

# DOCTORAL (PhD) DISSERTATION

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**IFRS 9 AND ITS IMPACT ON THE FINANCIAL RESULTS OF  
THE LARGEST FINANCIAL INSTITUTIONS IN  
THE UNITED KINGDOM AND CANADA**



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Institutions in the United Kingdom and Canada**

The aim of this dissertation is to obtain a doctoral (PhD) degree  
in the scientific field of “**Accounting**”

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## LIST OF ABBREVIATIONS

AAPA	American Association of Public Accountants
AICPA	American Institute of Certified Public Accountant
AISG	Accountant International Study Group
APB	Accounting Principles Board
ARB	Accounting Research Bulletins
ASC	Accounting Standards Codification
CAP	Committee on Accounting Procedure
EAD	Exposure at Default
ECL	Expected Credit Loss
FAF	Financial Accounting Foundation
FACs	Financial Accounting Concepts
FASs	Financial Accounting Standards
FASB	Financial Accounting Standards Board
FCAG	Financial Crisis Advisory Group
FVOCI	Fair Value through Other Comprehensive Income
FVTPL	Fair Value through Profit or Loss
GAAP	Generally Accepted Accounting Principles
HQLA	High Quality Liquid Assets
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IASC	International Accounting Standards Committee
IFRS	International Financial Reporting Standards
LCR	Liquidity Coverage Ratio
LGD	Loss Given at Default
NCOF	Net Cash Outflows
NSFR	Net Stable Fund Ratio
PD	Probability of Default
PIT	Point-in-time
TTC	Through The Cycle
SEC	Securities and Exchange Commission

## TABLE OF CONTENTS

<b>INTRODUCTION.....</b>	<b>6</b>
<b>1. Main Topics and Objectives.....</b>	<b>11</b>
1.1 Research Objectives.....	11
1.2 Research Questions .....	11
1.3 Study Significance.....	11
1.4 Structure of the Dissertation.....	12
<b>2. Literature Review .....</b>	<b>14</b>
2.1 Accounting Standards – An Overview .....	14
2.1.1 The Development of IFRS Standards.....	15
2.1.2 The Process for issuing the IFRS Standards .....	18
2.1.3 The importance of IFRS standards.....	20
2.1.4 The Development of US-GAAP .....	20
2.1.5 The Process for issuing ASC.....	25
2.1.6 The importance of ASC.....	26
2.2 IFRS 9 Financial Instruments.....	28
2.2.1 The Development of IFRS 9 .....	28
2.2.2 Definitions of Financial Instruments.....	30
2.2.3 Classifications and Measurement – Phase 1 .....	36
2.2.3.1 Classification and Reclassification.....	36
2.2.3.2 Measurement (Initial and Subsequent).....	38
2.2.3.3 Recognition and Derecognition.....	40
2.2.4 Impairment – Phase 2.....	41
2.2.5 Hedge Accounting – Phase 3 .....	54
2.3 Financial Results .....	69
2.3.1 Financial Accounting Theories .....	69
2.3.2 Types of Financial Statements .....	74
<b>3. Material and Methods .....</b>	<b>85</b>
3.1 Research Design.....	85
3.2 Data Collection.....	91
3.3 Sample Formation and Selection.....	93
3.4 Data Analysis .....	100
3.5 Chapter Summary .....	105

<b>4. Results and Discussion.....</b>	<b>106</b>
4.1 Introduction .....	106
4.2 Total Assets Before and After IFRS 9 (H1.a) .....	108
4.3 Total Liabilities Before and After IFRS 9 (H1.b) .....	109
4.4 Net Income Before and After IFRS 9 (H1.c) .....	110
4.5 Total Equity Before and After IFRS 9 (H1.d).....	112
4.6 Net Cash Flows Before and After IFRS 9 (H1.e) .....	113
4.7 UK vs Canada (H2.a) .....	115
4.8 UK vs Canada (H2.b).....	116
4.9 UK vs Canada (H2.c) .....	117
4.10 UK vs Canada (H2.d).....	119
4.11 UK vs Canada (H2.e) .....	120
4.12 Chapter Summary.....	122
<b>5. Novel Findings of the Dissertation.....</b>	<b>123</b>
<b>6. Conclusion and Recommendations .....</b>	<b>126</b>
6.1 Findings of the Research .....	126
6.2 Implications.....	128
6.3 Limitations and Directions for Future Studies .....	131
REFERENCES .....	134
LIST OF PUBLICATIONS.....	158
LIST OF TABLES.....	159
LIST OF FIGURES .....	161
APPENDICES .....	162
Appendix A: Assets .....	162
Appendix B: Liabilities .....	165
Appendix C: Net Income.....	168
Appendix D: Equity.....	171
Appendix E: Cash Flows .....	174
Appendix F: UK and Canadian banks after IFRS 9 .....	177
Appendix G: The Percentage of Financial Assets and Financial Liabilities .....	179
DEDICATIONS AND ACKNOWLEDGEMENTS .....	181
DECLARATION.....	182

## INTRODUCTION

Accounting science coincided with the emergence and development of civilization, and it has developed through the relationship with economic, social and political systems, as each country used to follow a specific input in the development of its accounting, such as the tax issues, the comprehensive central planning and the investment. Therefore, accounting was influenced in its development by the entrance used by each country, which contributed to the increase in the gap between countries in accounting practices, as many countries have issued accounting and tax laws and regulations that oblige companies to apply them (Besuspariené et al., 2018).

The consistency of accounting standards in different countries of the world dates back to long periods of time, but it was not documented that there was any official direction in this regard before the first international conference on accounting in 1904 in St. Louis, America, which was held to discuss accounting principles, accounting practices and compare them in the largest countries in the world (Edwards, 1988). In 1959, founding member of an independent European entity - J. Kraayenhof, who is considered the father of the international accounting harmonization process, published a research that found wide resonance in which he put his visions and support for accounting practices that can be accepted in many countries of the world, but he failed to develop a mechanism that enables the process of achieving the consistency between the different accounting treatments in the world (Samuels & Piper, 1985).

The Accountant International Study Group (AISG) was established in 1966, which consisted of many professional institutions in the *United States, Canada and Britain, in order to study and analyze the variation in accounting practices between countries*, and work to coordinate these practices with each other (Samuels & Piper, 1985). After several studies, this group concluded that the solution to the problem of discrepancy in accounting practices should be at the global level, not the local one, while this group announced its desire for the rest of the world to follow suit in demanding coordination of global accounting practices (Zeff & Nobes, 2016).

With the economic and technological development, the emergence of multinational companies, the spread of international trade and global financial markets, which include stock markets, bonds, loans, currencies, options and other securities in the last three decades tremendously. As a result of the easing of restrictions and controls on these markets, the free movement of

capital and the trade liberalization in addition to the great progress in the communication and informatics industry, and as a result, competition between global markets has increased to attract local and foreign companies, thus increasing the number and size of traded companies, hence the need for a high-quality global accounting language, to be understood by the relevant authorities in these markets, such as companies, lending investors, analysts, financial analysts, and local and global organizations (Miller et al., 1991).

As a result of previous developments, it became necessary to standardize accounting practices to meet the interests of external and internal users who need accurate financial information (Lourenço et al., 2015). Accounting standards are the means that make accounting reliable, and the application of these standards can ensure that all users of financial statements achieve the greatest possible benefit from the financial statements issued by financial institutions as the possibility of reliance on financial statements issued by financial institutions and trust in them depends mainly on the extent of these institutions' commitment to applying the relevant International Accounting Standards (IAS), to ensure the integrity of these financial statements, and they give a true picture of the financial performance (Landsman, 2007; Hung, 2000).

In June 1973 the International Accounting Standards Committee (IASC) was established, and all the standards that were issued before 2001 by IASC are called IAS. In April 2001 the International Accounting Standards Board (IASB) was established as an independent body that was founded in April 2001. The board consist of academics, auditors, users of financial statements and preparers of these lists, which means the members of IASB are from a variety of backgrounds and different countries (Paul, 2007). The IFRS 1 standard was issued in 2003, thus the new standards designated as IFRS (Cormier et al., 2009; Paul & Amana, 2010).

IFRS Foundation is one of the main parts in the standards issuance process, it appoints the members of IASB and IFRS Interpretations Committee, also this foundation submits a report to the monitoring board and receives advices from the IFRS Advisory Council according to the IFRS Foundation structure (Conor, 2014). The main goals of IFRS foundation are to promote the implementation and adoption of IFRS standards through the convergence of those standards and the national accounting standards. Another objectives are taking into account the needs of entities based on their type and size, and to develop high quality, understandable and globally accepted standards (Martin & Libor, 2015).

International Financial Reporting Standards (IFRS) have become an indispensable reference for professionals from all over the world, and in many countries of the world no local standards were governing professional practices in them, and perhaps this was a motivation for the supervisory bodies of the accounting profession in most of these countries to oblige companies and financial institutions by adopting the application of IFRS standards as a basis for preparing the published financial statements issued by them, after taking into account the adaptation of their application by the requirements of the economic, financial and local environment (Haller, 2002).

IFRS standards are accounting standards derived from the pronouncements of the IASB in London, to provide a common global language for business affairs so that entity accounts are understandable and comparable across international boundaries. More than 150 nations and reporting jurisdictions permit or require IFRS for domestic public companies (IFRS Foundation, 2022). The importance of the IFRS is to maintain financial stability and transparency around the world, this allows companies and individual investors to make appropriate financial decisions that enable them to see the financial situation of the entity they wish to invest through their financial reports prepared according to the same standards (Barth et al., 2001; Beatty, 2011).

There are many advantages of IFRS standards, such as providing a platform for wider investment choice, enabling businesses to present their financial statements on the same basis as their foreign competitors, reducing the cost of acquiring foreign capital, companies planning to mergers or takeovers will be much easier, the capital markets will be more efficient, companies with foreign subsidiaries will have a common accounting language, and improve business development and the world economy as a whole (Ball, 2006). On the other hand, there are some criticisms of IFRS standards such as the high cost of implementing these standards, in addition to the belief by some that level of efficiency and details are less compared with the US Generally Accepted Accounting Principles (US GAAP).

In 2008 the global financial crisis highlighted several weaknesses related to applying fair value accounting to financial assets and financial liabilities. The crisis showed the extent of the relationship between the macroeconomic and financial markets, it also alerted the need for effective accounting standards especially for financial instruments (Linsmeier, 2011; Barth & Landsman, 2010). Financial instruments are the driving force of the global financial system to raise the level of economic efficiency, by increasing risk-sharing opportunities and reducing

operational costs. Financial institutions are in constant need of those instruments and of the creation new instruments that meet their needs and control financial risks (Bartram et al., 2015).

Due to the global financial crisis of 2008 and bankruptcy of many banks around the world, IASB was allowed to reclassify some financial assets regulated by IAS 39, but it has been criticized because its difficulty in terms of implementation. As a result of recession in 2009 IASB issued the first part of IFRS 9-classification and measurement of financial assets and after 4 exposure drafts IASB issued IFRS 9 in July 2014 (IFRS Foundation, 2014). The new version of the standard includes fundamental amendments to the accounting of financial instruments, in addition to a new approach to calculate provisions for credit losses based on expected losses instead of calculating them based on incurred losses (IASB, 2014; Gebhardt, 2015).

Accounting for loan loss allowances is one of the most important contemporary issues in accounting science due to the importance of this allowance in hedging credit risk. Many users of financial statements indicated that the reason which increased the repercussions of the financial crisis is that the financial institutions did not have provisions for the loans that defaulted. The problem was that these loans were classified within low risk and good rating (Huian, 2012). Since then, the necessity of determining provisions for all loans has been highlighted, even if they have a good rating, because it is possible to default, and thus the risks will be better assessed. Loan allowances are required to be calculated based on the probability of default or inability of the client to repay and to increase hedging in advance, economic indicators are taken into consideration (Chen et al., 2019; Gurný, 2013).

Financial institutions recently are facing the compliance burden in light of their endeavors to enhance financial stability, due to the imperative of their commitment to implementing the instructions that govern the measurement, evaluation and control of banking risks as approved by the Basel decisions on banking supervision. They need these requirements to comply with IFRS Standards that govern the banking sector, which plays an effective role about measurement and disclosure of banking risks in the financial reports of banks, especially the IFRS 9, which estimates to improve the principles of classification, recognition and accounting measurement of financial instruments as one of the main sources for the occurrence of the banking risks (Gornjak, 2017).

According to Onali and Ginesti (2014) claim that the timing of the implementation of IFRS 9 was a major challenge for the financial services sector in many countries, in addition to the challenges of coordination between departments related to financial affairs, credit, information technology and other departments. The obstacles related to the availability of capabilities, capacities, and special systems for forecasting the economic situations and expected credit loss (Camilleri & Camilleri, 2017), especially in light of the lack of clarity of relations between the regulatory and accounting frameworks for the banking sector (Beatty & Liao, 2014).

It is expected that the actual application of IFRS 9 will lead to a change in the investor's perception of the reservation imposed by professional regulations on financial results, and the comparisons between institutions are expected to differ according to the difference predictive of the credit loss, which causes financial institutions to decrease the profits more than expected in the short term, but at the level of the term, it will increase the stability of financial institutions, especially banks, which are considered the most financial institutions dealing with financial instruments (Brkovic, 2017).

The banking sector in any country represents a major nerve and a basic pillar of the economy, it works to stabilize monetary policy in the market and implementation of the state's monetary policies in addition to the largest investments in the financial markets through the banking sector, which is the main pillar of the capital market (Beaver, 2002). As banks are obliged to apply all standards and legislation that are imposed on them, like other public companies. Therefore, IFRS Standards are considered as an environmental factors that affects the bank's financial performance, and all financial institutions seek to implement everything that contributes to improve the process of measuring their financial performance (Holthausen & Watts, 2001).

Based on the above, it is important to know the effect of IFRS 9 on the financial results of the largest financial institutions, which is beneficial to many parties related to the subject of the study, such as investors, management of these institutions, standards-setting bodies and other stakeholders.

# 1. Main Topics and Objectives

## 1.1 Research Objectives

The financial results contribute to show the profitability, liquidity, solvency, financial position and the changes in economic recourses of the institutions. The financial performance is affected by several factors, first of which are the organizational factors, which are represented by the size of the financial institution, the accounting programs used, and the administrative staff. Secondly, environmental factors, which are the international instructions and standards that govern and regulate the work of institutions. And some studies (Harris, 2014; Edwards, 2016; Marton & Runesson 2017), predict that applying the expected credit loss (ECL) model and recognizing credit losses for all financial instruments according to the IFRS 9 will have a significant impact on some important items in the financial statements and thus on the financial performance indicators. The main objectives of this study as follow:

- 1- To examine the impact of applying IFRS 9 on the financial results of the largest financial institutions.
- 2- To examine the relationship between the financial institutions for two countries on different continents for the effect of IFRS 9 on the financial results.
- 3- To present the recent models for expected credit loss within Phase 2 of IFRS 9 - impairment of financial instruments.

## 1.2 Research Questions

The new accounting approach under IFRS 9 might have many implications on financial institutions in general, and the banking sector in particular. These possible consequences may have an impact on the understandability, and relevance of financial information used by stakeholders to evaluate the performance of these institutions. The problem of the study is clear in the following two main questions:

- 1- Is there any difference in terms of the financial results of largest financial institutions after and before IFRS 9?
- 2- Is there any difference in the impact of IFRS 9 on financial results from one country to another?

## 1.3 Study Significance

The value of study is that IFRS 9 *Financial Instruments* has been applied recently and the previous studies focused on the expected impact and requirements of the implementation of this standard as shown in Table 2.4. However, the present study will be the first examine the actual impact of this standard on financial results, specifically the main items in the financial

statements of the largest banks in the United Kingdom (UK) and Canada on two different continents, and compare the financial results before and three years after from the mandatory date of application of this standard to reach a more clear picture. Finally, this study focuses on the banking sector, which is a major reason for the growth of any economy in the world and the stability of the monetary system, as the exposure of this sector to crisis or risks will affect the rest of the sectors directly. Therefore, the selected study sample increases the value and importance of the study to the users of the financial statements.

#### **1.4 Structure of the Dissertation**

The dissertation is structured as follows:

*Chapter one* explains the research objectives, the research questions, and the significance of the study.

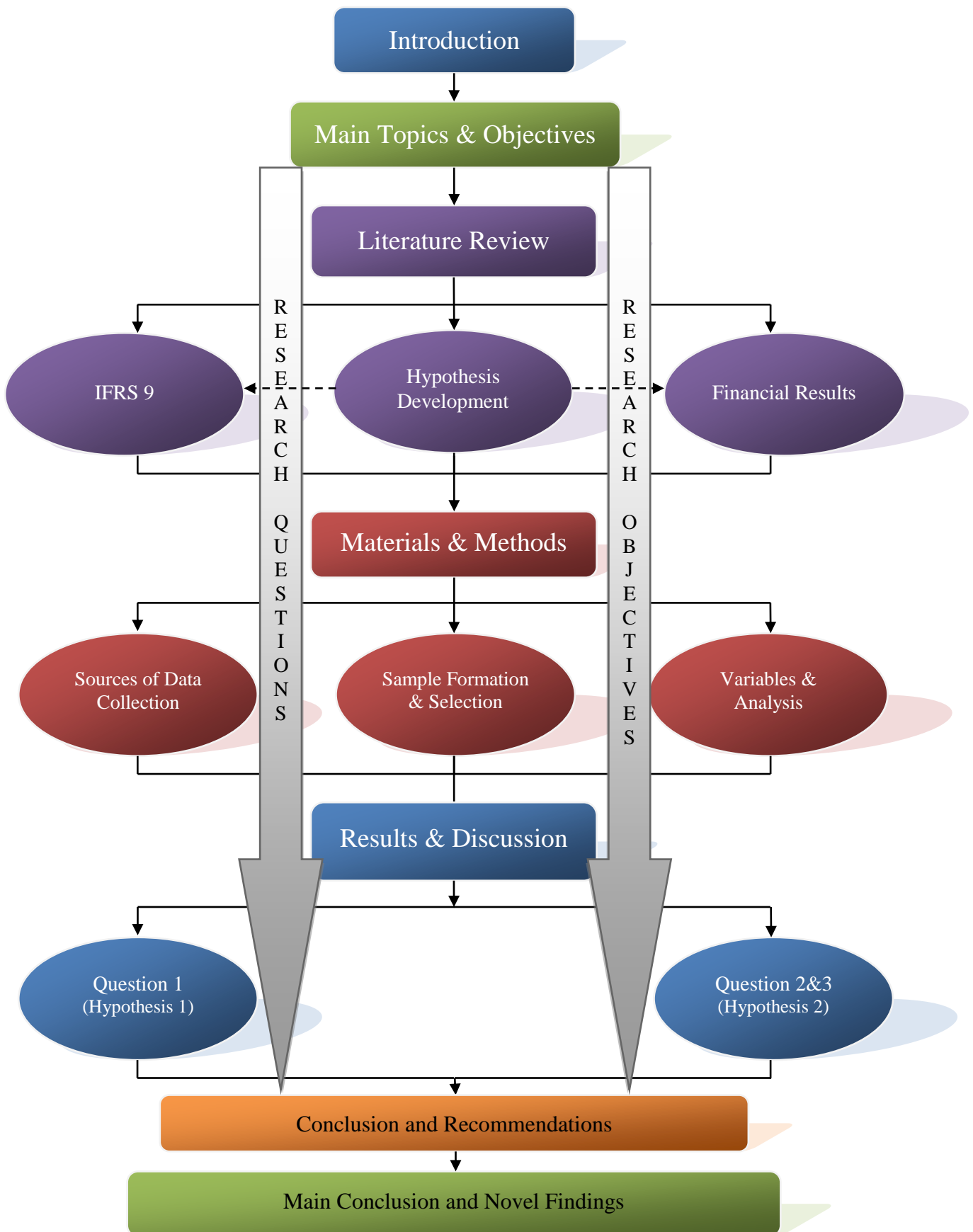
*Chapter two* discusses and provides the literature review related to IFRS 9, financial instruments and the expected results for this standard based on the previous studies in addition to theoretical perspectives of accounting for financial instruments and financial results. This chapter present the recent models for expected credit loss within Phase 2 of IFRS 9.

*Chapter three* represent the materials and methods used for testing the data collected. This chapter focuses on the data sources, sample formation and selection. This chapter provides also the appropriate methodology and techniques chosen for the analysis of data.

*Chapter four* describes and discusses the results of the research. This chapter contains two parts, the first part explains the impact of IFRS 9 on the financial results by answering the sub-questions. The second part for this chapter answers the second major question of the research on the comparison of the impact of IFRS 9 on the largest financial institutions between two different countries on different continents.

*Chapter five* conclude the results presented in the previous chapter, the implications, limitations and future research directions.

*Chapter six* presents the novel findings of the research, summary, references and annexures in the end. Figure 1.1 shows the structure of the research



**Fig 1.1: Structure of the dissertation**

Source: (Author's own, 2020)

## **2. Literature Review**

### **2.1 Accounting Standards – An Overview**

Accounting has developed for a long time in different countries, as each country has been interested in setting its accounting standards that reflect the practices of its industry and the contributions of the accounting bodies established for this purpose (Besusparienė et al., 2018). There were pioneering countries in this field due to their industrial development, including the United States of America, which witnessed great industrial development at the beginning of the last century. The role of developing standards was assigned for the first time to the American Institute of Certified Public Accountants (AICPA), which took upon itself the task of developing what was known at that time as (GAAP). As a result of increasing complexity and the need for accounting standards led to the demand for an independent body to set standards, and the terms of independence and integrity were the first conditions of this body to study and assess the needs of all parties, including investors, lenders, preparers of financial statements. In response to these demands, responsibility for developing standards was transferred to a new body, the Financial Accounting Standards Board (FASB). The first body was responsible for setting current standards in the United States from 1973 until today (Paz & Griffin, 2009).

On the other hand, and at international level, the idea of international standards for accounting emerged at the beginning of the 1950s after World War II due to this period witnessed of economic integration, the increase of cross-border capital flows, and the development of international trade exchanges, cross-border companies and global financial markets (Rehana, 2017; Wolk et al., 2017). It has become necessary to rely on a unified language for the preparation of financial statements in order to give the investor the ability to compare these statements and on the basis of which he can make a decision (Young, 1994). Companies operate outside their home borders, and investors invest in both local and foreign companies. Using different accounting frameworks in different areas becomes a problem for both companies and investors. For this reason, it has become necessary for countries to abandon their accounting frameworks and use a single framework to reduce the problem of divergence (Wolk et al., 2017).

In light of these circumstances, the IASC and then the IASB were established, these two bodies are no different, and these are the same with changing name, in order to work on developing a single, high-quality and more understandable set of accounting standards

(Rehana, 2017). IFRS Standards are widely used by the majority of countries all over the world. These countries have allowed or required their local companies to prepare financial statements in accordance with these standards. For example, companies in the European Union were required to submit the consolidated financial statements under IFRS Standards in 2005 based on the instructions issued by the European Commission. At the same time, many other countries are either requiring or allowing local companies to use IFRS Standards, and other countries have set a timetable for convergence and adoption. Despite this international trend towards it, the United States of America has not adopted the IFRSs until today.

### **2.1.1 The Development of IFRS Standards**

IAS did not appear to the public until the beginning of the 1970s with the establishment of the IASC, although there were many efforts before that, aimed to establish a common base between countries in the field of accounting (Ball, 2006). These standards came as a result of the desire of many countries to establish a set of accounting standards that can be applied by all countries, and this is due to the multiplication of commercial deals between business companies, the multiplication of investments between different countries and the need for standards that are a unified basis to guide transient commercial operations a cross (Ali & Hwang, 2000).

The process of preparing and developing standards passed through several stages until they became the form they are today as a result of the efforts of countries in this field, through the accounting bodies that take upon themselves the task of establishing and developing a base common international standards for accounting profession that can be adopted in any country, in order to facilitate the process of comparison between financial statements no matter what the nationality of the entity who is preparing these statements (Ding et al., 2007). The interest for international standards for accounting profession began clearly at the professional or academic level, in the last decades of the previous century. The 1973 formation of the first accounting body is considered a fundamental turning point for the stages of the development of international accounting (IOSCO, 2000). On this basis, its development can be divided into three stages:

#### *- Stage One: 1901 to 1972*

International accounting developments and concerns at this stage were carried out only through holding regional meetings and conferences between accountants to exchange information and experiences between the countries of the region, and there were no significant

efforts regarding to reduce the differences in accounting practices between countries (Harris & Muller, 1999). These conferences start with the beginning of the last century when the first accounting conference was held in 1904 in St. Louis, Missouri (US), under the auspices of the AICPA in the United States. The conference discussed the possibility of unifying accounting regulations between countries (Samuels, 1985).

Amsterdam was the seat of the second conference, which was attended by delegates from almost all European countries in addition to the United States, Canada and Latin America (Samuels, 1985). The third conference was held in New York, where main research papers were presented about the consumption, investing, depreciation and revaluation (Mary, 1958). The fourth conference was held in London, and then the fifth conference in Berlin after the Second World War ended, London took the initiative to host the sixth conference in London, and seventh conferences held in Amsterdam in 1957, the interval between one conference and another was set at five years (Mary, 1958; Worldmisc, 2018).

The interest in international accounting began to increase after the Second World War as mentioned earlier. There have been calls for international standards for accounting and certain actions have been made. The eighth conference in New York, more than 40 papers were presented, and the discussion focused on accounting in the light of the global economy (Mary, 1958). Many participants saw the need for international accounting and auditing standards, and they were encouraged to take steps to promote the development of auditing and accounting at the international level. The ninth Conference in Paris, followed by the tenth Conference in 1972 (Worldmisc, 2018).

Based on the above, it can be concluded that the idea of international standards for accounting is not a product of the late twentieth century, but rather this idea was before that. This is shown by the attempts that were evident in the conferences held since 1900 for accounting harmonization, the most important of which is the unification of accounting methods and practices, and through this stage, it can also be noted that the United States of America has been an active member in these conferences since its inception.

- *Stage Two: 1973 to 2000*

This is an important stage as a result of previous developments and contacts among professional accountants at the regional level, where international accounting has entered an important stage of its development and there are practical efforts being made to reduce

accounting differences at the international level, and through the tenth international conference of accounting held in Sydney, Australia, a decision was issued to establish an international accounting organization is (IASB) in 1973 (Camfferman & Zeff, 2007).

This development was not by chance, but rather came as a natural response to the changes that occurred in the accounting environment itself. In addition to the above, this period (the seventies) witnessed the development of international accounting academically, as well as the emergence of what is known as multinational companies (Camfferman & Zeff, 2018). This period was characterized by the development of IAS's which are based on accounting information, as the committee issued a good number of standards, the committee focused on developing standards primarily without paying attention to its adoption by states, and this affected the work and credibility of the committee and led to its restructuring (Camfferman & Zeff, 2015).

- *Stage Three: 2001 until now*

In this third stage, international accounting witnessed significant developments in response to calls for improvements in governance, funding and independence of IASB by restructuring the accounting body, with new name: the IASB, this board has assumed its new responsibilities as a standards developer, has adopted existing IAS standards and SIC interpretations, its task is to develop IFRS Standards (Deloitte, 2011; Zeff, 2012). In 2002, the European Commission adopted legislation requiring listed companies to apply IFRS Standards no later than 2005, becoming the first major capital market to require IFRS Standards and many countries, whether developing or developed, have adopted them (Haller, 2002). In 2011 Canadian and Indian companies started using IFRS Standards, and Japan allowed some qualified domestic companies to choose to use IFRS Standards and chose to eliminate major differences between Japanese standards and IFRS Standards (BAC, 2009; Carvalho et al., 2007; Jain, 2011). It is two years since the first IFRS Standard was issued and the first final draft IFRIC Interpretation published. In 2004 the second standard and the sixth standard were issued, and there was a sharp discussion about the standard IAS 39 "Financial instruments: recognition and measurement" (Stanford, 2006). In Europe, the European Commission recognized of the difficulty of working with this standard and the adoption of only two parts of it, even the French president at the time, Jacques Chirac, stated that the accounting treatment in IAS 39 threatens the stability of the European economic structure (Richard, 2006; Stanford, 2006).

### **2.1.2 The Process for issuing the IFRS Standards**

An accounting standard is a written statement issued by an official accounting regulatory body that relates to elements of financial statements or a type of transaction or event relating to the financial position and business results and specifies the appropriate measurement, presentation or communication method (Michael & Laura, 2012).

The accounting standard is also defined as an accounting base that aims to improve accounting bookkeeping methods, and a good understanding of and control over them. Accounting standards consist of principles, rules and methods that lead to an integrated accounting framework. Accounting standards are also models or general guidelines that lead to direct and rationalize practical practice in accounting and auditing and then controlling them. According to Dennis (2008) the IASB aims to develop a single set of high-quality, understandable and enforceable IFRS Standards that produce high-quality, transparent and comparable information in financial statements and other financial reports to assist investors in the world's various capital markets and other information users to make economic decisions. The IASB follows strict and at the same time debatable steps before issuing any standard, which is as follows (IFRS, 2012b; Georgiou, 2010):

- 1- Staff work to identify and review issues related to a potential topic in the agenda and consider applying the conceptual framework to the issues.
- 2- Consult with IFRS Foundation and IFRS Advisory Council about the project and priorities on the agenda.
- 3- Publish a discussion document for public comment, usually called a discussion paper, which often includes the primary views on some of the issues in the project.
- 4- After reviewing the comments, IASB developed and published an exposure draft for public comment such as accounting bodies and associations, governments, financial markets and relevant institutions with an interest in standards. All comments are taken into account and discussed in open sessions.
- 5- The standard is adopted if it is approved by at least nine votes from the IASB and any dissenting opinions are included in the published standard.

Regarding the issuance of IFRS interpretations issued by the IFRS Interpretation Committee, it has the same steps as issuing standards but before issuing the draft of interpretation there should be no more than 4 members against the proposal.

The IASB has adopted previous IASC versions including the conceptual framework for the preparation and presentation of financial statements. According to Georgiou (2010) claims that the conceptual framework is intended for use by the IASB and IFRIC when developing new accounting standards or interpretations or amending existing standards. It is also a reference point for preparers of financial statements in the absence of specific guidance in international standards. According to Saudagaran (2009) the conceptual framework states that the objective of financial reporting is to provide financial information about the entity that can be useful to existing and potential investors, lenders, and other creditors in making decisions about the provision of resources to the entity, although the IASB has recognized that the framework increasingly does not take consider recent changes in financial reporting (Kabir & Rahman, 2018; Saudagaran, 2009).

Niclas, Jordi & Soledad (2018) state that the IASB has focused on developing standards based on clear principles, which also need interpretations commonly referred to as principle-based standards. IFRS Standards focus more on the economic substance of the deal and the basic rights and obligations rather than providing a lot of mandatory rules. These rules are within the framework of international standards in the form of principles and this makes these standards less in size compared to GAAP.

The clearly defined principles provide many advantages as a basis for accounting, including allowing preparers of financial statements the ability to consider the best method of accounting and reporting transactions, and increasing comparability between companies for similar transactions regardless of industry (Harris & Muller, 1999; Robert et al, 2018). From the other side there is many criticism that principle-based standards increase the opportunity for manipulation because the flexibility and excessive use of fair value in most of IFRS Standards compared to GAAP.

### **2.1.3 The importance of IFRS standards**

IFRS standards have become so important that they can be identified by increasing stability and transparency and the confidence of investors around the world, whether they are local or foreign. IFRS Standards remove barriers for cross-border listed companies, and it would be beneficial for investors to have basic financial information prepared under international standards enabling them to assess risks. International standards help a lot in cross-border mergers and acquisitions by making it easier for interested parties to reshape the financial statements. Foreign investors are more attracted to the financial markets where the financial statements are prepared under IFRS Standards (Houque et al., 2012).

The IFRS Standards also help to improve the coordination of processes and accounting systems used in the preparation and presentation of financial statements (Iatridis, 2010). To achieve these goals IASB ensures that the published financial statements have been prepared and presented in line with IFRS Standards, and work to persuade governments and official bodies that supervising capital markets to oblige companies under their supervision to apply IFRS Standards and disclose the extent to which this commitment is implemented.

Although standards are important, the IASB is working to solve some issues such as the differences in accounting rules and principles between countries, the difference in cost accounting systems, the quality of reports that are related to companies and the level of disclosure of information contained in the financial statements. In addition to the problem of the difference and variation in auditing methods from one country to another (Barth & Clinch, 1996).

### **2.1.4 The Development of US-GAAP**

Charles and Barbara (2007) claim that the twentieth century witnessed many attempts to study the theoretical foundations of accounting. These attempts began in the United States of America with establishment of accounting bodies whose primary mission was to search for accounting principles that were generally accepted, then moved to the search for accounting standards based on the conceptual and theoretical issues for financial reporting. This transformation in the search took place through the following stages:

- *Stage One: Before 1930*

The accounting profession emerged in the United States during the last quarter of the nineteenth century. The first accounting body was formed, the American Association of Public Accountants (AAPA), which was established in 1887, and its primary role were to regulate the work of accounting firms. The state of New York ratified the first law to determine the qualifications required for a certified public accountant before 1900, and this was considered the beginning of the certified accountancy profession in the United States (Zeff, 2003; Carey, 1969).

According to Bernardo and Trevor (2004) the spread of public companies at the beginning of the twentieth century as a new form of ownership effectively contributed to expansion of activities and growth of these companies. Before the accepted accounting principles, most companies relied on initiatives of managers to find solutions to accounting issues, but those initiatives were not effective for several reasons. First, lack of most practices in a theoretical background due to nature practice for approved solutions. Second, the lack of completeness that leads to the adoption of different solutions and practices to the same problem. Third, the management presents the balance sheet only and not publish the income statement on the pretext that its publication harms the competitive interests of the institution (Sampson, 1960). Thus, it was not possible to evaluate the management's activity and disclaim its responsibility in practice. Finally, avoidance of dealing with complicated financial issues.

As a result, the calls to improve the financial statements have increased, and there were many calls for the need to protect accountants from the pressures of management, and to protect the interests of investors and shareholders, by finding acceptable accounting principles. Thus, a new trend began to crystallize, centered on the increasing interest of the investment and non-investment community in developing accounting and financial reporting tools.

Since the early years of the profession, accounting firms have been performing consulting services, which include the installation of cost systems for factories, organizational efficiency studies, investigations in relation to potential investments in other firms and a host of other services to management, which are often provided in conjunction with financial audits (Bloom & Solotko, 2004). On the academic level, in the 1920s many scientific attempts appeared in USA, to build an accounting theory, on the basis of which all accounting assumptions that are still accepted today in the contemporary accounting model were determined, and this attempt came after the beginning of interest in developing the academic

side of accounting and developing matters related to the development of programs and curricula in accounting in many universities (Billings & Capie, 2004; Bloom & Solotko, 2005).

- *Stage Two: 1930 – 1972*

Accounting principles were largely defined by academic literature and general industrial practice; the first serious attempt to formalize principles began in the 1930s, mainly as a result of the stock market collapse, and a widespread perception that the absence of strict, standardized financial reporting requirements contributed to rampant stock market speculation in the previous decade that culminated with that collapse (Wolk et al., 2017; Zeff, 2005). As a result of this crisis that afflicted the global capitalist system, many institutions - fearing bankruptcy - have submitted financial statements that were different from reality by choosing accounting procedures that show the institution incorrectly, raising the value of assets and increasing profits fictitiously, and this was lead to harm the interests of lenders and shareholders, this situation had the following results:

1- Demanding the state to set principles of accounting, which the management of an entity must adhere to these principles, to limit the flexibility in selecting the accounting policies and procedures that serve its interests. As a result, new laws and regulation have been issued at that time, such investments law was issued requiring the registration of new securities offered for sale under the supervision of a government committee. Securities and Exchange Commission (SEC) was also established with the task of determining the accounting procedures and the content of accounting disclosure for companies that deal in the stock exchange, and the SEC announced that it will directly issue accounting standards if the profession is unable to do so (Benston, 1969; Bushee & Leuz, 2005).

2- The role of professional organizations has been increased as a result of the occurrence of the crisis and the succession of bankruptcy incidents. Small professional accounting organizations began to unite with each other to form strong organizations that play a role in directing the accounting work, as the accountant became dependent on the recommendations of his profession without being satisfied with the instructions of the administration in which he works (Ashbaugh and Pincus, 2001).

Among the most important efforts of these associations and organizations at this stage, I mention those that have been made by AICPA that formed a committee to approve the GAAP, and in 1936, the institute publishes examinations of financial Statements, which was adopted

for the first time the term of ‘generally accepted accounting principles,’ known as GAAP (Zeff, 2005). AICPA established a special committee, the Committee on Accounting Procedure (CAP), to work with the New York Stock Exchange to achieve the goal of developing standards for accounting procedures and narrowing areas of difference in financial reports through the preparation of accounting bulletins known as Accounting Research Bulletins (ARB), these publications did not provide for mandatory accounting practices or principles, but obtained their authority from general acceptance only (Epstein et al, 2010; Fisher, 1998).

In the late 1950s, the AICPA formed the Accounting Principles Board (APB), to replace CAP, following its failure to develop a set of accounting principles that received general acceptance according to an integrated theoretical vision (Fisher, 1998; Zeff, 2005). The main objectives of the APB were to improve the writing of accounting principle, identify appropriate practices, narrow areas of difference and contradiction in practice.

Epstein, Nach and Brag (2010) claim that in order to achieve these goals, the APB mission was twofold to develop a theoretical framework to help solve problems that became apparent and to research individual cases before the AICPA published versions. The official publications of the board are based mainly on research and studies and are based on logic and analysis (Kieso et al, 2016).

During the fourteen years of the APB existence, it issued more than 30 opinions that were proposed solutions to problems faced by the profession or modifications to earlier versions of the CAP, as well as versions providing for changes to both the recognition and disclosure principles of the profession (Epstein et al., 2010; Kieso et al, 2016). Many criticisms have been leveled of his method of work, including his succumbing to external pressures and his lack of an integrated theoretical framework to address various problems. As a result of the growing criticism of the APB and its way of working, the board of directors of the AICPA appointed two committees and asked them to define the objectives of the financial statements and examine method of operation for APB, identified necessary changes to achieve the best results and study how the accounting principles should be developed (Fisher, 1998; Zeff, 2021). These committees made its recommendations to the AICPA, where the recommendations were adopted in their entirety, and implemented professionally, after which the (FASB) was established (Nobes et al., 1997).

- *Stage Two: 1973 until now*

AICPA adopted the recommendations of the *Wheat Study* that recommended a full-time FASB be established under the auspices of a Financial Accounting Foundation (FAF). The process of developing accounting standards was in the beginning influenced by political issues rather than a logical, and after extensive criticism campaigns against the bias and subjection of the APB to pressure of the dominant audit firms in the United States of America (Smith et al., 2013).

Developing standards is a social decision because these standards represent constraints on behavior of an accountant, and must be accepted by the parties involved. It should be noted that instead of assigning the FASB the task of defining accounting principles, as it did with APB previously (Wolk et al; 2017). The task entrusted to FASB includes two aspects: the formation of the conceptual framework for accounting theory, and the issuance of standards for practical application, which means the attention shifted from defining accounting principles to defining objectives, concepts and standards (Glaum & Street, 2003). To carry out the tasks entrusted to FASB, it has built a conceptual framework that formed an important base for the development of accounting theory (Deskins, 1977).

FASB has been issued eight concepts of financial accounting (FACs), and for practical application, 168 standards called (FASs), which dealt with modification, reformulation and clarification. These standards aimed to provide useful information for existing and potential investors, creditors, and others interested in investing, crediting and making similar decisions (Zeff, 2021).

Based on the above, it can be noted that in the last century a clear trend appeared in the United States of America towards the formation of a theoretical accounting framework, it was embodied in the formulation of a scientific theory that guides the achievement of accounting goals, but the nature of accounting knowledge and its close relationship with environmental variables and individual behavior made the task of accounting regulation a very difficult process, and this led to the succession of many bodies following their failure to achieve this task.

### **2.1.5 The Process for issuing ASC**

The process of preparing standards and concepts must be within precisely defined procedures, and in a systematic manner. The main steps of preparing a financial accounting standard (FAS) which has recently become known as accounting standards codification (ASC) are: Initially, the FASB accepts requests and recommendations for a particular project; forms a working group of experts in various sectors to identify problems, issues and alternatives related to this field or project; research and analysis needed to prepare a draft standard; prepare and issue a discussion paper that summarizes questions and discussion on the topic; hold a public hearing for suggestions; analyzes and evaluates the responses of the general public; the board takes into account the issues raised and prepares exposure draft; the draft continues to be submitted for public comment after which the board evaluates all opinions received; the committee shall study the exposure draft in the light of the comments received on it, and re-evaluate and amend it if necessary; the council shall collectively study the final amended draft proposal and vote on the issuance of the standard statement (FASB, 2004; Garnsey et al., 2014).

The new standard requires the endorsement of four of the seven board members, and thus becomes an American accounting standard and is practically binding (Kieso et al., 2016). Accounting standards in US contain a huge amount of application guidelines, and these standards are usually referred to as rules-based standards, which is a misnomer about them, as they are also based on principles. At the beginning of its development, it was in the form of GAAP, but it currently contains many application guidelines (rules). It contains accounting rules for almost every type of transaction (Garnsey et al., 2014).

Advantages and disadvantages of a rule-based approach, where the advantages are clarity in application, reduced risk but only when applicable rules are followed, comparability of companies in the same industry following the same rule, less confusion and the need to apply professional judgment in the areas of accounting and reporting (Cohen et al., 2013). The disadvantages include that these detailed rules create more exceptions, which usually increases the level of complexity and leads to different accounting treatment even in similar transactions in different industries (Agoglia et al., 2011). Entities focus on just technical compliance rather than focusing on the objectives underlying the standard, where a particular transaction must comply with the rule even if the accounting rule applied is misleading, in addition to the lack of comparability between different industries when it comes to similar transactions, and the increased risk when the applicable rules are not followed (Cohen et al., 2013).

### **2.1.6 The importance of ASC**

Accounting Standards Codification (ASC), is the private sector body charged with establishing and improving accounting and reporting standards in the United States for private and public nongovernmental companies, including small businesses and not-for-profit organizations (FASB, 2008). These standards regulate financial reporting and provide guidance for the public, including issuers, auditors, and users of financial information. These standards were arranged in four levels according to their mandatory authority (FASB, 2004). As noted, the documents that make up the accounting standards differ in form, completeness and structure. In some cases, these documents contradict each other and are difficult to interpret (Wolk, 2017).

As a result, preparers of financial statements are sometimes not sure whether they have the correct documentation, and determining what is reliable, is extremely difficult. In response to these concerns, the FASB developed the accounting standards codification (ASC). FASB (2008) codification is the result of a project that took two years and involved people from multiple entities. The main objective of the FASB in its development is to provide in one place all the authoritative literature related to a particular topic. This will facilitate user access to all reliable accounting standards (Garnsey et al., 2014). Codification changes the way in which accounting standards are documented and presented, the goal of codification is to integrate and collect existing accounting standards, and it does not create new standards, but rather creates one reliable level of them (instead of the previous arrangement of four levels), and considers all other accounting literature not included in the notation is not reliable (Andor & Rózsa; 2013; Vera-Muñoz et al., 2006).

The notation is considered an accounting scheme that includes all the reliable accounting standards (Kieso et al, 2016). The documents that existed before codification were classified into two main categories: Basic documents and implementation guidelines, which are considered reliable sources and are included in the codification, non-core material considered unreliable are excluded from codification such as summaries of excess of existing standards, historical contents, discussions of past practices and summaries of feedback, and other similar content, with the conceptual framework remaining an unreliable source (Ancori et al., 2000). To provide easy access to this codification, FASB has developed a system to simplify the search process, an online real-time database that facilitates easy access to codification, and its search system provides an organized structure, divided into topics, subtopics, sections and paragraphs, using a system of numerical indicators. FASB is also updating the codification

search system concurrent with standard release activities (accounting standards updates) to ensure that users benefit more than the new content (Andor & Rózsa; 2013; Epstein et al, 2010). *FASB had three primary goals in developing codification: first, simplify user access by codifying all authoritative US GAAP in one spot standards, second, ensuring that the codified content accurately represented authoritative US GAAP, third, create a codification research system that is up to date for the released results of standard-setting activity* (FASB, 2014).

In addition, the codification is expected to reduce the amount of time and effort required to solve the accounting research issue, mitigating the risk of inconsistency by improving the usability of standards; provide accurate information with real-time updates when accounting standards updates are issued, simplifying user access to all trusted American accounting standards requires a structural reform that changes the version-based model (with thousands of individual versions) to one based on more than 90 topics. Codification of the vast quantity of previous versions was a mixture of art and science. As a means of ensuring that written content accurately represents the standards, the FASB has established levels of auditing and also use a system of oversight to track each activity. However, combining different versions into a codification can lead to unintended changes, so FASB sees that the level of unintended changes will be limited. Its employees evaluate any such feedback from users and advise the Board when necessary (Andor & Rózsa; 2013). Understanding the codification structure is important for those who need to understand, research, applying standards to particular facts and circumstances, and assist FASB in its research efforts and convergence with IFRS Standards (Zeff, 2021).

In this section, the study highlighted on the history of international and American financial accounting by focusing on three axes, the development, importance and process of issuing international and American accounting standards. Although there are some differences in accounting treatments between financial and American accounting standards, there are similarities in the history, development and process of issuing those standards. This part of the thesis may appear to have no direct connection to the research problem, but this thesis focused on an important accounting standard. Therefore before talking about this standard and its complexities, a summary of less than 15 pages has been added to the most important stages of both international and American accounting standards, which is of interest to all researchers in financial accounting. The next part of the theoretical framework focuses on the independent variable of the thesis, which is IFRS 9 Financial Instruments.

## **2.2 IFRS 9 Financial Instruments**

IFRS 9 *Financial Instruments* standard aims to regulate the accounting settlement for financial instruments (Brkovic, 2017). IFRS 9 is a standard that connects accounting treatment with risk management activities and primarily measures financial assets and liabilities, by addressing several aspects in three phases of Classification and Measurement, Impairment and Hedge Accounting. This standard also aim to raise the ability of the banks to face potential risks by building a new model for making loan loss provisions based on expected credit losses (Novotny-Farkas, 2016).

### **2.2.1 The Development of IFRS 9**

The literature of accounting thought has witnessed a lot of controversy about the use of fair value in accounting for financial assets and liabilities, compared to the historical cost. The relevance is one of the most important qualitative characteristics of accounting information (Linsmeier, 2011). Fair value is a more objective and relevant measure under inflationary conditions. In 2011, the IASB issued the IFRS 13 - Fair value as an integrated guide that deals in detail with the approaches and methods of accounting measurement based on fair value to support IFRS Standards related to fair value so that the accounting information is more relevant and reliable, especially the key elements of the statement of financial position (Benston, 2006; Landsman, 2007; Linsmeier, 2011).

The IASB as a result of the heavy reliance on the use of fair value as a basis for the accounting measurement of financial assets and liabilities, has faced many problems and difficulties when applying the standards of financial instruments, especially in the absence of an active market and the impact of these estimates on the accounting measurement of financial instruments and the preservation of capital in light of the continuous increase for prices (Chatham et al., 2010). The first exposure draft related to financial instruments was in September 1991, and after four years IAS 32 was issued in 1995 which focuses on presenting financial instruments (Hewa et al., 2020).

IASB issued IFRS 7 in 2005 to disclose the importance of financial instruments about the performance of the institution and the financial position through disclosure of the nature of these instruments, such as the disclosure of the value of each category of financial instruments, where the financial assets and liabilities that are measured at fair value must be disclosed and the differences in the fair value measurement are disclosed within the statement of profit and

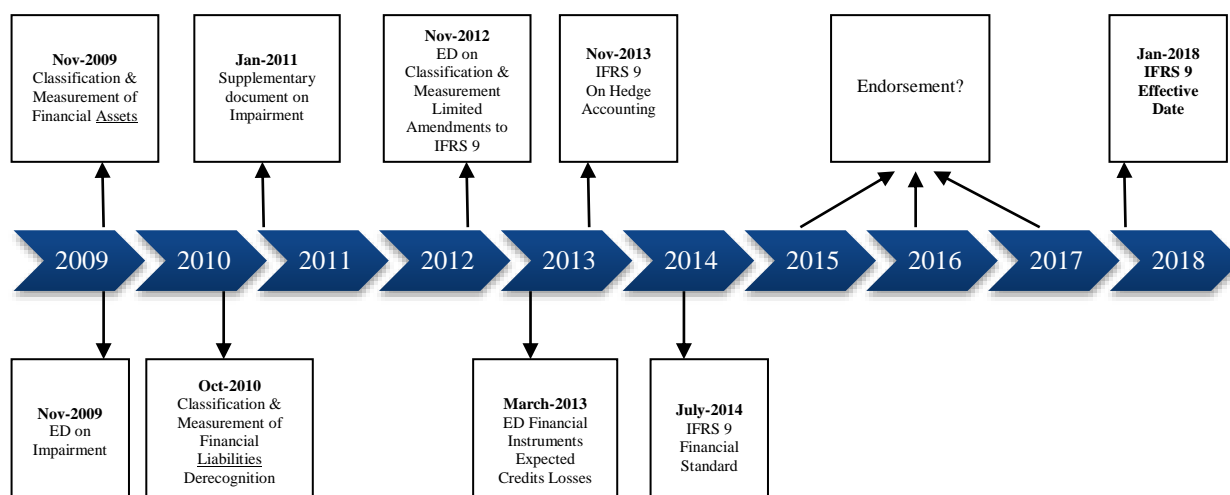
loss, the disclosure of financial assets and liabilities that are measured at the amortized cost, fair value through other comprehensive income, and fair value through profit or loss. The reclassification from fair value to amortized cost or vice versa, the disclosure must be made, and the profits and losses of these financial instruments shall be disclosed in the statement of profit and loss (Volarević, 2018). IFRS 7 was amended in 2008 as a result of the financial crisis, as the standard also focused on disclosure of risks arising from financial instruments, represented by quantitative and qualitative disclosures about exposure to risks arising from financial instruments, and specifies minimum disclosures about credit risk, liquidity risk, market risk (Tahat et al., 2016).

In April 2001 the IASB adopted IAS 39 Financial Instruments: Recognition and Measurement, which had originally been issued by the IASC in March 1999. In December 2003 the IASB issued a revised IAS 39 as part of its initial agenda of technical projects. The revised IAS 39 also incorporated an implementation guidance section, which replaced a series of questions and answers that had been developed by the IAS 39 Implementation Guidance Committee. In March 2004 issued the fair value hedge accounting for a portfolio hedge of interest rate risk. In June 2005 the IASB published an amended version of IAS 39 - the Fair Value Option (FVO) with a restricted fair value option whose application is subject to principles and combined with extensive disclosure requirements (Royer, 2007).

IAS 39 has undergone many amendments because of its importance to companies, financial markets and government oversight bodies. In October 2008, the new amendments allow the reclassification of specific financial instruments, which were previously not allowed, to bring it in line with US-GAAP. However, this decision had disadvantages in terms of comparability between quarterly statements in 2008 (Peterson, 2019). IAS 39 establishes principles for recognizing and measuring financial assets, financial liabilities and some contracts to buy or sell non-financial items. It also prescribes principles for derecognizing financial instruments and hedge accounting (Deloitte, 2008). IAS 39 classified the assets into four categories: Fair value through profit or loss (FVTPL), Loans and receivables, held-to-maturity investments and available-for-sale financial assets (IASB, 2008; Fiechter, 2011).

Financial liabilities can either be recognized at FVTPL or at amortized cost using the effective interest method (IASB, 2008). Therefore, IAS 39 has brought about that it is unnecessary to make a change in accounting professional practices by transferring accounting from measurement by the historical approach to forward-looking approach. As a result of the

financial crisis 2008, many discussions and questions centered on the classification and measurement of financial instruments under IAS 39 and their impact on the financial statements and results of the companies' activities. On 28 July 2009, the Financial Crisis Advisory Group (FCAG) published the final report, which has presented the comprehensive presentation of the basis and binding measurement methods issued by IASB in response to the recommendations of FCAG with some additional observations. The objective of IFRS 9 is to establish principles for the financial reporting of financial assets and financial liabilities that will present relevant and useful information to users of financial statements for their assessment of the amounts, timing and uncertainty of an entity's future cash flows (Rene and Abdulla, 2018). Figure (2.1) illustrates the IFRS 9 Project:



**Fig 2.1: Implementation process of IFRS 9**

Source: (Goulash & Somogyi, 2019)

Figure 2.1 its shows that IFRS 9 was issued in November 2009 and subsequently reissued to incorporate new requirements in October 2010, November 2013 and July 2014. IFRS 9 is now complete in all previous versions and is mandatorily effective for periods beginning on or after 1 January 2018 with early adoption permitted (EFRAG, 2015).

### 2.2.2 Definitions of Financial Instruments

This section highlighted on the definition of the concept of financial instruments and their types of equity instruments, debt instruments and financial derivatives, in addition to the first stage of IFRS 9 classification and measurement. The financial instrument is a contract that entails an obligation on an entity to transfer cash or another financial instrument to another entity. *The Financial instrument is any contract that gives rise a financial asset for one entity*

*and a financial liability or equity instrument for another entity* (IASB, 2021; IAS 32: para.11).

The issuer of a financial instrument shall classify the instrument, or its component parts, on initial recognition as a financial liability, a financial asset or an equity instrument in accordance with the substance of the contractual arrangement and the definitions of a financial liability, a financial asset and an equity instrument (IASB, 2021; IAS 32: para. 15).

*Financial asset is a contract that gives the right to receive cash or another financial asset from another entity, or a contractual right to exchange financial assets or financial obligations with another entity under conditions that are potentially favorable to the entity* (IASB, 2021; IAS 32: para.11). Assets within the scope of IFRS 9 include cash, deposits in other entities, (trade) receivables, and granting loans to other entities, investments in bonds and other debt instruments issued by other entity. Investments in bonds and other debt instruments issued by other entity, investments in stocks and other equity instruments issued by other entity.

*Financial liability, it is either a contractual obligation to deliver cash or another financial asset, or a contractual obligation to exchange financial assets or liabilities with another economic entity under conditions that are potentially unfavorable to the entity* (IASB, 2021; IAS 32, para.11). The financial obligations within the scope of the IAS 39 include: Deposit obligations, (commercial) payables, loans from other entity, bonds and other debt instruments issued by the entity.

#### - *Equity Instruments*

*Equity instrument is any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities* (IASB, 2021; IAS 32: para.11). Ordinary shares are the most widely used type by companies in obtaining financing resources, particularly for capital formation when establishing these companies. It is not possible to imagine the establishment of a joint stock company without issuing ordinary shares. The ordinary share represents an ownership document with a nominal value, carrying amount and market value (Mechelli & Cimini, 2020). The nominal value is the value written on the stock coupon, and it is usually stipulated in the articles of incorporation. The carrying amount is the value of equity (the value that does not include preferred shares but includes reserves and retained earnings) divided by the number of ordinary shares issued. As for the market value, it is the value at which the stock is sold in the stock market, and this value may be greater or less than the face value or the carrying amount (Csaba, 2019).

Characteristics of common stock: It has no maturity date and represents a real ownership right for establishments based on the principle of going concerned (Filip et al., 2021). The share is an equity instrument is a share of the capital of a joint-stock company and it cannot be a debt right. Unstable returns and fluctuations between profit or loss, depending on the economic conditions surrounding the facility (Giner & Mora, 2019). The relationship of the return to the economic situation in positive way, as it protects money in cases of inflation, and in cases of the boom, that is, it is a good investment in all cases. It gives two types of return: a capital return when the stock is sold and dividends. Finally, has the right to manage and vote in the general assembly to elect members of the board of directors (Gomaa, 2019).

Preferred shares are also one of the ownership tools, they are a document that has a nominal value, carrying amount and market value, like common shares (Pucci & Skaerbaek, 2020). However, these shares have certain priorities for their holders over ordinary shares. These are often the priorities in obtaining the coupon and to obtaining a share of the liquidation result (Kallberg, et al., 2013). Advantages of this type of shares: First, suitable for some categories of investors who want a lower degree of risk compared to investing in common stocks because, they get specific percentages of profits, and before making any dividends on the common shares, and also because they get a consideration for these shares in the event the company is liquidated before the common shares. Second, the holders of these shares can choose between keeping the preferred shares or converting them into ordinary shares. In this case, the preferred shares achieve a return that exceeds what the ordinary shares achieve, they hold these preferred shares and do not convert them into common shares, whereas, they convert preferred stock into common stock when the return on common stock is higher than that of preferred stock. Third, the holder has the possibility of it obtaining additional profits to the percentage of profits specified for it, through its participation in the remaining profits (Heinkel & Zechner 1990).

On the other hand, preferred shares have many disadvantages, as they include a greater degree of risk than bonds, and this risk is associated with not obtaining a return on preferred shares if the company does not achieve profits, failure to pay its value upon liquidation if the company is unable to do so, especially when its assets are unable to pay the company's obligations (Fan et al., 2012). Preferred shareholders are not entitled to participate in the management of the company. Finally, preference shares do not contribute to reducing the tax burden on the company because the tax is imposed on companies before the preferred shareholders receive

the return (Tahat et al., 2016).

- *Debt Instruments*

*Debt instrument means that the issuer is obliged to deliver either cash or another financial asset to the holder. The contractual obligation may arise from a requirement to repay principal or interest or dividends* (IASB, 2021; IAS 32: para.11). Bonds are the main instrument that deals in the financial markets and are considered a primary source of financing for many parties, whether companies, institutions and even governments. The bond is defined as a negotiable debt document for a specific term and with a specific interest (Barclay et al., 1995). In the last twenty years, new types of bonds have been introduced, with features that differ from traditional bonds in one way or another, including:

1. Zero-coupon bonds: These bonds are sold at a discount on their nominal value, provided that the investor recovers their nominal value on the maturity date (Fischer et al., 1989).
2. Debenture bonds: The holders of these bonds may not claim an interest in the years in which the establishment did not make profits (Kallberg, et al., 2013; Leland, 1994).
3. Bad Bonds: They were created to finance the board members' possession of a large share in the capital of the enterprise they manage by issuing loans whose proceeds are used to purchase a large part of its shares traded in the market. This usually results in a significant increase in the ratio of borrowed funds to owned funds (Fan et al., 2012).
4. There are also other types of bonds, such as callable bonds, convertible bonds and bonds developed to counter inflation and usually sets an initial interest rate for these bonds and is reviewed every six months, to adjust it to match the prevailing interest rates in the market.

The advantages of the bond is that the investor can obtain the nominal value of the bond on the maturity date, and before paying the company's obligations (Titman & Wessels, 1988). Obtaining periodic interest at a specified rate in advance, and before the company achieves profits, i.e., regardless of the results of the company's work, whether it is profit or loss (Tahat et al., 2016). The need for financial instruments emerged mainly from the need for capital and financing, whether it was a short-term financing for liquidity, or it was a long-term financing to purchase a tangible assets. Money markets have emerged significantly to provide short-term financial instruments such as certificates of deposit, term deposits, and bank acceptances. And the capital markets to provide long-term financial instruments such as stocks and long-term bonds. As a result of economic developments, the need has emerged to create innovative derivatives financial instruments that managed through specialized departments in this field known as risk management departments. The next section focused on

the financial derivatives.

Financial derivatives are financial instruments that are derived from other financial instruments and their performance depends on how the related financial instruments perform, and their work philosophy related to the management and transfer of financial risks (Hull & White, 1995).

The purpose of investing in financial derivatives is to obtain certain goods to achieve profits, and usually, their positions are long. The other purpose is hedging where companies resort to the market to make purchases or sell, as a hedge of previously taken financial positions. According to Brennan and Cao (1996) financial derivatives are financial instruments that have the effect of transferring one or more financial risks inherent in an underlying financial instrument between parties to the instrument. A derivative financial instrument gives a contractual right to exchange assets or liabilities with another party under conditions that are often unfavorable and do not lead to the transfer of the original financial instrument at the emergence of the contract, and this transfer does not need to occur at the maturity of the contract (Kang et al., 2020). Therefore, financial derivatives are a type of contract the value of which is derived from the value of real assets (the assets that represent the subject of the contract) and that the assets that are the derivative or the derivative security is a financial instrument that depends on the values of other original variables.

Although dealing in derivatives was concentrated in certain countries, they have grown rapidly over the past two decades and are used in most countries of the world, it is now used by companies, financial institutions, sophisticated investors, and others (Brito & Júdece, 2021). Certain types of them are traded in efficient public markets such as stock markets. Derivatives consist of options, futures, swaps, forwards, and a mixture of them called hybrid financial instruments. In the following explanation of these derivatives:

### *1. Options contracts*

A contract between two parties - a seller and a buyer - which gives the seller the right (not an obligation) to sell or buy something at a later date at a price agreed upon by both parties on the date of the contract. The seller pays the buyer a sum of money called a premium, and this contract is a barrier to implementation when the seller so desires (Black & Scholes, 1973). There are two types of options, an option to sell something to the option buyer, and the other type is called a put option, one of which is called a sell option, which is an option to buy something from the option buyer (Stoll, 1969). Call options have their own regulated markets

in which these instruments are traded, but this does not preclude the conclusion of such contracts outside the market (Feiger & Jacquilat, 1979). The options market appeared at the beginning of the seventies of the last century for the first time, and the types of option contracts are many and varied, and they can be concluded on various financial assets, such as stocks, bonds, futures contracts, metals, and foreign currencies.

## *2. Forward contracts*

They are contracts between two parties - a seller and a buyer – *agreement to buy or sell an asset at fixed price at a future date* (IASB, 2021; IAS 32: AG 15). In the case of this type of derivatives, the implementation of the contract is binding (obligation) on both parties in all cases and must be executed on the specified day. There are markets for these contracts, but they are not regulated like the options markets, that is, there is no specific place for them.

## *3. Futures contracts*

They are binding (compulsory) standard contracts in which an agreement is made between two parties, a seller and a buyer, to sell or buy something in the future, at a specific time. These contracts are traded in their own regulated futures markets. The responsibility of these markets is to make settlements on futures contracts daily (Brennan & Cao, 1996).

Futures contracts are characterized as being on similar units, in their value, specifications of their commodities, and traded financial assets, but prices vary and are constantly changing (Hull & White, 1995). It is worth noting that there is a mixed type of future contract, and an options contract is called an option on the infinity, which gives the seller the right to buy or sell a futures contract at a later time at a price agreed upon now. These contracts are traded in the futures market.

## *4. Swap contracts*

*Agreement to swap one set of cash flows for another* (IASB, 2021; IAS 32: AG 15). These are contracts whereby two parties agree to exchange their cash flow. For example, someone may currently receive cash from a specific investment, but prefers another type of investment that has a different cash flow, so he makes an agreement with another who has the same desire, but carries the opposite investment to that of the other party, and they enter into the swap contract. Swap contracts have no organized market (Sun et al., 1993). There are types of swap contracts, such as commodity swaps and equity swaps, currency swaps, interest rate swaps, credit swaps, currency or interest rate liability swaps, and asset swaps linked to a currency or interest rate (Bicksler & Chen, 1986; Camilleri & Camilleri, 2017).

## 2.2.3 Classifications and Measurement – Phase 1

### 2.2.3.1 Classification and Reclassification

FRS 9 introduces principles-based requirements for classification and measurement. The classification and measurement of financial assets depend on two assessments: the financial asset's contractual cash flow characteristics and the entity's business model for managing the financial asset (Brito & Júdeice, 2021; Karai, 2018). IFRS 9 states that the measurement of a financial asset at amortized cost if the following two terms are met (IASB, 2014; IFRS 9: para. 4.1.2):

- *The financial asset is within a business model that aims to hold financial assets to generate and collect contractual cash flows during the life of the financial instrument.*
- *The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal outstanding.*

The sale of financial instruments should not be a significant part of the business model of the financial institution that held instruments only to collect contractual cash flows, except in cases where there is an increase in the credit risk of the financial assets or the sale at the maturity date of the financial instruments. Figure (2.2) illustrates phase 1 for IFRS 9 – Classification and measurement of financial assets:

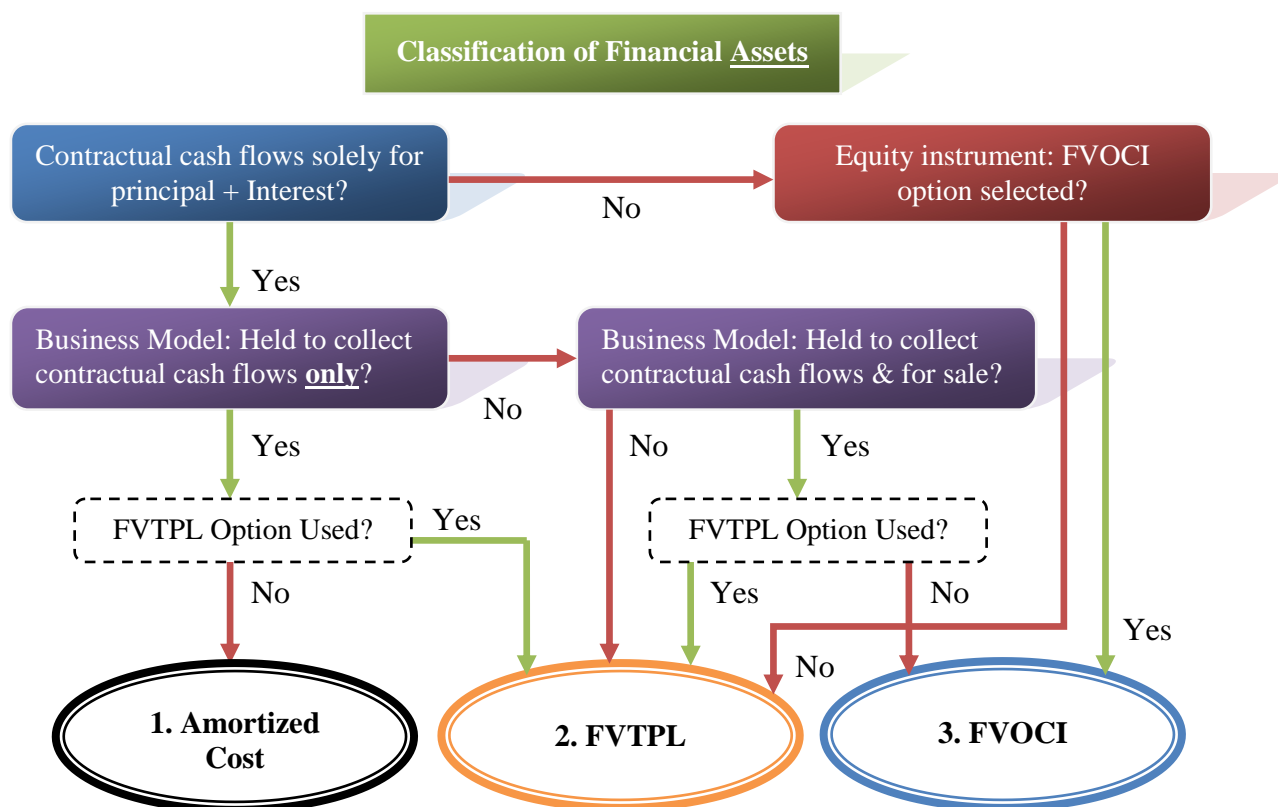


Fig 2.2: IFRS 9 – Classification and measurement of financial assets

Source: (Ernst and YOUNG, 2014a)

The classification determines how to measure the financial assets and liabilities in the financial statements and, in particular, how they are measured on an ongoing basis. IFRS 9 introduces a logical approach to classifying financial assets, which is driven by the contractual cash flow characteristics and the business model for holding the asset, its principle-based approach will replace the current rule-based approach, which is generally more complex and difficult to implement (Bischof and Daske 2016; Onali & Ginesti, 2014).

The entity classifies financial assets for subsequent measurement at amortized cost, fair value through other comprehensive income (FVOCI) or fair value through profit or loss (FVTPL) based on each of the entity's business model for managing financial assets, and also the characteristics of the contractual cash flows of a financial asset (IASB, 2014; IFRS 9: para. 4.1.1). IFRS 9 clarifies that the principal of a financial asset is the fair value of the asset upon initial recognition, and that interest is compensation against the time value of money, against the credit risk of the original amount over a specified period of time and other lending risks and costs, in addition to the profit margin (IASB, 2014; IFRS 9: para. 4.1.3b).

The financial assets classified as FVOCI, according to two basic conditions: If the objective of the business model to which the financial asset belongs is to collect contractual cash flows and sell the financial assets. The second condition, cash flows on specified dates in the form of payments of the principal amount plus interest on outstanding balances, based on the contractual terms of the financial asset (IASB, 2014; IFRS 9: 4.1.2A). All other financial assets must be measured at FVTPL, and even if an instrument meets the criteria for measurement at amortized cost or FVOCI, IFRS 9 allows such financial assets to be designated, at initial recognition, as being measured at FVTPL if a recognition or measurement inconsistency or an accounting mismatch (IASB, 2014; IFRS 9: paras. 4.1.4 & 4.1.5).

The financial institution may have more than one business model for managing its financial assets and the classification need not be determined at the reporting entity level. The financial institution may have one portfolio of investments that it manages with the objective of collecting contractual cash flows and another portfolio of investments that it manages with objective of trading to realize changes in fair value. It would be appropriate for entities like these to carry out the assessment for classification purposes at portfolio level, rather than at entity level (IASB, 2014; IFRS 9: para B4.1.2).

Regarding the reclassification of financial instruments based on IFRS 9, an entity cannot reclassify the financial liabilities or equity instruments measured at FVOCI, and if an entity changed its business model to manage the financial assets, all financial assets affected must be reclassified based on the criteria of classification and measurement that discussed earlier (IASB, 2014; IFRS 9: paras. 4.4.1 & 4.4.2). Under IFRS 9 the reclassification of financial assets accounted for prospectively and the previously recognized gains, losses or interest are not restated (IASB, 2014; IFRS 9: para. 5.6.1). If the financial asset has changed in fair value due to reclassified to FVTPL or derecognize it must be recognized in the statement of profit and loss, but if reclassified to FVOCI the difference in fair value at the date of reclassification will recognize within other comprehensive income – OCI (BRSA, 2016).

#### *2.2.3.2 Measurement (Initial and Subsequent)*

IFRS 9 state that at initial recognition an entity shall measure a financial asset or financial liability at its fair value plus or minus, in the case of a financial asset or financial liability not at fair value through profit or loss, transaction costs that are directly attributable to the acquisition or issue of the financial asset or financial liability (IASB, 2014; IFRS 9: para. 5.1.1).

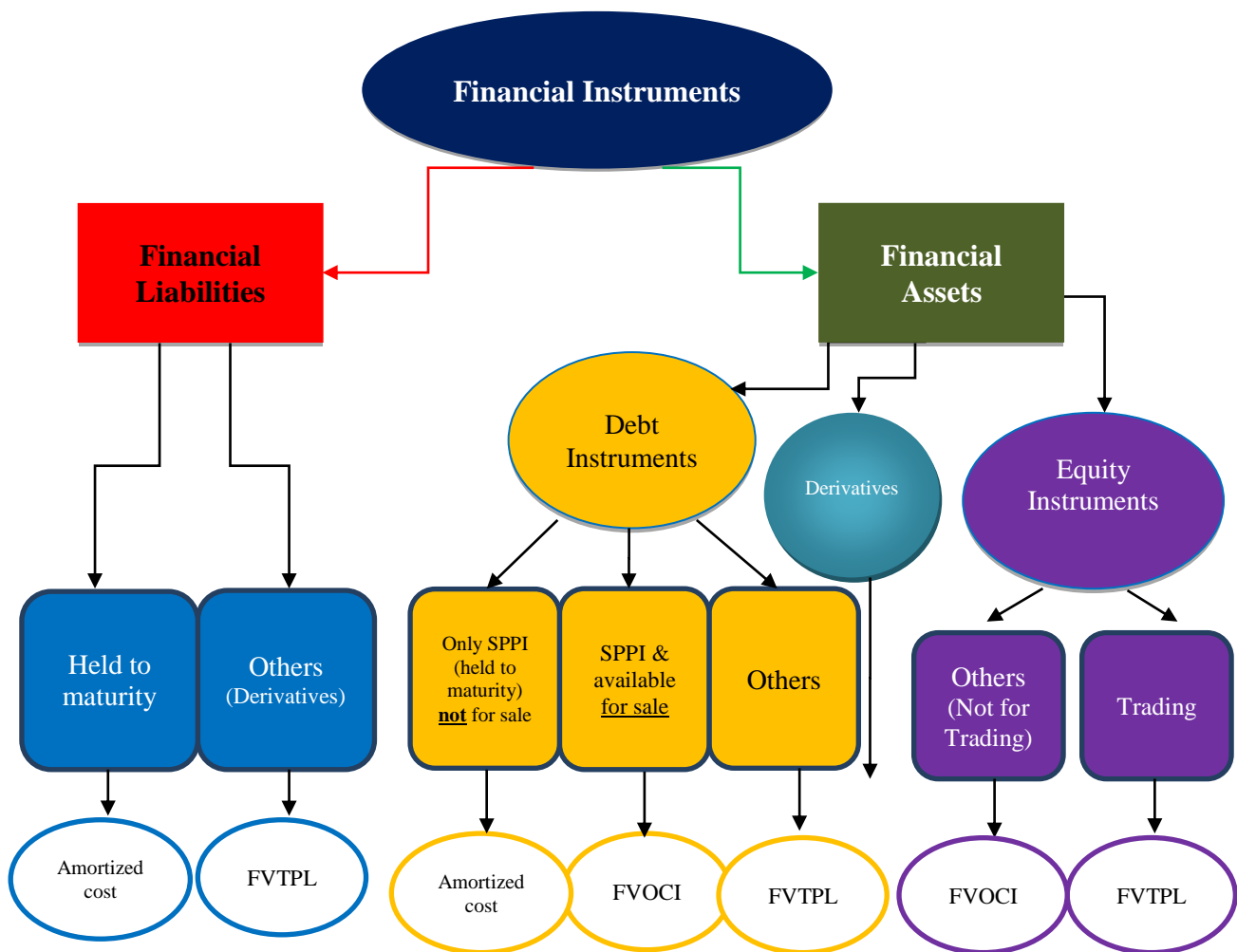
Subsequent measurement of financial assets is depends on how they are classified at initial (IASB, 2014; IFRS 9: para. 5.2.1). If the financial asset classifies within amortized cost, the first category of the asset will be measured at the initial amount minus principal repayments minus/plus the loss allowance plus/minus differences in foreign exchange plus/minus discount/premium. Effective interest rate is used when calculating the interest income and it is recognized in the statement of profit and loss (IASB, 2014; IFRS 9: para. 5.1.1).

The financial assets are measured within the second category FVOCI, these assets measured at fair value and the impairment losses or gains, interest income and the differences in foreign exchange are present or recognized in statement of profit and loss. If the financial asset within second category has changed in fair value will recognize in OCI and if reclassified to FVTPL or derecognize the changes in fair value and cumulative gain or loss in OCI must be reclassified from equity to profit and loss, but if these assets reclassified to amortized cost, in this case, must be removed the cumulative gain or loss that recognized in OCI from equity and applied against the fair value at the classification date for this financial asset (Filipova-Slancheva, 2017).

The last category is fair value through profit and loss – FVTPL, in this category the entity must measure the financial asset at fair value and the changes in fair value must be recognized in statement of profit and loss, but if derecognize or reclassified to the first category amortized cost the fair value will be the new gross carrying amount at the date of reclassification and if reclassified to FVOCI the financial asset will remain measure at fair value but the next gains and losses must be recognized in other comprehensive income instead of profit and loss (Deloitte, 2014).

Regarding the financial liabilities as I mentioned IFRS 9 requires that financial liabilities are initially measured at the fair value. After initial recognition, all financial liabilities should be measured at amortized cost, except for financial liabilities at FVTPL, including derivatives that are liabilities, shall be subsequently measured at fair value, but where the fair value is not capable of reliable measurement, they should be measured at cost (IASB, 2014; IFRS 9: para. 4.2.1A). Other financial liabilities are measured at amortized cost by using the effective interest method. IFRS 9 mentions separately some types of financial liabilities measured in a different way such as financial guarantee and commitments to provide a loan at a below-market interest rate, these liabilities subsequently shall be measure at the higher of the amount of loss allowance and the amount initially recognized less, when appropriate, the cumulative amount of income recognized in accordance with IFRS 15 (IASB, 2014; IFRS 9: paras. 4.2.1C&D).

There are three types of transfer cases: If the entity has transferred substantially all the risks and rewards of ownership of the financial asset, it must derecognize the financial asset. If the entity retains substantially all the risks and rewards of ownership of a financial asset, it must continue to recognize the financial asset. If the entity does not transfer or retain substantially all the risks and rewards of ownership of the financial asset, it should determine whether it has retained control of the financial asset, and in this case, if it does not retain control, must derecognize the financial asset. If it retains control, it continues to recognize the financial asset (Chawla et al., 2016). The following figure shows the divisions of financial instruments from the point of view of the issuer of the financial instrument, into financial assets, financial liabilities, and equity instruments, as summarize phase 1 in IFRS 9 Classification and measurement:



**Fig 2.3: Classification and measurement of financial instruments**  
 Source: (Author’s own, 2022)

Figure 2.3 contains the financial assets and financial liabilities, in addition to the three classifications through which these financial instruments are measured and disclosed in the financial statements.

### 2.2.3.3 Recognition and Derecognition

The entity recognizes the financial instruments under IFRS 9, when the entity becomes a party to the contractual provisions of instruments (IASB, 2014; IFRS 9: para. 3.1.1). The derivatives are recognized in the financial statements even if the entity did not pay or receive anything when entering the derivative contract. Another condition for recognizing the financial instrument the regular (usual) method of buying or selling financial assets must be recognized, as it was applicable using transaction (trading) date accounting or settlement date accounting, bearing in mind that the transaction date is the date on which the entity commits itself to buy or sell the financial asset, it must also be taken into account that the settlement date is the date on which the asset is delivered to or by the entity (Engelmann, 2021).

On the other hand, derecognition of financial instruments, concerning financial assets, the entity should derecognize the financial asset only when the contractual rights to the cash flows from the financial asset expire, and when the financial asset is transferred or substantially all risks and rewards of ownership of financial asset to another (IASB, 2014; IFRS 9: paras. 3.2.3-3.2.6). The financial liability the entity should derecognized when it is extinguished, and any gains or losses on the derecognition of a financial liability or part of a financial liability is recognize in profit or loss (IASB, 2014; IFRS 9: paras. 3.3.1 & 3.3.3).

Before measuring ECL in accordance with IFRS 9, an entity is required to recognize a financial asset or liability in the statement of financial position when it becomes a party to the contractual terms of the financial instrument. It should also, upon initial recognition, measure the financial instrument at fair value (IASB, 2014; IFRS 9: para. 5.1.1). As mentioned earlier during the 2008 financial crisis, and the attendant late recognition of credit losses in relation to loans (and other financial instruments) this was considered a weakness in the accounting standards at the time. Accordingly, the IASB has introduced, as part of IFRS 9 new model for the recognition of expected losses from an impairment, which requires recognition of expected credit losses faster.

#### **2.2.4 Impairment – Phase 2**

Miu and Ozdemir (2017) claim that the cornerstone of applying IFRS 9 is the expected credit loss model, which represents a fundamental shift in the measurement and evaluation of credit risk compared to the incurred loss model. The study also tried to test how to use internal rating models based on the decisions of the Basel Committee in estimating expected credit losses to apply IFRS 9, as the study provided detailed examples of how to find the information used in measuring expected credit losses, namely: the probability of default (PD), loss given at default (LGD) and exposure at default (EAD). Finally, the study reviewed the challenges facing the process of estimating expected credit losses and suggested solutions to deal with them so that banking institutions could apply IFRS 9. Novotny-Farkas (2016) discussed the interaction of the IFRS 9 expected credit loss model with banking supervision rules and the potential effects of this interaction on financial stability by assessing whether the ECL model better reflects the credit quality of financial assets and whether it reduces the economic cycle fluctuations of loan loss provisions compared to the incurred losses approach under IAS 39. The expected credit loss model according to IFRS 9 represents an objective and reasonable solution between providing appropriate information and providing observers' needs to enhance financial stability.

Harmonizing accounting and supervisory rules with increasing the minimum capital requirements will motivate bank managers to manipulate the amounts of loan loss allowance to avoid failing to implement the requirements of regulatory standards that place restrictions on dividends and bonuses. Finally, an ECL model based on IFRS 9 will provide a much wider range of estimation than IAS 39 and this will require a joint effort from the writers, auditors, observers, and bodies responsible for implementation (Dong & Oberson, 2021; Novotny-Farkas, 2016). Based on the study of Beatty (2011) the application of IFRS 9 will have several implications, represented in estimating and measuring the provision for expected credit losses which would significantly impact the results of banks, the need for banks to increase their capital to meet the expected increase in the provision for credit losses to maintain the requirements of the minimum regulatory capital, as well as the need to amend tax legislation to make the full value of the provision for credit losses within the actual expenses for banks to meet the risks of impairment of loans. Historical cost information is more useful in predicting future net chargeoffs, non-performing loans, and bank failures over both short and long time horizons (Cantrell et al., 2014).

Bushman & Williams (2015) this study focused on the expected loss recognition and the risk profile of the banking industry. It also targeted the theoretical aspects of complementarity between the accounting framework about the characteristics of the impairment model, and the supervisory framework of the Basel convention to credit classification and regulatory capital. This study expects that the provisions will increase 10-13% as a result of applying the ECL model to balance sheet items and off-balance sheet exposures and the consequent reduction in reserves decreased capital ratios (Tire 1) due to lower shareholders' equity.

Recently, there has been a significant increase in bank defaults, whether at the level of international or local banks, which prompted many studies and authorities to search for appropriate ways to identify, measure, and reduce credit risks (Montesi et al., 2018). Credit risks refer to potential losses resulting from the possibility of failure of borrowing clients or counterparties in fulfilling their obligations in accordance with the terms of the contract, which leads to severe exposure of the bank's capital to risks.

There are many types of credit risks, most of which arise due to the poor diversification process in credit portfolios, and the weakness of the credit procedures, as a result of the inefficiency of the accounting information systems applied in banks (Hashim et al., 2016). The most important of these risks are the client risks arise due to the client's credit reputation,

solvency and the financial position of the client (Krüger, Rösch & Scheule, 2018). The risks of general conditions are mainly related to the economic conditions and political developments that the country is going through. The risks of the economic sector of the customer's industry, as each economic sector has the risks associated with it. Finally, the risks associated with the bank and related to the efficiency of the credit management in following up the credit provided to the customer (Marton & Runesson, 2017).

The credit risks come from two perspectives, the first of which focuses only on the risks associated with the lender, and that the possibility of the borrower not fulfilling its obligations, while the second is the perspective that expands to include all the risks associated with the other banking activities of the bank such as issuing pledges, guarantees, or deposits with other banks or with correspondents abroad or dealing with financial derivative contracts through the possibility that the multiple counterparties of the bank will not fulfill their obligations towards the bank in accordance with the pre-agreed terms and due dates. Measuring the levels of credit risk in banks depends on many basic considerations, which in themselves represent measures or indicators for measuring bank credit risks, the most important of which are: *Ratio of non-performing loans to total loans, Ratio of collected loans to total non-performing loans, ratio of provisions for doubtful debts to total loans, ratio of average loans to total assets, loan growth rate, and the degree of loan concentration.* (Bholat et al., 2018; Yang, 2017a). Ozdeimr (2018) claims that the decisions of Basel III recommended a set of comprehensive measures and reforms to manage banking risks to improve the ability of the banking and financial sector to absorb shocks and crises resulting from financial and economic pressures and improving risk management, and banking governance by increasing the capital adequacy ratio to cover any potential risks, especially enhancing the capital for the credit risks of the counterparty, to maintain the stability and stand in the face of any future crises. The decisions of the Basel Committee identified how banks should assess and measure credit risks and challenge the capital to be retained to meet these risks in light of the expectation of future financial and economic crises and pressures, according to two basic methods that can be addressed as follows:

The standardized approach is based on giving risk weights to items inside and outside the bank's statement of financial position based on the credit ratings issued by the international credit rating institutions (Standard & Poor's, Moody's and Fitch Ratings) on the creditworthiness of banks, companies or countries, taking into consideration the impact of many factors, including environmental conditions, competitive position, financial capacity,

and management quality. This method is considered one of the simplest ways that suit all banks with simple capabilities and that practice uncomplicated activities, where the capital requirement for credit risk is calculated at 2% of the total assets weighted by risk, in light of the focus on the quality of the borrower, the extent of its creditworthiness and its ability to repay (Yang, 2017a).

According to this method, the use of external credit assessments helps to differentiate between credit risks and their categories: sovereign loans, obligations on other banks, companies, individual loans, real estate loans for residential purposes, commercial real estate loans, and each of these categories has a risk weight from zero to 113%, where the weight of each credit asset depends on the borrower's credit rating (Bholat et al., 2018). The majority of financial institutions use the standard approach because they cannot meet the strict standards stipulated in Basel II and III in order to be eligible to apply the more advanced approach, despite the lack of sufficient sensitivity of the credit risk in the standard approach (Ozdemir, 2016b). The capital requirements according to this approach are also considered as an inaccurate indicator of the actual credit risks, and that the strategic decisions are taken by financial institutions based on this approach often provide negative incentives for the adoption of lending policies that depend on guarantees instead of focusing on the financial position of the borrower and its ability to repay. As well as adopting short-term growth strategies in the form of government investments with a guaranteed return and thus affecting profits and returns on invested capital (Docherty, 2018).

Small and medium banks in some countries resort to relying on the ratings of local credit rating institutions, although they are not as efficient as international credit rating institutions, the reason is due to the high costs of these institutions, so they resort to local institutions, otherwise they will remain outside the credit assessment and thus increase the degree of risk of dealing with them, as well as their weak ability to attract international sources of finance (Montesi et al., 2018). Although the standard approach is the simplest regulatory method that can be used by banks to measure credit risk, it should be noted that the risk weights of items not included in credit ratings issued by international organizations are often less than the weights of items classified as high risk (Docherty, 2018). Thus, there is a great contradiction and a clear criticism of the normative approach in this regard. The reason for this may be due to the desire of regulators to avoid excessive use of the conservatism principle, which may greatly limit the activities of financial institutions and thus have a significant impact on their profits.

*The internal approach* is the second approach that depends on two methods, namely the basic or foundation internal classification and the advanced internal classification: *The basic approach* is used when PD is estimated by the bank itself, and rely on the authorities and regulators' assessments to determine the LGD, EAD and assess other components of risk (Miu & Ozdemir, 2016; Volarević & Varović, 2018).

*Advanced internal classification* is based on banks relying on their internal estimates to determine all components of risk, probability of default, exposure at default, loss at default, and maturity when calculating the capital requirements necessary to face credit risks. The bank's use of either method depends on the degree of technology used in the bank's information systems and the extent of the human capabilities used for that technology (Oberson, 2021). Reliance on the advanced internal classification depends on the availability of a large database of bank risks during a period of time that can only be available in light of the bank's reliance on an advanced information system. Thus, although the internal classification method requires more effort, work and investment in information technology systems compared to the standard method. However, the average capital requirements according to the internal classification are considered less than those requirements according to the standard approach, due to the accuracy and objectivity in calculating the value of risk-weighted assets according to models designated for banks under the internal classification method after fulfilling the conditions for its application. This is something that banks seek to achieve to provide more money to be invested in other activities.

The application of IFRS 9 will have a significant impact on the capital base as there will be more severe declines in the following cases: economic recessions, low-quality credit portfolios, banks that did not tighten capital standards during recessions, use of a non-strict definition to a significant increase in credit risk, the study also discussed how regulators can help banks to reduce credit risk (Krüger et al., 2018). IFRS 9 defined the expected credit loss (ECL) of a financial asset as “the weighted average of credit losses related to the risk of default as weights (IASB, 2014; IFRS 9, App A). In other words is the estimated present value of the expected cash shortfall over the expected life of the asset, which means the difference between the cash flows payable according to the contractual terms and the cash flows that the financial institution is actually expected to collect (IASB, 2014; IFRS 9: para. B5.5.28). Thus, the IASB has used the term “risk of default” instead of “probability of default” in its definition of ECL.

The recognition of expected credit losses is related to the subsequent measurement of financial assets, as according to IFRS 9, the financial institution must recognize those losses for financial assets that are measured at amortized cost and also for financial assets that are measured at FVOCI. In addition to some other financial instruments whose expected credit losses are recognized and include: contractual assets and commitments to provide loans as well as financial guarantee contracts to which impairment requirements apply (IASB, 2014; IFRS 9: para. 5.5.1). IFRS 9 also added that the expected loss allowance is recognized in other comprehensive income for financial assets measured at FVOCI without reducing the carrying value of those assets in the statement of financial position (IASB, 2014; IFRS 9: para. 5.5.2). Therefore, it is clear that the impairment requirements will not apply to financial assets that are subsequently measured at FVTPL. Where the expected credit loss model is applied to debt instruments recorded at amortized cost or at FVOCI such as loans, debt securities, trade receivables, lease receivables, most loan commitments and financial guarantee contracts. Emphasizing that there is no separate provision for financial assets at FVOCI, as well as recognizing impairment gains or losses by charging them to profits or losses.

The financial assets measured at amortized cost, trade receivables, lease receivables IFRS 16, contracts assets IFRS 15, financial assets measured at FVOCI, financial guarantees and loan commitments all of these instruments within the scope of Phase 2 under IFRS 9 – impairment (IASB, 2014). Phase 2 in IFRS 9 has three approaches for impairment of the financial instruments, general approach, simplified approach, and credit adjusted approach. The general approach applies to all loans and receivables not eligible for the second and third approaches. The simplified approach applies to certain trade receivables or contract assets of one year or less. Credit adjusted approach applies to purchased or originated credit-impaired financial assets (Cohen & Edwards, 2017). The new model for impairment of financial assets in accordance with IFRS 9 is based on classifying financial assets into three categories in light of their credit quality. The first category includes financial assets for which no impairment has been determined upon initial recognition, while the second and third category will have a provision measured over the life of the expected credit losses for the financial assets. IFRS 9 distinguishes between three main stages of credit risk, as follows:

- *Stage 1*

These include financial instruments for which there has not been a significant increase in credit risk since initial recognition or financial instruments with low credit risk at the reporting date, in which the bulk of the performing loans portfolio of banks is classified in the first stage. The

expected credit losses for these financial assets for 12 months (IASB, 2014; IFRS 9: para. 5.5.5). Where these losses express the expected credit losses resulting from the possible defaults within 12 months after the date of the report that is the expected credit losses for a period of 12 months = PD for the duration of the present value of the loss at default multiplied by the loss given at default multiplied by exposure at default multiplied by exposure at default (Gubareva, 2020). The purpose of recognizing 12-month expected credit losses is to indicate that the return on the instrument includes coverage of those expected credit losses since the initial recognition of the financial instrument, in contrast to the realized loss model according to IAS 39, which inflates interest income by calculating the entire return as interest income without any adjustment For expected credit losses when a financial asset is created or purchased (Lachmann et al., 2015).

- *Stage 2*

It includes financial instruments for which there has been a “significant deterioration in credit quality” since the date of initial recognition either at the individual or portfolio level but with no objective evidence of actual impairment for value. Consequently, a significant proportion of the financial assets that are currently disclosed in the bank’s financial statements under “financial assets past due but not impaired” will largely fall into Stage 2 under IFRS 9 and the expected losses for a lifetime (IASB, 2014; IFRS 9: para. 5.5.3). Regarding the interest revenue would be calculated based on the gross carrying amount for the financial instrument (IASB, 2014; IFRS 9: para. 5.4.1). Thus, this economic loss will be reflected in the financial statements through the recognition of expected credit losses after a significant increase in credit risk.

In this context, IFRS 9 refers to some indicators by which significant changes in credit risk can be assessed, the most important of which can be summarized in the following: The actual or expected decline in the internal credit rating of the borrower or the external credit rating of a financial instrument. The ability of the borrower to meet its obligations is affected by adverse changes in financial or economic conditions. The actual or expected increase in interest rates, as well as deterioration in operating results, i.e. lower current or future revenue (Chawla et al., 2016). Fundamental changes in the regulatory or technological environment. Significant increase in the credit risk of other financial instruments of the same borrower. Significant decrease in the value and quality of collateral or credit enhancements from a third party. The expected breach of the terms of the contract, which may lead to a waiver of the commitments or making amendments to them, as well as the request for additional guarantees

or any other changes in the contractual framework of the financial instrument. All of the above indicators for significant changes in credit risk based on IFRS 9 and the previous studies (Chawla et al., 2016; Oberson, 2021). The IASB did not require economic units to use specific indicators to assess changes in credit risk, and that this will be determined in the light of many factors related to the characteristics of financial instruments and the borrower, the extent of the development of economic units and their methods of credit risk management, as well as the degree of availability of quantitative and qualitative data on this risks.

- *Stage 3*

It includes financial instruments for which there is objective evidence that their value is actually impaired at the reporting date. The recognition and provision for the third stage assets are made based on the expected credit losses during the expected lifetime of the financial instrument (IASB, 2019; IFRS 9: prars. 5.5.3-5.5.8). However, at this stage, the effective interest rate is calculated based on the net carrying amount (Amortized cost) which represents the total carrying amount minus the loan loss allowances (Gubareva, 2020). Thus, it becomes clear that the difference between the second stage and the third stage relates to how the interest income is recognized and calculated. In the framework of the second stage as in the first stage, there is a complete separation between interest recognition and impairment and therefore interest income is calculated on the basis of the gross carrying amount of the financial assets, while under stage 3 interest revenue would be recognized on a net basis (IASB, 2014; IFRS 9: para. 5.4.1). Thus, the recognition of ECL during the expected life of the financial instrument will occur early when there is already a significant increase in credit risk (stage two) and before the actual default (stage three). Figure 2.4, xillustrates these three-stage of the impairment and the calculation of credit losses either on the basis of a 12-month period or during the expected lifetime of the financial assets based on the credit quality of these assets under IFRS 9:

	<i>Stage 1</i>	<i>Stage 2</i>	<i>Stage 3</i>
<b>Credit Risk</b>	Low Risk	Moderate Risk	High Risk
<b>ECL</b>	12-month ECL	Lifetime ECL	Lifetime ECL
<b>Effective Interest Rate (EIR)</b>	EIR on Gross Carrying Amount	EIR on Gross Carrying Amount	EIR on Amortized Cost

**Fig 2.4: Three-stages of impairment model – IFRS 9**  
Source: (Novotny-Farkas, 2016)

Based on the Figure 2.4, it's clear that IFRS 9 requires the classification of financial assets into three stages for the purpose of estimating expected credit losses. The first stage, the provision is calculated for all financial assets, regardless of credit quality and on the basis of the expected loss during a 12-month period. The financial assets move to the second stage if there is a significant deterioration in credit quality, or to the third stage if the contractual cash flows of the financial assets are not fully recoverable in the event of default. The provision is recognized during the second and third stages on the basis of expected losses during the lifetime of the financial instrument, in addition to the recognition in all stages of changes in the balance of the provision in profit or loss as gains or losses of impairment. It should be noted that financial assets may move from the second stage to the first stage (the least risky) if there is a significant improvement in credit quality in subsequent reporting periods and there is no longer a significant increase in credit risk since the initial recognition. Therefore, the entity should re-recognize the provision on the basis of a 12-month ECL (Gubareva, 2021; Pastiranová & Witzany, 2021). Also, for considerations related to the number or the small value of financial instruments, it is objective to calculate the expected credit losses on the basis of the total credit portfolio.

The concept of loss of balances is currently based on the principle of "Incurred losses" while the IFRS9 introduces a new model based on future expectations, or so-called expected credit losses (ECL), which is based on a new approach to calculate loan loss provisions based on Expected losses rather than calculated on the basis of Incurred losses. The following is the main formula for calculating the expected credit loss (KPMG, 2018):

$$ECL = PD\% * LGD\% * \$EAD \quad (2.1)$$

Where:

*PD: Probability of Default %*

*LGD: Loss Given at Default %*

*EAD: Exposure at Default*

*ECL: Expected Credit Loss*

### *1. Probability of default (PD)*

PD measures the probability that the borrower or the counterparty will not be able to pay the financial obligations towards the bank within a specified period of time. The supervisors of central banks must also resist by calculating the probabilities of default for the parties dealing with each bank, in order to ensure the correctness of the information provided by the banks. In

general, the counterparty or customer is considered to be in default when the article exceeds 90 days to meet its credit obligations, or it is unlikely that the debtor will pay its debts without giving up any collateral (Oberson, 2021; Rubtsov & Petrov, 2016).

The PD is the most complex part of the expected credit losses equation and also in IFRS 9 as a whole because it depends on forecasting and statistics in addition to economics with regard to macroeconomic indicators (López-Espinos et al., 2021). Therefore, financial institutions that are interested in providing more appropriate and credible financial information are keen to use the best statistical, technological and economic techniques through a database of high quality, as this increases costs but reduces future risks, but if these technologies constitute a large proportion of the costs, medium and small financial institutions can use techniques that are appropriate with their capital to obtain more accurate and appropriate rates of default for borrowers. One of the most widely used models in determining the PD “Transition matrix” which is based on the external rating of the international credit rating agencies. There are also other reliable statistical models such as Markov model, Merton model and Weibull model and two rating philosophies, Point-in-time and Through the cycle (KPMG, 2017; Rubtsov & Petrov, 2016; Yang, 2017b).

Each model has its advantages and disadvantages and it depends on the available technologies, information and the financial suitability of each institution to determine the most appropriate model, as IFRS 9 did not determine a specific method, but recommended the use of Point-in-time (PIT) while Basel require to apply Through the cycle (TTC). The scientific paper was published regarding calculating the probability of tripping and the Merton model was presented (Orban & Tamimi, 2020): The equation for this model that was published in 1973 is as follows:

$$d_1 = \frac{\ln(\text{Asset}_0/\text{Liability}) + (\text{risk free} + \sigma_A^2/2) \text{Time}}{\sigma_A \sqrt{\text{Time}}} \quad (2.2)$$

$$d_2 = d_1 - \sigma_A \sqrt{\text{Time}} \quad (2.3)$$

$$\text{Probability of Default (PD)} = N(-d_2) \quad (2.4)$$

Where,

*r*: risk-free %

*E0*: value of equity

*e*: exponential term

*N*: normal distribution

$\sigma_A$ : standard deviation of asset

The Merton model provides useful information about the PD, but one of the criticisms of this model is that if the obligation is to be repaid over more than one period, and there are irregular periods between them, the model will become more complex, and then financial institutions will resort to an alternative model (Orban & Tamimi, 2020). With regard to the Markov model, this model depends on the previous event only in predicting the occurrence of the next event, i.e. as if it were a series of events and times that depend on each other, this is one of the old models where it was published in the early twentieth century (KPMG, 2017). Another model used for the PD is the Weibull statistical model, one of the advantages is that it shows the relationship between more than one borrower and many variables, as it provides a lot of information and applications that are not present in the previous models. However, one of its criticisms is that it needs a sample size of appropriate and accurate historical information that many financial institutions lack (López-Espinos et al., 2021). Often, small and medium financial institutions rely on simple and uncomplicated financial ratios to find the PD, for example, the percentage of non-performing loans for sector X divided by the total loan portfolio for this sector.

## 2. *Loss given at default (LGD)*

It is the measurement of the value of the loss in the credit portfolio in the event of default, or in other words, it is the estimated percentage of the part of the loan used by the customer that is difficult to recover upon default, meaning that the loss upon default is the percentage of the total value of the credit exposure (Outstanding debt), in case the counterparty defaults. Hence, the loss upon default is a percentage of the debt value upon default. The decisions of the Basel Committee suggest that the percentage of loss upon default be within 45% of the value of the indebtedness (Ozdemir, 2016a; Ozdemir, 2016b). It can also be found by applying the following equation (Ernst and Young, 2014b):

$$LGD = 1 - Recovery \% \quad (2.5)$$

$$Recovery \% = \frac{Collaterals}{Outstanding Debt} \quad (2.6)$$

## 3. *Exposure at default (EAD)*

It is the amount that the bank may lose or the value of the money exposed to loss in the event of the customer default, and it is not necessarily the nominal value of the loan or the principal amount of the loan as it is calculated by the value of the loan after excluding the value of collaterals and the financial guarantees. Based on KPMG (2017) the following is the equation most commonly used in calculating exposure at default:

$$\text{EAD} = \text{Amount of current drawn} + (\text{Credit conversion factor} * \text{amount of current undrawn}) \quad (2.7)$$

$$\text{Credit conversion factor \%} = \frac{\text{Exposure at date of default} - \text{E.S.P}}{\text{Limit at start of period} - \text{E.S.P}} \quad (2.8)$$

Where

*E.S.P: Exposure at start of period*

As we see in the equation, exposure at default does not contain only the amount that was borrowed, but the credit ceilings granted to borrowers have not been withdrawn multiplied by the credit conversion factor, which is the ratio that reflects the true value of the undrawn amounts of the ceilings that were granted to the borrower based on his credit rating, these ceilings are not legally obligatory for the bank to provide these ceilings to the customer.

There is more than one method for calculating the expected credit loss, as many financial institutions adopt the model that includes the three main elements mentioned above, taking into account the current value of the expected credit loss. Table 2.1 & 2.2 illustrates in a simplified manner the mechanism of calculating the expected credit loss in the first and second stages, and table 2.3 illustrates the mechanism of calculating the expected credit loss in the third stage:

**Table 2.1: Expected credit loss – EAD**

	Beginning balance 1 Jan	Interest income 8%	Cash flows	Ending balance 31 Dec
12/31/2020	1,000,000	80,000	250,000	830,000
12/31/2021	830,000	66,400	250,000	646,400
12/31/2022	646,000	51,712	250,000	448,112
12/31/2023	448,112	35,849	250,000	233,961
12/31/2024	233,961	18,717	250,000	2,678

**Table 2.2: Expected credit loss – Stage 1 & 2**

	<b>EAD</b>	<b>PD</b>	<b>LGD</b>	<b>ECL</b>
12/31/2020	1,000,000	1%	45%	4,167 (12 months ECL)
12/31/2021	830,000	1%	45%	<b>3,202</b>
12/31/2022	646,000	1%	45%	<b>2,309</b>
12/31/2023	448,112	1.5%	45%	<b>2,223</b>
12/31/2024	233,961	1.5%	45%	<b>1,075</b>
				<u>12,976 (lifetime ECL)</u>

Source: (Ernst and Young, 2018; Author’s own, 2021)

This example shows 3 scenarios (Cure, Restructure or negotiation and Liquidation scenario) for ECL in stage 3 based on the same process for an article published by Ernst and young (2018). *Cure scenario*: Entity X eventually pays past dues and the loan reverts to performing. In this case, ECL corresponds to lifetime losses expected from loans that have recently

defaulted. Based on its historical data and using the methodology described above, Bank A expects an ECL of \$12,976. *Restructure scenario*: Bank A comes to a restructuring agreement with Entity X. After 6 months of negotiation, the loan is written off and a new loan is initiated with a net present value of \$504,192 instead of \$ 646,400. *Liquidation scenario*: The loan is written off and the bank starts the collection of the contractual collateral. Bank A expects to sell the collateral within a year and to collect \$450,000 net of recovery costs. Table 2.3, showing how to find the ECL in stage 3 base on the weighted average for 3 scenarios:

**Table 2.3: Expected credit loss – Stage 3**

Probable scenario	Probability	EAD	Expected Future cash flows	Expected recovery time	PV (Expected cash flows)	ECL	Weighted ECL
<i>Cure Scenario</i>	25%	\$646,400	\$633,424 (646,100-12976)	0	\$633,424	\$12,976 (646,400- 633,424)	\$3,244 (12,976 * 25%)
<i>Restructure Scenario</i>	40%	\$646,400	\$504,192 (New loan PV)	0.5 (6 months)	\$480,728	\$165,672 (646,400- 480,728)	\$66,269 (165,672* 40%)
<i>Liquidation Scenario</i>	35%	\$646,400	\$450,000 (Value of collaterals)	1 year	\$409,091	\$237,309 (646,400- 409,091)	\$83,058 (237,309 * 35%)
<i>Σ Weighted Averages ECL</i>							<b>\$152,571</b>

\*  $i = 10\%$

$$\text{Weighted average ECL for each scenario} = \text{ECL} * \text{Probability\%} \quad (2.9)$$

$$\text{ECL} = \text{EAD} - \text{PV of expected cash flows} \quad (2.10)$$

$$\text{PV of expected cash flows} = \frac{\text{Expected cash flows}}{(1+i)^{\text{expected time for recovery}}} \quad (2.11)$$

Another method that is used in calculating ECL without using the PD is the following method, which is often used in small or medium financial institutions and can also be relied upon in comparison with the more complex and costly statistical equation, as this equation was mentioned in more detail in one of the scientific paper published by (Orban & Tamimi, 2020):

$$\text{ECL} = (\text{Average loss rate} + \text{upward adjustment rate} \times \text{current loss allowance}) + \text{current loss allowance} \quad (2.12)$$

$$\text{Average loss rate} = \frac{\text{Sum of historical credit loss rates}}{\text{Number of credit loss rates}} \quad (2.13)$$

$$\text{Credit loss rates} = \frac{\text{CL} - \text{RA}}{\text{PC}} \quad (2.14)$$

Where,

CL: current loss

RA: Recovery Amount

*PC: Portfolio of credit*

*Upward adjustment rate:* this rate based on internal decisions that taken by financial or risk management departments based on estimations for expected credit losses.

If the model used in calculating expected credit losses (ECL) is approved by the management of the financial institution, and it is confirmed that it will provide appropriate, understandable and comparable information, then there is no problem in approving it, as the IASB did not obligate financial institutions to apply a specific model. This has a positive side and at the same time has a negative effect and increases the chances of manipulation by the management.

### **2.2.5 Hedge Accounting – Phase 3**

At the beginning of the current century, IFRS Standards have been developed to become closely linked with the concept of risk management, by reducing the gap between the available accounting information and the expected risks (Camilleri, 2017; Chen et al., 2019 Duțescu, 2019). The relationship between hedge accounting and risk management can be linked through the contribution of accounting hedging patterns in risk management of financial institutions, where the requirements specified by the IASB show the existence of three types of hedging in accounting according to IAS 39 which is also emphasized by IFRS 9.

The objective of hedge accounting is to reflect the effect of an entity's risk management activities in the financial statements. This includes replacing some of the arbitrary rules with more principle-based requirements and allowing more hedging instruments and hedged items to qualify for hedge accounting (Butler, 2012; EY, 2014). Hedge accounting is optional, and when an entity first applies IFRS 9, it may choose to continue to apply the hedge accounting requirements of IAS 39, instead of the requirements in IFRS 9, to all of its hedging relationships (IFRS, 2014).

Hedge accounting is a technique that modifies the normal basis for recognizing gains and losses (or income and expenses) on associated hedging instruments and hedged items so that both are recognized in P&L (or OCI) in the same accounting period. This is a matching concept that eliminates or reduces the volatility in the statement of comprehensive income that otherwise would arise if the hedged item and the hedging instrument were accounted separately under IFRS. Under IFRS 9, hedge accounting remains optional, and management should consider the costs and benefits when deciding whether to use it (PwC, 2017). And the following are the types of hedge accounting:

Fair Value Hedge: Hedges of the exposure to changes in fair value of a recognized asset/liability or an unrecognized firm commitment, or a component of any such item, that is attributable to a particular risk and could affect profit or loss (IASB, 2014; IFRS 9: para. 6.5.2).

Cash Flow Hedge: Hedges of the exposure to variability in cash flows that is attributable to a particular risk associated with all, or a component of, a recognized asset/liability or a highly probable forecast transaction, and could affect profit or loss (IASB, 2014; IFRS 9: para. 6.5.2). The portion of the gain or loss on the hedging instrument is effective is recognize in OCI and the cash flow reserve, and any excess is recognized in profit or loss (IASB, 2014; IFRS 9: para. 6.5.11).

Hedge of a Net Investment in a Foreign Operation: based on IAS 21 is the amount of a reporting entity's interest in the net assets of a foreign operation (IASB, 2014; IFRS 9: para. 6.5.11). Shall be accounted for similarly to a cash flow hedge: the portion of the gain or loss on the hedging instrument that is determined to be an effective hedge shall be recognized in other comprehensive income and the ineffective portion shall be recognized in profit or loss (BDO, 2014). All institutions are exposed to many forms of risks and the function of risk management is considered an early warning for the organization to face them. Where it addresses the problem of uncertainty and tries to contain or reduce the negative effects of these risks and also contributes to providing a measure of security and safety to achieve the objectives of the institution (Chen et al., 2019). Therefore, many institutions use financial instruments to hedge their exposure to various risks such as interest rate risk, foreign exchange risk, and others.

Hedging according to the economic concept means the balanced effect of gains and losses on two transactions that respond to opposite methods for hedged risks, For example (a decrease in the prices of an underlying instrument such as the prices of stocks and bonds is offset by a rise in the derivative instrument used for hedging purposes or vice versa). Thus, hedge accounting reflects that balancing effect. Hedging is a financial technique to meet or balance the risks of losses resulting from price fluctuations in the market, and hedgers use many techniques to cover the risks to include future contracts, options contracts and swaps, but if he wishes to provide protection against the risks of a rise in price, he enters as a buyer of a short-term contract (Butler, 2012; Camilleri, 2017; Gumb et al., 2018; Pastiranová & Witzany, 2020). Hedging is defined as providing protection against potential losses and reducing risks. In the financial markets, hedging is based on the activity taken to reduce or reduce risks, and hedging

is one of the tools used in neutralizing financial (market) risks (Müller, 2020). Most entities hedge to reduce their exposure to market risks, which facilitates the financial planning process and reduces the possibility of financial insolvency arising from the cash deficit. Because of the risk and that it allows the units to practice their main activities more safely since hedging is the one that removes or reduces the severity of price fluctuations threatening these activities. The IASB defines a hedging instrument as a risk management technique that involves the use of one or more derivatives or other hedging instruments to offset changes in the fair value or cash flows of one or more assets, liabilities, or future transactions. The hedging process is used to protect the entity from fluctuations in exchange rates, commodities and securities. Investors, whether individuals or entities have among their investment objectives the formation of a securities portfolio that achieves the best returns for them in light of the expected future conditions of the market. To minimize risks, the investor resorts to one of two methods:

1. Appropriate diversification of the portfolio's portfolio of securities, it leads to a reduction in unsystematic risk as part of the overall risk of the investment process in securities. In the following the main equation to find the optimal portfolio for two assets based on Markowitz's:

$$Weight_A = \frac{[E(r_A) - r_f] \sigma_B^2 - [E(r_B) - r_f] \sigma_A \sigma_B \rho_{AB}}{[E(r_A) - r_f] \sigma_B^2 + [E(r_B) - r_f] \sigma_A^2 - [E(r_A) + E(r_B) - 2r_f] \sigma_B \sigma_A \rho_{AB}} \quad (2.15)$$

Where

$E(r_A)$ : Expected return (Asset A)

$E(r_B)$ : Expected return (Asset B)

$\sigma_A^2$ : Standard-deviation (Asset A)

$\sigma_B^2$ : Standard-deviation (Asset B)

$\rho_{AB}$ : Correlation between (Asset A & Asset B)

One of the theories that talks about the optimal distribution of the investment portfolio to obtain the highest possible return with the lowest possible level of risk is Markowitz's theory that used the above equation to find the weight or ratio of investing in the asset (A) and to find the weight for the asset (B) we subtract the weight for the asset (A) from 1. This theory is one of the best theories for hedging that is used by investors or investment portfolios for financial institutions.

2. *Financial derivatives*: One of the reasons for the emergence and spread of financial derivatives is the availability of modern and appropriate environmental conditions for their emergence and spread, such as the great development in information technology and dealing

with financial variables. The huge amount of legislation and rules regulating dealings in the financial markets, the tendency to work at the floating exchange rates, which called for the need for a means to confront the risks resulting from the continuous fluctuations in exchange rates (Brennan & Cao, 1996; Camilleri & Camilleri, 2017). The difference in the timing of the acquisition of hedging instruments from the timing of the occurrence of the transaction or the item required to be protected may raise accounting problems represented in how to treat the realized and unrealized gains and losses in the gap period. The issue of identifying and measuring the liquidity risks of commercial banks has become one of the issues that attract the attention of many users of financial statements and reports, in order to ensure the extent to which commercial banks are able to meet their obligations and that they are not in a state of financial failure that could eventually lead to bankruptcy, as happened in the aftermath of the financial crisis. This is in addition to the efforts of banks and regulatory authorities to measure and evaluate these risks so that they can take the necessary measures and measures to manage them (Gubareva, 2021).

Reitgruber (2013) liquidity is considered one of the main objectives of financial institutions, due to their constant need to maintain sufficient liquidity to be able to meet their financial obligations at their due dates. To meet the needs of individuals and economic units of credit facilities and to provide financial and banking services in a distinct and sustainable manner. Where do we find that the issue of liquidity affects practically both from the point of view of management: This is with regard to the information that the bank needs in order to self-assess the level of liquidity, to deal with it and to monitor it (Onali et al., 2021).

From the point of view of users of financial reports: in terms of the data used by investors in order to understand and monitor the bank's liquidity to make their own judgments, and by regulators and monitors to ensure the stability of the financial system.

Bank liquidity can be measured through the cash flow input, which represents a comprehensive approach to determine the cash flow mismatch. The measurement of net funding requirements depends on the components of the structural liquidity statement to measure the mismatch of cash flows at different timelines (Altman et al., 2016). It is based on the remaining maturity of cash flows or the expected future behavior of financial assets and liabilities and off-balance sheet items. The difference between the cash inflows and outflows in each period is a fulcrum point for measuring the surplus or deficit of the bank's liquidity during a series of future periods (Le et al., 2020; Sasso, 2016).

Bank liquidity risk generally refers to the bank's inability to meet its obligations when they fall due as a result of its inability to generate the cash necessary to meet the decline in deposits or increase in financial assets. Liquidity risk arises from the mismatch in the maturity dates of financial assets and liabilities, as the nature of the banking business mainly includes converting short-term customer deposits into long-term loans. In the event of a lack of liquidity, the bank is unable to provide sufficient funds, either by increasing its obligations or by incurring a reasonable cost as a result of rapidly liquidating assets, which negatively affects profitability.

This high interest in liquidity and its risks comes as a result of the expansion of financial liberalization processes, the development and complexity of financial engineering operations, the increase in the tendency to rely on short-term financing instruments, and the increase in globalization and integration of financial markets (Altman et al., 2016; Camilleri & Camilleri, 2017). Which in turn led to the adoption of more risky approaches and the weakness of the financial system's resilience in the face of shocks in light of the multiplicity of forms of liquidity claims such as off-balance sheet items and securitization, as well as the increasing frequency of transactions related to financial derivatives (Onali et al., 2021). To ensure that financial institutions are strengthened to respond to short-term liquidity shocks and better align their long-term financing and lending operations, the decisions of Basel III proposed two types of indicators, one of which is related to the assessment of the bank's ability to maintain liquidity in the short term, while the second type of these indicators is related to the assessment of the extent of the bank's ability to maintain liquidity in the long term in light of a number of possible scenarios of liquidity pressures, according to the following:

- *Liquidity Coverage Ratio (LCR)*

This ratio aims to enhance the flexibility of short-term bank liquidity to enable financial institutions to meet their liquidity needs in the event of a crisis, by obligating the bank not to exceed the net cash outflows (NCOF) from the inflows of high-quality liquid assets available to it within 30 days. Tamimi (2021) LCR is calculated by using the following equation:

$$\text{Liquidity Coverage Ratio (LCR)} = \frac{\text{HQLA}}{\text{NCOF over the next 30 days}} \times 100 \quad (2.16)$$

$$\text{HQLA} = \text{Assets Level 1} + \text{Assets Level 2(A)} + \text{Assets Level 2(B)} - \text{Max} \quad (2.17)$$

$$\text{NCOF} = \text{Total Cash Outflows} - (\text{Total Cash Inflows or Gross Outflows 75\%}) \quad (2.18)$$

Where:

*HQLA: High Quality Liquid Assets*

*Max: Adjusted Level 2A+Adjusted Level 2B – (2/3\*Adjusted Level 1+Adjusted Level 2B) –*

*(15/85 \* Adjusted Level 1 + Adjusted Level 2A)*

*Note: AL2 should be  $\leq 40\%$  of HQLA and AL2 (B)  $\leq 15\%$  of HQLA*

*Gross Outflows 75% (If less than Total Cash Inflows)*

This ratio focuses on medium and long-term funding sources to enhance long-term flexibility by creating additional incentives for banks to finance their activities through stable funding sources (Docherty, 2017). Therefore, the terms of loans granted for a period of one year or more must correspond to sources of financing with similar terms, rather than short-term borrowing operations.

Whereas the net stable financing ratio (NSFR) aims to achieve the structural balance of the financial statements of banks and encourage the use of stable sources of financing, this is to reduce the over-reliance on short-term financing of large economic units in times of booming liquidity in the market and to improve the process of estimating the liquidity risk of all on- and off-balance sheet items. *Available stable fund*: it consists of the bank's capital base, preferred shares with a term of one year or more, obligations with an effective maturity of one year or more, and finally the stable part of deposits with no fixed term (Le et al., 2020; Setiyono & Naufa, 2021).

The denominator in NSFR equation is *required stable fund*, it is calculated on the basis of the total value of the assets held and financed by the bank, weighted by the stable financing factor for each type of asset, in addition to the off-balance sheet items weighted by the corresponding stable financing factor.

It should be noted that whenever the value of the net stable funding ratio exceeds 100%, this indicates the ability of banks to create real liquidity buffers to face future risks, on the other side if less than 100% this means that there are problems in providing sufficient liquidity in the long term. The nature of the bank's business, activities and weaknesses must be taken into consideration when designing liquidity stress scenarios, so that the scenarios include the basic financing risks and market liquidity risks to which the bank is exposed. The results of stress tests should be used to identify sources of expected liquidity stresses and analyze potential effects on the bank's cash flows, liquidity position, profitability and solvency. As well as defining corrective measures to reduce the bank's exposure to liquidity risks, building buffers and adjusting liquidity levels to match the risk tolerance strategy, and finally developing the bank's emergency financing plans to deal with these scenarios.

Ozdemir (2016b) states that the regulatory framework proposed by the Basel III decisions to measure and assess liquidity risk does not take into account the multiple aspects of the concept of profitability and growth related to liquidity, and also ignores the liquidity balance during the intermediate period from one month to 12 months. The management can also manipulate the components of the denominator of the liquidity coverage ratio according to its objective to increase or decrease the contractual cash flows out or within 30 days, and then modify their financing and investment decisions (Müller, 2020). While it is necessary to clarify and simplify the rules related to the frequency of disclosure to the regulatory authorities and the costs associated with non-compliance, in order to avoid exploiting the possible accounting policies and alternatives to carry out earning management practices. Although IFRS 9 does not provide quantitative indicators to measure bank liquidity risk, it has left the banks the freedom to estimate their liquidity needs based on experience and the average liquidity of similar banks according to the liquidity indicator such as the value of cash and deposits payable from savings institutions compared to total assets, the ratio of total loans to total deposits, this ratio shows the relationship between the bank's cash resources and its net financial obligations, and it is calculated as follows:

$$(Cash + balances with the central Bank + other liquid balances) / Total deposits \quad (2.19)$$

IFRS 7 requires qualitative and quantitative disclosures about exposure to risks, and the extent of disclosure depends on the extent of the entity's use of financial instruments. Regarding the qualitative disclosures, an entity must disclose the exposures to risk and how they arise as well as its objectives, policies and process for matching the risk and the methods used to measure the risk (IASB, 2009; IFRS 7: para. 33). For each type of risk arising from financial instruments, an entity shall disclose the summary quantitative data about its exposure to that risk at the end of the reporting period. An entity shall provide further information that is representative if the quantitative data disclosed unrepresentative of an entity's exposure to risk during the period (IASB, 2009; IFRS 7: paras. 34a & 35).

According to IFRS 7, liquidity risk is the risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities that are settled by delivering cash or another financial asset (IASB, 2009; IFRS 7: Appendix A). IFRS 7 requires an entity to disclose a maturity analysis for both derivative and non-derivative financial liabilities and a description of how it manages the liquidity risks in both of these categories (IASB, 2009; IFRS 7: para. 39).

IFRS 7 defines the credit risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation (IASB, 2009; IFRS 7: Appendix A). IFRS 7 requires an entity shall disclose by class of financial instrument , the carrying amount of financial assets, the exposure to credit risk on loan commitments and financial guarantee contracts, and information about the credit quality of financial assets that are neither past due nor impaired (IASB, 2009; IFRS 7: para 36).

Market risks is the risk that the fair value or future cash flows of a financial instrument fluctuate because of change in market prices (IASB, 2009; IFRS 7: Appendix A). Market risk comprises three types of risk: Currency risk, Interest rate risk, and other price risk. IFRS 7 requires an entity to prepare and disclose a sensitivity analysis for each type of market risk the entity exposed to (IASB, 2009; IFRS 7: para. 40). The sensitivity analysis should show how the financial position, profit or loss would have been affected by changes in the risk at the reporting date.

Most of IFRS standards requires or permits fair value measurements or disclosures. IFRS 13 set out to define fair value, set out in a single IFRS a framework for measuring fair value, and require disclosure about fair value measurements (IASB, 2011; IFRS 13: para. 1). IFRS 13 defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (IASB, 2011; IFRS 13: para. 9). Fair value is a market-based measurement, not an entity-specific measurement, and because it's a market-based measurement, fair value is measured using the assumptions that market participants would use when pricing the asset, taking into account any relevant characteristics of the asset (IASB, 2011; IFRS 13: para. 3).

Fair value is not adjusted for transaction costs. Under IFRS 13, these are not a feature of the asset or liability, but may be taken into account when determining the most advantageous market (IASB, 2011; IFRS 13: paras. 25 & 26). It is assumed that the transaction to sell the asset or transfer the liability takes place either in the principal market for the asset or liability; or in the absence the principal market, in the most advantageous market for the asset or liability (IASB, 2011; IFRS 13: para. 16). The principal market is the market which is most liquid (has the greatest volume and level of activity) for that asset or liability (IASB, 2011; IFRS 13; Appendix A). Fair value measurements are based on an asset or a liability's unit of account, which is specified by each IFRS where a fair value measurement is required. For most assets or liabilities, the unit of account is the individual asset or liability, but in some

instance may be a group of assets or liabilities (IASB, 2011; IFRS 13: para. B2). IFRS 13 establishes a three-level hierarchy for the inputs that valuation techniques to measure fair value:

Level one is quoted prices (unadjusted) in active market for identical assets or liabilities that the reporting entity can access at the measurement date (IASB, 2011; IFRS 13: para. 76). Level two is inputs other than quoted prices included within level one that are observable for the assets or liability, either directly or indirectly (IASB, 2011; IFRS 13: para. 81). Level three is unobservable inputs for the assets or liability (IASB, 2011; IFRS 13: para. 86). IFRS 13 also identifies three valuation approaches, these approaches are market approach, income approach, and cost approach (IASB, 2011; IFRS 13: paras. B5, B8, B10). Fair value measurement of a liability assumes that liability is transferred at measurement date to a market participant, who is then obliged to fulfill the obligation, and the fair value of a liability reflects the effect of non-performance risk, which includes but is not limited to the entity's own credit risk (IASB, 2011; IFRS 13: paras. 34-42).

Based on the above, it becomes clear that the accounting framework is incomplete with regard to financial risks and hedging instruments for those risks in more detail. The disclosure in the notes supplementing the financial statements should be clearer about the risks facing banks and the different methods that are used to estimate financial assets and liabilities in liquidity reports. As well as adhering to the supervisory guidelines regarding the practices of banks for estimating and measuring fair value to ensure the accuracy and objectivity of accounting data in light of the available accounting options to determine evaluation methods and to ensure that their application is monitored and reported in a proper manner. It is expected that the implementation of IFRS 9 will lead to a significant increase in provisions for credit losses for the first time for many banks and financial institutions, which would set aside an increasing amount of funds for the account of these provisions. Thus, the negative impact on the amount of available liquidity, at the same time, the application of the new requirements of IFRS 9 may affect deposits by enhancing depositors' confidence in banks because they provide more guarantees, which enables banks to provide an amount of liquidity that helps them to meet their obligations. Finally, this section summarize the most recent previous studies focused on the financial instruments, IFRS 9 and related topics Table 2.4 shows and summarize 30 studies, these studies were published in high-quality accounting journals and were frequently cited by other researchers.

**Table 2.4: Previous Studies on the Financial Instruments**

Sr. No.	Reference	Country	Objective	Findings
1	(Benston, 2006)	US	To describe the developments essentially in chronological order, which shows how Enron's initial "reasonable" use of fair-value accounting evolved and eventually dominated its accounting and corrupted its operations and reporting to shareholders.	The results of the study show that Enron first used level 3 fair-value accounting for energy contracts, then for trading activities generally. Simultaneously, these fair values were used to evaluate and compensate senior employees. Enron's use of fair-value accounting is substantially responsible for its demise.
2	(Barth et al., 2008)	US	To examine whether application of International Accounting Standards (IAS) is associated with higher accounting quality.	The study found that firms applying IAS from 21 countries generally evidence less earnings management, more timely loss recognition, and more value relevance of accounting amounts than do matched sample firms applying non-U.S. domestic standards.
3	(Barth et al., 2010)	US	To examine the role financial reporting for fair values, asset securitizations, derivatives and loan loss provisioning played in the Financial Crisis.	The study concludes that fair value accounting played little or no role in the Financial Crisis. However, transparency of information associated with asset securitizations and derivatives likely was insufficient for investors to assess properly the values and riskiness of bank assets and liabilities. Loss provisioning may have contributed to the Financial Crisis. Accounting standard setters and bank regulators should find some common ground. However, it is the responsibility of bank regulators, not accounting standard setters, to ensure the stability of the financial system.
4	(Chatham et al., 2010)	US	The purpose of this study is to find out what issues are important to respondents in their comment letters regarding the Financial Instruments Discussion Paper (FIDP), and whether stakeholder groups differ in positions and the reasons given to support their views.	Over 1500 pages of comment letters were generated by the 168 respondents, who represented over 20 countries and several different stakeholder groups. While most respondents disagreed with the Financial Instruments Discussion Paper (FIDP).
5	(Beatty & Liao, 2011)	US	To examine if the delays in expected loss recognition affect banks' willingness to lend?	The study found that Banks can decrease their future capital inadequacy concerns by reducing lending. The capital crunch theory predicts that lending is particularly sensitive to regulatory capital constraints during recessions, when regulatory capital declines and external-financing frictions increase. Regulators and policy makers argue that the current loan loss provisioning rules magnify this pro-cyclicality. Exploiting variation in the delay in expected loss recognition under the current incurred loss model. Reductions in lending during recessionary relative to expansionary periods are lower for banks that delay less. Smaller delays reduce the recessionary capital crunch effect.
6	(Fiechter, 2011)	Switzerland	The IASB issued on 13 October 2008 an amendment to IAS 39 which enables entities to reclassify non-derivative financial assets held for trading and financial assets available-for-sale. This paper aims to examine the influence of this controversial amendment on the 2008 financial statements of 219 European banks which apply IFRS.	The study found that approximately one-third of the sample banks have taken extensive advantage of these reclassification opportunities. Reclassifying banks avoid substantial fair value losses, and hence, report significantly higher levels of return on assets (ROA), return on equity (ROE).
7	(Kabir, 2011)	New Zealand	To examine the development of positive accounting theory (PAT) and compares it with three standard accounts of science- Popper (1959), Kuhn (1996) and Lakatos (1970).	This paper shows that there are some limits to the study of accounting in the mould of natural science. Furthermore, the methodological position conforms to none of the standard accounts of science. Rather it contains elements of all three. Finally, it identifies some methodological gaps in positive accounting theory (PAT).

8	(Linsmeier, 2011)	US	This commentary provides one Board member's reasoning for supporting the proposal of measuring financial instruments at fair value in the financial statements.	(1) The amortized cost model failed to provide timely information about the deteriorating financial condition of failed banks in the current financial crisis, (2) lessons learned from prior financial crises affecting financial institutions in the United States and Japan, and (3) research evidence indicating that fair value measures are most highly correlated with banks' exposures to interest rate and credit risk—two key risk exposures that have led to bank failures in the three most recent financial crises.
9	(Nobes, 2011)	UK	This paper asks whether that dichotomous classification is still discernible in the IFRS practices of large listed companies. This paper also investigates the implications of the persistent differences in practices for assessing the success of the IASB's whole project on improving comparability of financial statements.	This study found that All the statistical techniques lead to the same result: Anglo and continental European groupings can be discerned in the IFRS practices of very large companies.
10	(Huian, 2012)	Romania	This paper aims at analyzing the new rules, concepts and principles introduced by IFRS 9. In addition, it attempts to identify some possible consequences of its application.	This paper represents only the author's view on what the new concepts, options and accounting treatments mean and on the possible consequences of their appliance. And provide SWOT analysis for IFRS 9.
11	(Laux, 2012)	Austria	To review new empirical evidence from the recent financial crisis on the relation between financial reporting and financial stability.	First, there is still no evidence that fair value accounting caused widespread fire sales of asset or contagion. Second, the empirical evidence suggests that accounting and regulation might have contributed to the crisis by allowing several banks to delay actions. Third, even if share prices reacted positively to the relaxation of fair value accounting rules during the crisis, the origin of the problem might be lax rules that allowed banks to run into financial and regulatory problems. Fourth, fair values can be relevant for assets that a bank intends to hold until maturity if that bank strongly relies on short-term financing. Fifth, the recognition of fair values is no substitute for information that allows investors to judge a bank's risk exposure and the validity of reported fair values.
12	(Gurný, P., & Gurný, M, 2013)	US	This paper is devoted to the estimation of the probability of default (PD) as a crucial parameter in risk management, requests for loans, rating estimation, pricing of credit derivatives and many others key financial fields.	From the results it is clear that <i>logit model</i> shows the best results in application to the control sample and this model is the most appropriate model for prediction of the banks default (there are surprisingly relatively big differences between logit and probit model). On the other hand <i>the LDA model</i> appears as quite inappropriate for the prediction of the banks failure. However, it is still need to keep in mind limitations of the estimated logit model (one-period model for utilization primarily in the time of market depression).
13	(O'Hanlon, 2013)	UK	This paper provides evidence relevant to this issue by examining whether loan-loss provisioning by UK banks was less timely under the stricter evidence requirements of the IAS 39 incurred-loss regime implemented in 2005 than under the less strict evidence requirements of the previous UK incurred-loss regime.	The results do not suggest that provisioning became less timely under the stricter evidence requirements of IAS 39. There is no evidence that provisioning became less timely immediately prior to the crisis of the late 2000s. Also, there is no evidence that general provisioning, permitted under the pre-IAS 39 regime, enhanced the timeliness of loan-loss provisioning. The results do not suggest that stricter requirements regarding the evidence necessary to support recognition of loan losses have resulted in less timely loan-loss provisioning.

14	(Beatty & Liao, 2014)	US	To review three streams of empirical research. Studies associating bank financial reporting with the valuation and risk assessments, associating bank financial reporting discretion with regulatory capital and earnings management, and examining banks' economic decisions under differing accounting regimes.	The results of this literature suggest that banks alter their economic behavior due to accounting methods that affect regulatory capital requirements including fair value recognition, asset securitizations and loan loss provisioning. This study argue that much of the bank accounting research has been backward looking focusing on the effects of existing regulation rather than the possible effects of alternative regulatory regimes. To gain insights about how to avoid the next crises will likely require an understanding of how banks may react to alternative counter-factual regulations designed to avoid the future crises.
15	(Cantrell et al., 2014)	US	To examine the ability of reported loan fair values to predict credit losses relative to the ability of net historical costs currently recognized.	This study found the net historical loan costs are a better predictor of credit losses than reported loan fair values. The historical cost information is more useful in predicting future net charge-offs, nonperforming loans, and bank failures over both short and long time horizons. Further tests indicate that the relative predictive ability of reported loan fair values improves in higher scrutiny environments, suggesting that a lack of scrutiny over reported loan fair values may contribute to our findings.
16	(Harris et al., 2014)	US	This study aimed to develop a measure of the one-year-ahead expected rate of credit losses (ExpectedRCL) that combines various measures of credit risk disclosed by banks.	The resulting empirical measure of ExpectedRCL substantially outperforms the historical rate of net charge-offs, the ALLL (Allowance for loan and lease losses), the PLLL (Provision for loan and lease losses), and FV (Fair value of net loans) in predicting one-year-ahead realized credit losses. This study found that ExpectedRCL has, on average, better predictive ability for the one-year-ahead PLLL than analysts' forecasts of the PLLL. Further, banks have larger earnings surprises relative to analysts' estimates when the difference between ExpectedRCL and the analyst's estimate of the PLLL or between ExpectedRCL and forecasts of one-year-ahead realized credit losses based on the ALLL, the PLLL, or NCOs (Net charge-offs) is larger. Finally, we find that ExpectedRCL is incrementally useful in predicting bank failures over the next year.
17	(Onali & Ginesti, 2014)	UK	This study is the first to examine the market reaction to 13 announcement dates related to IFRS 9 for over 5,400 European listed firms.	This study found an overall positive reaction to the introduction of IFRS 9. The regulation is particularly beneficial to shareholders of firms in countries with weaker rule of law and a smaller divergence between local GAAP and IAS 39. These results indicate that investors are confident with the ability of IFRS 9 to address the problems inherent in IAS 39 implementation, but cross-country differences are to be expected.
18	(Bushman & Williams, 2015)	US	To investigate the extent to which delayed expected loan loss recognition (DELRL) is associated with greater vulnerability of banks to three distinct dimensions of risk: (1) stock market liquidity risk, (2) downside tail risk of individual banks, and (3) codependence of downside tail risk among banks.	This study found that DELRL is associated with higher correlations between bank-level illiquidity and both aggregate banking sector illiquidity and market returns (i.e., higher liquidity risks) during recessions. During recessions DELRL is associated with significantly higher risk of individual banks suffering severe drops in their equity values, where this association is magnified for banks with low capital levels. DELRL is associated with significantly higher codependence between downside risk of individual banks and downside risk of the banking sector.

19	(Edwards, 2016)	Switzerland	How prudential authorities had a key role in encouraging accounting standards setters to issue the new ECL accounting standards.	<p>Prudential authorities can promote high quality implementation practices through the following activities:</p> <ol style="list-style-type: none"> <li>1. Encourage those charged with bank governance to achieve a greater understanding of IFRS 9 and related implementation efforts and to be more active in discussing these matters during meetings of the Board of Directors (or its equivalent) and its Risk and Audit Committees.</li> <li>2. Encourage auditors to achieve a greater understanding of IFRS 9 and related implementation efforts and supervisory guidance, and supervisors should gain a better understanding of auditor roles, meeting with them when appropriate. This could be helpful in encouraging an improvement in the quality of bank auditor practices.</li> <li>3. Require banks to periodically present updates that will enable supervisors to monitor their ECL implementation strategies and efforts, and related timetables and understand their implementation challenges.</li> <li>4. Consider the impact of ECL requirements on supervisory provisioning matrices, supervisory financial reports, analysis reports, AQRs, stress tests and other tools to ensure that prudential objectives are met.</li> </ol> <p>Finally, Working with the banking industry, accounting standards setters, investors and auditors, supervisors can have a significant role in helping to secure the potential benefits of the new ECL provisioning regime in ways that enhance transparency and risk management, and reduce undue burdens on banks.</p>
20	(Miu, & Ozdemir, 2016)	Canada	To examine how we may use Advanced internal rating-based (A-IRB) models in the estimation of expected credit losses for IFRS 9 purposes.	This study proposed to use the convexity adjustment approach to deal with the non-linear relation between conditional PD and the underlying macroeconomic drivers. By doing so, we can enhance the objectivity and replicability of the resultant expected loss measure.
21	(Novotny-Farkas, 2016)	EU	This paper examines the interaction of the International Financial Reporting Standard (IFRS) 9 expected credit loss (ECL) model with supervisory rules and discusses potential implications for financial stability in the European Union.	<p>This study provided good expectation for IFRS 9:</p> <p>Recognition of credit losses will reduce the build-up of loss overhangs and the overstatement of regulatory capital. In addition, extended disclosure requirements are likely to contribute to more effective market discipline. Through these channels IFRS 9 might enhance financial stability. However, due to the reliance on point-in-time estimates of the main input parameters (probability of default and loss given default) IFRS 9 ECLs will increase the volatility of regulatory capital for some banks. Furthermore, the ECL model provides significant room for managerial discretion. Bank supervisors might play an important role in the implementation of IFRS 9, but too much supervisory intervention bears the risk of introducing a prudential bias into loan loss accounting that compromises the integrity of financial reporting. Overall, the potential benefits of the standard will crucially depend on its proper and consistent application across jurisdictions.</p>

22	(Brkovic, 2017)	Serbian	This paper aimed to highlight some specific methodological rudiments in macroeconomic analyses and forecasts as inputs for the accounting recognition and presentation of expected credit losses.	This study indicate that the requirements of the IFRS 9 implementation pose a serious challenge before the banks and their business policy. Not only does the standard represent a new approach to the accounting treatment of expected credit losses but it explicitly imposes the need for the overall changes in portfolio management, involving in this process almost the entire organizational structure of a bank.
23	(Cohen & Edwards, 2017)	EU	To examine the expected credit loss provisioning on the banks and financial stability	Many banks are still assessing the impact. In the Deloitte survey, 60% of banks either did not disclose or could not quantify the transition impact. In the PwC survey, 30% did not yet have an indication of the impact. The results of study also indicate a need for central banks and other prudential authorities to become more active in encouraging banks to devote more resources to implement ECL provisioning requirements in a more robust, consistent and transparent manner. New, forward-looking thinking will be needed for a new era.
24	(Filipova-Slancheva, 2017)	Bulgaria	The purpose of this study is to list the changes introduced by the International Financial Reporting Standards (IFRS) 9 in respect of classification and measurement of financial assets.	Based on a semi-structured interviews, this study indicates that IFRS 9 goes beyond accounting change and will impact many other aspects. Transition from IAS 39 to IFRS 9 is complicated and Bank is extensively addressing and preparing for the implementation of the new classification of financial assets, among all other mandatory requirements and guidance.
25	(Gornjak, 2017)	Slovenia	To analyze the replacement of the standards for financial instruments.	The replacement of the standard that determines financial instruments is a challenge for organizations, as there is a shift from looking back to forward-looking. Even if the organization purchases the debt instrument at the market at the fair price, it should still calculate the expected credit loss on the day after the purchase. Increased confidence in financial markets, a greater the independence of financial institutions and a greater complexity of business and organizational structures before the crisis contributed to various decisions, but lost confidence can be returned with the help of the qualitative characteristics of IFRS standards, which include the importance of the reliability of the presentation, comparability, verifiability, timeliness, and understandability of the accounting data presented.
26	(Marton & Runesson, 2017)	Sweden	To compare the predictive ability of loan loss provisions with respect to actual losses under IFRS and local GAAP. And examine the interaction of standards with enforcement of financial reporting and with preparer incentives	This study found that loan loss provisions in IFRS bank years predict future credit losses to a lesser extent than in local GAAP bank years, consistent with the incurred loss model reducing the timeliness of provisions. And the benefits of local GAAP are largely limited to high-enforcement settings. Local GAAP also performs relatively better than IFRS in large and in profitable banks.

27	(Krüger et al., 2018)	US	To show the impact of revised loan loss provisioning based on the International Financial Reporting Standards (IFRS) and the US Generally Accepted Accounting Principles (GAAP).	This paper shows that the revised loan loss provisioning based on the International Financial Reporting Standards (IFRS) and the US Generally Accepted Accounting Principles (GAAP) implies a reduction of Tier 1 capital. The paper finds in a counterfactual analysis that these changes are more severe (i) during economic downturns, (ii) for credit portfolios of low quality, (iii) for banks that do not tighten capital standards during downturns, and (iv) under a more lenient definition of significant increase in credit risk (SICR) under IFRS. The provisioning rules further increase the procyclicality of bank capital requirements. Adjustments of the SICR threshold or capital buffers are suggested as ways to mitigate a regulatory pressure that may emerge due to the reduction of regulatory capital.
28	(Rene & Abdulla, 2018)	UK	This study aimed to figure out the preparation of banking industry especially HSBC Holdings Plc to implement the standard.	This study found HSBC has been well-prepared to implement the standard. The findings of this research also realize a certain extent of agreement to MacNeal's theory and positive theory introduced by Watts and Zimmerman.
29	(Halilbegovic et al., 2018)	Bosnia & Herzegovina	To investigate effects of the implementation of this new regulatory requirement on financial institutions in Bosnia and Herzegovina and compare them with effects they had in Croatia	The study found that although the new IFRS 9 impairment requirements is supposed to shift up the credit loss allowances of many banks and financial institutions, the effect appraisal will demonstrate that the effect is less critical than anticipated by the European Banking Authority in both EU or non-EU countries
30	(Goulash & Somogyi, 2019)	Hungary	To investigate whether these expectations are borne out by the experiences of survey respondents.	This study found that the success of the transition is assured by the availability of Hungarian-language literature, the setting of realistic deadlines and use of the appropriate GAP analysis, while difficulties are presented by the shortage of relevant skills and the high one-off changeover costs. There are significant differences depending on whether a given bank had already prepared IFRS individual financial statements before the transition to IFRS 9. The greatest challenge overall was the immaturity of the IT system, while the most important accounting challenges included the impairment model, SPPI tests and taxation issues. Based on the responses, the opinions of the surveyed banking professionals did not confirm the expected benefits of the introduction of IFRS and IFRS 9; they regarded the drawbacks as having a greater weight.

Source: (Author's construction, 2021)

From Table 2.4, it is clear that none of these studies considered the actual impact of IFRS 9 on the main items in the financial statements and the comparing the actual changes for these financial items between financial institutions in two different continents. These studies focused on important issues related to financial instruments, but there is an urgent need for this study to determine the real change of the main items in the financial statements of large financial institutions, as well as the reasons if there any significant change on those items.

## 2.3 Financial Results

### 2.3.1 Financial Accounting Theories

The financial accounting theory consists of assumptions and methodologies used in studying and applying financial reporting principles (Lantto & Sahlström, 2009). The study of financial accounting theory includes reviewing both the historical foundations of accounting practices, as well as how accounting practices are changed and added to the regulatory framework that governs financial data and reports (Lambert, 2001). There are many objectives for financial reporting and they are to provide the necessary information to external users of the financial reports that benefit them in making investment decisions. To provide information that is useful in the report of current cash flows and the possibility of predicting future cash flows (Balsmeier & Vanhaverbeke, 2016). Financial information about the accounting unit's resources and obligations and any changes thereof. Determining the degree of liquidity and flexibility of the institution, source the money and its uses (Besusparienè et al., 2018). Provide financial information for assessing the efficiency of management (Krisement, 1997).

Kabir (2011) discusses that the theory of financial accounting aims to provide the necessary data and information for planning and policy-making for the coming period or periods. Provide the data and information necessary to tighten control over its property and protect its property from manipulation or embezzlement by keeping complete, organized and permanent records of the financial transactions. The study of accounting theory aims to deepen the understanding of the intellectual basis on which the theory is based in light of the developments in the profession, the accounting research, and the shift from searching for accounting principles to searching for accounting standards (Lambert, 2001). All accounting theories are related to the conceptual framework of accounting, as this framework works to define and set the main objectives for financial reporting by both public and private companies. Moreover, the theory of financial accounting can be considered a logical method that helps to evaluate and direct accounting practices as accounting standards evolve and this helps to develop new accounting practices and procedures (Lamberton, 2005). The conceptual framework for accounting aims to create a theoretical framework that guarantees justification for the use of prevailing accounting methods and procedures, evaluation of accounting practices and prediction of the effects of applying new accounting procedures. The FASB defined this framework "*Is a body of interrelated objectives and fundamentals ... Those concepts provide guidance in selecting transactions, events and circumstances to be accounted for, how they should be recognized and measured, and how they should be summarized and reported*". The conceptual framework

represents a constitution and a coherent system of objectives and interrelated fundamentals that lead to the creation of stable standards capable of describing the nature, function and of financial accounting and financial statements.

The objectives define the purposes of accounting, and the fundamentals are the theoretical background and aim to help in choosing the events that are accountable for, how to measure those events, and the means to ensure that they are communicated to the users (Lamberton, 2005). Concepts are essential to developing the interpretation and application of accounting standards and reporting standards. The conceptual framework for accounting aims to assist in issuing accounting standards, providing an intellectual background through which various accounting problems are addressed in the absence of standards regarding them, limiting personal judgments and judgments when preparing financial statements, enhancing comparability of accounting data by reducing the number of accounting alternatives.

The main constraint for this conceptual framework is cost and benefit that focuses on the fact that accounting information should not be produced or distributed unless its benefits exceed its costs, and this constraint such as a feasibility study applied to the accounting information, and the costs of accounting information usually include multiple elements such as the costs of collecting, operating, archiving and extracting information, auditing, and disclosure costs (Ijiri, 1983). Accounting theories have multiplied on the impact of the multiplicity of accounting problems facing practitioners of that profession and the consequent multiplicity of accounting procedures subject to a group of different and sometimes synonymous accounting concepts and principles. The types of accounting theories can be summarized as follows:

### *1. Proprietary Theory*

The proprietary theory is the theoretical concept of accounting for the transactions of the individual enterprise, as it is considered, according to the theory of ownership, as the tool through which the owner of the entity conducts his business (Merino, 1993). Therefore, the focus of accounting attention when applying the property theory is to measure owners equity. Considering that the owner of the entity owns its assets and bears its obligations and on this basis, the accounting equation under the property theory takes the following form (Wolk et al., 2017):

$$\text{Equity} = \text{Assets} - \text{Liabilities} \quad (2.20)$$

When liabilities are viewed as negative assets, it is said that the theory of ownership is directed towards the balance sheet, and then accounting methods and procedures are chosen that lead to a better assessment of assets and liabilities to show real changes in owners' equity. Hendriksen (1973) revenue represents an increase in owners' equity, while expenses are considered a reduction. Debt interest and income taxes are expenses, while distributions to owners are considered as withdrawals from the capital. This theory had a clear impact on some accounting methods and terminology (Dandago, 2009).

## 2. *The Entity Theory*

According to this theory, it is autonomous and separate from the owners (Hendriksen, 1973). The unit is seen as the owners of the capital, where the entity, not the owner, is considered the focus of accounting, considering that the unit is the one who owns the resources of the entity and is responsible for the obligations of the entity towards the owners of the capital and creditors, so the accounting equation according to the unit theory is as follows (Wolk et al., 2017):

$$\text{Asset} = \text{Liabilities} + \text{Equity} \quad (2.21)$$

Dandago (2009) assets represent expected economic benefits obtained by the unit and are subject to its control as a result of operations and events that took place in the past, while rights represent the unit's funds sources from shareholders (capital) and creditors (obligations). It must be taken into account that each of the shareholders and creditors has a different view of income, risk, control and liquidation (Backer, 1966). Therefore, the earned income represents the right of the unit until its distribution to the shareholders is announced as a contribution return, and since the unit is responsible for the enterprise's resources and its obligations towards the rights holders, the unit theory is considered directed towards the statement of profit or loss, the increase in the rights of shareholders after fulfilling the obligations towards other rights holders such as interest and income taxes, and the increase in the rights of shareholders is not considered income for them except when it is authorized to distribute it.

## 3. *Fund Theory*

The fund is the basis of accounting under this theory (Corcoran & Kwang, 1965). The fund expresses the group of assets associated with the unit and the restrictions that govern the use of those assets. The accounting equation according to this theory takes the following form (Hendriksen, 1973; Wolk et al., 2017):

$$\text{Assets} = \text{Restrictions on Assets} \quad (2.22)$$

Where the accounting unit is determined based on the assets and the uses to which these assets are directed. The obligations express a series of legal and economic restrictions on the use of assets. The theory of fund is considered to be directed towards assets, and that is by focusing on the optimal management and use of assets (Field, 1964; Johnson, 1959).

Therefore, the focus of accounting interest in light of this theory is not based on income or the statement of financial position, but rather a list of sources of credits and their uses. It is worth mentioning that the application of this theory is appropriate for government organizations and non-profit entities (Corcoran & Kwang, 1965; Wolk, 2017). The funds are nothing but accounting, financial and independent units with self-balanced accounts in which cash and other resources are recorded in addition to all obligations, pledges, reserves and rights that must be separated according to the relevant activities or specific goals to be achieved, taking into account compliance with special laws and restrictions imposed on the use of those funds (Field, 1964).

#### *4. Residual Equity Theory*

It is a development of the theory of proprietary, but here the concept of proprietary developed so that the distinction between privileged owner's equity and ordinary owner's equity was separated, and the balance equation based on this theory as follows (Wolk et al., 2017):

$$\text{Residual Equity} = \text{Assets} - \text{Specific Equities} \quad (2.23)$$

What is meant here by privileged owner's equity are the rights of privileged stockholders, which the theory is based on first fulfilling their rights, and then fulfilling the rights of ordinary stockholders so that common stockholders do not receive their rights until after first paying the rights of the preferred stockholders (Hendriksen, 1973). This theory focuses on the fact that the entity must work to evaluate the property rights accurately, as it is possible that preferred shares, creditors and bonds are the remaining value in cases of economic crises and bankruptcy. *Residual equity theory is that information appropriate for decision-making purposes must be supplied to the residual equity holders* (Wolk et al., 2017).

#### *5. Positive Theory*

This theory is concerned with improving the process of forecasting events, focusing on the reactions of the parties involved in the events, and the extent to which the management of any entity responds to the applicable standards, and its choice of one accounting policy over the other among several available alternatives. Wiratama and Asri (2020) this theory is based on three basic hypotheses:

- Bonus plan: It means that in the case of applying the bonus system for managers from the net profit, managers may resort to transferring the profits of the upcoming periods to the current period to obtain the largest possible amount of bonuses.
- Debt (credit) agreement: In the event of financial default, those responsible for this may resort to a decision to transfer the profits of subsequent periods to the current period because no financial or legal default occurred during the period (Godfrey et al., 2006).
- Political cost: Disclosure and announcement of the real profits figures may attract the attention of the state or pay high taxes, which may push the higher management to decide to postpone the profits of the current period to future periods (Wiratama and Asri, 2020).

### *6. Commander Theory*

This theory focus on the importance of the personal factor and **holds** that there are people who possess the skills and competencies to manage the entity to achieve its goals, and here the focus is on the supervisory role on the economic resources of the entity, but taking into account that these persons concerned with the effective supervisory role are not the owners, but rather the senior management that determines the policies and procedures that are implemented in the entity (Clark, 1993; Golberg, 1965; Hendriksen, 1973).

### *7. Agency Theory*

Agency theory is based on the concepts of game theory, but it differs from it in the nature of the relationship between the parties, as the relationship between the parties in game theory is competitive and characterized by conflict, and vice versa, in the agency theory, the relationship between the parties is based on cooperation and the contractual relationship to achieve the goal (Dejong et al., 1985). The agency theory is also linked to the positive theory and decision theory, where the relationship between that theory is between the owner, who is the entrusting party, and the agent party, and the delegate is the delegate with the powers to practice the activity and take decisions on his behalf to achieve the objectives of the entity (Dandago, 2009). The relationship is in the form of an explicit contract between the two parties, in which the nature of the relationship and what each party has to do and what is determined.

Agency theory is one of the types of accounting theories that emerged as a result of the multiplicity and increase in accounting problems that may clash with different professions (Brown et al., 2009). This was followed by a large multiplicity of accounting procedures, which were subject to a different set and also synonymous with accounting concepts and principles, of which agency theory is one of its types their report to shareholders, but in many cases, the decision to re-appoint them is in the hands of the board of directors, realistically, and

so there may be a conflict between them performing their duties correctly and at the same time maintaining good relations with the members of the company's board of directors, and the principal should know these aspects so that sound decisions can be made at the time (Cohen & Holder-Webb, 2006; Wolk, 2017). Applying agency theory to auditing: Agency theory states that with a conflict between the objectives of the agent and the principal, there are always procedures that, if implemented, it can be verified that the agent is doing actions that achieve the objectives of the principal (Kunz and Pfaff, 2002). For example, the theory assumes that shareholders will buy shares only if there are bases to protect their investments, and one of the most important bases for this protection is the review of the financial statements by an auditor (Walker, 1989).

#### *8. Contracting Cost Theory*

Carlson (1981) states that this theory is the other half of the agency theory, and both of them have a strong relationship until the two theories became one of the most important positive results of the theory, which contributed greatly to building the accounting theory, and this theory states that accounting information is the means that help reduce agency costs, which helps in setting policies associated with conditions and rules that define the absolute rules of measurement in preparing the financial statements, which ultimately leads to the enhancement of the market price of the share, and the reduction of profit distribution opportunities (Backer, 1966).

#### *9. Signaling Theory*

Morris (1987) claims that this theory focuses on increasing the entity's opportunity to obtain capital financing from the market, based on the confidence that the entity gains from publishing its financial statements, which appear in a way that supports the reputation of the entity, which creates an impression of confidence among investors and a low level of risk perception towards financing the entity.

### **2.3.2 Types of Financial Statements**

The final product of accounting is a set of financial reports that are prepared for external and internal users. Therefore, the accounting objectives are derived from defining the main functions that these reports perform (DeFranco et al., 2011). The results of financial accounting crystallize in an interconnected and integrated set of financial statements, which are considered an essential part of the conceptual framework of accounting, so it is important to study the concepts of these statements. The financial statements are reports prepared by the financial management of the entity to provide financial performance at a given time

(Schroeder et al., 2019; Scott & O'Brien, 2019). A complete set of financial statements comprises, a statement of financial position, a statement of profit or loss and other comprehensive income, a statement of changes in equity, statement of cash flows, notes, comprising material accounting policy information and other explanatory information, comparative information, and a statement of financial position as at the beginning of the preceding period when an entity applies an accounting policy retrospectively or makes a retrospective restatement of items in its financial statements, or when it reclassifies items in its financial statements (IASB, 2001; IAS 1: para.10). Financial statements are written records that convey the business activities and the financial performance of an entity. Financial statements are often audited by government agencies, accountants, firms, etc. to ensure accuracy and for tax, financing, or investing purposes (Laux, 2012).

There are two types of financial statements, the first type is the primary financial statements that are prepared regularly and periodically that provide us with the minimum amount of accounting information necessary to achieve the goals of financial accounting (Lantto & Sahlström, 2009; DeFranco et al., 2011; Jorissen, 2017). The second type of the financial statements – supplementary statements, that are prepared optional or based on accounting recommendations to meet specific circumstances, and examples of this are detailed statement of some of the totals included in the primary financial statements, financial statements prepared with the change in price levels, consolidated financial statements for a group of companies that form an integrated economic unit (parent company), sectoral financial statements for production lines in units of multi-activity (DeFranco et al., 2011; Laux, 2012).

*1. Statement of financial position* is like a photograph, it captures the financial position of a company at a particular point in time and therefore the contents of the statement of financial position are instantaneous items (Barry & Jamie, 2019). For some entities, such as financial institutions, a presentation of assets and liabilities in increasing or decreasing order of liquidity provides information that is reliable and more relevant than a current/non-current presentation because the entity does not supply goods or services within a clearly identifiable operating cycle (IASB, 2001; IAS 1: para. 63). There is a limit to its sustainability in providing all information, as many of the numbers included in this statement are greatly affected by events and phenomena that are not recognized in accounting, such as price changes, and the numbers contained in it do not represent homogeneous measures because they are a fabric of different items of assets and liabilities that it is measured on the basis of historical cost or current cost (Kieso et al., 2016).

The main uses of the statement of financial position are concentrated in helping the users of the financial statements to assess some characteristics of the financial position of the entity, in particular (the degree of liquidity, the degree of flexibility of the financial structure, future expectations, the degree of risk, calculating rates of return). With regard to liabilities, they are classified into current and non-current liabilities. A distinction must be made between five types of obligations:

1.1 Contractual obligations: These are obligations that arise as a result of a contract between the entity and other parties.

1.2 Ethical obligations: These are the prevailing obligations such as justice and rights. A clear example of this is the continuity of the moral obligation of the supplier to supply goods and services despite the absence of a legal agreement to do so (Clegg et al., 2007).

1.3 Contingent obligations: These obligations are those conditional obligations that are accompanied by an item of uncertainty in terms of the obligation, the amount of the obligation, or the date of the obligation. This obligation requires the existence of the possibility of the obligation and the possibility of measuring the consequences thereof. Examples of this are lawsuits against the entity, potential losses from contracts Purchase is non-cancellable, commitment exchange guarantees (Karen, 2014).

1.4 Other liabilities: they include prepaid revenues and are related to the performance of services or the provision of goods to the entity (Epstein et al., 2010). It also includes the accounting adjustments resulting from the application of the principle of matching revenues with expenses, such as tax savings that have been carried forward, dues to others that are not included in the statement of profit or loss (Kieso et al., 2006).

An entity classifies its financial liabilities as current when they are due to be settled within twelve months after the reporting period, even if the original term was for a period longer than twelve months, and an agreement to refinance, on a long-term basis is completed after the reporting period and before the financial statements are authorized for issue (IASB, 2001; IAS 1: para. 72). If an entity has the right, at the end of the reporting period, to roll over an obligation for at least twelve months after the reporting period under an existing loan facility, it classifies the obligation as non-current (IASB, 2001; IAS 1: para. 73). An entity classifies the liability as non-current if the lender agreed by the end of the reporting period to provide a period of grace ending at least twelve months after the reporting period (IASB, 2001; IAS 1: para. 75).

The third item in the statement of financial position is equity, which can be divided into three main items:

First, the paid capital: It contains the legal capital, which represents the legal responsibility of the shareholders and is determined based on the nominal value of the share (Francis & Schipper, 1999). In addition to additional capital that includes the share premium, the increase or decrease in the value of the treasury shares to be issued. Second, the earned capital: It is known as retained earnings and represents the realized and undistributed profits until the date of preparing the financial position (Baksaas & Stenheim, 2019). The acquired capital may be unrestricted or restricted in the form of reserves such as legal reserve or expansion reserve. It is necessary to differentiate between reserves and provisions, as the reserves are to meet an expected decline in the value of the asset or an expected liability, and thus it is a kind of disposal or allocation of profit and not a reduction of it, while provisions are to meet an actual decline in the value of the asset or actual existing liability, and thus it becomes a burden on the profit (Brouwer et al., 2014). Third, other capital: It represents capital adjustments that have not been realized until the date of preparing the statement of financial position (Brochet et al., 2013).

Examples of this are the capital revaluation of assets, differences in translation of balances from foreign currencies, unrealized acquisition gains. The following are the weaknesses in the statement of financial position: The statement of financial position contains different valuation bases for the items of assets, some of which depend on the principle of historical costs, such as fixed assets, and others depend on principles that depart from the principle of historical cost, as in the case of inventory valuation at cost price or net realizable value, whichever is lower (Duțescu et al., 2019). Using accounting estimates, which are subject to personal judgments to some extent, such as cases of calculating provisions for doubtful debts, provision for the decline in investments and income tax estimates, which increases the chance of bias in those estimates. Multiple different accounting methods, as in calculating the useful life of assets and methods of their depreciation, in addition to methods of stock valuation (Brennan & Hughes, 1991).

Duong and Truong (2020) discussed not taking into account the changes that occur in prices due to reliance on the assumption of the stability of the monetary unit as a basis for accounting measurement. This problem appears clearer in the case of inflation, where prices rise and the purchasing value of the monetary unit declines. Different rates of return on investment as a

result of investing in the historical cost principle, this problem appears in cases of stock-keeping and not disposing of it during the period of inflation, which raises profits as a result of speculation and is not separated from the current profits resulting from normal operations (Wolk et al., 2017). In this dissertation I will highlight on the change in total asset and total liabilities in the statement of financial position to compare before and after IFRS 9 at the same time to compare between two countries as shown in the following sub-hypotheses:

**H1.a:** There is a statistically significant difference in the average rate of change in total assets before and after IFRS 9.

**H1.b:** There is a statistically significant difference in the average rate of change in total liabilities before and after IFRS 9.

**H2.a:** There is a statistically significant difference in the average rate of change in total assets between the UK and Canada after IFRS 9.

**H2.b:** There is a statistically significant difference in the average rate of change in total liabilities between the UK and Canada after IFRS 9.

2. *Statement of profit or loss and other comprehensive income.* An entity shall present the statement of profit or loss and other comprehensive income (statement of comprehensive income), in addition to the profit or loss and other comprehensive income sections (profit or loss; total other comprehensive income; comprehensive income for the period, being the total of profit or loss and other comprehensive income). If an entity presents a separate statement of profit or loss it does not present the profit or loss section in the statement presenting comprehensive income (IASB, 2001; IAS 1: para. 81A).

The statement of profit or loss and other comprehensive income is prepared for showing business results and disclosing its components to assist in evaluating revenue flows and using the results of this evaluation to forecast future revenue flows and the possibility of converting them into cash flows (Kanagaretnam, 2009; Thinggaard et al., 2006). The statement of profit or loss and other comprehensive income in the conceptual framework of accounting acquires great importance in evaluating the feasibility, returns and cost of investments, the efficiency and effectiveness of the management, the firm's eligibility and ability to obtain funds and the future cash flows of the entity (Hung & Subramanyam, 2007; Newberry, 2003). The statement of profit or loss is prepared according to one of the two basic forms, the concept of profit from current operations and the concept of comprehensive profit.

2.1 The concept of income from current operations: the statement of profit or loss and other comprehensive income contains the items that are considered normal and recurring related to the activities of the current period (Mackenzie et al., 2014). Item that are not related to current activities are excluded, which makes the statement of profit or loss more useful in the field of evaluation and making forecasts.

An entity shall present an analysis of expenses recognized in profit or loss using a classification based on either their nature or their function within the entity, whichever provides information that is reliable and more relevant (IASB, 2001; IAS 1: para. 99). The choice between the function of expense method and the nature of expense method depends on historical and industry factors and the nature of the entity. Management shall select the presentation that is reliable and more relevant. However, because information on the nature of expenses is useful in predicting future cash flows, and additional disclosure is required when the function method is used (IASB, 2001; IAS 1: para. 105).

2.2 The concept of other comprehensive income: is the change in equity during a period resulting from transactions and other events, other than those changes resulting from transactions with owners in their capacity as owners (IASB, 2001; IAS 1: para.7). Items of other comprehensive income, classified by nature and grouped into those that, in accordance with other IFRSs, will not be reclassified subsequently to profit or loss; and items will be reclassified subsequently to profit or loss when specific conditions are met (IASB, 2001; IAS 1: para. 82A).

Therefore, the other comprehensive income comprises items of income and expense that are not recognized in profit or loss as required or permitted by other IFRSs, such as changes in revaluation surplus, actuarial gains and losses on defined benefit pension plans, gains and losses arising from translating the financial statements of a foreign operation, gains and losses from investments in equity instruments designated at FVOCI, gains and losses on financial assets measured at FVOCI, the effective portion of gains and losses on hedging instruments in a cash flow hedge, and other items (IASB, 2001; IAS 1: para. 7).

The proponents of this concept they rely on highlighting the disadvantages of the concept of profit in the commercial activity, and they mention in this regard that the identification of unusual items will depend to a large extent on the assessment of the situation, which allows the management to determine the results of the business according to what it deems appropriate, which loses this information impartiality and the ability to verify its authenticity.

Therefore the adoption of the concept of comprehensive income will prevent the management from misusing the retained earnings in case it wants to hide the impact of some operations and not recognize them during the accounting cycle to be loaded on the retained earnings on the pretext that they are abnormal or infrequent (Epstein et al., 2010; Mackenzie et al., 2014). In this dissertation I will highlight on the change in the net income, the main part in the statement before and after IFRS 9 and at the same time a comparison is made between two countries as shown in the following sub-hypotheses:

**H1.c:** There is a statistically significant difference in the average rate of change in net income before and after IFRS 9.

**H2.c:** There is a statistically significant difference in the average rate of change in net income between the UK and Canada after IFRS 9.

3. *Statement of changes in equity* shows the change in an owner's or shareholder's equity throughout an accounting period. Also called the statement of owner's equity, it details the movement of reserves that make up the shareholder's equity (Barth et al., 2008). The change in equity is the link between the statement of profit or loss and the statement of financial position (Collings, 2016; Melville, 2019). An entity shall present a statement of changes in equity. The statement of changes in equity includes the following information (IASB, 2001; IAS 1: paras. 106 & 106A):

3.1 The total comprehensive income for the period,

3.2 For each component of equity, the effects of retrospective application or retrospective restatement recognized in accordance with IAS 8,

3.3 For each component of equity, a reconciliation between the carrying amount at the beginning and the end of the period,

3.4 For each component of equity an entity shall present, either in the statement of changes in equity or in the notes, an analysis of other comprehensive income by item.

IAS 8 requires retrospective adjustments to effect changes in accounting policies, to the extent practicable, *except* when the transition provisions in another IFRS require otherwise. IAS 8 also requires restatements to correct errors to be made retrospectively, to the extent practicable. Retrospective adjustments and retrospective restatements are *not changes in equity*, but they are adjustments to the opening balance of retained earnings, *except* when an IFRS requires retrospective adjustment of another component of equity (IASB, 2001; IAS 1: para. 110). In this dissertation I will highlight on the change in total equity before and after

IFRS 9 at the same time to compare between two countries as shown in the following sub-hypotheses:

**H1.d:** There is a statistically significant difference in the average rate of change in total equity before and after IFRS 9.

**H2.d:** There is a statistically significant difference in the average rate of change in total equity results between the UK and Canada after IFRS 9.

4. *Statement of cash flows* provides users of financial statements with a basis to assess the ability of the entity to generate cash and cash equivalents and the needs of the entity to utilize those cash flows (IASB, 2001; IAS 1: para 111). Statement of cash flows provides information that enables users to evaluate the changes in net assets of an entity, its financial structure (including its liquidity and solvency) and its ability to affect the amounts and timing of cash flows in order to adapt to changing circumstances and opportunities, when the entity used this statement in conjunction with the rest of the financial statements (IASB, 2017; IAS 7: para. 4). Cash equivalents are held for the purpose of meeting short-term cash commitments rather than for investment or other purposes, and an investment normally qualifies as a cash equivalent only when it has a short maturity of, say, three months or less from the date of acquisition. (IASB, 2017; IAS 7: para. 7).

The statement of profit or loss is a statement of the results of the revenue operations in the entity, which does not show us the amount of changes in the financial position, which shows the importance of the need for the statement of changes in the financial position to become side by side with the statement of profit or loss and the statement of financial position (Epstein et al., 2010; Walker et al., 1979). One of the main problems raised by statement of cash flows is defining the concept of money, it may mean cash and its equivalent, cash assets, net cash assets, or working capital in addition to the distinguishing between monetary and non-monetary assets and liabilities. There are many accounting practices in the field of preparing the change in the statement of financial position, which is detrimental to the interests of users of financial reports, which encouraged the IASC to issue IAS 7 to prepare the statement of cash flows (Collings, 2016; Dichev, 2021).

Since this standard was issued in the early nineties, it became necessary to prepare a statement of cash flows as part of the financial statements, the objective of preparing this statement was determined to help users and lenders to forecast future cash flows, regressive assessment of cash flows, assess the ability of the enterprise to make distributions of profits, assess the

liquidity of the enterprise, evaluate the financing policy and finally determine the sources of difference between net income (accrual basis) and net cash flows (on a cash basis) (Ball et al., 2016). To achieve these goals, the concept of cash in and out must be taken into account and not any other concept of money. Monetary items such as receipts, receivables, short-term investments whose maturity does not exceed three months. The reason for this is to reduce the degree of uncertainty to the lowest possible level (Scott & O'Brien, 2019). The shorter the maturity period, the lower the impact of fluctuations in interest rates on the monetary value of the item. The statement of cash flows shall report cash flows during the period classified by operating, investing and financing activities (IASB, 2017; IAS 7: para. 10).

4.1 Cash flows from operating activities: Cash flows from operating activities are primarily derived from the principal revenue-producing activities of the entity. IAS 7 provides some examples of cash flows from operating; cash receipts from the sale of goods and the rendering of services; cash receipts from royalties, fees and other revenue, cash payments to suppliers for goods and service, cash payments to and on behalf of employees, cash receipts and payments from contracts held for dealing or trading purposes, cash payments or refunds of income taxes (IASB, 2017; IAS 7: para. 14). The net cash flow from operating activity can be determined in one of two ways: The first method is direct: the main components of the cash inflows and outflows resulting from the operating activity are determined, such as cash receipts from sales and customers and payments to purchases and suppliers (Cornell & Apostolou, 1992; Clinch et al., 2002). This method is characterized as providing more detailed information on the monetary effects of the operational activities and is considered more useful in assessing the cash position. However, one of the negatives is that it increases the additional burdens of the accounting system, which depends on the accrual basis rather than the cash basis (Kent & Birt, 2020).

The second method is indirect, whereby profit or loss is adjusted for the effects of transactions of a non-cash nature, any deferrals or accruals of past or future operating cash receipts or payments, and items of income or expense associated with investing or financing cash flows (IASB, 2017; IAS 7: para.18). This method is characterized by the fact that it provides information to users of financial reports on how to move from accounting figures according to the accrual basis to cash inflows and outflows, which gives users of financial reports the ability to convert and modify financial statements for many periods (Ding et al., 2007; Wilson, 1986).

4.2 Cash flows from investing activities: This part contains cash receipts from the sale of investments in securities or the sale of property, plant and equipment, intangibles and other long-term assets, sales of equity or debt instruments of other entities and interests in joint venture (IASB, 2017; IAS 7: para. 16). Cash flows from investing also contains payments for increasing investments in securities or purchasing any other asset for use and not for selling (Bala, 2017; Cecil et al., 2011; Nissim & Penman, 2003; Wilson, 1986).

4.3 Cash flows from financing activities: It includes cash proceeds from the issuing shares or other equity instruments. And cash payments to owners to acquire or redeem the entity's share, cash repayments of amounts borrowed (IASB, 2017; IAS 7: para 17). In this dissertation I will highlight on the change in net cash flows before and after IFRS 9 at the same time to compare between two countries as shown in the following sub-hypotheses:

**H1.e:** There is a statistically significant difference in the average rate of change in net cash flows before and after IFRS 9.

**H2.e:** There is a statistically significant difference in the average rate of change in net cash flows between the UK and Canada after IFRS 9.

Based on the above, the statement of financial position, which includes information on the financing structure of the entity, and therefore can be used in the field of assessing liquidity and financing flexibility. The statement of profit or loss also provides important information about the entity's ability to achieve profits, and this information will have a more comprehensive and deeper content if it is linked to the information contained in the statement of financial position. The statement of change in equity provides users with information about the sources of change in the elements of the financial position, but this information will not be useful unless it is used in conjunction with the information contained in the other financial statements. Cash flow statement provides information on the current cash flows, which are naturally affected by the activity of the previous period, which makes it of limited interest in the field of forecasting the future. However, linking the information contained in this statement with the statement of profit or loss, it will be useful for forecasting. The following is a summary of the main hypotheses of this dissertation:

**H1:** There is a statistically significant difference in the average rate of change in financial results before and after IFRS 9.  $H_a: \mu \neq \mu_0$

**H2:** There is a statistically significant difference in the average rate of change in financial results between the UK and Canada after IFRS 9.  $H_a: \mu \neq \mu$

## **2.4 Chapter Summary**

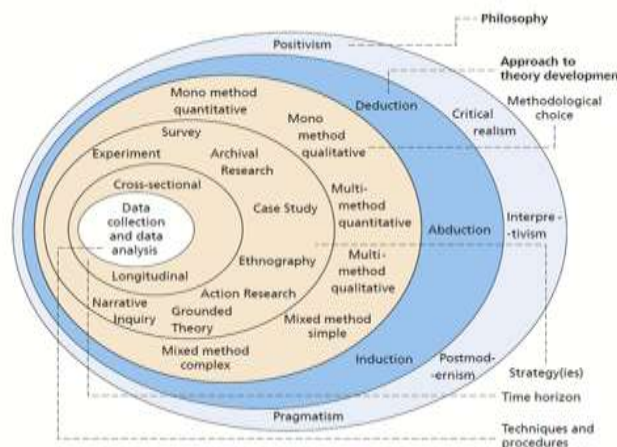
This chapter presents a comprehensive literature review of the study. To achieve the primary goal for this study, this chapter included three main parts. Starting with the historical stages of the development of accounting standards, presenting and discussing the most important financial accounting theories as a first part. The second part focused on the international accounting standards for financial instruments, in particular IFRS 9, and discussed the three main stages of this standard. The third part of this chapter focused on the theoretical framework of the financial statements and the key elements in those statements. Finally, develop the hypotheses and at the end of this chapter, the most important and recent 30 studies focused on accounting standards for financial instruments and topics directly related to this study were summarized. In the next chapter, the materials and methods used to test the collected data will be presented. Focuses on data sources, sample composition, and selection. In addition to providing the appropriate methodology and techniques chosen for data analysis.

### 3. Material and Methods

Scientific research is coherent, if the premises are related to the results. Therefore, it is necessary for the researcher, for the selected choice of the problem, to develop an accurate methodological design for all the steps involved in the research. This design requires crystallization of the problem and its precise formulation, determining the type of study, research methods and tools needed to collect data, and how data are treated in terms of analysis and interpretation, taking into account the appropriate time to conduct the research, as well as anticipating and excluding all undesirable factors and circumstances that may affect the progress of the study for the material requirements of the research and its time duration. Perhaps this is what caused some researchers to consider designing a decision-making process before the emergence of the situation in which these decisions will be implemented. In this chapter included research design, data collection, sample selection and data analysis.

#### 3.1 Research Design

Research design is one of the main axes of the research methodology, and by the research design, we can match the questions and hypotheses of the study by planning the reasons for using the research approach, research strategy, selection techniques, and research methods. The methodology choices based on the research onion are quantitative, qualitative and mixed (Creswell, 2003). Research design is defined as the process of making decisions before the emergence of situations in which these decisions will be implemented, as it is a strategy for understanding and analyzing the events in the study (Mouton, 2011). In other words, it can be defined as a process of dependent expectations that tends to bring an expected situation under control. In the following figure 3.1 the research onion that shows different decisions to make when developing a research methodology (Saunders et al, 2007).



**Fig 3.1: Research Onion**  
Source: (Saunders et al, 2007)

The main four philosophies of research that operate on different epistemological and ontological assumptions:

*1. Positivism philosophy view that all knowledge must be verified through scientific methods such as experiments, observations and logical/mathematical proof. The nineteenth-century French Philosopher Auguste Comte is attributed to the development of the doctrine of positivism (Pediaa, 2019).*

*2. Realism refers to scientific inquiry emphasizing on the reality projected by our sense as truth. It believes that objects have an independent existence from the human mind. This element is more related to positivism. Positivism is the philosophical theory that claims that whatever exists can be verified through observation, experiments, and mathematical/logical evidence whereas realism is the philosophical view that claims that the world exists independent of the mind (TOS, 2019).*

*3. Pragmatism asserts that concepts are only relevant where they support action (Kelemen & Rumens 2008). Pragmatism emphasizes in utilizing both positivist and interpretivism philosophy and views both of them as a continuum rather than contradictions (Holden & Lynch, 2004). Pragmatism is not committed to (or limited by) one specific philosophy (Saunders et al, 2007). Pragmatists always use multiple methods; rather they use the method or methods that enable credible, reliable and relevant data to be collected that advance the research (Kelemen & Rumens, 2008). Pragmatism has spread as a philosophical doctrine that has its origins in the United States of America and since the beginning of the twentieth century, and is considered one of the foundations of the capitalist system based on individual competition. Pragmatic philosophers believe that having the right idea is in other words the possession of tools for action, and that our duty to reach the truth must be justified by practical and superior practical reasons, just as reaching the truth is not an end in itself, which is far from that, and is no more than a means or a primary tool for attaining various forms of happiness and contentment.*

*4. Interpretivism philosophy is based on the assumption that social reality is not a singular or abstract reality, but rather is shaped by human experiences and social contexts. Thus, the best study of this social reality is represented in the social historical context by reconciling the subjective interpretations of a variety of participants in this study. Since interpretive researchers view social reality as an integral part of their social environment and that it is impossible to be stripped of it, these researchers “interpret” reality through a sensory process rather than a hypothesis-testing process. This contradicts with positivism, which assumes that*

reality is relatively context-independent and can be abstracted from social contexts, as well as being studied in a functional analytical way through the use of objective technical methods such as standardized standard methods. If the researcher should follow the interpretivism research or the positive research, he must rely in his study on the model considerations about the nature of the phenomenon under study and the best way to study this phenomenon.

The methods of data collection can be classified into two classification categories, namely: positivism methods and interpretivism methods, as the positivism method such as laboratory experiments and research on survey studies aimed at testing hypotheses and theories. While interpretivism methods such as action research and ethnography aim to build the theory. Positivism methods employ the deductive method to conduct research, that starting with theory and testing theoretical assumptions by using empirical data. While the interpretivism methods employ the inductive approach that starts with the data and tries to derive the theory that revolves around the phenomenon under study from the data that has been observed. Quantitative research and qualitative research refer to the type of data collected where quantitative data involves numerical results, measures, etc. While qualitative data includes interviews, observations, etc. And analyzed by using quantitative statistical techniques such as linear regression or qualitative techniques such as coding. Positivism research mostly uses quantitative data. However, it can also use qualitative data. Interpretivism research relies heavily on qualitative data, but sometimes makes use of embedded quantitative data as well. The combined use of both quantitative and qualitative data can help generate unique insights regarding a complex social phenomenon. In the following table 3.1 that shows the research method design for each philosophy:

**Table 3.1: Research philosophies**

Positivism	Realism	Pragmatism	Interpretivism
Measurement, quantitative, but can use qualitative	Methods chosen must fit the subject matter, quantitative or qualitative	Mixed or multiple method designs, quantitative + qualitative	Qualitative

Source: (Author’s construction, 2021)

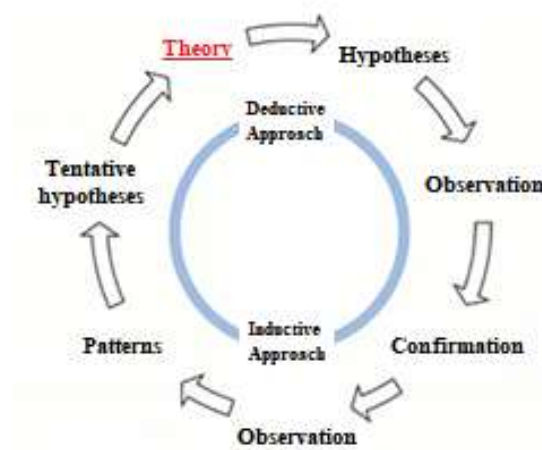
In the following table 3.2 illustrate the research design matrix that consist on research approaches, methodological choices, and the appropriate strategies:

**Table 3.2: Research design matrix**

	<b>Inductive</b>	<b>Deductive</b>	<b>Abductive</b>
<b>Quantitative</b>	Survey, Experiment, Action research, Archival, Case study	Survey, Experiment, Action research, Archival, Case study	Survey, Experiment, Action research, Archival, Case study
<b>Qualitative</b>	Survey, Experiment, Action research, Archival, Case study, Narrative inquiry, Ethnography	Survey, Experiment, Action research, Archival, Case study, Narrative inquiry, Ethnography	Survey, Experiment, Action research, Archival, Case study, Narrative inquiry, Ethnography
<b>Mixed</b>	A mix of Quant + Qual	A mix of Quant + Qual	A mix of Quant + Qual to make Grounded Theory

Source: (Author’s construction, 2021)

Based on the above matrix, in this study, the appropriate method is the quantitative method to answer the questions and reach the objectives of this dissertation. In the following figure 3.2 shows the deductive and inductive loop.

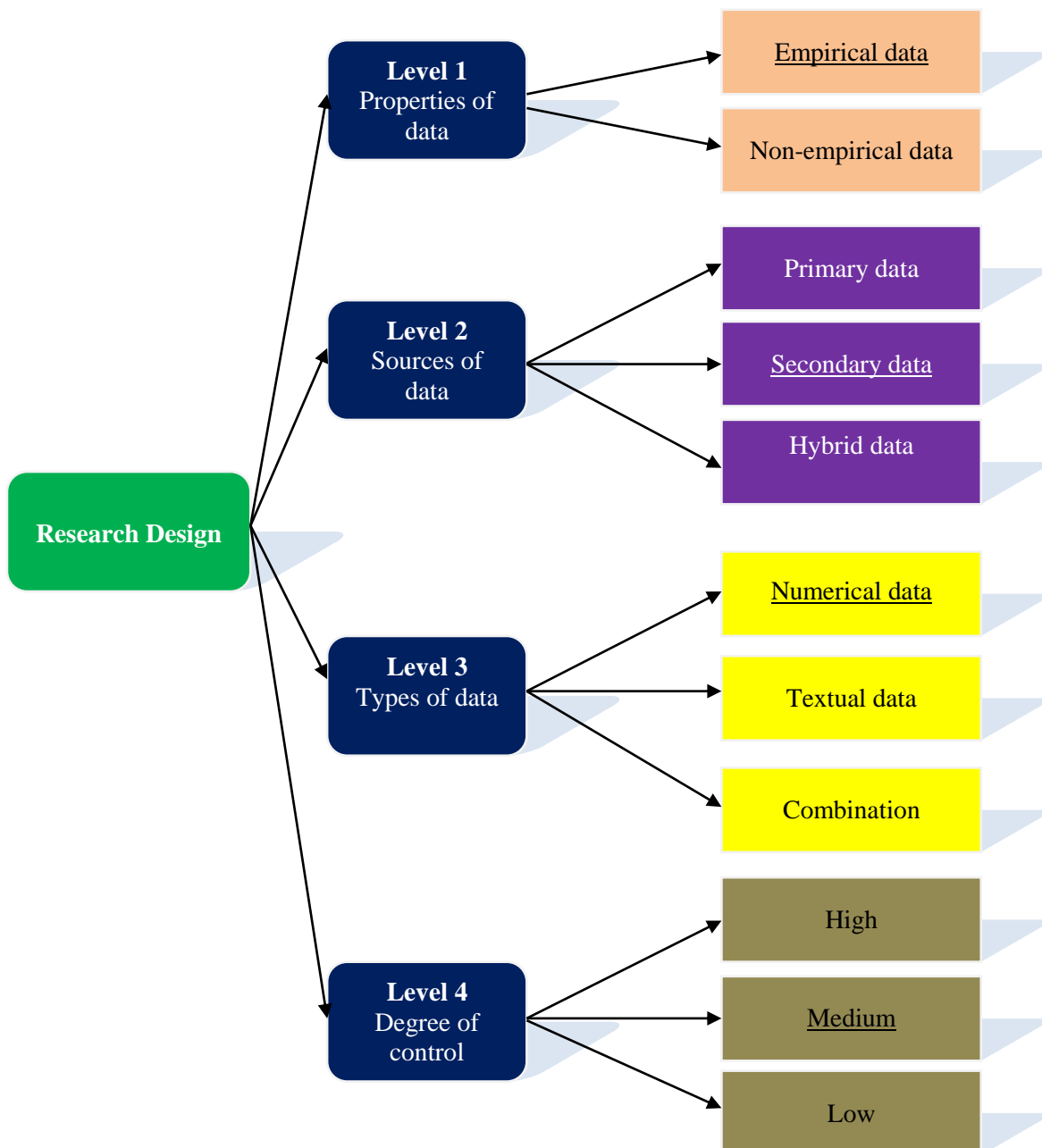


**Fig 3.2: Deductive-inductive loop**

Source: (Harrison, 2002)

The first type of research approaches according to the research onion is the deductive approach that appropriate for studies aimed at observing results using new empirical data for cases when the set hypothesis is proven right or would fit with aims to prove a theory wrong. The second approach is inductive for studies where the researcher tends to investigate the sample data concerning certain patterns to arrive at a general explanation (Johnson, 2004). Therefore, the

deductive approach more suitable for this study and by this approach casual relationships can be described between the variables and testing the derived hypotheses for new cases. There are several strategies for scientific researches in this dissertation will based on archival research strategy. Therefore the research design matrix for this study is Quantitative, deductive and archival research. The following figure shows the levels or dimensions related to the research design based on the study of Mouton (2011):



**Fig 3.3: Four levels of research design**  
Source: (Mouton, 2011)

Based on the above figure, level 1 focuses on the properties of data. Empirical research is one of the types of scientific research based on data collection aimed at explaining a phenomenon, and it expresses the unbiased observation of a particular phenomenon in a field. Empirical research is based on several important foundations, which include both the problem and phenomenon that the researcher focuses on studying based on his observation and experience. Second, hypotheses, which express the relationship between two or more variables, through their study, can explain a particular phenomenon. Third, identifying the main independent and dependent variables closely related to the topic of research, and trying to reduce the impact of secondary variables (Davies & Nutley, 2008). Also there are non-empirical researches that do not rely on observations, experiences. Regarding the other levels, they were explained previously and will be explained in the next sections of this chapter. If we apply the proposal of Mouton about the four levels for research design on this dissertation, it results in the following table:

**Table 3.3: Research design for dissertation based on Mouton**

Level	Dissertation
Properties of data	The dissertation is an empirical study, because the results derived by analyzing the data were collected by using the archival research (documents and records) to answer the questions and achieve objective of the dissertation.
Sources of data	This dissertation is based on the previous studies and empirical research and uses existing data (annual reports), therefore it is based on the secondary data.
Types of data	To answer its questions and achieve its objective, this dissertation based on the numerical and statistical data.
Degree of control	The dissertation relies on the annual reports - the financial statements for 40 banks in 6 years, 1120 observation (statement), but these financial records exist, which means we have no control on these data but we have the control on the sample of study, techniques of analysis. Therefore the level of control is medium for this dissertation.

Source: (Author's own, 2021)

Based on the above table the research design for this study included empirical data, secondary data, numerical data and finally the degree of control is medium. In next part for this chapter contains the data collection, sampling and the data analysis.

### **3.2 Data Collection**

Data are collected through primary sources or secondary sources. The primary sources are collected directly by the researcher, for example via interviews, questionnaires, surveys, focus group discussions, experiments, and creative works (Elise et al, 2016; Igwenagu, 2006). Secondary sources are published and existing data that are used by the researcher for research purposes such as documents, research articles have published by other researchers, newspapers and books (Igwenagu, 2006). Quantitative researches often rely on questionnaires, experiments, electoral statistics, documents and records as methods of data collection, but the qualitative research mostly uses interviews, observation records and focus group (Elise et al, 2016). The collected data should enable the researcher to measure applicable variables that are relevant to the research problem (Welman *et al.*, 2005). The researcher must use all methods or tools that provide him with the necessary data to address the problem, to be able to answer the questions posed by the study problem and to examine the hypotheses that he formulated scientifically, using appropriate scientific research methods. Therefore, he must realize and decide in advance the appropriate the method for his research, and be familiar with the various scientific research tools and methods, for data collection.

In general, there are several methods that the researcher can use to collect the necessary data to carry out his research scientifically, knowing that each method has its positive and negative characteristics and advantages and that the choice of one or more of them by the researcher is related to the following factors: The nature of the research and the appropriateness of the method of data collection. The nature of the community and the study sample. The researcher's circumstances, financial capabilities and time available to him. The extent of his knowledge of the method or tool. In the following the most common data collection tools are listed:

- Observation

One of the oldest data collection methods used to learn about phenomena and events in general, and in the social sciences in particular. It is one of the means related to collecting data and information on the mental behaviors, feelings, attitudes and attitudes of the individual. It has a special nature because it leads to information that other means cannot obtain, such as the study of the behavior of a worker and monitor worker productivity. Observation is an

interaction and exchange of data between the researcher and the respondent, assuming the collection of specific data on a particular topic (Paradis et al., 2016). Based on the above, observation is defined as a process of observing the behavior of phenomena and events and their physical and environmental components, and following up their progress and direction, and their relationships in an organized, planned and purposeful scientific manner, to explain the relationship between the components., predicting the behavior of the phenomenon or event and directing it to serve human purposes and meet his requirements.

- Interview

An interview is a dialogue that takes place between the researcher and the person being interviewed (Jain, 2021). An interview is a meeting between a researcher who asks a group of questions about a specific topic, to specific people, face to face, and himself writes down the answers to the questions. For the interview to achieve the desired goal, a good relationship must be established between the researcher and the person being interviewed, and in this sense, the interview is an oral questionnaire (Patton, 2015). The interview aims mainly to obtain the data, which the researcher wants to access, from the interviewees, and to learn about the features, feelings and behaviors of the people, the subject of research in specific situations, but it requires a great deal of time and effort from the researcher, especially if the number of the study sample is large, and the interview period is long. Difficulty in reaching some individuals and meeting them in person because of their position, or because the researcher is exposed to some risks when interviewing them, such as leaders of dangerous groups. The interview may be affected by the psychological state of the researcher and the interviewee. Interviews are often recorded and transcribed. They can be structured or unstructured (Paradis et al., 2016).

- Documents

The documents provide a lot of important data for the researcher, about his study, especially in the first stage, when forming the general theoretical background to the problem, by reviewing previous research and studies, in the specialization of the field of study. Documents are the material vessel for human knowledge and memory, as they provide documented data or information, there are many types. Therefore, the researcher must know its characteristics and types, in order to deal with them in an appropriate manner for his study. Examples of documents include: books, encyclopedias, dictionaries/dictionaries, bibliographies, indexes, periodicals. In order for the document to be valid for benefiting from its data, the following conditions must be met: The documents must be original that is the data included in them can be verified, it must be reliable, verified and accessible (Stemler, 2001).

## - Questionnaire

It is one of the tools for collecting data on specific questions, prepared by the researcher on a specific topic, by specific parties or individuals. The questionnaire can be defined as a tool for collecting data related to the topic of research through a specific form, containing several questions, arranged in an appropriate logical manner that is distributed to specific people to fill out. A simulation test is conducted on the questionnaire, by presenting it to a part of the sample of the study, before its final approval, to avoid errors and ambiguity in the formulation of questions, as well as completing some aspects that were not observed in the questionnaire (Patton, 2015). Based on the above, to be able to answer the questions of the dissertation and achieve its objectives, it will depend on documents as a data collection tool, which is considered as one of the data and information collection tools. The researcher collects data and information on his subject from every document obtained from the institution under study, or from every record available to the institution, and then interprets those data and information obtained. The financial reports represent six years (2015, 2016, 2017, 2018, 2019, and 2020), three years before and three years after the effective date of IFRS 9. These published reports of the banks will be the sample of the study; they are audited and verified by an external auditor, and it is within one of the conditions for the documents that are relied upon as a research tool to meet the reliability condition.

### **3.3 Sample Formation and Selection**

To study the phenomenon, it is necessary to have the data on the studied problem to help the researcher to reach real scientific results. Therefore, the researcher must limit his research to a distinct sample and the community of the problem studied. The method of selecting that sample from the study population, the procedures for selecting it, the logic behind each of them, the factors that determine the number of experimental units included in the study, and some aspects that must be taken into account when selecting samples. These procedures will help determine the optimal scientific method for studying the community, especially since some of the problems studied include large communities in which it is difficult to study every element or may entail high costs that make it difficult to implement the study, sometimes it is difficult to access the study element for one reason or another, and the study of all elements of the community may also be useless if the elements of the study community are relatively heterogeneous. In many cases, the need to reach quick results regarding the problem of the study makes it impossible to study all the elements of the study community. Therefore, the

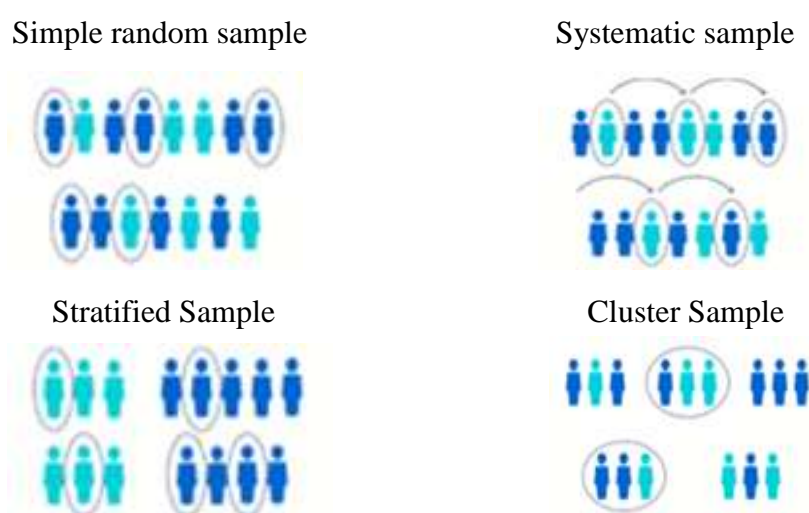
researcher resorts to using the sample method instead of the comprehensive survey method, which includes the study community all the elements of the studied problem under study. The study community of the problem of the low standard of living of a country includes all individuals in that country, and data on that studied problem can be collected by one of the two methods:

1. Comprehensive survey method: It is a method of collecting data from all members of the set or the elements of the studied problem.

2. Sample method: It is a method for collecting data from specific units of the set of elements and cases that are chosen. The sample represents a part of the elements of the study community that defines its elements according to scientific and logical bases so that the sample elements are a realistic representation of all the elements of the community that will be studied. There are two types of sampling:

- Probability Sampling method

Shona (2019) *probability sampling allowing you to make strong statistical inferences about the whole group*. They are the samples whose members are selected according to the rules of statistics science, whose members are selected from the study population in a random manner, in order to avoid biasing the results from the selection of members. In the following, the most important types of probability samples are simple random, systematic, stratified, and cluster sampling.



**Fig 3.4: Probability Samples**  
Source: (Shona, 2019)

### 1. Simple random sampling

The simple random sampling method is considered one of the simplest and most prevalent methods in sampling methods. This method is characterized by the fact that it gives each of the

existing sampling units or the number of samples in the containers. The simple random sampling includes two methods for withdrawing the sample, the first is in the case of withdrawing the sample and returning it to the community after the withdrawal process to allow it to reappear, and it is called the quickest method. As for the second method, in the case of withdrawing the sample and excluding every other sample withdrawn from the community, it is called sample withdrawal without return, as this method does not allow repeating the appearance of the sample over a period (Lind et al., 2014).

## 2. Systematic sampling

The systematic sampling method is one of the methods of probability sampling that is characterized by ease and simplicity in application, in addition to ensuring that the sample is spread over the largest area of the population as it spreads, because the *method of select the members of the population at a regular interval* (Lauren, 2020). Linear systematic sampling is the most common method for systematic sampling.

## 3. Stratified sampling

Due to the difficulty of achieving homogeneity in many societies, the researcher resorts to applying the stratified random sampling method, whereby the society is divided into non-overlapping subgroups, each group is homogeneous for the studied trait and is called a strata. In order to obtain more accurate results, for example, when studying the average family income or educational level, the society can be divided into rural and urban, and to obtain good results, the stratified sampling method should be used effectively to carefully consider the following: The composition of the strata, the number of strata to be made, the size of the sample in each strata, data analysis to design the stratified sample (Thompson, 2012).

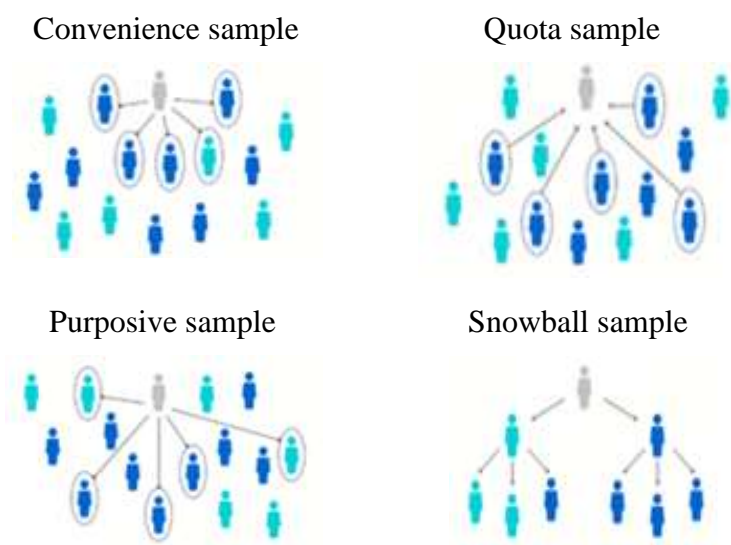
## 4. Cluster sampling

*Cluster sampling is a method of probability sampling that is often used to study large populations, particularly those that are widely geographically dispersed* (Lauren, 2020). The cluster sampling method is based on the principle of appropriately dividing the community into groups so that these groups are close in size and homogeneous with respect to the studied characteristic, where each group of it's called a cluster (Hair et al., 2020; Thompson, 2012). Cluster sample is effective for the unit costs, as it provides more accurate unit cost, researchers resort to this method often, especially in societies that are not available with frames preview, therefore it is to provide a framework with clusters, which saves effort and time. There is also another advantage of applying this method, which is the saving in transportation costs during

field work between the sampling units, but we must not forget that one of the disadvantages of the cluster sampling is that it is less effective than the simple random sampling, as it is less widespread. *Cluster sampling is much more complex to plan than other forms of sampling* (Shona, 2019). There are five steps for this type of samples: *Define your population, divide your sample into clusters, randomly select clusters to use as your sample, and collect data from the sample* (Lauren, 2020).

- Non-probability sampling method

It is a sample method in which the researcher's choice depends on the subject of the researcher's objective judgment and not on random selection. In the non-probabilistic selection of samples, not every element in the research community has the opportunity to participate in the study, unlike the probability samples, in which each element in the study population has a known opportunity to be selected. Non-probability samples are more useful for exploratory studies. Non-probability sampling is used in studies in which there is no possibility of a random sampling due to time and cost considerations. Non-probability sampling is the least rigorous method, as the sampling method is highly dependent on the researcher's experience. The following are examples of non-probability samples:



**Fig 3.5: Non-probability Samples**  
Source: (Shona, 2019)

### 1. Convenience sampling

It is a method of non-probability sampling methods in which samples are selected from the study population only because they are available to the researcher. These samples are chosen only because of the ease of their employment by the researcher (Black, 2016; Bowerman et al., 2013). The ideal situation in the research is that the sample that represents the study population

is examined, but in some studies the study population is too large to be examined and the entire study population is placed under consideration. This is one of the reasons why the researcher relies on convenience samples, it is the most common non-probability sampling method because of its speed, cost effective and ease of sample availability.

## 2. Quota sampling

It is used in the event that the researcher does not know the elements of the study community, but he knows some general characteristics about them. For example, if we want to know the general opinion of the population in a city on a particular issue and we know that 55% of the population of this city are males and 45% are females, then we try to represent both groups with a certain share in the sample commensurate with the size of the same category. This type of community is frequently used, especially in opinion polls, where the researcher divides the community into classes or classes to specific characteristics and works to represent each class of the sample in relation to its presence in the community (Sekaran & Bougie, 2016).

## 3. Purposive / Judgment sampling

In this type of sampling, the researcher chooses the cases that he believes represent the community in the aspect covered by the research, (Ames et al., 2019; Bowerman et al., 2013; Suri, 2011). This method saves the researcher a lot of time and effort in selecting the sample, but it requires knowledge of the statistical parameters for the original population, especially for the units that the researcher wants to choose, which is not possible in all cases.

## 4. Snowball sampling

This method is based on the selection of a specific individual and based on the information provided by this individual regarding the subject of the researcher's study, the researcher decides who is the second person he will choose to complete the required information and observations. There are three types of snowball sampling: Linear, exponential non-discriminative and exponential discriminative snowball sampling (Sekaran & Bougie, 2016). Thus, based on the above, the purposive sampling is appropriate for this study, because this study requires more accurate results and focus on the largest banks that give a clearer picture of the subject of the study and we can achieve the main objectives for this study, in addition to the convenience sampling, because the annual reports were easily accessible.

Table 3.4 shows the banks that represent the study sample in the countries that were classified by total assets at the end of 2020:

**Table 3.4: Sample of the dissertation**

<b>Country</b>	<b>#</b>	<b>Bank Name</b>	<b>Total Assets (In thousands)</b>
	1	HSBC Holding	\$2,984,164,000
	2	Barclays	£1,349,514,000
	3	Lloyds Banking Group	£871,269,000
	4	NatWest Group	£799,491,000
	5	Standard Chartered	£789,050,000
	6	Santander UK	£292,332,000
	7	Nationwide Building Society	£248,041,000
	8	Virgin Money UK	£90,259,000
<b>UK</b>	9	The Co-operative Bank	£25,599,500
	10	OneSavings Bank Plc	£22,654,500
	11	Metro Bank	£22,579,000
	12	Paragon banking group	£15,505,500
	13	Tesco Bank	£11,643,500
	14	Close Brothers Limited	£10,128,700
	15	Shawbrook Bank Limited	£8,931,700
	16	C. Hoare & Co	£5,232,137
	17	Arbuthnot latham	£2,853,536
	18	Unity Trust Bank Plc	£1,431,594
	19	Weatherbys bank limited	£1,144,578
	20	Tandem Bank	£596,440

<b>Country</b>	<b>#</b>	<b>Bank Name</b>	<b>Total Assets (In thousands)</b>
	21	Toronto-Dominion Bank	CAD 1,715,865,000
	22	Royal Bank of Canada	1,624,548,000
	23	Bank of Nova Scotia	1,136,466,000
	24	Bank of Montreal	949,261,000
	25	Manulife Bank of Canada	880,349,000
	26	CIBC	769,551,000
	27	Desjardins Group	362,035,000
	28	National Bank of Canada	331,625,000
	29	HSBC Bank of Canada	117,347,000
	30	ATB Financial	55,865,522
<b>Canada</b>	31	Laurentian Bank of Canada	44,167,660
	32	Canadian Western Bank	33,937,865
	33	Equitable Bank	30,746,318
	34	Vancity	24,917,887
	35	Coast Capital Savings	20,872,884
	36	Canadian Tire Bank	20,377,100
	37	Concentra	11,063,911
	38	CS Alterna Bank	6,702,891
	39	Caisses populaires acadiennes	4,795,827
	40	First National Bank of Canada	965,734

Source: Annual reports (2014-2020)

Population of the study will be the largest financial institutions in the UK and Canada, the target population the banking sector, and the sample of the study is 40 banks, the largest 20 banks in the UK and the largest 20 in Canada. Table 3.5 shows the ratio of sample from target population for this study:

**Table 3.5. Sample of the dissertation %**

	United Kingdom	Canada	Total
<i>Domestic Banks</i>	62	35	97
<i>Sample of Study</i>	20	20	40
<i>Ratio</i>	32%	57%	41%

Source: (Author's construction, 2021)

The total number of financial statements selected for this study is 1,120 (observations) and this sample is appropriate to test the hypothesis. The dissertation concentrated on the UK and Canada based on GDP growth rate, economic strength in their continents, the number of financial institutions are similar, in addition to the interest to the applying of IFRS standards due to the importance of financial institutions on the indicators of macroeconomic for these countries. Consequently, if there is a significant impact of this standard, it will be on those institutions and thus choosing these countries is the optimal choice for comparison to answer the questions and achieve the objectives of the study. In next section contains data analysis as the last section in this chapter.

### **3.4 Data Analysis**

One of the most important stages of preparing scientific research is the stage of data analysis because through that stage the researcher reaches the required results and thus achieves the research objectives. Data analysis can be defined as arranging, coordinating and organizing the data that the researcher has collected on the subject of his research, to present it in a new form to answer the objectives of the research that may be formulated in the form of questions (Yim et al., 2010). Data analysis in scientific research aims to achieve several things, the most important of which are explaining and clarifying the effect or the relationship between the variables of the study. The researcher needs access to satisfactory and adequate answers to the questions that revolve in his mind about the studied phenomenon, to reach conclusions that are related to that phenomenon, and then to link this phenomenon to reality and study its dimensions and the effects that it entails as well as to search for appropriate methods to deal with it. Analysis of the data is carried out by using scientific research methods, where the stage

of data processing is done through various means and methods. The method of data processing and the extraction of the studied scientific results is related to the nature and type of the study problem and is based on the scientific experiences of the researcher. When addressing the research problem, the researcher can also treat the data in multiple ways, depending on the nature, type of data and the approach used to arrive at scientific results. When analyzing the data and information that the researcher has collected, the researcher relies on different scientific methods, including the analytical method (Hair et al., 2020). This method is characterized by the researcher's ability to understand and interpret hypotheses of the study and the variables that affect the research sample or the phenomenon that the researcher studies. The analytical method is also characterized by providing the opportunity for the researcher to stand and know the extent of the truth of these variables or hypotheses on the phenomenon or research sample (Das, 2008). The following are the main methods of data analysis in scientific research:

1. *Descriptive analysis*: This method is one of the most prominent methods of data analysis, and through it, the researcher analyzes logically and realistically the impact that the various variables have on one of the phenomena that the researcher studies.
2. *Statistical analysis*: It is the transformation of expressions that have no value individually into expressions of great value, and there is a large group of programs that are used for statistical analysis, most notably these programs SPSS, STATA, SmartPLS, Amos, SAS, and Microsoft Excel.
3. *Qualitative analysis*: Through it, the researcher focuses on the phenomenon of the study, describing it in detail, and then relies on the data in order to repeat the experiment and eventually reach the cause and effect. Statistics is divided into two basic types and research cannot be completed without using the two types together, as the difference between them lies mainly in the way the results are presented; they are presented using frequency tables and graphs in *descriptive statistics*, while they are presented as probabilities and hypotheses in *inferential statistics*.

Descriptive statistics represents a set of descriptive parameters, those that summarize a particular set of data, which can be either a complete representation of the population or only a sample. Descriptive statistics are divided into measures responsible for the central tendency, the measures of volatility, or as they are called, measures of spread and variance. Measures of central tendency include the mean, median, and mode, while measures of variance include

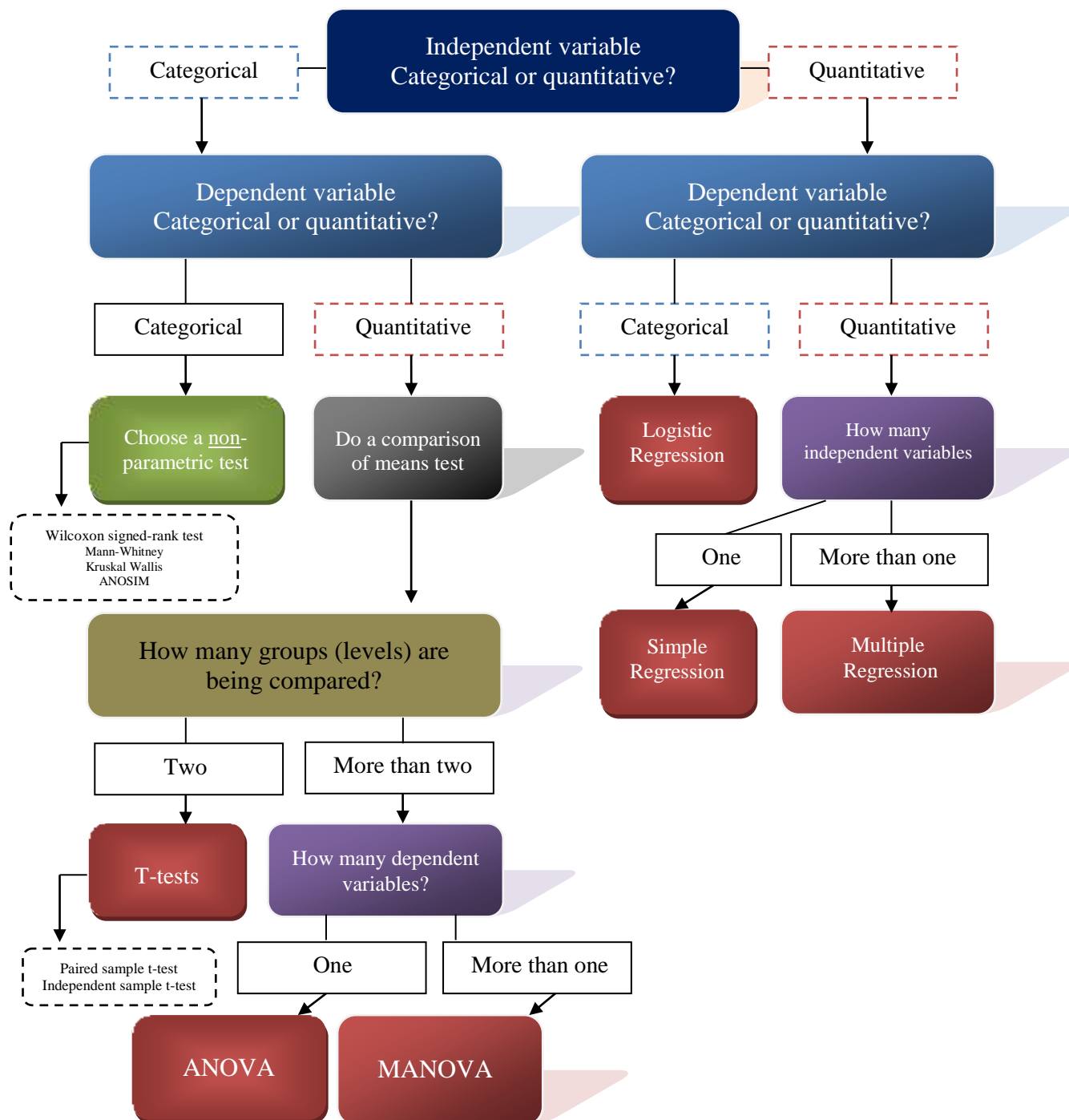
variance and standard deviation. In addition to the detection of minimum and maximum variables. Descriptive statistics help describe the characteristics of a particular group, and understanding that group by providing short summaries about the sample and data metrics, this type of statistics is used to analyze and describe a difficult-to-understand quantity across a large set of data, by identifying small descriptions that are easy to understand (Bowerman et al., 2013).

Inferential statistics is the second type of statistics, which is concerned with the study of the relationships between the variables related to the statistical study. It focuses on the conclusions resulting from the mathematical calculations resulting from descriptive statistics (the first type) and works on analyzing them to make predictions and generalizations according to what is stated in them. It is also used as a means of judging some invisible data, where they are analyzed and conclusions drawn from them. Inferential statistics processes contribute to explaining and interpreting various phenomena and predicting related events which make it easier for us to understand the current reality. Inferential statistics have significantly helped in advancing scientific research and facilitating the process of presenting and comparing results. Inferential statistics contributed to the treatment of many social issues by providing a deep perception of the characteristics of the studied society and the causes of various phenomena, in addition to its extensive uses in business, medical care, and industry. Inferential statistics have two types of statistics (Bowerman et al., 2013; Das, 2008):

*1. Parametric statistics:* includes all statistical methods that are based on knowledge of the characteristics of the population from which the sample was drawn, one of these characteristics is that the distribution of the phenomenon in the population from which the sample was drawn is a normal distribution, and it is established that the parametric methods require random selection of the sample, it also requires the availability of information on the distribution of the population according to the variables you are interested in studying (Black, 2016; Wilcox, 2010). Willard (2020) parametric statistical methods are suitable for large samples, and quantitative data (Interval or ratio). Examples of parametric statistical methods include T-tests (Paired t-test, independent sample t-test, and one sample t-test), ANOVA, MANOVA, correlation (Person's), and regression (simple and multiple).

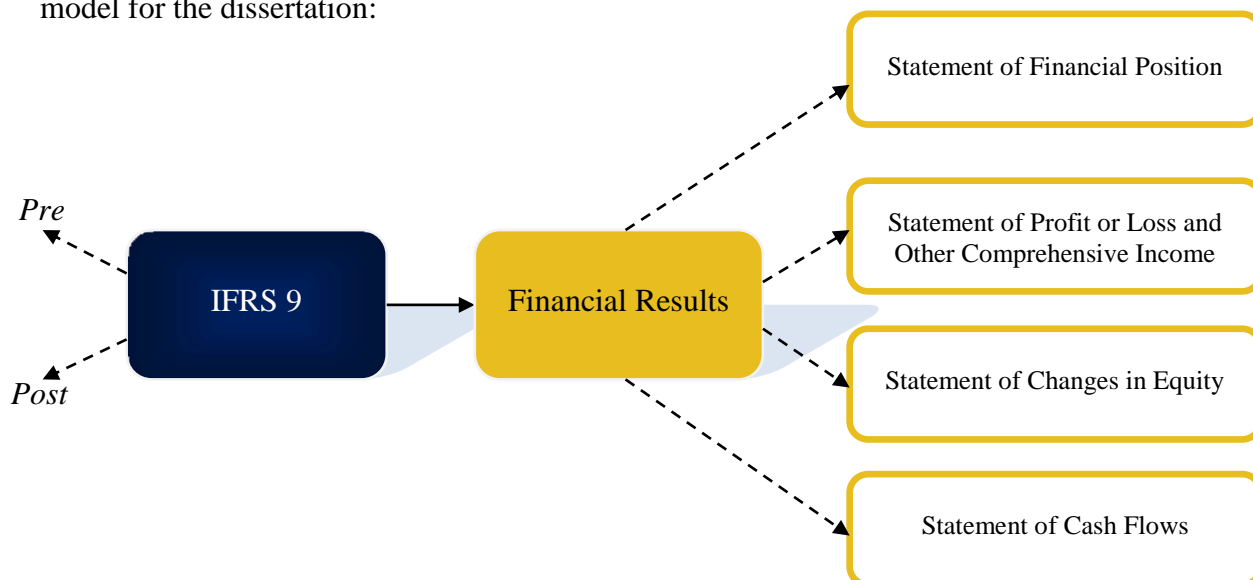
*2. Non-parametric statistics:* this type does not require specific characteristics in the population from which the sample was drawn. It is not required that there be a normal distribution, and random selection of the sample is not required. Non-parametric methods are

often suitable for small samples, but may sometimes be used for large samples (Bowerman et al., 2013; Willard; 2020). Non-parametric statistical methods are compatible with categorical variables (nominal, ordinal, and binary) data and may sometimes be used with quantitative data. Examples of non-parametric statistical methods are Wilcoxon signed-rank tests, Wilcoxon rank-sum test (Mann Whitney), Kruskal Wallis, Chi-square and ANOSIM (Kyun, 2015). The following figure 3.6 shows how to choose the appropriate statistical technique (parametric or non-parametric tests) according to the type of study variables:



**Fig 3.6: Inferential Statistical Techniques**  
Source: (Rebecca, 2020; Author’s construction, 2021)

Based on the above flow chart, the main three tests in statistics comparison tests, regression tests, and correlation tests. This study will be based on inferential statistics by using the *comparison tests that assess whether there are differences in means, or ranking scores of two or more groups* (Pritha, 2021). Thus, this study will use the Paired sample t-test (Parametric test) to test the first hypothesis or Wilcoxon signed-rank test (Non-parametric test) it depends on the normality test of the collected data, and Independent sample t-test (Parametric test) to test the second hypothesis or Mann-Whitney test (Non-parametric test) and also it depend on the normality test. These tests are appropriate to test the hypothesis of dissertation regarding the first hypothesis will comparing between the average rate of change in main items for the financial statements before and after the effective date of IFRS 9, the second hypothesis focus on comparing the average rate of change for main items in financial statements after the effective date of IFRS 9 for two countries (the UK and Canada), which means that there are two independent groups, therefore the test chosen is appropriate to test the second hypothesis in this dissertation. In addition to the descriptive statistics to describe the data by using the averages and graphs to answer another questions in this study. In the following figure the basic model for the dissertation:



**Fig 3.7: Basic Model for Dissertation**  
Source: (Author's own, 2021)

Figure 3.7 shows that independent variable (IFRS 9) is categorical (before and after the mandatory date of IFRS 9) and the dependent variables are quantitative/numerical variables that were defined in the previous chapter (The four main financial statements and the most important item in each statement).

### **3.5 Chapter Summary**

This chapter aimed to provide the research design, sampling, data collection and data analysis for this dissertation. Research design was detailed in the first section in this chapter, this section provided the three forms for research design (Research onion, research design matrix and four levels of research design) were applied for this study. The second section was the sources of data collection, in this study. The appropriate tool is documents-secondary resources to answer the questions of the study. The third section focuses on the sample formulation and selection, and provided the differences between the most forms for probability and non-probability sampling methods, in this dissertation the purposive and convenience form were applied to achieve the dissertation objectives. Data analysis was the last section in this chapter, there are different methods for analysing the data, but it depends on the questions, hypothesis and objectives of the study in addition to the nature and type of the independent and dependent variable for the study. In the scope of the dissertation analysis was based on inferential statistics by using the T-tests (Paired sample t-test and independent sample t-test) in addition to the descriptive statistics.

Finally, the dissertation is explanatory, it includes applied and quantitative research Explanatory research, because this study focuses on explaining the impact of IFRS 9 on the financial statements by comparing the financial statements before and after issuing this standard. The results for this study will affect the decisions of external users for the financial statements and accounting standard-setting bodies, therefore applied research was conducted in this dissertation in addition to the quantitative methods that were relied upon to achieve the objectives of this study.

## 4. Results and Discussion

### 4.1 Introduction

The research variables will be outlined and the hypotheses will be tested in the scope of this chapter. Inferential and descriptive statistical approaches will be utilized to arrive at the study's results and answer the research questions. In terms of inferential statistics, the study used the parametric test (t-tests) since it satisfied the criteria for this sort of test, which include a sample size of higher than 30 banks (normal distribution) and its proportion of the population (the largest financial institutions) is less than 10%. In addition to descriptive statistics such as standard deviations, arithmetic means, figures, and tables, which aid in providing a holistic picture to achieve the highest degree of analysis and findings. The SPSS software suite was used to generate the statistical results. The largest 40 banks in the United Kingdom and Canada, as indicated in the preceding chapter, were subjected to statistical analysis. For the period 2014 to 2020, a high number of observations ( $n = 1120$ ) were included in the sample. In order to test Hypothesis (H1.a), and to determine the degree of acceptance or rejection of the hypothesis, and to verify the statistical evidence of the above mentioned results, the paired sample t-test was used, where the hypothesis will be accepted or rejected at level of significance 5%, and if the  $p < .05$ , the null hypothesis will be rejected and the alternative hypothesis accepted. Table 4.1 and 4.2 contains the test results for this hypothesis.

The paired sample t-test is used for two related samples in the case of paired readings, that is, if we have a sample drawn randomly from a natural population, and this sample has two quantitative measurements in a measuring instrument. For example, if a researcher wants to test a training program on a group of employees in an institution, and takes a test before applying the program, and re-applies the same test on the same individuals after applying the program, it then has double readings for the sample members (before and after) and thus uses the t-test for two related samples. The mechanism for finding (t) in the case of two related samples is as follows (Bowerman et al., 2013):

$$t = \frac{\bar{d}}{\frac{s_d}{\sqrt{n}}} \quad (4.1)$$

Where:

$\bar{d}$ : The average of difference between (before and after applying)

$s_d$ : The standard deviation between (before and after applying)

$n$ : The number of sample

$$\bar{d} = \frac{\sum d}{n} \quad (4.2)$$

$$S_d = \sqrt{\frac{1}{n-1} \left( \sum d^2 - \frac{(\sum d)^2}{n} \right)} \quad (4.3)$$

However, before using this test, the researcher must make sure that the samples are not independent, and that they have a normal distribution. If the sample size is larger than 30 participant, the condition for a normal distribution can be excluded (Black, 2016; Wilcox, 2010). The alternative nonparametric test if the sample is less than 30 participants or there is no normal distribution is Wilcoxon Signed ranks test.

Independent sample t-test is used for two independent samples in the event that we have only one independent variable with only two levels, and only one dependent variable (Wilcox, 2010). For example, if a researcher wants to study the difference between (for males and females) in the degrees of thinking, he uses the t-test for two independent samples. The mechanism for finding (t) in the case of two independent samples is as follows (Bowerman et al., 2013):

$$\frac{(\bar{X}_1 - \bar{X}_2)}{\sqrt{S_d \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}} \quad (4.4)$$

$$S_d = \frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{(n_1-1) + (n_2-1)} \quad (4.5)$$

A two-sample t-test is used to compare the averages of two independent groups, such as comparing males and females in a continuous quantitative variable such as achievement, intelligence, or comparison between two experimental and control groups in academic achievement after using an experimental treatment. However, before using this statistical method, the researcher must make sure of the conditions for using the t-test for two independent samples (Willard, 2020). The alternative nonparametric test if the sample is less than 30 participants or there is no normal distribution is Mann-Whitney. The following section represent the result of the dissertation.

## 4.2 Total Assets Before and After IFRS 9 (H1.a)

In order to test Hypothesis (H1.a), and to determine the degree of acceptance or rejection of the hypothesis, and to verify the statistical evidence of the above mentioned results, the paired sample t-test was used, where the hypothesis will be accepted or rejected at level of significance 5%, and if the  $p < .05$ , the null hypothesis will be rejected and the alternative hypothesis accepted. The test findings for this hypothesis are shown in *Tables 4.1 and 4.2*:

**Table 4.1: Paired Samples Statistics (H1.a)**

The average of change % of the total assets	Mean	N	Std. Deviation	Std. Error Mean
Before IFRS 9	.11435	40	.180909	.028604
After IFRS 9	.09550	40	.089851	.014207

Source: (Author's calculation, 2022)

Table 4.1 indicates that the average rate of change in total assets before IFRS 9 is 11.43%, while after IFRS 9 it is 9.55%, and the standard deviation is 18.1% before IFRS 9, while after the standard deviation is 8.98%, and the standard error mean before the standard 28.6% while it is 14.2%. Therefore, the average of the total assets and standard deviation before IFRS 9 were higher than after.

**Table 4.2: Paired Samples Test (H1.a)**

	Paired difference			
	Mean	t	df	Sig. (2-tailed)
Paired 1. Total assets Before – After IFRS 9	.018850	.656	39	<b>.516</b>

Note: Significant at 5% Level

Source: (Author's calculation, 2022)

According to Table 4.2, Sig = .516, the alternative hypothesis is rejected and the null hypothesis is accepted. This shows that there is no statistically significant difference in the average rate of change in the total assets before and after the mandatory effective date of IFRS 9.

Table A.2 in the appendices shows the percentage change in total assets for three years before the mandatory effective date of IFRS 9 and three years after. In addition to the average for these ratios before and after. Relying on Table A.2, the five largest banks in terms of the highest rate of change in total assets before IFRS 9 are Tandem Bank, Metro Bank, Shawbrook Bank Limited, OneSavings Bank Plc, and CS Alterna Bank. The five banks with the lowest rate of change were The Co-operative Bank, NatWest Group, Barclays, Standard Chartered, and Lloyds Banking Group. On the other hand after IFRS 9, the largest five banks are OneSavings Bank Plc, Virgin Money UK, First National Bank of Canada, Shawbrook Bank Limited, and Arbutnot latham and the lowest five banks are Santander UK, Laurentian Bank of Canada, Tesco Bank, The Co-operative Bank, and Lloyds Banking Group, as these banks are the most negatively affected in terms of total assets after this standard. Figure A.1 in the appendices compares the total assets before and after Standard 9. Figure A.2 shows that the average rate of change in total assets of 40 banks declined by 1.89%, from 11.44% to 9.55%.

#### 4.3: Total Liabilities Before and After IFRS 9 (H1.b)

In order to test Hypothesis (H1.b), and to determine the degree of acceptance or rejection of the hypothesis, and to verify the statistical evidence of the above results, the paired sample t-test was used, where the hypothesis will be accepted or rejected at 5% level of significance, and if the  $p < .05$ , the null hypothesis will be rejected and the alternative hypothesis will be accepted. The test findings for this hypothesis are shown in *Tables 4.3 and 4.4*:

**Table 4.3: Paired Samples Statistics (H1.b)**

The average of change % of the total assets	Mean	N	Std. Deviation	Std. Error Mean
Before IFRS 9	.11635	40	.187785	.029691
After IFRS 9	.09943	40	.092175	.014574

Source: (Author's calculation, 2022)

Table 4.3 indicates that the average rate of change in total liabilities before IFRS 9 is 11.63%, while after IFRS 9 it is 9.94%, and the standard deviation is 18.7% before IFRS 9, while after it the standard deviation is 9.21%, and the standard error mean before the standard is 29.69% while it is 14.25% after it. Therefore, the average of the total liabilities and standard deviation before IFRS 9 were higher than after.

**Table 4.4: Paired Samples Test (H1.b)**

	Paired difference			
	Mean	t	df	Sig. (2-tailed)
Paired 1. Total assets Before – After IFRS 9	.016925	.567	39	<b>.574</b>

*Note:* Significant at 5% Level

Source: (Author's calculation, 2022)

According to Table 4.4, Sig = .574, the alternative hypothesis has been rejected and the null hypothesis accepted. This shows that there is no statistically significant difference in the average rate of change in the total liabilities before and after the mandatory effective date of IFRS 9. Table B.2 shows the percentage change in total liabilities for three years before the mandatory effective date of IFRS 9 and three years after. In addition to the average for these ratios before and after. Relying on Table B.2, the five largest banks in terms of the highest rate of change in total liabilities before IFRS 9 are Tandem Bank, Metro Bank, Shawbrook Bank Limite, Arbuthnot latham, and CS Alterna Bank. The five banks with the lowest ratios were The Co-operative Bank, NatWest Group, Barclays, Standard Chartered, and Lloyds Banking Group. On the other side after IFRS 9, the largest five banks are OneSavings Bank Plc, Virgin Money UK, First National Bank of Canada, Arbuthnot latham, and Shawbrook Bank Limite and the lowest five banks are Santander UK, Laurentian Bank of Canada, Tesco Bank, The Co-operative Bank, and Lloyds Banking Group, as these banks are the most negatively affected in terms of total liabilities after this standard. Figure B.1 compares the total liabilities before and after IFRS 9. Figure B.2 in the appendices shows that the average rate of change in total liabilities of 40 banks declined by 1.69%, from 11.63% to 9.94%. Table F 1, indicate that the proportion of financial assets to total assets is 95% and Table F 2, which shows that the financial liabilities to total liabilities is higher than 93% which means the inclusion of other assets in the statistical analysis does not distort the results.

#### **4.4 Net Income Before and After IFRS 9 (H1.c)**

In order to test Hypothesis (H1.c), and to determine the degree of acceptance or rejection of the hypothesis, and to verify the statistical evidence of the above results, the paired sample t-test was used, where the hypothesis will be accepted or rejected at level of significance 5%, and if the  $p < .05$ , the null hypothesis will be rejected and the alternative hypothesis accepted. The test findings for this hypothesis are shown in *Tables 4.5 and 4.6:*

**Table 4.5: Paired Samples Statistics (H1.c)**

The average of change % of the net income	Mean	N	Std. Deviation	Std. Error Mean
Before IFRS 9	.24960	40	.960385	.151850
After IFRS 9	-.13223	40	.545501	.086251

Source: (Author's calculation, 2022)

Table 4.5 indicates that the average rate of change in net income before IFRS 9 is 24.96%, while after IFRS 9 it is -13.22%, and the standard deviation is 96.03% before IFRS 9, while after the standard deviation it is 54.55%, and the standard error mean before the standard is 15.18% while it is 8.62% after it. Therefore, the average of net income and standard deviation before IFRS 9 were higher than after.

**Table 4.6: Wilcoxon Signed Ranks Test (H1.c)**

Negative Ranks (After – Before IFRS 9)	36
Positive Ranks ( After – Before IFRS 9)	4
Z	-4.59
Asymp. Sig. (2-tailed)	<b>.000</b>
Exact Sig. [2*(1-tailed Sig.)]	<b>.000</b>

Note: Significant at 5% Level

Source: (Author's calculation, 2022)

According to Table 4.6, Sig = .000, the alternative hypothesis has been accepted and the null hypothesis rejected. This shows that there is a statistically significant difference in the average rate of change in the net income before and after the mandatory effective date of IFRS 9. Table C.2 in the appendices illustrates the percentage change in net income for three years before the mandatory effective date of IFRS 9 and three years after. In addition to the average for these ratios before and after. Relying on Table C.2, the five largest banks in terms of the highest rate of change in net income before IFRS 9 are Arbuthnot latham, Nationwide Building Society, Virgin Money UK, Coast Capital Savings, and HSBC Holding. The five banks with the lowest data were NatWest Group, OneSavings Bank Plc, Equitable Bank, Unity Trust Bank Plc, and HSBC Bank of Canada. On the other side after IFRS 9, the largest five banks are Concentra, Equitable Bank, Vancity, Coast Capital Savings, and Virgin Money UK and the lowest five banks are (Nationwide Building Society, OneSavings Bank Plc, HSBC Holding, Arbuthnot

latham, and Standard Chartered, as these banks are the most negatively affected in terms of net income after this standard. Figure C.1 compares the net income before and after IFRS 9. Figure C.2 shows that the average rate of change in net income for 40 banks declined by 38.18%, from 24.96 to -13.22%

#### 4.5 Total Equity Before and After IFRS 9 (H1.d)

In order to test Hypothesis (H1.d), and to determine the degree of acceptance or rejection of the hypothesis, and to verify the statistical evidence of the above results, the paired sample t-test was used, where the hypothesis will be accepted or rejected at level of significance 5%, and if the  $p < .05$ , the null hypothesis will be rejected and the alternative hypothesis accepted. The test findings for this hypothesis are shown in *Tables 4.7 and 4.8*:

**Table 4.7: Paired Samples Statistics (H1.d)**

The average of change % of the total equity	Mean	N	Std. Deviation	Std. Error Mean
Before IFRS 9	.12800	40	.164112	.025948
After IFRS 9	.06247	40	.083432	.013192

Source: (Author's calculation, 2022)

Table 4.7 indicates that the average rate of change in the total equity before IFRS 9 is 12.8%, while after IFRS 9 it is 6.24%, and the standard deviation is 16.41% before IFRS 9, while after the standard deviation is 8.34%, and the standard error mean before the standard is 25.94% while it is 13.92% after it. Therefore, the average total equity and standard deviation before IFRS 9 were higher than after.

**Table 4.8: Paired Samples Test (H1.d)**

	Paired difference			
	Mean	t	df	Sig. (2-tailed)
Paired 1. Total equity Before – After IFRS 9	.065525	2.528	39	<b>.016</b>

Note: Significant at 5% Level

Source: (Author's calculation, 2022)

According to Table 4.8, Sig = .016, the alternative hypothesis has been accepted and the null hypothesis rejected. This shows that there is a statistically significant difference in the average rate of change in total equity before and after the mandatory effective date of IFRS 9.

Table D.2 in the appendices shows the percentage change in total equity for three years before the mandatory effective date of IFRS 9 and three years after. In addition to the average for these ratios before and after. Relying on Table D.2, the five largest banks in terms of the highest rate of change in total equity before IFRS 9 are Tandem Bank, Virgin Money UK, Shawbrook Bank Limited, Metro Bank, and OneSavings Bank Plc. The five banks with the lowest data were NatWest Group, The Co-operative Bank, Lloyds Banking Group, Canadian Tire Bank, HSBC Holding). On the other side after IFRS 9, the largest five banks are (OneSavings Bank Plc, Virgin Money UK, Unity Trust Bank Plc, CS Alterna Bank, Equitable Bank) and the lowest five banks are Arbuthnot latham, NatWest Group, Tandem Bank, Weatherbys bank limited, and Standard Chartered, as these banks are the most negatively affected in terms of total equity after this standard. Figure D.1 compares the total equity before and after IFRS 9. Figure D.2 shows that the average rate of change in total equity of 40 banks declined by 6.55%, from 12.80% to 6.25%.

#### 4.6 Net Cash Flows Before and After IFRS 9 (H1.e)

In order to test Hypothesis (H1.e), and to determine the degree of acceptance or rejection of the hypothesis, and to verify the statistical evidence of the above results, the paired sample t-test was used, where the hypothesis will be accepted or rejected at level of significance 5%, and if the  $p < .05$ , the null hypothesis will be rejected and the alternative hypothesis accepted. The test findings for this hypothesis are shown in *Tables 4.9 and 4.10*:

**Table 4.9: Paired Samples Statistics (H1.e)**

The average of change % of the net cash flows	Mean	N	Std. Deviation	Std. Error Mean
Before IFRS 9	.08565	40	.294618	.204697
After IFRS 9	.47185	40	.900381	.142363

Source: (Author's calculation, 2022)

Table 4.9 indicates that the average rate of change in the cash flows before IFRS 9 is 8.56%, while after IFRS 9 it is 47.18%, and the standard deviation is 29.46% before IFRS 9, while after the standard deviation it is 90%, and the standard error mean before the standard is 20.46% while it is 14.23% after it. Therefore, the average of cash flows and standard deviation after IFRS 9 were higher than before.

**Table 4.10: Paired Samples Test (H1.e)**

	Paired difference			
	Mean	t	df	Sig. (2-tailed)
Paired 1. Cash flows Before – After IFRS 9	-.386200	-1.771	39	<b>.084</b>

*Note:* Significant at 5% Level

Source: (Author's calculation, 2022)

According Table 4.10, Sig = .084, indicating that the alternative hypothesis has been rejected and the null hypothesis accepted. This shows that there is no statistically significant difference in the average rate of change in the cash flows before and after the mandatory effective date of IFRS9.

Table E.2 in the appendices illustrates the percentage change in cash flows for three years before the mandatory effective date of IFRS 9 and three years after. In addition to the average for these ratios before and after. Relying on Table E.2, the five largest banks in terms of the highest rate of change in cash flows before IFRS 9 are Metro Bank, Virgin Money UK, Concentra, Weatherbys bank limited, and CS Alterna Bank. The five banks with the lowest data were Canadian Western Bank, Vancity, Close Brothers Limited, Standard Chartered, and ATB Financial). On the other side after IFRS 9, the largest five banks are HSBC Bank of Canada, CIBC, Vancity, ATB Financial, and CS Alterna Bank and the lowest five banks are Canadian Western Bank, Canadian Tire Bank, Laurentian Bank of Canada, Equitable Bank, and Nationwide Building Society, as these banks are the most negatively affected in terms of cash flows after this standard. Figure E.1 in the appendices compares the cash flows before and after IFRS 9. Figure E.2 shows that the average rate of change in cash flows for 40 banks increased by 38.63%, from 8.56% to 47.19%. In the following we will discuss the results of the second hypothesis.

#### 4.7 UK vs Canada (H2.a)

In order to test Hypothesis (H2.a), to determine the degree of acceptance or rejection of the hypothesis and to verify the statistical evidence of the above results, the paired sample t-test was used, where the hypothesis will be accepted or rejected at level of significance 5%, and if the  $p < .05$ , the null hypothesis will be rejected and the alternative hypothesis accepted. The test findings for this hypothesis are shown in *Tables 4.11 and 4.12*:

**Table 4.11: Group Statistics (H2.a)**

	Country	N	Mean	Std. Deviation	Std. Error Mean
The average of change % of the total assets (After IFRS 9)	Canada	20	.00485	.060714	.013576
	UK	20	-.04265	.250829	.056087

Source: (Author's calculation, 2022)

Table 4.11 indicates that the average rate of change in total assets after IFRS 9 for Canadian banks is 0.485%, while for UK banks after IFRS 9 it is -4.26%, and the standard deviation is 6.07% for Canadian banks, while 25% for UK banks. Standard error mean is 1.35% for Canadian banks, and 5.6% for UK banks. Therefore, the change in total assets after IFRS 9 for Canadian banks was positive and for the UK banks it was negative compared to total assets before IFRS 9.

**Table 4.12: Independent Sample Test (H2.a)**

	Levene's Test for Equality of Variances		t-test for Equality of Means	
	Sig.	t	df	Sig. (2-tailed)
The average of change % of the total assets (After IFRS 9)	.015	.823	21.219	<b>.420</b>

Note: Significant at 5% Level

Source: (Author's calculation, 2022)

According to Table 4.12, Sig = .420, the alternative hypothesis has been rejected and the null hypothesis is accepted. This shows that there is no statistically significant difference between Canada and UK in the average rate of change in total assets after the mandatory effective date of IFRS 9.

Figure F.1 in the appendices compares Canadian and UK banks with respect to the rate of difference or change in total assets after mandatory effective date of IFRS 9. And based on this figure, Canadian banks on average increased their assets by 0.49%, and the five largest Canadian banks in terms of growth after this standard were First National Bank of Canada, Equitable Bank, CS Alterna Bank, CIBC, and National Bank of Canada, while the five Canadian banks with the lowest rate were Laurentian Bank of Canada, Vancity, ATB Financial, Caisses populaires acadiennes, and Manulife Bank of Canada. On the other hand, the rate of fall in assets was -4.26% for UK banks, and the five largest UK banks in terms of decline after this standard are The Co-operative Bank, NatWest Group, Barclays, Standard Chartered, and Lloyds Banking Group and the UK banks that have the highest rise are Tandem Bank, Metro Bank, Shawbrook Bank Limited, OneSavings Bank Plc, and Arbuthnot latham, as shown in the appendices Table A.1. As a result, Figure F.1 demonstrates that there is a difference between UK and Canada regarding the change in total assets after IFRS 9, and this difference is not significant based on inferential statistics.

#### 4.8 UK vs Canada (H2.b)

In order to test Hypothesis (H2.b), to determine the degree of acceptance or rejection of the hypothesis and to verify the statistical evidence of the above results, the paired sample t-test was used, where the hypothesis will be accepted or rejected at level of significance 5%, and if the  $p < .05$ , the null hypothesis will be rejected and the alternative hypothesis accepted. The test findings for this hypothesis are shown in *Tables 4.13 and 4.14*:

**Table 4.13: Group Statistics (H2.b)**

	Country	N	Mean	Std. Deviation	Std. Error Mean
The average of change % of the total assets (After IFRS 9)	Canada	20	0.00755	.0663865	.014281
	UK	20	-.04125	.260554	.058262

Source: (Author's calculation, 2022)

Table 4.13 indicates that the average rate of change in total liabilities after IFRS 9 for Canadian banks is 0.755%, while for UK banks after IFRS 9 it is -4.125%, and the standard deviation is 6.63% for Canadian banks, while 26.05% for UK banks. Standard error mean is 1.42% for Canadian banks, and 5.82% for UK banks. Therefore, the change in total liabilities after IFRS 9 for Canadian banks was positive and for UK banks it was negative compared to total liabilities before IFRS 9.

**Table 4.14: Independent Sample Test (H2.b)**

	Levene's Test for Equality of Variances		t-test for Equality of Means	
	Sig.	t	df	Sig. (2-tailed)
The average of change % of the total assets (After IFRS 9)	.017	.814	21.275	<b>.425</b>

Note: Significant at 5% Level

Source: (Author's calculation, 2022)

Based on Table 4.14, Sig = .425, the alternative hypothesis has been rejected and the null hypothesis accepted. This shows that there is no statistically significant difference between Canada and UK in the average rate of change in total liabilities after the mandatory effective date of IFRS 9.

Figure F.2 compares Canadian and UK banks with respect to the rate of difference or change in total liabilities after mandatory effective date of IFRS 9. Relying on Figure F.2, Canadian banks on average increased their liabilities by 0.75%, and the five largest Canadian banks in terms of growth after this standard were CS Alterna Bank, Equitable Bank, Coast Capital Savings, Concentra, Toronto-Dominion Bank, and CIBC, while the five Canadian banks with the lowest rate were HSBC Bank of Canada, Canadian Tire Bank, Bank of Nova Scotia, Caisses populaires acadiennes, and Vancity. On the other hand, the rate of fall in assets was -4.12% for UK banks, and the five largest UK banks in terms of decline after this standard are The Co-operative Bank, NatWest Group, Barclays, Standard Chartered, and Lloyds Banking Group and the UK banks that have the highest rise are Tandem Bank, Metro Bank, Shawbrook Bank Limited, Arbutnot Iatham, and OneSavings Bank Plc, as shown in Table B.1. Therefore, Figure F.2 shows that there is a difference between UK and Canada in total liabilities after IFRS 9, and this difference is not significant based on inferential statistics.

#### 4.9 UK vs Canada (H2.c)

In order to test Hypothesis (H2.c), to determine the degree of acceptance or rejection of the hypothesis and to verify the statistical evidence of the above results, the paired sample t-test was used, where the hypothesis will be accepted or rejected at level of significance 5%, and if the  $p < .05$ , the null hypothesis will be rejected and the alternative hypothesis accepted. The test findings for this hypothesis are shown in *Tables 4.15 and 4.16*:

**Table 4.15: Group Statistics (H2.c)**

	Country	N	Mean	Std. Deviation	Std. Error Mean
The average of change % of the net income (After IFRS 9)	Canada	20	-.06120	.299144	.066891
	UK	20	-.70230	1.679371	.375519

Source: (Author's calculation, 2022)

Table 4.15 indicates that the average rate of change in net income after IFRS 9 for Canadian banks is -6.12%, while for UK banks after IFRS 9 it is -70.2%, and the standard deviation is 29.9% for Canadian banks, while 167.9% for UK banks. Standard error mean is 6.68% for Canadian banks, and 37.5% for UK banks. Therefore, the change in net income after IFRS 9 for Canadian banks was negative and for UK banks it was also negative compared to net income before IFRS 9.

**Table 4.16: Mann-Whitney Test (H2.c)**

Mann-Whitney U	75.000
Wilcoxon W	285.000
Z	-3.381
Asymp. Sig. (2-tailed)	<b>.001</b>
Exact Sig. [2*(1-tailed Sig.)]	<b>.000</b>

Note: Significant at 5% Level

Source: (Author's calculation, 2022)

According to Table 4.16, Sig = .001, the alternative hypothesis has been accepted and the null hypothesis rejected. This shows that there is a statistically significant difference between Canada and UK in the average rate of change in total net income after the mandatory effective date of IFRS 9.

Figure F.3 compares Canadian and UK banks with respect to the rate of difference or change in net income after mandatory effective date of IFRS 9. Based on this figure, Canadian banks on average decreased their net income by -6.12%, and the five largest Canadian banks in terms of growth after this standard were First National Bank of Canada, CS Alterna Bank, Vancity Laurentian Bank of Canada, and National Bank of Canada, while the five Canadian banks with the lowest rate were Manulife Bank of Canada, ATB Financial, Bank of Nova Scotia, Caisses populaires acadiennes, and HSBC Bank of Canada. On the other hand, the rate of fall in net income was -70.24% for UK banks, and the five largest UK banks in terms of decline after this

standard are Standard Chartered, Metro Bank, The Co-operative Bank, Weatherbys bank limited, and Santander UK and the UK banks that have the highest rise are Virgin Money UK, Arbuthnot latham, Unity Trust Bank Plc, Barclays, and HSBC Holding, as shown in Table C.1 in the appendices. As a result, Figure F.3 demonstrates that there is a difference between banks in the UK and Canada regarding the change in net income after IFRS 9, and this difference is significant based on inferential statistics.

#### 4.10 UK vs Canada (H2.d)

In order to test Hypothesis (H2.d), to determine the degree of acceptance or rejection of the hypothesis and to verify the statistical evidence of the above results, the paired sample t-test was used, where the hypothesis will be accepted or rejected at level of significance 5%, and if the  $p < .05$ , the null hypothesis will be rejected and the alternative hypothesis accepted. The test findings for this hypothesis are shown in *Tables 4.17 and 4.18*:

**Table 4.17: Group Statistics (H2.d)**

	Country	N	Mean	Std. Deviation	Std. Error Mean
The average of change % of the total equity (After IFRS 9)	Canada	20	-.02205	.048657	.010880
	UK	20	.10890	.221056	.049430

Source: (Author's calculation, 2022)

Table 4.22 indicates that the average rate of change in total equity after IFRS 9 for Canadian banks is -2.20%, while for UK banks after IFRS 9 it is 10.89%, and the standard deviation is 4.86% for Canadian banks, while 22.10% for UK banks. Standard error mean is 10.88% for Canadian banks, and 4.94% for UK banks. Therefore, the change in total equity after IFRS 9 for Canadian banks was negative and for UK banks it was positive compared to total equity before IFRS 9.

**Table 4.18: Independent Sample Test (H2.d)**

	Levene's Test for Equality of Variances		t-test for Equality of Means	
	Sig.	t	df	Sig. (2-tailed)
The average of change % of the total equity (After IFRS 9)	.004	1.716	20.837	<b>.101</b>

Note: Significant at 5% Level

According to Table 4.17, Sig = .101, the alternative hypothesis has been rejected and the null hypothesis accepted. This shows that there is no statistically significant difference between Canada and UK in the average rate of change in total equity after the mandatory effective date of IFRS 9.

Figure F.4 in the appendices compares Canadian and UK banks with respect to the rate of difference or change in total equity after mandatory effective date of IFRS 9. According to Figure F.4, Canadian banks on average decreased their equity by -2.21%, and the five largest Canadian banks in terms of growth after this standard were CIBC, CS Alterna Bank, Equitable Bank, Concentra, and Laurentian Bank of Canada, while the five Canadian banks with the lowest rate were Canadian Tire Bank, First National Bank of Canada, Caisses populaires acadiennes, HSBC Bank of Canada, and Coast Capital Savings. On the other hand, the rate of fall in equity was -10.88% for UK banks, and the five largest UK banks in terms of decline after this standard are NatWest Group, The Co-operative Bank, Lloyds Banking Group, HSBC Holding, and Barclays and the UK banks that have the highest rise are Tandem Bank, Virgin Money UK, Shawbrook Bank Limited, Metro Bank, and OneSavings Bank Plc, as shown in Table D.1. Therefore, Figure F.4 demonstrates that there is a difference between the UK and Canada regarding the change in total equity after IFRS 9, and this difference is not significant based on inferential statistics.

#### 4.11 UK vs Canada (H2.e)

In order to test Hypothesis (H2.e), to determine the degree of acceptance or rejection of the hypothesis and to verify the statistical evidence of the above results, the paired sample t-test was used, where the hypothesis will be accepted or rejected at level of significance 5%, and if the  $p < .05$ , the null hypothesis will be rejected and the alternative hypothesis accepted. The test findings for this hypothesis are shown in *Tables 4.19 and 4.20*:

**Table 4.19: Group Statistics (H2.e)**

	Country	N	Mean	Std. Deviation	Std. Error Mean
The average of change % of the cash flows (After IFRS 9)	Canada	20	.96500	1.731162	.387100
	UK	20	-.19290	.449852	.100590

Source: (Author's calculation, 2022)

Table 4.19 indicates that the average rate of change in cash flows after IFRS 9 for Canadian banks is 96.5%, while for UK banks after IFRS 9 it is -19.2%, and the standard deviation is 173.1% for Canadian banks, while 44.9% for UK banks. Standard error mean is 38.7% for Canadian banks, and 100% for UK banks. Therefore, the change in cash flows after IFRS 9 for Canadian banks was positive and for UK banks was negative compared to cash flows before IFRS 9.

**Table 4.20: Independent Sample Test (H2.e)**

	Levene's Test for Equality of Variances		t-test for Equality of Means	
	Sig.	t	df	Sig. (2-tailed)
The average of change % of the net cash flows assets (After IFRS 9)	.001	2.895	21.554	<b>.009</b>

*Note:* Significant at 5% Level

Source: (Author's calculation, 2022)

According to Table 4.20, Sig = .009, the alternative hypothesis has been accepted and the null hypothesis rejected. This shows that there is a statistically significant difference between Canada and UK in the average rate of change in cash flows after the mandatory effective date of IFRS 9.

Figure F.5 in the appendices compares Canadian and UK banks with respect to the rate of difference or change in cash flows after mandatory effective date of IFRS 9. According to Figure F.5, Canadian banks on average increased their cash flows by 96.55%, and the five largest Canadian banks in terms of growth after this standard were Concentra, CS Alterna Bank, Coast Capital Savings, Equitable Bank, and Royal Bank of Canada, while the five Canadian banks with the lowest rate were Canadian Western Bank, Vancity, ATB Financial, Manulife Bank of Canada, and HSBC Bank of Canada. On the other hand, the rate of fall in cash flows was -19.28% for UK banks, and the five largest UK banks in terms of decline after this standard are Close Brothers Limited, Standard Chartered, Lloyds Banking Group, The Co-operative Bank, and NatWest Group and the UK banks that have the highest rise are Metro Bank, Virgin Money UK, Weatherbys bank limited, Arbuthnot latham, and Tandem Bank, as shown in Table E.1. Finally, Figure F.5 demonstrates that there is a difference between the UK and Canada regarding the change in cash flows after IFRS 9, but this difference is significant based on inferential statistics.

## **4.12 Chapter Summary**

This chapter intended to provide the research results in order to achieve the objectives of the study. Four steps of analysis were applied: Identification of the year of analysis; Performance of t-test analysis (inferential statistics); descriptive statistics; and Interpretation. Data were analyzed from 2014 to 2020. The statistical methods were used based on parametric tests such as paired sample t-test, independent sample t-test and non-parametric such as Mann-Whitney and Wilcoxon-signed ranks test for two sub-hypothesis. In addition to use the means, standard-deviations, standard error of means, tables and figures. This chapter achieved the study's objective by the above results, which allowed the study's questions and hypotheses to be addressed, as illustrated in the next chapter, which summarized the results and made several recommendations.

## **5. Novel Findings of the Dissertation**

This study mainly aims to know the real impact of IFRS 9 on the most important items in the financial statements. Before starting to select the study sample and collect and analyze data, the theoretical and experimental literature on IFRS 9 in particular and studies related to accounting for financial instruments were reviewed and analyzed in order to identify the research gaps.

Given that IFRS 9 is newly issued compared to the rest of the IFRS standards, there are few previous studies that focused on IFRS 9. In addition, accounting for financial instruments is one of the most controversial topics due to its mathematical and statistical complexities. Therefore, many researchers avoid research in this field compared to other accounting topics. When reviewing the relevant literature in this field, it was found that these studies focused on the effects of applying IFRS 9, the new instructions and the mechanism for applying this standard. The main novel contribution of this study is to collect a sample of the largest financial institutions, specifically the banks operating in the largest countries that adhere to the application of IFRS standards, the United Kingdom and Canada, which is considered the first study that provides a real comparison of the impact of IFRS 9 on the most important items in the financial statements. Previous studies did not seriously examine the comparison of the impact of this standard on different continents, especially since the world today has become more open after globalization, and this data will be necessary for the investors, so the results of this study provide a new contribution to knowing the extent of the impact of IFRS 9 on the difference between those countries.

Based on the review of previous studies, it was found that there is a gap in the absence of a study focused on discussing all aspects and phases of IFRS 9 in detail. This study made a new contribution in discussing the three main phases of this standard, in addition to presenting and proposing statistical models in calculating the PD, the most important components of the ECL equation. This comprehensive review and the proposed models help to provide more appropriate financial data for each of the users and also more appropriate to the requirements of IFRS 9. Finally, this study used statistical tools that were not used by previous studies that focused on the expected results of IFRS 9. As these statistical techniques are the most appropriate for this type of studies in order to provide high-quality and more accurate results for users of financial statements.

Accordingly, IFRS 9 did not lead to significant difference between these two countries on the main financial indicators as a comprehensive view. Whereas, if each indicator was highlighted separately, we would find that there is a significant difference between these two countries with regard to the percentage change in net income and cash flows after IFRS 9. Despite the similarities between these two countries in major issues as mentioned previously, there are minor differences, have direct impact such as applying expected credit losses equation with different models and rates based on the instructions of each central bank for each of these countries, in addition to the minor differences in the hedging policy for financial risks between the two countries. All these facts led to direct impact and difference in net income and cash flows compared to the rest of the basic financial indicators (total assets, total liabilities and total equity), which represent the largest figures in the financial statements, that are not easy to change, but may be affected in the future if the significant difference in net income continues. To summarize the above, the novel contributions for this thesis are:

1. The novelty of the study is that no previous research tested the IFRS 9 effect on the largest financial institutions in the largest countries that adhere to the application of IFRS standards.
2. The first study that provides a real comparison of the impact of IFRS 9 on the key items in the financial statements.
3. Explain with details the three main phases of this standard, in addition to presenting different statistical models in calculating the probability of default (PD).
4. This study used statistical tools that were not used by previous studies that focused on the expected results of IFRS 9.
5. The statistical results of this study differ from the expectations of applying IFRS 9, as the two main hypotheses of this thesis were rejected as shown below.

Although most of the expectations indicated that there was a significant impact on all the key elements of the financial statements, due to the significant changes of IFRS 9 in calculating expected credit losses (ECL) compared to IAS 39 on the basis of incurred losses, the results of this thesis indicate that there is no statistically significant difference in the most of key elements of the financial statements. Therefore, the first hypothesis was rejected, but there was a significant difference in net income and equity after IFRS 9. The important question is why there is no significant impact for this standard on the total assets, total liabilities, and net cash flows? The first reason is that the impact of IFRS 9 will not be significant if the financial institution contains high-quality financial instruments in addition to the existence of a stable

economic and political environment based on the expectations of the standards setters. And since the study sample was banks operating in two countries with financial and political stability, in addition to high-quality financial instruments, all of this mitigated the impact of IFRS 9 on the rate of change in the main financial items from a comprehensive perspective. On the other hand, IFRS 9 and its amendments, especially Phase 2, impairment of financial instruments, had a significant impact if we only highlighted the net income and equity of those banks, although they have high-quality financial instruments and operate in a stable environment, the second phase of this standard had a direct impact on net income and equity. As for the rest of the amendments in this standard, they did not have a direct impact, such as phase 2, which relies heavily on statistical models that can directly affect the percentage change in income and property rights compared to the rest of the main financial indicators in the short term. However, as I mentioned earlier, this negative change in net income will be reflected in a positive one and create a more stable and shock-resistant environment. This is regarding the interpretation of the results of the first main hypothesis.

The second hypothesis focused on the comparison between British and Canadian banks, as previous expectations indicate that after applying IFRS 9, there will be a significant difference between countries. However, depending on the results of the thesis, it indicates that the difference not significant between British and Canadian banks in the percentage change of the key elements of the financial statements as a whole, after applying IFRS 9. There are many explanations that led to these results. Among these explanations is that the study sample contains the largest banks operating in UK and Canada. Thus, each of these banks has customers and high-quality financial instruments, in addition to stable and similar economic and political indicators. The next chapter will present the conclusion, recommendations, references and annexures in the end.

## 6. Conclusion and Recommendations

In order to answer the research question, the results of the study are summarized in this chapter. This chapter also presents the implications of the findings of this study and their importance to the various parties and users of financial information. Finally, this chapter discussed the limitations of the study and provide the recommendations and directions for future research studies.

### 6.1 Findings of the Research

Based on the research questions for this study this chapter includes two parts, the first part is comparing the key financial indicators of the largest financial institutions before and after IFRS 9. The second part is comparing between two countries on different continents for the effect of IFRS 9 on the key elements of IFRS financial statements.

This part contains the result of the first main question of this thesis, to compare the key elements of IFRS financial statements before and after IFRS 9. To answering this question this study used the statistical program SPSS in addition to Microsoft Excel in analyzing the data. It also relied on the Paired sample t-test and Wilcoxon signed rank test as statistical methods as mentioned previously. These types of statistical tests are more suitable, therefore these types of statistical tests for this type of comparison provide more useful information than other statistical tests such as regression analysis, in light of the fact that the independent factor for this study is not numerical, but rather categorical (pre and post). Based on the previous chapter, it was found that there is a decrease in the mean of all items after the date of effective date of the standard compared to before, except for the cash flows item. Table 6.1 summarizes the results of the sub-hypotheses of the first main hypothesis:

**Table 6.1: Summary of Findings – Hypothesis 1**

No.	Hypothesis	Statistical Supported
<i>H1.a</i>	There is a statistically significant difference in the average rate of change in <u>total assets</u> before and after IFRS 9.	Not supported
<i>H1.b</i>	There is a statistically significant difference in the average rate of change in <u>total liabilities</u> before and after IFRS 9.	Not supported
<i>H1.c</i>	There is a statistically significant difference in the average rate of change in <u>net income</u> before and after IFRS 9.	Supported

<i>H1.d</i>	There is a statistically significant difference in the average rate of change in <u>total equity</u> before and after IFRS 9.	Supported
<i>H1.e</i>	There is a statistically significant difference in the average rate of change in <u>net cash flows</u> before and after IFRS 9.	Not supported

Source: (Author's Construction, 2021)

Table 6.1 summarize and shows the significant difference, whether increase or decrease, there is a significant change in net income and equity only, while in the case of the rest of the items (total assets, liabilities, and net cash flows) there are no significant changes according to the results of inferential statistics. These results are consistent with the results of previous researchers who expected and found that there is no significant effect of IFRS 9 (Cohen & Edwards, 2017; Halilbegovic et al., 2018) while it contradicts the researchers who expected that there is a significant effect of IFRS 9 (Beatty & Liao, 2011; Fiechter, 2011; Huian, 2012; Harris et al., 2014; Bushman & Williams, 2015; Novotny-Farkas, 2016; Brkovic, 2017; Filipova-Slancheva, 2017; Gornjak, 2017; Marton & Runesson, 2017; Goulash & Somogyi, 2019).

The second part contains the result of the second main question of this thesis, to compare the main items in the financial statements between two countries. To answering this question this study used the Independent sample t-test and Man-Whitney test as statistical methods, these types of statistical tests as mentioned previously information for this type of comparison are more appropriate and provide more useful than other statistical tests such as regression analysis. Relying on the previous chapter, it was found that the mean of all the key financial indicators decreased in British banks after the date of effective date the standard, while Canadian banks only equity and net income, while the rest of the items increased (Total assets, liabilities, and net cash flows). Table 6.2 shows the results of the sub-hypotheses of the second main hypothesis:

**Table 6.2: Summary of Findings – Hypothesis 2**

<b>No.</b>	<b>Hypothesis</b>	<b>Statistical Supported</b>
<i>H2.a</i>	There is a statistically significant difference in the average rate of change in <u>total assets</u> between the UK and Canada after IFRS 9.	Not supported
<i>H2.b</i>	There is a statistically significant difference in the average rate of change in <u>total liabilities</u> between the UK and Canada after IFRS 9.	Not supported

<i>H2.c</i>	There is a statistically significant difference in the average rate of change in <u>net income</u> between the UK and Canada after IFRS 9.	Supported
<i>H2.d</i>	There is a statistically significant difference in the average rate of change in <u>total equity</u> between the UK and Canada after IFRS 9.	Not supported
<i>H2.e</i>	There is a statistically significant difference in the average rate of change in <u>net cash flows</u> between the UK and Canada after IFRS 9.	Supported

Source: (Author's Construction, 2021)

Table 6.2 summarize the significant difference between Canadian and British banks, there is a significant difference in net income and net cash flows, while the rest of the items there is a difference, but not a significant difference, according to the results of the inferential statistics. This result contradicts the previous study such as study of Onali and Ginesti in 2014 that expected the significant difference between countries after IFRS 9.

## 6.2 Implications

Accounting during its development has gone through many stages, where each stage had its own advantages and characteristics, and the matter settled on considering accounting as a system that aims to provide the necessary information to economic decision-makers, but the one who looks at the reality of accounting will find that the elements and applications of this system have been greatly affected by the environment surrounding it, which created a kind of difference that led to the emergence of various accounting systems in the world, some of which are local and others of a regional or international nature. In the past, these accounting systems were limited to handling and processing historical accounting data for the preparation of financial statements, then this narrow view developed according to the development of the needs of the management of economic units and the actors in them, which are usually in harmony with their surroundings, to then turn into information systems that do not stop at the limits of financial data and information, but rather go beyond them to include quantitative and descriptive data and information that are useful in decision-making for users distinguished by their diversity and diversity, which prevents the possibility of preparing consolidated statements for them, in addition to this the large deduction of institutions, the internationalization of their activities, the expansion of their markets and their geographical dispersion, as well as the separation of ownership from management, added new roles to

accounting systems in addition to determining the results of operations, financial position and the institution's relationship with others.

All of these recent developments in global finance are moving towards creating a unified standard for accounting models. Everyone recognizes the advantages and benefits of following a unified accounting system and global rules that are applied by everyone everywhere. Perhaps the best example of this is the emergence of IFRS Standards and the beginning of many countries' adoption of them, but to varying degrees in line with their economic structures. However, this matter stands in the way of great obstacles that prevent its application, even partially, since some differences can be easily resolved such as the terminology used or the presentation of the accounts, but it is not so with regard to the deeper issues connected with the principles. As it is easy to translate words, but it is very difficult to translate ideas and principles, and this is what made the acceptance of multiplicity and diversity in accounting systems a reality (Iatridis, 2010).

Most countries, in the context of applying IFRS Standards, have adopted the financial accounting system based on those standards. This system was built on principles that the economy in some countries still lacks, such as the difficulty of obtaining information in various fields, the correct statistics on which the estimation process is built, the absence of active commercial, and financial markets that reflect the normal conditions of competition. Thus, specialists and experts in accounting and finance believe that very complex and advanced standards may significantly affect the financial positions of companies located in developing and unstable economies (Tamimi, 2022). IFRS 9 *Financial Instruments* is one of the most complex and controversial accounting standards, as the topics it deals with are among the most daunting subjects in accounting and financial sciences. Financial instruments have the largest proportion in their financial statements. In addition, these tools are exposed to high risks that directly affect the financial positions and strategic decisions of these institutions.

As a result, this study focused on comparing the rates of change in the key elements of IFRS financial statements such as total assets, liabilities, owners' equity, net income, and net cash flows before and after the issuance of this standard. Although some standards were amended or issued during the study period, this study focused on financial institutions, specifically the banking sector. Whereas, in the event that there is a significant change, the direct reason for this is IFRS 9, as a result of the proportion of these financial instruments. Also, as mentioned previously, the study focused on two of the most stable and committed countries in

implementing the standards. The results of this study provide many vital implications for many parties that care and use the financial information.

This study has several important implications for standard setters. The issuance of an important standard that is closely related to the activities of the financial sector, such as IFRS 9, prepares international standard-setters to consider and review all the results of studies related to this standard. This is due to the importance and impact of the financial sector, especially banks, which is the basis of this criterion. This study provides very important results and indicators, the IASB and setters of accounting standards can use those results and models that were presented in this study in order to know the extent of the impact of this standard on the largest international banks that apply international standards, in particular IFRS 9, In addition to increasing opportunities for improvement and development of this standard in line with the users of financial statements, achieving financial stability and reducing fluctuations as a result of uncertainty.

This study also offers implications to the regulators in UK and Canada in particular, because the study sample focused on banks operating in these two countries. We also know that British banks are among the largest banks in the world and contribute significantly to the British economy, and IFRS 9 is one of the most dangerous standards faced by these banks in recent times, whether British or Canadian or others. Therefore, this study will also provide a comprehensive and clear picture to the regulatory bodies about the extent of the impact of this standard on the key financial indicators of financial institutions. In addition to knowing what models and laws will be more supportive to ensure sustainability and economic development, given that this standard is the main objective with regard to hedge accounting and expected credit losses. This study also has valuable implications for investors and financial analysts in addition to the decision makers of those large institutions. IFRS 9 has many advantages, the most important of which appear in the transparency shown by the expanded disclosure requirements related to the IFRS 9 model. Thus, enhancing financial stability, and it is expected that such transparency and disclosure will help to strengthen the individual reports of banks and the periodic consolidated regulatory disclosures and the validity and adequacy of the amounts of expected losses reported. The application of the standard affects deposits by enhancing depositors' confidence in banks because they provide more guarantees and greater protection, it also contributes to promoting a sound study of the customer's credit potential, and thus represents a protection for banks from any risks related to borrowers' non-fulfillment of their financial obligations.

On the other hand, this criterion increases the severity of risks in times of crises, as early recognition of losses negatively affects the bank's flexibility by reducing capital levels, where banks make provision for credit losses for future expectations and not real losses, which will affect the profitability and capital of the bank, and thus show the business result in a low way, which affects the share. Therefore, this study provides an important picture for investors, analysts and decision-makers in those large financial institutions about the extent of the impact of this standard, both at the level of historical comparisons of the institution itself or the institution with its competitors in the same country, and also for financial analysts when comparing with another country on a different continent, which is related to investment portfolios that have investments in large financial institutions outside the borders of the state.

Finally, this study also provides implications for academics interested in accounting, in particular accounting for financial instruments, the future of accounting for financial instruments, derivatives, and hedge accounting, which is considered one of the most important, controversial, and complex topics, as academics and researchers interested in this field have to be at a high level in both accounting, statistics and mathematics. This study also provides them with the models used in calculating expected credit losses, in addition to knowing the real impact of this standard and not the expected impact on the financial results of the largest financial institutions, which will lead them to more innovative future research in the field of developing quantitative techniques and methods, reducing the risk of uncertainty while maintaining a high level of transparency and minimal level of earnings management and manipulation practices.

### **6.3 Limitations and Directions for Future Studies**

This study has many limitations and shortcomings like other studies. First, this study focused on banks, which are considered one of the most important financial institutions, but as it is known that there are other types that fall under financial institutions. In the future, it is necessary to focus on other financial institutions, such as the insurance sector, which is also one of the important sectors and is largely related to expected credit losses. Second, this study focused on two developed and economically stable countries in order to obtain results that reflect the real impact of this standard on the largest banks in those two countries because these banks have a great impact on the economy of those countries and the world as well due to the large assets of these bank. In the future, it is necessary to study the impact of this important criterion on developing economies and compare it with advanced economies. Third,

this study focused on the largest banks, and according to the results, there was no significant impact on all financial results, the reason may be that the impact of the standard on large banks that have financial instruments with high efficiency is much less than that of medium and small banks that have financial instruments that are not highly efficient. In the future, it is important to study the impact of this standard on medium and small banks in the United Kingdom and Canada so that I can generalize the results to the banking sector as a whole. Fourth, the financial statements that were relied on covered three years before and three years after the mandatory date of the standard, and this is what distinguishes this study from the rest of the studies as it gives a clear indication of the impact of the standard. In the future, after ten years, for example, it is possible to conduct a study to see the comprehensive impact of this standard and its subsequent amendments, which, as I mentioned, differs from the rest of the standards in terms of complexity, so it needs to be focused on. Fifthly, this study relied on audited financial statements as a data collection tool, but in some cases there are many cases of fraud and accounting scandals in recent times. Therefore, in the future, it is necessary to conduct a study that uses a different tool to collect data, such as interviews with financial and risk managers of these banks, in addition to academics specialized in this field, to obtain a clearer picture. Finally, this standard was expected to have a direct impact on the banking sector and the global economy, but as a result of many factors such as the COVID-19 pandemic and Russia-Ukraine war, the central banks provided a lot of economic stimulus to maintain financial stability. Thus, as a result of the many factors in the last year of the study sample, a study must be conducted in the future under more stable conditions to obtain more generalizable results. Accounting in recent times is moving toward the finance side, risk management and statistics, and this may reduce the value of accounting, although the information that is provided is of great benefit, but the expectations issues in accounting standards are increasing compared to the past, and this may increase the chances of manipulation as long as the possibilities and expectations increase.

Therefore, this study recommends the IASB and standard-setters that there be more auditing or submitting two reports. The first depends on traditional accounting and financial movements that have actually occurred, and the other report depends on financial accounting, which includes everything related to expectations. Additionally, this study suggests that standard-setters create a specific standard for the banking industry, where managing financial instruments serves as the primary function in the banking industry and a supporting function in non-financial institutions. Therefore, having a separate transaction or standard is preferable. This study recommends that financial institutions interact the senior management with the

requirements of IFRS 9, specifying policies and procedures related to the application of the standard, training specialized personnel in this field, updating current systems and means of control, or applying new systems and artificial intelligence in calculating expected credit losses with taking into account the undue cost and effort. Finally, this study recommends academics to conduct more research and attend conferences to get acquainted with the details of IFRS 9 and the guidelines for its application, and to monitor the effects of its application on the banking environment and the global economy. This study also recommends universities and educational institutes to update and develop accounting courses in order to graduate accountants who are able to deal with international standards in general and standards for financial instruments in particular.

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## LIST OF PUBLICATIONS

### Articles

- Orbán, I., & Tamimi, O. (2023). The Impact of IFRS 9 on Financial Reporting during Covid-19 Pandemic from the Point of View of Experts in Europe. *Australasian Accounting, Business and Finance Journal*, 17(4), 21-36. <https://doi.org/10.14453/aabfj.v17i4.03>
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### List of Conferences

- Oct 2022: International Conference on Advance Accounting and Finance (ICAAF) // Munich-Germany (In-Person)
- April 2022: British Accounting and Finance (BAFA) Conference // University of Nottingham-UK (In-Person)
- Feb 2022: Károly Ihrig Doctoral School of Management and Business // Debrecen-Hungary (In-Person)
- April 2021: British Accounting and Finance (BAFA) Conference // Virtual
- April 2021: Károly Ihrig Doctoral School of Management and Business // Debrecen-Hungary (In-Person & Best Presenter).

## LIST OF TABLES

Table 2.1: Expected credit loss – EAD .....	52
Table 2.2: Expected credit loss – Stage 1 & 2 .....	52
Table 2.3: Expected credit loss – Stage 3 .....	53
Table 2.4: Previous Studies on the Financial Instruments .....	63
Table 3.1: Research philosophies.....	87
Table 3.2: Research design matrix .....	88
Table 3.3: Research design for dissertation based on Mouton.....	90
Table 3.4: Sample of the dissertation.....	98
Table 3.5. Sample of the dissertation %.....	100
Table 4.1: Paired Samples Statistics (H1.a).....	108
Table 4.2: Paired Samples Test (H1.a).....	108
Table 4.3: Paired Samples Statistics (H1.b).....	109
Table 4.4: Paired Samples Test (H1.b) .....	110
Table 4.5: Paired Samples Statistics (H1.c) .....	111
Table 4.6: Wilcoxon Signed Ranks Test (H1.c) .....	111
Table 4.7: Paired Samples Statistics (H1.d).....	112
Table 4.8: Paired Samples Test (H1.d) .....	112
Table 4.9: Paired Samples Statistics (H1.e).....	113
Table 4.10: Paired Samples Test (H1.e) .....	114
Table 4.11: Group Statistics (H2.a).....	115
Table 4.12: Independent Sample Test (H2.a).....	115
Table 4.13: Group Statistics (H2.b) .....	116
Table 4.14: Independent Sample Test (H2.b) .....	117
Table 4.15: Group Statistics (H2.c).....	118
Table 4.16: Mann-Whitney Test (H2.c).....	118
Table 4.17: Group Statistics (H2.d) .....	119
Table 4.18: Independent Sample Test (H2.d) .....	119
Table 4.19: Group Statistics (H2.e).....	120
Table 4.20: Independent Sample Test (H2.e).....	121
Table 6.1: Summary of Findings – Hypothesis 1.....	126
Table 6.2: Summary of Findings – Hypothesis 2.....	127
Table A.1 Total Assets before and after the Mandatory Effective Date of IFRS 9 .....	162

Table A.2: The Average Rate of Change in Total Assets before and after IFRS 9 .....	163
Table B.1: Total Liabilities before and after the Mandatory Effective Date of IFRS 9 .....	165
Table B.2: The Average Rate of Change in Total Liabilities before and after IFRS 9.....	166
Table C.1: Net Income before and after the Mandatory Effective Date of IFRS 9 .....	168
Table C.2: The Average Rate of Change in the Net Income before and after IFRS 9.....	169
Table D.1 Total Equity before and after the Mandatory Effective Date of IFRS 9 .....	171
Table D.2: The Average Rate of Change in Total Equity before and after IFRS 9 .....	172
Table E.1: Net Cash Flows before and after the Mandatory Effective Date of IFRS 9 .....	174
Table E.2: The Average Rate of Change in the Cash Flows before and after IFRS 9.....	175
Table F.1: Financial Assets to Total Assets .....	179
Table F.2: Financial Liabilities to Total Liabilities .....	180

## LIST OF FIGURES

Fig 1.1: Structure of the dissertation .....	13
Fig 2.1: Implementation process of IFRS 9 .....	30
Fig 2.2: IFRS 9 – Classification and measurement of financial assets .....	36
Fig 2.3: Classification and measurement of financial instruments .....	40
Fig 2.4: Three-stages of impairment model – IFRS 9.....	48
Fig 3.1: Research Onion.....	85
Fig 3.2: Deductive-inductive loop .....	88
Fig 3.3: Four levels of research design .....	89
Fig 3.4: Probability Samples .....	94
Fig 3.5: Non-probability Samples .....	96
Fig 3.6: Inferential Statistical Techniques .....	103
Fig 3.7: Basic Model for Dissertation .....	104
Fig A.1: The Average Rate of Change in Total Assets before and after IFRS 9 .....	164
Fig A.2: Total Average of % in Total Assets.....	164
Fig B.1: The Average Rate of Change in Total Liabilities before and after IFRS 9 .....	167
Fig B.2: Total Average of % in Total Liabilities .....	167
Fig C.1: The Average Rate of Change in Net Income before and after IFRS 9 .....	170
Fig C.2: Total Average of % in Net Income .....	170
Fig D.1: The Average Rate of Change in Total Equity before and after IFRS 9.....	173
Fig D.2: Total Average of % in Total Equity.....	173
Fig E.1: The Average Rate of Change in Cash Flows before and after IFRS 9.....	176
Fig E.2: Total average of % in Cash Flows .....	176
Fig F.1: Total Assets after IFRS 9 for UK vs Canadian Banks .....	177
Fig F.2: Total Liabilities after IFRS 9 for UK vs Canadian Banks .....	177
Fig F.3: Total Net Income after IFRS 9 for UK vs Canadian Banks .....	177
Fig F.4: Total Equity after IFRS 9 for UK vs Canadian Bank.....	177
Fig F.5: Cash Flows after IFRS 9 for UK vs Canadian Banks .....	178

# APPENDICES

**Appendix A: Assets**  
**Table A.1 Total Assets before and after the Mandatory Effective Date of IFRS 9**

Country	Banks	2014	2015	2016	2017	2018	2019	2020
UK (£)	HSBC Holding	2634139000000	2409656000000	2374986000000	2521771000000	2558124000000	2715152000000	2984164000000
	Barclays	1357906000000	1120012000000	1213126000000	1133248000000	1133283000000	1140229000000	1349514000000
	Lloyds Banking Group	854896000000	806688000000	817793000000	812109000000	797598000000	833893000000	871269000000
	NatWest Group	1050763000000	815408000000	798656000000	738056000000	694235000000	723039000000	799491000000
	Standard Chartered	725914000000	640483000000	646692000000	663501000000	688762000000	720398000000	789050000000
	Santander UK	275977000000	281406000000	303142000000	314765000000	283372000000	281702000000	292332000000
	Nationwide Building Society	189926000000	195580000000	208939000000	221670000000	229098000000	238301000000	248041000000
	Arbuthnot latham	1446622000	2231559000	1265284000	1853232000	2175173000	2595379000	2853536000
	Virgin Money UK	26536800000	30229000000	35055600000	43231000000	43456000000	90999000000	90259000000
	Unity Trust Bank Plc	832726000	883070000	920947000	1012376000	1076894000	1122206000	1431594000
	The Co-operative Bank	37582900000	29028300000	27588300000	24490100000	23102800000	23435500000	25599500000
	OneSavings Bank Plc	4936527000	5970400000	6580900000	8589100000	10460200000	21417100000	22654500000
	Metro Bank	3660520000	6148022000	10057288000	16342000000	21635000000	21400000000	22579000000
	Paragon banking group	10895100000	11878900000	13518400000	13682200000	14487900000	14395500000	15505500000
	Close Brothers Limited	7700400000	7957300000	8748200000	9285200000	10251000000	9710700000	10128700000
	Tesco Bank	9247700000	10059700000	10998600000	12578600000	14622300000	15657500000	11643500000
	Shawbrook Bank Limited	2754000000	4000000000	4646600000	5758700000	6819100000	8217200000	8931700000
	Tandem Bank	81701603	119196923	355535599	492037000	493677000	456789000	596440000
C. Hoare & Co	2816806000	3332482000	4256503000	4409227000	4573113000	4863089000	5232137000	
Weatherbys bank limited	496788864	527361008	634559384	758838770	878368109	956108783	1144578448	
Canada (\$)	Toronto-Dominion Bank	944742000000	1104373000000	1176967000000	1278995000000	1334903000000	1415290000000	1715865000000
	Royal Bank of Canada	940550000000	1074208000000	1180258000000	1212853000000	1334734000000	1428935000000	1624548000000
	Bank of Nova Scotia	805666000000	856497000000	896266000000	915273000000	998493000000	1086161000000	1136466000000
	Bank of Montreal	588659000000	641881000000	687935000000	709580000000	774048000000	852195000000	949261000000
	CIBC	414903000000	463309000000	501357000000	565264000000	597099000000	651604000000	769551000000
	Desjardins Group	229387000000	248128000000	258367000000	275095000000	295465000000	312996000000	362035000000
	National Bank of Canada	205429000000	216090000000	232206000000	245827000000	262471000000	281458000000	331625000000
	HSBC Bank of Canada	88204000000	94024000000	94657000000	96379000000	103406000000	106571000000	117347000000
	ATB Financial	37667229000	43074923000	46757278000	48547285000	51893091000	54344151000	55865522000
	Laurentian Bank of Canada	34848681000	39659504000	43006340000	46682658000	45894683000	44353127000	44167660000
	Canadian Western Bank	20608656000	22838527000	25222549000	26447453000	29021463000	31424235000	33937865000
	Equitable Bank	12854903000	15527584000	18973588000	20634250000	25037145000	28392452000	30746318000
	Manulife Bank of Canada	579406000000	702871000000	720681000000	729533000000	750271000000	809130000000	880349000000
	Canadian Tire Bank	14553200000	14987800000	15302800000	15627000000	17286800000	19518300000	20377100000
	Concentra	6746485000	7799706000	9436734000	9126672000	9679409000	8944702000	11063911000
	Caisses populaires acadiennes	3545463000	3691150000	3843570000	4000078000	4222085000	4440719000	4795827000
	Vancity	18559745000	19829919000	21131909000	21668002000	22892571000	23157368000	24917887000
	CS Alterna Bank	2711674000	3071007000	3806578000	4695411000	5608317000	6145456000	6702891000
	Coast Capital Savings	12400302000	13736093000	14969218000	17048510000	19619919000	20228962000	20872884000
	First National Bank of Canada	378610000	443783000	407076000	479909000	553598000	672170000	965734000

**Table A.2: The Average Rate of Change in Total Assets before and after IFRS 9**

	% of Change before (IFRS 9)			Average	% of Change after (IFRS 9)			Average
	2015	2016	2017		2018	2019	2020	
<b>Banks</b>								
HSBC Holding	-8.52%	-1.44%	6.18%	-1.26%	1.44%	6.14%	9.91%	5.8%
Barclays	-17.52%	8.31%	-6.58%	-5.26%	0.00%	0.61%	18.35%	6.3%
Lloyds Banking Group	-5.64%	1.38%	-0.70%	-1.65%	-1.79%	4.55%	4.48%	2.4%
NatWest Group	-22.40%	-2.05%	-7.59%	-10.68%	-5.94%	4.15%	10.57%	2.9%
Standard Chartered	-11.77%	0.97%	2.60%	-2.73%	3.81%	4.59%	9.53%	6.0%
Santander UK	1.97%	7.72%	3.83%	4.51%	-9.97%	-0.59%	3.77%	-2.3%
Nationwide Building Society	2.98%	6.83%	6.09%	5.30%	3.35%	4.02%	4.09%	3.8%
Arbuthnot latham	54.26%	-43.30%	46.47%	19.14%	17.37%	19.32%	9.95%	15.5%
Virgin Money UK	13.91%	15.97%	23.32%	17.73%	0.52%	109.40%	-0.81%	36.4%
Unity Trust Bank Plc	6.05%	4.29%	9.93%	6.75%	6.37%	4.21%	27.57%	12.7%
The Co-operative Bank	-22.76%	-4.96%	-11.23%	-12.98%	-5.66%	1.44%	9.23%	1.7%
OneSavings Bank Plc	20.94%	10.23%	30.52%	20.56%	21.78%	104.75%	5.78%	44.1%
Metro Bank	67.95%	63.59%	62.49%	64.68%	32.39%	-1.09%	5.51%	12.3%
Paragon banking group	9.03%	13.80%	1.21%	8.01%	5.89%	-0.64%	7.71%	4.3%
Close Brothers Limited	3.34%	9.94%	6.14%	6.47%	10.40%	-5.27%	4.30%	3.1%
Tesco Bank	8.78%	9.33%	14.37%	10.83%	16.25%	7.08%	-25.64%	-0.8%
Shawbrook Bank Limited	45.24%	16.17%	23.93%	28.45%	18.41%	20.50%	8.70%	15.9%
Tandem Bank	45.89%	198.28%	38.39%	94.19%	0.33%	-7.47%	30.57%	7.8%
C. Hoare & Co	18.31%	27.73%	3.59%	16.54%	3.72%	6.34%	7.59%	5.9%
Weatherbys bank limited	6.15%	20.33%	19.59%	15.36%	15.75%	8.85%	19.71%	14.8%
Toronto-Dominion Bank	16.90%	6.57%	8.67%	10.71%	4.37%	6.02%	21.24%	10.5%
Royal Bank of Canada	14.21%	9.87%	2.76%	8.95%	10.05%	7.06%	13.69%	10.3%
Bank of Nova Scotia	6.31%	4.64%	2.12%	4.36%	9.09%	8.78%	4.63%	7.5%
Bank of Montreal	9.04%	7.17%	3.15%	6.45%	9.09%	10.10%	11.39%	10.2%
CIBC	11.67%	8.21%	12.75%	10.88%	5.63%	9.13%	18.10%	11.0%
Desjardins Group	8.17%	4.13%	6.47%	6.26%	7.40%	5.93%	15.67%	9.7%
National Bank of Canada	5.19%	7.46%	5.87%	6.17%	6.77%	7.23%	17.82%	10.6%
HSBC Bank of Canada	6.60%	0.67%	1.82%	3.03%	7.29%	3.06%	10.11%	6.8%

ATB Financial	14.36%	8.55%	3.83%	8.91%	6.89%	4.72%	2.80%	4.8%
Laurentian Bank of Canada	13.80%	8.44%	8.55%	10.26%	-1.69%	-3.36%	-0.42%	-1.8%
Canadian Western Bank	10.82%	10.44%	4.86%	8.71%	9.73%	8.28%	8.00%	8.7%
Equitable Bank	20.79%	22.19%	8.75%	17.25%	21.34%	13.40%	8.29%	14.3%
Manulife Bank of Canada	21.31%	2.53%	1.23%	8.36%	2.84%	7.85%	8.80%	6.5%
Canadian Tire Bank	2.99%	2.10%	2.12%	2.40%	10.62%	12.91%	4.40%	9.3%
Concentra	15.61%	20.99%	-3.29%	11.10%	6.06%	-7.59%	23.69%	7.4%
Caisses populaires acadiennes	4.11%	4.13%	4.07%	4.10%	5.55%	5.18%	8.00%	6.2%
Vancity	6.84%	6.57%	2.54%	5.32%	5.65%	1.16%	7.60%	4.8%
CS Alterna Bank	13.25%	23.95%	23.35%	20.18%	19.44%	9.58%	9.07%	12.7%
Coast Capital Savings	10.77%	8.98%	13.89%	11.21%	15.08%	3.10%	3.18%	7.1%
First National Bank of Canada	17.21%	-8.27%	17.89%	8.94%	15.35%	21.42%	43.67%	26.8%
<b>Total Average</b>				<b>11.44%</b>				<b>9.55%</b>

Note: This table present the rate of change and the average for this change in total assets for 40 banks before and after the mandatory effective date of IFRS 9.

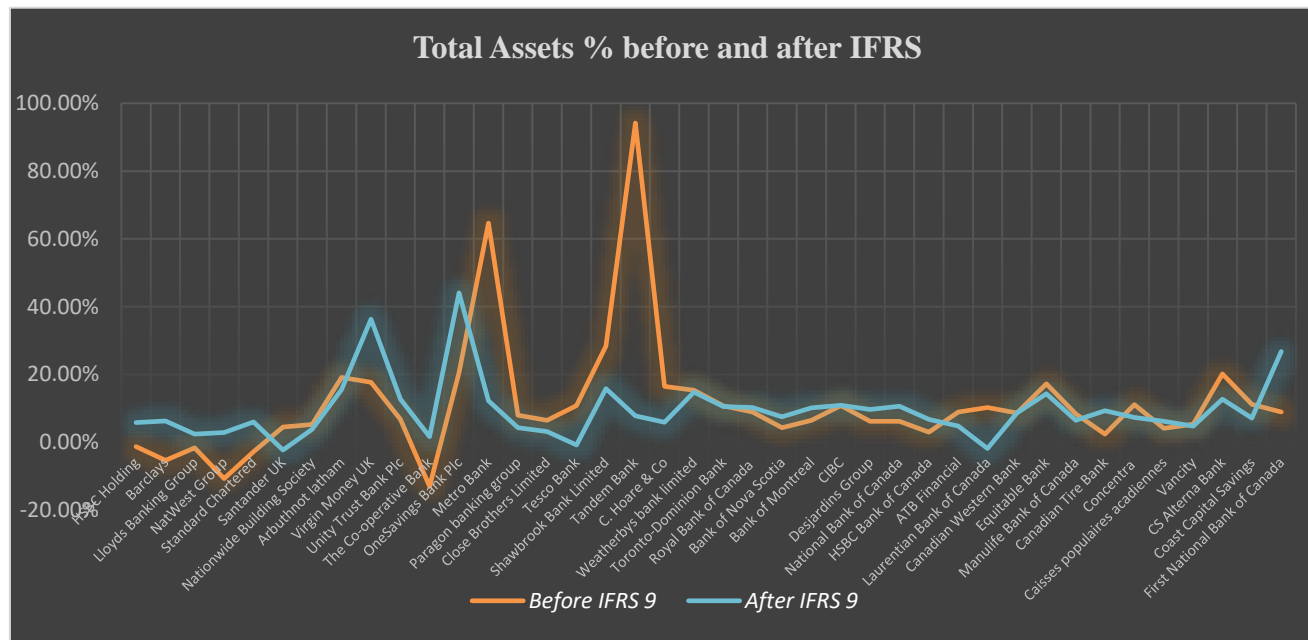


Fig A.1: The average rate of change in total assets before and after IFRS 9

Source: (Author's own, 2022)

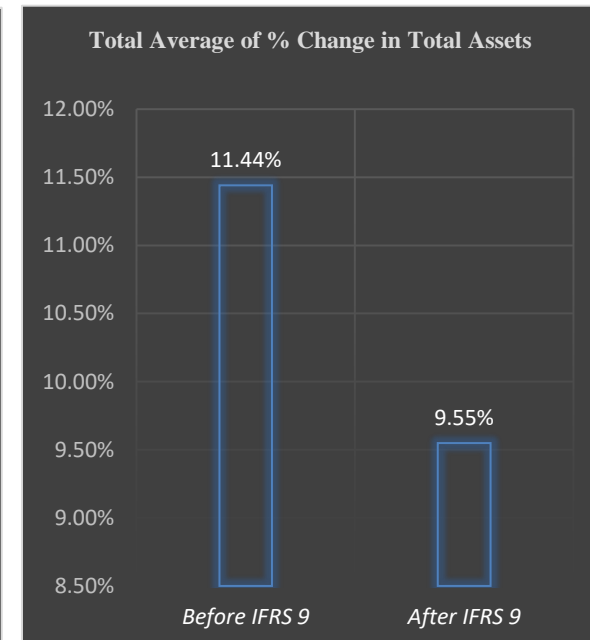


Fig A.2: Total average of % in Total Assets

Source: (Author's own, 2022)

**Appendix B: Liabilities**  
**Table B.1: Total Liabilities before and after the Mandatory Effective Date of IFRS 9**

	Banks	2014	2015	2016	2017	2018	2019	2020
UK (£)	HSBC Holding (\$)	2434161000000	2212138000000	2192408000000	2323900000000	2363875000000	2522484000000	2779169000000
	Barclays	1291948000000	1054148000000	1141761000000	1067232000000	1069504000000	1074569000000	1282632000000
	Lloyds Banking Group	804993000000	759708000000	768978000000	762966000000	747399000000	786087000000	821856000000
	NatWest Group	990571000000	761261000000	749252000000	688963000000	647745000000	679483000000	755667000000
	Standard Chartered	679176000000	591971000000	598034000000	611694000000	638410000000	669737000000	738321000000
	Santander UK	261784000000	265322000000	287483000000	298560000000	267463000000	265685000000	276396000000
	Nationwide Building Society	18102000000	185839000000	198009000000	210537000000	216695000000	225132000000	235079000000
	Arbuthnot latham	1273053000	2040155000	1030926000	1616857000	1979217000	2387044000	2659513000
	Virgin Money UK	25293000000	28888700000	33385100000	39829000000	40270000000	85978000000	85327000000
	Unity Trust Bank Plc	785520000	833090000	863772000	952280000	1001471000	1037074000	1340925000
	The Co-operative Bank	355684000000	276650000000	266298000000	229845000000	213527000000	218236000000	241251000000
	OneSavings Bank Plc	4686923000	5651100000	6162500000	8010300000	9779500000	20000100000	21037600000
	Metro Bank	3198119000	5740847000	9252753000	15253000000	20237000000	19817000000	21290000000
	Paragon banking group	9948000000	10909400000	12548900000	12672800000	13414400000	13287100000	14349500000
	Close Brothers Limited	6782800000	6947400000	7651300000	8049200000	8902300000	8534300000	8930700000
	Tesco Bank	7866300000	8589100000	9432800000	10908100000	12854500000	13989600000	9912500000
	Shawbrook Bank Limited	2535300000	3632400000	4209400000	5135600000	6145700000	7459000000	8124600000
	Tandem Bank	71252424	107665643	334320894	436857000	451664000	423223000	550614000
C. Hoare & Co	2597139000	3092814000	3977203000	4089523000	4220656000	4491700000	4838416000	
Weatherbys bank limited	469022815	495207072	598546890	719637338	834806067	919603646	1107224272	
Canada (\$)	Toronto-Dominion Bank	888511000000	1037345000000	1102753000000	1203805000000	1254863000000	1327589000000	1620366000000
	Royal Bank of Canada	886047000000	1010264000000	1108646000000	1138425000000	1254779000000	1345310000000	1537781000000
	Bank of Nova Scotia	756455000000	803018000000	838445000000	853648000000	930813000000	1015969000000	1065963000000
	Bank of Montreal	553255000000	601968000000	645607000000	665226000000	728321000000	801119000000	892668000000
	CIBC	396120000000	441756000000	477684000000	534027000000	561983000000	613024000000	728216000000
	Desjardins Group	210494000000	226403000000	235074000000	250322000000	269816000000	285567000000	331772000000
	National Bank of Canada	194927000000	204735000000	220104000000	232269000000	248116000000	266322000000	315242000000
	HSBC Bank of Canada	83204000000	88648000000	89242000000	90669000000	97823000000	100462000000	110465000000
	ATB Financial	35083295000	40066736000	43647458000	45399999000	48613935000	50700034000	51784413000
	Laurentian Bank of Canada	33304071000	38072477000	41031513000	44352248000	43398481000	41785466000	41556419000
	Canadian Western Bank	18914063000	20926628000	22879736000	23983611000	26432960000	28476553000	30605465000
	Equitable Bank	12151209000	14731468000	17996438000	19496133000	23757118000	26924738000	29098616000
	Manulife Bank of Canada	545480000000	660933000000	677858000000	687370000000	703120000000	759024000000	827343000000
	Canadian Tire Bank	8922400000	9198100000	9565500000	10060900000	11871800000	14013600000	14542400000
	Concentra	6452119000	7374901000	9002541000	8669729000	9200207000	8442814000	10536796000
	Caisses populaires acadiennes	3186990000	3326608000	3449473000	3601551000	3812049000	4009044000	4329797000
	Vancity	17540160000	18741510000	19985520000	20425991000	21560960000	21760984000	23457847000
	CS Alterna Bank	2526829000	2882616000	3593365000	4399350000	5287117000	5753837000	6264614000
	Coast Capital Savings	11464625000	12740815000	13926041000	15936660000	18416384000	18969596000	19546711000
	First National Bank of Canada	346868000	411187000	373911000	445668000	515908000	628247000	919386000

**Table B.2: The Average Rate of Change in Total Liabilities before and after IFRS 9**

	% of Change Before (IFRS 9)			Average	% of Change After (IFRS 9)			Average
	2015	2016	2017		2018	2019	2020	
<b>Banks</b>								
HSBC Holding	-9.12%	-0.89%	6.00%	-1.34%	1.72%	6.71%	10.18%	6.20%
Barclays	-18.41%	8.31%	-6.53%	-5.54%	0.21%	0.47%	19.36%	6.68%
Lloyds Banking Group	-5.63%	1.22%	-0.78%	-1.73%	-2.04%	5.18%	4.55%	2.56%
NatWest Group	-23.15%	-1.58%	-8.05%	-10.92%	-5.98%	4.90%	11.21%	3.38%
Standard Chartered	-12.84%	1.02%	2.28%	-3.18%	4.37%	4.91%	10.24%	6.51%
Santander UK	1.35%	8.35%	3.85%	4.52%	-10.42%	-0.66%	4.03%	-2.35%
Nationwide Building Society	2.66%	6.55%	6.33%	5.18%	2.92%	3.89%	4.42%	3.75%
Arbuthnot latham	60.26%	-49.47%	56.84%	22.54%	22.41%	20.61%	11.41%	18.14%
Virgin Money UK	14.22%	15.56%	19.30%	16.36%	1.11%	113.50%	-0.76%	37.95%
Unity Trust Bank Plc	6.06%	3.68%	10.25%	6.66%	5.17%	3.56%	29.30%	12.67%
The Co-operative Bank	-22.22%	-3.74%	-13.69%	-13.22%	-7.10%	2.21%	10.55%	1.88%
OneSavings Bank Plc	20.57%	9.05%	29.98%	19.87%	22.09%	104.51%	5.19%	43.93%
Metro Bank	79.51%	61.17%	64.85%	68.51%	32.68%	-2.08%	7.43%	12.68%
Paragon banking group	9.66%	15.03%	0.99%	8.56%	5.85%	-0.95%	8.00%	4.30%
Close Brothers Limited	2.43%	10.13%	5.20%	5.92%	10.60%	-4.13%	4.64%	3.70%
Tesco Bank	9.19%	9.82%	15.64%	11.55%	17.84%	8.83%	-29.14%	-0.82%
Shawbrook Bank Limited	43.27%	15.88%	22.00%	27.05%	19.67%	21.37%	8.92%	16.65%
Tandem Bank	51.10%	210.52%	30.67%	97.43%	3.39%	-6.30%	30.10%	9.06%
C. Hoare & Co	19.09%	28.59%	2.82%	16.83%	3.21%	6.42%	7.72%	5.78%
Weatherbys bank limited	5.58%	20.87%	20.23%	15.56%	16.00%	10.16%	20.40%	15.52%
Toronto-Dominion Bank	16.75%	6.31%	9.16%	10.74%	4.24%	5.80%	22.05%	10.70%
Royal Bank of Canada	14.02%	9.74%	2.69%	8.81%	10.22%	7.21%	14.31%	10.58%
Bank of Nova Scotia	6.16%	4.41%	1.81%	4.13%	9.04%	9.15%	4.92%	7.70%
Bank of Montreal	8.80%	7.25%	3.04%	6.36%	9.48%	10.00%	11.43%	10.30%
CIBC	11.52%	8.13%	11.80%	10.48%	5.23%	9.08%	18.79%	11.04%
Desjardins Group	7.56%	3.83%	6.49%	5.96%	7.79%	5.84%	16.18%	9.94%
National Bank of Canada	5.03%	7.51%	5.53%	6.02%	6.82%	7.34%	18.37%	10.84%
HSBC Bank of Canada	6.54%	0.67%	1.60%	2.94%	7.89%	2.70%	9.96%	6.85%
ATB Financial	14.20%	8.94%	4.02%	9.05%	7.08%	4.29%	2.14%	4.50%
Laurentian Bank of Canada	14.32%	7.77%	8.09%	10.06%	-2.15%	-3.72%	-0.55%	-2.14%

Canadian Western Bank	10.64%	9.33%	4.82%	8.27%	10.21%	7.73%	7.48%	8.47%
Equitable Bank	21.23%	22.16%	8.33%	17.24%	21.86%	13.33%	8.07%	14.42%
Manulife Bank of Canada	21.17%	2.56%	1.40%	8.38%	2.29%	7.95%	9.00%	6.41%
Canadian Tire Bank	3.09%	3.99%	5.18%	4.09%	18.00%	18.04%	3.77%	13.27%
Concentra	14.30%	22.07%	-3.70%	10.89%	6.12%	-8.23%	24.80%	7.56%
Caisses populaires acadiennes	4.38%	3.69%	4.41%	4.16%	5.84%	5.17%	8.00%	6.34%
Vancity	6.85%	6.64%	2.20%	5.23%	5.56%	0.93%	7.80%	4.76%
CS Alterna Bank	14.08%	24.66%	22.43%	20.39%	20.18%	8.83%	8.88%	12.63%
Coast Capital Savings	11.13%	9.30%	14.44%	11.62%	15.56%	3.00%	3.04%	7.20%
First National Bank of Canada	18.54%	-9.07%	19.19%	9.56%	15.76%	21.78%	46.34%	27.96%
<b>Total Average</b>				<b>11.63%</b>				<b>9.94%</b>

Note: This table present the rate of change and the average for this change in total liabilities for 40 banks before and after the mandatory effective date of IFRS 9.

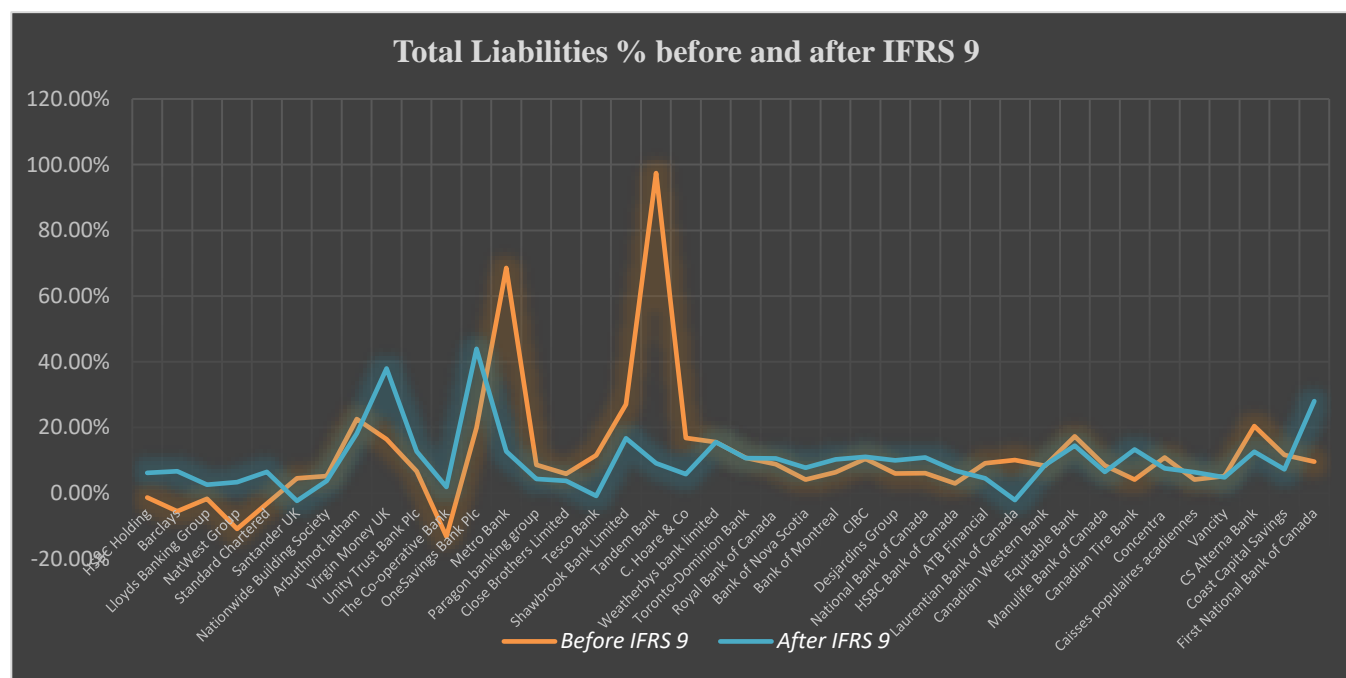


Fig B.1: The average rate of change in total liabilities before and after IFRS 9

Source: (Author's own, 2022)

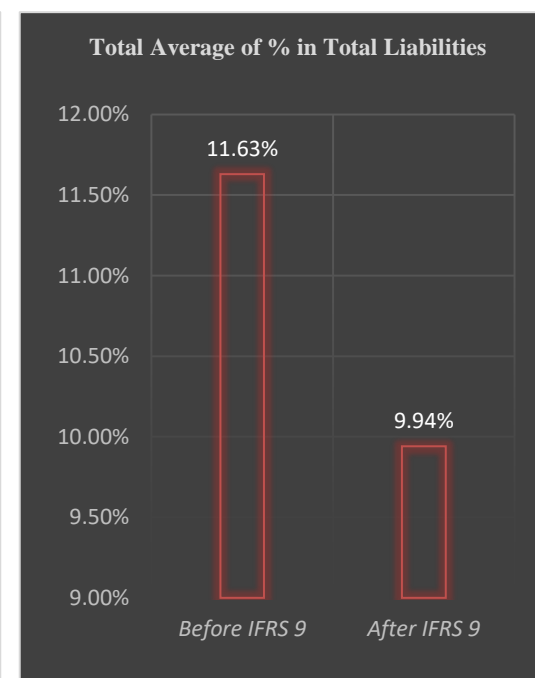


Fig B.2: Total average of % in Total Liabilities

Source: (Author's own, 2022)

**Appendix C: Net Income**  
**Table C.1: Net Income before and after the Mandatory Effective Date of IFRS 9**

Country	Banks	2014	2015	2016	2017	2018	2019	2020
UK (£)	HSBC Holding	14705000000	15096000000	3446000000	11879000000	15025000000	8708000000	6099000000
	Barclays	845000000	623000000	2828000000	-894000000	2583000000	3354000000	2461000000
	Lloyds Banking Group	1499000000	956000000	2514000000	3547000000	4400000000	3006000000	1387000000
	NatWest Group	-2711000000	-1185000000	-5248000000	1415000000	2084000000	3800000000	-434000000
	Standard Chartered	2705000000	-2196000000	-1910000000	1268000000	1109000000	2340000000	751000000
	Santander UK	1110000000	964000000	1319000000	1256000000	1104000000	733000000	471000000
	Nationwide Building Society	549000000	839000000	985000000	757000000	745000000	636000000	365000000
	Arbuthnot latham	17016000	26524000	227569000	6523000	-20033000	6176000	-1332000
	Virgin Money UK	8700000	111200000	140100000	182000000	-145000000	-179000000	-141000000
	Arbuthnot latham	970000	864000	2882000	3550000	5967000	7981000	7027000
	The Co-operative Bank	-225200000	-622800000	-418700000	232700000	-68700000	-153000000	-95700000
	OneSavings Bank Plc	51537000	84100000	120900000	126900000	140300000	158800000	196300000
	Metro Bank	-41112000	-49197000	-16753000	10800000	27100000	-182600000	-301700000
	Paragon banking group	97200000	107100000	116000000	117200000	145800000	127400000	91300000
	Close Brothers Limited	150200000	185700000	186500000	191200000	202300000	191900000	78000000
	Tesco Bank	118300000	129200000	185700000	137400000	141100000	142900000	103500000
	Shawbrook Bank Limited	34500000	58500000	64800000	61200000	84500000	93800000	58200000
	Tandem Bank	-4169880	-3960014	-6215241	-10618000	-13625000	-18447000	-19948000
C. Hoare & Co	23752000	28820000	22332000	49776000	23940000	25760000	17659000	
Weatherbys bank limited	4478744	5942020	5321007	4427630	6083991	6146080	1931008	
Canada (\$)	Toronto-Dominion Bank	7740000000	7925000000	8795000000	10324000000	11120000000	11434000000	11628000000
	Royal Bank of Canada	9004000000	10026000000	10458000000	11469000000	12431000000	12871000000	11437000000
	Bank of Nova Scotia	7298000000	7213000000	7368000000	8243000000	8724000000	8798000000	6853000000
	Bank of Montreal	4333000000	4405000000	4631000000	5350000000	5450000000	5758000000	5097000000
	CIBC	3215000000	3590000000	4295000000	4718000000	5284000000	5121000000	3792000000
	Desjardins Group	1433000000	1846000000	1667000000	2003000000	2141000000	2366000000	2174000000
	National Bank of Canada	1538000000	1619000000	1256000000	2024000000	2232000000	2322000000	2083000000
	HSBC Bank of Canada	649000000	447000000	524000000	668000000	718000000	595000000	308000000
	ATB Financial	276409000	328681000	108130000	150780000	274559000	138942000	101908000
	Laurentian Bank of Canada	140365000	102470000	151910000	206461000	210608000	159744000	101619000
	Canadian Western Bank	231299000	326602000	189334000	229655000	264647000	287846000	271550000
	Equitable Bank	106718000	125865000	138330000	160617000	165626000	206479000	223804000
	Manulife Bank of Canada	3593000000	2290000000	3133000000	2262000000	4887000000	5502000000	5576000000
	Canadian Tire Bank	639300000	735900000	747500000	818800000	783000000	894800000	862600000
	Concentra	23207000	25301000	28859000	33647000	40555000	30082000	25383000
	Canadian Tire Bank	24072000	12679000	31314000	4267000	14699000	19375000	20628000
	Vancity	54602000	65058000	61700000	91783000	80581000	60999000	46306000
	CS Alterna Bank	11607000	5930000	16324000	13637000	23072000	16508000	27414000
	Coast Capital Savings	62021000	58369000	58526000	75777000	82099000	44876000	35349000
First National Bank of Canada	273000	525000	700000	1207000	2206000	2633000	2617000	

**Table C.2: The Average Rate of Change in the Net Income before and after IFRS 9**

	% of Change before (IFRS 9)			Average	% of Change before (IFRS 9)			Average
	2015	2016	2017		2018	2019	2020	
<b>Banks</b>								
HSBC Holding	2.66%	-77.17%	244.72%	56.73%	26.48%	-42.04%	-29.96%	-15.17%
Barclays	-26.27%	353.93%	-131.6%	65.35%	-388.9%	29.85%	-26.62%	-128.57%
Lloyds Banking Group	-36.22%	162.97%	41.09%	55.95%	24.05%	-31.68%	-53.86%	-20.50%
NatWest Group	-56.29%	342.87%	-126.96	53.21%	47.28%	82.34%	-111.4%	6.07%
Standard Chartered	-181.1%	-91.30%	-763.8%	-345.45%	-12.54%	111.00%	-67.91%	10.19%
Santander UK	-13.15%	36.83%	-4.78%	6.30%	-12.10%	-33.61%	-35.74%	-27.15%
Nationwide Building Society	52.82%	17.40%	-23.15%	15.69%	-1.59%	-14.63%	-42.61%	-19.61%
Arbuthnot latham	55.88%	757.97%	-97.13%	238.91%	-407.1%	-130.8%	-121.5%	-219.84%
Virgin Money UK	1178.16%	25.99%	29.91%	411.35%	-179.6%	23.45%	-21.23%	-59.15%
Unity Trust Bank Plc	-10.93%	233.56%	23.18%	81.94%	68.08%	33.75%	-11.95%	29.96%
The Co-operative Bank	176.55%	-32.77%	-155.5%	-3.93%	-129.5%	122.71%	-37.45%	-14.76%
OneSavings Bank Plc	63.18%	43.76%	4.96%	37.30%	10.56%	13.19%	23.61%	15.79%
Metro Bank	19.67%	-65.95%	-164.4%	-70.25%	150.93%	-773.8%	65.22%	-185.88%
Paragon banking group	10.19%	8.31%	1.03%	6.51%	24.40%	-12.62%	-28.34%	-5.52%
Close Brothers Limited	23.64%	0.43%	2.52%	8.86%	5.81%	-5.14%	-59.35%	-19.56%
Tesco Bank	9.21%	43.73%	-26.01%	8.98%	2.69%	1.28%	-27.57%	-7.87%
Shawbrook Bank Limited	69.57%	10.77%	-5.56%	24.93%	38.07%	11.01%	-37.95%	3.71%
Tandem Bank	-5.03%	56.95%	70.84%	40.92%	28.32%	35.39%	8.14%	23.95%
C. Hoare & Co	21.34%	-22.51%	122.89%	40.57%	-51.90%	7.60%	-31.45%	-25.25%
Weatherbys bank limited	32.67%	-10.45%	-16.79%	1.81%	37.41%	1.02%	-68.58%	-10.05%
Toronto-Dominion Bank	2.39%	10.98%	17.38%	10.25%	7.71%	2.82%	1.70%	4.08%
Royal Bank of Canada	11.35%	4.31%	9.67%	8.44%	8.39%	3.54%	-11.14%	0.26%
Bank of Nova Scotia	-1.16%	2.15%	11.88%	4.29%	5.84%	0.85%	-22.11%	-5.14%
Bank of Montreal	1.66%	5.13%	15.53%	7.44%	1.87%	5.65%	-11.48%	-1.32%
CIBC	11.66%	19.64%	9.85%	13.72%	12.00%	-3.08%	-25.95%	-5.68%
Desjardins Group	28.82%	-9.70%	20.16%	13.09%	6.89%	10.51%	-8.11%	3.09%
National Bank of Canada	5.27%	-22.42%	61.15%	14.66%	10.28%	4.03%	-10.29%	1.34%
HSBC Bank of Canada	-31.12%	17.23%	27.48%	4.53%	7.49%	-17.13%	-48.24%	-19.29%
ATB Financial	18.91%	-67.10%	39.44%	-2.92%	82.09%	-49.39%	-26.65%	2.01%

Laurentian Bank of Canada	-27.00%	48.25%	35.91%	19.05%	2.01%	-24.15%	-36.39%	-19.51%
Canadian Western Bank	41.20%	-42.03%	21.30%	6.82%	15.24%	8.77%	-5.66%	6.11%
Equitable Bank	17.94%	9.90%	16.11%	14.65%	3.12%	24.67%	8.39%	12.06%
Manulife Bank of Canada	-36.26%	36.81%	-27.80%	-9.08%	116.05%	12.58%	1.34%	43.33%
Canadian Tire Bank	15.11%	1.58%	9.54%	8.74%	-4.37%	14.28%	-3.60%	2.10%
Concentra	9.02%	14.06%	16.59%	13.23%	20.53%	-25.82%	-15.62%	-6.97%
Caisses populaires acadiennes	-47.33%	146.98%	-86.37%	4.42%	244.48%	31.81%	6.47%	94.25%
Vancity	19.15%	-5.16%	48.76%	20.91%	-12.20%	-24.30%	-24.09%	-20.20%
CS Alterna Bank	-48.91%	175.28%	-16.46%	36.64%	69.19%	-28.45%	66.06%	35.60%
Coast Capital Savings	-5.89%	0.27%	29.48%	7.95%	8.34%	-45.34%	-21.23%	-19.41%
First National Bank of Canada	92.31%	33.33%	72.43%	66.02%	82.77%	19.36%	-0.61%	33.84%
<b>Total Average</b>				<b>24.96%</b>				<b>-13.22</b>

Note: This table present the rate of change and the average for this change in net income for 40 banks before and after the mandatory effective date of IFRS 9.

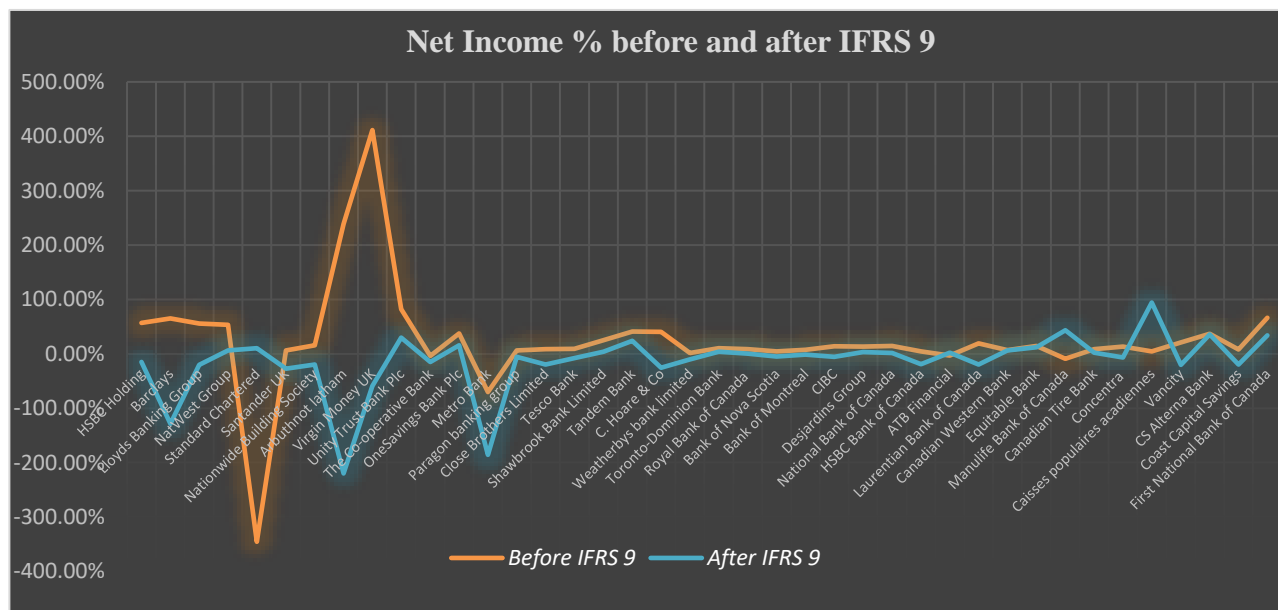


Fig C.1: The average rate of change in Net Income before and after IFRS 9

Source: (Author's own, 2022)

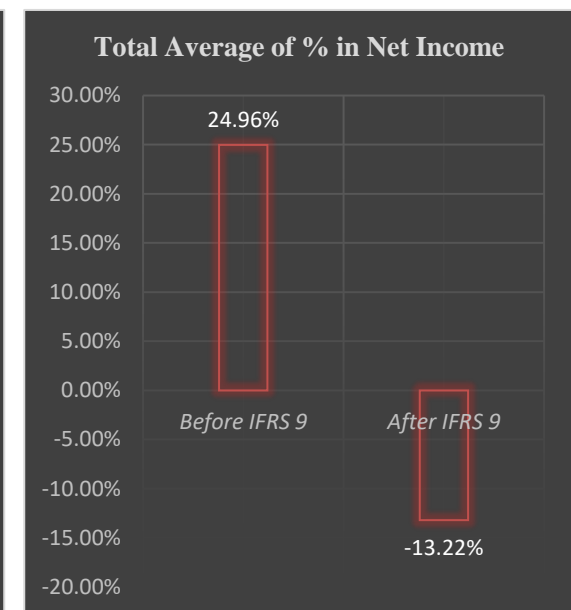


Fig C.2: Total average of % in Net Income

Source: (Author's own, 2022)

**Appendix D: Equity**  
**Table D.1 Total Equity before and after the Mandatory Effective Date of IFRS 9**

Country	Banks	2014	2015	2016	2017	2018	2019	2020
UK (£)	HSBC Holding	199978000000	197518000000	182578000000	197871000000	194249000000	192668000000	204995000000
	Barclays	65958000000	65864000000	71365000000	66016000000	63779000000	65660000000	66882000000
	Lloyds Banking Group	49903000000	46980000000	48815000000	49143000000	50199000000	47806000000	49413000000
	NatWest Group	60192000000	54147000000	49404000000	49093000000	46490000000	43556000000	43824000000
	Standard Chartered	46738000000	48512000000	48658000000	51807000000	50352000000	50661000000	50729000000
	Santander UK	14193000000	16084000000	15659000000	16205000000	15909000000	16017000000	15936000000
	Nationwide Building Society	8906000000	9741000000	10930000000	11133000000	12403000000	13169000000	12962000000
	Arbuthnot latham	173569000	191404000	234358000	236375000	195956000	208335000	194023000
	Virgin Money UK	1243800000	1340300000	1670500000	3402000000	3186000000	5021000000	4932000000
	Arbuthnot latham	47206000	49980000	57175000	60096000	75423000	85132000	90669000
	The Co-operative Bank	2014500000	1363300000	958500000	1505600000	1750100000	1611900000	1474400000
	OneSavings Bank Plc	249604000	319300000	418400000	578800000	680700000	1417000000	1616900000
	Metro Bank	462401000	407175000	804535000	1089000000	1398000000	1583000000	1289000000
	Paragon banking group	947100000	969500000	969500000	1009400000	1073500000	1108400000	1156000000
	Close Brothers Limited	917600000	1009900000	1096900000	1236000000	1348700000	1176400000	1198000000
	Tesco Bank	1381400000	1470600000	1565800000	1670500000	1767800000	1667900000	1731000000
	Shawbrook Bank Limited	218700000	367600000	437200000	623100000	673400000	758200000	807100000
	Tandem Bank	10449179	11531280	21214705	55180000	42013000	33566000	45826000
C. Hoare & Co	219667000	239668000	279300000	319704000	352457000	371389000	393721000	
Weatherbys bank limited	27766049	32153936	36012494	39201432	43562042	36505137	37354176	
Canada (\$)	Toronto-Dominion Bank	56231000000	67028000000	74214000000	75190000000	80040000000	87701000000	95499000000
	Royal Bank of Canada	54503000000	63944000000	71612000000	74428000000	79955000000	83625000000	86767000000
	Bank of Nova Scotia	49211000000	53479000000	57821000000	61625000000	67680000000	70192000000	70503000000
	Bank of Montreal	35404000000	39913000000	42328000000	44354000000	45727000000	51076000000	56593000000
	CIBC	18783000000	21553000000	23673000000	31237000000	35116000000	38580000000	41335000000
	Desjardins Group	18893000000	21725000000	23293000000	24773000000	25649000000	27429000000	30263000000
	National Bank of Canada	10502000000	11355000000	12102000000	13558000000	14355000000	15136000000	16383000000
	HSBC Bank of Canada	5000000000	5376000000	5415000000	5710000000	5583000000	6109000000	6882000000
	ATB Financial	2583934000	3008187000	3109820000	3147286000	3279156000	3644117000	4081109000
	Laurentian Bank of Canada	1544610000	1587027000	1974827000	2330410000	2496202000	2567661000	2611241000
	Canadian Western Bank	1694593000	1911899000	2342813000	2463842000	2588503000	2947682000	3332400000
	Equitable Bank	703694000	796116000	977150000	1138117000	1280027000	1467714000	1647702000
	Manulife Bank of Canada	33926000000	41938000000	42823000000	42163000000	47151000000	50106000000	53006000000
	Canadian Tire Bank	5630800000	5789700000	5737300000	5566100000	5415000000	5504700000	5834700000
	Concentra	294366000	424805000	434193000	456943000	479202000	501888000	527115000
	Canadian Tire Bank	358473000	364542000	394097000	398527000	410036000	431675000	466030000
	Vancity	1019585000	1088409000	1146389000	1242011000	1331611000	1396384000	1460040000
	CS Alterna Bank	184845000	188391000	213213000	296061000	321200000	391619000	438277000
	Coast Capital Savings	935677000	995278000	1043177000	1111850000	1203535000	1259366000	1326173000
	First National Bank of Canada	31742000	32596000	33165000	34241000	37690000	43923000	46348000

**Table D.2: The Average Rate of Change in Total Equity before and after IFRS 9**

	% of Change before (IFRS 9)			Average	% of Change after (IFRS 9)			Average
	2015	2016	2017		2018	2019	2020	
<b>Banks</b>								
HSBC Holding	-1.23%	-7.56%	8.38%	-0.14%	-1.83%	-0.81%	6.40%	1.25%
Barclays	-0.14%	8.35%	-7.50%	0.24%	-3.39%	2.95%	1.86%	0.47%
Lloyds Banking Group	-5.86%	3.91%	0.67%	-0.43%	2.15%	-4.77%	3.36%	0.25%
NatWest Group	-10.04%	-8.76%	-0.63%	-6.48%	-5.30%	-6.31%	0.62%	-3.67%
Standard Chartered	3.80%	0.30%	6.47%	3.52%	-2.81%	0.61%	0.13%	-0.69%
Santander UK	13.32%	-2.64%	3.49%	4.72%	-1.83%	0.68%	-0.51%	-0.55%
Nationwide Building Society	9.38%	12.21%	1.86%	7.81%	11.41%	6.18%	-1.57%	5.34%
Arbuthnot latham	10.28%	22.44%	0.86%	11.19%	-17.10%	6.32%	-6.87%	-5.88%
Virgin Money UK	7.76%	24.64%	103.65%	45.35%	-6.35%	57.60%	-1.77%	16.49%
Unity Trust Bank Plc	5.88%	14.40%	5.11%	8.46%	25.50%	12.87%	6.50%	14.96%
The Co-operative Bank	-32.33%	-29.69%	57.08%	-1.65%	16.24%	-7.90%	-8.53%	-0.06%
OneSavings Bank Plc	27.92%	31.04%	38.34%	32.43%	17.61%	108.17%	14.11%	46.63%
Metro Bank	-11.94%	97.59%	35.36%	40.33%	28.37%	13.23%	-18.57%	7.68%
Paragon banking group	2.37%	0.00%	4.12%	2.16%	6.35%	3.25%	4.29%	4.63%
Close Brothers Limited	10.06%	8.61%	12.68%	10.45%	9.12%	-12.78%	1.84%	-0.61%
Tesco Bank	6.46%	6.47%	6.69%	6.54%	5.82%	-5.65%	3.78%	1.32%
Shawbrook Bank Limited	68.08%	18.93%	42.52%	43.18%	8.07%	12.59%	6.45%	9.04%
Tandem Bank	10.36%	83.98%	160.10%	84.81%	-23.86%	-20.11%	36.53%	-2.48%
C. Hoare & Co	9.11%	16.54%	14.47%	13.37%	10.24%	5.37%	6.01%	7.21%
Weatherbys bank limited	15.80%	12.00%	8.86%	12.22%	11.12%	-16.20%	2.33%	-0.92%
Toronto-Dominion Bank	19.20%	10.72%	1.32%	10.41%	6.45%	9.57%	8.89%	8.30%
Royal Bank of Canada	17.32%	11.99%	3.93%	11.08%	7.43%	4.59%	3.76%	5.26%
Bank of Nova Scotia	8.67%	8.12%	6.58%	7.79%	9.83%	3.71%	0.44%	4.66%
Bank of Montreal	12.74%	6.05%	4.79%	7.86%	3.10%	11.70%	10.80%	8.53%
CIBC	14.75%	9.84%	31.95%	18.85%	12.42%	9.86%	7.14%	9.81%
Desjardins Group	14.99%	7.22%	6.35%	9.52%	3.54%	6.94%	10.33%	6.94%
National Bank of Canada	8.12%	6.58%	12.03%	8.91%	5.88%	5.44%	8.24%	6.52%
HSBC Bank of Canada	7.52%	0.73%	5.45%	4.56%	-2.22%	9.42%	12.65%	6.62%

ATB Financial	16.42%	3.38%	1.20%	7.00%	4.19%	11.13%	11.99%	9.10%
Laurentian Bank of Canada	2.75%	24.44%	18.01%	15.06%	7.11%	2.86%	1.70%	3.89%
Canadian Western Bank	12.82%	22.54%	5.17%	13.51%	5.06%	13.88%	13.05%	10.66%
Equitable Bank	13.13%	22.74%	16.47%	17.45%	12.47%	14.66%	12.26%	13.13%
Manulife Bank of Canada	23.62%	2.11%	-1.54%	8.06%	11.83%	6.27%	5.79%	7.96%
Canadian Tire Bank	2.82%	-0.91%	-2.98%	-0.36%	-2.71%	1.66%	5.99%	1.65%
Concentra	44.31%	2.21%	5.24%	17.25%	4.87%	4.73%	5.03%	4.88%
Caisses populaires acadiennes	1.69%	8.11%	1.12%	3.64%	2.89%	5.28%	7.96%	5.37%
Vancity	6.75%	5.33%	8.34%	6.81%	7.21%	4.86%	4.56%	5.55%
CS Alterna Bank	1.92%	13.18%	38.86%	17.98%	8.49%	21.92%	11.91%	14.11%
Coast Capital Savings	6.37%	4.81%	6.58%	5.92%	8.25%	4.64%	5.30%	6.06%
First National Bank of Canada	2.69%	1.75%	3.24%	2.56%	10.07%	16.54%	5.52%	10.71%
<b>Total Average</b>				<b>12.80%</b>				<b>6.25%</b>

Note: This table present the rate of change and the average for this change in total equity for 40 banks before and after the mandatory effective date of IFRS 9.

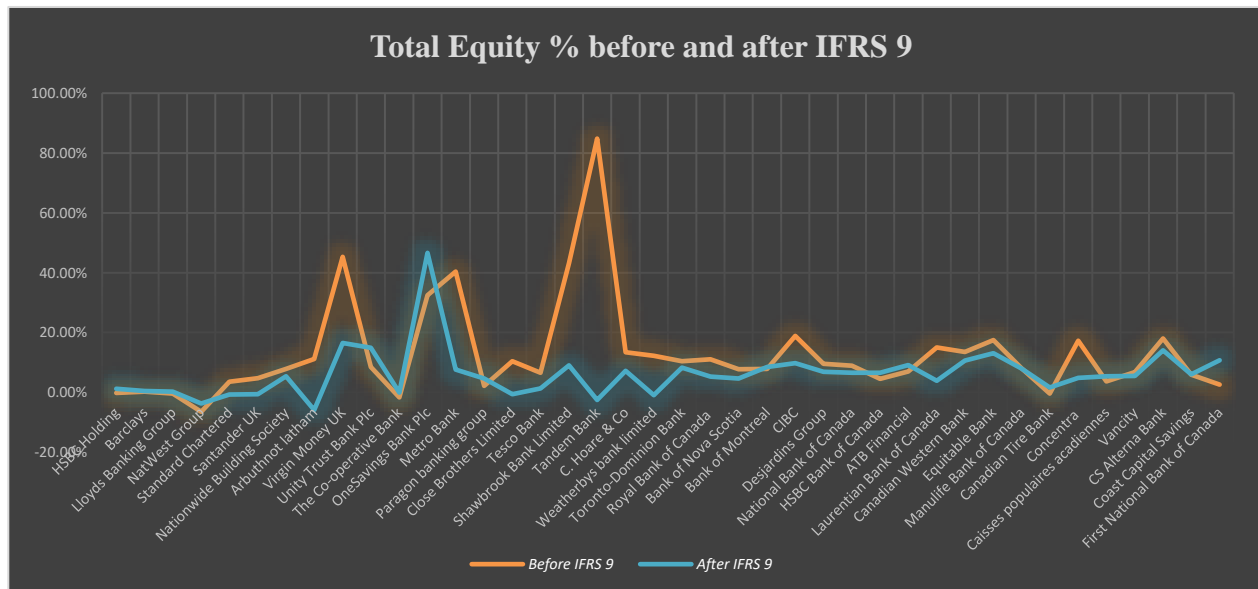


Fig D.1: The average rate of change in Total Equity before and after IFRS 9

Source: (Author's own, 2022)

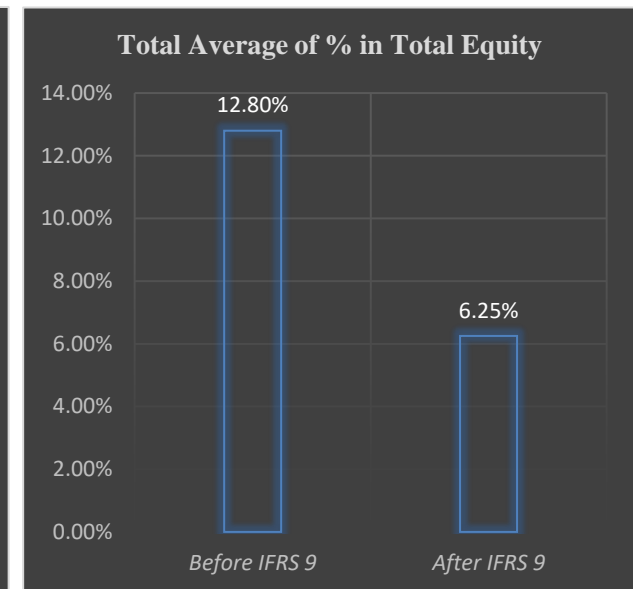


Fig D.2: Total average of % in Total Equity

Source: (Author's own, 2022)

## Appendix E: Cash Flows

### Table E.1: Net Cash Flows before and after the Mandatory Effective Date of IFRS 9

Country	Banks	2014	2015	2016	2017	2018	2019	2020
UK (£)	HSBC Holding	301301000000	243863000000	274550000000	337412000000	312911000000	293742000000	468323000000
	Barclays	78479000000	86556000000	144110000000	204612000000	193737000000	66613000000	210142000000
	Lloyds Banking Group	65147000000	71953000000	62388000000	58708000000	55224000000	57811000000	75467000000
	NatWest Group	107904000000	103592000000	98570000000	122605000000	108811000000	100588000000	139199000000
	Standard Chartered	129870000000	88428000000	96977000000	87231000000	97500000000	77454000000	97874000000
	Santander UK	27363000000	20351000000	25705000000	42226000000	26029000000	27817000000	45582000000
	Nationwide Building Society	6989000000	7250000000	12063000000	15243000000	17439000000	13874000000	14474000000
	Arbuthnot latham	147782000	397189000	232703000	383780000	459498000	372166000	747066000
	Virgin Money UK	1533800000	1461400000	1372200000	6952000000	6542000000	11131000000	9814000000
	Arbuthnot latham	316246000	417282000	313374000	356166000	280923000	300958000	566949000
	The Co-operative Bank	5577100000	3139700000	3266300000	4469400000	2193900000	2436600000	4229500000
	OneSavings Bank Plc	767606000	355100000	418200000	1165900000	1324200000	2102800000	2370600000
	Metro Bank	215670000	282148000	500428000	2206000000	2446000000	2989000000	2993000000
	Paragon banking group	847700000	1055300000	1236400000	1496300000	1309500000	1224400000	1924600000
	Close Brothers Limited	1238700000	1103700000	923300000	859600000	1251700000	1138900000	1413300000
	Tesco Bank	484600000	613300000	551800000	788600000	1303500000	1043400000	1362300000
	Shawbrook Bank Limited	348000000	550500000	450000000	777000000	686900000	1111200000	1346200000
	Tandem Bank	57037267	33016251	41077361	121752000	124569000	89436000	164928000
C. Hoare & Co	594213000	607801000	1299371000	851100000	1246040000	1597127000	1228146000	
Weatherbys bank limited	47111106	135943695	215787940	271992229	297773395	261049665	326087320	
Canada (\$)	Toronto-Dominion Bank	2781000000	3154000000	3907000000	3971000000	4735000000	4863000000	6445000000
	Royal Bank of Canada	17421000000	12452000000	14929000000	28407000000	30209000000	26310000000	118888000000
	Bank of Nova Scotia	5828000000	6724000000	6855000000	7825000000	8997000000	10904000000	11123000000
	Bank of Montreal	28386000000	40295000000	31653000000	32599000000	42142000000	48803000000	57408000000
	CIBC	2694000000	3053000000	3500000000	3440000000	4380000000	3840000000	43531000000
	Desjardins Group	1781000000	1716000000	1876000000	2435000000	3384000000	3709000000	12126000000
	National Bank of Canada	8086000000	7567000000	8183000000	8802000000	12756000000	13698000000	29142000000
	HSBC Bank of Canada	2337000000	1983000000	1650000000	1880000000	1333000000	1357000000	17279000000
	ATB Financial	438917000	383791000	310844000	314300000	285527000	200002000	1312545000
	Laurentian Bank of Canada	126247000	109055000	123716000	111978000	116490000	90658000	69661000
	Canadian Western Bank	-37667000	-29604000	1857000	-37644000	97907000	99454000	61542000
	Equitable Bank	230063000	423366000	444179000	460930000	477243000	508853000	557743000
	Manulife Bank of Canada	20437000000	17002000000	14238000000	15098000000	15382000000	19548000000	25583000000
	Canadian Tire Bank	647800000	900600000	823800000	437000000	470400000	470400000	195100000
	Concentra	80163000	53713000	194379000	425245000	174170000	402528000	763710000
	Canadian Tire Bank	65937000	114586000	99857000	100193000	198146000	184675000	132987000
	Vancity	195646000	115507000	187552000	26244000	167160000	132716000	153907000
	CS Alterna Bank	62585000	123523000	191830000	295769000	160634000	537175000	1383859000
	Coast Capital Savings	146808000	585502000	162130000	110550000	172012000	188546000	180109000
	First National Bank of Canada	82391000	144601000	58365000	78564000	137311000	202685000	441737000

**Table E.2: The average rate of change in the cash flows before and after IFRS 9**

	% of Change before (IFRS 9)			Average	% of Change after (IFRS 9)			Average
	2015	2016	2017		2018	2019	2020	
<b>Banks</b>								
HSBC Holding	-19.06%	12.58%	22.90%	5.47%	-7.26%	-6.13%	59.43%	15.35%
Barclays	10.29%	66.49%	41.98%	39.59%	-5.31%	-65.62%	215.47%	48.18%
Lloyds Banking Group	10.45%	-13.29%	-5.90%	-2.91%	-5.93%	4.68%	30.54%	9.76%
NatWest Group	-4.00%	-4.85%	24.38%	5.18%	-11.25%	-7.56%	38.39%	6.53%
Standard Chartered	-31.91%	9.67%	-10.05%	-10.76%	11.77%	-20.56%	26.36%	5.86%
Santander UK	-25.63%	26.31%	64.27%	21.65%	-38.36%	6.87%	63.86%	10.79%
Nationwide Building Society	3.73%	66.39%	26.36%	32.16%	14.41%	-20.44%	4.32%	-0.57%
Arbuthnot latham	168.77%	-41.41%	64.92%	64.09%	19.73%	-19.01%	100.73%	33.82%
Virgin Money UK	-4.72%	-6.10%	406.63%	131.94%	-5.90%	70.15%	-11.83%	17.47%
Unity Trust Bank Plc	31.95%	-24.90%	13.66%	6.90%	-21.13%	7.13%	88.38%	24.80%
The Co-operative Bank	-43.70%	4.03%	36.83%	-0.95%	-50.91%	11.06%	73.58%	11.24%
OneSavings Bank Plc	-53.74%	17.77%	178.79%	47.61%	13.58%	58.80%	12.74%	28.37%
Metro Bank	30.82%	77.36%	340.82%	149.67%	10.88%	22.20%	0.13%	11.07%
Paragon banking group	24.49%	17.16%	21.02%	20.89%	-12.48%	-6.50%	57.19%	12.73%
Close Brothers Limited	-10.90%	-16.35%	-6.90%	-11.38%	45.61%	-9.01%	24.09%	20.23%
Tesco Bank	26.56%	-10.03%	42.91%	19.81%	65.29%	-19.95%	30.56%	25.30%
Shawbrook Bank Limited	58.19%	-18.26%	72.67%	37.53%	-11.60%	61.77%	21.15%	23.77%
Tandem Bank	-42.11%	24.42%	196.40%	59.57%	2.31%	-28.20%	84.41%	19.51%
C. Hoare & Co	2.29%	113.78%	-34.50%	27.19%	46.40%	28.18%	-23.10%	17.16%
Weatherbys bank limited	188.56%	58.73%	26.05%	91.11%	9.48%	-12.33%	24.91%	7.35%
Toronto-Dominion Bank	13.41%	23.87%	1.64%	12.97%	19.24%	2.70%	32.53%	18.16%
Royal Bank of Canada	-28.52%	19.89%	90.28%	27.22%	6.34%	-12.91%	351.87%	115.10%
Bank of Nova Scotia	15.37%	1.95%	14.15%	10.49%	14.98%	21.20%	2.01%	12.73%
Bank of Montreal	41.95%	-21.45%	2.99%	7.83%	29.27%	15.81%	17.63%	20.90%
CIBC	13.33%	14.64%	-1.71%	8.75%	27.33%	-12.33%	1033.62%	349.54%
Desjardins Group	-3.65%	9.32%	29.80%	11.82%	38.97%	9.60%	226.93%	91.84%
National Bank of Canada	-6.42%	8.14%	7.56%	3.10%	44.92%	7.38%	112.75%	55.02%
HSBC Bank of Canada	-15.15%	-16.79%	13.94%	-6.00%	-29.10%	1.80%	1173.32%	382.01%

ATB Financial	-12.56%	-19.01%	1.11%	-10.15%	-9.15%	-29.95%	556.27%	172.39%
Laurentian Bank of Canada	-13.62%	13.44%	-9.49%	-3.22%	4.03%	-22.18%	-23.16%	-13.77%
Canadian Western Bank	-21.41%	-106.27%	-2127.14%	-751.61%	-360.09%	1.58%	-38.12%	-132.21%
Equitable Bank	84.02%	4.92%	48.80%	45.91%	-27.79%	6.62%	9.61%	-3.85%
Manulife Bank of Canada	-16.81%	-16.26%	6.04%	-9.01%	1.88%	27.08%	30.87%	19.95%
Canadian Tire Bank	39.02%	-8.53%	-46.95%	-5.49%	7.64%	0.00%	-58.52%	-16.96%
Concentra	-33.00%	261.88%	118.77%	115.89%	-59.04%	131.11%	89.73%	53.93%
Caisses populaires acadiennes	73.78%	-12.85%	0.34%	20.42%	97.76%	-6.80%	-27.99%	20.99%
Vancity	-40.96%	62.37%	-86.01%	-21.53%	536.95%	-20.61%	15.97%	177.44%
CS Alterna Bank	97.37%	55.30%	54.18%	68.95%	-45.69%	234.41%	157.62%	115.45%
Coast Capital Savings	298.82%	-72.31%	-31.81%	64.90%	55.60%	9.61%	-4.47%	20.24%
First National Bank of Canada	75.51%	-59.64%	34.61%	16.83%	74.78%	47.61%	117.94%	80.11%
<b>Total Average</b>				<b>8.56%</b>				<b>47.19%</b>

Note: This table present the rate of change and the average for this change in cash flows for 40 banks before and after the mandatory effective date of IFRS 9.

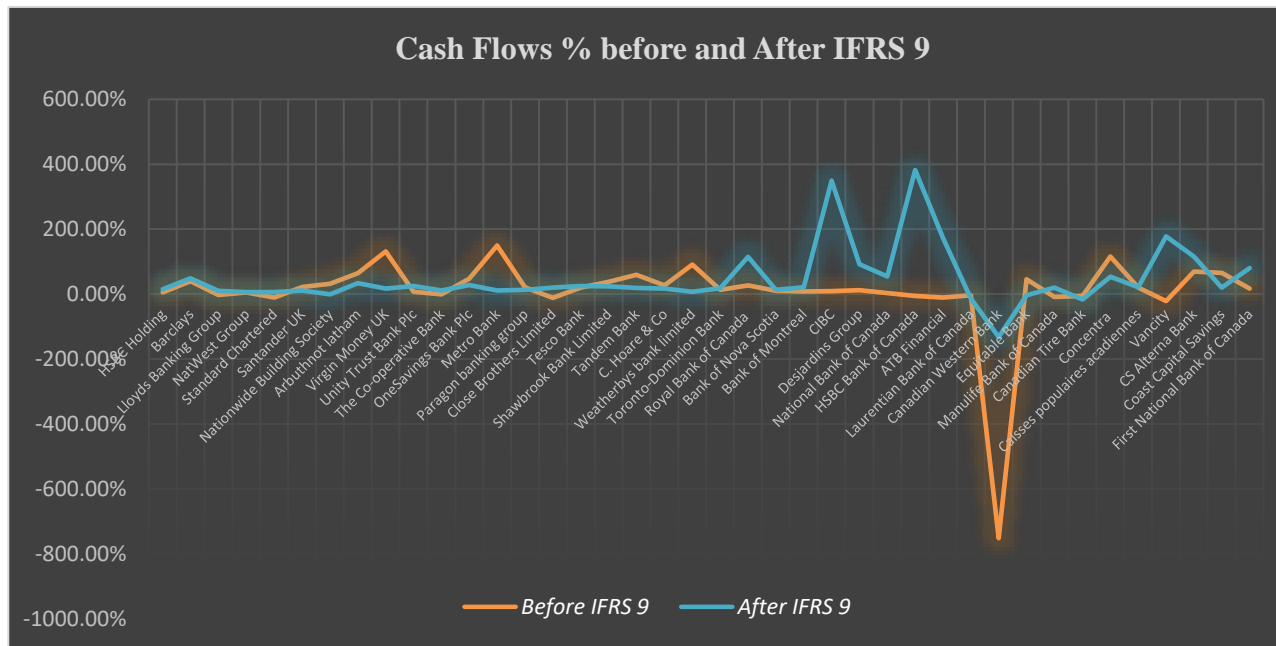


Fig E.1: The Average rate of change in Cash Flows before and after IFRS 9

Source: (Author's own, 2022)

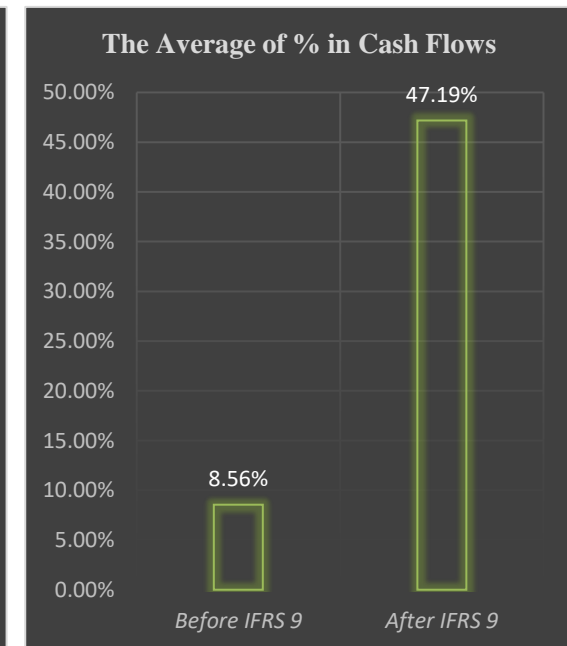
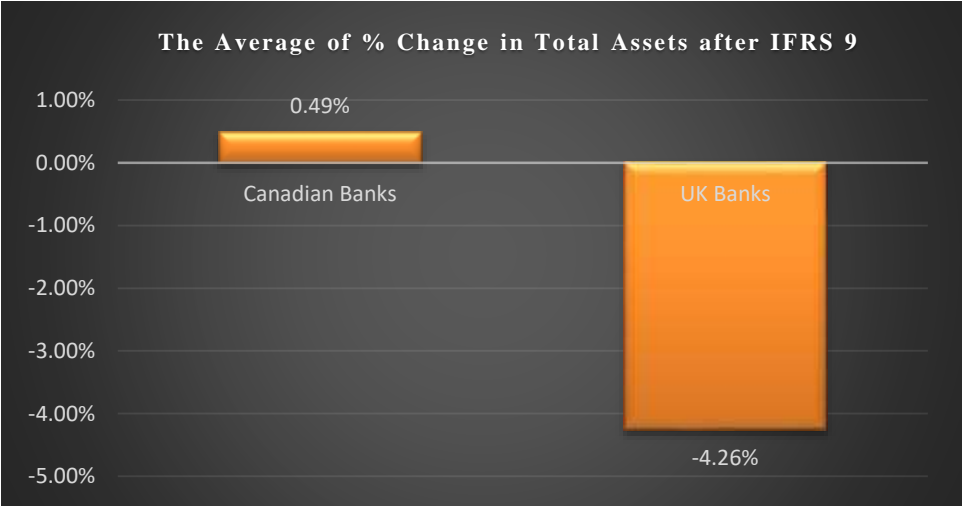


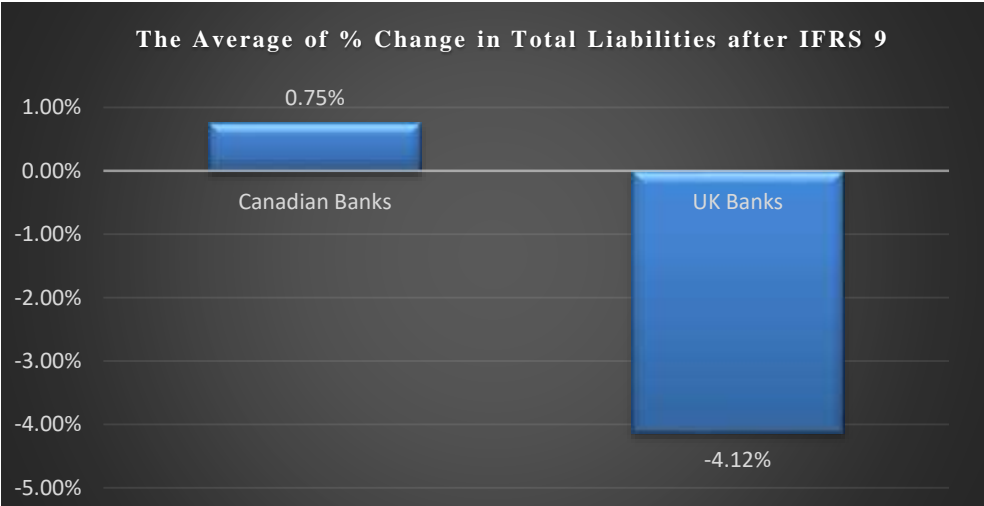
Fig E.2: Total average of % in Cash Flows

Source: (Author's own, 2022)

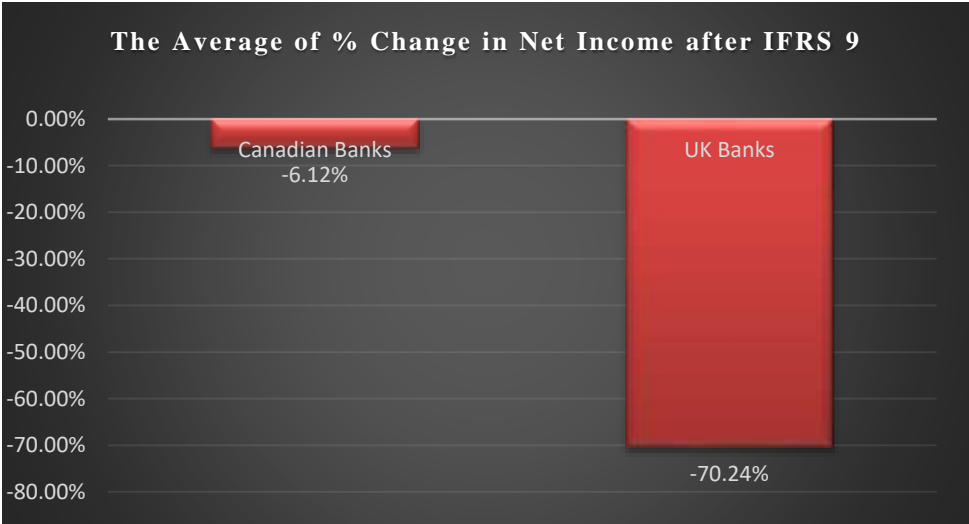
**Appendix F: UK and Canadian banks after IFRS 9**



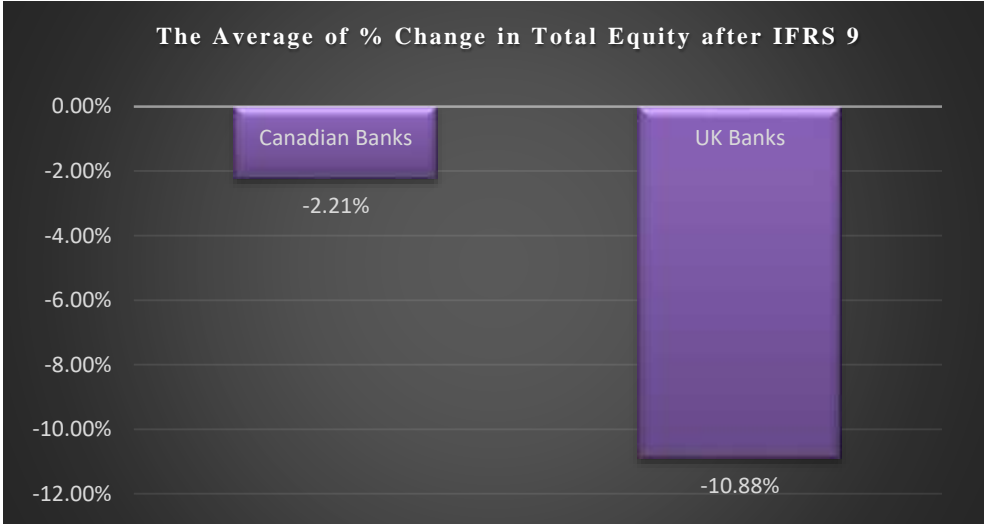
**Fig F.1: Total assets after IFRS 9 for UK vs Canadian Banks**



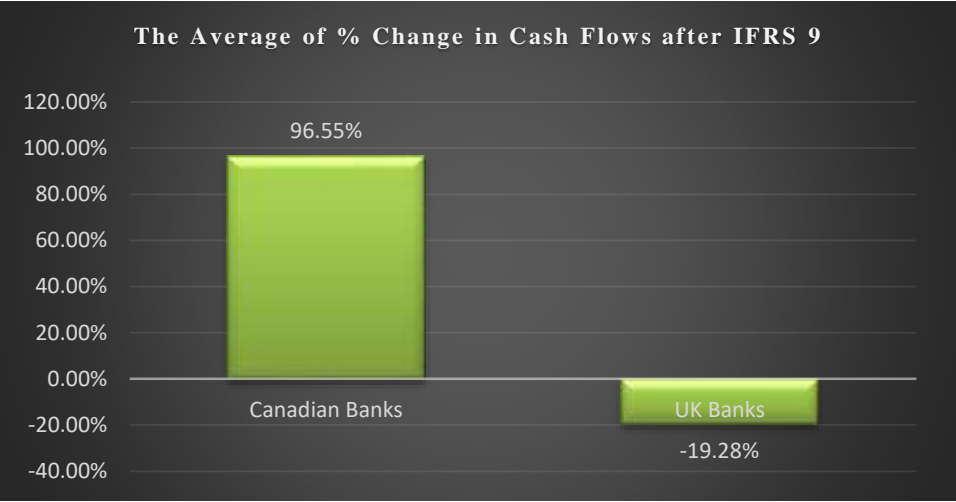
**Fig F.2: Total liabilities after IFRS 9 for UK vs Canadian Banks**



**Fig F.3: Net income after IFRS 9 for UK vs Canadian Banks**



**Fig F.4: Total equity after IFRS 9 for UK vs Canadian Bank**



**Fig F.5: Cash flows after IFRS 9 for UK vs Canadian Banks**  
Source: (Author's own, 2022)

## Appendix G: The Percentage of Financial Assets and Financial Liabilities

### Table F.1: Financial Assets to Total Assets

Bank	Assets					
	2020			2019		
	Total Assets	Financial Assets	Ratio %	Total Assets	Financial Assets	Ratio %
HSBC Holding	\$ 2,984,164,000,000	\$ 2,775,188,000,000	93.0%	\$ 2,715,152,000,000	\$ 2,528,448,000,000	93.1%
Barclays	£ 1,349,514,000,000	£ 1,200,422,000,000	89.0%	£ 1,140,229,000,000	£ 1,004,080,000,000	88.1%
Lloyds Banking Group	£ 871,269,000,000	£ 817,392,000,000	93.8%	£ 833,893,000,000	£ 777,400,000,000	93.2%
NatWest Group	£ 799,491,000,000	£ 757,265,000,000	94.7%	£ 723,039,000,000	£ 684,158,000,000	94.6%
Standard Chartered	£ 789,050,000,000	£ 722,327,000,000	91.5%	£ 720,398,000,000	£ 658,561,000,000	91.4%
Santander UK	£ 292,332,000,000	£ 285,008,000,000	97.5%	£ 281,702,000,000	£ 274,463,000,000	97.4%
Nationwide Building Society	£ 248,041,000,000	£ 244,911,000,000	98.7%	£ 238,301,000,000	£ 235,760,000,000	98.9%
Arbutnot latham	£ 2,853,536,000	£ 2,703,230,000	94.7%	£ 2,595,379,000	£ 2,454,519,000	94.6%
Virgin Money UK	£ 90,259,000,000	£ 88,065,000,000	97.6%	£ 90,999,000,000	£ 89,370,000,000	98.2%
Unity Trust Bank Plc	£ 1,431,594,000	£ 1,423,281,000	99.4%	£ 1,122,206,000	£ 1,111,127,000	99.0%
The Co-operative Bank	£ 25,599,500,000	£ 24,569,000,000	96.0%	£ 23,435,500,000	£ 22,437,700,000	95.7%
OneSavings Bank Plc	£ 22,654,500,000	£ 22,572,500,000	99.6%	£ 21,417,100,000	£ 21,325,000,000	99.6%
Metro Bank	£ 22,579,000,000	£ 18,526,000,000	82.0%	£ 21,400,000,000	£ 20,235,000,000	94.6%
Paragon banking group	£ 15,505,500,000	£ 15,129,400,000	97.6%	£ 14,395,500,000	£ 14,068,100,000	97.7%
Close Brothers Limited	£ 10,128,700,000	£ 9,468,500,000	93.5%	£ 9,710,700,000	£ 9,134,600,000	94.1%
Tesco Bank	£ 11,643,500,000	£ 10,932,500,000	93.9%	£ 15,657,500,000	£ 14,924,800,000	95.3%
Shawbrook Bank Limited	£ 8,931,700,000	£ 8,696,891,000	97.4%	£ 8,217,200,000	£ 7,965,800,000	96.9%
Tandem Bank	£ 596,440,000	£ 589,262,000	98.8%	£ 456,789,000	£ 445,062,000	97.4%
C. Hoare & Co	£ 5,232,137,000	£ 5,117,605,000	97.8%	£ 4,863,089,000	£ 4,756,780,000	97.8%
Weatherbys bank limited	£ 1,144,578,448	£ 1,129,973,585	98.7%	£ 956,108,783	£ 940,252,765	98.3%
Toronto-Dominion Bank	CAD 1,715,865,000,000	CAD 1,604,090,000,000	93.5%	CAD 1,415,290,000,000	CAD 1,328,027,000,000	93.8%
Royal Bank of Canada	CAD 1,624,548,000,000	CAD 1,541,639,000,000	94.9%	CAD 1,428,935,000,000	CAD 1,360,761,000,000	95.2%
Bank of Nova Scotia	CAD 1,136,466,000,000	CAD 1,074,944,000,000	94.6%	CAD 1,086,161,000,000	CAD 1,022,056,000,000	94.1%
Bank of Montreal	CAD 949,261,000,000	CAD 894,400,000,000	94.2%	CAD 852,195,000,000	CAD 798,470,000,000	93.7%
CIBC	CAD 769,551,000,000	CAD 725,218,000,000	94.2%	CAD 651,604,000,000	CAD 611,280,000,000	93.8%
Desjardins Group	CAD 362,035,000,000	CAD 345,786,000,000	95.5%	CAD 312,996,000,000	CAD 297,788,000,000	95.1%
National Bank of Canada	CAD 331,625,000,000	CAD 323,947,000,000	97.7%	CAD 281,458,000,000	CAD 275,027,000,000	97.7%
HSBC Bank of Canada	CAD 117,347,000,000	CAD 111,085,000,000	94.7%	CAD 106,571,000,000	CAD 100,668,000,000	94.5%
ATB Financial	CAD 55,865,522,000	CAD 54,630,966,000	97.8%	CAD 54,344,151,000	CAD 53,325,756,000	98.1%
Laurentian Bank of Canada	CAD 44,167,660,000	CAD 42,927,011,000	97.2%	CAD 44,353,127,000	CAD 42,961,663,000	96.9%
Canadian Western Bank	CAD 33,937,865,000	CAD 33,188,029,000	97.8%	CAD 31,424,235,000	CAD 30,889,123,000	98.3%
Equitable Bank	CAD 30,746,318,000	CAD 30,558,273,000	99.4%	CAD 28,392,452,000	CAD 28,231,364,000.00	99.4%
Manulife Bank of Canada	CAD 880,349,000,000	CAD 806,206,000,000	91.6%	CAD 809,130,000,000	CAD 771,084,000,000	95.3%
Canadian Tire Bank	CAD 20,377,100,000	CAD 12,854,500,000	63.1%	CAD 19,518,300,000	CAD 7,167,700,000	36.7%
Concentra	CAD 11,063,911,000	CAD 10,902,689,000	98.5%	CAD 8,944,702,000	CAD 8,814,937,000	98.5%
Caisses populaires acadiennes	CAD 4,795,827,000	CAD 4,526,807,000	94.4%	CAD 4,440,719,000	CAD 4,349,465,000	97.9%
Vancity	CAD 24,917,887,000	CAD 24,623,716,000	98.8%	CAD 23,157,368,000	CAD 22,887,092,000	98.8%
CS Alterna Bank	CAD 6,702,891,000	CAD 6,571,139,000	98.0%	CAD 6,145,456,000	CAD 6,022,929,000	98.0%
Coast Capital Savings	CAD 20,872,884,000	CAD 20,545,784,000	98.4%	CAD 20,228,962,000	CAD 19,909,342,000	98.4%
First National Bank of Canada	CAD 965,734,000	CAD 954,010,000	98.8%	CAD 672,170,000	CAD 664,400,000	98.8%
		<b>Average</b>	<b>95.0%</b>		<b>Average</b>	<b>94.7%</b>

Table F.2: Financial Liabilities to Total Liabilities

Bank	Liabilities					
	2020			2019		
	Total Liabilities	Financial Liabilities	Ratio %	Total Liabilities	Financial Liabilities	Ratio %
HSBC Holding	\$ 2,779,169,000,000	\$ 2,332,564,000,000	83.9%	\$ 2,522,484,000,000	\$ 2,112,577,000,000	83.7%
Barclays	£ 1,282,632,000,000	£ 1,223,310,000,000	95.4%	£ 1,074,569,000,000	£ 1,025,700,000,000	95.5%
Lloyds Banking Group	£ 821,856,000,000	£ 643,150,000,000	78.3%	£ 786,087,000,000	£ 611,583,000,000	77.8%
NatWest Group	£ 755,667,000,000	£ 668,823,000,000	88.5%	£ 679,483,000,000	£ 598,969,000,000	88.2%
Standard Chartered	£ 738,321,000,000	£ 683,607,000,000	92.6%	£ 669,737,000,000	£ 630,523,000,000	94.1%
Santander UK	£ 276,396,000,000	£ 272,862,000,000	98.7%	£ 265,685,000,000	£ 262,340,000,000	98.7%
Nationwide Building Society	£ 235,079,000,000	£ 233,218,000,000	99.2%	£ 225,132,000,000	£ 223,416,000,000	99.2%
Arbutnot latham	£ 2,659,513,000	£ 2,633,422,000	99.0%	£ 2,387,044,000	£ 2,352,480,000	98.6%
Virgin Money UK	£ 85,327,000,000	£ 82,187,000,000	96.3%	£ 85,978,000,000	£ 82,784,000,000	96.3%
Unity Trust Bank Plc	£ 1,340,925,000	£ 1,335,725,000	99.6%	£ 1,037,074,000	£ 1,030,435,000	99.4%
The Co-operative Bank	£ 24,125,100,000	£ 23,501,100,000	97.4%	£ 21,823,600,000	£ 21,296,000,000	97.6%
OneSavings Bank Plc	£ 21,037,600,000	£ 20,850,400,000	99.1%	£ 20,000,100,000	£ 19,748,100,000	98.7%
Metro Bank	£ 21,290,000,000	£ 20,714,000,000	97.3%	£ 19,817,000,000	£ 19,127,000,000	96.5%
Paragon banking group	£ 14,349,500,000	£ 14,229,100,000	99.2%	£ 13,287,100,000	£ 13,124,700,000	98.8%
Close Brothers Limited	£ 8,930,700,000	£ 8,422,800,000	94.3%	£ 8,534,300,000	£ 8,051,100,000	94.3%
Tesco Bank	£ 9,912,500,000	£ 9,528,400,000	96.1%	£ 13,989,600,000	£ 13,622,500,000	97.4%
Shawbrook Bank Limited	£ 8,124,600,000	£ 8,054,300,000	99.1%	£ 7,459,000,000	£ 7,343,300,000	98.4%
Tandem Bank	£ 550,614,000	£ 545,079,000	99.0%	£ 423,223,000	£ 419,280,000	99.1%
C. Hoare & Co	£ 4,838,416,000	£ 4,799,450,000	99.2%	£ 4,491,700,000	£ 4,447,011,000	99.0%
Weatherbys bank limited	£ 1,107,224,272	£ 1,102,360,320	99.6%	£ 919,603,646	£ 916,866,234	99.7%
Toronto-Dominion Bank	CAD 1,620,366,000,000	CAD 1,278,855,000,000	78.9%	CAD 1,327,589,000,000	CAD 1,079,769,000,000	81.3%
Royal Bank of Canada	CAD 1,537,781,000,000	CAD 1,455,735,000,000	94.7%	CAD 1,345,310,000,000	CAD 1,275,772,000,000	94.8%
Bank of Nova Scotia	CAD 1,065,963,000,000	CAD 1,003,359,000,000	94.1%	CAD 1,015,969,000,000	CAD 961,487,000,000	94.6%
Bank of Montreal	CAD 892,668,000,000	CAD 856,241,000,000	95.9%	CAD 801,119,000,000	CAD 762,397,000,000	95.2%
CIBC	CAD 728,216,000,000	CAD 696,400,000,000	95.6%	CAD 613,024,000,000	CAD 584,767,000,000	95.4%
Desjardins Group	CAD 331,772,000,000	CAD 260,446,000,000	78.5%	CAD 285,567,000,000	CAD 219,753,000,000	77.0%
National Bank of Canada	CAD 315,242,000,000	CAD 309,524,000,000	98.2%	CAD 266,322,000,000	CAD 260,145,000,000	97.7%
HSBC Bank of Canada	CAD 110,465,000,000	CAD 102,373,000,000	92.7%	CAD 100,462,000,000	CAD 95,986,000,000	95.5%
ATB Financial	CAD 51,784,413,000	CAD 49,660,710,000	95.9%	CAD 50,700,034,000	CAD 49,353,130,000	97.3%
Laurentian Bank of Canada	CAD 41,556,419,000	CAD 40,013,912,000	96.3%	CAD 41,785,466,000	CAD 40,524,797,000	97.0%
Canadian Western Bank	CAD 30,605,465,000	CAD 29,806,160,000.00	97.4%	CAD 28,476,553,000	CAD 26,108,239,000	91.7%
Equitable Bank	CAD 29,098,616,000	CAD 28,828,884,000	99.1%	CAD 26,924,738,000	CAD 26,656,207,000	99.0%
Manulife Bank of Canada	CAD 827,343,000,000	CAD 417,280,000,000	50.4%	CAD 759,024,000,000	CAD 365,055,000,000	48.1%
Canadian Tire Bank	CAD 14,542,400,000	CAD 10,264,300,000.00	70.6%	CAD 14,013,600,000	CAD 9,188,400,000	65.6%
Concentra	CAD 10,536,796,000	CAD 10,488,758,000	99.5%	CAD 8,442,814,000	CAD 8,363,301,000	99.1%
Caisses populaires acadiennes	CAD 4,329,797,000	CAD 4,034,623,000	93.2%	CAD 4,009,044,000	CAD 3,737,176,000	93.2%
Vancity	CAD 23,457,847,000	CAD 23,107,744,000	98.5%	CAD 21,760,984,000	CAD 21,429,148,000	98.5%
CS Alterna Bank	CAD 6,264,614,000	CAD 6,187,892,000.00	98.8%	CAD 5,753,837,000	CAD 5,677,182,000	98.7%
Coast Capital Savings	CAD 19,546,711,000	CAD 19,251,942,000	98.5%	CAD 18,969,596,000	CAD 18,643,835,000	98.3%
First National Bank of Canada	CAD 919,386,000	CAD 902,098,000.00	98.1%	CAD 628,247,000	CAD 615,285,000	97.9%
		<b>Average</b>	<b>93.4%</b>		<b>Average</b>	<b>93.2%</b>

## **Dedications and Acknowledgements**

*First, I give sincerely thanks to God for all his grants that he bestowed on me.*

*I would like to present my sincere thankfulness and dedicate my thesis to my beloved parents who have always encourage me to achieve every success, and all the sacrifices they have made to me. To my family, there's not a day that goes by, without me thinking of every single one of you.*

*I owe deepest thanks to the teachers and lecturers at the Faculties of Economics and Business who taught me during my Bachelor's, Master's and Doctoral degrees. My special and heartily thanks to my supervisor **Dr. Ildikó Orbán** who directed and encouraged me. This work came into existence with her supervision. I want to express my personal gratitude to the committee members for all of their helpful suggestions and remarks, which improved the quality of the dissertation.*

*Finally, I would like to thank my friends, fellow students and all the people who contributed in one way or another and enabled me to complete this dissertation.*

*May God bless you all.*

**Oday Tamimi**

## DECLARATION

I, undersigned (name: **Oday Tamimi**, date of birth: 24/10/1991) declares under penalty of perjury and certify with my signature that the dissertation, I submitted in order to obtain doctoral (PhD) degree is entirely my own work.

Furthermore, I declare the following:

- I examined the Code of the Károly Ihrig Doctoral School of Management and Business Administration and I acknowledge the points laid down in the code as mandatory;
- I handled the technical literature sources used in my dissertation fairly and I conformed to the provisions and stipulations related to the dissertation;
- I indicated the original source of other authors' unpublished thoughts and data in the references section in a complete and correct way in consideration of the prevailing copyright protection rules;
- No dissertation, which is fully or partly identical, to the present dissertation was submitted to any other university or doctoral school for the purpose of obtaining a PhD degree.

Debrecen, 03/03/2023.



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*Oday Tamimi*