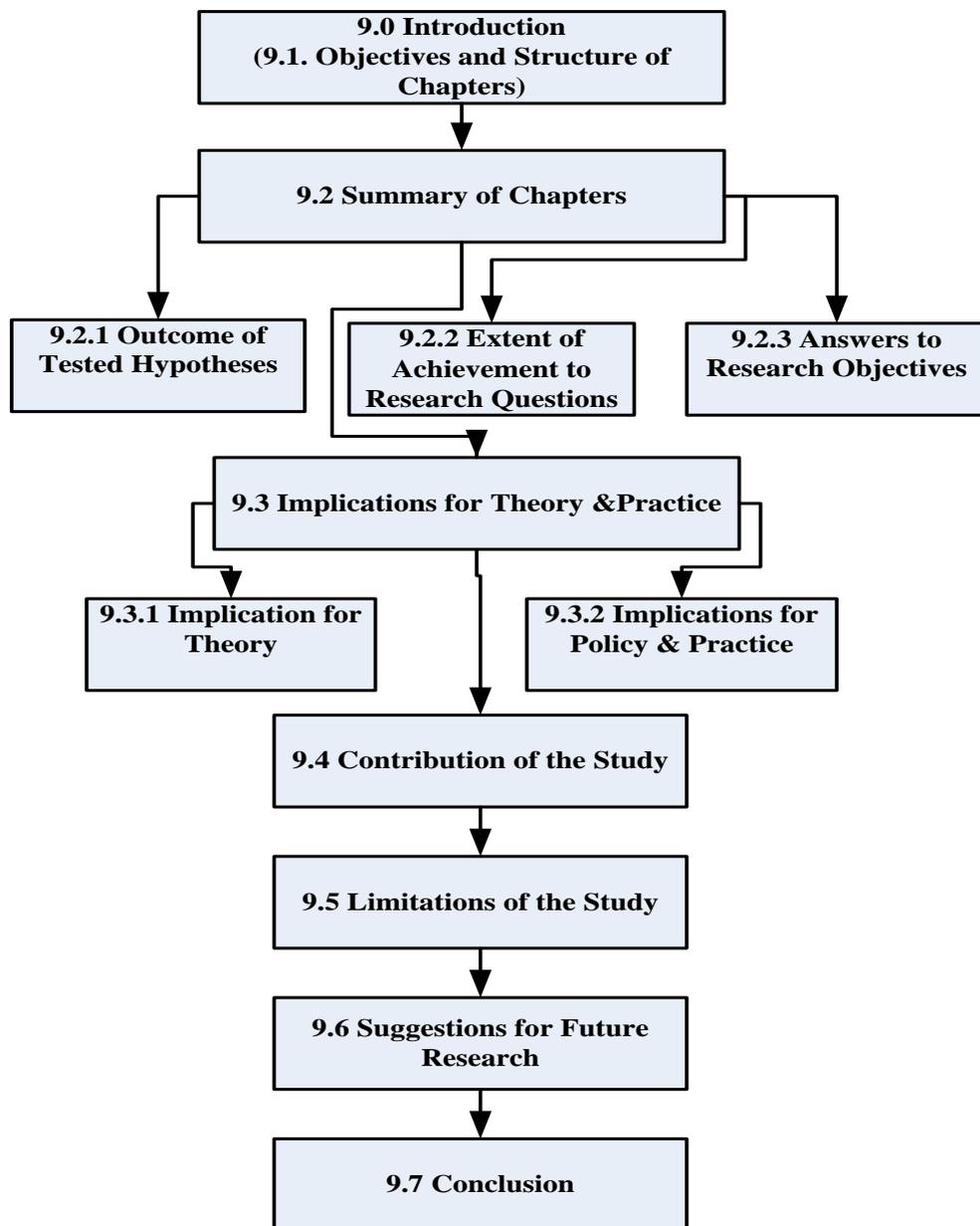


Figure 9.1: Structure of Conclusion Chapter

9.1 The Purpose of the Study

According to Riley and Young (2014), the performance of the UK economy has been poor from the time when the financial crisis began in 2007. At the end of 2013, UK GDP was still roughly 2 per cent lower than it had been at its most recent peak at the start of 2008. Besides, in the following years of the recent financial crisis and economic downturn of 2008-2009, Gregg et al. (2014) stated that the UK labour market has responded differently to previous recessions; since output has remained weak below peak for longer periods, real wages have fallen significantly with no sustained recovery noticeable at least five years on from the beginning of the crisis. This study aims to improve the corporate performance of UK banks by testing the predictive power of Altman's MDA technique in predicting financial distress before, during and after the financial crisis. In addition, it will examine the extent to which Customer Loyalty can predict Bank Performance.

9.2 Summary of Chapters

This study consisted of five main sections in nine chapters. The objective has been met as reported from Chapter 2 through Chapter 6. Chapter 1 discussed the contextual background and acknowledged the research problem of the study by providing insights into the impact of financial distress, bank loyalty and performance. Chapters 2 and 3 were made up of related literature. A review of the literature of financial distress predictions was discussed in Chapter 2 which laid the foundation and conceptual background of the study, highlighting the performance of the UK retail banking sector within the financial crisis. Chapter 3 threw light on theoretical perspectives with regards to the perception of bank customers in relation to bank loyalty. Chapters 4 and 5 established the philosophical, research design and research methods, which provided the means of investigating methods of achieving the research objectives. These chapters discussed the quantitative method and its limitations as the methodology of choice, where primary data (semi-structured questionnaires) were combined with secondary data (financial ratios). Furthermore, the chapters described the efforts made by previous research to ensure data screening, reliability, validity, relevance, processing, and ethical data collection. Chapter 5 presented the data in the form of tables and graphs for an enhanced visual comprehension. Chapter 6 analysed the data, drawing significant findings. Primary data were analysed using factor analysis and multiple regression analysis, while statistical techniques such as multiple discriminant analysis (MDA) and Kruskal Wallis test were used to analyse secondary data with the assistance of SPSS 20. Chapter 7 discussed the research findings in the light of previous research which offered the basis for building conclusions and recommendations for the

study. Chapter 9 sums up the research by addressing the extent to which the research objectives were achieved as well as recommendations for future research.

9.2.1 Outcome of Tested Hypotheses

In this section, a conclusion for the tested hypotheses and answers to the research questions will be presented. This will begin with the support or rejection of the research hypotheses. The first three hypotheses examine the relationships between customer satisfaction, trust, loyalty and bank performance while the last three hypotheses are based on the performance of UK retail banks within the financial crisis (before, during and after).

First, customer satisfaction was assumed to have a positive relationship with customer loyalty, customer trust to have a positive relationship with customer loyalty and customer loyalty to have a positive relationship with bank performance (profitability). These hypotheses were tested using multiple regression models. The following results of the hypothesis testing show that only one of the hypotheses (H_1) was not supported by the data. The other five hypotheses were supported.

Summary of Hypothesis Testing

Research Hypotheses	Results
H₁ : Customer Satisfaction is positively associated with Customer Loyalty	Not Supported
H₂ : Customer Trust is positively associated with Customer Loyalty.	Supported
H₃ : Levels of Customer Loyalty are positively related to levels of Performance (profitability).	Supported
H_{1a} : There are significant differences in bank performance before, during and after the recent financial crisis among the variables using financial ratios.	Supported
H_{1b} : Altman's model can accurately predict financial distress in retail banks before, during and after the crisis.	Supported
H_{1c} : UK Retail Banks performed better before and after the crisis than during the crisis	Supported

From the multiple regression results, it was evident that the relationship between customer satisfaction and customer loyalty was not statistically significant; revealing a negative

relationship. This implies that, customer satisfaction is not the only factor that influences customers to remain loyal to their banks. Therefore, the null hypothesis that there was a significant relationship between customer satisfaction and loyalty was supported meanwhile the research hypothesis was not supported.

On the other hand, the second research hypothesis was supported while the null hypothesis was rejected. It was found that customer trust had a positive relationship with customer loyalty. This implied that as trust level increases, the level of loyalty also increases and when trust levels decrease, loyalty levels will also decrease.

The third hypothesis was to test whether a positive relationship exists between customer loyalty and bank performance (profitability). The finding revealed that a significant positive relationship exists, though the correlation is not too strong. However, the relationship was able to reject the null hypothesis that no significant relationship exists to support the research hypothesis.

The next research hypothesis was to test whether there were significant differences in bank performance before, during and after the recent financial crisis among the variables using financial ratios. Kruskal-Wallis (a non-parametric) test was conducted to test this hypothesis. The results showed that there were significant differences in the mean ranks and medians for before, during and after the crisis. The null hypothesis that there were no differences in bank performance before, during and after the crisis was rejected and the alternative hypothesis was supported. However, in terms of rankings, profitability and activity ratios were ranked highly since they showed significant differences to distinguish the periods while liquidity and leverage ratios were ranked least.

The fifth hypothesis was to test whether the Altman's model can accurately predict financial distress in retail banks before, during and after the crisis. Multiple Discriminant Analysis was conducted to test this hypothesis. The findings revealed significant differences in the prediction of financial distress or non-distress for UK retail banks before, during and after the crisis. The model highly and accurately predicted financial distress during and after the crisis (2007-2013) better than before the crisis (2004-2006). Consequently, the research hypothesis was supported while the null hypothesis that no differences exist in predicting financial distress within the crisis was rejected.

The final hypothesis was to test whether UK retail banks performed better before and after the crisis than during the crisis. This hypothesis was tested by employing descriptive trend ratio analysis. The findings supported the hypothesis that banks performed better before and after the crisis than during the crisis. This was evident from the negative trends of profitability, liquidity,

activity and efficiency ratios during the crisis (2007-2009). Therefore, the null hypothesis that no differences in the crisis periods were not supported in favour of the research hypothesis.

9.2.2 Answers to Research Questions

The main purpose of this study was to investigate the impact of financial distress on the performance of UK retail banks in relation to customer loyalty within the recent financial crisis. The data analysis and findings presented and analysed in chapters 4 and 5 answered the following four research questions:

The broad research question asked, "How did UK retail banks perform before, during and after the financial crisis in terms of profitability, liquidity, activity and efficiency ratios?" This broad question was further broken down into several specific questions:

1. Is there any relationship between the financial crisis and bank performance in terms of profitability, liquidity, leverage and activity ratios?
2. Is there a relationship between customer loyalty constructs and profitability?
3. Are there significant differences in performance ratios for before and during the crisis, during and after and before and after the crisis”?
4. Does Altman (1968) model accurately predict UK retail banks into distress and non-distress groups following the financial crisis?

Therefore, to assist in answering these research questions, the following research objectives were constructed:

- To examine the relationships between Customer Satisfaction, Trust and Customer Loyalty.
- To examine the extent to which Customer Loyalty can predict Bank Performance.
- To test the predictive power of Altman’s MDA technique in predicting financial distress before, during and after the financial crisis.
- To explore relationships existing between Financial Crisis and Bank Performance measured in terms of profitability, liquidity, solvency and efficiency ratios.

9.2.3 Extent of Achievement of Objectives

The aim of the research has been met through thorough, statistical and ethical procedures undertaken by the author. Primary and secondary data were extracted as discussed in Chapter 3 (methodology). Primary data came from the survey instrument (questionnaire) that was designed to test the perceptions of bank customers regarding their experience and satisfaction with the UK banking sector, while secondary data was entirely extracted from Bloomberg and FAME

databases. Data was collected for a ten year period (January 2004 to December 2013). The research questions have been answered as follows:

The first specific research question asked: “Is there any relationship between financial crisis and bank performance in terms of profitability, liquidity, leverage and activity ratios”? Results from this question revealed that UK banks were solvent and profitable before the crisis, while liquidity and profitability trends started to decline during the crisis (2007-2009). In addition, all ratios except leverage increased after the financial crisis (2010-2013). However, this increase is not as significant as in pre-crisis (2004-2006) periods. The significance of this finding relies on the fact that, UK retail banks were solvent before the crisis; given that they were fewer failures and bank runs following the crisis. Thus, sufficient liquidity served as a cushion to prevent them from completely failing.

The second specific research question asked: What relationships exist between Customer Satisfaction, Trust and Customer Loyalty? Using linear regression analysis, the study observed that customer satisfaction does not statistically influence customer loyalty. The regression model shows a negative relationship between customer satisfaction and customer loyalty. Customer satisfaction constructs were defined in the data analysis section using factor analysis. So, the results established that there were four factors explaining satisfaction among UK retail banking sector, namely; overall satisfaction, product satisfaction, service quality, and intention to stay with the bank. The results confirmed the observations of Chen and Wang (2009).

Research question three asked, “Are there significant differences in performance ratios for before and during the crisis, during and after and before and after crisis”? The data collected from banks’ financial statements and analysed using the Kruskal Wallis rank test, indicated significant differences in mean ranks and medians of profitability and activity ratios following the financial crisis.

Research question four asked: “Does Altman (1968) model accurately predict UK retail banks into distress and non-distress groups following the financial crisis”? The results revealed that among the overall ratios employed in the model, only statistically significant ratios, three out of five contributed significantly to predict the outcome (distress and non-distress) for before, during and after crisis periods. These were; Market Value of Equity/ Total Liabilities which measures the solvency ratio of the company, EBIT/Total Assets which measures the leverage ratio, Sales/Total Assets which measures turnover of assets in relation to sales. A similar result was reported by Altman (1968) in his study of US manufacturing industries.

9.3 Implication for Theory and Practice

This section highlights all significant implications that can be drawn from the empirical research of the thesis. The unique characteristics for theory and practice in this research principally focus on financial statement information as the potential predictor for financial distress in companies such as banks. Equally, quarterly financial statement data instead of annual financial statement data should be employed to capture changes in crisis periods. The implications for theory are discussed first, closely followed by the implications for policy and practice.

9.3.1 Implication for Theory

In general, in the study of financial distress or failure, the traditional theory of bankruptcy reveals that most financial distressed or companies in previous studies were forced into a state of bankruptcy in a court. Nevertheless, several previous studies (e.g. Gilbert, Menon and Schwartz, 1990; Hamer 1983, Perry et al., 1996) argue that, the event of financial distress and/or failure implies that companies are financially fragile but do not become legally bankrupt all the time. Consequently, bankruptcy is only one possible outcome of company failure, since Coats and Fant (1993) suggested that time series patterns of a company's financial ratios be observed to measure the growth of the company. However, most previous studies (e.g. Fitzpatrick, 1931; Bardia, 2012; Chen and Shimerda, 1981) employed annual financial statement data to approximate their time series models. If the objective of the time series model is to spot unfavourable changes, especially during crisis periods to the financial attributes of a company as soon as they occur, quarterly data should reveal more appropriate than an annual financial statement (12 month period).

Since this research aims to examine prediction models using Altman's significant ratios from financial statements to signal financial distress in the UK retail banking sector, the empirical findings could be utilized as additional evidence to support recent and relevant findings of ratio-based studies such as the studies of Beaver et al. (2005) and Deakin (1972). Equally, the findings revealed direct theory, implementation in financial statement information which can be used as a yard-stick in detecting and predicting financial distress before it occurs.

9.3.2 Implication for policy and practice

Due to the fact that this study was focused on the United Kingdom, the findings could have significant implications for UK regulatory bodies, private sector management, and investors. The implications for UK regulatory authorities are examined first, followed by the implications for UK private sector management.

When the failure of businesses occurs before being found by regulatory authorities, one of the questions that arises is the appropriateness of the predictive measures employed by the authorities. Studies like this one will offer helpful instruments to UK regulatory bodies to assist in detecting financial distress or corporate failure before they actually occur in order to minimize costs. Since the banking industry appears to be the backbone of every economy, UK regulatory authorities are obliged to prevent or reduce potential distress incidents such as the financial crisis of 2007, rather than protecting stakeholders from the consequences once a corporate failure has occurred. Consequently, this study like previous ones could supply UK regulatory authorities with alternative means to detect impending financial distress.

Equally, the results also contain implications for UK private sector management. As noted above, financial distress or failure has an unfavourable impact on stakeholders, including shareholders/ investors, suppliers, creditors, workers and customers (Fitzpatrick 1931; Chen and Merville 1999; Merwin, 1942). The effect of financial distress might lead to loss of key managers, staff, significant customers and loss of confidence of creditors. The loss might be prevented if the management has an appropriate early warning system to signal impending distress or failure before the event. Studies such as this one could provide a basis for management to keep a trend of a company's performance in the midst of a crisis.

The research will be completed by providing a research contribution of the study, limitations and suggestions for future research. This will be presented in the next section.

9.4 Contribution of the Study

This research has enriched the theoretical and empirical literatures with related studies on failure prediction and profit-chain links, and underlines some important implications for policy and practice. This thesis provided three noteworthy contributions to knowledge. Firstly, this study extended the original work of Altman in predicting financial distress, by reconfirming the predictive accuracy of Altman's (1968) original model covering the three financial crisis periods (before, during and afterwards) using UK data. Secondly, this thesis developed a new conceptual model relevant to customers and bank performance. Thirdly, this research successfully tested the customer loyalty questionnaire to examine the relationship between customer satisfaction, trust, loyalty and profitability which led to valuable and verified empirical findings.

Reconfirming Altman's original model- Firstly, recognizing business failure and early warning signs of moving towards financial crisis are important to both businesses, analysts and practitioners, since poor performance or business failures may lead to potential severe consequences such as huge losses and financial distress costs for both private individuals and the society. Consequently, research on business failure has shown that not all businesses fail in an

unpredicted way. However, the financial crisis may cause the failure of a business overnight, therefore, warning signals of a business in the way of failure arise much earlier than the actual failure; thus, these signs could be applied to predict business failure in progress. While Altman's models have been revealed to be useful for manufacturing firms, they have not been proven to act well for financial companies, such as banks (Douglas et al., 2010, p. 4). This study brings an original contribution to practice by testing Altman's model, using multiple discriminant analysis in the UK retail banking industry within the financial crisis, covering before, during and afterwards. In other words, this study contributes to the theory in developing a comprehensive framework to assess bank performance during crisis periods and identifies the most important factors that improve retail banking performance in the UK context.

A new conceptual model- Secondly, an examination of the interaction of banks and their customers in terms of establishing a link between customer loyalty and financial performance is of significant importance. Thus, another intended contribution of the current research lies in its assessment of a comprehensive customer loyalty framework based on a flow of effects from the customer satisfaction, trust, loyalty and bank financial performance. Therefore, this current research contributes to theory in the service profit-chain literature, by intensifying the effects of customer loyalty constructs to financial performance, using a bank survey to capture the perceptions of customers. In other words, the intended contribution lies in its assessment of a comprehensive customer loyalty framework based on a flow of effects from the customer satisfaction, trust to bank financial performance.

Empirical and robust findings-Thirdly, this study has identified three clear customer loyalty dimensions for retail banking, two of which dimensions show great significant relationships with bank performance (profitability). In summation, the valuable findings reveal that a negative relationship exists between customer satisfaction and customer loyalty, which is different from the held hypothesised relationship in the profit chain literature. Nevertheless, customer trust was found significant with loyalty. The final findings show that customer loyalty has a positive relationship with financial performance.

9.5 Limitation of the study

There exists a number of limitations in this study: first, although UK retail banking industry has developed tremendously during the recent era, in terms of size and number of players, the absence of data on the financial distress is still the main concern for most researchers. The information on the condition of financial distress in retail banks is important in developing a distress prediction model. As a result, this has a significant effect on the number of samples that

can be included in this study in order that the results can be generalized. In addition, this study selected a limited sample of high street UK retail banks from the Bloomberg and FAME databases. It could be argued that the sample is not representative of all UK retail banks. Only six high street banks were considered and other banks were excluded from the study due to unavailability of financial data.

Equally, the exclusion of private banks is another limitation of this study. The secondary data sample employed to develop the financial distress prediction model is limited to publicly traded banks on the LSE. Private Banks were excluded from the sample due to the unavailability and the difficulty of extracting financial information. Consequently, the developed model may not be accurate in predicting financial distress for private banks in the UK. Furthermore, the financial distress model in this study only considers observed variables (macroeconomic). Many unobservable constructs exist that may influence the weakness of individual banks. Such factors include management capacity to perform under crisis periods and other internal and external environments. Therefore, it can be argued that a financial distress prediction model, including only financial statement information may not provide a highly accurate classification of distressed and non-distressed banks.

9.6 Suggestions for Future Research

The above limitations of this study provide opportunities for future research. Consequently, this thesis suggests several issues to pay attention to in the future.

First, this study examined the performance of UK retail banking in relation to customer loyalty following the financial crisis episode. What this study did not consider was to compare the performance between UK retail banks and commercial banks. During the study, only the main UK high street banks were considered and investment banks were left out completely. Future research may find it interesting to determine how commercial and investment banks performed following the recent financial crisis.

Equally, future studies could combine the secondary data with primary research to help explain some relationships between performance and crisis. Nonetheless, the study reports some important findings for management by stating that the financial crisis exposed weak banks from stronger ones and calls for better performance appraisal for bank managers.

From the literature review in Chapters 2 and 3, though previous studies have discussed about the ability of Altman's (1968) model to predict financial distress before actual failure and its applicability in today's businesses by practitioners, future research could compare the accuracy of the Z-score model and other models in a study. The following section of Chapter 9 concludes the research by providing a brief summary for the thesis findings.

9.7 Conclusion

Firstly, this research concluded that when the Altman's model was tested to predict the performance of UK retail banking within the financial crisis, the model for before the crisis had the least ability or accuracy to predict financial distress with the highest misclassification error. Overall, Altman's (1968) model had the less predictive ability for UK retail banking within the financial crisis. Nevertheless, this study confirmed that the model can still be used effectively to predict the health of companies, and also that; financial ratio testing techniques are flexible tools for predicting financial distress (Gardiner, 1995). Significant ratios in financial distress prediction environment are profitability, liquidity, leverage and solvency ratios. These ratios could be employed in an MDA model to correctly classify, discriminate and predict financial distress events.

Secondly, customer satisfaction had a negative significant impact with customer loyalty. The most likely reason for the inverse relation is that other matrices influence loyalty better than satisfaction in the banking industry. Previous studies have found no direct correlation between satisfaction and loyalty. For instance, Oliver (1999) and Shankar et al. (2003) declared that it is possible for a customer to be loyal without being satisfied and to be highly satisfied and yet not be loyal.

Finally, with regards to the theory of 'Too Big to Fail', large banks can fail just as easily as small banks. For instance, Northern Rock collapsed in 2007 due to the financial crisis at that time meant that no bank was too big to fail. The recent financial crisis has emphasized the need for banks and other lenders to develop objective early warning models to detect and minimize the occurrence of corporate failure. Nonetheless, as pointed by Altman (2002) and previous researchers, these prediction models should be used alongside other decision-making criteria. Consequently, a combination of both quantitative and qualitative models in predicting financial distress or corporate failure should be considered.

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APPENDICES

APPENDIX A

List of Bank branches and address

Bank Name	Bank Branch	Address
Lloyds	1. Edmonton Green	37 South Mall, Edmonton Green Shopping Centre, Edmonton, London, London, N9 0TZ
	2. Kings Cross	344 Gray's Inn Road, London, Greater London, WC1X 8BX
	3. Muswell Hill	142 Muswell Hill, Broadway, London, N10 3R
	4. Wood Green	Units 22-24, Wood Green Shopping City, 149-153 High Road, Wood Green, London, Greater London, N22 6EF
Barclays	1. Edmonton Green	<i>Edmonton Green Shopping Centre</i> 4-6 South Mall, Edmonton London, N9 0TN.
	2. Kings Cross	23 Euston Rd, London NW1 2SB
	3. Muswell Hill	<i>223 Muswell Hill</i> Broadway, <i>Muswell Hill,</i> <i>N10 1DD.</i>
	4. Wood Green	62 High Rd, Wood Green, London N22 6DH.
H.S.B.C	1. Edmonton Green	<i>Edmonton Green Shopping Centre</i> , 10-12, South Mall.
	2. Kings Cross	23 Euston Road, London, NW1 2SB
	3. Muswell Hill	<i>88 The Broadway, Muswell Hill</i> London N10 3RX.
	4. Wood Green	2 Cheapside High Road <i>Wood Green London</i> N22 6HJ
Santander	1. Edmonton Green	163 Fore Street, Upper Edmonton London, N18 2UX
	2. Kings Cross	29-30 High Holborn, King's Cross London, WC1V 6AA
	3. Muswell Hill	29-30 High Holborn, King's Cross London, WC1V 6AA
	4. Wood Green	28 High Road, Wood Green London, N22 6BQ.

Bank Customer Questionnaire

The Impact of Financial Distress on UK Retail Bank Customer's loyalty in relation to Performance before, during and after the Financial Crisis

Introduction

I am a PhD by research student undertaking a research project to examine the impact of financial distress in UK Banking in relation to customers' loyalty and performance before, *during and after* the financial crisis.

The aim is to ascertain members' loyalty and satisfaction before, during and after the recent financial crisis, in order that UK Banks could listen to customers' needs and deliver quality products & services.

To this end, I kindly request that you complete the following questionnaire regarding your experience and attitude towards this subject. It should take no longer than 10 minutes. I would appreciate your honest opinion; information will be reported in summary format only.

Your participation in this questionnaire is entirely voluntary. All answers are confidential.

Please mark the appropriate box with a tick (✓). Some questions ask you to mark all parts that apply.

SECTION 1: PERSONAL INFORMATION

Now, we will like to ask you some questions about yourself.

- 1. Genders) Male (b) Female**
- 2. What is your age group?** 18-25 26-34 35-44 45-54 55-64 65 and over
- 3. Of the following banks, which bank (s) do you have an account? (Please, tick more than one)**
1-HSBC 2-RBS 3-Barclays 4-TSB 5-Lloyds Bank 6-Santander 6-Cooperative Bank 7-other, please specify.....

4. What factors are responsible for your choice of bank (s) referred in Q3? (Please, tick all that apply).

- 1-Reliability of the bank 2-Quality of service 3-Ease of access 4-Location of bank branches
- 5-Origin _____ of _____ the _____ bank
- Other.....

5. How long have you been a customer of your bank?

- (a) Less than 5 (b) 5-10 (c) 10-20 (d) Above 20

SECTION 2: CUSTOMER SATISFACTION

The following questions ask you to express your opinion of the level of satisfaction as a member. Your answers will help me measure the performance of building societies on members' loyalty before, during and after the recent financial crisis.

6. Did you change your bank within the above period referred in Q5?

- Yes No, but I am planning to No (Please, tick only one)

7. Of the following attributes, what is the most important reason for you maintaining this bank relationship? (Please, tick only one).

- 1-Service quality 2-Transparency 3-Price of products and services 4-Financial stability 5-Attitude of staff

8. Overall, how can you rank your satisfaction with your bank within the last 5 years?

- 1-Not at all satisfied 2- slightly dissatisfied 3-moderately satisfied 4-satisfied 5-Extremely satisfied

9. How will you rank your satisfaction in terms of service quality with your bank within the last 5 years? (Please, tick one).

- 1-Not at all satisfied 2- slightly dissatisfied 3-moderately satisfied 4- satisfied 5-Extremely satisfied

10. The following are some products offered by banks.(Please Tick all that apply)

- 1-Loans 2-Mortgages 3-Insurance 4-Customer accounts 5-Other, please

specify.....

11. How would you rate your satisfaction in terms of products of your bank within the last 5 years?

- 1-Not at all satisfied 2- slightly dissatisfied 3-moderately satisfied 4satisfied
5-Extremely satisfied

SECTION 3: CUSTOMER TRUST

12. Of the following services, which do you mostly use? (Please, tick all that apply).

- 1-ATM/bank branches 2-Internet Banking3-Credit cards4-Mobile banking
5-Travel services

13. Frequency of using the above bank services

- 1-More than once a day 2-Once or twice per week3-Five or more times per week
4- A couple of times per month5-Once per month

14. The bank services worsened during the financial crisis

- 1-Strongly disagree 2-Disagree3-Neither Agree or Disagree 4-Agree5-Strongly agree

15. Overall, the financial crisis affected my trust level in the banking industry

- 1-Strongly disagree 2-Disagree3-Neither Agree or Disagree 4-Agree5-Strongly agree

16. I have complete trust that my bank is financially stable

- 1-Strongly disagree 2-Disagree3-Neither Agree or Disagree 4-Agree
5-Strongly agree

17. I have complete trust that my bank (s) has good security procedures

- 1-Strongly disagree 2-Disagree3-Neither Agree or Disagree 4-Agree
5-Strongly agree

18. I have complete trust on information about performance provided by my bank

- 1-Strongly disagree 2-Disagree3-Neither Agree or Disagree 4-Agree
5-Strongly agree

19. At the moment, I trust that the bank is (are) able to pay deposits upon demand

- 1-Strongly disagree 2-Disagree3-Neither Agree or Disagree 4-Agree
5-Strongly agree

20. I am confident doing business with my bank within the last 12 months

- 1-Strongly disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree
5-Strongly agree

21. How satisfied are you in terms of interest rates offered by your bank?

- 1-Not at all satisfied 2- slightly dissatisfied 3-moderately satisfied 4-
 satisfied
5-Extremely satisfied

SECTION 4: CUSTOMER COMMITMENT

22. I feel that I have a strong personal relationship with my bank

- 1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-
 Strongly Agree

23. I am very proud to be a customer of my bank

- 1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-
 Strongly Agree

24. I feel that my bank identifies me as an individual

- 1-Strongly disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree
5-Strongly agree

25. I find it difficult to inform my bank that I want to switch

- 1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly
 Agree

26. I will remain with my bank (s) even when they are in crisis

- 1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly
 Agree

27. My relationship with my bank has been constantly increasing when I became a member and the financial crisis has no impact on it

- 1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly
 Agree

28. The origin of my bank (s) influences my loyalty

- 1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly
 Agree

29. Looking to the future, how satisfied are you to remain with your bank?

- 1-Not at all satisfied 2- slightly dissatisfied 3-moderately satisfied 4-satisfied
5-Extremely satisfied

30. How satisfied are you to recommend your bank to friends and relatives?

- 1-Not at all satisfied 2- slightly dissatisfied 3-moderately satisfied 4-satisfied
5-Extremely satisfied

31. Overall, how satisfied are you with the cost of products and services offered by your bank?

- 1-Not at all satisfied 2- slightly dissatisfied 3-moderately satisfied 4-satisfied 5-Extremely satisfied.

SECTION 5: FINANCIAL CRISIS and BANK PERFORMANCE

From the following statements below, Please tick only one answer...

32. My overall loyalty was affected by the financial crisis

- 1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly Agree

33. I have valuable knowledge about the recent financial crisis of 2007

- 1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly Agree

34. I have knowledge that some people are affected severely by the financial crisis than others

- 1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly Agree

35. Before the financial crisis occurred I use to feel that the banks were.....

- 1-Too big to fail 2-Competent 3-Trust worthy
4-Managed by people who were honest and reliable 5-Managed by people of integrity

36. The bank did not satisfy my financial needs fully, even before the financial crisis and I consider changing it

1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly Agree

37. The impact of the financial crisis on the banking sector pushed me to consider spreading my account(s) across a number of financial providers”.

1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly Agree

38. Below are some reasons why banks fail or merge. What, in your opinion, is the most important cause?

1-No government support 2-High leverage or debt 3-lack of access to finance and capital 4-lack of support from other financial institution 5-wrong investment decision and increase in default rates

39. How do management bonuses affect the level of satisfaction with your bank

1-Not at all satisfied 2- slightly dissatisfied 3-moderately satisfied 4satisfied 5-Extremely satisfied

40. Do you feel that the financial health of your bank has improved, declined or remained the same over the last 7 years in terms of services offered?

1-Improved 2- Slightly improved 3-Remained the same 4-Declined 5-Slightly declined

Thank you for your time and effort.

APPENDIX B

Descriptive Statistics

Before and After crisis		Mean	Std. Deviation	Valid N (listwise)	
				Unweighted	Weighted
Before crisis	Working Capital/Total Assets	.0259903465	.03574186053	18	18.000
	RE/Total Assets	.0297119382	.01723279955	18	18.000
	EBIT/TOTAL ASSETS	-.0188111662	.02839121244	18	18.000
	Market Value of Equity/ Total Liabilities	.1129602683	.16135734141	18	18.000
	Sales/Total Asset	.0515910546	.01505653318	18	18.000
During crisis	Working Capital/Total Assets	.0155784224	.04033866486	18	18.000
	RE/Total Assets	.0244339465	.01502915626	18	18.000
	EBIT/TOTAL ASSETS	-.0145127683	.01997051501	18	18.000
	Market Value of Equity/ Total Liabilities	.0333524848	.02393309524	18	18.000
	Sales/Total Asset	.0408864272	.01751215462	18	18.000
After crisis	Working Capital/Total Assets	.0415599542	.03487164707	24	24.000
	RE/Total Assets	.0267856498	.01720363277	24	24.000
	EBIT/TOTAL ASSETS	.0364261260	.11107639173	24	24.000
	Market Value of Equity/ Total Liabilities	.0363349954	.02614439348	24	24.000
	Sales/Total Asset	.0363347795	.01475165719	24	24.000
Total	Working Capital/Total Assets	.0290946124	.03785330699	60	60.000
	RE/Total Assets	.0269580253	.01644067994	60	60.000
	EBIT/TOTAL ASSETS	.0045732701	.07646940839	60	60.000
	Market Value of Equity/ Total Liabilities	.0584278241	.09607855451	60	60.000
	Sales/Total Asset	.0422771563	.01673127989	60	60.000

Test Statistics

Statistics	PROFITABILITY	LEVERAGE	ACTIVITY RATIO	LIQUIDITY
N	60	60	60	60
Median	7.873114086	.081315286	.036951156	.001108705
Chi-Square	6.723 ^b	.281 ^b	4.987 ^b	1.247 ^b
Df	2	2	2	2
Asymp. Sig.	.035	.869	.083	.536

a. Grouping Variable: Before/During/ After

Frequencies

Financial Ratios		Before/During/ After		
		Before crisis	During crisis	After crisis
PROFITABILITY	> Median	7	14	9
	<= Median	4	7	19
LEVERAGE	> Median	5	10	15
	<= Median	6	11	13
ACTIVITY RATIO	> Median	8	12	10
	<= Median	3	9	18
LIQUIDITY	> Median	4	12	14
	<= Median	7	9	14

Tests of Equality of Group Means

Financial Ratios	Wilks' Lambda	F	df1	df2	Sig.
Working Capital/Total Assets	.889	4.992	1	40	.031
RE/Total Assets	.995	.214	1	40	.646
EBIT/TOTAL ASSETS	.916	3.674	1	40	.062
Market Value of Equity/ Total Liabilities	.996	.144	1	40	.707
Sales/Total Asset	.980	.834	1	40	.367

Before and After Tests of Equality of Group Means

	Wilks' Lambda	F	df1	df2	Sig.
Working Capital/Total Assets	.889	4.992	1	40	.031
RE/Total Assets	.995	.214	1	40	.646
EBIT/TOTAL ASSETS	.916	3.674	1	40	.062
Market Value of Equity/ Total Liabilities	.996	.144	1	40	.707
Sales/Total Asset	.980	.834	1	40	.367

Before and During Tests of Equality of Group Means

	Wilks' Lambda	F	df1	df2	Sig.
Working Capital/Total Assets	.981	.672	1	34	.418
RE/Total Assets	.973	.959	1	34	.334
EBIT/TOTAL ASSETS	.992	.276	1	34	.603
Market Value of Equity/ Total Liabilities	.888	4.287	1	34	.046
Sales/Total Asset	.898	3.867	1	34	.057

During and After Tests of Equality of Group Means

	Wilks' Lambda	F	df1	df2	Sig.
	S				
Working Capital/Total Assets	.915	2.650	2	57	.079
RE/Total Assets	.984	.457	2	57	.635
EBIT/TOTAL ASSETS	.882	3.817	2	57	.028
Market Value of Equity/ Total Liabilities	.859	4.662	2	57	.013
Sales/Total Asset	.852	4.949	2	57	.010

APPENDIX C

FACTOR ANALYSIS SPSS OUTPUT

. Communalities

Customer Loyalty	Initial	Extraction
Overall satisfaction	1.000	.724
Service Quality Satisfaction	1.000	.648
Product satisfaction	1.000	.560
I find it difficult to inform my bank that I want to switch	1.000	.388
Overall loyalty was affected by financial crisis	1.000	.865
The financial pushed me to consider spreading my accounts	1.000	.867
I have knowledge about the recent financial crisis of 2007	1.000	.535
I am proud to be a customer of my bank	1.000	.432
I have valuable knowledge that some people were affected more than others	1.000	.449
My bank identifies me as an individual	1.000	.484

Extraction Method: Principal Component Analysis.

Item-Total Statistics

Customer Satisfaction	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Overall satisfaction	10.25	4.777	.701	.622
Service Quality Satisfaction	10.21	4.916	.611	.667
Product satisfaction	10.42	4.834	.559	.694
I find it difficult to inform my bank that I want to switch	10.18	5.361	.376	.799

Item-Total Statistics

Customer Trust	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
The financial pushed me to consider spreading my accounts	3.04	1.289	.748	.
Overall loyalty was affected by financial crisis	2.88	1.254	.748	.

Total Variance Explained

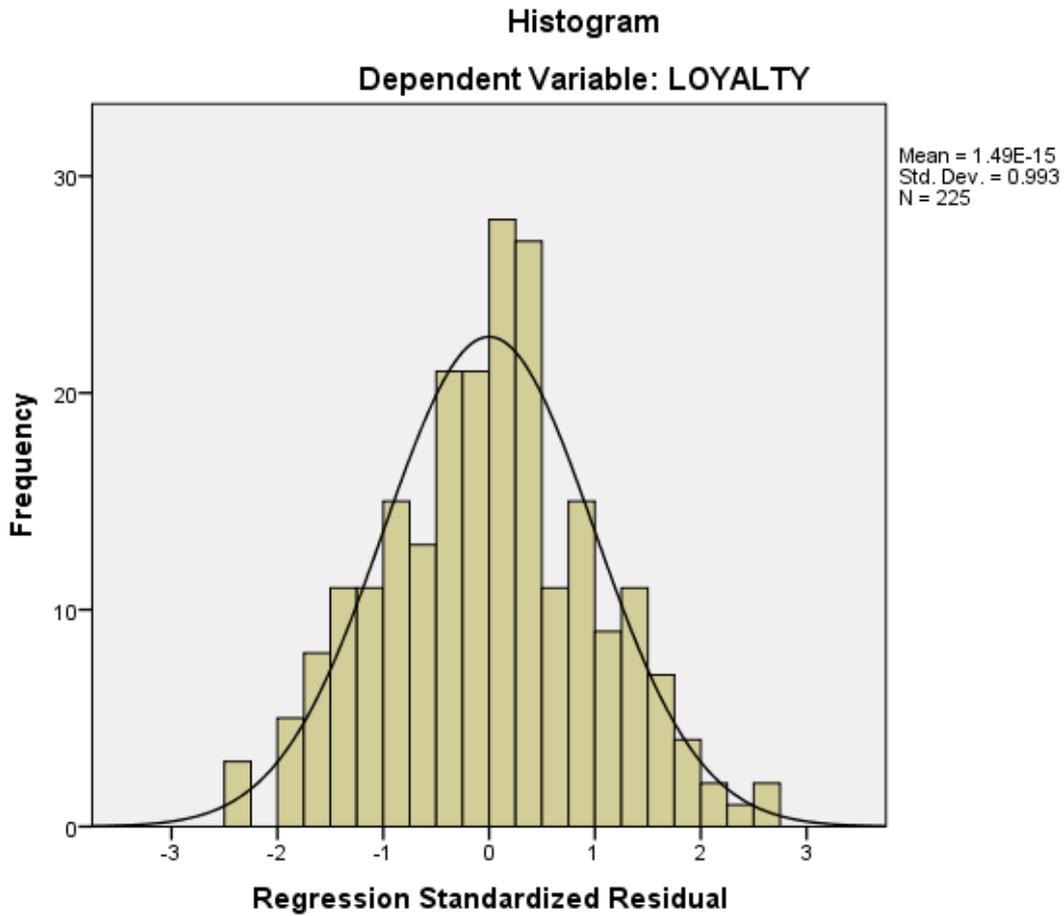
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.684	14.736	14.736	3.684	14.736	14.736	3.360	13.439	13.439
2	2.182	8.728	23.464	2.182	8.728	23.464	2.214	8.855	22.294
3	1.839	7.354	30.819	1.839	7.354	30.819	2.131	8.525	30.819
4	1.587	6.350	37.169						
5	1.434	5.735	42.904						
6	1.302	5.209	48.114						
7	1.239	4.957	53.071						
8	1.084	4.335	57.406						
9	1.030	4.120	61.525						
10	.996	3.986	65.511						
11	.972	3.890	69.401						
12	.869	3.476	72.877						
13	.824	3.295	76.172						
14	.760	3.040	79.212						
15	.713	2.850	82.063						
16	.703	2.810	84.873						
17	.651	2.605	87.477						
18	.577	2.308	89.786						
19	.561	2.246	92.031						
20	.487	1.950	93.981						
21	.449	1.798	95.779						
22	.425	1.698	97.477						
23	.272	1.089	98.567						
24	.204	.817	99.383						
25	.154	.617	100.000						

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.261	45.227	45.227	2.261	45.227	45.227	2.178	43.567	43.567
2	1.058	21.163	66.391	1.058	21.163	66.391	1.141	22.823	66.391
3	.955	19.105	85.495						
4	.417	8.333	93.829						
5	.309	6.171	100.000						

Extraction Method: Principal Component Analysis.



RECURSIVE ESTIMATES OF PANEL DATA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MARKET_VALUE_OF_EQUITY__	-4.090892	4.316006	-0.947842	0.3867
RE_TOTAL_ASSETS	3.079703	4.113711	0.748644	0.4878
SALES_TOTAL_ASSET	3.179652	11.80090	0.269442	0.7984
WORKING_CAPITAL_TOTAL_AS	0.089826	0.035071	2.561251	0.0506
C	0.086022	0.313924	0.274023	0.7950
R-squared	0.589829	Mean dependent var		0.073850
Adjusted R-squared	0.261693	S.D. dependent var		0.168307
S.E. of regression	0.144617	Akaike info criterion		-0.722599
Sum squared resid	0.104571	Schwarz criterion		-0.571306
Log likelihood	8.612993	Hannan-Quinn criter.		-0.888566
F-statistic	1.797512	Durbin-Watson stat		1.305322
Prob(F-statistic)	0.266632			

FINANCIAL RATIOS EMPLOYED

Performance area	Measurement/Formula used	Symbol
Profitability	Return on Equity= Net Income/ Shareholder Equity	ROE
Financial Leverage	Net Income/Total Assets	FNCL_LVRG
Activity	Net Income/Total Assets	NITA
Liquidity	Net Cash Flow/Total Liabilities	CFOTL

APPENDIX D

Before and During crisis dataset of UK Retail bank performance indicators

Name of companies	Time	Year	RETURN_CO M_EQY	FLCV_LV N	ACTIVITY RATIO	cash flow
BARC LN Equity	1	2,009	22.39228	0.06037	0.03031	0.04965
HSBA LN Equity	1	2,009	5.13419	0.03966	0.03861	-0.00145
LLOY LN Equity	1	2,009	10.73456	0.15826	0.04284	-0.02731
RBS LN Equity	1	2,009	-5.28053	0.10304	0.02408	0.00743
1008Z LN Equity	1	2,009	8.51639	0.08171	0.02785	-0.01594
ANL LN Equity	1	2,009	19.05219	0.18756	0.03072	0.00086
BARC LN Equity	1	2,008	14.62885	0.03539	0.01810	0.00692
HSBA LN Equity	1	2,008	5.11484	0.04037	0.05348	0.03539
LLOY LN Equity	1	2,008	7.17006	0.07898	0.04682	0.01444
RBS LN Equity	1	2,008	-43.43576	0.09544	0.02262	0.00358
1008Z LN Equity	1	2,008	1.87787	0.03956	0.07089	-0.01125
ANL LN Equity	1	2,008	17.38478	0.22949	0.03109	-0.07716
BARC LN Equity	1	2,007	20.50128	0.04136	0.03232	-0.01954
HSBA LN Equity	1	2,007	16.27391	0.05453	0.05857	0.00136
LLOY LN Equity	1	2,007	28.23661	0.07832	0.06249	0.04022
RBS LN Equity	1	2,007	15.66075	0.08485	0.02492	-0.01169

1008Z LN Equity	1	2,007	0.46893	0.00387	0.07809	0.02466
ANL LN Equity	1	2,007	21.20743	0.20260	0.04216	-0.06839
BARC LN Equity	0	2,006	24.55876	0.04295	0.03520	-0.00981
HSBA LN Equity	0	2,006	15.63770	0.07616	0.05947	-0.00384
LLOY LN Equity	0	2,006	26.25761	0.08688	0.06033	-0.02872
RBS LN Equity	0	2,006	15.88909	0.10750	0.04518	-0.00307
1008Z LN Equity	0	2,006	7.55573	0.05543	0.07385	0.01832
ANL LN Equity	0	2,006	2.18439	0.17736	0.03637	-0.10224
BARC LN Equity	0	2,005	20.70519	0.04460	0.02944	-0.00031
HSBA LN Equity	0	2,005	16.92572	0.06963	0.05954	0.04638
LLOY LN Equity	0	2,005	23.47237	0.06388	0.05908	0.02495
RBS LN Equity	0	2,005	15.23796	0.09612	0.04471	0.00969
1008Z LN Equity	0	2,005	11.00662	0.04351	0.07715	0.00194
ANL LN Equity	0	2,005	10.45556	0.13274	0.03241	-0.00536
BARC LN Equity	0	2,004	20.12182	0.08113	0.04054	-0.03739
HSBA LN Equity	0	2,004	16.14800	0.10621	0.05756	0.01762
LLOY LN Equity	0	2,004	23.14353	0.04903	0.05661	0.03042
RBS LN Equity	0	2,004	17.01472	0.09747	0.04866	0.00488
1008Z LN Equity	0	2,004	#N/A N/A	0.02964	0.07582	0.01615
ANL LN Equity	0	2,004	1.56021	0.16526	0.03672	-0.01802

During and After crisis data from Bloomberg database

Name of companies	Time	Year	RETURN_COM_E QY	FVCN_LV R	ACTIVITY RATIO	Cash flow
BARC LN Equity	1	2,013	1.03909	0.05198	0.02774	#VALUE !
HSBA LN Equity	1	2,013	8.88890	0.04981	0.03138	0.01813
LLOY LN Equity	1	2,013	-2.07208	0.12756	0.03977	-0.04551
RBS LN Equity	1	2,013	-14.35685	0.07841	0.02588	0.00410
1008Z LN Equity	1	2,013	#N/A N/A	#VALUE!	#VALUE!	#VALUE !
ANL LN Equity	1	2,013	7.16950	0.22237	0.03158	0.03557
BARC LN Equity	1	2,012	-1.18895	0.05597	0.02633	-0.01026
HSBA LN Equity	1	2,012	8.19050	0.05532	0.03383	-0.00385
LLOY LN Equity	1	2,012	-3.35019	0.16395	0.04045	-0.06949
RBS LN Equity	1	2,012	-8.50290	0.08150	0.02188	-0.05848
1008Z LN Equity	1	2,012	-25.10046	0.12273	0.06306	-0.01001
ANL LN Equity	1	2,012	7.33164	0.23559	0.03278	0.00777
BARC LN Equity	1	2,011	5.55841	0.05215	0.02532	0.02417
HSBA LN Equity	1	2,011	10.78171	0.03872	0.03872	0.03112
LLOY LN Equity	1	2,011	-6.05995	0.18913	0.03687	#VALUE !

RBS LN Equity	1	2,011	-2.66354	0.08463	0.02152	0.01170
1008Z LN Equity	1	2,011	2.24236	0.11349	0.06879	-0.00362
ANL LN Equity	1	2,011	7.24138	0.21765	0.03089	-0.01931
BARC LN Equity	1	2,010	7.16156	0.05586	0.02689	-0.01310
HSBA LN Equity	1	2,010	9.52898	0.03985	0.03704	0.04064
LLOY LN Equity	1	2,010	-0.71637	0.16797	0.04380	0.00160
RBS LN Equity	1	2,010	-1.47186	0.11170	0.02582	0.02119
1008Z LN Equity	1	2,010	1.87436	0.11795	0.08037	0.01149
ANL LN Equity	1	2,010	16.44302	0.20323	0.02797	0.02381
BARC LN Equity	0	2,009	22.39228	0.06037	0.03031	0.04965
HSBA LN Equity	0	2,009	5.13419	0.03966	0.03861	-0.00145
LLOY LN Equity	0	2,009	10.73456	0.15826	0.04284	-0.02731
RBS LN Equity	0	2,009	-5.28053	0.10304	0.02408	0.00743
1008Z LN Equity	0	2,009	8.51639	0.08171	0.02785	-0.01594
ANL LN Equity	0	2,009	19.05219	0.18756	0.03072	0.00086
BARC LN Equity	0	2,008	14.62885	0.03539	0.01810	0.00692
HSBA LN Equity	0	2,008	5.11484	0.04037	0.05348	0.03539
LLOY LN Equity	0	2,008	7.17006	0.07898	0.04682	0.01444
RBS LN Equity	0	2,008	-43.43576	0.09544	0.02262	0.00358
1008Z LN Equity	0	2,008	1.87787	0.03956	0.07089	-0.01125
ANL LN Equity	0	2,008	17.38478	0.22949	0.03109	-0.07716
BARC LN Equity	0	2,007	20.50128	0.04136	0.03232	-0.01954
HSBA LN Equity	0	2,007	16.27391	0.05453	0.05857	0.00136
LLOY LN Equity	0	2,007	28.23661	0.07832	0.06249	0.04022
RBS LN Equity	0	2,007	15.66075	0.08485	0.02492	-0.01169
1008Z LN Equity	0	2,007	0.46893	0.00387	0.07809	0.02466
ANL LN Equity	0	2,007	21.20743	0.20260	0.04216	-0.06839

During and After crisis data from Bloomberg database

Name of companies	Time	Year	RETURN_COM_EQY	FVCN_LV R	ACTIVITY RATIO	Cash flow
BARC LN Equity	1	2,013	1.03909	0.05198	0.02774	#VALUE !
HSBA LN Equity	1	2,013	8.88890	0.04981	0.03138	0.01813
LLOY LN Equity	1	2,013	-2.07208	0.12756	0.03977	-0.04551
RBS LN Equity	1	2,013	-14.35685	0.07841	0.02588	0.00410
1008Z LN Equity	1	2,013	#N/A N/A	#VALUE!	#VALUE!	#VALUE !
ANL LN Equity	1	2,013	7.16950	0.22237	0.03158	0.03557
BARC LN Equity	1	2,012	-1.18895	0.05597	0.02633	-0.01026
HSBA LN Equity	1	2,012	8.19050	0.05532	0.03383	-0.00385
LLOY LN Equity	1	2,012	-3.35019	0.16395	0.04045	-0.06949
RBS LN Equity	1	2,012	-8.50290	0.08150	0.02188	-0.05848
1008Z LN Equity	1	2,012	-25.10046	0.12273	0.06306	-0.01001

ANL LN Equity	1	2,012	7.33164	0.23559	0.03278	0.00777
BARC LN Equity	1	2,011	5.55841	0.05215	0.02532	0.02417
HSBA LN Equity	1	2,011	10.78171	0.03872	0.03872	0.03112
LLOY LN Equity	1	2,011	-6.05995	0.18913	0.03687	#VALUE !
RBS LN Equity	1	2,011	-2.66354	0.08463	0.02152	0.01170
1008Z LN Equity	1	2,011	2.24236	0.11349	0.06879	-0.00362
ANL LN Equity	1	2,011	7.24138	0.21765	0.03089	-0.01931
BARC LN Equity	1	2,010	7.16156	0.05586	0.02689	-0.01310
HSBA LN Equity	1	2,010	9.52898	0.03985	0.03704	0.04064
LLOY LN Equity	1	2,010	-0.71637	0.16797	0.04380	0.00160
RBS LN Equity	1	2,010	-1.47186	0.11170	0.02582	0.02119
1008Z LN Equity	1	2,010	1.87436	0.11795	0.08037	0.01149
ANL LN Equity	1	2,010	16.44302	0.20323	0.02797	0.02381
BARC LN Equity	0	2,009	22.39228	0.06037	0.03031	0.04965
HSBA LN Equity	0	2,009	5.13419	0.03966	0.03861	-0.00145
LLOY LN Equity	0	2,009	10.73456	0.15826	0.04284	-0.02731
RBS LN Equity	0	2,009	-5.28053	0.10304	0.02408	0.00743
1008Z LN Equity	0	2,009	8.51639	0.08171	0.02785	-0.01594
ANL LN Equity	0	2,009	19.05219	0.18756	0.03072	0.00086
BARC LN Equity	0	2,008	14.62885	0.03539	0.01810	0.00692
HSBA LN Equity	0	2,008	5.11484	0.04037	0.05348	0.03539
LLOY LN Equity	0	2,008	7.17006	0.07898	0.04682	0.01444
RBS LN Equity	0	2,008	-43.43576	0.09544	0.02262	0.00358
1008Z LN Equity	0	2,008	1.87787	0.03956	0.07089	-0.01125
ANL LN Equity	0	2,008	17.38478	0.22949	0.03109	-0.07716
BARC LN Equity	0	2,007	20.50128	0.04136	0.03232	-0.01954
HSBA LN Equity	0	2,007	16.27391	0.05453	0.05857	0.00136
LLOY LN Equity	0	2,007	28.23661	0.07832	0.06249	0.04022
RBS LN Equity	0	2,007	15.66075	0.08485	0.02492	-0.01169
1008Z LN Equity	0	2,007	0.46893	0.00387	0.07809	0.02466
ANL LN Equity	0	2,007	21.20743	0.20260	0.04216	-0.06839

Leverage	Negative/Positive (+/-)	Opler and Titman (1994), Andrade and Kaplan (1998), Jensen and Meckling (1976), Myers (1977), Graham et al. (2011), Asgharian (2002) and Altman (1984); Caprio and Honohan (2008), Yana (2010)
Size	Negative/positive (+/-)	Opler and Titman (1994), Yana (2010), Ohlson (1980)
Management	Negative/positive (+/-)	Taffler and Agarwaal (2007), Kaplan,

		1989; Smith, 1990, Baker and Wruck, 1989; Kaplan and Stein, (1990), Bettrati and Stulz (2009),
Friendly Board of Directors	Negative (-)	Taffler (1982), Calomiris and Manson (2003).
Inflation	Negative (-)	Caprio and Honohan (2008), Charitou et al., (2004)
Recession	Negative (-)	Caprio and Honohan (2008), charitou et al..., (2004)

List of Banks compiled by Bank of England as at 31st of July, 2014

1. Allied Bank Philippines (UK) Plc
2. Barclays Bank Plc
3. Bank Leumi (UK) Plc
4. Bank of Beirut (UK) Ltd
5. Bank of Ceylon (UK) Ltd
6. Bank of China (UK) Ltd
7. Bank of Communications (UK) Limited
8. Bank of Cyprus UK Limited
9. Bank of Ireland (UK) Plc
10. Butterfield Bank (UK) Limited
11. Co-operative Bank Plc
12. Credit Suisse (UK) Limited
13. Diamond Bank (UK) Plc
14. Guaranty Trust Bank (UK) Limited
15. Gulf International Bank (UK) Limited
16. HSBC Private Bank (UK) Limited
17. HSBC Bank Plc (UK) Ltd
18. Kexim Bank (UK) Ltd

19. Lloyds Bank Plc
20. National Bank of Egypt (UK) Limited
21. Royal Bank Of Scotland Plc
22. Sainsbury's Bank Plc
23. Santander UK Plc
24. Sonali Bank (UK) Limited
25. Union Bank of India (UK) Limited

Source: *Bank of England, July 2013*

APPENDIX E

SUMMARY OF STUDIES PREDICTING FINANCIAL DISTRESS

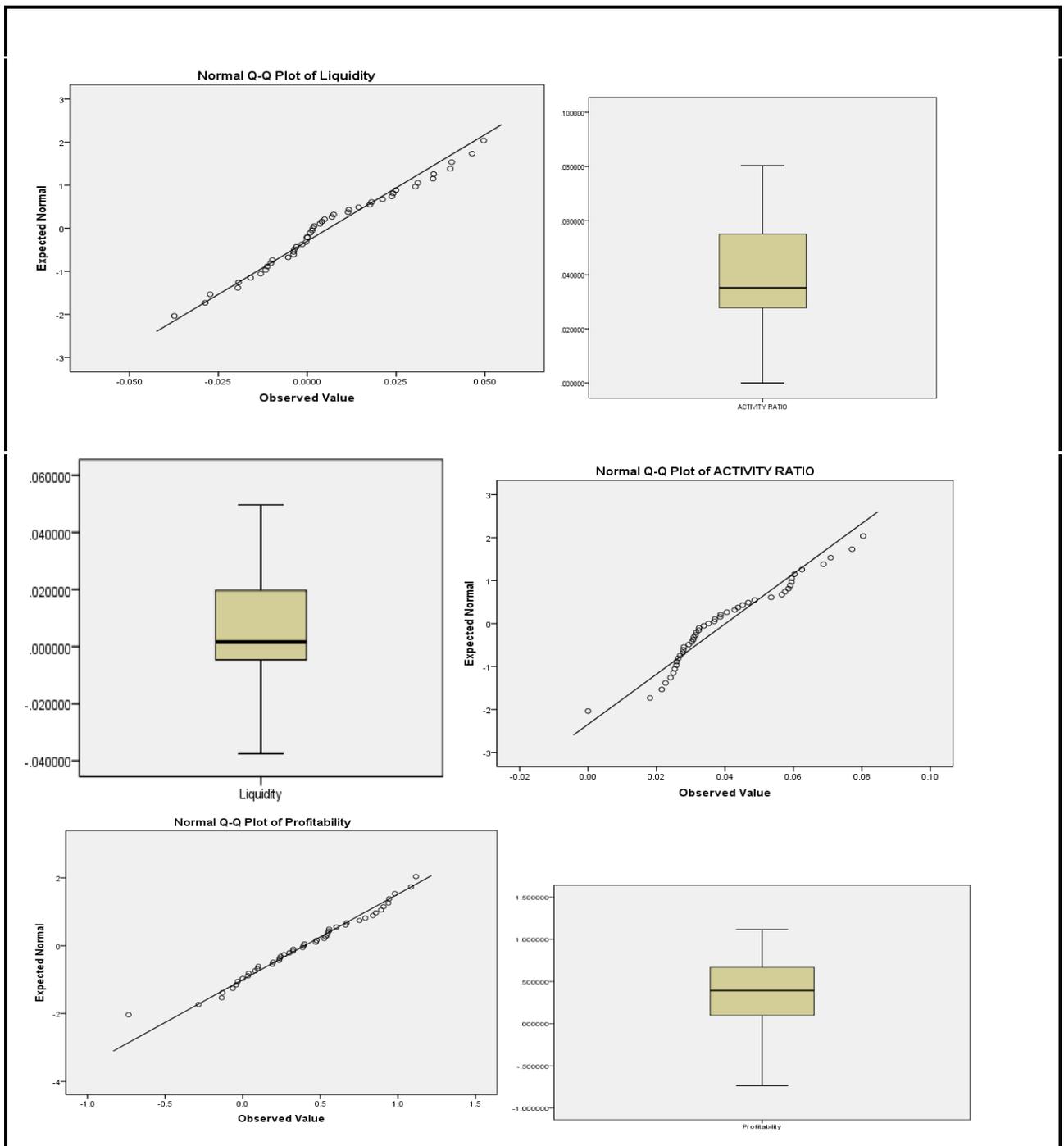
Summary of Studies in Predicting Financial Distress				
Studies	Method (s)	Advantage	Major Drawbacks	Results
Beaver (1966), (2005), Shumway, (2001) USA,	Univariate analysis/ Neural Networks respectively. And cash flow ratios. Matched 79 failed firms with 79 non-failed firms Based on size and industry(Cash flow/Total debt Cash flow/total assets Cash flow/net worth Cash flow/sales)	Simplicity	Inconsistency problem. One-ratio model Assumes linearity	Cash flow/total debt was best predictor with 13% misclassification error one year prior to failure and 21%, 23% for two to five years prior failure.
Altman (1968) Altman <i>et al.</i> (1977), Altman <i>et al.</i> (1994), Deakin (1972), USA.	Multiple Discriminant Analysis (MDA) Use several financial ratios to predict corporate failure of 33 bankrupt manufacturing firms. Working capital/TA R.E/TA EBIT/TA Market value of Equity/Book value of debt. Sales/TA	Multivariate model Continuous scoring. Easy to understand and apply. Accurate tool to assess the health of companies. It provides clear distress, grey and safe zones that can be used effectively to predict a company's performance.	The model suffers from the arbitrary nature of identifying non-failed firms "matching firms". Model doesn't analyse the financial sector. It is bias. Accounting (data) information only provides a summary of a company's past performance rather than its future performance. Original model's coefficient remains the same.	Found that five ratios outperformed Beaver's (1966) cash flow/ total debt ratio.
Platt and Plat	Used panel data			Cash flow/total debt

<p>(1994) USA</p>	<p>approach , pooling state-level data during 1969-1982 into industrial, farm, oil and less industrial sectors -they found that business failure rate is inversely related to measures of economic activity and positively related with cost measure and changes in business formation rates.</p>			<p>observed significant for years one, two and three prior to failure in estimation sample. Validation shows the same.</p>
<p>Ohlson (1980) USA, Zmijewski (1984),Zavgren (1985)</p>	<p>Sampled 105 failed firms& 2000 non-failed US industrial firms from 1970-1976. Used Logit model to develop an estimate of probability for each firm. Selected 9 variables</p>			
<p>Taffler (1983) UK</p>	<p>Use MDA and adjusted model to sampled a one year period prior of 29 failed and 49 non-failed companies of the distribution/retail sector. Probabilities one and misclassification</p>	<p>Cash flow/total liabilities.</p>		<p>Cash flow/total assets & cash flow/total debt is best predictors when using MDA model three years prior failure.</p>
<p>Lee (1982), Mason and Harris (1979) UK</p>	<p>Compared profitability and operating cash flow over a five year period for a single case study of Laker Airways company.</p>	<p>Cash flow from operations.</p>		<p>Operations cash flow indicated failure three years prior failure but profitability did not.</p>
<p>Charitou et al.(2004) UK</p>	<p>Used Neural Network and Logit methodology to evaluate 51 matched failed and non-failed firms in UK public industrial firms over a period 1988-1997</p>			<p>Results show that financial variables; cash flow, profitability and financial leverage yielded an overall correct classification of 83% one year prior failure.</p>
<p>Robertson (1983) UK</p>	<p>Use basic financial ratios technique to highlight where movements have occurred and later identify sources of</p>			<p>Results show that most companies experience a fall in sales generated from their asset base and identify decline in</p>

	the problem. Sales-TA)/Sales, PBT/TA, (CA-TD)/CL, (Equity-total borrowings)/CL,			product life cycle and rapid expansion or over-trading. This has an effect on profits and losses due to uncontrolled costs.
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Industries	Number	Prediction Models	Number
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BOX PLOTS FOR FINANCIAL RATIO DATA



APPENDIX F

TYPES OF COMAPNIES ANDPREDICTION MODELS

Manufacturing Industries	11	Multiple Discriminant Analysis (MDA)	27
Manufacturing and Retail	10	Neural Networks	8
Industrial	9	Logit	19
Mixed Industries	39	Balance Sheet Decomposition Measure	4
Telecom	1	Genetic Algorithms	4
Retail Firms	3	Recursive Partitioning Analysis	5
Not Available	5	Rough Set Model	3
Banks	1	Credit Risk Theories	2
Moto Components	1	Univariate	3
Construction Industries	3	Cash Management Theory	3
Motor Components	2	Case-Based Theory	2
Banks	1	Cumulative Sums Model (Time series)	2
Motor Components	1	Partial Adjustment Model	1
Construction Industries	2	Linear Probability Model	3
Mining and Manufacturing	1	Probit	2
Savings and Loan Associations	1	Gambler Ruin Theory	1
Non-Financial Firms	2	Total	89
Oil and Gas	2		
Total	89		

Source: Aziz and Dar (2006)