To Determine the Impact of How Risk Managers of Irish Financial and Non-Financial Institutions can Effectively Utilized Derivatives Contracts to Hedge Risk- (‘Risk Reduction’)

Dissertation submitted in part fulfilment of the requirements for the degree of

M.Sc. in International Accounting and Finance

@ Dublin Business School

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Dublin Business School
Excellence Through Learning

August 2015
Declaration

I declare that this research is my original work and that it has never been presented to any institution or university for the award of Degree or Diploma. In addition, I have referenced correctly all literature and sources used in this work and this work is fully compliant with the Dublin Business School’s academic honesty policy.

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Relevant word count: 25,000 approx.

Supervisor Name:  Mr. Enda Murphy
Acknowledgments

Throughout this degree journey, I give all thanks to Almighty for sparing my life and my family members, blessing me with good health, peace of mind and strength to begin and complete this course. I am most grateful for all He has done for me. There are a number of people that I would like to acknowledge for their assistance and support to me. Perhaps, my profound gratitude goes to all and sundry who have assisted me in one way or the other in making this dissertation and, my Master's Degree in International Accounting and Finance a reality.

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Sowemimo and Mr and Mrs Oriyomi Toyosi Adekoya for their moral, love
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Dedication

May all the praises be to Almighty God, the one who make all things
possible, where human beings thinks it is impossible.

To my darling wife, Simisola, and the greatest gifts and sources of our
happiness, Tomisin, Temitope, Timitayo and Titilopemi.
Abstract

Derivatives contracts (DC) which have grown world-wide can effectively be used to reduce risk through hedging strategies. Many studies, both theoretical and empirical, address the important roles of derivatives markets in an economy and this study reveals that there are positive impacts on FNFLs to use DC to hedge risks and create liquidity efficiency income that is more effective and welfare-improving method to deal with price volatility. Nevertheless, it has been established that using derivatives contracts (for instance CDS) do have negative effects, although not in Ireland but in the US, which can lead to exacerbated volatility and seldom cause crisis (financial and economic) that could amplify the negative effects and accelerate contagion as experienced in Ireland in 2008. Thus, loss venture of this derivatives for the institutions concerned has to do with the problem of application, that is, the way in which the derivatives contracts has been used (i.e. wrong motive).

Perhaps, the fundamental reasons for the derivatives negative effects on risk management are associated with the leverage nature of derivatives markets transactions, the non-quantification of risks, non-setting of risks limits, non-monitoring of both, lack of information and non-transparent reporting of transaction risks, non-evaluation of the soundness of the counter-party risks, unsophisticated or insufficient risk management controls in financial and non-financial institutions, as well as weak regulatory and supervision system termed ‘light touch regulation’.

Interestingly, academic literature clearly concludes that for countries derivatives markets to fulfil the functions of risk reduction, price discovery, hedging role, redistribution of income and stabilization compared to what has occurred in established markets, countries financial systems needs to be supported by sound macroeconomic fundamentals and updated financial policies and regulations. Likewise, scholarships have argued that while there is no uniform optimal development strategy, that countries can adapt to sequence or structure their derivatives markets; gradual development schemes accounting for dynamics in different markets should be encouraged.

Additionally, for an optimal productive derivatives markets to reduce risk will require more fundamental reforms that will make it possible for market participants and regulators to determine and make judgement whether the risks faced by companies and institutions have been effectively been hedged with public information available from these markets in order to avoid speculation, volatility and the building up of risks in the system. Obviously, the quantification of risk, the setting up of risk limits and the monitoring of those risk limits will assist markets participants to manage their risk.

Strikingly, other vital requirements to be initiated when using the derivatives markets are: the setting up of the counterparty risk limits in the derivatives markets transactions in order to assess whether counterparty may default, the market participant exposures, borrowing conditions of the counterparty, ability to repay back their debts, the counterparty appetite for risk-taking, the liquidity and solvency status and the establishment of more Central Counter-Parties Clearing House (CCPCH) as suggested by Charlie McCreevy’s for the European CDS markets which he said will undoubtedly improve the operational efficiency of derivatives contracts markets to function fully in these highly interconnected global financial markets ensuring electronic trade execution, affirmation and confirmation indeed.

Keywords: Financial and Non-Financial Institutions, Ireland, Derivatives Contracts, Hedging, Risk Management
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**List of Acronyms / Abbreviations**

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<th>Description</th>
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<tr>
<td>ACCA</td>
<td>Association of Chartered Certified Accountants</td>
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<tr>
<td>AIG</td>
<td>American International Group</td>
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<tr>
<td>Anglo</td>
<td>Anglo-Irish Bank</td>
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<td>AT</td>
<td>Asset Turnover</td>
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<td>BBC</td>
<td>British Broadcasting Corporation</td>
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<td>BIS</td>
<td>Bank for International Settlements</td>
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<td>BOE</td>
<td>Bank of England</td>
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<tr>
<td>BOD</td>
<td>Board of Directors</td>
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<tr>
<td>CA</td>
<td>Current Assets</td>
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<td>CBI</td>
<td>Central Bank Ireland</td>
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<td>CCP</td>
<td>Central Counter Parties</td>
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<tr>
<td>CCPCH</td>
<td>Central Counter Parties Clearing House</td>
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<td>CDS</td>
<td>Credit Default Swaps</td>
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<td>CDO</td>
<td>Collateralized Debt Obligations</td>
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<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
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<tr>
<td>CF</td>
<td>Corporate Failure</td>
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<tr>
<td>CFD</td>
<td>Contract for difference</td>
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<tr>
<td>CFO</td>
<td>Chief Financial Officer</td>
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<tr>
<td>CG</td>
<td>Corporate Governance</td>
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<tr>
<td>CL</td>
<td>Current Liabilities</td>
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<tr>
<td>CR</td>
<td>Current Ratio</td>
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<tr>
<td>CRO</td>
<td>Credit Risk Officer</td>
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<tr>
<td>DC</td>
<td>Derivatives Contracts</td>
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<td>DCHS</td>
<td>Derivatives Contracts Hedging Strategies</td>
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<td>DOF</td>
<td>Department of Finance</td>
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<td>DJIA</td>
<td>Dow Jones Industrial Index</td>
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<td>DTCC</td>
<td>US Depository Trust Clearing Corporation</td>
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<td>E&amp;L</td>
<td>Equity &amp; Liabilities</td>
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<td>EU</td>
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<td>FASB</td>
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<td>Federal Home Loan Mortgage Corporation</td>
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<td>Generally Accepted Accounting Principles</td>
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<td>GM</td>
<td>General Motors</td>
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<td>GPM</td>
<td>Gross profit Margin</td>
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Chapter One

1.0 Introduction

1.1 Background Information and Overview

To a great extent the effective utilization of derivatives contracts is an essential component of risk management that is used in reducing risks faced by many FNFIs and there is a risk/return trade-off- [Ward, (2010)]. Perhaps, following the financial crisis of 2008 caused by many factors explained briefly in the next chapter (Literature Appendix 3), the risky-investments made by many FNFIs around the world including Ireland due to low-interest rates and light-touch regulation by the authorities in the belief of a continuous appreciation of these investments which later turn out to be bad with negative consequences for countries’ economies.¹

As a result of the bad investment with its contagion negative effects on the economy with shortages of liquidity for both banks and the bond market, the Irish economy weakened and the Irish government were forced to restructure many areas of the economy including the financial sector through fundamental reforms brought in by the CBI and the government. While the Irish economy and financial sectors are now making remarkable progress to date, yet there are still some vital

¹ According Alan Greenspan President of the Federal Reserve from 1987 to 2006: “Crisis will happen again but it will be different, and that is human nature. Unless somebody could find the way to change human nature, we will have more crises, and none of them will look the same because no two crises have anything in common, except human nature” (The Age of Confidence, 2009). In essence, Alan Greenspan attributed the 2008 FEC to ‘Human Nature’ as nobody is above mistake and crisis will occur again but it will not be the same and we will all eventually pass through it with time.
issues such as: risk management; corporate governance; the use of derivatives contracts to reduce risk and the regulation of the DC markets (especially hedge funds) have not yet been fully resolved.

However, there has been tremendous development in the field of risks management using DC and the whole derivatives markets over the two last decades especially in the financial sector- Beegun, and Leroy (2009), (Chen, 2011), Bacha, (2013), and Bodnar, et al 2013). Initially there are only few exchanges - traded derivatives markets that exist which allow FNFIIs to hedge against certain risks for a short period and in a limited way (Miloš Sprčić, 2007).

Meanwhile, in order to have better understanding of risk and risk management using DC, the author discusses briefly - what is risk and risk management in financial and non-financial institutions? What are derivatives and why the use? What are the different hedging strategies? What are the views of past scholarships in the field of risk management using DC? Full discussions of the various themes will take place in the next chapter (i.e., Literature Review) and all other important topics that are related to the research topic.

What is risk?

Risk is the chance that a bad outcome will happen. The more that a risk is associated with an investment, the higher the expected return-vice-versa and certainly, probabilities can be assigned to future outcomes or expected return.\(^2\)

\(^2\) We use standard deviation that measures the magnitude of dispersion of the returns around their average. For example if we want to determine the riskiness of an asset, we first need to calculate the average return of that asset and determine how much the actual return differs from the average in a typical year.
The different types of risks faced by FNFIs are: credit risk, market risk, operational risk, foreign exchange risk, sovereign risk, technology risk, interest rate risk, liquidity risk, insolvency risk, off-balance-sheet risk, etc. Perhaps, as noted these risks are not unique to particular FNFIs but are faced by all global FNFIs—[Ward, (2010) Hull, (2012), Durbin (2011); McDonald, (2013) and Panaretou et al. (2013)]. Therefore, risk manager of these institutions is responsible for managing the risk and any uncertainty of cash inflows to meet the financial obligations and to make best use of the available resources—(Bodnar, et al 2013).

According to Ward, (2010), Hull, (2012), Durbin (2011) and McDonald, (2013) the risk manager of these institutions will have to identify the risk, quantify the risk exposure, assess the impact and examine alternative risk management tools available by selecting the appropriate risk management approach before implementing derivatives contracts hedging strategies (DCHS) and monitor the program in order to achieve its objectives. From the use of DC, the main advantages arises, whereas it is clear that from the recent 2008 financial crisis, the use derivatives especially (CDS)\(^3\) have a longer lasting negative impact on FNFIs and it raises the awareness and is important to underpin the disadvantages. Undoubtedly, Dowd , (1998), Dempster, (2002) and Dione, G (2013) said that the risk managers will have to recognise (proactive) the possibilities of different outcomes of using DC and ensure that activities are directed towards making an acceptable set of outcomes while reducing undesired outcomes within an acceptable tolerance level indeed.

Furthermore more, FNFIs have two types of risk - [Jorion, (2007), Ward, (2010), Durbin (2011) and McDonald, (2013)]. They are systematic and unsystematic risk-(See Figure 1A). The former cannot be diversifies away - (i.e., uncontrollable by

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\(^3\) Many abbreviations are used in this research project which the full meaning is reflected at the beginning of the research project-Many thanks for your understanding
the organisation and macro in nature), however, the latter unsystematic - (i.e., controllable by the organisation and micro in nature), can be diversified away - (See Figure 1B and 1C) respectively.

Figure 1A: Types of Risk

Figure 1B: Systematic Risk

4 The Source for many Figures used in the research project are images taken from Google website: https://www.google.ie/search
Unsystematic Risk
- Controllable by an organisation
- Micro in nature

* Business Risk / Liquidity Risk
** Financial Risk / Credit Risk
Operational Risk

* Note: In context of types of risk in finance, business risk and liquidity risk are same.
** Note: In context of types of risk in finance, financial risk and credit risk are same.

Figure 1C: Unsystematic Risk

Perhaps, systematic risk uncertainty resulting from changes in market price requires managing the risk from active trading strategies and creating hedging strategies to counteract the market risk. Market risk is affected by other risk such as interest rate risk, credit risk, operation risk, and foreign exchange risk which can be measured over periods as short as one day and in terms of dollar or euro exposure or as a relative amount against some benchmark - Allayannis, and Ofek, (2001). Trading risk which is part of market risk of FIs exposes the trading of financial products which sometimes can be very costly for the institutions if the trading is not hedged and it goes wrong similar to what we have experience during the 2008 FEC.5

Thus, from the risk management point of view using DC to hedge the risk, Allayannis, and Ofek, (2001) argued that derivatives can be used to reduce institutions risks on a daily basis when carryout their operations. What is Derivatives Contracts (DC)? Derivatives are financial contracts whose value is derived from an underlying asset. 6 Perhaps, DC are used to redistribute risks

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5. For details, see Ward (2010), Durbin (2011) and McDonald (2013).

6. The financial service sector has responded by developing a variety of products which are designed to hedge against risk. In the main, these products are paper securities (contracts) which are attached to the underlying assets, such as cash, commodities or currencies. These paper securities are called derivatives because they derive value from movements in the value of the underlying asset. Some managers do not purchase derivatives to manage risks. Instead they
generated in the real economy, and are consequently important tools for financial intermediaries to transfer risk; for managing and hedging contractual risks (risk reduction) that arise in the institution’s normal course of business activities. Other motives for the use is to change the nature of a liability; to reflect a view on the future direction of the market; to change the nature of an investment without incurring the costs of selling one portfolio and buying another and to acquire risk with the aim of locking in an arbitrage profit - (high risk trading), such as currency risks, interest rates risk, and credit risk etc. - fully discussed in detail in the Literature Appendix 2. The types of DC available are forward contracts - traded ‘Over the Counter-OTC’ and futures, options, swaps, warrant and structured products etc. which are traded on an ‘Exchange’ which can be used to manage and hedge risks. Figure 2A below denotes the structure of the derivative financial market and Figure 2B shows the size of amount of OTC and Exchange Traded Markets.

Figure 2A: The Structure of Derivative Financial Market

purchase derivatives for own accounting trading purposes. In these circumstances, the risk manager makes an assumption as to the direction of the fluctuation in the underlying assets. This leaves them exposed to losses if their assumptions do not hold.
Meanwhile, the 21st century has shown growth in DC usage to reduce risk driven by fast technologies and globalization as many FNFIs are facing new challenges with increase speed. As a result, new DC are developed which provide a platform for innovative and hedging strategy apart from using debt instruments to hedge financial risk (Sorin and Silvia, 2009, page 90). These instruments are traded Over the Counter (OTC) or Exchanges.

Therefore, hedging using DC helps to reduce cost of risk and distress of FNFIs including the amount of corporate tax paid (Mayers and Smith 1982; Smith and Stulz 1985). Perhaps, Chen, (2011) argued that after controlling for fund strategies and it characteristics, the creation and use of these DC instruments on average exhibit low funds risk. DC is between two (or more) parties where payment is
based on (i.e., "derived" from) some agreed-upon benchmark. The different types of DC they listed are: forward contacts, future contracts, options, swaps, bonds (debt Instruments), hedge funds stripped mortgage-back securities-(Hull, 2012); Perez-Gonzalez, and Yun, and (2013).

Indeed, Hull, 2012 stated that these derivatives are used for hedging (risk-reduction) and or speculation (high risk trading). The ways derivatives are used to hedge these risks are: (a) to reflect a view on the future direction of the market, (b) to lock in an arbitrage profit, to change the nature of a liability, (c) to change the nature of an investment without incurring the costs of selling one portfolio and buying another etc.

However, if risk managers lack foresight in hedging strategy or greedy in terms of speculative motives by taking their eye off the ball, the use of these DC to hedge the different type’s risks can have negative effects and can prove to be expensive mistakes or costly for the institution(s) involved if it wrongly use as can be seen from the past. For example, Nick Leeson 1995 Barring's Bank-$1 billion loss scandal, 1996 Sumitomo Corporation lost $2.6 billion in commodity futures trading, John Rusnak of All First/ Allied Irish $691 million loss. The reason for the loss of All First/Allied Irish $691 million loss is that Rusnak was a currency trader who did not hedge his FX currency position. With this un-hedged position facing losses, he panic and entered false options in the system which made it look like his position was hedged. This false options entered by Rusnak kept the bank from discovering the losses on FX currency and furthered bets was placed on (rise of the yen) causing a great loss to the bank of $691 million.

Other big losses by FIs are: Subprime Mortgages (up to $40 billion); Societe Generale Bank ($7 billion); Amaranth ($6 billion); LMTC ($4 billion); Daiwa ($1 billion); Midland Bank ($500 million); Kidder Peabody ($350 million); National Westminster Bank ($130 million). For Non-financial institutions losses from derivatives are: Metallgesellschaft ($7 billion); Orange County ($2 billion); Shell ($1 billion); Hammersmith and Fulham ($600 million); Allied Lyons ($150 million);

Clearly, from the loss analysis above of both FNFIIs, it will surely have great impact on these institutions operations. In this case, the risk management appeal is more relevant, because it holds the primary concept of shock appeal to risks variables which is the core need and essence of this research project stands to investigate. By using DCHS, it will play an active role in risk management. Thus, it is important to understand and analyse how DC works, what does it consist of and how can it be used effectively and efficiently.

Perhaps, going more in depth within the topic, it becomes crucial to understand how the hedging strategy will be applied to shocks in risk variables. All of these topics and themes (risk variables and derivative contracts) will be looked through and analysed more in depth in the next chapter of this dissertation. The main questions and motives of the research arise through the analysis of the secondary data. So, does the author wish to do research? The answer is yes, consequently, we follow the ‘Research Project Process’ outline in Figure 3 below.

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Figure 3: Structure of the Research Project Process

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Wish to do Research
Formulate and clarify your research topic
Critically review the literature
Understand your philosophy and approach
Formulate your Research Design
Negotiate access and address ethical issues
Plan your data collection and collect the data using one or more of:
  Sampling | Secondary Data | Observation | Semi-structured and in-depth Interviews
  Questionnaires
Analyse your data using one or both of:
  Quantitative methods | Qualitative methods
Write your project report and prepare your presentation
Submit your project report and give your presentation

Source: Saunders et al. (2007, p.10)
1.2 Research Problem

Background to the research problem

Many countries including Ireland FNFI have undoubtedly witnessed significant financial instability recently. Indeed, Patrick Honohan\(^7\), describes the situation as "one of the most expensive financial crises in world history" (Browne, 2011), which has impacted on the general public leading to depressed economic growth, increase unemployment and the destabilisation of the wider economy" (O'Sullivan, K. and Kennedy, T. 2010, page 224). The Governor's view then received full support from other eminent academic scholars such as: David McWilliams of Kilkenomics, Brian Lucey of TCD, and UCD Economist - Colum McCarthy.

Whilst the 2008 FEC was not exclusive to Ireland FNFI alone, the impacts of the crisis on these institutions caused by the underestimation of risk and risk management, light touch regulation, wrong use of DC (especially CDS), lack of corporate governance in the board of these FNFI, human nature-greed and hubris, – (A world-wide problem especially in the City of London and Wall Street) makes this a fascinating area to research in order to get a clearer picture.

Perhaps, the aim of this research is to verify or reject research hypothesis which is explained in the later section. The research problem emerged as one the reason for the recent 2008 FEC in Ireland and this may be due to the inability of risk

\(^7\) Patrick Honohan is the Governor of the Central Bank of Ireland and a ‘world and master class Professor of Economics and a graduate of London School of Economics’. He will be retiring by the end of this year 2015- Many thanks to him for his contribution to promote the growth of Irish economy in the last five years which Patrick as the Head of CBI has made a remarkable progress.
managers of FNFIs to effectively utilized DC to hedge their risk variables (risk reduction). The reason for the inability of risk managers or failure rate often may be due to miscalculation or error in wrong use DC for hedging strategy or may be for speculative own accounting trading purposes. Moreover, some of these institutions only have little regard for the day to day risk they face in their daily operations or do not have standard hedging strategy polices in place for ‘risk reduction’ - McDonald, (2013) and Durbin (2011). Therefore, the risks manager in charge should able to use the rights hedging strategy appropriately and must meet these challenges of using the correct DCHS.

In this context and given vast literature on DC, it is essentially timely to investigate or to conduct a retrospective examination of risk manager’s attitude to effectively utilizing DC to hedge FNFIs risk in order to achieve our objectives of ‘risk reduction’. Moreover, we determine if risk manager attitude have change towards risk management in terms of measuring risks, setting of risk limits, monitoring both, and the evaluations of the soundness of counter party risk when using DC to reduce risk since the crisis and to demonstrate a holistic approach to risk reduction which will lead to success by creating awareness and providing for risk managers prospects to plan and execute successful hedging strategies alternatives where applicable.

Besides, most FNFIs suffered from the recent 2008 FEC as we intend to investigate the impact on institutions business activities including investigating whether the crisis was cause as a result of using DC to hedge risk and determine the impacts of BIS Basel III (NCTA) on FNFIs operations. Thus, the need to evolve a proper DCHS are necessary for the liquidity and solvency of these institutions as a possible development could indicate the consequences of the risk managers unable to provide the proper use of DCHS correctly.
1.3 Research Objectives

The research objectives of this project are directly linked with secondary research provided in the literature and the various themes we are going to determine during the process. The themes are: the different types of risk; the measurement or quantification of risk; the setting of the risk limits including monitoring both; lessons from financial and economic crisis of 2008 and the use of DC to reduce risk. Others are: the NCTA regime - (Basel III); different types of derivatives contacts used to hedge risk; the evaluation of soundness of counter-party risk when implementing DCHS; the different DCHS that creates financial benefits (LEI opportunities) and long-term value for these institutions; the key obstacles to effectively utilizing DC to hedging risk. Perhaps, in order to compare our variables with each other, a deductive and quantitative approach will be chosen. The research will evaluate various objectives above using risk managers of FNFIIs indeed.

Perhaps, from the research methodological point of view involving research objectives, Brink et al (2006, page 79) said research objectives can be defined, as “an objective is a concrete, measurable end towards which effort or ambition is directed. Research objective are therefore defined as clear, concise, declarative statements that are written in the present tense. An objective usually focuses one or two variables, and indicates whether the variables are to be identified, analysed or described".
Also, Saunders, Lewis and Thornhill (2012, page 43), indicate that “Research objectives allow you to operationalize your questions – that is, to state the steps you intend to take to answer the research questions. A similar way of thinking about the difference between the research question and objectives is related to ‘what’ and ‘how’. Research questions express what your research is about. Research objectives express how you intend to structure the research process to answer the questions. In this way research objectives can be seen to compliment a research question, through providing the means to operationalize it. They provide a key step to transform your research question into your research project.” Consequently to the above, the research objectives can be viewed as a summary of what the research project intend to achieve through detailed study and analysis. Thus, our objectives which are detailed below for the purpose of this research are:

1. To have an overall view and better understanding of “the impact of how risk managers of FNFIs can effectively utilizes DC in managing and hedging risk (i.e. Risk Reduction).”

2. To determine whether Irish FNFIs was affected by the 2008 FEC.

3. To establish the fact of whether the cause of the 2008 FEC was due to the use of DC.

4. To highlight whether risk managers of FNFIs have changed their attitude towards risk management after the 2008 FEC.

5. To examine and determined the impact of the requirements for NCTA (Basel III)” on FNFIs risk management operations.

6. To examine whether risk managers of Irish FNFIs quantify their risks, set their risk limits including monitoring both.
7. To determine the purpose of using DC and to examine whether the evaluation of the soundness of counter-party risk is considered when implementing DCHS.

8. To highlight whether risk managers have any influence on the types and usage of DC? Moreover, whether DC create financial benefits (LEI opportunities), and long-term value for FNFIs.

9. To identify whether any key obstacles to effectively utilizing and implementing DC to managing and hedging risk variables.

10. To provide adequate conclusion and recommendations for the proper use of DC to manage and hedge risk variables in order to improve the success. Moreover, the 2008 FEC faced by FNFIs world-wide including Ireland provide the need for this research study.

Thus, our research objectives are to ensure that the targeted survey questionnaires covered our research objectives and every possible participant required for the study. However, we note that some limitations do exist, eventually; we hope to get adequate respondents - risk managers of these FNFIs involved to display the probability of effectively utilizing DC to manage and hedge risk.

1.4 Rationale and Justification of the topic

The FNFIs are well established and key sectors of the Irish economy and if the actions of these institutions over their risk management are mismanaged, it can lead to drastic repercussions for the institutions operations which may ultimately have serious consequences for the overall economy - (Ward, 2010 and Hull, 2012) and the society at large. The researcher note that these Irish institutions provide income through employment for its citizens and the general public which are undoubtedly the core focus and, indeed, the lifeblood of the economy via
payments of both income and company taxes. With this in mind, the corporate industry is undeniably of major importance of the Irish economy.

In many countries of the world including Ireland, the use of DC by both FNFIls has become a common choice for risk managers in hedging risk. Consequently, the present research becomes important because there is a “major problem in the form” in which risk managers can effectively utilize and implements DCHS to reducing company’s risk. This research project aims to uncover the risk manager’s attitude and determined whether the use of these DCHS suits the Irish context.

Therefore, the rationale underlying the choice of the research topic of interest is that the researcher intends to make contribution to academic knowledge by addressing the gap in the literature- as ‘Irish Context not available’ by exploring the level of impact of the effective use of DC in managing and hedging shocks to risk variables and the factors that influence the success. Although an existing body of literature is present, dealing with broader issues within research topic context, however, there is limited research on this specific area with regard to Irish context.

Accordingly, the relevance of this research topic will be to appraise the current and relevant literature and put the different themes together under one piece of work which has not been done by previous studies based on the review of the literature. Thus, our findings from the research studies would be of immense benefits to academicians, researchers, and the industry - both FNFIls and Irish state alike.

The researcher is an African-Irish citizen resident and who possesses work experience in both Irish FNFIls and wishes to contribute to the research topic using Ireland as case study. Indeed, the research topic is in the area of the researcher professional goal and career ambition to become a resource person and expert in the area of economic, business and financial accounting and to improve his career as a former employee of both institutions. Moreover, the recent 2008 FEC faced by many institutions world-wide especially in Ireland provide the need for this study.
In addition, as a post-graduate student studying accounting and finance with work experience in this area, the challenges the research topic posed can be overcome based on my foundation taught courses already pass and would assist the researcher to address the research topic key points, from collecting the relevant data to contacting the appropriate respondents for survey’s questionnaires’. Similarly, our belief is that the research study may shed some new information regarding the concept of risk management and the use of DCHS available to risk managers to provide reasonable solution(s) to FNFI’s risk problems. Additionally, it is crucial to gauge whether, risk managers attitude for hedging risk has diminished, and stagnant or improved as such information may assist with enhancing the hedging strategies. As a result, the researcher will be in a strong position to reflect on the whole processes which provide the opportunity to identify a real issue surrounding the use of DC in reducing risk.

1.5 Research Questions

In order to conduct the study, the researcher needs to specify the problem statement – research questions and hypothesis which is the key step in the research process. It is pertinent to state that research questions should always create new insights into the research topic area which it belongs. According to Monsen and Van Horn (2008), research question helps to provide answers to significant problems which are the key steps in the research process. Furthermore, Haber, (2010, page 28), stated that the research question presents the idea which is to be investigated in the study and form the basis for the research. As a result, we need to formulate accurate, clear and concise research questions. Harber, (2010, page 29), argued that “Research question or topics are not pulled from thin air……. research questions should indicate that practical experience, critical
appraisal of the scientific literature, or interest in an untested theory was the basis for the generation of a research idea”.

Meanwhile, Saunders, et al, (2012) page 42), specify the importance of research questions which expresses what our research is all about aided by our research objectives that allows us to operationalize the questions. The researcher note that both the research objectives and research question can be seen to complement each other which provide the platform to transform the key question into our research project. Therefore, our research questions will be built on the basis of the causal connection between current literature and our primary data analysis. Perhaps, given the different themes that would be highlighted in the literature and for us to provide answers to the research problems identified and make contribution to academic knowledge in the area of our research topic, the present study will seek to answer or address the following research questions:

**The main research question is:**

1. “What constitutes an effective use of derivatives contracts to manage and hedge risk variables – (i.e. ‘risk reduction’) of Irish financial and non-financial institutions?”

The question is dedicated to finding out whether risk managers can effectively utilised derivatives contracts to ‘reducing risk’ which will ultimately improves the risk management policies of their institutions.

**Other secondary research questions are:**

2. *Is your institution or company affected by the financial and economic crisis of 2008?*

3. *Was the cause of the financial crisis due to the use of derivatives contracts?*
Question 2 and 3 is to establish whether the 2008 financial crisis affected Irish institutions and companies and also to know whether the crisis was as a result of using derivatives contracts.

4. Has these institutions or companies changed their attitude towards risk management after the 2008 crisis?

The question want to establish whether there is any change in attitude by these institutions or companies to risk management after the 2008 crisis.

5. Are there any impacts of the requirements for “New Capital Transparency and Adequacy - (Basel III)” on the Institution / Company risk management operations?

The question is establish whether there are implications for these institutions / companies risk management operations as a result of the “New Capital Transparency and Adequacy - (Basel III)” introduced recently by BIS.

6. Do risk managers of Irish financial and non-financial institutions quantify their risks and do they set their risk limits including monitoring both?

The question is dedicated to establish the fact of whether risk managers of these institutions quantify their risk, set risk limits and monitor both.

7. What are the purposes of derivatives contracts? Do risk managers considered the evaluation of the soundness of counter-party risk when implementing derivatives contracts hedging strategies?

The question is to find out the purposes of derivatives contract to these institutions. In addition to find out whether the risk managers evaluate the soundness of counter-party risk when implementing hedging strategies.

8. Do the risk managers of these institutions have any influence on the types and usage of derivative contracts? Do derivatives contracts create financial benefits
(liquidity efficiency opportunities), security and long-term value for the institutions and companies?

9. Are there any obstacles / barriers in Ireland to effectively utilizing and implementing derivative contracts to managing and hedging risk variables?

Therefore, given the importance and the challenging nature of this research, the justification behind the research questions is to explore this research issues, determine the valuable means and the best way in managing and hedging these risk and to have a better understanding of how DC can be used by Irish FNFI’s risk managers to hedge shocks to risks variables.

Accordingly exploratory studies will provide us with quantitative data, and offer great benefits in terms of flexibility and the ability to collect primary data via survey questionnaires and avoid any bias in an independent setting which may direct the study towards new conclusions. The research questions were devised based on the themes identified in the literature. Therefore, to answer the above research questions, the research results will be discussed based on the literature reviewed. The research outcomes will offer invaluable and updated information to risk-managers in decision making about how to hedge risk variables using DC.

1.6 Research Hypothesis

Hypothesis is an untested or unverified statement or proposition about a phenomenon that the researcher is interested. Perhaps, Saunders, et al (2012)
defined hypothesis as a testable proposition concerning the relationship between two or more events or concepts that may be subjected to scrutiny. Thus, using quantitative research procedure and following our research questions highlighted above, that focus is on the effective use of DC by risk managers to hedge shocks to risk variables of FNFIs and will be tested based on research objectives and questions.

Furthermore, Creswell, 2009 argued that “null hypothesis” indicates that there is no significant relationship between the variables. Therefore, if the null hypothesis rejected, then the alternative hypothesis will be accepted. According to Clark-Carter, (2009), the research approach should follow the cause and effect logic of quantitative research. Perhaps, in line with the overall research aims and objective, the research hypotheses that will be tested are:

**Null Hypothesis 1-HA:** The effective use of derivatives contracts hedging strategies by risk managers will have no significant positive impact in reducing risk.

**Alternative-Hypothesis 1-HB:** The effective use of derivatives contracts hedging strategies by risk managers will have a significant positive impact in reducing risk.

**Null Hypothesis 2/3-HA:** Your institution or company was not affected by the crisis and the use of derivatives contracts to hedge risk is not one of the causes of the 2008 financial crisis for your institution or company.

**Alternative Hypothesis 2/3-HB:** Your institution or company was affected by the crisis and the use of derivatives contracts to hedge risk is one of the causes of the 2008 financial crisis for your institution or company.

**Null Hypothesis 4-HA:** The Irish institutions and companies have not changed their attitude towards risk management after the 2008 crisis.
**Alternative Hypothesis 4-HB**: The Irish institutions and companies have changed their attitude towards risk management after the 2008 crisis.

**Null Hypothesis 5-HA**: The requirements of “New Capital Transparency and Adequacy - (Basel III) will not have any significant impact on the institution or company risk management operations.

**Alternative Hypothesis 5-HB**: The requirements of “New Capital Transparency and Adequacy - (Basel III)” will have significant impact on the institution or company risk management operations.

**Null Hypothesis 6-HA**: Risk managers do not neither quantifies their risks nor sets the risk limits including monitoring both which will have no significant impact on risk management.

**Alternative Hypothesis 6-HB**: Risk managers do quantify their neither risks nor sets the risk limits including monitoring both which will have significant impact on risk management.

**Null Hypothesis 7-HA**: The evaluation of the soundness of counter-party risk when implementing hedging strategies will not have significant impact on the institution or company risk management operations.

**Alternative Hypothesis 7-HB**: The evaluation of the soundness of counter-party risk when implementing hedging strategies will have significant impact on the institution or company risk management operations.

**Null Hypothesis 8-HA**: Risk managers do not have influence on the types and usage of derivatives contracts hedging strategies. Moreover, derivatives contracts will not create significant financial benefits (liquidity efficiency opportunities), security and long-term value for the institution or company.
Alternative Hypothesis 8-HB: Risk managers have influence on the types and usage of derivatives contracts hedging strategies. Moreover, derivatives contracts will create significant financial benefits (liquidity efficiency opportunities), security and long-term value for the institution or company.

Null Hypothesis 9-HA: There are barriers in Ireland to effectively utilizing and implementing derivatives contracts to managing and hedging risk variables.

Alternative Hypothesis 9-HB: There are no barriers in Ireland to effectively utilizing and implementing derivatives contracts to managing and hedging risk variables.

In summary, this research project will examines the variety of risks variables faced by Irish FNFI s and will evaluated the ways in which these risks variables can be managed and hedged using DC in that context.

1.7 Research Approach

The research adopts a detailed and efficient approach to reviewing and critically analyse the diversified elements in the literature by past scholarships, which will allows us to fully identify and understands the various themes in risk management and DCHS. Moreover, it helps the researcher in developing a structure for questioning the respondents via survey questionnaires. While the justification for the research approach is detailed in the methodology section of chapter three, it is axiomatic to state that our objective is to highlight our quality contribution to the existing literature and make some recommendations for future research studies.
The research approach used both primary and secondary research methods. The primary data collection is done via administered survey questionnaires which provide quantitative information and insights into the research topic by experts in the industry - risk managers of FNFIs. On the other hand, secondary research methods provides for data collection through detailed review of past theoretical and empirical literature, annual reports, newspaper articles, peer-reviewed journals and company websites to provide deeper knowledge of the research topic being investigated.

1.8 Learning Style and Suitability of the Researcher

The learning style approach of the researcher follows a meticulous, organized, systematic and logical approach. The process involves extensive reading and collecting of information from various sources in order to get a broader and comprehensive view of the research topic. The learning style is suitable as the research topic requires adequate and extensive knowledge of the various themes, theories, concepts, and models that is relevant to risk management complex issues and DCHS for the researcher to make some critical analysis and deductions.

Accordingly, the researcher is trying to finding out issues relating to the topic. Perhaps, due to the main potential stakeholder involved in the research (Irish FNFIs), the researcher is animated by the desire to know more about the global
financial markets and institutions and their behaviour to risk management which has naturally interested him. So, it has fascinated this researcher more to conduct the research choosing his adopted country Ireland - (African – Irish citizen) as a case-study similar to what he did at University of Manchester, UK when carryout similar research project study involving the stock market and Irish economy' indeed.

Conceivably, the choice of our research topic corresponds with the researcher's interest explained by the fact of the researcher's ambition to become a resource person and expert in the area economic and financial accounting analyst. The researcher is a student pursuing a Master’s degree in International Accounting and Finance who has completed first part of the degree which is the taught components of the program with excellent grades. Moreover, the researcher is a part- qualified Chartered Accountant who has completed and passed the CAP1 of the Chattered Accountants Ireland Exams in all subjects and currently registered for CA Proficiency 2. Earlier, he completed a Degree in Finance and Economics with Honours at The University of Manchester, U.K and got an excellent grade in his Dissertation which he studied the "Links between the Irish Stock Market and the Macroeconomy." Additionally, from the professional working experience perspective, the researcher has worked for both FIs (banks and mutual funds) and NFIs in Africa and Ireland with great wealth of outstanding personal and professional experience which enable him to understand the research problems areas and in a better manner with a clearer vision on the research topic.

Likewise, during the current DBS Master’s degree program, the researcher has studied a lot of financial and accounting theories, concepts and models which can be applied to businesses issues, received training in personal and professional development, attending both quantitative and qualitative workshops for project analysis under research methods, including attending a training program on how to use quantitative analysis software – Excel and SPSS which he has previous experience while studying at University of Manchester, U.K. Also, the researcher is familiar with Microsoft® Office Programs-Word, Excel, Access, PowerPoint® and
Outlook®; Accounting Package – TAS Books, SAGE; Statistical package- SPSS and Econometric Software- Micro-fit 4.0, PC Give, RATS, and STATA which will assist the researcher the opportunity to undertake this research project as the skills and knowledge learnt during the coursework will proved to be of great assistance in carrying the research.

Apart from the above, during the current Master's program the researcher has reviewed relevant literature, past theoretical and empirical studies, articles and journals relating to the research topic which as assisted the researcher's ability to understand the different themes and improved the capacity of the researcher to carryout detailed critical study and analysis. In addition, the researcher individual academic knowledge and experience in writing difference economic and financial accounting essays topics on different course assignments such as – corporate financial management, strategic performance management, treasury and risk management, and operation and governance of financial markets will provide a platform for the researcher to handle the challenging and intellectual areas of this research. Thus, the researcher’s educational background provided a solid foundation for researching this topic and will further help to develop the researcher’s skills, business background for a better prospective career in the long-run.

As a result, the need to collect primary data through administering survey questionnaires will be of immense benefit to the researcher’s open door and flexibility approach to the respondents via a formal, semi-formal or informal setting. Perhaps, based on previous experience of conducting research both qualitative (interviews) and quantitative (survey questionnaires) coupled with the researcher’s ability ask intuitive questions on the research topic and then listen attentively to answers provided (if interview-qualitative) or interpret or deduce information provided (survey questionnaire-quantitative) will assist in gathering good and reliable data that will benefit the research project.
1.9 Contribution and Recipients of the Study

Dublin Business School (DBS), Institutions and companies

The study will make immense contribution to academic knowledge, research institutions, and the Irish FNFIs by addressing the gap in the literature— as Irish Context is not available. The researcher need explore the level of impact of the effective use of DC in managing and hedging shocks to risk variables and factors that influence the success. Although, an existing body of literature is present, dealing with the broader issues within research topic, however, there is limited research on this specific area involving Irish context.

Thus, the main beneficiaries and recipients of this research will comprise academic institutions, Mr Enda Murphy, the supervisor of the research project, research agencies and organisations, stakeholders, potential future employer(s) and the Irish FNFIs especially those that provide valuable information for the research. Vital information from the survey questionnaires result will be made available to respondents if required or upon request without disclosing private or personal information of any institutions/companies including other vital information from the study.
1.10 The Scope and Limitations of the Research

As the researcher intends to discover the impact of how risk managers of FNFIs can effectively utilize DC to manage and hedge shocks to risk variables, he will review the existing scholarships in this area - referencing books, journals, articles and websites. The researcher will also conduct an industry review by examining the performance of Irish FNFIs based on their annual reports and publications. The scope of the research according Sevilla et al. (2007, page 18) explain that “..... The scope of the investigation which defines where and when the study was conducted and who the subject were. The scope sets the limitations and establishes the boundaries of the study”. Also, they define limitations as”.... a phase or aspect of the investigation which may affect the result adversely but over which the researcher has no control”. Therefore, it is significant and relevant for the researcher to highlight his or her limitations in a clear and concise manner acceptable to the study.

The researcher notes that the research will be constrained by experts-risk managers’ inability to provide first-hand information due to sensitive information, unpredictability of future events in the industry, financial budget, word-count restrictions and time management within the 12 weeks limit given to complete the research thesis which is very challenging with the commitment to produce an excellent piece of high quality research, may eventually, limit extensive review of secondary data which might not be enough, however we hope to give our very
best to improve the situation based on my supervisor useful comments and recommendations- (Enda, Many Thanks)!

Also, managing time, financial budget to execute the following overhead costs and expenses involving books, stationary, internet, transportation and telephone costs when calling to the respondents, leisure and unexpected costs and the need to get the finance available for the expenses while getting the research done quickly within a short period of time will require proper planning, efficient time allocation and logical execution of the whole process in a cost-effective manner.

Since the research project dissertation involves the study of risk management and effective use of DCHS, participants will involves risk managers of Irish FNFIs which may be limited by number of samples participants and we note ahead when administering the survey questionnaires. Also, the administrations of the survey questionnaires via internet or post may facilitate some non-complete responses due to sensitivity of information which may further limit our study. Hence, we intend send 140-150 survey questionnaires in order to get adequate response of between 100 -120.

While the survey allows comparison of data collected in a cheap way, it must be reflected and thought-out that the idea is not that comprehensive as other research strategies specified by Saunders, et al., (2012). They argued that only limited numbers of questions can be asked in order not to overwork the participant’s patience and kindness. These above limitations are facts which may limit the depth of the research. However, we hope to give our very best to improve the situation by pacifying our respondents.
1.11 Dissertation Organisation and Structure

The Figure 4 below displays the Research Project Structure

**Figure 4: Structure of the Research Project**

The research project is structured as follows: Section 1 will provide background information and overview of our research topic with the aim to illustrate the interest in the subject matter and to highlight the research objectives (i.e., what the study intend to achieve). We present also the rationale and justification for the research topic; research questions and hypothesis that will be addressed in the project-(See Figure 5 below showing the logical research process). Moreover, the research approach to be followed when carrying out the research and learning style and suitability of the researcher as relates to the research, contribution and recipients of the research, the scope and limitations of
the study and finally the organisation and structure of the dissertation will be discussed.

Figure 5: Logical Research Process
Source: Google Images.

In section 2, we explore and review past ‘peppered’ scholarships (theoretical and empirical studies that include books, online materials, journals, articles and annual reports) including studies done by leading professionals in the industry in order to get better understanding of the topic. We presented different valuable themes in the literature to create awareness in various areas with detailed critical analysis of the depth of our sources used including justifying the research topic and sets the study in a wider context while highlighting how we contextualizes the proposed research in the literature.

In section 3, we describe the research methodology and methods with the underlying assumptions to be used for this research project including the use of ‘research onion’, adopted from Saunders et al (2012) as a guide. Also, we discuss the research methods with justification and critical evaluation (strengths and weaknesses) of the process to enable readers and users of this research piece to have a better understanding of how the project has been done. Perhaps, the process involved the selection of an appropriate research design; research philosophy-(i.e., positivism link with quantitative methods and deductive approach against interpretivism with qualitative methods and inductive approach); research
strategy; research choice while using the literature on research methodology to support our discussions. Other methodological process includes sampling; data collection options; data analysis; plan for completion; ethical issues and research limitations indeed.

In Section 4, we present our data analysis and research findings and do some comparative analysis based on our research questions. Also, we present a more in-depth analysis and discussion of the results which will point out the way in which a specific finding can clarify issues relating to past scholarships reviewed in the literature.

In Section 5, we summarise our main findings, any implications for the study and draw some conclusions including making some recommendations for future research and draws awareness to the scope and limitations of the research and concludes on the entire project.

Section 6 we present our learner engagement and reflections which is the final part of the project that contains a self-reflection about what he learned during the study which is the cognitive map showing the path way used for the studies. Reflection on the skills learnt and knowledge gained on completion of the research process.

Bibliography- The references contains details of the materials and literature used in order to conduct the research and to back-up the whole dissertation work.

Appendices-This contains supplementary information to which reference is made in this study, supporting documents, sample survey questionnaires and other vital information used in the research to provide evidence.
Chapter Two

2.0 Literature Review

Throughout this chapter, the researcher will take a deeper look at the various themes with analysis on the topics already primarily overlooked in the in chapter one. A broad look on past studies themes such as FNFIIs, risk management variables, DC and HS. Through the broad analysis, the key topics and issues are established related to risk management and the use of DCHS. Literature analysis raises questions and problems that are directly linked with the methodology section of this research project. Consequently, primary research will take place in order to analyse and draw conclusion upon the outcomes of literature analysis. Perhaps the review of the literature of past scholarships and leading professional will helps us to get better understanding of the issues involving risk management and the use of DC based on their opinions and theories in the subject area.

Thus, this chapter is divided into several sections such as: literature introduction; literature review of past studies involving various themes and contextualization of the research topic. Other important discussions in the section involves: Risk and the different types of risk; risk quantification (measurement) and the setting of risk limits including monitoring; learning’s from the past 2008 FEC; the impact of Basel III ‘NTCA’; DC and the different types; the evaluation of soundness of counter party risk and the setting of counter party risk limits (exposures); Ryanair hedging strategies as an example and some practical working examples to get the full idea of hedging strategies.
2.1 Literature Introduction

From literature review point of view, Saunders et al (2012, page 82-83) stated that literature review provides “the background on which a research is built” and it is “an assessment of the body of knowledge that addresses a research question”. Really it identifies what is already done in the literature and the questions yet to be answered in the subject area. Consequently, literature review has the general purpose of giving the researcher an overview what already had been researched including on-going dialog in the literature that will expose the gaps in the research area and form the need of another study (Jupp, 2006). Boote and Beile (2005, page 3) also highlights the importance of a painstaking literature review as “the foundation and inspection for substantial useful research”.

Perhaps Hart, (1998) said that the literature review is a selective process, which only identifies and analyse the findings relevant to the proposed research, it also shows the researcher’s concern of previous research and development of relevant topics within the academic discussion. Furthermore, Webster and Watson (2002, page 7) recommend that “a successful literature review constructively informs the reader about what has been learned.” While Creswell (2003 and 2009) describes literature review as bringing an improved understanding of the relevant secondary data analysed by the researcher and help the researcher limit the scope of the inquiry and conveys the importance of studying the research topic. Moreover, Chen, (2012, page 99) stated that “it simply explains the development process and the course of research in the corresponding fields, especially development trends and the latest achievements in recent years”. Likewise, Harvard, (2012) said it make a case as to “why further study of the research question is important to the field”.
Thus the researcher provide a review and detail analysis of the existing research in the area of our research topic—“risk management and the use of DC to hedge risk variables” which Collis and Hussey (2009, page 91) refers the literature review as the “existing body of knowledge”, along with “a synthesis of the literature on the topic” (also, see Pan, 2008, page 1).

In the meantime, affording the review of the literature will allow gaps within the existing research to be identified, revealed and it will show how the presented study benefits the already existing research. Our literature reviews will follows both the integrative and descriptive style by Jaidka et al (2013) by exploring the various themes involve in risk management and the use of derivatives contracts. The researcher will identify the most relevant aspects of the research topic and summarise the available research from the most relevant studies that have been conducted to date involving the research topic. The contents of each theme in the academic literature, is related to the research questions and objectives which is central to our study and form the basis for this research.

Meanwhile reviewing the literature with regard to our research topic, from both left and the right, many scholarships have support the use of DC to hedge risk of FNFIs. While there are sound conceptual reasons for believing that the use of DC to reduce risks will have positive impacts, however, the 2008 FEC shows that the issue need to be revisited in order to establish the facts. Reflecting this concern, this area has interested many financial analysts for a long time. On one hand, previous studies revealed that DC markets offered an effective and welfare-improving method to deal with risks faced by companies and institutions - Beegun, and Leroy (2009), (Chen, 2011), Bacha, (2013), and Bodnar, et al 2013). Also, the DC markets have helped to support the movement of capital to different countries of the world to support and boost trading -Lien and Zhang (2008). On the other hand, the use of DC aggravated volatility and accelerated financial outflows experienced during the 2008 FEC (Ward, (2010); Durbin (2011) and McDonald, (2013)).
Perhaps, the DC markets apart from using it to reduce risk has contributed to the development of the financial infrastructure in different countries like IFSC in Dublin, by making links among cash markets, hedgers, and speculators. Consequently the Irish domestic DC markets have grown rapidly since the establishment of IFSC in Ireland and other emerging and developed economies that have removed capital controls and developed their own underlying securities markets. Thus, the increasing use of derivatives products and contracts offer alternatives for efficient and effective risk management, facilitating financial flows to other countries, and creating conditions for raising system risk and magnifying negative effects during events such as the financial crisis of 2008.

Furthermore the development and use of DC to manage risk (risk reduction) raised a number of interesting questions such as: What is risk and how is risk manage? What constitutes effective derivatives use to hedge risk? How do we measure or quantify risk? How do we risk limits or appetite? How do we monitor the risk limits set? Also, on the part of using the derivatives markets to hedge risk, the intriguing questions are: What are the roles of derivatives markets and its importance in the economy? What is the relationship between derivatives markets and the 2008 FEC? What are lessons learned from the use of DCHS (especially CDS) from the 2008 FEC and it impacts? What are the requirements of the counterparties when trading in the DC markets? How do you set the limits for the counterparty transactions risk? What are the impacts of the ‘NTCA’-Basel III? What are the policy and regulatory implications for the future?

In the contexts of the above, the DC markets and the various themes highlighted have been the focus of much academic scrutiny. Perhaps, this chapter surveys and summarizes current theoretical and empirical research involving these issues of interests-(such as: FNFIs; risk management; derivatives and hedging strategies). We will also carry out a deeper look with analysis that takes place on themes including other issues in detail that is primarily overlooked in the introductory chapter.
2.2 Literature Review - Theme 1 (Financial and Non-Financial Institutions)

Many FNFIs have two major types of risk - Ward, (2010). The influence are categorised as being either specific to the institution (or industry), or affecting the whole economic and financial system. First is the ‘unsystematic risk’ that captures the exposure of the institution’s returns to all events that are unique or institution specific. Examples include strike action by employees or a merger with another institution or takeover and acquisition. These events will impact on a particular institution’s expected returns, but will not affect the whole market system. Jorion (2007), and Ward, (2010).

According to Ward (2010), unsystematic risk is sometimes referred to as ‘business risk’ where investors can diversify away unsystematic risk by holding a well-diversified portfolio of shares (Portfolio theory). Perhaps holding fifteen to twenty carefully chosen shares is sufficient to diversify away unsystematic risk- Ward, (2010)’ Panaretou et al. (2013), Perez-Gonzalez and Yun (2013). However, Jorion (2007), Ward, (2010) both argued that systematic risk captures events that impact on a large number of institutions’ expected returns. Thus, systematic risk is sometimes referred to as ‘market risk’ and undoubtedly, is the bone of contention for any risk manager of an institution - Durbin (2011) and McDonald, (2013)]
In general, market risk sources (macroeconomic influences) such as inflation risk, interest rate risk, changes in GDP, foreign exchange rate risks and credit risk are considered to be examples of systematic risks-Ward, (2010) Panaretou et al. (2013). On average, all market – share returns will vary from expected returns, with the whole market either performing better or worse. Systematic or market risk cannot be diversified away as it remains constant, regardless of the number of differing types of the shares held. Therefore, we agree that the only risk to impact on the expected return from a share is systematic or market risk. Systematic risks are commonly measures by a beta coefficient (b) - Ward, (2010), Kozarević, et al. (2012), and Panaretou et al. (2013).

Durbin (2011) and McDonald, (2013)] both stated that the optimum time horizon of market risk varies from one institution to another depending on the nature of the institution business. For instance, a currency or interest rate management decision is only for a limited period of time. Pursuing the management of risk too far into the future is to ignore the fundamental uncertainty that surrounds the business - Ward (2010). The reason is that it could easily reach a point where the uncertainty of business itself is greater than the unpredictability of foreign exchange and interest rate exposures associated with it.-Allayannis, and Ofek (2001), Ward, (2010) and Panaretou et al. (2013).

Thus, critically analysing risks management process involving these institutions, perhaps, they should have a methodology that helps risks managers to make best use of their available resources to solve events such as catastrophic events in a more crowded riskier world with greater vulnerabilities. Indeed, the current events in the financial markets and institutions are all boil down to capital-liquidity and

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8 For example, foreign exchange exposure can be hedged (using forward contracts) by fixing the rate of exchange with a bank therefore transferring the risk to the bank. However, the company policy will dictate how much risk can be transferred to the bank. Non-transferable risks are business risks that cannot be avoided and will be borne by the company at any point in time. [Ward,(2010) and Panaretou et al. (2013)].
solvency of institutions that is assets is less than its liabilities which is equal to owners’ equity net worth.

With different risks highlighted, risks management are used to determine these risk variables of the institutions in terms ‘safety margins and building bridges’ which are derived from risks models that use past outcomes to predict the likelihood impact of future events. Thus, we need to determine the reliability of predictions based on past outcomes with the level of safety margins. Actually, since early year 2000, different risk models for determine risks were introduce by institutions who are convinced that risk modelling and management can analyse natural occurrences that can be applied to risk variables. Therefore, risk managers must address these failures of the internal risk models to adequately assess the likelihood and the extent, of the losses from these so-called ‘tail events’ by managing the event via hedging of these risks such as – credit risk, market risk, foreign exchange risk and interest rate risk etc.

For example, on January 15, 2015, Swiss National Bank–(SNB)\(^9\) removed the cap on the Swiss francs vs. Euro exchange rate in which FNFIs were appalled by the decision and financial analysts think it was unmanageable decision by the Swiss authorities. Indeed, the implication of this move by the SNB is to let the Swiss franc trades freely against the Euro, which ends its three-year policy of capping the franc at 1.20 a €1. Perhaps, the Swiss franc currency surged as much as 41% versus the Euro currency (which Ireland a member) and that is the biggest gain on record because it rose more than 15% against more than 150 country currencies. The announcement caught investors by surprise and traders’ world-wide including Irish FNFIs off-guard and it

\(^9\) For details on Swiss National Bank removing the cap on the Swiss francs vs. Euro exchange rate in January 2015, please see [http://www.finma.ch/e/aktuell/Documents/jmk-rede-branson-20150331-e.pdf](http://www.finma.ch/e/aktuell/Documents/jmk-rede-branson-20150331-e.pdf)
brought unbelievable impacts on some hedge funds leading to their closure\(^\text{10}\).

In view and in context of that decision, the probabilities against a "20-plus-standard-deviation move" are almost extraordinary because, for instance, if the Swiss francs is assume to fluctuate (move up and down) and follow a normal distribution- (ND), a "20+ -standard-deviation" event should only have occur once in a billion of years as suggested by Goldman Sachs top executives and other FIs which place confidence in the financial risks models and their predictive power. Below are Figure 6 and 7 showing the impact of the change in currency policy by SNB as it affects the Euro Currency which Ireland is a member.

![Swiss Franc's Appreciation against selected major currencies](image)

**Figure 6: Swiss Franc's Appreciation against selected major Currencies**

\(^{10}\) The damage cause by the floating rate was widespread as many retail investors, mutual funds and brokerage firms were caught out and suffered losses on leverage foreign exchange trade in the range of millions of dollars/euros. Indeed, the steepest drop on record among the more than 2,000 U.S.-domiciled funds was the $1.9 billion John Hancock Absolute Return Currency Fund (JCURX) that plunged by 8.7% on that very date January 15 date tracked by Bloomberg including Citi group treasury department dealing in foreign currency trade lost more than 150 million dollars as the carnage was universal affecting countries like UK, US, New Zealand, Russia etc.\text{Source: Bloomberg - }\text{http://www.bloomberg.com/news/2015-01-19/swiss-franc-trade-is-said-to-wipe-out-everest-s-main-fund.html link to}
The above figure indicate it is bad for exports as a strong francs hurts the Swiss trades because it makes their exports more expensive for foreign buyers, and the country has a giant export sector.

Figure 7: How many Euros it takes to buy Swiss Franc
The decision caught markets totally off-guard.\textsuperscript{11}

2.3 Literature Review: Theme 2 - (Risk Management)

There are different types of risk faced by FNFIs such as foreign exchange risk, interest rate risk, and credit risk, liquidity risk. Others are commodity risk, operational risk, weather risk, political risk, technological risk, off-balance sheet risk and insolvency risk. Perhaps, these risks has increased tremendously especially in the last century due to globalisation and integration of the financial system. The issue has become increasingly important for risk managers due to the increasing foreign exposure and the hedging requirements and speculative position required to be taken in order to manage the risk and increase income-. Beegun, and Leroy, (2009), Ward (2010), and Bacha, (2013).

In an influential studies by Haushalter (2000) and Bodnar, et al (2013) they found that institutions with highly leveraged capital structures are prone to hedging by

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12 The factors include the following: Inflation rate differentials between countries; Interest rate differentials between countries; Government policy on intervening to influence exchange rate; A country’s GDP and BOP; levels of speculation; market participants sentiment in respect of the future economic prospects; political stability within a country; government policy on holding currency reserves; and natural resources within a country.

13 For full details, types and explanations of risk variables please see Literature Appendix 1.
using derivative instruments to reduce risk variables such as: credit risk, market risk, interest rate risk and foreign exchange risks etc.

Studies by Allayannis and Ofek (2001) and Haushalter, Randall and Lie (2002) stated that institutions with larger investment opportunities use derivatives to hedge and manage risks variables because the marginal benefits of hedging programs may be exceeded by marginal costs which was supported by Santomero (1995), Sorin, B, and Silvia (2009), Sontea, and Stancu, (2011), and Perez-Gonzalez and Yun, (2013).

Also, risk managers can use value at risk (VaR) to measure and control risk variables for trading, for investment management, and for enterprise-wide risk management ‘using derivative instruments for hedging’ while watching out for any key pitfalls in the risk-management systems- [Ward, (2010) and Sontea, and Stancu, (2011)]

2.4 Literature Review: Theme 3 - (Derivatives Contracts)

Reviewing the literature involving the use of derivatives contracts to reduce risk, Allayannis, and Ofek, (2001) and Ward, (2010) argued that DC can be used to reduce FNFIIs risks. Derivatives security is a financial contract whose value is derived from an underlying asset. The different types of derivatives contracts available are forward contracts - traded ‘Over the Counter’ and Futures, Options,
Swaps, Credit Default Swaps (CDS), Stripped Mortgage – Back Securities, Structured Notes, and Hedge Funds etc.\textsuperscript{14}.


Perhaps, a flurry of important past studies and their summary discussions pertaining to derivatives markets and it usage incudes: Flood and Marion (1999) surveyed studies of the causes and consequences of financial crisis; Mayhew (2000) reviewed the literature on price discovery and price stabilization functions of derivatives markets; Dornbusch et al. (2000) provided an excellent review of the studies exploring the exact causes of volatility in international capital flows. Morgan (2001) examined policy attempts to reduce the effects of price volatility on derivative commodity markets. Others are: Lien and Tse (2002) surveyed developments in optimal hedging strategies. Bekaert and Harvey (2003) reviewed the literature on contagion in the context of emerging derivatives market finance\textsuperscript{15}. Dodd (2003) said derivative contracts could further result in misreporting a country’s balance of payments. He also analysed total return Swaps contracts used by domestic FIs in Asia and Mexico before financial crises from 1997 to 1998 and in 1994, respectively.

\textsuperscript{14} For full details, descriptions, explanations, and uses of derivative contracts such as Forward, Futures, Options, Swaps, CDS, Stripped Mortgage –Back Securities, Structured Notes, Hedge Funds etc. Please see Literature Appendix 2.

\textsuperscript{15} For full details of these past scholarships, please see A Survey of Emerging Derivatives Markets\textsuperscript{14} by Lien and Zhang (2008).
These studies concluded that the rapid expansion of derivatives contracts markets during the past two decades is pertinent to facilitating the growth of global economy. Also, the studies reveal the risks associated with commercial, corporate and investments variables such as interest rate, foreign exchange, credit, market, and liquidity risks. Perhaps, they argued that these risks are redistributed from one investor who does not want them to those who are in a better position to manage them.

Moreover bilateral and multilateral investments are more attractive, leading to increased financial flows and more opportunities for portfolio diversification across countries borders. Perhaps, DC markets can be used to enhance risk, evade prudential regulations, and avoid capital controls and taxes. Likewise, they indicates that the DC markets enable companies and institutions to remove certain exposures from balance sheets, magnifying balance sheet mismatches of FIs and disguising these mismatches so that regulators cannot detect them easily.

However, some studies conclude that the misuse of DC lays the foundation for currency, 2008 FEC which the author agreed with as experienced recently. For example, with regard to the, the risk associated with the use of DC was real not but underestimated. For instance, the use of DC such as CDS brought the near-collapse of Bear Sterns in March 2008, the default of LBs that brought it collapse on September 15th 2008 and the bail-out of AIG on September 16th 2008 to the of tune of $85 billion. Perhaps, the collapse of LBs brought unimaginable consequences for many country economies thus accelerating capital outflow during the crisis. As a result, the volatility capital flow increases, which exacerbates the crisis by rendering the dynamics of crisis more unpredictable.

Perhaps, the problems with these FIs originated outside the OTC derivatives markets. It entered the derivatives market via the CDS written by these institutions and others including their central role in all OTC markets which later spread beyond CDS’s market and affected the world economy including Ireland. The structure and mode of operation of these OTC s markets prevented, on the one
hand, other market participants from knowing exactly what the exposures of their counterparties were to these FIs, which lead to suspicion and mistrust (total dishonesty based on greed) and consequently, drying up liquidity that make most FIs world-wide insolvent. More discussions on the DC and all other important issues can be found in the later part of this research project.

2.5 Literature Review: Theme 4 - (Hedging)

Derivatives are important to risk management and hedging because they facilitate financial flows to FNFIs in the economy and various country economies across the world. However, they also create the possibility of raising risk in financial systems, generating more unpredictable crisis dynamics, and providing a transmitting channel for contagion. Studies involving different countries’ economies crises revealed that derivatives contracts hedging can play both positive and negative roles [please see, Garber (1998), Kregel (1998), Dodd 2000 and IMF 2002].

The literature on hedging within the expected utility framework is immense, including, among others, Adam-Muller (2000), Briys et al. (1993), Broll and Zilcha (1992), Broll et al. (1995), Ederington (1979), Johnson (1960), Stein (1961), and Zilcha and Eldor (1991). The hedging role of derivatives hinges on formulating and implementing an optimal hedging strategy. At the theoretical level, an optimal hedging strategy is traditionally based on the expected utility maximization model. The analysis frequently reduces the objective of expected utility maximization to that of variance minimization.
Recent theoretical literature evaluates alternative approaches. (Bawa (1975 and 1978); Kang et al. (1996); Grant et al. (2001); Lien (2001a, 2001b) all argued that as far as hedging is concerned, a one-sided measure such as the downside risk is more relevant while Shalit and Yitzhaki (1984) said that the developments in the stochastic dominance literature, such as the mean Gini approach, facilitates the implementation of a hedging strategy. Dornbusch et al. (2000) highlighted that, in general, international financial markets appear volatile, on both the downside and the upside and a need for hedging strategy to reduce the volatility.

Meanwhile, at the empirical level, much research has been done on improving the estimation of the optimal hedge ratio as Lien and Tse (2002) surveyed developments in optimal HS and claimed that there are alternative instruments available for hedging purposes; among them, perhaps the most important one is options. Another empirical study involve using world coffee price data from 1980 to 1989, Claessens and Coleman (1991) both demonstrated that a HS using futures contracts could reduce the intra-year variability of coffee prices from 10.5 per cent on average to 0.4 per cent, indicating that the producers are almost entirely insulated from intra-year price fluctuations. Among market-based instruments, commodity futures and options could eliminate the short-term price exposure of agricultural products, whereas commodity swaps could be used for long term price exposures related to mineral and energy commodity products (see also Masuoka 1990; Morgan 2001). **Figure 8** below shows Hedging (Price risk management).
More strand of studies involving hedging such as Melumad, Weyns, and Ziv (1999), Ward, 2010, and Hicks (2012) stated that DC are used for hedging (risk-reduction) and or speculation (high risk trading)\(^\text{16}\). The ways derivatives are used to hedge these risks are: (a) to reflect a view on the future direction of the market, (b) to lock in an arbitrage profit, to change the nature of a liability, (c) to change the nature of an investment without incurring the costs of selling one portfolio and buying another etc. Hedging allow FNFIs reduce the probability of financial distress, thus increasing the institutions debt capacity with interest tax shield it brings [Ross (1998) Leland (1998) and Lin et al (2012)].

Furthermore, hedging using derivatives helps reduce cost of risk and distress faced by FNFIs including the amount of corporate tax paid (Mayers and Smith 1982; Smith and Stulz 1985). Perhaps, Chen, 2011) argued that after controlling for fund strategies and characteristics, the creation and use of these derivative

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\(^{16}\) In general, risk management in large institutions is undertaken by a specialist department called the treasury department that recognised, evaluate, measure and balancing the risk and return associated with trading internationally using a variety of different currencies, loan products and commodities are part of the treasury department’s risk management function.


instruments on average exhibit low funds risk. Froot, Scharfstein, and Stein 1993; Myers, Majluf 1984, and Perez-Gonzalez, and Yun, (2013) all argued that hedging using derivatives can make cash flow available to FNFI to internally finance investment projects when external finance are costly-Perez-Gonzalez and Yun, (2013).

### 2.6 Contextualizing the Research in the Literature

**A-** Context and purpose of this study involves the gaps in past scholarships studies: - Research on Irish context not available. Moreover the increase in the use of DC by many Irish FNFI especially in the last two decade to manage and hedge risks (risk reduction) provides the need for the research study.

**B-** To contribute to academic knowledge and literature while using new research strategy to determine the impact of risk manager using DC to manage and hedge risks with other related relevant issues explained above

**C-** Studies drawn on the classification of past studies.

**D-** Secondary data will be adequately collected from theoretical and empirical past studies reviewed in the literature.

Motivation -This research study will be of immense benefit to risk managers of Irish FNFI.
2.7 Quantification / Measurement of Risk

Most FNFIIs have improved their risk recognizing procedures in the wake of Turnbull (1999) Report - (Corporate Governance), where it was suggested that the board of directors (BOD) of these institutions should focus on identifying its risks and should direct it attention to manage its riskier areas (Ward, 2010) and CBI (2012). This means that risk is a corporate problem that requires corporate-level responsibility for identifying, quantifying or measuring and managing it. Consequently, the risk manager of FNFIIs will be particularly interested in identifying, quantifying or measuring and managing financial and business risk exposures (imports and exports). Exposure is a term used to describe being vulnerable to risk.

Perhaps, once the risk has been identified, the next stage is to determine the extent of the risk through quantification in order to determine the impact on the profitability, liquidity and the survival of the institution. The question is how do you measure Risk? Since risk is associated with uncertainty about future returns or liabilities, risk can be measure using standard deviation. The volatility can be negative or positive and it is linked to the idea of "no pain, no gain". However, in the long-run to be able to achieve better returns we will have to accept short term
volatility based on the FNFIs financial circumstances, risk tolerance and the propensity to do so considering the uncertainty and short-terms loses.

Thus, in defining volatility this is the annual standard deviation of returns. The terms volatility, standard deviation and variance are often used interchangeably for the daily variability of prices that is a measure of the dispersion of a set of data from its mean. The more spread apart the data is, the higher the deviation (Jorion, (2007); (Ward, (2010); Durbin (2011) and McDonald, (2013)). The formula below denotes the standard deviation.

\[
\text{Standard deviation} = \sqrt{\frac{\sum_{i=1}^{N}(X_i - \mu)^2}{N}}
\]

The above standard deviation formula shows the dispersion around the mean and is considered alongside the annual rate of return of an investment-measuring the investment’s volatility (risk). For instance, if we want to determine the riskiness of an asset, we first need to calculate the average return of that asset. The reason for this is to know by how much the actual return differs from this average in a typical year. As a result, we need a measure of returns volatility.\(^{17}\)

Using an hypothetical example from 1926 to 1930, the returns on the S&P 500 index were 13.70%, 35.78%, 45.15%, -8.86% and -25.22% per year. Therefore, Average Return for the period will be: - (13.70 + 35.78 + 45.15 -8.86 –25.22) / 5 = 60.55/5 = 12.11%. The result only tells us what take place for the period; however, it does not explain what occur along the way. So in order to calculate the variance, we need to find the squared standard deviation from the average return for each year. We calculate the variance by dividing the sum by 5 (sample of 5 periods) to

\(^{17}\) We note that the Variance measures the average squared difference between the actual returns and the average return. The bigger the number, the more actual returns tend to differ from the average return. Moreover, variance is measured in “squared percentages” and so is hard to interpret hence we use the standard deviation which is an ordinary percentage.
get 697.40 while the standard deviation which the square root of the variance is then \( \sqrt{697.40} = 29.40\% \). The Figure 9 describes the relationship between risk and return over a period.

**Figure 9: Relationship between risk and return over a risk and return period.**

*Source: Goyal, Abhinav (2015) Lecture Notes on Corporate Finance (Risk and Return)*

**Figure 9** describes the relationship between risk and return over a period. From Figure 9 above, does this infer any relationship between risk and return? Yes, as there is a positive relationship between risk and return. This relationship became the basis of William Sharpe’s 1964 paper the “Capital Asset Pricing Model (CAPM)”.
Meanwhile, in measuring risk, what we want to know is how much a financial asset deviates from its expected outcome including how bad things look way down on the left-hand tail of the normal distribution curve in which the VaR model can be used to provide answers by quantifying the magnitude of a bad loss on a financial asset based on a given confidence level over a period of time.

2.8 Setting of Risk Limits and the Monitoring of Quantification and Setting of Risk Limits

Risk models can have value if they are used efficiently and effectively in conjunction with limit management and control process. The normal view of the control function is that it requires and relies on reports generated. However, the important issue is not quantitative data report that is generated in different variations; but it is the interpretation and application of the analysis behind that reports that matters. Thus, objective risk function is to not just the gathering of data, reports running, submitting and analysing the report, but to ensure that unexpected shocks and their impact is limited. While a risk manager cannot control the timing and magnitude of such unexpected surprises in a report, a well-measured and monitor risk function can assist to manage the expectations as well as plan ahead for unexpected shocks. Consequently, setting risk limits will help the risk managers in achieving their objective indeed.

What is Risk Limits? Risk limits are methods for approving particular forms of risk taking. For instance a hedge fund hires an investment manager to invest some of its funds in government or corporate bonds. The hedge fund wants the manager to take risk on its behalf, but the hedge fund has a specific form of risk in mind. However, the fund doesn't want the investment manager to invest in futures, options, equities, or precious metals. Therefore, the fund will communicate its intentions with guidelines on contractual binding investments. This will state the acceptable type of investments and the risk limits it can tolerate with the requirements that: (i) the portfolio’s duration must be less than seven years which
is an example of a market risk limits and (ii) that all bonds have a credit rating of ABB or better which is an example of credit risk limits. Hence, when an institution or company approves a risk limit for risk-taking activities, it must stipulate the following such as: a risk metric; a risk measurement/quantification that support the risk metric and the limit—a value for the risk metric that is not to be breached. Although, there are some exceptions such as:
1.-A range of breach where the metric is being monitor all of a sudden hedges above or below a barrier or historical range. These sudden breaches can occur at single point or multiple points.
2.-Volatility breaches where there is an unexpected decrease or increase in the underlying volatility.
3.-A systematic degradation where the numbers (data) for the metric is being monitored falls below historical thresholds and remain there.
For that reason a good reporting systems make it easier to indicate exceptions when and where they occur rather than hiding them in the volume of data and reports that are being produced as demonstrated in the Figure 10 below: Source: Farid (2010)-Defining Treasury Limits (Limits Control and Business processes).18

Figure 10: Treasury Limits - Limits Control and Business processes
Source: Farid (2010).

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From **Figure 10** above, the right risk management mind-set is not driven by one moving part. However, it is driven by eight inter-related elements in the Figure. Perhaps, to enable it to work properly, they all need to come together and work. If FNFI gets one of these elements right (data or model or policy or process or limits or control etc.) and miss the others, the approach system will surely fail. Furthermore, at any time, the actual amount of risk being taken is the limit’s utilization as quantified by the risk measure. For instance, if the limit utilization breaches the risk limit set, it is called violation.

For example, a FI commercial lending department is authorised to provide loan to a particular counterparty subject to a credit exposure limits of €20million. As a result, the FI measures the credit exposure as the sum amount of outstanding loans and loan commitments to the counterparty. The commercial lending department lend the counterparty €16million causing its utilization of the limits to be €16million. Since the limit is, €20million the commercial lending department has remaining authority to lend up to €4million to the counterparty. Similarly, a metals dealing company approves a commercial trader to take gold price risk subject to a 4000 troy ounce delta limits. Perhaps, using a quantified measure of delta, the company portfolio’s delta is calculated at 5.30pm each trading day. Utilization is calculated as the absolute value of the portfolio’s delta.

In conclusion, the setting and monitoring of risk limits is vital for any FNFI because it will enable the institutions that cannot control the timing and magnitude of unexpected surprises to be on a much safer side. So a well-measured and monitor risk limits function will help to manage the expectations as well as plan ahead for unexpected shocks. There are different types of risk limits set by FNFI such as: treasury limits and control process-market risk limits; capital loss and stop-loss limits; exposure and sensitivity limits and VaR limits. Other limits are: operational (exception or management action) limits; concentration limits; transaction limits and counterparty limits that involved both liquidity and interest rate limits.
2.9 Learning’s from 2008 Financial and Economic Crisis

The 2008 FEC exposes the wrong use of DC- (especially CDS) in particular due to lack of supervision and light touch regulation by the regulating authorities as we later learnt. The risk associated with the use of this DC was real and underestimated. For instance, the use of CDS a DC brought the near-collapse of Bear Sterns in March 2008, the default of LBs that brought it collapse on September 15th 2008 and the bail-out of AIG on September 16th 2008 to the of tune of $85 billion\(^\text{19}\). These FIs are either dealers or users of OTC derivatives or both and their activities in the derivatives markets brought severe consequences for the world financial system leading serious world –wide economic crisis.

The problems these FIs experienced originated outside the OTC derivatives markets. It entered the derivatives market via the CDS written by these institutions and others including these FIs crucial role in all other OTC derivatives markets and it spread beyond CDS’s later affected the world economy including Ireland. The structure and mode of operation of these OTC derivatives markets on the one hand, prevented other market participants from knowing exactly what the exposures (risk) of their counterparties were to these FIs, which lead to suspicion and mistrust and consequently, drying up liquidity that make most FIs world-wide insolvent.\(^\text{20}\)

\(^{19}\) Although OTC derivatives markets were not responsible for the onset of the 2008 FEC; they played both a direct and an indirect role in its propagation. The direct role was caused by the near failure of AIG due to its dealings and trading in the CDS derivative markets. The indirect role had more to do with the players – (participants) in those OTC derivatives markets.

\(^{20}\) We note one positive about the OTC derivatives markets that during the period of the crisis, the markets handled the default of LBs smoothly by closing the latter's positions without any major losses for its counterparties. However this true only up to a point because of the impaired liquidity in the inter-bank money market which ground to a halt, caused by uncertainty and mistrust in the market that the default created among the market participants.
On the other hand, we also learnt from the financial crisis of 2008 that the many countries financial regulators were prevented to identifying early **risks that is building up in the financial system**, the magnitude of the risk, extent of concentration and thus the impact of the default of these FIs would have for financial system stability. Perhaps, the **lack of sufficient information** on the OTC derivatives markets where CDS were traded coupled with ineffective supervision and light touch regulation worsened the problem indeed as we **later learn from the crisis**.

Overall, what we learn from the 2008FEC, apart from other causes which is highlighted briefly in the ‘**Literature Appendix 3**’, \(^{21}\) is the huge risks associated with the trading in derivatives markets in general and the CDS) in particular that generated a network of mutual dependence that was problematic and very difficult to understand, unravel, disentangle and contain in the immediate consequences of a default that lead to the 2008 FEC.

Hence, the FEC has obviously revealed that the features of OTC derivative markets, i.e., the remote nature of contracting derivatives instruments with inadequate information, the complex network of mutual dependence among participants, the problems of understanding the nature and magnitude of the level of risk involve, therefore intensified uncertainty in times of market turbulence and accordingly poses heavy risks to the world financial system stability.

As a result of the problems associated in trading in **OTC DC markets** and perhaps, in finding some solution to the problems it brought during the crisis, a report chaired by **Jacques de Larosière**\(^{22}\), revealed the risks linked with the rapid

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\(^{21}\) For a brief detail of the causes, effects and solutions to the financial and economic crisis of 2008, including some valuable commentaries from eminent scholars in the academic and professional industry, please see the ‘Literature Appendix 3 and 4’

expansion of the use of credit DC and the need to resolve the problem of lack of transparency in the derivatives market. The report recommended quick action to make the derivatives market much easier to understand by standardising, supervising and effectively regulating the OTC derivatives trades including introducing the CCP Clearing System which was even supported by the G20 Summit in London in April 2009 and the European Council on June 19th 2009.

Ever since October 2008 the Commission has been working actively on an in-depth review of derivatives markets termed "Driving European Recovery", by recommending measures to address the problems identified by introducing EU based central clearing by July 2009. The Commission Staff Working Paper contains a synopsis of (i) derivatives contracts markets, (ii) OTC derivative contract market segments, and (iii) a review of the efficiency and effectiveness of current measures to reduce risks, particularly with regards to CDS.

2.10 The Impacts of the ‘New Capital Transparency and Adequacy - (Basel III)

As an overview, Basel I came into effect in 1988 which was very simple in application and very easy to achieve significant capital reduction with little or no risk transfer. However, it led to overly simple rules which were subject to
“regulatory arbitrage” and poor risk management. Furthermore, when Basel II came into effect in 2004, there was more risk sensitiveness. But threats to banks exposures were very unequally leading to profoundly altered bank behaviour that contained “gaps” which banks exploited. However, Basel III ’NCTA regime which is to be implemented fully by 2023 is to ensure: market discipline, global regulatory framework for more resilient financial system, international framework for liquidity risk measurement, standards and monitoring of the financial system with minimum requirements to ensure loss absorbency at the point of non-viability.

Perhaps it addresses the perceived deficiencies of Basel II greatest impact on bank trading book, bank liquidity and bank leverage leading to increase capital charges materially and to make certain FIs activities much more capital intensive. For instance in the US similar to what is done in Europe, the Federal Agencies released notices of proposed rulemaking changes that will revise regulatory capital rules for US banking system and bring into line with the Basel III capital standard and adequacy that were issued in December 2010 and subsequently updated in 201123. The changes create a tougher capital standard and adequacy through more restrictive capital definitions, higher risk-weighted assets (RWA), additional capital buffers, and higher requirements for minimum capital ratios.

The key issue for Basel III involving FIs is about:

A. “Capital” such as: Assets less liabilities; owners’ equity; net worth; support for (riskiness of) operations which assist the profitability and solvency of institutions or firm.

B. “Capital Management” involving the determination need for and adequacy of capital; plans for increasing or releasing capital and the strategy for efficient use of capital.

However, the “problem” with capital is that a certain amount of capital is needed to promote solvency for the institutions, thus the need to be able to raise capital. Also, if there is too much capital, the FI profitability (as measured by return on equity) will suffer, thus, we need to be able to efficiently deploy capital. Thus to this end, the Basel III regime recommends some fundamental reforms to improve both the Basel I and II. The key summary of the reforms introduce by BIS Committee are: to increased overall capital requirement; narrower definition of qualifying regulatory capital; increased capital charges for banking book exposures; increased capital charges for trading book exposures; new leverage ratio and two new liquidity ratios. The details of these reforms can be found in the Literature Appendix 5.24

Consequently to the above requirements and reforms, the implication of this BIS Basel III is that once these fundamental reforms are incorporated into the FIs regulatory capital framework, it will fundamentally impact on the profitability and transform their business models. These proposed reforms will require these FIs to undertake significant process, data management, system changes to achieve upgrades in the areas of data management, risk management through setting of risk limits and the monitoring, counterparty risk limits by monitoring exposures, stress testing, and capital management infrastructure that will promote the liquidity and solvency of these FIs- A way forward!

24 Source: The source for the BIS Basel III fundamental reforms, the timing, the scope of application and three Pillars of Regulation are taken from - Latham and Watkins (2011) - Regulatory Capital Reform under Basel III Paper @ (www.lw.com) website.
2.11 The Role of Derivatives Markets

It is a known fact and it is widely accepted that the role of derivatives market is to facilitate the transfer of risk among financial and economic agents. Various DC traded in the derivatives markets provide different packages of payment patterns, redistributing and reallocating the risks associated with future cash flows among different market participants - [Lien and Zhang (2008)]. Definitely, it is agreed that the financial service sector has responded by developing a variety of products which are designed to hedge against risk.\footnote{For a full discussion on the role of the derivative markets in an economy, please see, McDonald, (2013); Hull, (2012); Durbin, (2011) Ward, (2010) and Glen Arnold (2008).} In the main, these products are paper securities (contracts) which are attached to the underlying assets, such as cash, commodities or currencies. These paper securities are called derivatives because they derive value from movements in the value of the underlying asset. FIs used these DC to either: (i) to hedge in-house risks or (ii) sell to clients for hedging, or (iii) for own-account trading. In some circumstances risk manager of some FIs do make an assumption as to the direction of the fluctuation in the underlying assets and this leaves them exposed to losses if their assumptions do not hold. The process of using derivative instruments to reduce risks is often described as hedging; while traders performing hedging transactions are hedgers.
Derivatives Contracts

This section discusses DC in detail and why are derivatives important in an economy? What are the risks involved in derivatives? Why do we need to evaluate counter party risk? How do company for example (Ryanair) hedge it jets fuel products and some working examples?

Why Derivatives Contracts?

DC which play important role in any economy but are associated with risk can be define as financial contracts whose values are derived from underlying assets. They are commonly used for the following reasons such as: to redistribute risks generated in the real economy, and are consequently important tools for financial intermediaries to transfer risk; for managing and hedging contractual risks (risk reduction) that arise in the institution’s normal course of business activities; to change the nature of a liability; to reflect a view on the future direction of the market; to change the nature of an investment without incurring the costs of selling one portfolio and buying another and to acquire risk with the aim of locking in an arbitrage profit - (high risk trading), such as currency risks, interest rates risk, and credit risk etc.- fully discussed in detail in the Literature Appendix 2.
The most commonly used derivatives are forward contracts, futures contracts, options and swap etc. Other types of derivatives contracts are CDS, stripped mortgage-backed securities, structured notes, and hedge funds that FIs use to hedged risk, reflect a view on the future direction of the market, lock in for an arbitrage profit, change the of liability or investment without incurring the costs of selling one portfolio and buying another —[Please see (Hull, (2012); Durbin, (2011) and Ward, (2010) etc.)]

The use of DC has grown tremendously over the last two decades worldwide. Some DC are standardised (e.g. futures) which are typically traded in organised trading venues where prices are publicly displayed (e.g. derivatives exchanges - highly bespoke nature where there is a limited choice of strike prices or maturities that can be traded). OTC derivatives are not standardised as each contract is tailored to the specific needs of the investor (e.g. hedge funds) and are traded off-exchange where prices remains private. The participants trade directly with each other which may have been concluded over the phone (voice brokerage). However, due to modern technology, the trade are taking place on electronic networks (e.g. on electronic networks between dealers and their clients or between dealers). Figure 11 denotes the Exchange Traded Derivatives and OTC Traded Derivatives. Figure 12 shows the OTC Derivatives growth between Years 2000 to 2010 in US$ Trillions while Figure13 shows the Total OTC Derivatives between Years 2000 to 2010 in US$ Trillions. Source: Bank for International Settlement (BIS).

26 Derivatives have gradually become used to secure risk with the aim of making a profit (speculation and arbitrage). An important feature of derivatives is that they allow those who use them to obtain leverage with a relatively small outlay; the investor is able to take a large position in the market.
Figure 11: Exchange Traded Derivatives and OTC Traded Derivatives

Source: Google Images for Derivatives.

Figure 12: OTC Derivatives Growth between December 2000 to June 2010 US$ Trillions. Source: Bank for International Settlement (BIS).
OTC derivatives are divided into five broad segments: commodity derivatives, equity derivatives, interest rate derivatives, foreign exchange derivatives and credit derivatives, of which CDS is the most important.

2.11.1 Why derivatives are important in an economy?

Derivatives are beneficial to any economy because no economy can flourish without any FNFIs are ready to take risk. A person or group of people setting up a business or company are taking the risk that the business may fail. Similarly, FIs that lends money to that business or company risks the possibility of not receiving the loan full repayment. Therefore, without the person or group of people setting up the business or company, nonetheless, the investor that has deposited his
funds with the FIs would have the prospect to earn a decent return on his/her savings. The investor knows that the higher the risk of the project being funded, the higher the return.

Accordingly investment projects being funded will depends on whether someone is prepared to accept the risk involved as no one like taking too much risk and it is beneficial if risks involved can be spread and shared and that is the essence of using derivatives - (i.e. risk reduction via redistribution which can be used as security against a particular risk ("hedge") or, as an instrument to take speculative positions in the financial markets as done by commercial entities – manufacturers (e.g. C&C Group, CRH Plc.) airline companies (e.g., Ryanair and Aer Lingus) etc. to cover the risk of a price increase in the primary resources they use to either produce goods or jet fuels to run their airline including planning for future needs.

2.11.2 What are the risks involved in Derivatives and why do we need to evaluate the soundness of counter party risk?

There are many risk involved in using DC to reduce risk via redistribution as participating institutions in the derivatives markets can 'hedge' the risks they face on a daily basis. However, if risks are hedged on OTC markets, it is difficult for market participants and regulators to determine and make judgement whether
those risks have been effectively hedged due to lack of public information about those markets. Perhaps, the reason is that if traders operating in derivatives markets are neither market maker nor do have any interest in the underlying transaction(s), they will facilitate speculation, volatility and the building up of risks in the system. Those who intervene in derivatives markets used derivatives as a means of leveraging the balance sheet as it allow market participants to take positions with less capital than those required for investing in cash markets indeed.

Besides, in markets with few participants, if counterparty defaults as experienced with CDS derivatives markets (one of the major cause of the 2008 FEC), it may be hard to find other counterparties to replace a hedge and the problem will surely intensified as they may either be in distress condition themselves or unwilling to enter into a trade in view of wider uncertainty.

This shows that when finalising an OTC contract, it is tough to assess the risk that counterparty may default. However, assessing counterparty risks is a necessary condition that must be met to avoid risks connected with using DC. Perhaps in highly interconnected global financial markets, such an assessment would in principle require any market participants and regulators to have good knowledge about all other market participants in terms of fully understanding the true nature and level of risks (exposures) that any particular market participant is exposed to, borrowing conditions, ability to repay back their debts, their appetite for risk taking, their liquidity and solvency status and the need to account for the extreme concentration of some market segments, which entails severe implications in case of any players defaulting etc. Thus, apart from banks, OTC derivatives markets only have little public information (or incomplete information) of the above requirement of market participants and that is why CDS are particularly exposed in all these respects leading to the 2008 FEC because most DC depends on observable market prices (e.g. the foreign exchange rates or interest rates) while CDS are different. The credit risk they cover cannot be observed, nevertheless, it
requires particular information about the borrower, normally only banks have had.27

Furthermore, in terms of managing the counterparty risks, it can be mitigated by the way trade and post-trade functions which are structured. At trading level, risks can be reduced by improving operational efficiency, e.g. ensuring electronic trade execution, affirmation and confirmation. This would have the result of making OTC trade execution more similar to the way transactions are handled on-exchange. Thus, improving operational efficiency has been the focus of regulatory attention prior to the FEC and has contributed to ensuring that CDS are gradually more affirmed and confirmed electronically.

Nevertheless, while operational efficiency is necessary condition, however, it is insufficient. To efficiently and effectively provide solution the risks outlined above, it is imperative to strengthen post-trade functions especially clearing. Clearing is the way by which the risks outlined above are alleviated. It therefore plays a vital role in DC markets. Clearing can either take place bilaterally between the two counterparties to a specific trade or at central market level, by means of a CCP. On-exchange, clearing is done exclusively by CCPs. Yet, off-exchange, bilateral clearing remains the rule; despite the fact some market segments have CCP clearing as well particularly interest rate swaps.

The major difference between bilateral and central counter-parties clearing is that bilateral clearing is characterised by web of counter party exposure, complex collateral movements and potential domino effects of one dealer default while CCP

27 However, we note that over the last decades credit risk has become more tradable, e.g. through securitisation. Nonetheless, evaluating the risk remains difficult because of the common factor – significant default. While these risks are not unique to CDS alone, they also apply to other derivatives in general, although to a less dramatic extent. Nevertheless, the risks associated with CDS are further intensified by the fact that the potential obligations that come with this instrument – (CDS) are extreme. For details and more information on derivatives markets, OTC derivatives market segments, and an assessment of the effectiveness of current measures to reduce risks, please visit http://ec.europa.eu/internal_market/financial-markets/derivatives/index_en.htm
clearing is characterised by hub and spoke with central guarantor, all collateral moves to/from CCP and CCP is capitalised to withstand dealer default.\textsuperscript{28}

Meanwhile, a major step towards improving the financial stability of the European market for CDS relating to European entities and indices has started clearing through central counterparties regulated by the EU. This will assist in strengthening the financial stability by ensuring better risk management for European CDS markets, and that was the response of the ‘Former EU Internal Market and Services Commissioner- Charlie McCreevy’-(PB).

\textbf{Former EU Internal Market and Services Commissioner - Charlie McCreevy}

Commissioner McCreevy’s call to reduce the risks inherent in the EU market (see SPEECH/08/538). Perhaps, Commissioner McCreevy's said “CDS are financial

\textsuperscript{28} Please see Staff Working Paper, section 2.2 and 2.42 for further description of these concepts a more detailed description of CCP clearing.


products designed to insure the buyer against losses caused by a credit event (e.g. a default) affecting a given entity, and until now had been managed bilaterally between buyer and seller”. He further said: “Back in October 2008, I called upon the industry to reduce the risks inherent in the credit default swaps market, in particular by moving the clearing of these contracts onto a European central counterparty (CCP). The financial crisis highlighted a number of problems in the CDS market, especially where transparency, market concentration and risk mitigation were concerned. Clearing through central counterparties is the key to improving risk management and to increasing the stability of the financial system”. 29

2.11.3 Example of Ryanair Hedging Strategies (HS)

There are many different types of DCHS discussed in the ‘Literature Appendix 2’. For example, Ryanair – an airline company based in Ireland gambled on fuel prices this year and it backfired heavily costing the company close to €200m, according to financial analyst. 30

The reason is that Ryanair HS failed on oil price gamble which backfires as jet fuel price falls. Ryanair normally hedges its jet fuel prices in advance, as it buys the fuel ahead of time to protect the airline from potential shocks from the oil markets


by budgeting well in advance. However a recent collapse in jet fuel prices earlier in the year (precisely January 2015), triggered by the dwindling cost of oil, means that the airline will pay over the odds (high price) for its fuel than the current market rate - a price some of its competitors can benefit from by taking advantage.

Perhaps, jet fuel is part of the airline's operating costs between 20pc and 50pc and any movement in oil prices can have positive or negative impact on company profits. For the case of Ryanair, the company hedged 90pc of its fuel at $92 per barrel for the fiscal year, which almost doubles the current market price at that period.

Conceivably, analysts in the airline industry have indicated that Ryanair's move to ‘lock in its future fuel needs at high prices’ means that the airline may be paying close to €200m more than it would if it bought the fuel at current prices of nearly $50 in January 2015. The impact of this derivative hedging strategy using futures contracts cost the company close to €200m and has negative effects on profits and the share price of the company (drop by 6cents) despite reporting strong growth in both passenger numbers and revenue.\(^{31}\) This was one of a few factors which took the shine off the latest quarterly results released earlier for the company owned by the CEO - Michael O'Leary (PB).

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\(^{31}\) Perhaps in order to illustrate further on how HS are used by FNFIs to reduce the different types of risks, some working examples of how DCHS are used to reduce the different risks are discussed in the ‘Literature Appendix 2’. Source: DBS (2015) Lectures Notes in Treasury and Risk Management.
However, Mr O'Leary - CEO of Ryanair said that the situation was due to the market being "a bit spooked by the fact that we're very cautionary on next year as savings from decreasing fuel prices would be passed onto customers in the form of lower fares". He further said: "There's a degree of irrational exuberance out there. I've seen it, some of the forward-looking numbers, that everyone is going to trouser all the fuel savings." In the next fiscal year, it is estimated that Ryanair will spend just over €2bn which runs from April 2015 to March 2016 as the company is at the upper end of the scale in terms of fuel hedging in comparison to competitors. For IAG, it is hedged at a rate of 74pc while Lufthansa is hedged at a rate of 55pc.

Sunday Independent comparison shows that if Ryanair had hedged its jet fuel at a rate of 60pc instead of 90pc, the airline would have gain an extra €200m for the next fiscal year reducing its fuel bill to €1.8bn from just over €2bn. In the face of 15pc reduction in its futures contracts hedging strategy to 75pc, the Ryanair is expected to save close to €100m for the year as it is based on market projected estimates that the average fuel costs over company's fiscal year will be just over $57 per barrel. **Figure 14 shows** both Ryanair and Aer Lingus Plane @ Dublin Airport, Ireland. The two Irish airline companies are heavily involves in the use of derivatives contracts to hedge their jet fuel prices.

![Ryanair and Aer Lingus Plane @ Dublin Airport, Ireland](image-url)
Meanwhile, Ryanair signalled in its results that some of its rivals like Aer Lingus-(plane pictured above with Ryanair plane) and other airline will be "significant beneficiaries" from the lower oil prices indicating that profit growth for next year will be modest as rivals' cheaper fuel pushes fares down. The company spokeswoman said Ryanair hedging policy "achieves significant certainty in managing and growing Ryanair's business profitably over time". "Our hedging policy enables us to obtain certainty in relation to key operating expenses, such as fuel, and the cost of our aircrafts," she added.32

2.12 Literature Review Conclusion

Throughout this section an important review of the literature involving various themes of how risk managers can effectively utilized DC to reduce risk with deep analysis of the process and other issues on interest in order to have a better understanding. From the above review of the literature, a critical analysis shows that DC which has grown world-wide can effectively be used to reduce risk through HS. Previous studies of DC markets have supported the hedging role in many countries financial markets. Apart from using the DC to hedge in-house risks, it can be sold to clients for hedging or for own-account trading.

Furthermore both theoretical and empirical past studies, address the important roles of derivatives markets in an economy and this study reveals that there are positive impacts on Irish FNFIs to use derivatives to hedge risks and create liquidity efficiency income that is more effective and welfare-improving method to deal with price volatility.

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32 We note that several foreign airlines have recently seen their fuel hedging policies backfire. For instance, Singapore Airlines saw its hedging policy wipe $216m from its third quarter earnings while the US Delta Airlines only just reported a fourth quarter loss of $712m which was largely attributed to its fuel hedging policy. Source: Irish Independent – published on 08/02/2015 | 02:30
Nevertheless, it has been established that using DC (for instance CDS) do have negative effects, although not in Ireland but in the US, which can lead to exacerbated volatility and seldom cause crisis (FEC) that could amplify the negative effects and accelerate contagion as experienced in Ireland in 2008. Thus, negative effects of this derivatives for the institutions concerned has to do with the problem of application, that is, the way in which the DC has been used (i.e. wrong motive).

Perhaps, the fundamental reasons for the derivatives negative effects on risk management are associated with the leverage nature of derivatives markets transactions, the non-quantification of risks, non-setting of risks limits, non-monitoring of both, lack of information and non-transparent reporting of transaction risks, non-evaluation of the soundness of the counter-party risks, unsophisticated or insufficient risk management controls in FNFIs, as well as weak regulatory and supervision system termed ‘light touch regulation’ that brought serious negative consequences for many economies of the world with untold hardship for the ordinary citizens.

Remarkably, academic literature clearly concludes that for countries derivatives markets to fulfil the functions of risk reduction, price discovery, hedging role, redistribution of income and stabilization compared to what has occurred in established markets, countries financial systems needs to be supported by sound macroeconomic fundamentals and updated financial policies and regulations. Likewise, scholarships have argued that while there is no uniform optimal development strategy, that countries can adapt to sequence or structure their derivatives markets; gradual development schemes accounting for dynamics in different markets should be encouraged.

Additionally, for an optimal productive derivatives markets to reduce risk will require more fundamental reforms that will make it possible for market participants and regulators to determine and make judgement whether the risks faced by companies and institutions have been effectively been hedged with public
information available from these markets in order to avoid speculation, volatility and the building up of risks in the system. Obviously, the quantification of risk, the setting up of risk limits and the monitoring of those risk limits will assist markets participants to manage their risk.

Particularly, other vital requirements to be initiated when using the derivatives markets are: the setting up of the counterparty risk limits in the derivatives markets transactions in order to assess whether counterparty may default, the market participant exposures, borrowing conditions of the counterparty, ability to repay back their debts, the counterparty appetite for risk-taking, the liquidity and solvency status and the establishment of more CCPCH as suggested by Charlie McCreevy's for the European CDS markets which he said will ‘undoubtedly improve the operational efficiency of DC markets’ to function fully in these highly interconnected global financial markets ensuring electronic trade execution, affirmation and confirmation indeed.

As result of the FEC and in order to strengthen the capital based FIs the BIS Basel III regime recommends some fundamental reforms to improve market discipline and the liquidity and solvency of these FIs by increasing the overall capital requirements of their operations, narrower definition of qualifying regulatory capital, increased capital charges for banking book exposures; increased capital charges for trading book exposures and new leverage ratio indeed.

Another solution from the literature to improve risk reduction of FNFIs and the use of DC is the use of financial models - VaR which can be used to gauge how much money an institution is likely to make or lose from trading including anticipating big movements in the financial markets in order to avoid the type of 2008 FEC we experience due to trading and investment loss. JP Morgan for instance changed its financial VaR model on multiple occasions before and after learning the enormous DC trade undertaken by its so-called “London whale” costing JP Morgan close $2 billion.
From all the discussions, several issues can be determined throughout the review of this secondary research. In spite of the fact, that there are some studies that support the use of DC to hedging risk, as established in the literature review, the increasing shocks to risks variables such as the Swiss Authorities change in their currency policies involving the exchange rate of the Swiss Francs to the Euro on January 15 2015 which Irish State is a member raises questions for our target audience with other factors stated above makes ground for this research indeed.
Chapter Three

3.0 Research Methodology

In this chapter, we describe the research methodology with the underlying assumptions to be used for this research project including and the use of ‘research onion’, adopted from Saunders et al. (2012) as a guide. Also, we discuss the research methods with justification and critical evaluation (strengths and weaknesses) of the process to enable readers and users of this research piece to have a better understanding of how the project has been done. Perhaps, the process involved the selection of an appropriate research design; research philosophy-(positivism link with quantitative methods and deductive approach against interpretivism with qualitative methods and inductive approach); research strategy; and research choice while using the literature on research methodology to support our discussions. Other methodological process includes sampling; data collection options; data analysis; plan for completion; ethical issues and research limitations.

Hence, the research methodology provides and assists the researcher in facilitating and addressing the answering of the research questions by selecting an appropriate design. Interestingly, Collis and Hussey (2003, page 10) stated that the research process, is ideally “a neat orderly process with one stage leading logically onto the next stage” however, they also recognize that “research process is rarely like that” and considering the prerequisite stage procedure where continuous revisions are usually made. They initially claimed that “it is a
systematic and methodical process of enquiry and investigation with a view to increasing knowledge.”- Collis and Hussey (2003, page 3.)

Blumberg, Cooper and Schindler (2011, page 12-13) specified that a good research should be “purposeful with a clearly defined focus and plausible goals, defensible ethics and replicable procedures with evidence of objectivity.” Kumar (2012) argued that research is for the pursuit of knowledge and understanding which an activity embarked on to meet the aims and objectives. Accordingly, it is essential for the researcher to identify not only the research methods but also to understand the overall methodology. Perhaps, the objective of this research is to address the research question posed in chapter one which is to determine the impact of how risk managers of Irish FNFIIs can effectively utilize DC in managing and hedging risk variables (risk reduction).

Meanwhile, Clarke, 1984 defining methodology contend that in an academic research, methodology is a body of knowledge that allows the investigator to underpin the research questions through gathering of different types of evidence that can be collected. Furthermore, Avison and Fitzgerald, 1995 stated that a methodology is a set of procedures, techniques, tools and documentation aids usually based on some philosophical paradigm to obtain information for research purposes. While Hussey and Hussey 1997, describes research methodology as talking about the overall approach to the research method forms and the theoretical foundation to gathering information and data analysis.

So the research investigator deliberates and justifies the methods of survey being used for investigating the research. Perhaps, Goddard and Melville (2001, page1) indicates that “research is not just a process of gathering information, as is sometimes suggested. Rather, it is about answering unanswered questions or creating that which does not currently exist. In many ways, research can be seen as a process of expanding the boundaries of our ignorance. The person who believes he/she knows everything reveals not only arrogance, but also a profound ignorance".
Denscombe (2007) described research methods as tools, which help to get a clear and accurate measurement of things and to achieve facts and evidences about the subject. Bryman, (2008, page 4), specified the “different viewpoints about the nature of social reality and how it should be examined” and claimed that business research and its methodology do not exist separated from social science. Moreover, Kumar, (2008, page 5), stated that it is “an inquiry into the nature of, the reasons for, and the consequences of any particular set of circumstances whether these circumstances are experimentally controlled or recorded just as they occur”. Actually, it may be claimed to be a science of studying how research is done scientifically.

Consequently, from the various definitions above put forward by various scholars, it is vital to distinguish between research methodology and methods. Thus, Ponterotto (2005, page 132) states that research methodology is the “process and procedures of the research” while (Saunders et al. 2012, page 674), argued that research methods refers to the techniques and tools employed to obtain and analyse research data, inclusive of questionnaires, observations and interviews and both statistical and non-statistical techniques. Saunders et al. 2012 described methodology as “the theory of how research should be undertaken, including the theoretical and philosophical assumptions” upon which the research is based and its implications on the choice of methods adopted.

Accordingly, to establish a perfect understanding of the appropriate designs and techniques to be utilized in conducting this research, Saunders et al. 2012, said it is indispensable for the researcher to have an comprehensive knowledge of the research methods, philosophies, approaches and their application to primary and secondary data collection supported by the implementation of the research onion that categorized research process into six groupings.

The research onion recognises various issues surrounding data collection techniques and analysis procedures that look like the layers of an onion and must be peeled away layer by layer to uncover the core objectives. Saunders et al.
2012, divided the research onion into six layers of research - philosophies (positivism, realism and interpretivism), approaches (deductive and inductive), strategies (experiment, survey, case study, grounded theory, ethnography and action research), choices (mono, multi and mixed methods), and finally techniques and procedures (data collection and analysis). The researcher will explore the research onion on a step-by-step basis by letting the researcher to discuss the motivation behind each philosophical choice with comparison to other alternatives.

3.1 Research Questions, Aim and Themes

This section detailed precisely how the researcher, using the appropriate knowledge, skills, tools and techniques, intends to achieve the research objectives by stating the research questions. The research question aims to assist in determining the impact of how risk managers of Irish FNFI's can effectively utilize DC in managing and hedging risk variables (risk-reduction)

Haber (2010, page 28) state “the research question (sometimes called the problem statement) presents the idea that is to be examined in the study and is the foundation of the research study”. Saunders et al. (2012) consider the formulation and clarification of the research topic area as the starting point of the project, before defining research questions and objectives.

Hence, the overall idea is to determine the impact of how Irish risk managers can use DC to reduce risk. The questions will be answered by a combination of the themes identified in the literature-review and data collected from survey questionnaires participants. As a result, an induction is made about the impact and recurring themes in risk management and hedging strategies based on the
review of the literature-review and its findings. Likewise, the research questions listed in chapter one will be answered by conducting an in depth survey research process. Other secondary research questions have be highlighted in chapter One

3.2 Research Design

The research design is a detailed outline of our research and how the investigation of the research topic will take place including how the researcher will go about answering the research questions. Indeed, our research design will strongly influences how our data that will be collected, what instruments will be employed, how the instruments will be used which is intended means for analysing our data collected.

Perhaps, our research design is based on the model created and modified by Saunders, Lewis and Thornhill (2012). This model is called the research ‘onion’ and incorporates every aspect that is necessary for determining what kind of research it will be. Blumberg et al., (2005) stated that research design is a blueprint for the gathering of data in order to answer the research question(s) and achieve our objectives. As Saunders et al. (2012, page 159) explains “research design is the general plan of how you will go about answering your research question(s).”

Punch (2006, page 48) explains further that the research design is the link between the research question and the data indeed. Therefore, exploratory studies are a means to find out ‘what is happening’. They include searching the
literature, interviewing experts or administering survey questionnaires’ to experts in risk management to get answers for the research questions via collection of primary data. Perhaps, while explanatory studies aim to establish a causal relationship between variables, thereby explaining a situation, whereas descriptive studies portray an accurate picture of persons, events and situations, it allows the researcher to put forward a clearer picture of a phenomenon to get answers.

Consequently the ‘research onion’ has been chosen to represent the various research strategies being employed for this project. The outer layer of the ‘onion’ reveals research philosophies, approaches, strategies and choices with data collection and analysis in the inner layer-(Saunders, Lewis and Thornhill, 2012, page 103). Below is Figure 19 and 20 displaying the research ‘onion’ by Saunders, Lewis, & Thornhill 2012 and the detail elements of research design.

Source: The research ‘onion’ by Saunders, Lewis, & Thornhill.
3.3 Research Philosophy

The research philosophy displays an important part of the research as the researcher establishes a mix of positivism under research philosophy and deductive approach under research approach to be used in this research project. According to Collins, (2010), the term ‘research philosophy’ relates to the development and nature of knowledge. Indeed, a research philosophy is a belief
about the way in which data about a phenomenon should be collected, analysed and used.

Meanwhile, Johnson and Clark (2006) stated that research philosophies relates to the development of knowledge. They explain that “as business and management researchers, we need to be aware of the philosophical commitments we make through our choice of research strategy since this has significant impact not only on what we do but what we understand in what we are investigating”. Moreover, they argue “that the important issue is not so much whether our research should be philosophically informed, but it is how well we are able to reflect upon our philosophical choices and defend them in relation to the alternatives we could have adopted”,

Perhaps, it is difficult to determine the type of philosophy to be used in any research due to the fact there are many types of research philosophies with similarities, however, it is important to note that ‘no one philosophy is better than the other’, rather they are each better at doing different things (Saunders et al. 20012).

The different type’s philosophies are contrast in objectives and have various ways in achieving their objectives. Perhaps, it indicate that being able to reflect upon and support philosophical choices relative to the possible options that could be implemented is more significant than whether our research should be philosophically cognizant. Thus, Maylor and Blackmon (2005) identified two major research philosophies thought processes that apply to business management research, i.e. epistemology and ontology while Saunders et al. (2012), identifies many different types research philosophies such as epistemology, ontology and axiology. Epistemology is the opinion of what is constituted as acceptable knowledge or is concerned with the theory of knowledge and ‘what establishes adequate knowledge’ in a field of study. Perhaps, Steup, (2005), said epistemology deals with issues of how knowledge comes about, which knowledge processes are conceivable, how knowledge is established under various
conditions, and how to recognize that knowledge is actually offered on the basis of knowledge.

On the other hand, Ontology studies the reality or nature of being or is the interpretation of the nature of reality and existence. (Blaikie, 1993), said that it does not matter if these are claims or assumptions while Crotty, (2003, page 10), state that “Ontology is the study of being”. Axiology is the branch of philosophy that studies judgments about values - personal beliefs and feelings about the subject matter. Fidtk (2009) referred Axiology as the reflection of our values that is linked to our association with nature and the way we language in our culture, and brings to mind the change concerning facts and values as evidenced in the modern paradigm.

Interestingly, this research adopts the epistemological approach that seems to be well-organized and efficient way. Saunders et al. (2012) recognizes the different epistemological research approaches such as Positivism, Interpretivism, Realism and Pragmatism. The first two of the research philosophies in literature (positivism and interpretivism) are very important while others – (Realism and Pragmatism) lie between positivism and interpretivism and rely on their principles. Perhaps, Venable (2011) said they could be distinguished based on their epistemological or ontological assumptions. The Figure 21 below show an overview of Research Philosophy as demonstrated by Saunders et al (2012).
The existing paradigms aims at helping the researcher to clean up his assumptions concerning his opinion of the society and nature of science, to be useful to understand the different approach that might be used by other researcher and to frame him in order to give him the limits and the way to do his research. The researcher thus establishes the use of positivism approach research philosophy with justification and briefly explains other research philosophies such as: Interpretivism, Realism and Pragmatism.

**Positivism**

There are several crucial reasons why Positivism is chosen and not others listed in the research ‘onion’. Positivism under research philosophy is the predominant term for the development and nature of knowledge. The reasons why Positivism
is chosen as described by Saunders et al., (2012, page 104) is that it is mainly concerned with studying “observable and measurable variables in certain controllable conditions and to describe the reaction of these variables to treatment applied by the researcher.” Positivism is the epistemological situation that views the world as external and objective, with an independent researcher that values his influence in the research process. Positivists assume that participants understand the significance of the questions and try to measure the success by gauging how closely the results are aligned with those of other researchers. They work informed hypotheses and seek to test them. They assume a neutral role and focus more on testing existing theories with large sample while using standardized instruments.

Neville (2007, page 6) adds that there is some sort of trust in the fact that people respond to different “stimulus, forces, rules (norms) external to themselves and that these can be discovered, identified and described using rational, systematic and deductive processes.” So in other words, positivism is more of a scientific approach based on rational thinking, where people, it is believed, might be influenced by some sort of external forces, or in this case norms and social issues.

All through positivism approach, (Brid, 2014), said that the hypothesis arises from the current theory, which will be tested and then confirmed or denied while Saunders et al, (2012, page 105) stated that there are circumstances where the suggested theory may not or cannot be established by findings. Although positivism according to Saunders et al. (2012, page 135) is connected more with the quantitative methods via survey questionnaires ; we explain that this philosophy can be within the context of qualitative method as well testing hypothesis with the data collected during in-depth interviews. Positivism is not considered to researching areas where human behaviour is a factor indeed. Researcher will try to determine the impact of how risk managers of Irish FNFIs can effectively utilize DC to manage and hedge shocks to risk variables while using survey questionnaires to collect primary data and information that is required to get the facts.
Interpretivism

This approach is connected with qualitative research which is used in social researches. Schutt, (2006), said we to try to find out and understand the meaning humans attach to any social experience. It is essential for the researcher to interpret the verbal and nonverbal communication. The philosophy is appropriate to study the linked between human resource and business management research. Besides Neill (2006) asserted that “Interpretivism, or the qualitative approach, is a way to gain insights through discovering meanings by improving our comprehension of the whole”. Furthermore state Kasi (2009, page 96) said that “…the research involves making theories and contributing to meaning rather than testing theory and meaning”. That is it is more important for the researcher to add meaning and interpret it.

Saunders, et al (2012 page 116) state that “Interpretivism advocates that it is necessary for the researcher to understand differences between humans in our role as social actors”. Moreover, they said “we are in a continual process of interpreting the social world around us”. Perhaps, it enable researcher to get close to respondents or participants in order to interpret their objective understanding of reality. Put it another way, the philosophy illustrate the difference between going through research based on people interviews and research via computers. (Easterby-Smith et al., 2008), argued that this approach focuses on what people are thinking and feeling including understanding the meanings and the viewpoints of social actors with the gap which exist in the theory, can be closed.
Evans and Hardy, (2010) claimed that realism symbolizes a major challenge in the dominance of positivism and interpretivism position within the social sciences. Realism takes aspect from both positive and interpretive positions. Saunders et al (2012, page 114) state that “the essence of realism is that what the senses show us as reality is the truth: that objects have an existence independent of the human mind”. Johnson and Christensen, (2010) believe that humans are not the objects for the study in the style of natural science, but how individuals react towards a real world situation.

They divided realism into two - direct realism that deals with the fact that “what we experience through our senses portrays the world accurately” and critical realism which is about “that what we experience are sensations, the images of the things in the real world, not the things directly”, Saunders et al (2012, page 114). Thus, realism is an epistemological position in which different objects exist, independent knowledge of their existence which is quite the opposite of idealism, the theory that only the mind and its contents exist. It upholds the positivist view, by accepting a methodical procedure to knowledge development indeed. The research undertaken addresses the relevant methods from quantitative analysis perspective with supportive role to findings.
Pragmatism

Simpson (2010, page 45) said pragmatism is completely different approach and defines “pragmatism as a philosophy of human conduct and practice that seeks to account for lived experience”. Tashakkori and Teddlie (2010, page 23) stated that “…pragmatism is a reactive, debunking philosophy that argues against dominant systematic philosophies, making mocking critiques of metaphysical assertions such as the grand either-or”. Saunders, Lewis and Thornhill (2012), said the research method uses both mixed method of quantitative and qualitative and described it as “…pragmatism holds that the most important determinant of the epistemology, ontology and axiology adopted in the research question”. Thus, the research question is the most important determinant of this method. Moreover, Saunders, et al (2012 p.109) claimed that “if the research question does not suggest unambiguously that either a positivist or interpretivist philosophy is adopted, this confirms the pragmatist’s view that it is perfectly possible to work with variations in your epistemology, ontology and axiology”. Therefore, pragmatism seems not to be related to any philosophy, but can be viewed as an “alternative” philosophy, rather than a philosophy.
3.4 Research Approach

The research approach consists of inductive and Deductive approach. Before justifying which approach to use for this research project, it is important to briefly distinguished and explain the two approaches.

On one hand, inductive approach used in research is more likely to focus more based on the context in which events took place instead of examining details of contents. Saunders et al., (2012, page 108) said that in inductive approach, the theory follows data, rather than data follow theory, as with the deductive approach. Perhaps, the inductive approach is a “bottom-up approach” building the theory involves in the study of a small sample numbers which may be more suitable than a large sample numbers that is applicable to deductive approach.

On the other hand, deductive approach as explained by Saunders et al (2012, page 108) stressed that it is an approach “which involves the testing of a theoretical proposition by using a research strategy designed to perform this test.” Moreover, Robson (2002) cited in Saunders et al., (2012, page108) claimed that “An additional important characteristic of deduction is that concepts need to be operationalized in a way that enables facts to be measured quantitatively”. He further sets five steps to be applied in the case of a deductive approach such as:

1. - Deducing the hypothesis from the theory.
2. - Expressing the hypothesis as an operational term, with a relation between two concepts.
3. - Testing the operational hypothesis’s terms.
4. Examine the outcomes, confirming the theory and indicating any modification required.

5. If necessary, modifying the theory in light of the findings

The Figure 22A-22C below shows the Research Approaches Process as demonstrated by Saunders et al (2012)

![Deductive Vs. Inductive Diagram]

**Figure 22A: Research Approaches Process**

![Research Approach Diagram]

**Figure: 22B Research Approaches Process**
Moreover, author adds that the research questions should be defined while using general theory that exists already. (Saunders and Lewis 2012, page 108). Put another form, the deductive approach which is a “top-down approach” testing theory gives the researcher the opportunity to understand the theories that are currently established and raise questions or hypothesis to achieve any required further research (Morris, 2012). Saunders et al. (2012, page 145) explains further that the hypotheses can be directly linked and formed from a theory or theories.

On justification of the chosen research approach, although, the inductive approach is usually refer to moving from the specific to the general but inductive studies do not involve the use of hypotheses at all- Saunders, et al, (2012). Moreover, the researcher agrees that the inductive approach generally suits research only in a new area where little or no literature exists and possesses a more flexible structure than the deductive approach which typically deals with qualitative data.
using small and defined sample study of subjects which might be more appropriate.

On the other hand, deductive approach begins with the general and ends with the specific which constitutes the initial formulation of hypotheses and their subsequent testing during the research process with a quantitative large numbers of sample sizes that is more appropriate in order to generalise conclusions. (Bryman and Bell, 2007) believed that quantitative approach provides a clear process for deductive methods to be used. Even though quantitative approach may, take some time to set up, once done, it will more easier to complete than other methods due to easy collection of and analysis of data.

Pelissier, (2008, page 3), argued that deductive reasoning may be explained as "reasoning from the general to the particular". Furthermore, due to time and financial resources constraints will make deductive research approach more practical and applicable to the choice of this research project. Also, Saunders et al. (2012) said that the deductive process is conversant with industry managers, who are “much more likely to put faith in the conclusions emanating from this approach”, likewise stressing its “lower-risk”, that is more strategic in nature when compared with inductive process.

Moreover, since our research study is focused the determination of the impact of how risk managers of Irish financial and non-financial institutions can effectively utilize derivative contracts to manage and hedge shocks to risk variables, consequently the survey followed the process of deduction which further determine the impact and the theory hypothesised became a framework for the entire study and placed it in a quantitative research (Creswell, 2009).

Also, , Saunders et al. (2012) linked each approach (inductive and deductive) to a certain research philosophy, as the researcher has done in this study maintaining that the deduction approach is more related to positivism (twin dynamics) while induction approach is more related to interpretivism" which is justified by Fisher’s
(2007, page 76) who stated that “the strength of inductive arguments is often weaker than that of deductions,” indicating that “deductions are certainties but inductive conclusions are probabilities. Thus, the deductive approach we will be adopting can be closely linked with the research philosophy chosen; hence deductive approach has a strong link with the positivism philosophy. Indeed, find below Table 4 below shows the major difference between deductive and inductive approaches to research: Source: Saunders et al. (2012).

<table>
<thead>
<tr>
<th><strong>Deductive Emphasises</strong></th>
<th><strong>Inductive Emphasises</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific principles</td>
<td>Gaining an understanding of the meanings humans attach to events</td>
</tr>
<tr>
<td>Moving from theory to data</td>
<td>A close understanding of the research context</td>
</tr>
<tr>
<td>The collection of quantitative data</td>
<td>The collection of qualitative data</td>
</tr>
<tr>
<td>The application of controls to ensure validity of data</td>
<td>A more flexible structure to permit changes of research emphasis as the research progresses</td>
</tr>
<tr>
<td>Researcher independence of what being research</td>
<td>A realisation that the researcher is part of the research process</td>
</tr>
<tr>
<td>The necessity to select samples of sufficient size in order to generalized conclusions</td>
<td>Less concerned with the need to generalized</td>
</tr>
<tr>
<td>The operationalization of concepts to ensure clarity of definition</td>
<td></td>
</tr>
<tr>
<td>The need to explain causal relationships between variables</td>
<td></td>
</tr>
<tr>
<td>A highly structured approach</td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Differences between Deduction and Induction (Saunders, Lewis and Thornhill, 2009, p.127)
As said earlier the research approach chosen for this dissertation will be **deductive approach as against inductive approach because** Blumberg et al (2011, page 21) specifies that “deduction is a form of inference that purports to be conclusive”. It allows us to collect and analyzed large sample quantitative data that fits better with the research target and make it possible for the research questions to be asked or hypothesis defined while using general theory that already exists to achieve any required further research.

### 3.5 Research Strategies

There are different types of research strategies that can be used to investigate a research topic in order to get the desire result. Saunders et al. (2012, page 173) stated that “*Each strategy can be used for exploratory, descriptive and explanatory research*. Thus, our research strategy as explained by Saunders et al. (2012, page 173) can be defined “*as a plan on how a researcher will go about answering her or his research questions.***” Additionally, they state that “*the choice of research strategy will be guided by your research question(s) and objectives, the extent of existing knowledge, the amount of time and other resource*. This implies that adequate research strategy should available to the researcher to do a proper study by answering the research question(s) and meet it objectives and philosophical linings.

Since the research is aimed at finding the impact of risk managers using effectively derivative contract to managing and hedging shocks to risk variables of Irish FNFIIs, data would be collected on a quantitative basis. Moreover, since no research strategy is intrinsically superior to one another, the strategy selected must answer the research question. In other words, while choosing our research
strategy, we will try to explain how we are going to answer our research questions after detailed review of the relevant literature which will help researcher understand the relevant data and manage the research effectively.

There are eight different types of research strategies available are: Surveys; Experiments; Case Studies; Ethnography; Action Research; Archival Research; Grounded Theory and Narrative Inquiry. This research strategy adopted for this research project will be survey via questionnaires. In light of the selections made by the researcher to using surveys which meets our requirements of collecting quantitative data relating to the ‘research onion’, and all other strategies listed above can be discounted as they will be unsuitable for this research.

**Surveys Strategy**

Hart, (2005, page 327) said that surveys are used “to describe frequencies of behaviours and attitudes and sometimes to identify relationships between variables and test hypotheses” while Denscombe (2007, page 7) define survey as “… to view comprehensively and in detail. In another sense it refers specifically to the act of obtaining data for mapping”. The justification for using this research strategy-Survey is due to the fact that we have incorporated quantitative method.

Besides, the research was considered the most appropriate means of gathering a large amount of data from a large group of individuals over a short period of time, whilst also meeting limited budget requirements. Hence, our research strategy will be principally linked with our quantitative method research design and will be associated with our research philosophies - deductive approach. Saunders et al. (2012, page 176) argued that it is “a popular and common strategy in business and management research and is most frequently used to answer who, what,
where, how much and how many questions. It therefore tends to be used for exploratory and descriptive research”.

In this case the researcher will use surveys via questionnaires which is popular as they allow the collection of standardised data. For this reason, the researcher will undertake a collection of primary data from risk managers of Irish FNFI’s. The reason for this approach is to compare primary data collected from the questionnaires as it is linked with the necessity to understand the reasons of for the participants’ attitudes or opinions regarding the specific issue, in this case risk reduction management using hedging strategies successfully. This strategy according to Saunders et al. (2012, page 178) is used to “to generate findings that are representative of the whole population at a lower cost than collecting the data for the whole population” indeed.

Our survey will be conducted through post and email-(online surveys through internet) with the assistance of online survey websites – Google Forms or SurveyMonkey.com. The survey strategy will provides us a greater control over the research process. In addition, since the researcher will not be involved in the data collection process via online-survey and post, our bias and influences will be prevented and the objectivity of the survey maintained. Accordingly methods like face-to-face interviews or experiment involving the researcher will be subjective and missed the purpose of the researcher’s objectivity.

Moreover, online survey was chosen first with postal communication because, it is faster, less costly and anonymous compared face-to face or telephone interviews. Perhaps, it leads to more precise responses and are less vulnerable to human error given the short period of response time and the superior data analysis capabilities available. Indeed, the ease of use at the researcher disposal, in that the survey hyperlink can quickly be dispatched and changes rapidly be implemented, authorized the researcher to exercise a high level of control over the targeted sample.
While we are mindful of few shortcomings of postal and online survey, nevertheless, this research strategy meets the objective of the study to determining the impact of how risk managers can effectively use DC to hedge shocks to risk variables of Irish FNFIs thereby meeting our research objectives which outweighs any limitations of sending the survey to a wrong person postal or email address. Moreover, other scholarships like Wright (2005, page 373) and Evans and Mathur (2005, page 197) lend supporters to postal and online surveys in business research which validates the motivation for the researcher’s decision.

Likewise, the availability of survey participants will be beneficial to the research due their independent, flexibility and conveniences. Furthermore, Wright (2005, page 373) and Evans and Mathur (2005, page 197) said that bearing in mind the independence and anonymity of the respondents will promotes honesty in answering the survey questionnaire and that the respondents generally feel safer in an anonymous environment of the internet which will surely lead to truthful responses. The other research strategies although not use in this research but very important are explained in Appendix 7 termed other research strategies.

### 3.6 Sampling

Sampling is a technique to studying from a few units selected as an alternative to the entire population units while population is the total collection of the entire elements about the author want to make some conclusion. Bryman and Bell (2011, page 717) define population as the “universe of units from which the sample is to be selected,” while the small unit selected is called sample. Kumar (2012) said that
sample is the subgroup of the population which is the focus of a research enquiry which selected to represent the study population.

In many experiment or research study, sampling the whole population is difficult due to cost, expenses, number of objects and time. Thus sample of study will be used which can have a profound impact on the result of the study. Barnett (2002) as cited in Saunders, et al, 2012, page 261), argued that “using sampling makes possible a higher overall accuracy than a census”. Perhaps, the smaller number of cases for which you need to collect data means that more time can be spent designing and piloting the means of collecting the data. Indeed the main crucial point when selecting a sample is that it must enable the participants to answer the research questions and the meet the research objectives.

The procedures of carrying our sampling will involve the following process such as: defining the target population; determine the sampling frame; select sampling technique(s), determining the sampling size and execute the sampling process which is represented using Figure 27 displayed below. Source: Google Images.

Figure 27: Depict the Sampling procedures
Defining the target population

For this research a purposive sampling will be chosen to collect the data that is needed, hence using purposive sampling narrows down the respondents and acts as advantage. The participants chosen for this particular thesis are risk managers of FNFIs that are listed on the ISE and from the websites of ‘The Irish Times -Top 1000 Irish Companies’.

The reason for choosing risk managers are that they are more affected and impacted by shocks to risk variables. Secondly, risk manager from different professional backgrounds are selected to better evaluate the impact of the shocks to risk variables and confirm or deny the determined hypothesis. As Saunders et al (2012) summarise, by using risk managers in a research that could be called cross-professional and incorporating purposive sampling should lead to the establishment of professional differences if they exist between the respondents.

Although the research is not based to analyse if risk manager’s participants have a different impact by shocks to risk variables, it is important to state that some authors have agreed with this perception.

Determine the sampling frame

Sample frame involved a complete list of all members of the population that the author wishes to study. According to Denscombe (2007) a good sampling frame should be relevant, complete, precise and up-to-date. Since we have set up our
research philosophy, design and approach, the next shows how our data will be collected and processed. Bryman and Bell, (2007) said the sampling frame displays targeted participants of the research population - risk managers of FNFIs that are listed on the ISE ‘and from the websites of ‘The Irish Times -Top 1000 Irish Companies’ from which a sample will be drawn. Basically, the sampling frame will not be limited to any particular profession as all section of FNFIs listed on the ISE and from the websites of ‘The Irish Times -Top 1000 Irish Companies’ are including and facilitated in the sample. Moreover, our survey questionnaire covered risk management using DC and only to be addressed by risk manages of institutions, consequently, the sampling frame chosen is relevant, precise and up-to-date.

**Select sampling technique(s)**

There are two major types sampling techniques which are: probability or representative sampling and non-probability sampling which are highlighted with the details in **Figure 28A and Figure 28B.** Source: Saunders et al (2012, page 261) and Google images respectively.

![Overview of sampling techniques](image_url)
Classification of Sampling Methods

Figure 28B Sampling techniques
According Saunders et al (2012), the probability technique samples the chance of being selected from the population is known and equal for all cases. Probability sampling is usually associated with survey and experiment research strategies. The non-probability sampling techniques indicate the probability of each case being selected from the total population is not known and it is impossible to answer research questions that require us to make inference or conclusions about the population. However, we may be able to generalise from the non-probability samples about the population.

For this research a purposive sampling will be chosen to collect the data that is needed, hence using purposive sampling narrows down the respondents and acts as advantage. Perhaps, it favours the use our judgements in selecting participants who can provide information that enable the achievement of the research objectives. The aim of our study is to determine the impact of how risk managers of Irish FNFIs can use DC to reduce risk using Survey via questionnaires based on a broad sampling frame which demanded a quick collection of a relatively large amount of responses to the survey.

Saunders et al., (2012, p.138) stated the purposive sampling chosen will help the researcher select the participants group - risk managers under the judgment that these groups “will best be able to help answer the research question and meet the objectives”. Accordingly, it was essential to obtain a sample size of 100-120 post and on-line surveys in order to acquire valid outcomes to answer the specified research questions. Generalizability is justified to the extent that response can be related to existing literature and theories and comparative analysis with past studies will be performed indeed

**Determining the sampling size**

The sample size according to Collis and Hussey (2003, page 62) argued that a “sample size is related to the size of the population under consideration”, it was impractical for the author to survey all the risk managers of Irish FNFIs due to the time constraints, which stimulated the need for a sampling method. Klenke (2008,
page 10) states, “In qualitative research, sample size does matter but does not on the same importance as in quantitative research where large sample size are the drivers of many statistical analyses...”. which was also confirmed by Denscombe, (2007) who said a large sample size guarantees a greater accuracy of results and better balance between the percentage in the sample and the percentage in the overall sampling frame, thus our sample size will be 100-120 post and on-line surveys questionnaires to be administered. The advantage especially of using on-line surveys questionnaire is due to flexibility, convenience, less expensive despite large sample size, researcher bias absent, anonymity, easy to use and data entry and more ethically controlled sampling.

However, the limitations according to Hussey (2003, page 212) indicates that, when distributing a free online survey, it is possible that participants may provide inaccurate answers as they are not monitored while completing the questionnaire. Moreover, it may be difficult at time to collect financial information that may affect the operation of FNFIIs and the quality of professional experience required for this kind of research.

**Execute the sampling process**

The sampling process will involve creating an online-survey using the online survey services “Google Forms” or “www.surveymonkey.com”. Also, emails will be sent out, with hyperlink to the survey. We will conduct pilot testing to ensure validity and reliability to the process and achieve our aims and objectives in which all completed questionnaires- (primary data collected) will be analysed with the aid of the statistical software - SPSS and Excel.
3.7 Data Collection

According to Collis and Hussy (2003 page, 188) the data collection process involve: the Identification the variables; choosing the data collection methods; conducting pilot study and modify methods as necessary; select a sample and research data.

Perhaps, our data collection method is based on our research choice which is mono-method using quantitative data collection techniques. Since our research objectives is aimed at filling the gap in the literature involving the use of DC to manage and hedge risk variables based on Irish context, a mixed or multi-method has not been used. Therefore, we will use quantitatively data collection method to collect our primary data in order to test the theoretical outcomes using survey via questionnaires to enable us reject or accept the research questions based on proposed hypotheses. Thus single method is considered appropriately for the research. Below Table 5 that shows the major difference between quantitative and qualitative e approaches to research: Source: Saunders et al. (2012).
### Table 5: Quantitative and Qualitative Research

<table>
<thead>
<tr>
<th>Quantitative Research</th>
<th>Qualitative Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed responses by participants</td>
<td>Responses can be unstructured or semi-structure</td>
</tr>
<tr>
<td>Theory is usually deductive or causal and can be generalized</td>
<td>Theory is usually inductive but can be causal</td>
</tr>
<tr>
<td>Regarded only scientific and Justifiable</td>
<td>Regarded as not scientific and NOT following a structure.</td>
</tr>
<tr>
<td>More objective</td>
<td>More subjective</td>
</tr>
<tr>
<td></td>
<td>Less able to generalized</td>
</tr>
</tbody>
</table>

Sauder’s et al (2012, page 418) state that survey strategy using questionnaire is one of the most widely used data collection techniques due to the fact that “each respondent is ask to respond to the same set of questions, it provides an efficient way of collecting responses from a large sample prior to quantitative analysis”. While Poynter (2010, page 1) declares that “the single biggest impact of the internet on research to date has been on the collection of quantitative survey data. “However, our research note that use of questionnaire comes with a caution as noted by Bell (2010) and Oppenheim (2000) - cited in Sauder’s et al (2012, page 417) that “it is far harder to produce a good questionnaire than you might think.” Consequently, we need to ensure that we collect the precise primary quantitative data that enable us to answer our research questions(s) and meet our objectives as it is of utmost importance.

Furthermore, the design of our questionnaire according to Sauder’s et al (2012, page 419) argued that “will affect the response rate and the reliability and validity of the data you collect. These, along with response rates, can be maximised by”:

- Careful design of individual questionnaire;
- Clear and pleasing layout of the questionnaire.
Lucid explanation of the purpose of the questionnaire;
Pilot testing;
Carefully planned and executed delivery and return of completed questionnaires.

**Figure 29** the different types of questionnaire

![Diagram of questionnaire types]

Accordingly, our primary data collection method using surveys via on-line Google Forms or Survey Monkey which will be administered to collect data from risk-manager of FNFIs listed on the ISE and the Website of Irish Times Top 1000 Companies. This technique was taken to better evaluate the participants-risk managers attitudes, opinions and views towards the research topic raised in this project. Moreover because of our large sample of 100-120 questionnaires and in order to gain as much statistical power to enable us carry our statistical measurements such as descriptive statistics, graphs, pie charts and bar charts, pie charts, graphs, etc. we decide to use this method. Furthermore, based on the technological development world-wide has led to the increasing use of on-line based surveys for the purposes collecting of data to provide quick, economical and easy access to a larger group of respondents.

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33 Perhaps, technological development world-wide has led to the increasing use of on-line based surveys for the purposes collecting of data to provide quick, economical and easy access to a larger group of respondents
participant responses we will carry data analysis using statistical package SPSS and Excel to achieve our results.34

Although, the use of questionnaires have been criticised by some studies, that there are problems of non-responses, wrong interpretation of questions thus leading to inaccurate answers, data collection error when compare to interview-Wright et al (1998). However, research data collected using the online survey allowed for easy access for respondents as the advantages of the use of questionnaires outweigh the limitations because it is cost effective, faster way (time management) to receive responses using various technological devices such as mobile phone, Androids, I-pads, laptops and desk computer (automated data entry).

Others are the guarantees of anonymity of participants, reliability and validity of participants, efficient way to carry out statistical analysis and indeed, vital information on sensitive issues are easily release when compared to face-to-face interviews Wright (1998) and Kraus and Augustin (2001). Also, (Hoonakker and Carayon, 2009, page 350) said that while there are concerns about low response rates in studies utilising the internet, there are many advantages of using internet surveys, including easier access to large populations, cost effectiveness and promptness indeed. Figure 30 shows the methods of Data Collection.

34 Some practical issues will arise while collecting the data. While the ethical issues will be evaluated it is crucial to add that one of the most important issues that rise is the interpretation of the results. Thus researcher should be deemed objective and not in any case try to interpret or twist the results to get the necessary answer.
Meanwhile, the compatibility of Google Forms or Survey Monkey with Microsoft Excel, Facebook, Twitter and LinkedIn also assisted in the process of getting results including tracking progress confirms its usefulness.

On secondary data, Saunders et al (2012) said external data are collected books, journal articles, and online resources data but also internal sources such as companies annual reports. The role of secondary research is very often exploratory and/or descriptive. Secondary research might be used to help define and understand the problem or issue, or to generate hypotheses or ideas. Perhaps, our secondary data (both quantitative and qualitative), as defined by Kothari (2006, page 111) as “…. Data that are already available i.e., they refer to the data which have already been collected analysed by someone else”. Moreover, Sekaran, (2005) said that it is data collected through the existing sources such as company policies, procedures, and rules are known to be secondary data.

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35 For details of on-line survey companies that engage in data collection, please see Wright, (2005, page 5). Also, for details of Survey Monkey alternative plans on on-line survey website, see Survey Monkey (2014).
Therefore, secondary data which is a key source of information for the researcher will be adequately collected from existing theoretical and empirical past studies and scholarships reviewed in the literature. Meanwhile, searching the literature on a topic will need greater understanding of the issues involved, help to develop interview questions and framework for analysis. The majority of secondary data can be accessed through internet, perusal of records and annual reports, published information.\textsuperscript{36} The researcher will try to gain as much of relevant information from reviewing the studies. Below is Table 6 showing the advantages and disadvantages of Secondary data.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy to find resources</td>
<td>Limited control of data</td>
</tr>
<tr>
<td>Takes less time than primary research</td>
<td>Large range of data make difficult to analyse</td>
</tr>
<tr>
<td>target research according to the topic</td>
<td></td>
</tr>
<tr>
<td>Access to a lot of information</td>
<td>A lot of up to date information</td>
</tr>
<tr>
<td>Not expensive</td>
<td></td>
</tr>
</tbody>
</table>

Table 6: The Advantages and Disadvantages of Secondary Data

3.8 Data Analysis

Data will be analysed quantitatively in order to gain answers to our research questions. Saunders (2012, page 414) specifies that quantitative data analysis techniques, including *graphs, charts and statistics...help us to explore, present,*

\textsuperscript{36} For details of our source can be seen in references section in the Appendix at the end of the dissertation.
describe and examine relationships and trends within our data.‖ The data collected data will be checked for reliability because there will always be some errors no matter how carefully you are. Thus, our data will be collected and analysed using statistical techniques such as SPSS and Excel to determine: descriptive statistics, scattered charts, correlation analysis, hypothesis testing and other statistical testing. SPSS and Excel permit for further analytical abilities such as the creation of models and association of themes in data collected and validating the research hypothesis.

In addition the Google Forms and Survey Monkey tool also offered us superior analytical skills to compare alternatives, along with compatible data export capabilities to transfer the results easily to Excel documents and other forms37. The outcome from the analysis can be scrutinise for the various responses from the risk managers and evaluate the participants attitudes, opinions and views towards the research topic. Hence, researcher will look for patterns remerging throughout the postal and on-line survey questionnaires process and create a concrete conclusion.

37 Moreover, Google Forms / Survey Monkeys have 24-hour help desk tutorials that will assist us in collecting and analysing our data. The researcher used device to capture the respondents answer quickly without wasting any precious time perhaps, the tools had filtering process and enable us to compare our variables indeed.
3.9 Plans for Completion

The plan for completing this research project is based on the time horizon available in research, as specified by Saunders et al (2012, page 190). There are two different approaches kinds of studies such as: Cross-sectional studies and longitudinal studies. According Creswell, (2009, page 146) defines it as the study of an exact phenomenon by providing a portrait or “snapshot” at “one point in time” Saunders et al (2012, page 123) defines cross-sectional studies as “a snapshot taken at a particular time” and the longitudinal studies as “a diary or series of snapshots and representative of events over a given period”. Saunders et al (2012) explains cross-sectional as the study of a particular phenomenon at a particular time. Thus, regarding the impact of risk-managers using DC to manage and hedge risk illustrates the observable phenomena through a specific time horizon. The methods connected with cross-sectional studies include questionnaires, structured or semi-structured interviews, structured observation, content analysis, official statistics and diaries- Bryman and Bell (2007)

On longitudinal timeframe, also known as the “diary” time horizon, which requires collecting data over a given period of time through a series of snapshots. Bouma and Atkinson (1995, page 114) stated that in “longitudinal studies, the basic question is ‘Has there been any change over a period of time?’” Perhaps, this method considers general changes and trends over a period and permits predictions to be made -Saunders et al (2012, page 123). The time horizon appears to be related to survey research strategy on a bigger time scale indeed. Moreover, (Kumar, 2012) said, longitudinal studies favour only a constant collection of data at intervals and could be affected by the situation effect whereby the sample begin to lose interest or have a perception of what is expected of them.
Unlike qualitative methods which are based on interviews however, quantitative data are based on surveys which will be used because it is useful with the cross-sectional research time horizon-Saunders, et al (2012). The time horizon employed for this research was cross-sectional and this paper will be based on surveys conducted over a short period of time. In this context, cross-sectional will be used to describe the impact of risk-managers using derivative contracts to manage and hedge risk variables.

The reason for this the researcher’s choice is due to the constrained project deadline submission of just 12 weeks (August 21st 2015) to complete the entire study. This period is too short to demonstrate trends and, when coupled with other previously mentioned constraints, it made sense for the researcher to choose this most frequently utilised time horizon (Saunders et al., page190). Perhaps, cross-sectional studies will allow for the establishment of the prevalence of a phenomenon by taking a cross-section of the population. Hence it is the relevant time horizon for this research because the longitudinal approach neither favours the time frame for this research nor does it favour the convenience of the survey participants. The process for completion will involve:

Week 1- 4 (29th May - 25th June 2015) - Completion of both Introduction and Literature Review in the project.

Week 4-7 (25th June – 17th July 2015)- Preparation of Survey Questionnaires to the respondent while completing the methodology section of my project that involve research design, philosophy, approach, strategy, choice sampling, data collection, data analysis, plan for completion, research ethics, research limitations and other important factor(s) considered.

Week 7- 10 (17th July – 31st July 2015) - The administering of Survey Questionnaires to the respondent while typing Self-Reflection and References.
Week 10 (31st July – 10th August 2015) - final collection and interpretation of my survey questionnaires from the respondents with total analysis and presentation of results in the project.

Week 11- (10th August - 17th August 2015)-Summary and Conclusion including any recommendations will presented in the project. Also total proofreading of the project will also take place during this period.
Week 12- (17th August – 19th August 2015) - Binding and Submission of the project to DBS.

3.10 Research Ethics

Ethics is about total honesty and maintenance of privacy rights of individual or company information. According Saunders et al., 2012, page 680) said research ethics refers to “the standard of the researcher’s behaviour in relation to the rights of those who become the subject of a research project, or who are affected by it”.  

So; ethical concerns are significant at an early stage of research investigation. Oliver, (2010, page12) claimed that “standards and values which affirm their essential humanity” had to be considered because in the present research people were asked about their feelings, perceptions and opinions. Buchanan and Hvizdak (2009, page 37), argued that in every research, ethical issues will arise for a researcher.

Consequently, it is pertinent for the researcher to ensure that ethical issues and behaviour is correctly addressed throughout the study. Blumberg, Cooper and Schindler (2011, page 134) stipulate that “the goal of ethics in research is to ensure that no-one is harmed or suffers adverse consequences from research activities.” That is ethics is the study of right behaviour which addresses
conducting research in a moral and responsible manner. Perhaps, the ethical issues will be treated in a way that explained the benefits of the research, explained the respondent’s rights and protection including obtaining their consent.

Therefore, throughout the research there will be several ethical issues that can arise. As Rudestam and Newton (2007, page 276) state that might be reveal themselves “while using specific subject in social science research are the need for fully informed consent to participate and the need to emerge from the experience unharmed.” Put it another way, it is directly linked with the respondents’ willingness to participate, in this case, in a topic that could be deemed sensitive to the organisation.

Furthermore, an ethical issue would be to actually present the topic to the respondents in none a threatening or harmful way. (Lee 1999, page 102) states that the researcher should be able to interest the respondents in the participation and control the situation. Issues such as dishonesty and the falsification of data are deemed unethical and void for this research. Also, Privacy Rights will be followed and Irish Data Protection Laws will be observed. The research is approved by the appropriate review panel at DBS, ensuring that it is viable and that all ethical procedures will be adhered to.

Moreover, for this research the survey participants will be informed of the objectives and the contents of the research. Care must be taken to maintain confidentiality and this is stated in all the email to participants. Both FNFIs information is very important and will be protected including their rights. The process should be presented to the participants in detail with no crucial information

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38 Privacy may be seen as the cornerstone of the ethical issues that challenge those who undertake research. The research is being conducted through quantitative approach with online survey questionnaires and no harm to the career prospects of the participants and confidentiality will be maintained.
left out for them during the post and on-line survey via questionnaires that it alter or stop the survey process. Participants will be would be assured of their rights to anonymity and have the right to withdraw at any point in time, should they feel the need to so during the process.

The researcher based on the above four key values, will take all necessary steps to maintain an ethical guide. Consequently, efforts were made to ensure that no questions were asked that were potentially offensive to participants and that the option of withdrawing at any point was highlighted in the introductory letter. It is essential to state that the results will be anonymous due to the importance of sampling and data protection through restricted access would be applied to the research.

3.11 Research Limitations

There are a lot reasons while scholars embark on research to investigate a topic, and choosing a methodology, however, there no study without a limitation. Gerald Milburn Scientific (cited in Rajasekar, Philominathan and Chinnathambi, 2006, page 2) advocates “research is a chaotic business, stumbling along amidst red Evans and Mathur (2005, page 197) indicates several limitations to different research methods that are being used. Many of the limitations of the research are related to lack of time, limited word count and funding as these factors impacted on the choice of methodology to carry out any study. Thus, there are several limitations to our study.

First, is time limitation? Being a Masters project it does not provide enough time to have a more deep research done. However, the specific instruments like post and
on-line survey via questionnaire was chosen to collect our primary data in the time frame given. Additional limitation is that there is only one researcher and administering 100-120 on-line survey questionnaires take time, hence it could be linked with the time limitation. Because there is only one researcher the data collecting and analysing part of this research will take much longer that the researcher expected.

Second, is the financial aspect limitation of money, although it is more of a general one, not regarding to this specific topic? Third, is the limitation regarding our sensitive topic that is being researched? Although risk management using DC as explained throughout, is sensitive area in financial management as risk-managers may react differently to it. Due to the fact that the researcher is using more than one sensitive theme topic participants might be in their own way sensitive to these themes provided. To minimize the aspect of sensitivity and increase the willingness to participate in the on-line survey the researcher explains in detail the process of the questionnaire thus the respondent might choose before starting it if he wants to participate or not.

Other limitation includes personal bias and opinions, low sample size, inability to cover the whole Ireland regions, secondary published data sources, annual reports, access to the right professionals, confidentiality of institutions, and the research topic sensitivity and sample period.
Chapter Four

4.0 Data Analysis, Findings and Discussions

4.0 Introduction

Throughout this chapter the researcher simply present and illustrate the main results and findings of the primary quantitative research data collected through survey questions., it Perhaps it is important for the purpose of this research to state that the researcher intends to incorporate the discussion chapter five into this chapter four. The reason is due to the specific nature of the research as the researcher feels that the data analysis part and the discussion part of this research project are closely linked together. Hence it will vital to connect both into one paragraph of the project. Consequently, the researcher will be able not only analyse the findings but discuss in detail what they contribute to the academic research literature, any limitations and how the outcome is being evaluated.

Moreover, in this chapter four the researcher will present and analyse the main results; interpret the results by achieving our research objectives of answering the research questions based on the hypothesis; discussing the implications of our findings while demonstrating any limitations; review the whole work in the
discussion conclusion while indicating our contribution to the literature research\textsuperscript{39}. The chapter will be logically structured, comprehensive and concise indeed.

4.1 Research Process

The research process was conducted through ‘Research Onion’ (Saunders \textit{et al.}, 201), which include: research philosophies, research approaches, research strategies, research choices, time horizons, questionnaire design, sample collection, distribution and data collection method. We used statistical techniques to analyse our result based on the methodology outlined in chapter three. Thus, to better analyse and understand the results with discussions, the analysis will only focus mainly on research objectives, questions based on the hypothesis raised at the beginning in chapter one (RQ1- RQ9). The hypothesis will be tested to derive the research objectives. The significance of our findings will be discussed, within the context of the relevant literature and in relation to the research problem identified in chapter one.

Moreover, we provide a synopsis of the survey distribution process before briefly commenting on the results of the survey which will be illustrated using pie charts, column and bar graphs. Perhaps, we note that quantitative data in a raw form, that is, before the data have been processed and analysed, convey very little meaning to people. The quantitative analysis techniques using statistical packages will allow us to explore, present, describe and examine relationships and trends within our data (Saunders, 2012). A copy of questionnaire and the entire process used for the survey are presented in \textbf{Appendix 7}.

\textsuperscript{39} We note that to better evaluate our research objectives; we have our main research question to be answered with other related research questions backed up with individual hypothesis explained below. Also, the related research questions are directly linked with the biggest issue raised throughout the literature analysis.
4.2 Survey Distribution Process and Responses

With assistance of DBS Library staff, we provided approximately 126 financial and non-financial institutions (FNFIs) with the hyperlink of the survey questionnaire during the week commencing 20th July 2015 by means of email and some post. Additional communication accompanied the survey questionnaire (See Appendix 7) which contained the submission deadline and encouragement of the respondent to forward the survey to others that meet the requirements to complete the survey as soon as possible to aid our data analysis. This method proved successful to some extent at the beginning in yielding responses because no personal or private information were asked in the questionnaire. However, our targeted sample size 100 was not achieved with only 77 (62% response rate) receipts within the time frame specified to enable us start the analysis.⁴⁰ Thus we proceed with what we have to get the analysis done within the schedule.

4.3 Survey Background Questions and Data Analysis

The questionnaire commenced with some background questions which were asked to ensure that the participants were relevant to the research. Meanwhile, all FNFIs participating in the survey are based in Ireland and therefore relevant to this research. Those who did not meet the criteria set out were automatically removed. Meanwhile, below are the Pie Charts, Line Charts, Column and Bar Graphs for the Survey Questionnaires.

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⁴⁰ One major reason for the slow response rate was that many respondents were on holidays and nothing much can be done because as we want right person to do justice to the survey questionnaire.
This survey questions provided four age groups categories. More specifically, Figure 31 shows that 31.2% of the participants in the survey were between 18 and 30 years old. 45.2% were aged between 31 and 45. 22.1% comprises of respondents between the age of 46 and 60. The remaining 2.6% of respondents fall into the category of 60 years and above. Whilst efforts were made to ensure a sufficient amount of respondents fall into each of the four categories in order to have a balance, it was found that it was not possible at the conclusion of the survey indicating one of our limitation in the survey process.
Q2

Figure 32: Percentages of Academic Qualifications of the Participants

This survey question provided five categories of academic qualifications. Specifically, Figure 32 demonstrates that participants with Certificate / Diploma are 11.7%, BSc Degree 53.2%, MSc. Degree 13%; Ph.D. Degree 2.6% and participants with Professional Qualification (ACCA, ACA, CIMA and Others) are 19.5%. This implies that many institutions and company work force are characterised with highly skilled and educated people and the researcher is not surprise because the whole ‘Dublin City Region’ is surrounded by many Higher Academic Institutions and Colleges even within the IFSC like the National University Ireland which is quite interesting.
Figure 33: Percentages of Financial and Non-Financial Institutions (FNFIs)

Figure 33 above shows that the percentages of the two types of FNFIs used for the survey are FIs (41.6%), while NFI’s are (58.4%) respectively. In the context of effective utilization of derivative contracts to hedge risk and to promote growth in the economy both institutions played a major creating credit in terms of savings and lending money to individuals and businesses to carry out productive activities in which initial money for business is deposited in a FIs which in turn lends out to investor (NFI’s) and the multiplier-effects will create wealth in the economy. On the part of DC both institutions assist in the buying and selling for hedging purposes and for own accounting trading as research suggest in the literature-[Jorion (2007), Ward, (2010), Durbin (2011) and Eiteman, Stonehill, Moffett (2012), McDonald, (2013) Madura (2013)]

Perhaps for any economic to grow we need a healthy financial system supported by non-financial sector indeed. Although as discuss in the literature section that these FNFIs face a lot of risks (systematic risk and unsystematic risk), however,
Unsystematic risk can diversify away by investors by holding a well-diversified portfolio of shares (Portfolio theory). Systematic risks cannot be diversify away and captures events that impact on a large number of institutions’ expected returns. Thus, DCHS can be used to reduce the risks-[Strong (2005), Durbin (2011), Hull (2012) and McDonald, (2013), Eiteman, Stonehill, Moffett (2012), McDonald, (2013), Madura (2013), Panaretou et al. (2013) and Perez-Gonzalez and Yun (2013).

4.4 Survey Research Questions, Data Analysis and Discussions

The survey research questions which the researcher deem central to answering the research objectives are selected here for analysis and discussions. As discussed previously readers should also be mindful of the research’s limitations.

RQ1

Figure 34: Respondents’ views of the Impact of effectively utilizing DC to hedge risk variables- (‘Risk Reduction’)

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**RQ1 - What constitutes an effective use of DC to manage and hedge risk variables – (i.e. ‘risk reduction’) of Irish FNIFs?**

**Figure 34** illustrates the impact of effectively utilizing DC to reduce risk. Perhaps the survey asked the participants what constitutes effective utilization of DC to hedge risk variables - (‘risk reduction’) which ultimately impact and improve the institutions risk management. 31.2% of respondents strongly agree and approved the statement that DC does reduce risk with 24.7% also agreeing to it. However, 19.5% were neutral while disagree and strongly disagree have 10.4% and 14.3% respectively. The implication of the survey results shows that DC can be used by institutions and companies to hedge and reduce risks as witnessed in the literature.

For example, Allayannis, and Ofek, (2001), supported our findings that DC can be used to reduce institutions and companies risks. Melumad, Weyns, and Ziv (1999) both state that hedging policies to reduce risks assists the financial markets to evaluate the hedging strategy while promoting the use of DC. Santomero, (1995) Allen and Santomero (1998) maintained that banks introduced financial products-derivatives instruments to assist corporate managers to hedge both interest rates and foreign exchange rates. Other important studies that support our findings in the use of DC to hedge and reduce risk are: Miloš Sprčić, (2007); Sorin, and Silvia, (2009); Sontea, and Stancu, (2011); Lin et al (2012) and Perez-Gonzalez, and Yun, (2013).

More strand of studies involving hedging to reducing risk in support of the findings are: (Melumad, Weyns, and Ziv (1999), and Hicks (2012)) all argued that DC are used for hedging (risk-reduction) and or speculation (high risk trading). Hedging using DC allow FNIFs to reduce the probability of financial distress, thus increasing the institutions debt capacity with interest tax shield it brings [Ross (1998) Leland (1998) and Lin et al (2012)]. Furthermore, hedging using DC helps reduce cost of risk and distress faced FNIFs including the amount of corporate tax
paid (Mayers and Smith 1982; Smith and Stulz 1985). Perhaps, Chen, (2011) argued that after controlling for fund strategies and characteristics, the creation and use of these derivative instruments on average exhibit low funds risk. Froot, Scharfstein, and Stein 1993; Myers, Majluf 1984, and Perez-Gonzalez, and Yun, (2013) all argued that hedging using DC can make cash flow available to FNFI to internally finance investment projects when external finance are costly-Perez-Gonzalez and Yun, (2013).

It is imperative state that, although throughout the literature analysis, it was determined that DC can be used to hedge risk variables which ultimately reduce risk, the researcher deems it relevant to establish this findings using primary research as well. Overall, based on the results analysis and the overwhelming support of the findings explained above regarding the research question, the researcher can state that the effective use of DC can help to hedge risks which will have a significant positive impact in reducing risk for Irish FNFI.

Undoubtedly, it is clear from these findings, that ‘risk reduction’ is ultimate aim of using derivatives as oppose to speculation to make arbitrage profit. Consequently, in view of these results, it seems that the primary data analysis clearly supports and backed the views presented in the literature, thus indicating strong support for the Alternative Hypothesis (HB) while rejecting the Null Hypothesis (HA) that the effective use of DC cannot help to hedge risks and will not have a significant positive impact in reducing risk for Irish FNFI.
Figure 35 demonstrates the respondents’ views of the impact of 2008 FEC on Irish FNFIs. The result shows 11.7% said they were not affected -‘Not at All’ while 26% said they were affected-‘A Little’. However, an overwhelming majority-62.3% of the FNFIs strongly agree (A Lot) that they were badly affected by the FEC. The result was not surprising because the whole world economy was seriously in recession which many governments has to respond heavily to the crisis by using J.M Keynes methodology of ‘Government Invention’ to boost spending in a dwindling economy as again literature confirms [Gamble, (2009), Buckley (2011) Wapshott, (2012), Kinsella and Leddin (2010) etc.].

Perhaps, in Ireland the major causes of the 2008 FEC caused by the overheating in the property markets as property price spiral out of control due to low interest
rate and availability of mortgage loans, poor risk management and corporate governance in many FNFIs boards, light touch regulation, human nature-greed and hubris—all are the key factors causing the FEC as indicated in the literature.41 [Ross (2009), Lucey et. al (2012); Cooper (2010), Reinhardt and Rogoff, (2009), Lynch, (2010), Lucey (2014),Gamble, (2009), Cooper, (2009), Kinsella and Leddin (2010), etc.].

For instance, the former First Active bank, a sub-subsidiary of Ulster Bank was the first banks that started granting 100% mortgage loans to customers which later lead to the bank closure. Undeniably, the initial consequences for the banks providing customers mortgages with low-interest-rate and cheap loans led to increases in house prices at an alarming rate (10% per annum in UK and 14% in Ireland) [Source: BBC 2010 Documentary] without supply increasing to meet the demand.

Furthermore, when LBs collapse on 15th September 2008 and threw panic to the whole world banking system titled ‘Day of Turmoil’ and in an extraordinarily development triggers the 2008 FEC which spread like a virus around the world and create a loss of confidence in the financial system that force many banks to collapse due to shortage of liquidity-solvency problems for Irish banks and others. Clearly, many Irish banks were unable to lend money to investors and the real sector of the economy who want to do genuine business especially many Irish small businesses because there was no cash available by the banks to lend to do business thus leading to bankrupt the Irish economy.

In a nutshell, the effects the FEC lead to the following: Loss of total confidence in the banking system; shortage of cash by employers to pay employees; interbank

41 Prior to the crisis, such commentators as Professor Morgan Kelly of UCD and David McWilliams both foresaw the crisis and were largely ignored by the government [(See McWilliams, (2007), O’Toole, (2009), Cooper (2009) Ross, (2010), Power (2010)].
lending disappears; Short-term-interest-rate borrowings double; Many Irish banks were in serious liquidity and solvency problems such as: AIB, BOI, PTSB, ESB, Irish Nation-wide and Anglo-Irish bank–(PB). Anglo-Irish bank and Irish Nation-wide was later liquidated as no player in the Irish economy was immune from this contagion as many Irish jobs was lost and the country was in recession and the debt continues to rise which affected all and sundry in the Irish State as was witnessed in the literature review-[Gamble (2009), Cooper (2010), McDonald, and Robinson (2009), O’Toole (2009), Martin (2013) Donovan and Murphy, (2013), Lucey (2014), Soden (2010) Cassidy, (2009), Power (2010), and McWilliams (2012), etc.]

However, the Irish Government responded heavily to the 2008 FEC on 30th September, when late former finance minister Brian Lenihan with the approval of former PM Brain Cowen (PB) guaranteed all the liabilities of Irish banks of €440 billion. The government is currently investigating banking crisis in the Dail42. NAMA was also created in April 2009 to buy the banks toxic assets. Other structural economy reforms were undertaken supported by ECB and IMF to address recession. Perhaps, Ireland has done very well by coming out of recession which all measures taken was Keynes ideology as indicated above.

Recently, the IMF President–Christine Lagarde –PB praised Ireland for a job well done!

Late former finance minister Brian Lenihan and former PM Brain Cowen

42 For details of the Houses of the Oireachtas Committee of Inquiry into the Banking Crisis can be accessed through this link http://www.oireachtas.ie/bankinginquiry/
Overall, based on the results analysis and the support of the findings in the literature indicated above, regarding the research question, the researcher can state that many Irish institutions and companies was seriously affected by the 2008 FEC. In addition, it is clear from these findings, that many Irish institutions and companies where in die hard state facing liquidity and solvency problems during the crisis, although have been resolved by the Irish Government. Consequently, in view of the results, it seems that the primary data analysis backed the views presented in the literature, thus indicating clear support for the Alternative Hypothesis (HB) while rejecting the Null Hypothesis (HA) that many Irish FNFI were not affected by the 2008 FEC.

RQ3

Figure 36: Respondents’ views of 2008 FEC was as a result of using DC
RQ3- Was the cause of the 2008 FEC due to the use of derivatives contracts?

Figure 36 reveals the respondents’ views of 2008 FEC were or not as a result of using DC. The result shows that 15.6% strongly agree while 5.2% also agree with the statement. Also, 11.7% disagree while 13% strongly disagree. However, majority of the participant - 54.5% were neutral because they do have much information details on the type’s DC (e.g. CDS) which is a limitation on the study. The use of CDS is one of the major causes especially in the US not in Ireland with spill over effects all over the world.43

Perhaps, the wrongly use of this derivatives contracts (CDS) via (AIG insurance-PB) in the US which is off balance sheet financing involving the securitisation of mortgages loan (SML) books by banks using these CDS instruments created a ‘vicious cycles’ coupled with the fact that the risk attached to these financial products was underestimated aided by bad rating from credit rating agencies (Moody’s, Standards & Poor, and Fish etc.) as CDS was rated A+ and perhaps CDS worth trillion of dollars were used to hedge risks that is in multiple of the actual value, that trigger the whole situation (a massive moral hazards) and fuelled the bubble to bust and escalate the FEC as confirm in the literature-[Schiff, and Downes, (2009), Gamble, (2009), Cassidy, (2009), Paulson, (2010), Cooper (2010), Reinhardt and Rogoff, (2009), Lynch, (2010), Buckley (2011), Krugman, (2012) McWilliams (2012), Martin (2013),Donovan and Murphy, (2013), Lucey(2014) etc.]

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43 This limitation of lack of information can be influenced by factors already discussed above of the causes of the FEC and participant may have a different view. It seems to be that different people will react differently based on the information at their disposal. Nevertheless, due to the issues raised in the secondary research, the researcher tries to determine the negative impact of using DC to hedge risk and to establish whether is the cause of the 2008 FEC.
Based on the **results analysis and as research suggest** regarding the research question, the researcher can state that the use of derivatives contracts to hedge risk is **not** one of the major causes of the 2008 FEC for Irish FNFLs. As well, it is clear from these findings in the literature that although derivatives contracts (CDS) sold by AIG is one of the major causes of the crisis in the US but not in Ireland. Consequently, in view of these results, it seems that the primary data analysis backed the views presented in the literature, thus indicating clear support for the Null Hypothesis (HA) that the use of derivatives contracts to hedge risk is **not** one of the causes of the 2008 FEC for FNFLs. Hence, this research rejects the Alternative Hypothesis (HB).

**RQ4**

![Figure 37: Respondents’ views of the change in attitude towards ‘Risk Management’ after the 2008 FEC](image-url)
RQ4-Has these institutions or companies changed their attitude towards risk management after the 2008 crisis?

Figure 37 exhibits the respondents’ views of the change in attitude towards 'Risk Management' after the 2008 FEC. Perhaps, 23.4% strongly agree while a higher 28.6% agree with the statement. Combing both with show that 52% are positive that Irish FNFls have change their attitude towards risk management which is a step forward in the right direction because risk management played a great role in the 2008 FEC as many FNFls board management ignore both risks and corporate governance rules in all its ramifications when carrying out business activities. The ignoring of risk by FNFls brought their company downfall with unimaginable consequences for its staff, customers, shareholders, creditors and the general public. An example of such persons and institutions is Sean Fitzpatrick and David Drum of Anglo-Irish Bank and Michael Fingleton of Irish Nation –Wide Bank in Ireland and Dick Flud of Lehman Brothers -popularly known as- “One Man Show” which are well confirmed in the literature review. [Power (2010), Cooper, (2009), Ross (2009), Lucey et. al (2012); Cooper (2010), Reinhardt and Rogoff, (2009), Lynch, (2010), Lucey (2014), Gamble, (2009)), Schiff, and Downes, (2009), Martin (2013) Buckley (2011), Donovan and Murphy, (2013), Krugman, (2009), Paulson, (2010), Soden (2010) Cassidy, (2009), McWilliams (2012) etc.]

Meanwhile, 10.4% and 7.8% disagree and strongly disagree respectively that they have not change their attitude towards risk management in response to the 2008 FEC. This can be viewed from the fact that ‘Life is a Risk’ and ‘No Pain, No Gain’, therefore businessmen or investors must have to take risk to succeed which the researcher agrees with. However, such risk must be measured, limits set and monitored. Alternatively, businessmen or investors must not put all eggs in one basket. The problem is that an investor who puts all their funds into one investment, risks everything on the performance of that individual investment. Therefore, a clever risk management policy by FNFls would be to spread the
funds over several investments so that unexpected losses in one investment may be offset to some extent by the unexpected gains on another.

Consequently, the key motivation in establishing a portfolio is the ‘Risk Reduction’ as literature suggested. [Jorion (2007), Ward, (2010), Durbin (2011) and Eiteman, Stonehill, Moffett (2012), McDonald, (2013) Madura (2013), etc.] Also, almost one-third- 29.9% of the participants said they were neutral about their attitude towards change to risk management after the 2008 FEC meaning they are still operating the same way as before the crisis. The results analysis and the support of the findings in the literature, regarding the research question, the researcher can state that many Irish FNFIs have changed their attitude towards risk management after the 2008 FEC. Likewise, it is clear from these findings in the literature, that risk management coupled with good corporate governance are fundamental requirements for companies’ success. As a result, it seems that the primary data analysis backed the views presented in the literature, thus indicating clear support for the Alternative Hypothesis (HB) that many Irish FNFIs have changed their attitude towards risk management after the 2008 FEC. Hence, this research rejects the Null Hypothesis (HA).

**RQ5**

![Figure 38: Respondents' views of the Impact on FIs of the requirements for the “NCTA” – ( Basel III)](image-url)
RQ5-Are there any impacts of the requirements for the “NCTA” Basel III)” on the Institution / Company risk management operations?

Figure 38 reveals the respondents’ views of the impact on FIs especially for the requirements of NCTA – (Basel III). This BIS requirement is more of concerned to the banks. Perhaps, 14.3% of the participants said it has a lot of impact with 22.10% also said it had a little impact. However, a majority of 63.6% (almost two-thirds) said not at all as it does not impact on their operations which the researcher agrees with because majority of the institutions survey were NFIs that has no business with the NCTA– (Basel III) set by BIS. Although, the researchers agrees that the Basel III addresses the perceived deficiencies of Basel II. The changes create a tougher capital standard and adequacy through more restrictive capital definitions, higher risk-weighted assets (RWA), additional capital buffers, and higher requirements for minimum capital ratios which has greatest impact on bank trading book, bank liquidity and bank leverage leading to increase capital charges materially and to make certain FIs activities much more capital intensive compared to NFIs that is not affected by the requirement as recognized in the literature- [BIS Basel Committee on Banking Supervision, “Basel III:” (2010)].

The results analysis with the support of the findings in the literature regarding the research question, the researcher can state that the requirements of NCTA– (Basel III) do not have significant impact on NFIs except FIs. Consequently, in view of these results, it seems that the primary data analysis backed the views presented in the literature, thus indicating clear support for the Null Hypothesis (HA) that the requirements of NCTA– (Basel III) will not have significant impact on Irish NFIs except FIs. Hence, this research rejects the Alternative Hypothesis (HB).
RQ6A

Figure 39: Respondents' views on the Quantification or Measurement of Risk

**Figure 39** demonstrates the respondents' views on the quantification or measurement of risk which is the volatility defined as the annual standard deviation of returns. The result shows that 15.6% of the participants always measure their risk while a similar figure of 15.6% said regularly. Also, 23.4% said sometimes while 45.5% said never.
RQ6B

Figure 40: Respondents’ views on the Setting of Risk Limits

Figure 40 reveals the respondents’ views on the setting of risk limits for the FNFI$s. A similar result was obtained as the case of measuring risk. For instance, 13% said always while a similar figure of 13% said regularly. Also, 20.8% said sometimes while 53.2% said never. Also, the figure for never is associated with NFI$s surveyed as they are care-free in setting their business risk limits which was not surprising as shown above in the column graph.
RQ6C

**Figure 41:** Respondents’ views on the Monitoring of both the Quantification and the Setting of Risk Limits

**Figure 41** makes evident the respondents’ views on the monitoring of both the quantification and the setting of risk limits. The results were different compared to the results from Figure 39 and 40. For instance, ‘a little’ of 27.3% said they do monitor both the quantification and the setting of risk limits while 29.9% said (a lot) that they do monitored it always otherwise they will not be in business as experienced during 2008 financial crisis. However, 42.9% said they do not monitor the quantification and the setting of risks limits which more likely to affect NFIs.
RQ6A-C: Do risk managers of Irish FNFIs quantify their risks and do they set their risk limits including monitoring both?

Collectively analysing the trio graphs (Figure 39-41) demonstrates categorically that one on hand, most of the FIs surveyed agree that they do measure their risks and it is parts of the regulations and rules set out by the financial regulators and the board management of their institutions which they have to comply with on a regular basis. On the other hand, the Figure 39 (45.5%) results for never is more associated with NFIs surveyed as they are care-free in measuring their business risk which was not surprising based on their past failures in making extraordinary losses as specified in the literature such as: Metallgesellschaft ($7 billion); Orange County ($2 billion); Shell ($1 billion); Hammersmith and Fulham ($600 million); Allied Lyons ($150 million); Procter and Gamble ($90 million) and Gibson’s Greetings $20 million. Source: Hull (2012).

Moreover on setting the risk limits, it also clears from Figure 40 that many of the institutions surveyed especially NFIs are care-free in setting their business risk limits which was not surprising as shown above in the column graph. Interestingly, when it comes to monitoring of both the quantification and the setting of risk limits, many of the FNFIs does monitor both.

It is pertinent to state that the quantification of risk – (the volatility i.e., standard deviation), setting of risk limits and monitoring of both is key role for success in any business entity as the literature review confirms. The reason is that risk is a corporate problem that requires corporate-level responsibility for identifying, quantifying or measuring and managing the exposures. Perhaps the quantification of risk, the setting and monitoring of risk limits is vital for the companies’ concerned because it will enable the institutions that cannot control the timing and magnitude of unexpected surprises to be on a much safer side. Consequently a well-measured and monitor risk limits function will help to manage the institution expectations as well as plan ahead for unexpected shocks-[Turnbull Report
(1999), (Ward, 2010), Farid (2010)’ CBI (2012), (Durbin (2011) and McDonald, (2013) etc.).

Thus, the result analysis and the support of findings in the literature, regarding the research question, the researcher can state that risk managers do quantify their risks, sets the risk limits including monitoring both which will have significant impact on positive risk management of FNFLs. Furthermore, it is clear from the literature findings, that a well-measured and monitor risk limits function will help to manage the institution expectations as well as plan ahead for unexpected shocks. Consequently, in view of these results, it seems that the primary data analysis backed the views presented in the literature, thus indicating clear support for the Alternative Hypothesis (HB) that risk managers do quantify their risks, sets the risk limits including monitoring both which will have significant impact on positive risk management of FNFLs. Hence, this research rejects the Null Hypothesis (HA).

RQ7A

![Figure 42: Respondents’ views on the purpose of using DC [Hedging-in-House Risk]](image-url)
Figure 42 demonstrates the respondents’ views on the purpose of using DC for Hedging-in-House Risk. The results shows that 23.4% of the respondents said they always used DC for ‘hedging in house risk’ while 16.9% said they used it regularly. Also, 22.1% said sometimes used it while 37.7% said never used DC for hedging in house risk. The result shows a combination of 62.4% agreed to use DC to hedge in house risk.

RQ7B

![Figure 43: Respondents' views of the purpose of using DC [Selling to Clients for Hedging]](image)

Figure 43: Respondents’ views of the purpose of using DC [Selling to Clients for Hedging]

Figure 43 reveals the respondents’ views on the purpose of using DC for selling to clients for hedging. The results shows a 7.8% of the respondents said they always while 13% said regularly do it. Also, 10.4% said sometimes while 68.8% said never. The result indicates that many of the NFIs participants do not do the business of selling DC to clients for hedging.
Figure 44: Respondents’ views on the purpose of using DC [Own-Accounting-Trading]

Figure 44 establishes the respondents’ views on the purpose of using DC for own-accounting-trading. The results shows 7.8% of the respondents said they always and regularly do it for own – account-trading respectively. Moreover, 11.7% said sometimes while 72.7% said never do it for own-accounting-trading.’ Similarly, the result indicates that many of the NFIs participants do not do the business of selling DC or for own-account-trading for arbitrage profit.
RQ7D = 26

**Figure 45:** Respondents’ views on the Evaluation of the Soundness of Counter-Party Risk when using DCHS

**RQ7 - Do risk managers considered the evaluation of the soundness of counter-party risk when implementing DCHS**

Figure 45 demonstrates the respondents’ views on the evaluation of the soundness of counter-party risk when using DCHS. The result shows 12.9% of the respondents said always while 15.6% said regularly. Additionally 22.1% said sometimes while 49.4% said they never evaluate the soundness of counter-party risks when implementing their hedging strategies. Absolutely, the researcher was not surprised by the results and that is one of the major causes of 2008 FEC. Perhaps, many business risks taken were underestimated during the 2008 FEC as many FNFIs do not evaluate the soundness of counter-party risks when
implementing their hedging strategies especially in the derivatives markets (CDS) and other financial markets where financial products are being traded.

Conceivably, if risks are hedged in the OTC markets, as confirmed in the literature, it is difficult for market participants and regulators to determine and make judgement whether those risks have been effectively hedged because of lack of public information about these markets. Therefore, based on the underlying transaction(s), the OTC markets operations do facilitate speculation, volatility and the building up of risks in the system and if counterparty defaults as experienced with CDS derivatives markets in 2008 (one of the major cause of the 2008FEC), it may be hard to find other counterparties to replace a hedge and the problem will surely intensified as they may either be in distress condition themselves or unwilling to enter into a trade in view of wider uncertainty- [McCreevy, (2008).]

Strikingly, in a highly interconnected global financial markets, such an assessment of the counter-party risk would in principle require any market participants and regulators to have good knowledge about all other market participants in terms of fully understanding the true nature and level of risks (exposures) that any particular market participant is exposed to, borrowing conditions, ability to repay back their debts, their appetite for risk taking, their liquidity and solvency status and the need to account for the extreme concentration of some market segments, which entails severe implications in case of any players defaulting etc. Therefore, it important for institutions and companies to evaluate the soundness of the counter-party risk as confirmed in the literature review which was supported by the ‘Former EU Internal Market and Services Commissioner- Charlie McCreevy’ through the establishment of CCP Clearing which is the key to improving risk management and to stabilise the financial system-[ McCreevy, C. (2008).]

The result analysis and the support of the findings in the literature, regarding the research question, the researcher can state that risk managers considered the evaluation of the soundness of counter-party risk when implementing DCHS.
Besides, it is clear from these findings, market participants should have good knowledge about all other market participants in terms of fully understanding the true nature and level of risks (exposures) that any particular market participant is exposed to, borrowing conditions, ability to repay back their debts, their appetite for risk taking, their liquidity and solvency status and the need to account for the extreme concentration of some market segments, which entails severe implications in case of any players defaulting. Consequently, in view of the result, it seems that the primary data analysis backed the views presented in the literature, thus indicating clear support for the Null Alternative Hypothesis (HB) that risk managers considered the evaluation of the soundness of counter-party risk when implementing DCHS. Hence, this research rejects the Null Hypothesis (HA).

**RQ8A**

![Figure 46: Respondents' views on the decision of the types and usage of DCs](image)
Figure 46 shows the respondents’ views on the decision of the types and usage of DC. The results show a higher percentage said always, regularly, and sometimes which are 40.3%, 31.2%, and 20.8% respectively. This means majority of the FNFIs decides on the types and usage of DC. However, only small percentage of participants – 7.8% said they never decide on the types and usage of DC which the researcher taught will be more applicable to the NFIs.

RQ8B

Figure 47: Respondents’ views on the positive impact of using DCs to hedge risk – creating LEI

Figure 47 proves the respondents’ views on the positive impact of using DC to hedge risk to creating LEI. The result shows 21.7% said a little while 19.7% said a lot. However, a majority of 58.6% said not at all that DC does not create LEI.
RQ8A- Do the risk managers of these institutions have any influence on the types and usage of DC?

RQ8B- Do DC creates financial benefits (LCI), security and long-term value for both FNFIs?

From the analysis of Figure 46 showing that risk managers of FNFIs does decides on the types and usage of derivatives contracts which is the norm in the literature. Also, the analysis of Figure 47 shows that DC do not create LEI for Irish FNFIs which more applicable to the NFIs. Overall, the results analysis of the first part of the research questions, indicates that risk managers of Irish FNFIs does decides on the types and usage of DC and in support of the findings in the literature. Therefore, it shows clearly for the support of the Alternative Hypothesis (HB) while rejecting the Null Hypothesis (HA) that risk managers do not decides on the types and usage of DC.

Furthermore, the results analysis of the second part of the research questions and contrary to the findings in the literature, the researcher can state that DC do not creates financial benefits (LEI), security and long-term value for the Irish FNFIs. Although it is clear from these findings that DC, do create financial benefits (LEI) for the Irish financial sector alone. Consequently, in view of general results relating to both sector, it seems that the primary data analysis results did not backed the views presented in the literature, thus indicating clear support for the Null Hypothesis (HA) that DC do not creates financial benefits (liquidity efficiency opportunities), security and long-term value for the institutions and companies. Hence, this research rejects the Alternative Hypothesis (HB).
Figure 48: Respondents’ views on the barriers in Ireland to effectively use DC in managing and hedging risk

RQ9 - Are there any obstacles / barriers in Ireland to effectively utilizing and implementing DC to managing and hedging risk variables?

Figure 48 unveils the respondents’ views on the barriers in Ireland to effectively use DC in managing and hedging risk. The results shows 6.5% said a little while 24.7% said a lot. However, an overwhelmingly majority of 88.8% said not at all that there are no barriers in Ireland to effectively use DC by FNFIIs to hedge risks. The implication from those who said there are barriers applies more to NFIIs point of view who lack detail information about the DC markets. Moreover, education is needed in this area to enlighten the public of the use of DC markets as many of the FIs operating in the DC markets (especially hedge funds) operate quietly and
they are not fully regulated by the Irish central bank. More information about their financial products should be made known to the public.

Therefore, the results analysis and the support of the findings in the literature regarding the research question, the researcher can state that there are no barriers in Ireland to effectively utilizing DC to managing and hedging risk. Furthermore, it is clear from these findings those who said there are barriers applies more to NFIs who lack detailed information about the DC markets. As a result, it seems that the primary data analysis backed the views presented in the literature, thus indicating clear support for the Alternative Hypothesis (HB) that there are no barriers in Ireland to effectively utilizing DC to managing and hedging risk variables, hence, rejecting the Null Hypothesis (HA).

4.5 Discussions Conclusion

In this chapter, the researcher has used appropriate statistical techniques to conduct a careful analysis of our primary data collected based on the research questions and hypothesis deduced with detail discussions reflecting our main findings. The researcher has accepted a hypothesis where the result was valid and in line with academic literature (except otherwise) and also rejected the hypothesis where the results were not valid with the adoption of the alternative hypothesis. Moreover, throughout the secondary research the researcher was able to determine that ‘the effective use of DC can reduce risk if use properly, hence the relevance of shock appeal to risk variables becomes important for risk managers when its objectives reducing risk is not achieved especially if the DC is wrongly use ‘. However, the present study revealed that the effective use of DC can help to manage and hedge risks which will have a significant positive impact in reducing risk for Irish NFIs. In addition, it is clear from these findings, that ‘risk reduction’ is ultimate aim of using DC as oppose to speculation to make arbitrage profit.
In summary, with the participants completing the research questions and using the hypothesis testing, the researcher supplemented the whole chapter with various graphical illustrations, interpretation and explanations of the results obtained with full discussions in details of the survey conducted through the primary research, backed up by the secondary data in the literature. Although, there are limitations experienced along the way such as equal number age category of the participants and lack of information on some area of research questions, however, this study was able to forged on to achieve its research objectives set out in chapter one. Thus, this study adds to the academic knowledge and literature regarding the use of DC to hedge risks which have the impact of reducing risk faced by FNFI in Irish context with other relevant contributions based on the sub-research questions and objectives indeed. The following chapter will summarize the conclusions of the whole research thesis, the limitations and implications for further research and make some useful recommendations to improving the academic literature.
Chapter Five

Conclusion and Recommendations

5.0 Introduction

In the last chapter we analysed all the data obtained during the survey and shed more light on the important findings of the research study. In this chapter, the researcher will summarize and make general conclusions about the research findings considering the general issues and concepts raised in the literature review section of the research, while explaining the reliability and validity of the research study. Moreover, the chapter would integrate the theories and concepts used, be reflective of the research process, analytical and critical in terms of the whole findings in a coherent process. Also, the researcher will highlight the limitations of the study process, implications and suggestions for future research, and make some useful recommendations based on the research study to improving the academic literature.
5.1 Conclusion

The researcher feels that one of the best ways to summarise the findings or the primary research is directly linking the research objectives, research questions and hypotheses that were determined through the literature review. The purpose of this research was to explore the impact of using derivatives contracts to hedge risk variables - ('Risk Reduction'). Perhaps the survey asked the participants what constitutes effective utilization of DCs to hedge risk variables - ('risk reduction') which ultimately impact and improve the institutions risk management and the results was overwhelmingly positive.

Throughout the secondary data analysis the researcher was able to establish the research questions and objectives that were directly linked with the analysis. The main issues were raised that gave reasons and relevance to the primary research of this project. Furthermore, hypotheses were established to help in answering the research questions. Moreover, survey questionnaire were administered and samples of respondents used in the research were determined in order for the primary research to fully answer the research questions and reject or prove the raised hypotheses using statistical techniques.

Also, during the literature review the researcher was able to establish the importance of DC and its role it played in an economy. Going into more detailed literature, the researcher explains hedging strategies using DC which can be used to reduce risks and more specifically shocks to risk variables. For instance, the unexpected foreign exchange rate changes of the Swiss currency to the Euro by the Swiss central bank that happens earlier in the year precisely January 2015.

Furthermore, a crucial analysis of DC usage in reducing risk was done in the Irish context, due to lack of research in the area which is now established based on this study. The researcher also found out that although there are established studies
that DC used to hedge risk can have positive impact in reducing risk, however, there were research gap in determining if the shocks to risk variables have been quantified or measured, risk limits sets and monitored, with the soundness of counter party risk being evaluated which the research project have achieved based on our detail analysis and discussions in the previous chapter which is another contribution to the research literature.

Moreover, as part of our contribution to the literature in the Irish context, we are able to determine whether the lessons learnt from the 2008 FEC that have severe impacts on both the Irish FNIFs will have been caused by the use of DC and may lead to the stop of the use of DC to reduce risk. The reason is because DC via (CDS) was one of the major causes of the 2008 FEC especially in the U.S. The results analysis and the support findings in the literature, the researcher can state that the use of derivatives contracts to hedge risk is not one of the major causes of the 2008 FEC for Irish FNIFs.

However, 2008 financial crisis in Ireland has more to do with the overheating in the property market that spiral out of control, too much lending, risk underestimation and lack of corporate governance, light touch regulation, greediness and hubris etc. In addition, it is clear from these findings in the literature that although DC (CDS) sold by AIG is one of the major causes of the crisis in the US but not in Ireland. For instance, the CDS bought by Lehman Brothers and other FIs in the US is one of the main reasons for the collapse of LBs as she defaulted on her debt resulting into the FEC due to the negative effects of the crisis through accelerated contagion around the world in which our data analysis backed the views presented in the literature, thus indicating clear support for the Null Hypothesis (HA) that the use of derivatives contracts to hedge risk is not one of the causes of the 2008 FEC for FNIFs while rejecting the Alternative Hypothesis (HB).

Additionally, we consider the impacts especially for FIs the requirements of the NCTA (Basel III). Based on the results analysis and the support of the findings in
the literature the researcher can state that the requirements of NCTA- (Basel III)” will not have significant impact on Irish companies except the financial sector thus accepting the Null Hypothesis (HA) while rejecting the Alternative Hypothesis (HB). Consequently, not only does this research fulfil its purpose in displaying the current state of the participant’s attitudes, but it also presents a portrayal of the nature of the Irish FNFI’s and companies and their importance in the economy.

In summary, considering review of the secondary literature and our primary data result analysis which confirms that derivatives contracts can be used to reduce risk. Thus, it can be said that the problems with FNFI’s using DC to reduce risk which turn out be a loss making venture for these institutions as highlighted in chapter one, has to do with the problem of application. That is the ways in which the DC has been used (wrong motive). Therefore, the general synopsis of this research underlines the necessity the FNFI’s to restore confidence in the use of derivatives contracts to reduce risk with good motive based on the following recommendations such as:

1.-For constructive and effective use of the DC markets to reduce risk, it must be supported by sound macroeconomic fundamentals as well as updated financial policies and regulations as established in the literature.

2.-Moreover, the quantification or measurement of risk, the setting up of risk limits and the monitoring of those risk limits will assist markets participants (institutions and companies) to manage their risk.

3.-More reforms on the DC markets especially in the OTC Derivatives markets that are characterised by private contracting between numerous counterparties with limited public information. Perhaps, the bilateral nature of these markets creates a complex web of mutual dependence between counterparties which creates a difficult situation and increased uncertainty for both market participants and financial regulators to fully understand the true nature and level of risks that
any particular market participant is exposed to and in times of market stress will cause financial instability as clearly experience in 2008 FEC. As a result of these problems, adequate reforms will make it possible for market participants and regulators to determine and make judgement whether the risks faced by companies and institutions have been effectively been hedged with public information available from these derivatives markets in order to avoid speculation, volatility and the building up of risks in the system. Besides, the risky concentration of some market segments, which can cause severe implications in case one of the players defaults, can be curtailed.

4.-Other vital requirements in the reforms initiated as literature research suggested, which must be implemented to create efficiency in the DC markets are: the setting up of the counterparty risk limits in the DC markets transactions in order to assess whether counterparty may default, the market participant exposures, borrowing conditions of the counterparty, ability to repay back their debts, the counterparty appetite for risk-taking, the liquidity and solvency status and the establishment of Central Counter-Parties Clearing House (CCPCH) as suggested by Charlie McCreevy's for the European CDS markets which he said will improve (e.g. ensuring electronic trade execution, affirmation and confirmation) the operational efficiency of derivatives contracts markets to function fully in these highly interconnected global financial markets.” 44

5.-Also, some policy options may be require as initiated by EU in terms of standardisation of the DC markets and the setting up of central data repositories.

44 For example, the proposal to force most OTC derivatives on to clearing houses is sound because “clearing houses reduce systemic risk by cutting out intermediaries and netting exposures. They also enhance market transparency, allowing regulators to identify dangerous accumulations of systemic risk.” But they further argued the fact that “the reform might impose higher costs on non-financials is precisely the reason for sticking to it. Costly margin requirements indicate that the derivatives companies purchase not only insure them against adverse market movements but can require them to make substantial payments should market conditions move against them. If OTC derivatives are cheaper than taking out insurance, this suggests that the systemic risks of the OTC market and the banks that dominate it are being borne by taxpayers. Ending this subsidy would force corporations to bear the fair economic cost of their actions”. Source: EU Derivatives reform by Joshua Chaffin in Strasbourg- Published: September 2 2010 20:20 @ http://www.ft.com/cms/s/0/c783979a-b6c2-11df-b3dd-00144feabdc0.htm
DC market Standardisation which is a requirement ("sine qua non") for delivering efficient, safe and sound DC markets will make operational efficiency of the trade conducted, reduce counterparty credit risk, reduce legal risk and increase legal certainty while making it possible wide use of CCP clearing or exchange trading. A central data repository which can facilitate settlement and payment instructions, improves transparency and efficiency of the operation of the market gathers data on contracts traded in one or more segments of the DC markets in which information can be obtained by market participants in terms of the size and number of outstanding contracts position in a particular contract. Both policy measures will improve the DC markets—Source: http://www.europa.eu/rapid/press-release_MEMO-09-314_en.htm

6.-Other valuable measures to improving risk reduction management using the derivatives contracts markets that is reviewed in the literature involves the following and lessons for risk managers using DC for hedging purposes are: risks must be spread based on diversified portfolio, the risk must be quantified using quantitative techniques such as standard deviation with risk limits defined; exceeding risk limits will not to be tolerated by the institutions management even when profits results, non-assumption that a trader with a good track record must always be right as nobody is above mistake which is common sense, performing stress testing and finally carryout sensitivity and scenario analysis to risk while applying probabilities to the expectation of different outcome and results.

7.-Furthermore, the recommendation and lessons for both financial and non-Financial institutions are: they should always assume and give second thought that ‘Risk Models’ can go wrong at any time, they should always beware of hedgers who turns out be speculators, they should consider liquidity and solvency risk which must be considered at all time with total market transparency, they should not finance long-terms assets with short-term liabilities, they should always be conservative in recognising inception profits not realised and to avoid risk managers taking excessive risks that will destroy the company or institutions’ in
order to get bonus, they should not make the treasury department of the institutions a profit centre as this move can be detrimental to the institution concerned, they should not give too much independence to ‘Star Traders’ like Nick Leeson of Barings Bank or John Rusnak of All First/Allied Irish Bank.

8.- Others are: they should avoid following the same strategy of many institutions as there may be danger underneath that will be brought to light later, they should always separate front office work from the back office, they should have full understanding of the financial products they invest and trade, they should not sell clients inappropriate products

9.- Absolutely, risk managers can also use VaR to measure and control risk for trading, for investment management, and for enterprise-wide risk management ‘using derivative instruments for hedging’ while watching out for any key pitfalls in the risk-management systems. Thus, we intend to provide the most current information needed to understand and how risk managers can effectively use DC for reducing FNFIs risks as well as manage newer dimensions of financial risks with ‘Safety-Net-Margins’ indeed.

Meanwhile, we to note that this research recognises its limitations and underlying assumptions such as: Sampling, small sample size, time frame, unequal age groups of participants, lack of detail information on the research questions for the participants etc. as acknowledged fully in the next section. However, the findings taken in conjunction with the related prior literature demonstrate that the main and set objectives of the research has been achieved which confirmed that ‘DC which is unquestionably still highly relevant financial instruments can be used by risk managers to reduce risks in FNFIs. Despite the noted limitations, the researcher proposes that this dissertation contributes to the literature research by providing conclusions for the benefit of the FNFIs sector of the economy. Accordingly, the results elicited by the research questions and hypothesis testing help to provide a deeper understanding of the impact of using derivatives contracts to reduce risk.
Nevertheless, there are noteworthy cases as a basis for future action based on the limitations which are highlighted in the next section.

### 5.2 Limitations of the Research

Regardless of the researcher high ambitions, this research is constrained by resource limitations, such as time, funding and the scope of the study that required the research study to focus on a limited number of objectives. Moreover the research questions focus directly or indirectly involve multiple areas in the use of DC, while limits of time, more participants surveyed with responses and larger sample size, high cost, unequal age groups of participants, the use of sophisticated statistical techniques (such as Micro fit or Stata to analysed primary data effectively) and lack of detail information on the research questions for the participants could not make all areas be investigated in detail. Thus, the outcome of the results might be significantly different from the present one. The larger research can also increase the reliability and validity of the study as well.

Perhaps, because of limited time, this research study could not research FNFIs in various counties and regions of Ireland but only part of Dublin region and its suburbs. This requires further research with surveys to indicate all regions of Ireland, larger samples size responses collected, more information provided on the research questions and the use of sophisticated statistical techniques. Unfortunately, such extended research to cover all regions, more sample size responses collected and the use of sophisticated statistical techniques was not achieved.

### 5.3 Recommendations for Further Research

The researcher believes that this work could be continued if the limitations are properly reflected. If the work continue, the researcher believes that there could be more work done on other factors that could influence the impact the of DC usage
to reduce risk in the literature review. Furthermore, as suggested, one of the purposes of using DC was either to hedge in house risk, or for selling to clients for hedging or for own-accounting trading, the researcher suggest taking this factors as a main one and extending the literature analysis; it will provide new ground issues that could be combined with the research already done such as price discovery, hedging role, redistribution of income and stabilization compared to what has occurred in established markets to be investigated indeed.

Despite the limitations highlighted in the previous section, in terms of future research this research study represents a good basis as it has explored new areas of learning about different relevant issues relating to the research topic. Our findings give new insights on the use of DC to reduce risk with all the processes emphasized. Accordingly, based on previous limitations, it would be very interesting to extend the sample size used, more wider regions of Ireland included in the survey, another methodology used (qualitative not quantitative approach), the determination of the impacts of the individual derivatives hedging strategies (such as Forwards, Futures, Options, Swaps etc.) to reduce risk and the use of sophisticated statistical techniques to improve the data analysis should all be consider when implementing further research in this area.

For example, in the case of determining the impacts of the individual derivatives hedging strategy and using Ryanair as case study that hedges its jet fuel prices in advance using ‘Futures Contracts’, as it buys the fuel ahead of time to protect the airline from potential shocks from the oil markets by budgeting well in advance. However a recent collapse in jet fuel prices earlier in the year (precisely January 2015), triggered by the dwindling cost of oil, means that the airline have to pay over the odds (high price) for its fuel than the current market rate need to be evaluated to determine the impact on the airline. Perhaps, this limitation suggests further research to expand and supplement what could not be captured in this research based on a particular hedging strategy used by Ryanair.
Finally, financial characteristics of using derivatives instruments, derivatives hedging strategy practices, profitability in terms liquidity efficiency income of each DC and the consequences of poor working of risk management using DC could be used as the foundation and expansion for the further research. Perhaps, a cross study analysis of the similar industry in another country or continent involving all issues investigated in this study could provide a more interesting findings and outcomes for comparability. Thus, there are several considerations for further research in this multi-faceted area of research, and the present study certainly serves as a base to build upon for further investigation of other aspects of the research topic indeed. **Enda, many thanks and God Bless for taking your precious time to read this research project. I appreciate the support.**
Chapter Six

6.0 Self Reflection on Learning Curve and Performance

6.1 Introduction

Throughout the dissertation process, the author thinks he has gained a lot in terms of academic, professional and general life knowledge that could be used to improve himself in future academic studies and professional career. Perhaps, the author thinks that in writing this dissertation project, he gained practical knowledge of how to plan, structure, execute the process of properly writing a ‘Master's Degree Research Thesis’ based on previous experience of completing essays papers during the term study. Moreover, he has a better understanding what is significant and relevant in the chosen a research topic, when reviewing different scholarships in the literature, when analysing secondary data obtained in the process based on the foundation lectures of different theories and concepts lay down by my tutors- especially my supervisor who did a wonderful job by teaching the author one of the core courses – (Operation and Governance of Financial Markets) that paved way to complete this project. Hence I am 100% grateful to him (My Supervisor – Mr Enda Murphy) for the assistance and support I received both in the taught course and the supervision of this research project indeed.

Currently in discussing the detail process of this research project, the author gained a much broader perspective in terms of vital theoretical knowledge and practical skills in risk management (i.e., managing interest rate, credit, market and foreign exchange etc. exposures and their application to practical situations) and the use of DCHS to reduce the risk. In addition, the author has familiarised himself with current and potential future development in risk management such as: risk
measurement and quantification, setting risk limits ‘appetite for different types of risk, the monitoring of both and the use of VaR to model risk.

Moreover, on the use of DC to reduce risk, both national and international levels, the author has gained full knowledge of the process such as the setting up of the counterparty risk limits in the derivatives contracts markets transactions in order to assess whether counterparty may default, the market participant exposures, borrowing conditions of the counterparty, ability to repay back their debts, the counterparty appetite for risk-taking, the liquidity and solvency status and the establishment of CCPCH as suggested by Charlie McCreevy’s for the European CDS markets which he said will improve (e.g. ensuring electronic trade execution, affirmation and confirmation) the operational efficiency of derivatives contracts markets to function fully in these highly interconnected global financial markets as well as manage and hedging newer dimensions of financial risks with ‘Safety-Net-Margins’ indeed. Consequently, by analysing the various components of risk management and DC, roles that they play and how they work, the author gained a detailed view on how actually a risk manager can effectively manage their risk via different HS.

Furthermore, on self-reflection and the learning curve throughout the whole Master’s Degree Program, there are different challenges that occur during the program which was conquered through resilience, determination, dedication, confidence and total faith in God Almighty who gave me the strength, skills, knowledge and wisdom to overcome these challenges and achieve my dream of completing the course within the time frame allocated.

The next section explained the different types of learning styles available which assist the author to achieve its objectives of improving his academic and professional career development including completing the research project and the Master’s Degree.
6. 2 Learning Styles
6.2.1 Theoretical Background

The first learning style used in the process was suggested by Kolb (1974) who argued that learning is not static but a continuous cycle in life. The idea is based on concrete experience as a basis for observation and reflection. Perhaps, for the learning process to be effective, each learner has to go through four key stages. The stages are: Concrete Experience (Feeling); Reflective Observation (Watching); Abstract Conceptualisation (Thinking) and Active Experimentation (Doing). These stages will be tested in new situations. Below is Figure (49) showing Kolb (1974) learning cycle that is visualized in various styles. Source: Google Images
Figure 49: Kolb's Learning Styles
Source: Google Images
The Figure 49 above displayed Kolb’s (1974) four learning cycle’s styles. The process involve learners with greatest strength in terms of practical application of ideas, are called “Convergers” who are rational and have a data-oriented method of thinking and evaluating situations. However, “Divergers” are the one with imaginative and associative characteristics and do exhibit a broad cultural interest. Moreover, Kolb (1974, page 31), specifies another type - “assimilator” which he claimed that the “greatest strength lies in his imaginative ability” to create theoretical models while the “accommodator” which is the fourth type prefers doing things and take an active part in any experience.

With Kolb (1974) learning styles theory operating during the process, we also apply Honey and Mumford (1986, 1992) refined four possible learning styles such as: Activist; Reflector; Theorist and Pragmatist – (See Coffield, et al., and (2004). Honey and Mumford (1986, 1992) claimed that “Activist Learners” are said to open-minded, always ready to take action and happy to be exposed to new situations. “Reflectors” are thinkers and very meticulous. Perhaps, according to Coffield, et al., (2004, page 72), the learners are good “at listening to others and assimilating information”. However, in contrast to reflectors, pragmatists are realistic and technically oriented person who are keen to test things in a practical way rather than approaching the information based on theory. Theorists are logical rational thinkers who want to grasp the bigger picture of the situational problem by concluding from experience.

Below is Figure 50 displayed Honey and Mumford (1986, 1992) four possible learning styles that is visualized in various styles. Source: Google Images.
Profiles of Honey & Mumford’s learning styles

- **Reflector**
  - My philosophy is... I'll try anything once!
- **Activist**
  - My philosophy is... there is always a better way!
- **Theorist**
  - My philosophy is... it's good to be cautious!
- **Pragmatist**
  - My philosophy is... if it's logical, it's good!

---

Can I have a go at doing this now?
Can I have a think about that?
Why does this work like that?
How does this work in the real world?
Figure 50: Honey and Mumford (1986, 1992) Four Possible Learning Styles - Source: Google Images

Nevertheless, other scholars like Fleming and Baume (2006) suggested a simpler grouping of learning styles model - "inventory"- Visual-Auditory-Kinaesthetic (VAK) which learners can be classified into visual, auditory, reading, writing and kinaesthetic learners. Perhaps, “Visual Learners” learn at best by visualising information, graphs and presentations while “Auditory Learners” like to memorize information at best by hearing. Moreover, “Reading and Writing Learners” learn by displaying information as words to be seen. As a result this type of learners prefers text-based information. Fleming and Baume (2006) termed people who need to touch or do things, as “Kinaesthetic Learners”. Though they stressed that the displayed idea of different learning styles is “a beginning of a dialog, not a measure of personality”. Consequently the learning styles give an orientation to enable learners to be classified according to personal learning preferences. Table
7 and Figure 51 shows a brief summary of Fleming and Baume (2006) - VAR learning styles with description

<table>
<thead>
<tr>
<th>Learning styles</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual</td>
<td>Seeing and Reading (Graphs)</td>
</tr>
<tr>
<td>Auditory</td>
<td>Listening and Speaking (Memorize Information)</td>
</tr>
<tr>
<td>Reading and Writing</td>
<td>Displaying Information as Words</td>
</tr>
<tr>
<td>Kinaesthetic Learners (Physical)</td>
<td>Touching and Doing</td>
</tr>
</tbody>
</table>

Table 7: VAR King up the right tree - learning styles descriptions.

![VAK Learning Styles Diagram](image)

Figure 51: VAR King up the Right Tree-Learning Styles - Source: Google Images
6.2.2 Reflection on the Researcher Learning Styles

From the various learning styles explained above- Kolb (1974), Honey and Mumford (1986, 1992) and Fleming and Baume (2006), the author can fashion out its own learning style(s) approach he adopted. Using Kolb’s (1974) leaning style, I will classify myself as “Converger” because of my greatest strength in applying practical ideas based on my rational being and data-oriented method of thinking and evaluating situations - abstract conceptualization and active experience. With these traits, the author fined solutions to problems and challenges through making unprecedented and decisive decision(s) in a practical way to achieve results. Therefore, this gave the author impetus to research his topic in a practical way using quantitative methods via survey questionnaire to collect primary data after establishing the theory that risk managers can use derivative contracts to reduce risk via different hedging strategies as established in the literature.

Furthermore, the type of learning styles introduced by Honey and Mumford’s (1986, 1992), the author will classify himself as a “Reflector and Pragmatist”. As a reflector, I reviewed all my experiences (academic or professional) in life through quiet thoughts of past events in order to evaluate situations whether different option(s) or decision(s) or conclusion(s) can be made or implemented in future similar to this process of completing the dissertation in collecting both vital primary and secondary information on the research topic to make valid conclusions and recommendations in order to improve the research.

Moreover, as a pragmatist, I am a realistic person who faces and deal with the true picture of events (not a pretender) and technically oriented - ready to test things in a practical way rather than approaching the information based on theory. Perhaps that is why the research topic is based on finding out the truth of the impact of how effectively risk managers can use derivative contracts to reduce risk via hedging strategies and to plan for the next step to take to achieve the objective. Definitely, both learning styles are achieved based on my vast reading and writings.
(information gathering) which Fleming and Baume (2006) suggested that the learning styles model of visual learners learn the best by displaying information as words. As a result of achieving the objective of completing the research project, the author developed different strategies of mapping out my readings through plotting the graph line to follow in accomplishing the process which has paid off with the support of my supervisor who did a wonderful job to advice and support me throughout the process. Enda, many thanks and well done (Maith Thu)!

6.3 Academic and Professional Background

I have successfully completed the taught part and submitted the dissertation requirement for a Master of Science Degree in International Accounting and Finance @ Dublin Business School, a required step to enhance my academic and professional background. Perhaps, starting with the author core courses in the International Accounting and Finance Program, the author took various Finance Courses such as: Corporate Finance; Treasury and Risk Management and Operation and Governance of Financial Markets offered by the International Accounting and Finance department.

Meanwhile, prior to studying at DBS, the author graduated with a Second Class Upper Degree in Economics (June 1995) from the University of Lagos, Nigeria. As part of his degree, the author took courses in Accounting, Finance and Economics. After graduation, the author was made a graduate assistant in the department from where he graduated form for a period of 15 months and thereafter enrolled in the MSc in Economics Program in the same University in May 1997. The author completed the Program in August 1998 and did a research on “The Impact of Interest Rate on the Manufacturing Sector” in which he analyzed the variation of interest rates borrowing and the capacity utilization in the manufacturing industry.

After graduating from the MSc Economics Degree Program, the author worked in several departments - (Corporate, Commercial, Operations and Investment
banking) of the third largest commercial bank in Nigeria with 700 branch network. The job provided the author with insights into the nature and impacts of financial instruments -derivative, the working of the foreign and local financial markets, and the Government accounts and finance management that fostered the author interest in Accounting and Finance.

Also, the author completed in Dublin a Manual and Computerized Accounting (TAS Books) and Pay Roll package (SAGE) course in 2008 with Distinction. Furthermore, he worked as "Finance and Administration Officer" with a Youth Centre in Dublin from 2007 - 2013 and previously worked in the Account’s Department (2005-2006) of Hicks Food Ltd, Ballymount, Dublin. The author responsibilities involve finance/administrative duties, efficient financial reporting to numerous funding agencies. In addition, the author was responsible for data entry, account payables and receivables, updating of the cheques payment books, weekly maintenance and upkeep of the petty cash system, banking duties, bank reconciliation, employee travel and subsistence expenses, salary preparations and revenue returns.

Before then, the author completed in Dublin Microsoft Office Users Specialist Programs (MOSP) with excellent grades and ECDL program. Moreover, he completed a Diploma program in Fund Accounting / Administration (Mutual Funds) and Computer Applications with Distinction in Dublin 2003 and also completed a QQI Certificate in Funding and Treasury with Distinction @ DBS in 2014. These training the author receive has improve his skills tremendously on his profession as an Economist and Financial Accountant will the multiplier effect of continuous improvement of the author both academic and professional career in future after completing the Master of Science Degree in International Accounting and Finance @ Dublin Business School indeed.
6.4 Research Process Assessment

6.4.1 Process

The research process was as a result of **five good reasons**. First, when the author enrolled for the Master of Science Degree in International Accounting and Finance program after completing the QQI Certificate in Funding and Treasury with **Distinction @ DBS** in 2014. During his lecture in Treasury and Risk Management class, the author developed interest in risk management and the use of derivatives contracts to manage and hedge the risk. Moreover, the author was given assignment essay on risk management using derivative instruments which he got an excellent grade when the results was released taught by **Andrew Quinn-Many thanks!**

Second, was the recent financial crisis and distress faced by many financial and non-financial institutions world-wide especially Ireland which plunge and brought down the Irish economy to recession of major significance. Thus, the author begin look for answers for many questions raised leading to the financial and economic crisis which badly affected especially the European economy —(Irish inclusive) and brought many economy to its knees due to the contagion effects. This situation further provided the need for this study.

Third reason was very striking, as the author was reading many books and Journals in search of answers to the 2008 financial crisis coupled with his second semester course in Treasury and Risk Management and Operation and Governance of Financial Markets offered by the International Accounting and Finance department, the author watched many video from both courses of the enormous risk taken by many risk managers of financial and non-financial institutions in granting loans (Mortgage, personal and business etc.) without any leverage or back up collateral securities in the case of failure to pay debts or default by institutions which later, the loans turnout to bad sponsored by the wrong use of derivatives (CDS) which brought down these institutions. As a result,
the author ask his lecturer – Enda during the taught class lecture who later turn out to be his supervisor that he will like to explore this area of risk management using derivatives. The response from Enda was swift and remarkable as he gave me the go ahead with other vital information to do the research topic provided the author will get the necessary primary data from participants-risk managers.

Fourth was after reading many books and journal and watch a lot of videos, the author found out that nothing have been done in the literature regarding the use of derivative contracts to hedge and reduce risk in the Irish context. Consequently, the author intend to make contribution to academic knowledge by addressing the gap in the literature- (Irish Context not available) and to have a better understanding of how “risk managers” of Irish financial and non-financial institutions can effectively utilizes derivatives contracts in managing and hedging shocks to risk variables.45

Finally, the research topic is in the area of the author professional goal and career ambition to become a resource person and expert in the area of financial accounting management / consultant and to improve my career as a former employee of both financial and non-financial institution.

6.4.2 Dissertation Preparation

The resources are taking mostly from library, Moodle and internet resource which provided the basis to carry on the research project in order to get answers- to the impact of the effective use of derivative contracts to manage and hedge risk. The process involves the use of quantitative methods through administering on line and postal survey questionnaires to collect primary data based on the research questions and hypothesis testing. The results of the research questions and

45 Motivation -This research study will be of immense benefit to risk managers of Irish financial and non-financial institutions.
hypothesis testing have been displayed in line with scholarships conclusion in the literature.

6.4.3 Resources Used

The author chosen research topic was not a new area but the Irish context was not available in the literature. While the author found a lot scholarships both on the library sources (Text, JSTOR, Emerald, e-Source, EBSCOhost, and Moodle etc.) And on the internet, it was not easy to comprehend as the author had to do a lot reading and writings to get the job done and to meet DBS requirements standards with a limited time frame.

6.5 Personal Development during Master’s Studies

6.5.1 Researching process and Analytical Skills

The Master of Science Degree in International Accounting and Finance taught courses and the research project has greatly improved the author knowledge of research and the ability to apply the process to future academic and professional career. Although, the author has done much research before, however, the process in DBS is different and very challenging within a short time frame to deliver substance. Thus, throughout the process, the author has learned that there were some areas that, it could be said, it lacked research, therefore, leading to start the primary research part of this dissertation and to establish facts. During the wide-ranging reading and with the help of a beneficial literature analysis, the author broaden his already knowledge in terms of formulating the research questions, establishing objectives and hypotheses and raising general issues to improve the dissertation.
Furthermore, due to the fact that this research is based on a sensitive topic, the author was able to develop the postal and on-line survey questionnaire in a way that better portray the questions, which the respondent(s) can stop, think and answered the question in a relax manner to achieve results. Perhaps, the research questions were objective, unbiased and truthful indeed.

Throughout research process, the author had support and assistance from his supervisor through comments on issues of interest to improve the research work. All through the meetings and email sent by the supervisor, the author gained invaluable experience when it comes to writing the project. Moreover, his meetings with the supervisor at the beginning of the research not only helped him with structuring the work in a specific way but determining the relevance of information that is directly linked with the analysed topic. All the comments and suggestions from his supervisor were responded fully by the researcher including feedbacks gotten from the supervisor to add or changed topics on areas discussed within the dissertation. Through this experience the researcher learned how to listen better, take in the feedback and make it work in his advantage by adapting and change the required accordingly to the situation.

In addition, the different taught courses undertaken during the program with other supporting courses and classes like library classes, research skills, writing a literature review, referencing, designing questionnaires, SPSS, different research methodologies etc. assisted the author to greatly to improve his researching skills to do the academic work efficiently and effectively through proper analysis of the primary data collected from respondents.

6.5.2 Teamwork Skills

Teamwork is the order of the day if we all want to achieve a lot in life since no man is an Island. Perhaps during my Bachelor’s and Master's degree program at present, a lot of group work and assignments have been given to be completed
within the schedule. The group work and assignments was achieved through teamwork and spirit via division of labour with each person specialising in the area of advantage. Indeed, people with different backgrounds, cultures, opinions and attitudes came together in order to accomplish the tasks- sharing of ideas to get the desire result which is remarkable in many of course group essays. Hence, there is no substitute for teamwork if you want to succeed in life by sharing of ideas, views and opinions. Based on the teamwork experience with the authors course mate during the program, the author said he eventually developed a cultural openness and understanding for different approaches to the same problem via contributions from others.

To this end and in the context making valuable progress bringing of synergy effects of teamwork, the author gained a lot in collaborating in a team instead of wasting his precious time by trying to change the point of view of other team members. Perhaps, in a teamwork, the author always position himself first as an observable learner, leaning ideas and opinions from others before drawing any conclusion on the link between theory and practice and make a valid decision. This process of team work of gathering different and valuable ideas and opinions has inspired the author during the dissertation process as he has learned a lot from course mates and lecturers on how to complete this dissertation and come out with an excellent grade.

6.5.3 Time management

Time management is very crucial in carrying out this type of studies. Hence, the author had to devise a plan in allocating time to each set of challenges in completing the project. Although, some chapter in the project demand a more time than required, but the author has to adjust for it through provision for unexpected challenges to fill the gap which prove out to be a good strategy. This was done during the taught program when completing essays writing. Perhaps, this process
of time allocation and management will assist the author in future to improve his academic and professional career and accomplish many objectives.

### 6.5.4 Communication Skills

Since the author started school back at home in Africa, he has been learning and speaking English Language which has assisted him to communicate effectively with others, thus communication has not been a problem for him. Perhaps, the author read a lot of books, newspapers, journals to improve his communication skills to enable him to write good English when writing my academic essays from childhood which has continue to pay-off till date. Moreover, the authors presentation skills has improve a lot during his Bachelor’s and Master’s degree program as he has presented many papers in class and public forum. Thus this skills will enhanced the author to work in any international academic and professional environment due to his high level performance and confidence level in communicating (opinions and views about current events) and presentation skills using graphics -(Graphs, Tables and Charts etc.)

### 6.5.5 Application of Learning and Skills Development in Future

The author completion of the Master of Science Degree in International Accounting and Finance taught courses and the research project experience will be an added value to his academic and professional career. The author has improved his knowledge in International Accounting and Finance theories and concept and how it could be applied to real life situations. Perhaps, both the personal and professional development learning styles have also improve the author based on completing the course.

With this ammunition and resources available, the author will not be afraid to face the real world practical situations in his profession since he is determining with
total focus to get the required results. This can be achieve via a proper proactive plan in place with gathering of valuable information in the area of author’s profession, with up-to-date at all levels, will assist him in making the right decision through new ideas gained from past studies. Perhaps, since learning is a life-long process, the author will continue to learn every day in his area of choosing interest- financial accounting management through reading of text, newspaper business journals, attending seminars, workshops, conferences and dialogues with colleagues and experts in his area of chosen interest to support his life ongoing learning process.

6.6 Conclusion on Self-Reflection

The author’s learning experience during the Master of Science Degree in International Accounting and Finance program was extraordinary, amazing, priceless and very treasured to improve his academic and professional career as it was completed @ DBS which is an institution that truly provides “Excellence through learning”. Accordingly, the author will like to take this opportunity to thanks his course mates, all lecturers and staff of DBS who have assisted him in one way or the other in accomplishing his dream of completing the dissertation project and the whole and program. This indeed has improved his practical knowledge and widening the scope of his analytical thoughts to solving problem. Perhaps, during the course and dissertation process, it was imperative to adopt many different learning styles and perspectives to achieving the objective.

For example, during the process of dissertation of conducting postal and on-line survey questionnaires with risk-mangers of financial and non-financial institutions, its afforded the researcher the opportunity identify, innovate, create, and analyze different issues in a professional manner to get results. The author gained pivotal experience and a better understanding of the process. The author broadens his understanding on how to make preliminary questions that are directly linked with the objectives, hypotheses and research questions. While it was a new process,
he gained much needed information on how to act and to lead postal and on-line survey questionnaires process.

When speaking about the author experience in writing the dissertation project, he researcher feels that he had gained a broad spectrum of academic knowledge which will ultimate improve his academic and professional career including his personal life. Perhaps, more practical approaches on how to deal with people, to communicate, team-working and time management has been gained with learning techniques that was a crucial part when it comes to determining the outcome of this research.

The author's academic and professional background in the past also contributed greatly in overcoming major challenges involving a completely new set of academic requirements due to major changes in the accounting and financial world perspectives. Perhaps, author believes that he gained a huge amount of academic and practical knowledge which helped to take this research to a higher and better level. The author is totally delighted and indebted to everyone who have lend support and assistance to complete the Master of Science Degree in International Accounting and Finance program @ DBS indeed.
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**Murphy, E. (2015)** –Lecture notes on “Financial Institutions Derivatives including additional reading notes on Derivatives, Available on DBS Moodle- Thanks and God Bless!


Paul, P.J (2015)-*Lecture Notes on Research Methods 2 including additional reading notes provided- Available on DBS Moodle- Thanks and God Bless!


Other important websites used in this Project are:


The VaR Debate - M Stanley shows the ‘flaky’ side of model Risk Available at:
DBS Library Resources- Financial Times: October 17th 2012 Available


Value-at-Risk Available at:


Types of Risk and Risk Management

Types of Risk

Risk can be transferable risks and non-transferable risks. Transferable risks can be hedged with risk management products. In this way you can export transferable risks out of your firm. For example, a transferable risk can be a foreign exchange exposure. Therefore, the rate can be fixed with a bank in which what was your risk can becomes the bank’s risk. The treasury policy you implement will dictate how much risk you want to pass on. On the other hand non-transferable risks can be business risks which must be borne by the institution or company. For example, a pharmaceutical company’s non-transferable risks would include the prospect that a competitor’s research developments might make their products outdated.

Also, as discussed above risk can be systematic and non-systematic risk. Systematic Risk is where investor can construct a diversified portfolio and eliminate part of the total risk, the diversifiable or non-market part. Consequently, what is left is the non-diversifiable portion or the market risk. Variability in a security's total returns is directly associated with overall movements in the general market or economy is called systematic (market) risk. These movements occur regardless of what any single investor does. For instance the 9/11 event in America affected all stocks. Indeed, systematic (market) risk is attributable to broad macro factors affecting all securities. The nonsystematic risk is the variability in a security's total returns not related to overall market variability. This risk is unique to a particular security and is associated with such factors as business, financial and liquidity risk. Nonsystematic (non-market) risk is attributable to factors unique to a security indeed.
Based on the above is the fact that the question remains why an investor should not put all his/her eggs in one basket? The problem is that an investor who puts all their funds into one investment, risks everything on the performance of that individual investment. Therefore, a clever risk management policy would be to spread the funds over several investments so that unexpected losses in one investment may be offset to some extent by the unexpected gains on another. Consequently, the key motivation in establishing a portfolio is the ‘Risk Reduction’.

**Figure 14 A and B** shows two good examples on how to explain the risks using Bond and Stock Allocation. Source: Goyal, Abhinav (2015) Lecture Notes on Corporate Finance.

![Graph showing Mean and Volatility](image)

- **Figure 14A**: Domestic – Foreign Allocation

  Combinations of U.S. Stocks and International Stocks
From Figure 14 A & 14B shows the breakdown of risk which is the total risk of a portfolio or a single asset consists of two types of risk - unsystematic risk and systematic risk explained above. Thus, assets with more exposure to systematic risk generally offer investors higher returns than assets with less exposure to systematic risk. The proposition evidence comes from historical record, such as the higher long-term average return on stocks compared to T-bonds or T-bills.

Furthermore there are different types of risks faced by financial and non-financial institutions such as: interest rate risk, foreign exchange risk, credit risk, market risk, liquidity risk, off-balance-sheet risk, country or sovereign risk, technology risk, operational risk, insolvency risk and weather risk. These risks are unique to all global firms of financial and non-financial institutions. Figure 15 below shows the Types of Risk in Finance.
Interest Rate Risk

Interest rate risk involves the supply and demand for loanable funds domestically and internationally. Any shifts in supply or demand generate interest rate movement as market forces establish a new equilibrium. The interest rate risk faced by risk managers of financial and non-financial institutions has increased tremendously due to significant borrowings by various governments and private institutions from foreign financial markets to finance business projects and satisfying customers demand. The interest rate exposures will need to be managed and hedged using fixed or floating rate depending the company circumstances and the utilisation of derivatives such as interest rate futures, options and swaps etc.
Furthermore, interest rate risks by institution/companies also shows that the maturities of its assets and liabilities are mismatched, which exposed institution/companies to adverse changes in interest rates. For instance, short-funded liabilities mature before assets and therefore will have to borrow again to repay the liability. Moreover, institution/companies are exposed to refinancing risk which the risk on interest rates on the future borrowing will become greater than returns on the assets.\textsuperscript{46}

Perhaps, in another way when market rates change in manner that was not expected and the risk manager of an institution considers that interest rates will rise, it is likely they will arrange debt that has a fixed rate of interest attached to it. However, when the risk manager considers that interest rates will fall, they are more likely to tie the institution into a floating rate debt. The problem arises when market rates turn out to be different to what risk manager predicted if the markets rated fall and the company will not benefit from the reduction in interest rates. Alternatively when market rates rise and the company’s debt is variable in nature, then the company is exposed to potential increase in cash flows indeed.

The following financial products can be obtained from the banks, or in some instances the exchanges, to hedge interest rate risk exposures such as: Caps, Collars and Floors. A \textbf{Cap} is pre-agreed ceiling interest rates that can be written into variable interest rate loans agreement. The interest rate charged floats which is the base rate (Euribor or LIBOR), but only to a certain level, the cap rate. A \textbf{Floor} is a pre-agreed lower interest rate, which the interest rate that is charged will not fall below. It can be written into the variable interest rate agreement. Like the cap, the interest rate charged floats with the base rate, but does not fall below the floor level. A \textbf{Collar} is a combination of a cap and a floor. The interest rate that is charged by the bank will not exceed that cap level, nor will it fall below the floor level.

\textsuperscript{46} We note that long-funded assets mature before liabilities. Thus, we have to receive income before we need to repay and to reinvest the income when received. And where there is exposure to reinvestment risk, that future returns will be lower than the cost of borrowing.
level. The fee charged by the bank in a collar transaction will be less than that charged for a cap agreement, because the bank has a chance of making excess returns if the rates fall below the floor level.

Foreign Exchange Risk

Foreign exchange risk faced by risk managers of financial and non-financial institutions has increased tremendously especially in the last century due to globalisation and integration of the financial markets. The issue has become increasingly important for risk manager due to the increasing foreign exposure and the hedging requirements and speculative position required to be taken in order to manage the risk and increase income.

Meanwhile, exchange rate is the rate at which one country’s currency can be traded in exchange for another country’s currency. There are various sources of FX risk faced by institutions-spot rate transactions and forward rate transaction.\(^7\)

A Spot rate FX transaction can be conducted through FX division of an institution treasury division involves in immediate exchange of currencies at the current (or spot) exchange rate. Forward rate FX transaction involves the exchange of

\(^7\)Perhaps, financial and non-financial institutions form the backbone of the foreign exchange markets and most institutions buy and sell currency through banks. The banks make money on these transactions by buying currency at one rate and selling it at another rate. The difference between the buying and selling currencies rate is called the spread. The spread is the banks’ premium. They may also charge an administration fee. Exchange rates fluctuate between countries in response to supply and demand for the respective currencies within foreign exchange markets. Both supply and demand are influence by a variety of factors.
currencies at a specified exchange rate (i.e. forward FX rate) at some specified date in the future which can be written one, three or six months periods: spot position dominated in foreign currency and forward position denominated in foreign currency etc.

In another dimension, since the foreign exchange management involves dealing in the foreign exchange markets and the day-to-day management of foreign exchange risks. Perhaps, it is the risk that exchange rate changes can affect the value of institution/company assets and liabilities denominated in foreign currencies as returns on foreign and domestic investment are not perfectly correlated for two reasons. First are the underlying differences between economies and second is the changes in exchange rates are not perfectly correlated across countries. For example £/€ may be increasing while £/¥ is decreasing and the relationship between ¥ and € time varying, thus undiversified foreign expansion creates foreign exchange risk. Using the example below institutions or companies may be net long or net short in various currencies:

Example 1

Net long position in £ in [= Foreign Assets £100m]
Net long position in £ in [Down=Foreign Liabilities £80m]

Example 2

Net short position in £ in [= Foreign Assets £80m]
Net short position in £ in [=Foreign Liabilities £100m]

Also, FX risk can be subdivided into three groups: Transaction risk; Translation risk and Economic risk.
A. **Transaction risk** - The exchange rate risk associated with the time delay between entering into a contract and settling it. The greater the time differential between the entrance and settlement of the contract, the greater the transaction risk, because there is more time for the two exchange rates to fluctuate.

B. **Translation risk (an accounts issue)** - The exchange rate risk associated with companies that deal in foreign currencies or list foreign assets on their balance sheets. The greater the proportion of asset, liability and equity classes denominated in a foreign currency, the greater the translation risk.

C. **Economic risk** - When the cash flow from a foreign market is vulnerable to changes in the exchange rate.

**Hedging of Foreign Exchange Rate**

Once currency exposures have been identified, the next step is to determine if they should be hedged, or not. It may be that the risk manager believes that exchange rate movements will benefit the institutions and may decide which exposure should not be hedged. However, this is speculation which, as an approach, would need to be agreed strategically and in many instances currency exposures are hedged internally i.e. net differences between exports and imports are hedged or using debt dominated foreign currency to finance foreign investment. Other hedging techniques are: leading and lagging currency payment; centralising the currency management function, factoring, matching currency flows, adjusting price; invoicing in domestic currency; risk sharing; forward and
futures contracts, currency options and currency swap agreements as shown in the (PB) foreign exchange Hedging process

Credit Risk

Credit risk involves the exposures of financial and non-financial institution to borrowers of money (loans and bonds) both domestically and internationally. It also involves the pricing of loans and bonds and setting limits on credit risk exposure which need to be managed and hedged. Put it in another way, credit risk is the risk that promised cash flows from loans and securities held by institutions / companies are not paid in full. The institutions / company's specific credit risk are: risk that specific firms will default-i.e., systematic credit risk which is simultaneous increase in the default risk of all firms in the economy. Institutions / companies that
make loans or buy bonds with long maturities are more exposed than institutions that make loans or buys bonds with short maturities. For example, Figure 16 shows the Write-off Rates for Commercial Banks Lending Activities from 1984-2009.\footnote{The implications this growing credit risks are: Importance of credit screening; importance of monitoring credit extended; role for dynamic adjustment of credit risk premia and diversification of credit risk.}

**WRITE-OFF RATES FOR COMMERCIAL BANKS**

![Figure 7-1: Charge-Off Rates for Commercial Bank Lending Activities, 1984-2009](image)


Furthermore, the type of loans involves secured and unsecured loans such as (syndicated loan, spot loans, loan commitments, decline loans originated by commercial bank and growth in commercial paper market). Retail loans such as mortgages that has fixed rate can be subject to default risk when loan–to–value
ratio increase. Consumer loans involves individual loans, personal, auto, credit card, non-revolving loans. Other type loans include farm loans, non-financial institutions loans, broker margin loans, foreign bank and sovereign governments, state and local governments etc.

In terms of measuring credit risk, we must consider the availability, quality, and cost of information which are critical factors in credit risk assessment facilitated by technology and information. We also have qualitative models where borrower specific factors are considered as well as market or systematic factors. The specific factor includes reputation, leverage, and volatility of earnings, covenants, and collateral while market specific factors include business cycle and interest rate levels.

**Liquidity Risk**

Liquidity risk is the risk that a sudden surge in liability withdrawals may force an institution / company to liquidate assets very quickly and at low prices. It arises whenever an institutions liability holders such as depositors or insurance policyholders demand immediate cash or their financial claims, or if the institution or company has problems refinancing. Thus, the risk of being forced to borrow, or sell assets in a very short period of time consequently lower the prices result. Therefore, this may generate runs through multiplier effect as the runs may turn liquidity problem into solvency problems. For instance, the risk of systematic bank panics like what was experience in Greece recently (July 2015) with their financial system, Northern Rock (UK Bank) crisis of 14th to 17th September 2007 and Ireland financial and economic crisis which the central bank (CBI) and the Irish Government had to intervene in September 2008 that leads Ireland’s bank guarantees.
Insolvency Risk

Insolvency risk is the risk of insufficient capital to offset sudden decline in value of assets to liabilities. For instance the original cause may be excessive interest rate, market, credit, off-balance-sheet, technological, FX, sovereign, and liquidity risks.

Market Risk

Market Risk arises when institutions / companies actively trade in assets and liabilities (derivatives). Trading portfolio is differentiated from investment portfolio-investment (banking) book and trading book. Investment (banking) book contains assets and liabilities that are relatively illiquid and held for longer holding periods while trading books contains assets and liabilities that are relatively liquid and held for shorter, often daily. Therefore market risk is the incremental risk incurred when interest rate, foreign exchange and equity return risks are combined with an active trading strategy. Market risk is present whenever an institution/company takes an open (or unhedged) long or short position in bonds, equities, commodities and derivatives, and prices change in a direction opposite to that expected.

As a result, the more volatile the asset prices, the greater the market risks faced by institutions / companies that adopt open trading positions. It is imperative to state that distinction between investment book and trading book of an institution
The focus on short term risk measures such as Daily Earnings at Risk (DEAR). Moreover, the role of securitization in changing liquidity of bank assets and liabilities and the increase in securitization of bank loans/mortgage loans, indicates that more and more assets have become liquid and tradable.

**Off – Balance Sheet Risk**

Off–balance sheet risk is the risk incurred by institutions / companies due to activities related to contingent assets and liabilities. An off-balance sheet activity does not appear on the current balance sheet because it does not concern holding a current primary claim (asset) or the issuance of a current secondary claim (liability). Instead, off-balance sheet activities affect the future shape of the FNFIs balance sheet in that they involve the creation of contingent assets and liabilities. We note that the most striking growth of off-balance sheet activities is: Letters of credit; loan commitments and derivative positions. Also, speculative activities using off-balance-sheet items create considerable risk for the institutions / companies concerned.

**Country or Sovereign Risk**

The researcher notes that under Value at risk (VAR), the market risk exposure can be calculated especially when concerned with estimating the potential loss under adverse circumstances. Thus, three major approaches of measurement that can be used are: JPM Risk Metrics (or variance/covariance approach); Historic or Back Simulation and Monte Carlo Simulation.
Country or Sovereign Risk is the risk that repayments from foreign borrowers may be interrupted because of interference from foreign governments. A foreign corporate entity may be unable to repay its debts even if it wants to, because the foreign government imposes restrictions on repayments to foreigners (due to political reasons or shortages in hard currency). Often lack the usual recourse via the court system, as would be available if a domestic corporate defaulted. Various examples of foreign governments announcing debt moratoriums (i.e. delay in their debt repayments) includes Russia that defaulted on short term government bonds in 1990 and in 1999 some banks eventually settled for 5 cents on the dollar. Also, Argentina defaulted on $130bn of government debt in 2001. In 2002, the various countries such as South Korea, Indonesia, Malaysia and Thailand, legislated to default on $30bn of corporate debt owed to foreign creditors. Also, Greece in July 2015 ‘defaulted on its debt obligations’ to make repayment of loans and interest owed to IMF. However, the issue of the Greek debt owed to IMF and others has been resolved tentatively pending the Greek government undertaken fundamental reforms to restructure the economy and improve its revenue finances.

We note in the event of restrictions, rescheduling, or outright prohibition of repayments, institutions remaining bargaining chip is the future supply of loans. Thus, weak position if currency collapses or government failing or strong position if foreign government (e.g. Ireland) fears the power of the debt-holders and Role of IMF by extending aid to troubled countries and increased moral hazard problem if IMF bailout expected.

Technology Risk

Technology risk is the risk that the technology investment fails to produce the cost savings anticipated. Institutions / Companies invest in technology to achieve
economies of scale by reducing average costs through increased volume of output for the same level of input and also economies of scope by reducing average costs through producing more than one output with the same input. Perhaps, technology risk arises when technological investments do not produce the anticipated cost savings in economies of scale or scope, and it ultimately leads to a loss in competitive efficiency of the institutions / companies. Conceivably technological innovation has witnessed rapid growth in automated clearing houses (ACH); clearing house interbank payment systems (CHIPS); Real time interconnection of global institutions / companies via satellite systems; treasury management systems and cloud based solutions.

Operational Risk

Operational risk is the risk that existing technology or support systems may malfunction or break down. Perhaps, it is partly related to technology risk, but broader. The operational risk is not exclusively technological but can arise whenever existing technology malfunctions or back-office support systems break down. Employee fraud, errors and losses are magnified since they affect reputation and future potential losses resulting from inadequate or failed internal systems, processes or people, or from external events. Some include reputational and strategic risk too.
An example of technology and operational risk is Citibank’s ATM network, debit card system and on-line banking facility that are down for two days. Prudential financial fined the bank $600 million due to allegations of improper mutual fund trades. Also, Bank of New York computer system failed to recognize incoming payment messages sent via ‘Fedwire’ although outgoing payments succeeded. Another is the $7.2bn in trading losses incurred by Societe Generale’s Jerome Kerviel in February 2008. The used of futures contracts to place huge bets that European stock markets would continue to rise with the knowledge of back office used to processes and circumvents controls.

**Weather Risk**

While there is no formal definition of weather risk, however, weather risk may be the most extended risk factor globally that is associated with variability of financial and operational variables. In other words, weather risk is the uncertainty associated with sales, cash flows, earnings, EBIT net income generation etc. due to weather volatility or caused by non-expected or adverse meteorological conditions or by non-catastrophic climate events. Perhaps unpredicted weather events can cause substantial financial losses for companies as companies (agricultural, transportation, energy, construction etc.) have a natural position in weather which is their biggest source of financial uncertainty.
Climate events changes do not have to be extreme to for companies to suffer financial loss. For instance, with a few days raining marginally more than the average expected may result into huge economic and financial damage. Also, unusually warm winters will reduce consumer demand for heating of their home which ultimately decreases the profit margins for utility companies.

Meanwhile, to manage weather risk faced by companies, the weather risk market makes it possible to manage and hedge the financial impact of weather through risk transfer instruments based on a well-defined weather component - for example rain, wind, snow, temperature etc. Thus, weather risk management will ensure companies reducing their financial exposure to disruptive weather events. Perhaps by making a premium payment to a FI – insurance company, they will insure the weather risk on behalf of the buyer who paid the premium. In the event of any occurrence of loss caused by catastrophic weather events to the buyer of the insurance, the insurance company assuming the risk will pay compensation (based on indemnity loss) to the buyer a pre-set amount of money which will correspond to the loss or cost increase caused by the disruptive weather.

Moreover, financial instruments such as weather derivatives contracts transactions allow companies to manage or hedge their weather related risk exposures and can provide more flexible and customized risk management opportunities than the typical insurance contracts as they are priced and settled on the parameters of measured weather rather than the associated financial loss.\(^{50}\)

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\(^{50}\) Weather information and forecasts utilized in risk management decision making is often referred to as meteorological intelligence. For details on weather risk and how to handle weather related risk through the financial markets, please see Golden et al (2007).
Risk Management

According to Association of Corporate Treasurers, risk management is “the efficient management of liquidity and financial risk in the business”. Therefore, what is risk? Risk is the chance that a bad outcome will happen. Risk is where future outcomes against which probabilities can be assigned e.g. the probability of actual return being less than expected return e.g. the probability that a house will burn down. Treasury Risk is the risk that a company (or project) will not have adequate cash flow to meet financial obligations. Thus, risk management requires the management of uncertainty. 51

Perhaps, risk management is the name given to a logical and systematic method of identifying, analyzing, plan action (treating), monitoring and implement, measure and control the risks involved in any activity or process. Risk management is a methodology that helps managers make best use of their available resources indeed. Risk management is all about: recognizing the possibility of different outcomes; trying to make sure that activities are directed towards making an acceptable set of outcomes more likely. This involves defining what the different outcomes might be and putting in place a control framework which will bring the possibility of undesired outcomes within an acceptable tolerance level.

51 Most of the detailed discussions on the types, measurement/ quantification of risk and the setting of risk limit with monitoring are taken from these text listed here - Ward (2010), Saunders and Cornett, (2010), Madura (2012), Eiteman et al (2012), Arnold (2013) Watson and Head (2013), and Holton (2014). Others are DBS Lecture Notes (2015) provided by Goyal, A. and Handley, D. but delivered by Quinn, Andrew and Murphy, Enda (The Supervisor of this Research Project) – Many Thanks.
Why do we manage Risk? We manage risk to protect the organisation from volatility in the financial markets and to make future cash flows more predictable. Perhaps we ensure that there is sufficient liquidity available to meet all the obligations of the organisation in a timely manner. For example, the financial controller identifies the entity’s currency risks, while the treasurer advises on the best means to hedge the risk through: forward contracts, future contracts or foreign exchange options. The steps in the risk management process involves: determine the corporation’s objectives; identify the risk exposures; quantify the exposures; assess the impact; examine alternative risk management tools; select appropriate risk management approach and Implement and monitor program.

Furthermore, risk management in the context of treasury recognized that pro-active management is the key to delivering good results. This requires the recognition, understanding, measurement and management of treasury risks. Risk management means being proactive which is the opposite of firefighting. Perhaps, the purpose is not to ‘eliminate’ all risks, but to ‘influence’ the factors in the environment that contribute to the risk occurring and to its impact and level of loss. Thus, once risks have been identified and assessed, all techniques to manage the risk fall into one or more of these four major categories such as: Avoidance is to eliminate; Reduction is to-mitigate; Sharing is to transfer, outsource or insure as risk which can be transferred or reduced by using products or creating opposing positions – (hedging strategies); and finally Retention –wish is to accept and budget for.
Types of Derivatives Contracts

Forward Contracts

Forward contracts are standardised, with set sizes, terms and conditions, and maturity dates. This may not suit some companies that are trying to hedge a value that is different to the standard sizes, or has a delivery date that does not correspond to the standard dates. In these circumstances, an institution risk manager can buy or sell forward contracts. Forward contracts are bespoke futures contracts. Like a futures contract, no exchanges hands on inception; however, a margin may be posted by both parties to the contract as collateral. The price agreed for the asset on maturity is calculated in the same way as the price under a future contract. There are two major differences. Firstly, forward contract are not traded on an exchange – they are usually administered Over-The-Counter- (OTC) by a bank on behalf of their customer. Secondly, they are not marked-to-market. The overall difference between the spot price and the forward price is determined
and settled at maturity. The difference is called forward premium (profit) or forward discount (loss).

Futures Contracts

A futures contract is an agreement between two parties wherein specified assets will be bought, or sold at a predefined price on a specified date in the future. The underlying asset is typically money, currency, or commodities. However, anything of value is possible. For example there are future contracts which have equity shares, stock market indices, gold or bonds as the underlying asset. All future contracts are traded on a futures exchange. For instance in UK, financial futures are traded on the London International Financial Futures and Options Exchange (LIFFE) until it was taken over by Euronext in January 2002. The exchange experienced a further strategic change in April 2007, when it merged with the New York Stock Exchange.

The price of a futures contract is normally the current price of the underlying asset plus a premium for financing costs and holding costs less any income receivable from the asset during the future period. Therefore, to hedge against an asset falling in value, the risk manager which is the holder of the asset should sell future (short), then before the maturity of the future contract buy back (close) the future contract. The losses made on the underlying asset will be compensated for by the profit made on the future contract.

Options

Options are derivative financial instrument that convey the right, but not obligations to undertake a transaction at a specified exercise price (also known as the strike
price) on or before the specified date, which is referred to as the exercise date. A **call option** is a term used to describe an option that conveys right to buy a certain quantity of an asset at a set price (the exercise price), on or before the exercise date. The risk manager the holder of a call option will only exercise it on, or before, the exercise date, if the market value of the underlying asset to be purchased is worth more than the pre-agreed exercise price. Indeed, the price of the share would need to move to the exercise price plus the options price before the risk manager the holder makes a gain. The value of a call option is the difference between the market value of the underlying asset and the exercise price. When the market value of the underlying asset is less than the exercise price, the call option is worthless.

**A Put Option** is a term used to describe an option that conveys the right to sell a certain quantity of an asset at a predetermined exercise price on, or before, the exercise date. The risk manager the holder of a put option will only sell on the exercise date if the exercise price of the asset is higher than the market value of the underlying asset. The value of the put option will be the exercise price less the market value of the underlying asset. When the market value of the underlying asset is worth more than the exercise price, the put option is worthless as the holder of the asset can sell the asset for a higher price in the market place. The risk manager the holder of the put option will make money when the market value of the asset is less than the exercise price, net of the option price.

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52 Options are traded separately on equity exchanges; however, they can also be arranged OTC usually through a financial intermediary. Exchanges traded options (listed options) are standardised arrangements which are administered by a clearing house. Exchanges traded options include commodity options, bonds options, interest rate options, index options (equity), options on futures contracts and employee share options.

53 Sometimes risk manager of the institution holding equity shares may hedge their position against both upward and downward price movements. To do this the risk manager will hold both a call and put option with the same exercise date and price. This is called a Straddle. A variety of other combination are available to the risk manager depending on the perception of how share price will move, a Strip is created when two put are combined with one call option , a Strap is combining two calls and one put option.
Swap Contracts

A swap is a written contractual agreement between two counterparties to exchange one stream of cash flows for another stream of cash flows. The two cash flows streams are called the legs of the swap. Like both futures and forward contracts, the underlying asset – called the principal amount – is normally not exchanged between counter-parties. The five main types of swaps are interest rate swaps, currency swaps, credit swaps, commodity swaps, and equity swaps. Most swaps are bespoke and is traded OTC, usually through banks, though some can be obtained in the derivatives markets.

Swaps are also used by risk managers to hedge their risk exposures (usually interest rate risk or currency risk), though they can be used for speculative purposes. Normally, one leg is variable in nature and the other is fixed. The party with the variable cash flows wants fixed cash flows (hedging their position); the party with the fixed cash flows wants variable cash flows (speculating no changes in the rate to be applied to the underlying asset value. This is normally called a fixed –to-floating rate swap. The party that pays floating and receives fixed is said to be short in the swap and the party that pays fixed and receives floating is said to be long in the swap. The variable rate is usually pegged to an independent source, such as LIBOR, the European Bank's base rate, or the FTSE 100 index.

Credit Default Swaps (CDS)

Credit Default Swaps is like an insurance contract where for paying an annual fee - premium the protection buyer (i.e. CDS buyer) is insured against any losses.
resulting from a default (i.e. credit event) that is related to the debt of a particular reference entity (e.g. a financial or non-financial institution or company or a bank). Perhaps, the buyer that is protected does not need to own the underlying debt in order to be able to purchase the Credit Default Swaps (CDS). Nevertheless, to be able to collect the insurance payment from the Credit Default Swaps protection seller based on the fact that a credit event does occur, the CDS buyer must deliver an equivalent amount of the debt (loans or bonds) of the particular entity (e.g. a financial institution or company) to the protection seller.

It is imperative to state that CDS derivatives markets are relatively small when compared to other OTC derivatives markets. Perhaps CDS market is mainly significant in terms of risks which are built on products that bind many institutions and companies together. The CDS is marketed is very hard to comprehend and it is assessed both at systemic and institutional level. CDS derivatives markets highly concentrated in the financial sector as many financial institutions are behind many outstanding contracts. Thus, any failure by any institutions or banks to meet its obligation(s) can have severe repercussions for the Credit Default Swaps market and for the entire financial system as a whole, as demonstrated by Lehman Brothers on 15th September 2008 -. Other significant risks with the CDS are:

First, the total gross notional amount of outstanding Credit Default Swaps (CDS) was a multiple of the total amount of underlying debt on which these contracts were written; second, the pay-off of a CDS is discontinuous; third, contracts are non-fungible, and as a result market participants that intends to close their position can only do so by going back to the dealer (i.e., original counterparty) or by using a different counterparty to enter into an offsetting contract in which the

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54 A credit event is the failure to pay principal or interest payment as at when due including bankruptcy or restructuring which may trigger the exercise of a Credit Default Swaps (CDS) contract.

net exposure of the participant is reduced to zero. Yet, the risk linked to the two contracts still exist, as counterparty risk remains if one counterparty defaulted and the hedge would be undone which makes gross exposure matters; fourth, pricing CDS is difficult especially when compared to interest rate swaps, where risks are well understood and contracts rely on widely available and tested data for their pricing (e.g. share prices, interest rates, exchange rates), the data needed to price CDS (e.g. firms’ balance sheets) is more scarce and often less authoritative. Hence the probability of mispricing CDS is greater than is the case with other derivatives; fifth, there is a pro-cyclical element to CDS as emphasized by the Turner Review. CDS prices systematically play down risk in the upswing and exaggerate it in the downswing. Limitless CDS trading can for that reason make the price of credit more unpredictable, which at the end can even trigger credit events. Such event creates substantial disruption costs on the real economy and is above all dangerous when the object of the CDS is a financial institution. In view of financial institution key role in the economy, a financial institution failure has specific serious consequences for the whole economy.

**Strip Mortgage–Backed Securities**

Stripped Mortgage-Backed Securities (SMBS) signify interests in a pool of mortgages, called "Tranches", of which the cash flow has been separated into principal and interest components. Perhaps, the interest only securities, (IOS), receive the interest portion of the mortgage payment and by and large increase in value when interest rates goes up and decrease in value as interest rates goes down indeed. For the principal only securities, (POS), it receives the principal portion of the mortgage payment and responds inversely to interest rate movement. As interest rates rises, the value of the principal only securities would tend to fall, as the POS becomes less attractive when compared with other investment opportunities in the marketplace.
Structure Notes

Structured Notes are debt instruments where the principal and/or the interest rate are indexed to a separate and unrelated indicator. A bond whose interest rate is decided by interest rates in ECB (Europe) or Bank of England (UK) or the price of a barrel of crude oil would be a structured note. Perhaps, the two elements of a structured note are negatively related, consequently as the index goes up, the rate of payment -i.e. "coupon rate" goes down. The instrument is known as an Inverse Floater.

Structured notes which are generally are traded Over the Counter (OTC) may change to a higher degree than the underlying index when leveraging, which show it can be an extremely volatile derivative with greater risk potential and a need for close monitoring.

Hedge Funds

A “hedge fund” is a strategy for reducing risk or use leverage, which escalates the level of risk and the potential rewards is a private partnership targeted at very wealthy investors. Hedge funds can invest in nearly anything anywhere. Perhaps, hedge funds invest in closely held companies, or hold stocks, bonds and government securities in many global financial markets by purchasing currencies, derivatives, commodities, and tangible assets. Hedge funds leverage their
portfolios by borrowing money against their assets, or by borrowing stocks from investment brokers and selling them (shorting).

Hedge funds are not registered particular as publicly traded securities. As a result, they are accessible only to those fitting the Securities and Exchange Commission (SEC) definition of “Accredited investors”. For instance, individual with income greater than €200,000 or €300,000 for couples in each of the two years prior to the investment and with a reasonable expectation of sustainability including high net worth individual with income exceeding €1 million. These investors use hedge funds to reduce risk in their portfolio by diversifying into uncommon or alternative investments like foreign currencies or commodities while others use hedge funds as the key means of fulfilling their long-term investment strategy. Also, there are higher minimum requirements for institutional investors, such as limited partnerships and pension plans. The Securities and Exchange Commission (SEC) thinking is that these investors have financial advisers or are reasonable enough to appraise the sophisticated investments for themselves.
The 2008 Financial and Economic Crisis

Causes of Financial Crisis

The causes of FCs are universal and cannot be over-emphasised as they are: free market capitalism; low interest rate world-wide and cheap money from China that was deposited back in American Banks; lack of risk management and light touch regulation worldwide; wrong use of derivatives (OTC CDS) which is off balance sheet financing involving the securitisation of mortgages loan (SML) books by banks using these CDS instruments which created a ‘vicious cycles’ coupled with the fact the risk attached to these financial products was underestimated which trigger the whole situation (a massive moral hazards) and fuelled the bubble to bust. Other are technology advancement leading to stock market opening 24 /7 / 365 days; bad rating by credit rating agencies; America sub-prime bubble with the “granting of 100% -mortgage loan- “Lier or Ninger Mortgages” without any consideration for ‘risk’ due to availability of cheap money including Ireland started by the former First Active a sub-subsidiary of Ulster Bank-(PB) which lead to increase in house price world-wide especially Ireland.

However, Professor Nourenbi, Morgan Kelly and David McWilliams - (all PB) comments about the property bubble which they claimed it will not last and was undermine by the government. However, few months later, it turns out to be true as house prices went bust and stock market crashes-free fall\textsuperscript{56}.

\textsuperscript{56} There are many valuable quotations of JM Keynes and other scholarships commentaries of the FCs of 2008 relating to Ireland, UK, US, and the EU which are highlighted in Endnotes in the Appendix-Thanks.
More causes include moral hazards; bad corporate governance; human nature-greed in Wall Street and City of London and hubris (over confidence).

Figure 17: Average Percentage Increase in House Prices, 1997-2005 (Selected Countries)

Source: Data from Blyth (2008) from original source Wyss (2007)
The Effects of the Financial Crisis

LBs collapse on 15th October 2008, with the loss of 26,200 jobs worldwide (Osborne, Aldrick and Quinn, 2009) threw panic titled ‘day of turmoil’ and in an extraordinarily development triggers the FCs which spread like a virus around the world and lead to loss of confidence in the banking system. This was the world’s largest ever bankruptcy, ten times the scale of Enron. The consequence was catastrophic and far reaching causing RBS headed by Fred Godwin-(PB) to fall.

To this point in time the financial system (market, investors, business, etc.) believed that no government would let a bank go bankrupt. Market confidence plummeted, investors started to withdraw their deposit and to sell their investments. A potential worldwide run on the banks was possible. The shares in RBS fell by 30% during that period. Big depositors in RBS were pulling out their funds and RBS was at the brink of collapsing the next day due to shortages of cash by demand depositor.57

Frederick Goodwin, FRSE FCIBS, CEO of the RBS Group between 2001 and 2009.

Another spill over effect was Iceland banking system that collapsed and ruined the economy. The country president was on television to address the nation on banking and economic problems which have bankrupt the county. Perhaps the root of these FCs was ‘risks’ that was ignored by many FIs. Who is to be blame

57 It is pertinent to note that RBS create their own problems themselves as the bought more CDS sold as SML via AIG which turn out to be bad investment.
for the FCs? Strikingly, Alan Greenspan said the blame is on the toxic financial regulation due to self-interest. Indeed, on 23rd October 2008, he was questioned by Congress about the FCs despite retired because of the greed and hubris demonstrated by Wall Street and City of London-(PB) bankers also echoed by the French President.

Alan Greenspan Chairman, FRBA (1987-2006), FRBA and ECB Building with ECB Rates of Interest.

Perhaps, at the Congress hearing, Alan whole career as a banker was ‘flawed’. However, Alan ‘cautioned’ that even in future, the whole situation can re-occur again because of human nature and people have always failed to learn from past mistakes since 1929 with similar commentary in Literature Appendix -End Notes from Paul Krugman and Joseph Stieglitz (PB) in the Appendix to resolve the crisis and ensure it don’t not happen again:

Other effects of LB collapse are:
- $800 millions of savings with LB were in danger due to closure.
- 20 years of global boom is over.
- Assets were ‘toxic’
- Drop in the market confidence
Loss of total confidence in the banking system.

Stock market around the world tumble as Dow Jones crash 504 points a day.

Money market savings in danger as $300 billion was withdraw from money market funds.

Shortage of cash by employers to pay employees.

Repayment of debts not forth coming.

Interbank lending disappears

Short-term-interest-rate borrowings doubles.

Many FIs world-wide are in serious liquidity and solvency problems leading FIs into distress

In Ireland- AIB, BOI, PTSB, ESB, Irish Nation-wide and Anglo-Irish bank –(PB) are all in serious problem of liquidity and solvency. Anglo-Irish bank and Irish Nation-wide was later liquidated as no player in the industry was immune from this contagion.

Almost 750,000 jobs lost as countries were in recession.

The Eurozone, the UK and US economies had entered recession and Public Debt of countries has increased in relation to the GDP (see Table 1 below).

<table>
<thead>
<tr>
<th></th>
<th>Table 1: Public Debt as a percentage of GDP, (selected Countries)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>170</td>
</tr>
<tr>
<td>Italy</td>
<td>104</td>
</tr>
<tr>
<td>France</td>
<td>64</td>
</tr>
<tr>
<td>Germany</td>
<td>63</td>
</tr>
<tr>
<td>United States</td>
<td>61</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>47</td>
</tr>
<tr>
<td>China</td>
<td>16</td>
</tr>
<tr>
<td>Russia</td>
<td>7</td>
</tr>
</tbody>
</table>

The Response by different Governments to the FCs using Keynes Arguments of Government Intervention

The unprecedented responses by various countries’ governments in intervening in the FCs in which there were no exact or reliable guides from the past. Keynes ideology that was “right” in addressing the Great depression that was used. The US Government had to make a lot of assurances that it would not allow the financial system to collapse. Since 2008, the US, UK, Irish and many other countries’ government have been ‘injecting’ funds into the financial system to ensure that it does not collapse as the IMF estimated that $9 trillion has been injected into the financial system worldwide.

The major steps taken by different Governments are:

In the U.S., FIs like Freddie-Mac, Fannie-Mae and Citigroup were rescued by the government as it also put pressure on the Bank of America to take over Merrill Lynch. The US Government also bailout the world’s largest insurer AIG with sum of $85 billion financial injection (later increase to $170 billion). Some of the debt owed by AIG has just been paid back recently to the government. Also, the government intervene to bail out its loss-making car industry -Ford, GM and Chrysler, and save companies from bankruptcy.
A wider government intervention solution came on 18th September 2008, the U.S. Treasury secretary-Kank Paulson and the FRBA Chairman-Ben Bernanke met with President Bush who approved a package to buy the bank toxic assets, although after tough time in Congress who initially rejected the bailout packages of $700 billion. Other vital measures taken by Ben-Bernanke were cutting of interest-rate close to zero, printing more notes -‘Quantitative Easing’ and creation of TARP to buy the banks toxic assets, which are all Keynes ideology in avoiding recession in the U.S. opposed by Hayek and its disciples – (Peter Schiff – ‘free market capitalist system and do nothing approach’ which is a ‘Disaster’.

The FRBA Chairman Ben Bernanke and U.S. Secretary Paulson listen to President Bush speaking at the U.S. Treasury Building in Washington.

In UK Gordon Brown who understood the FIs problems of ‘New Capital’. Gordon later met with George Bush (PB) to discuss these problems and to find solutions.

Gordon Brown and President of the United States George W. Bush meet at Downing Street
In providing solutions, for example Northern Rock and RBS were assisted by the government. HBOS was taken over by Lloyds TSB, with government waiving competition rules. Bradford and Bingley were nationalized. Furthermore, Gordon Brown, Alistair Darling and Mervyn King (PB) met with UK Banks CEO and worked overnight to bail out the banks -£500 billion loans detailed below were used to buy equity stake in the banks

The details are:

A. - £50 billion for recapitalisation of the banks.

B. - £250 billion loan fund to guarantee all liabilities.

C. - BOE to print £200 billion termed ‘Quantitative Easing’ to assist the crisis.

D. - Bank of England also reduces interest rate to 0.5% to promote growth indeed – All are Keynes ideology not Hayek do noting approach and restrictive ideas.

Also, in Ireland, on 30th September, late former finance minister Brian Lenihan with the approval of former PM Brain Cowen (PB) guaranteed all the liabilities of Irish banks of €440 billion. The government is currently investigating banking crisis.

Meanwhile, at the meeting when Fred Godwin, CEO-RBS was asked whether his bank has capital problem, Fred said no that the bank only has liquidity problems and it annoyed everyone in the meeting room because he was trying to dodge the key problem of CAPITAL.
in the Dáil\textsuperscript{59}. NAMA was also created in April 2009 to buy the banks toxic assets. Other structural economy reforms were undertaken supported by ECB and IMF to address recession. Perhaps, Ireland has done very well by coming out of recession which all measures taken was Keynes ideology. Recently, the IMF President–Christine Lagarde –PB praised Ireland for a job well done!

\begin{figure}[h]
\centering
\includegraphics[width=0.8\textwidth]{late_former_finance_minister_brian_lenihan_and_former_pm_brain_cowen.png}
\caption{Late former finance minister Brian Lenihan and former PM Brain Cowen}
\end{figure}

\begin{figure}[h]
\centering
\includegraphics[width=0.4\textwidth]{IMF_Chief_Christine_Lagarde.png}
\caption{IMF Chief Christine Lagarde}
\end{figure}

In Europe (PB) partial nationalisation and bailouts were announced for Dexia, Fortis and Glitnir. The Iceland-government took control of Landsbanki; Germany injected €50 billion on 8 October to recapitalize the banks, and further €200 billion in short-term loans. There were similar rescue packages announced by Sweden, the Netherlands, and France, Spain, Portugal, Italy, Ireland and Greece. China too became concerned about the backwash of the FCs on its economy and announced a major fiscal stimulus–$568 billion over two years. All these intervention reflected a widespread awareness of the peril that were now facing the global economy with government intervening as directed by Keynes.

\textsuperscript{59} For details of the Houses of the Oireachtas Committee of Inquiry into the Banking Crisis can be accessed through this link [http://www.oireachtas.ie/bankinginquiry/](http://www.oireachtas.ie/bankinginquiry/).
Literature Appendix 4

Valuable Quotes and Commentaries from the lessons learnt from the Financial Crises (Causes, Effects and Remedies) by Eminent Academic Scholarships and Captains of Industries

1. “A house divided against itself cannot stand” By Abraham Lincoln, June 16, 1858 in McDonald, L. and Robinson P. (2009), introductory page.


3. “For God’s sake, whatever you do, don’t rock the boat” by Maurice O’Connell, Governor Central Bank of Ireland in Fintan O’Toole (2009), page 46.

4. “Don’t try to protect everyone from every possible accident” by Charlie McCreevy former Irish Finance Minister and EU Commissioner in Fintan O’Toole (2009), page 125.


6. “Bankers ..... are merchants of debt who strive to innovate in the assets they acquire and the liabilities that they market” by Hyman Minsky 2003, in Fintan Donovan and Murphy, (2013), page 45.

7. “Nobody made greater mistakes than he who did nothing because he could only do a little” by Hyman Minsky 2003, in Fintan Donovan and Murphy, (2013),

8. “You find out who’s swimming naked when the tide goes out” by Financier Warren Buffet, 2001 in Fintan Donovan and Murphy, (2013), page 171.


11. “There has been no question of a negotiation for a bailout” by Taoiseach Brian Cowen, 17 November 2010, in Fintan Donovan and Murphy, (2013), page 220.

12. “Recent regulatory reform, coupled with innovative technologies, has stimulated the development of financial products, such as assets backed securities, collateral loan obligations, and credit default swaps, that facilitate the depression of risk…. These increasingly complex financial instruments have contributed to the development of a far more flexible, efficient and hence resilient system than the one that existed just a quarter century ago.” By Alan Greenspan, October 12, 2005 in Krugman, Paul R. (2012) pages 54.

13. “The misguided faith in power of free markets has led some central banks to neglect their core role of managing the financial system and instead caused them to pursue polices promoting series of ever more violent boom-bust cycles.” By George Cooper (2010).

14. “The financial crisis calls for a radical shift in central bank strategy, the abandonment of inflation targeting and a paradigm shift in our attitude to economic policy”. By George Cooper (2010).

15. “Throughout history government have gotten themselves into trouble by spending more than they have. When the gaps become too big, difficult choices arise.” Schiff, Peter D. and Schiff, Andrew, J. (2010) Pages 219.
16. “If only Chairman Dick Fuld had kept his ear close to the ground on the inner working of his firm - both its triumph and its mistakes. If he had listened to his generals, met people who formed the heart and soul of Lehman Brothers, the catastrophe might have been avoided. But instead of this, he scheduled himself in his palatial offices up there on the thirty-first floor, remote from action, dreaming only of accelerating growth; nursing ambitions far remove from reality.” by McDonald, L. and Robinson P. (2009) page 2.

17. “If only President W. George Bush had taken the final, desperate call from Fuld’s office, a call made by his own cousin, George Walker IV, in the night hours before the bank filed for Chapter 11 bankruptcy. It might have made a difference.” by McDonald, L. and Robinson P. (2009) page 3.

18. “Throughout history government have gotten themselves into trouble by spending more than they have. When the gaps become too big, difficult choices arise.” Schiff, Peter D. and Schiff, Andrew, J. (2010) Pages 219.

19. “We must also remember the fundamental distinction between liquidity and solvency. Back in September 2008 our banks admitted that they suffered from a liquidity problem (they were unable to access cash), but they denied any solvency crisis (as the value of their assets exceeded the value of their liabilities). We now know that the main reason the banks were suffering from a liquidity problem in late 2008 was that they were fundamentally insolvent.” by Cormac Lucey (2014) page 20.

20. “The chairman’s committee then voted unanimously in favour of proceeding when it met on 15 July. On 20 July the consortium published its offer of €71.1 billion. The decision was taken to pay mainly in cash, rather than offering ABN-AMRO shareholders RBS shares. That would mean depleting capital and running it low for a while – as they had when they took over NatWest, Godwin reminded his colleagues. Thereafter the plan was to quickly rebuild capital. There was no shortage of liquidity, the money flowing around the world that banks could access
overnight to keep business going. It was going to be easy to borrow any amount that was needed.” By Iain Martin (2013) page 239.

21. “It is hard to exaggerate how central Fannie and Freddie were to U.S. markets. Between them they owned or guarantee more than $5 trillion in residential mortgages and mortgage –back securities – about half of those in the country. To finance operations, they were among the biggest issuers of debt in the world: a total of about $1.7 trillion for the pair. They were in market constantly, borrowing more than $20 billion a week at times” by Hank Paulson, (2010) page 3.

22. “For more than eighteen years, from May 1987 to January 2006, Alan, Greenspan was the chairman of the Federal Reserve’s Board of Governors. The position, in itself made him one of the world’s most powerful financial officials. But the Maestro, the Oracle, the senior member of the committee to Save the World, as a 1999 cover story in Times put it. When Greenspan left office, he did so trailing clouds of glory. Alan Blinder of Princeton University pronounced him possibly the greatest central banker in history. When Greenspan made of his final appearance before Congress, he was hailed virtually as monetary messiah. “You have guided monetary policy through stock-market crashes, wars, terrorist attacks and natural disaster,” declared one congressman. “You have made a great contribution to the prosperity of the U.S. and the nation is in your debt,” Almost three years later, Greenspan’s name was mud. The story of the rise and fall of Alan Greenspan’s reputation is more than a personal morality tale. It’s also the story of how the makers of economic policy convinced themselves that they had everything under control, only to learn, to their horror – and the country pain – that they didn’t.” by Krugman, Paul R. (2009) page 139-140

23. “Financial crises have the capacity to magnify the weakest links in the leadership of financial institutions. In my working life, I, not only enjoyed a diversified career in financial services, but also a global perspective of the financial markets and the privileged of working directly and indirectly for four remarkable
leaders. I not only got to see the strengths and weaknesses of these leaders through daily contact with them, but I also had the experience of seeing them in action and the wisdom of their decision making.” By Mike Soden (2010) former CEO of BOI and a Board Director of CBI in Soden, Mike (2010), page 7.

24. “Once a bubble begins, free markets can no longer be relied on to allocate resources sensibly or efficiently. By holding out the prospect of quick and effortless profits, they provide incentives for individuals and firms to act in ways that are individually rational but immensely damaging – to themselves and others. The problem of distorted incentives is, perhaps, most acute in financial markets, but it crops up throughout the economy. Markets encourage power companies to despoil the environment and cause global warming; health insurers to exclude sick people from coverage; computer makers to force customers to buy software programs they don’t need; and CEOs to stuff their pockets at the expense of their shareholders. These are all examples of “market failure,” a concept that recurs throughout the book and gives it its title. Market failure isn’t an intellectual curiosity. In many areas of the economy, such as health care, high technology, and finance, it is endemic.” By John Cassidy, (2009), page 9.

25. “On 1\textsuperscript{st} January 1999 Euro was introduced with 16 countries participating including Ireland. However, all the necessary requirements (policies and structures) needed for the Euro to thrive well was ignored or overlook by ECB and when the “Moment of Truth” came during the financial crises in 2008 all the underlying problems came out which is currently haunting many country economies in Europe which was termed-PIGS with Italy later joining the bandwagon countries with huge debt while Ireland have escape due to the serious structural, economic and banking reforms embark on by the current government and highly commendable even by Christine Lagarde of IMF when she visited Ireland in January 2015-Well Done Ireland!” By Adeniyi Adekoya

26. “Through a combination of poor planning, irresponsible bank lending practices also experienced world-wide, investor greed, excessive low interest rate and
various incentives for house purchase and house building, the property market was driven beyond what was fundamentally justified. House prices rose to amazing heights and the economy became totally dependent on and intoxicated by all things to do with housing. A serious economic and financial vulnerability was created, and has been realised with devastating consequences. The key lesson to learn is that nothing like this must ever allowed happening again. This is easier said and done, however, and unfortunately history everywhere shows us that bubbles have a nasty habit of repeating themselves, largely due to human nature.” -Jim Power (2010), page 3.

27. “When bubbles are allowed develop, they will inevitably implode with devastating consequences. It is hard to know when or what will cause the implosion. Hopefully, in the next cycle, increased regulation will make a bubble less likely.” -Jim Power (2010), page 91

28. McWilliams, David (2012), spotted the Irish property bubble in 2006 similar to Morgan Kelly and have a different view that “Irish property bubble will soon burst when other commentators were cheering the boom because he argued that the overpriced Irish property market is not sustainable in the long-term coupled with the imbalances within the Eurozone economies. The ability to cope with asymmetric shocks in the economy was seriously impeded” by David McWilliams (2012).

29. “The Irish financial, fiscal, banking and economic crisis of 2008 -? Has already been a defining event in modern Irish history? For the first time the state was required to seek the assistance of the IMF, and the ECB/EU, finding itself locked out of the financial markets. From a position as the poster-boy of Europe, a good example, it slipped in there short years to being a basket case, financially a horrible warning”, by Lucey et. al (2012) page 1.

30. “The misguided faith in power of free markets has led some central banks to neglect their core role of managing the financial system and instead caused them
to pursue polices promoting series of ever more violent boom-bust cycles.” Also, “The financial crisis calls for a radical shift in central bank strategy, the abandonment of inflation targeting and a paradigm shift in our attitude to economic policy”. By George Cooper (2010).

31. “If there is one common theme to the vast range of crises consider in this book, it is that excessive debt accumulation, whether it be by the government, bank, corporations, consumers, often poses greater systematic risks than it seems during a boom. Infusion of cash make a government look like it is providing greater growth to its economy than it really is. Private sector borrowing binges can inflate housing and stock prices far beyond their long-run sustainable levels, and make banks seem more stable and profitable than they really are. Such a large scale debt build-ups pose risks because they make an economy vulnerable to crises of confidence, particularly when debt is short term and needs to be constantly refinanced. Debt fuelled boom all too often provide a false affirmation of a government policies, a financial institution’s ability to make outsized profits, or a country’s standard of living. Most of these booms end badly. Of course debt instrument are crucial to all economies, ancient and modern, but balancing the risk and opportunities of debt is always a challenge, a challenge for policy maker, investors, and ordinary citizens must never forget.” by Reinnart C. M and Rogoff, K.S (2009), Introductory page-preface xxv.

32. “Critics castigated the model of “self-regulation “or “light-touch” in contrast to ostensibly stricter rules-based systems such as that of the United States. The distinction between the two approaches often was less dramatic than the rhetoric would imply; in practices, under either type of system, much depended upon the aggressiveness of the regulators. Under Alan Greenspan, the Federal Reserve opposed efforts to regulate investment contacts knows as “derivatives,” for market discipline. Irish regulators, for their part, sought to balance twin (and potentially contradictory) objectives, which were set out in the new legislation. They wanted to both safeguard the financial system and promote the country as a location for the global investment industry. Dublin’s International Financial Services Centre, which
had opened in 1987, defied the sceptics and grew to employ more than twenty thousand people.” By David Lynch, (2010), page 138.

33. “No player in the market was immune from this contagion. Even the biggest and most popular established names began to experience difficulties. A series of right issues were announced between April and July by major banks to increase the funds available to them.; in April the RBS announced £12 billion right issue, at the same writing £5.9 billion of the value of its investments, the largest ever write-off for a British bank; in May the Swiss Banks –UBS announced a $15.5 billion right issue; and in July Barclay’s unveiled a £4.5 billion right issue. The Bank of England and other central banks, including the ECB, were by now intervening actively in the markets, putting together loan packages, and offering to buy the toxic debt of the banks, known in the US as TARP –Trouble Assets Relief Program. But everything was beginning to point down. House prices have begun to slide, along with shares. Banks everywhere were announcing big reductions in their profit and the big increase in their debts.” By Andrew Gamble, (2009), page 31...

34. “No-one, however, can quite have expected the dramatic events of September 2008. this were an extraordinary month for all global economy. The Decisive events again took place in the US. First, on 7th September, Fannie Mae and Freddie Mac had to be bail out- by the Federal Authorities, with Hank Paulson, the US Treasury Secretary, declaring that the bad debts which two mortgage lenders had accumulate posed a systematic risk to the stability of the whole financial system. Then 10 September, came the news that Lehman Brothers, one of the world’s leading investment banks, had posted a loss of $3.9 billion for the three months to August. It began a desperate search for a buyer, but on 15 September, was forced to file for bankruptcy. This was the first major bank to go under since the financial crisis began, but the authorities stood back and refused to rescue it.” By Andrew Gamble, (2009), page 31-32.

35. “President Obama says if we don’t act quickly on a rescue plan, we’re in for a catastrophe. I say if we do intervene we’re in for a bigger catastrophe, which, in a worst-case scenario, means a repeat of the Great Depression, this time with
hyperinflation instead of deflation. In short the government is about to pour gasoline on the wildfire it set.” by Peter D Schiff, and Downes, J. (2009) page 28-29.

36. “In September 2008, another Wall Street crash took place and another world financial crisis erupted. President George W. Bush, an ostensible adherent of Hayek’s view on the sanctity of the free market, was faced with stark choice: to watch while the market came to rest with a depression that might rival the one of nearly eighty years before, or to speedily adopt Keynesian remedies to spend trillions of borrowed government dollars to save the sinking economy from more harm. So alarming was the prospect of letting the free market does its worst that, with barely a second thought, Bush abandoned Hayek and embrace Keynes. The election of a new president, Barrack Obama oversaw further vast injections of borrowed money into the economy” by Nicholas Wapshott, (2012), introductory page xiii.

Literature Appendix- 5

BIS Basel III “New Capital Transparency and Adequacy” Reforms

The BIS Basel III reforms are:

1. “To increase overall capital requirement: Between 2013 and 2019, the common equity component of capital (core Tier 1) will increase from 2% of a bank’s risk-weighted assets before certain regulatory deductions to 4.5% after such deductions. A new 2.5% capital conservation buffer will be introduced, as well as a zero to 2.5% countercyclical capital buffer. The overall capital requirement (Tier 1 and Tier 2) will increase from 8% to 10.5% over the same period.

2. Narrower definition of regulatory capital: Common equity will continue to qualify as core Tier 1 capital, but other hybrid capital instruments (upper Tier 1 and Tier 2) will be replaced by instruments that are more loss-absorbing and do not have incentives to redeem. Distinctions between upper and lower Tier 2
instruments, and all of Tier 3 instruments, will be abolished. All non-qualifying instruments issued on or after 12 September 2010, and non-qualifying core Tier 1 instruments issued prior to that date will both be derecognised in full from 1 January 2013; other non-qualifying instruments issued prior to 12 September 2010 will generally be phased out 10% per year from 2013 to 2023.

3.- **Increased capital charges**: Commencing 31 December 2010, re-securitisation exposures and certain liquidity commitments held in the banking book will require more capital. In the trading book, commencing 31 December 2010, banks will be subject to new “stressed” value-at-risk models, increased counterparty risk charges, more restricted netting of offsetting positions, increased charges for exposures to other financial institutions and increased charges for securitisation exposures.

4.- **New leverage ratio**: A minimum 3% Tier 1 leverage ratio, measured against a bank’s gross (and not risk-weighted) balance sheet, will be trialled until 2018 and adopted in 2019.

5.- **Two new liquidity ratios**: A “liquidity coverage ratio” requiring high-quality liquid assets to equal or exceed highly-stressed one-month cash outflows will be adopted from 2015. A “net stable funding ratio” requiring “available” stable funding to equal or exceed “required” stable funding over a one-year period will be adopted from 2018.

6.- **Timing**- Basel III will be phased in over a twelve-year period commencing 1 January 2011, with most changes becoming effective within the next six years and Basel III in full effect by 2023, as follows:

- Increased capital requirement:
- Increase in minimum common equity capital ratio: 2013 – 2014
- Introduction of new capital conservation buffer: 2016 –2018
- Introduction of new countercyclical capital buffer: 2016 –2018
- Phase-in of deductions from core Tier 1: 2014 –2017
- Narrower definition of qualifying capital: phase-out of non-qualifying
instruments 2013 –2023

- Increased capital charges for banking book exposures: commencing end 2010
- Increased charges for trading book exposures: commencing end 2010
- New leverage ratio: supervisory monitoring until 2012, parallel run 2013 –2018, migration to Pillar 1 capital requirement 2018
- Stable funding ratio: observation period 2012 –2017, commencement of new standard 2011
- New liquidity ratios:

The Scope of the Application involves:

**Banks**
- Applied on consolidated basis to internationally active banks
- All banking and other financial activities (whether or not regulated) captured through consolidation
  - Financial activities do not include insurance
  - Majority-owned subsidiaries not consolidated: deduct equity and capital investments
  - Significant minority investments without control: deduct equity and capital investments
  - Deduction of investments 50% from tier 1 and 50% from tier 2 capital
  - But CRD applies to solo entities as well as groups, and to investment firms

**Insurance entities**
- Generally, banks must deduct equity and other capital investments held in insurance subsidiaries.
- However, some G10 countries will retain current risk weighting treatment
(100% for standardised banks) for competitiveness reasons.

- Supervisors may permit recognition by bank of excess capital invested in insurance subsidiary over required amount

**Commercial entities**

- Generally, banks must deduct “significant investments” in commercial entities above materiality thresholds.

- “Significant investments” in commercial entities below materiality thresholds carry risk weight of 100%.”

**Three Pillars of Regulation**

**Pillar One**

Regulatory Capital Charges: Minimum capital requirements based on market, credit and operational risk to (a) reduce risk of failure by cushioning against losses and (b) provide continuing access to financial markets to meet liquidity needs, and (c) provide incentives for prudent risk management.

**Pillar Two**

Supervision: Qualitative supervision by regulators of internal bank risk control and capital assessment process, including ability to require banks to hold more capital than required under Pillar One.

**Pillar Three**

Market Discipline: Public disclosure requirements compel improved bank risk management.

**Table 2: Individual Bank Minimum Capital Conservation Standards**

<table>
<thead>
<tr>
<th>Common Equity Tier 1 Ratio</th>
<th>Minimum Capital Conservation Ratio (as percentage of earnings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5% - 5.125%</td>
<td>100%</td>
</tr>
<tr>
<td>&gt; 5.125% - 5.75%</td>
<td>80%</td>
</tr>
<tr>
<td>&gt; 5.75% - 6.375%</td>
<td>60%</td>
</tr>
<tr>
<td>&gt; 6.375% - 7.0%</td>
<td>40%</td>
</tr>
<tr>
<td>&gt; 7.0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
Increases in Required Capital Ratios (cont’d)

New zero to 2.5% “countercyclical capital buffer”

- Phased in commencing 1 January 2016 until complete 1 January 2019
- National authority to set counter-cyclical buffer by public announcement (increases generally subject to 12-month pre-announcement; decreases generally immediately effective).
- Must be met entirely by CET 1 (BIS Committee considering whether other fully loss-absorbing capital may qualify).
- Buffer to apply to banks on basis of geographic composition of credit exposures (based on location of obligor and not booking of exposure).
- Items subject to restriction: dividends, share buybacks, other payments and distributions on Tier 1 capital instruments, discretionary bonuses.
- If bank breaches buffer it must retain percentage of earnings (i.e., distributable profits prior to regulatory deductions).
- Capital conservation buffer and countercyclical capital buffer combine to determine required retention:

<table>
<thead>
<tr>
<th>Common Equity Tier 1 Ratio</th>
<th>Minimum Capital Conservation Ratio (as percentage of earnings)</th>
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<tbody>
<tr>
<td>4.5% - 5.75%</td>
<td>100%</td>
</tr>
<tr>
<td>&gt; 5.75% - 7.0%</td>
<td>80%</td>
</tr>
<tr>
<td>&gt; 7.0% - 8.25%</td>
<td>60%</td>
</tr>
<tr>
<td>&gt; 8.25% - 9.5%</td>
<td>40%</td>
</tr>
<tr>
<td>&gt; 9.5%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Disclosure - Banks must disclose:

- Full reconciliation of all regulatory capital requirements to balance sheet in audited financial statements.
• Separate disclosure of regulatory adjustments and items not deducted from Tier 1 common Equity under “Threshold Deductions” above.
• Description of all limits and minima, identifying the positive and negative elements of capital to which the limits and minima apply.
• Description of main features of capital instruments issued.
• Banks which disclose ratios involving components of regulatory capital (e.g., “Equity Tier 1”, “Core Tier 1” or “Tangible Common Equity” ratios) must accompany disclosures with comprehensive explanation of how ratios are calculated.
• On bank’s own website, full terms and conditions of all instruments included in regulatory capital.
• During transition phase, including capital instruments and deductions, all instruments benefitting from transitional provisions.

Literature Appendix- 6

Working Examples of Derivatives Contracts Hedging Strategies used to Reduce Risk\textsuperscript{60}

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\textsuperscript{60} Source: DBS (2015) Lectures Notes in Treasury and Risk Management.
Example 1
Explain how Financial and Non-Financial Institutions can use call and put options on T-bonds to generate positive cash flows when interest rates decline.

Solution- Financial and Non-Financial Institutions can either: (a) buy a call option, or (b) sell a put option on interest rate instruments, such as T-bonds, to generate positive cash flows in the event that interest rates decline. In the case of a call option, positive cash flows will increase as long as interest rates continue to decrease. From the figure, we see that interest rates decreases as you move from left to right on the x-axis. Thus, bond prices are increasing. The sale of a put option generates positive cash flows from the premium received.

Example 2
Explain how Financial Institution can use call and put options on T-bonds to generate positive cash flows when interest rates increase.

Solution- Financial and Non-Financial Institutions can either: (a) buy a put option, or (b) sell a call option on interest rate instruments, such as T-bonds, to generate positive cash flows in the event that interest rates decline. In the case of a put option, for the cost of a certain premium, the ‘right to sell’ underlying T-bonds protects the portfolio below the strike price of the option. If the Risk Manager is correct, and interest rates rise by 50bp’s, the increasing value of the put option (depending upon the proximity of its original strike price) will hedge the losses in the portfolio’s value. Alternatively, if interest rates remain unchanged (or fall) the put option will expire worthless and the Risk Manager will write off the premium expense,

The sale of a call option generates positive cash flows from the premium received and creates a ‘covered call’ position. If rates rise the call option will not be exercised and the premium will off-set some of the losses in the portfolio. Alternatively, if interest rates fall beyond a certain point (depending upon the strike
price of the call) the CRO could be faced with the prospect of having the portfolio ‘call away’ at higher prices.

Example 3
ABC Bank has a bond portfolio of USD$100 million with an average duration of 5.5 years. Because of increasingly positive economic data the Risk Manager is concerned interest rates may increase by 50 basis points in the next three months. What is the USD$ value of this potential risk?

Solution - Daily earnings at risk (DEAR) = ($ Value of position) x (Price volatility) x (Sensitivity of Value)

\[ \text{DEAR} = 400,000,000 \times 0.0050 \times 5.5 = \$2,750,000 \approx 2.75\% \]

Assuming we decided to immunize this portfolio risk, we describe how we will construct the hedge using bond futures.

Solution - In this instance USA is long duration and exposed to rising interest rates. Therefore, to immunize the risk the CRO will have to SELL the underlying futures contract

Let’s assume:
- The future is trading at $97.00 (per $100);
- The minimum contract size is $100,000;
- The duration of the deliverable bond is 9.5 years.

To calculate the number of futures that need to be sold the CRO solves:
\[ N_f = \frac{2,750,000}{9.5 \times 97} = \frac{2,750,000}{921,000} = 2.98 \]

The Risk Manager will SELL 3 of futures to immunize (excluding basis risk) this risk.
Example 4

A three month futures contract on an equity index is currently priced at USD 1000, the underlying index stocks are valued at USD 990 and pay dividends at a continuously-compounded rate of 2 percent and the current continuously compounded risk-free rate is 4 percent. What is the potential arbitrage profit per contract, given this set of data?

Solution - According to the fundamental pricing relationship between spot assets and the associated futures, the futures price, to prevent arbitrage, should equal:

\[ 990 \times e^{(0.04 - 0.02) \times 0.25} \] or 995.

Hence, the futures contract is overvalued.

The future should be sold and the index should be purchased for an arbitrage profit of:

\[ USD \ 1000 - USD \ 995 = USD \ 5 \]

Example 5

A firm is going to buy 10,000 barrels of West Texas Crude Oil. It plans to hedge the purchase using the Brent Crude futures contract. The correlation between the spot and futures prices is 0.72. The volatility of the spot price is 0.35 per year. The volatility of the Brent Crude futures price is 0.27 per year.

What is the hedge ratio for the firm?

Solution - Hedge Ratio = 0.9333 = 0.72 * (0.35/0.27) = 0.9333

And what is the hedge position, in term of long/short and number of contracts?

Solution - Optimal number of contracts

= Hedge ratio * [size of position being hedged / size of one futures contract]

= 0.9333 * [100,00 barrels / 1,000 barrels] = about 9 contracts

As the firm is planning to purchase oil in the future the hedge is to go long 9 contracts.
If the firm were planning to sell oil in the future—e.g., an oil producer—the hedge would be to sell forward, to go short, the futures contracts.

Example 6A
Describe how Financial and Non-Financial Institutions can use credit forward contracts to hedge the credit risk on individual or portfolios of loans and bonds.

Solution A credit forward in is a forward agreement that hedges against an increase in default risk on a loan (a decline in the credit quality of a borrower) after the loan rate is determined and the loan issued.

The credit forward agreement specifies a credit spread (a risk premium above the risk-free rate to compensate for default risk) on a benchmark bond issued by the financial intermediaries’ borrower.

To hedge against an increase in the credit risk of the borrower, the bank enters into (sells) a credit forward contract when the loan is issued.

If the borrower’s default increases so that when the forward agreement matures the market requires a higher credit spread on the borrower’s benchmark bonds than originally agreed to in the forward contract, the credit forward buyer (usually an insurance company) pays the credit forward seller (the bank.)

For example:

\[
(CSt - CSf) \times D \times A
\]

Where:

\[
CSt = \text{Actual credit spread on the bond when the credit spread matures.}
\]

\[
CSf = \text{Credit spread over the risk-free rate on which the credit forward contract is written.}
\]

\[
MD = \text{Modified Duration of the benchmark bond.}
\]

\[
A = \text{Principal amount if the forward agreement.}
\]
Example 6B

XYZ Bank wishes to use bond options to hedge the interest rate risk in their bond portfolio. Discuss how writing call options can hedge the risk when interest rates decrease.

Solution- In the case where the FI is long in the bond on the balance sheet, writing a call option will provide extra cash flow in the form of a premium. But, falling interest rates will cause the value of the bond to increase, and eventually the option will be exercised at a loss to the writer. However, the loss is offset by the increase in value of the long bond. Thus, the initial goal of maintaining the interest rate return on the long bond can be realized.

Example 7

Explain your understanding of off-balance sheet hedging.

Solution- It involves taking positions in FX transactions that are not recorded on balance sheet. Off-balance-sheet hedging instruments have been developed for many types of risk exposures. For currency risk, forward contracts are available for the majority of currencies at a variety of delivery dates. Moreover, since the forward contract is negotiated over the counter, the counterparties have maximum flexibility to set terms and conditions.

Example 8

The U.S. based Anderson’s Bank has been borrowing in the U.S. markets and lending abroad, thus incurring foreign exchange risk. In a recent transaction, it issued a one-year $3.5 million CD at 6.5 percent and funded a loan in euros at 8.5 percent. The spot rate at the time of transaction was $1.40/€. Information received immediately after the transaction closing indicated that the euro will appreciate to $1.49/€ by year-end. If the information is correct, therefore, calculating the realized spread on the loan inclusive of principal will be:

Solution- Amount of loan in € = $3.5 million/1.40 = €2.5 million.
\[ \text{Interest + Principal at year-end} = \€2.5m \times 1.085 = \€2.7125m \times 1.49 = \$4,041,625 \]

\[ \text{Interest + Principal of CDs} = \$3.5m \times 1.065 = \$3,727,500 \]

\[ \text{Net interest income} = \$4,041,625 - \$3,727,500 = \$314,125 \]

\[ \text{Net interest margin} = \frac{\$314,125}{3,500,000} = 0.08975 \text{ or } 8.975\% \]

**Example 9**

It is June 2nd and a fund manager with USD 10 million invested in government bonds is concerned that interest rates will be highly volatile over the next three months. The manager decides to use the September Treasury bond futures contract to hedge the value of the portfolio. The current futures price is 95.0625. Each contract is for the delivery of USD 100,000 face value of bonds. The duration of the manager's bond portfolio in three months will be 7.8 years. The cheapest to deliver bond in the Treasury bond future contract is expected to have duration of 8.4 years at maturity of the contract. At the maturity of the Treasury bond futures contract, the duration of the underlying benchmark Treasury bond is 9 years. Question (i) If the manager hedges with Treasury bond futures contracts, should the manager take a long or short position in the futures? (ii) If Does the futures contract have a single underlying bond (i.e., like an equity stock option has a single underlying common stock)? (iii) If What position should the fund manager undertake to mitigate his interest rate risk exposure?

**Solution** - This manager's portfolio will lose value if interest rates rise. Therefore, the hedge is to short (i.e., sell forward) the futures contract because the short futures will gain (as an offset) in value if interest rates rise. The seller of a futures contract, or the short, commits to sell or deliver a particular quantity of a bond in that contract's basket during the delivery month.

No. Futures contracts on U.S. government bonds do not have one underlying security. Instead, there is a basket of underlying securities. The short (the seller) may choose which bond to deliver (i.e., the cheapest to deliver) and when to deliver during the delivery month.
The number of contracts required to hedge against an uncertain change in yield is given by:

\[ N^* = \frac{PD_p}{F_C D_F} \]

- \( F_C \): Contract Price for i rate futures contract
- \( D_F \): Duration of asset underlying futures
- \( P \): Forward value of portfolio being hedged
- \( D_F \): Duration of portfolio at maturity

\[ N = \left( \frac{10,000,000}{95,062.50} \right) \times \left( \frac{78}{84} \right) \]

\[ N = 97.68 \text{ or } 98 \text{ contracts} \]

**Example 10**

Research and model projections indicate that a specific event is likely to move the CHF against the USD. While the direction of the move is highly uncertain, it is highly likely that magnitude of the move will be significant. Based on this information, which of the following strategies would provide the largest economic benefit?

**Solution** - The question tests on understanding of a “straddle” strategy and its application on currency trading. A long straddle strategy involves buying (long) a call and put option with the same strike price and expiration date and will benefit most when the underlying moves away from the current equilibrium (See Figure 18 showing the long straddle strategy involves buying (long) a call and put option with the same strike price and expiration date.)

![Figure 18: Long Straddle Strategy](image-url)
Appendix 7 - Other Research Strategies

Experiments Strategy

Experiment is another type of research strategy that deals with both dependent and independent variables with the aim of making experiments based on variable variations and come out with some conclusion from the action. Blaxter, Hughes and Tight (2010 page 75) define Experiments as “The experiment is a situation in which the independent variable (also known as exposure, the intervention, the experimental or predictor variable) is carefully manipulated by the investigator under known, tightly defined and controlled conditions, or by natural occurrence”. Experiments strategy is frequently used in social sciences to test causal relationships between variables. There is usually a control or experimental group, with a defined hypothesis and selected sample.

Saunders et al. (2012, page 175) argued that “Experiments therefore tend to be used in exploratory and explanatory research to answer ‘how’ and ‘why’ questions. Indeed, they said experiments used predictions, known as hypothesis rather than research questions because the researcher anticipates whether not a relationship exists between the variables. Perhaps, two types of hypothesis are formulated in a standard experiment: the null hypothesis and the alternative hypothesis. The null hypothesis predicts that there will not be significant difference or relationship between the variables while the alternative hypothesis predicts that there may be a significant difference or relationship between the variables. Therefore, in an experiment, it is the null hypothesis that will be tested statistically).

For the strategy to be implemented it needs theoretical hypothesis, a sample of individuals, multiple experimental conditions, manipulations of variations.
Moreover, they stated that “the experiment strategy is often used only on captive populations such as university students, employees of a particular organization”. This implies that experiments strategy is used to analysed groups of people specifies by Saunders et al. (2012) in which the background of this kind of research is related to causal links. Due to the nature of this research strategy, it will be difficult to conduct an in-depth research studies, consequently this strategy will not be adopted for this research.

Case Studies

Case study is principally the opposite of the experimental strategy which has a considerable ability to generate answers to the research questions in a form of ‘Why?’ ‘What?’ and ‘How?’ questions- Saunders et al. (2012, page 179). “The case study strategy will be relevant if we wish to gain a rich understanding of the context of the research and the processes being enacted”-(Eisenhardt and Graebner 2007-check reference in Saunders). Morris and Wood (1991) highlighted the importance of context that Case study is important for researchers that want to get a rich insight of the context of research and process being enacted. Moreover, Robson et al., (2004, page 178) defines case study as ‘a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence”, Saunders, et al. (2012, page. 179).

While, Case study strategy is not going to be use in this research, however, to get a better understanding of the research undertaking, interviews will be conducted with proper analysis and documentaries being link with the exploratory research. It does not answer the how and what questions of a survey, instead, it agrees for the ‘triangulation’ of various data collection techniques and multiple sources of data.
Flyvbjerg (2006, page 219) argued that “the case study offers a means of investigating complex social units consisting of multiple variables of potential importance in understanding the phenomenon”, while Saunders, et al. (2012, page. 179) specified that “The data collection techniques employed may be various and are likely to be used in combination. They may include, for example, interviews, observation, documentary analysis and (as if to emphasize the dangers of constructing neat boxes in which to categorize approaches, strategies and techniques) questionnaires.”

Another suggestion came from Yin (2009) claiming four different case study strategies which he define each single case from the others especially where it represents a critical case and further describe that it may be chosen because it is distinctive or because it provides us with the chance to observe and analysed a phenomenon that few have considered before. Saunders, et al. (2012) claimed that the case study strategy could stimulate unscientific feelings but contended that it is worthwhile for the exploration of existing theory.

Ethnography Strategy

The ethnography is a strategy that is used to study groups and belongs to inductive approach research philosophy which is based on observation in order to elucidate the motive for human behaviour. The grounded theory concept was defined by Glaser and Strauss et.al (1967) as ‘the discovery of theory from data systematically obtained from social research’. Hoey (2013) argued that the research strategy is where the intent is to provide a detailed, in depth description of everyday life in practice.
Saunders, et al. (2012, page. 181) stated that “The purpose is to describe and explain the social world the research subjects inhabit in the way in which they would describe and explain it.” Saunders, et al. (2012), further explained the research strategy process by claiming “The research process needs to be flexible and responsive to change since the researcher will constantly be developing new patterns of thought about what is being observed. The research is general in nature as the testing of the McKinsey seven’s model aims to summarize the significance of the whole model and the interdependency of its parts relating to the highlighted issues.

Due to the timing of this research coupled with the fact that it is related to qualitative research, it will be difficult to conduct an in-depth study into a particular establishment and gain access to the staff. As a result this strategy will not be used for the research. Besides, ethnography although an inductive approach that is time consuming which is not a main research strategy in business management, thus would not be implemented for this research. The inductive nature of this research these grounded theories will be derived from a speculative process. We note that there three ethnographic strategies which (Cunliffe 2010 - ) describes three: Realistic Ethnography, Impressionist or Interpretive Ethnography and Critical Ethnography.

**Action Research**

Action research is a type of research strategy that is predominantly useful for researchers who belong to a particular subject matter and are directly related to the context issue of the study. Furthermore, state Blaxter, Hughes and Tight (2010, page 68) “Action is undertaken to understand, evaluate and change”. The
purpose of this Action research strategy is to promote organisational learning to produce practical outcomes through identifying issues, planning action, taking action and evaluation action. In addition, the process is both emergent and iterative which commence within a specific context, and with research question but because it works through several stages or iterations, the focus may change as the research develops- Saunders, et al. (2012, page 183).

Perhaps, Coghlan and Brannick (2010, page 4) describe action research as “research in action rather than research about action” while Eden and Huxham (1996, page 75) maintain that “the findings of action research result from involvement with members of an organization over a matter which is of genuine concern to them”. Surely, the action research strategy fit in to the research that comprises the process of diagnostic, plan, taking action and evaluates the result indeed.

**Progressive Problem Solving with Action Research**

- **Cycle 1**
  - Study and Plan
  - Take Action
  - Collect and Analyze Evidence
  - Reflect

- **Cycle 2**
  - Study and Plan
  - Take Action
  - Collect and Analyze Evidence
  - Reflect

- **Cycle 3**
  - Study and Plan
  - Take Action
  - Collect and Analyze Evidence
  - Reflect
Archival Research

Archival research strategy is based on administrative records and archival documentation as the main source of data. Saunders, et al. (2012, page 178- ) “allows research questions which focus upon the past and changes over time to be answered, be they descriptive or explanatory.” The strategy is beseeched by some constraints in form of data collection which have to come from administrative documents and records that will difficult to access as it not wide-open.

The archival research strategy allows research questions which focused upon past and changes overtime to be answered, be they explanatory, descriptive or explanatory. Nevertheless, our ability to answer such questions will unavoidably be constrained by the nature of the administrative records and archival documentation.

Despite the fact that these records exist, they may not contain precise information needed to answer the research question(s) or meet our objectives. On the other hand, data may be missing or you may be refused access or your data censored for confidentiality reasons. Thus using the archival research strategy necessitates the researcher establishing what data are available and designing the research to make the most of it Saunders, et al. (2012, page 179). Figure 23 denotes the process in Archival Research.

Figure 23: Archival Research Process
Narrative Inquiry

A narrative inquiry may be defined as an experience that is old in a sequence way, indicating a flow of related events that, taking together, are significant for the narrator and which convey meaning to the researcher (Coffey and Atkinson, 1996) cited in Saunders, et al. (2012, page 188). Perhaps, it is story that is a personal account which construes an event or sequence of events which can be linked to qualitative research and can be applied generally to describe the nature or outcome of a qualitative interview.

In the narrative inquiry, the respondent is the narrator, with researcher agreeing to take the role of a listener assisting the process of narrations. The narrative provided could be a short story about a particular event; a more lengthy story – for example about a work project, setting up a business, or an organisational programme; or a complete life history (Chase 2005). Nonetheless, while detailed consultations are the primary method to gather stories, other techniques may be used by the narrative research to record events as they happen naturally, such as respondents observations in the research setting (Coffey and Atkinson 1996; Gabriel and Griffiths 2004). It is also imperative to note that Narrative Inquiry may be used as the singular research strategy, or it may also be used in combination with additional strategy as a complementary approach (Musson 2004).

Perhaps, Narrative Inquiry may be used in several ways. It can be used with a very small number of respondents (one, two, or three), where these are chosen due to the fact that they are judged as being typical of a much bigger culture-sharing population (Chase 2005). For example, we may decide to interview a small number of lawyers or administrative managers who are typical of their occupational box. Alternatively, it may also be used with a very small sample
because those selected are consider as being critical cases or extreme cases, from whom much could be learnt. Also, Narrative Inquiry can also be used with slightly large samples, where for instance, narrative interviews are conducted with, or observation made of, respondents from across an establishment, to be able to analyse how narratives are created around an events and be able to compare how explanations differ, such as between departments, occupational groups, genders and/or grades. Saunders, et al. (2012, page 188)

Grounded Theory

Grounded theory is a technique in research inquiry and a result of research process. (Byrant and Charmaz, 2007; Charmaz, 2005, Corbin and Strauss 2008). The Grounded Theory according Goulding (2002) state that it is “particularly helpful for research to predict and explain behaviour, the emphasis being upon developing and building theory”, Saunders, et al. (2012, page. 185). ‘Grounded Theory Methodology’ states to the researcher’s choice and way to conduct research while ‘Ground Theory Method’ refers to the data collection process and analytical techniques that it uses. ‘Grounded Theory’ may be used loosely to incorporate methodology and methods but more specifically it refers to a theory that is grounded in or developed inductively from a set of data. Saunders, et al. (2012, page 185). Figure 24 explains the Grounded Theory Process.
Saunders, et al. (2012,) further explained that “Theory is developed from data generated by a series of observations. These data lead to the generation of predictions which are then tested in further observations that may confirm, or otherwise, the predictions”.

Thus the approach which in relation with the inductive approach research philosophy, allows the researcher to build a theory from data collection and analysis which requires a researcher with high level of abstract thinking, expertise, skilfulness and it is time consuming.

Grounded theory has been thought of as the best inductive approach (Glaser and Strauss 1967, cited in Saunders et al, page 185) as a response to ‘extreme positivism’ of much social research at that time-(Suddaby 2006: page 633). They disputed the view that social research should be used a paradigm based on a premise that theory will be revealed a pre-existing reality. In positivism, perhaps, reality is seen as existing separately and externally (to human cognition). Whilst positivism is best to research natural science, they believed that social research
should use a different philosophy. By embracing interpretivism in social research, ‘reality’ is seen as being socially fashioned through the meaning that social actors ascribe to their life experiences. Therefore Grounded Theory was developed as a procedure to analyse, interpret and explain the meaning that social actors construct to make sense of their everyday experiences in particular situations. (Glaser and Strauss 1967, Suddaby 2006 and Charmaz, 2006 ;).

Grounded Theory can be used to develop theoretical explanations of social interactions and process in wide range of issues including business and management. Since economics, business and management is about people’s behaviours, e.g., consumer’s or employees’, a Grounded Theory strategy can be used to explore a wide range of economics and business issues. The researcher collects and analyses data simultaneously, initiating analytical codes as these emerge from the data in order to recognise these data into groups.

Strauss and Corbin (1998) stated that there are three coding stages in Grounded Theory strategy which are the reorganisation of data into categories is called open coding, the process of recognising relationships between groups is called Axial Coding, and the integration of groups to produce a theory is branded selective coding. Charmaz, (2006) simplifies this to two major stages: initial coding and focus coding, sustained by adequate stages of sampling. In Corbin and Strauss (2008), Corbin altered the approach with axial coding being joined within open and selective coding simply becoming ‘integration’ as coding is a key element of Grounded Theory.

We note that there are often open boundaries between research philosophies, research approaches and research strategies. Thus, the key to our choice of research strategies is to achieve a reasonable level of coherence throughout our research design that will enable us to answer our particular research questions and to meet our objectives. Hence, research choice are techniques for collecting
data, involving particular instruments such as questionnaires, structured participant observation, case study and interviews.

The choices regarding collection techniques and the analysis procedure are represented by the fourth layer of the “research onion” and to have a good understanding of our research choice, we will need to distinguish between qualitative and quantitative research data. Creswell, 1994 defined qualitative research as an inquiry process of understanding a social or human problem, based on building a complex, holistic picture, formed with words, reporting detailed views of informants, and conducted in a natural setting. Perhaps, Saunders et al. (2012) said it is identical with the generation of non-numerical data which may include words, pictures or video clips- interviews. The limitation of the qualitative approach is that it diminishes the likelihood of generalisation and, consequently, unsuitable for this research.

On the other hand, Ruane, (2005) specifies that quantitative research document social variation in terms of numerical groups and rely on statistics to summarize large amounts of data. Thus, it is mainly used to mean any data collection technique that requires the use of questionnaires that produces numerical/graphical data. Indeed, Cameron and Price, (2009, page 309-310) said it allows for varying participant responses to be assigned to fixed response groups to which numerical numbers can then be assigned. Figure 25, 25A and 25B below show the primary research methods and techniques of data collection involving qualitative and quantitative research. Source: Google image
Figure 25: Research choices based on Saunders et al (2012, page 165)

Figure 26A: Types of Research Design - Qualitative and Quantitative Research

Figure 26B: Details of Primary Research Methods and Techniques of data collection involving Qualitative and Quantitative Research
Furthermore, Saunders et al. (2012) stated three options-types of research choices that any researcher could adopt such as: Mono-method; Multi-method and Mixed-method-(Bryman and Bell, 2011, page 643-644). The first technique is the Mono-method in which the researcher can use a single quantitative or qualitative data-gathering approach with a corresponding analysis procedure. The second technique is Multi-method in which the researcher can use more than one qualitative or quantitative data collection approach with a corresponding analysis procedure. The third technique is Mixed-method that uses both qualitative and quantitative forms of data collection with corresponding analysis procedures. Venkatesh et al, (2013, J35, p 21-54) said multi method will be the appropriate method to offer rich insights into different phenomena and develop novel theoretical perspectives.

Perhaps since theory is usually deductive, our research study will use the Mono-method quantitative method which is considered more appropriate and best approach using Surveys via structured questionnaires that will be administered to collect primary data from the participants-risk managers. Even from rom review of past scholarships, it emerges that similar single method of data collection were used in several related studies, thus proving its capability in answering the research question and meeting its objectives. Hussey 1997 argued that this method provide unbiased and objective result which have not been prejudiced by the researcher. It focuses on numerical results and attempts to limit the influence of the human factor.

Although other alternatives such as the mixed method were considered, however, considering the realisation of the limitations and related practicality issues, as outlined, led the researcher to utilise the mono-method. This was considered most appropriate given the challenge of sampling such a large population as risk managers of financial and non-financial institutions in this case. Some Descriptive Statistics, Correlation Analysis and Hypothesis Testing will be performed to establish some facts about our research topic.
Appendix 8: Research Survey Process

Opening Statement Letter

Hello / An Chara,


Research Topic – “To Determine the Impact of How Risk Managers / Manager of Irish Financial and Non-Financial Institutions can effectively utilized Derivatives Contract to Manage and Hedge Risk Variables”.

Greetings warm and sincere and a very good day to you! As an introduction, I am student of Dublin Business School doing a research project for the award of Master’s Degree in International Accounting and Finance Program. The research topic is ‘to determine the impact of how risk managers of Irish financial and non-financial institutions can effectively utilize derivatives contract to manage and hedge risk variables.’

Therefore, I would be highly grateful to you if you could please complete the attached Survey Questionnaires or please forward the Survey to the department manager in charge to complete it. The link to the survey is:

https://docs.google.com/forms/d/1yGm84ghsqXwtSo0RC1PyJpgdRgO2sGcfnVzOByPwYRg/viewform?usp=send_form

The survey will only take just 5 minutes of your time and consists of 30 Survey questions to be answered. All your responses are anonymous as your privacy is guaranteed. Your participation is optional.

Please, if you are participating, I will appreciate your quick response as soon as is convenient for you so I can begin my analysis of the results for me to meet the deadline for submission of the research project. Also I will appreciate if you can
pass on this survey to any of your colleagues that are manager of risk / manager of Irish financial and non-financial institution.

Please, your prompt response is highly appreciated and please do not hesitate to contact me if there is any queries. My email is nadekoya@gmail.com and my phone number is 00353-860801967.

Do have a nice working day and thanking you in advance for taking your time to complete the Survey.

_Augus Gura Maith agat and Slan go foil_

God Bless.

Adeniyi Adekoya

**Survey Introductory Note**

This survey questionnaire will take no longer than 5 minutes to complete. The purpose of this survey is to learn more about how ‘to determine the impact of how risk managers of Irish financial and non-financial institutions can effectively utilized derivatives contracts to manage and hedge risk variables.’

This survey is an academic research as part of a Master's Degree Dissertation @ Dublin Business School and is NOT for any commercial gain. Your privacy is assured as all responses are anonymous and the information gathered will be presented in an anonymous format in the Dissertation.

Please your participation in this research is optional, and your volunteering to act as a respondent for this study is highly appreciated. Participants must be- Risk Manager / Manager in charge of risk management of any Financial and Non-Financial Institutions in Ireland.
In order to take full advantage of this survey your honesty would be highly appreciated. If you wish, a copy of the results of this survey can be sent to you from 15th September 2015. Should you have any queries, please do not hesitate to contact me on nadekoya@gmail.com. Please. You can download the survey monkey app on your phone if it is easier. Please complete this survey once only. The results of this survey will be discarded after use.

Thanking in advance for taking your precious time to complete the Survey.

Adeniyi Adekoya

Confidentiality Statement
Confidentiality and Non-Disclosure Agreement for Research Participants

Title of Research Project: To Determine the Impact of How Risk Managers of Irish Financial and Non-Financial Institutions can effectively utilized Derivatives Contract to Manage and Hedge Risk Variables.

Researcher: Adeniyi Adekoya

While conducting this research study submitted in partial fulfilment of the requirements for the completion of a Master's Degree in International Accounting and Finance Program, I understand that I may have access to confidential information about the institutions/company and participants. By signing this statement, I am indicating my responsibilities to maintain ‘Total Confidentiality’ and agree to the following:
I understand that names and any other identifying information about the institutions/companies and participants are completely confidential.

I agree not to divulge, publish, or otherwise make known to unauthorised persons or to the public any information obtained in the course of this research project that could identify the persons who participated in the study.

I understand that all information about the institutions/companies and participants obtained or accessed by me in the course of my research is confidential and only for the purpose of fulfilment of my Master's Degree. I agree not to divulge or otherwise make known to unauthorised persons any of this information.

I understand that I am not to read information about the institutions/companies and participants, or any other confidential documents, nor ask questions of study participants for my own personal information but only for the purpose of completing my Master’s Degree as required by Dublin Business School.

Confirmation of the requirements for this study can only be obtained from my research Supervisor, Mr Enda Murphy and Examinations Board of Dublin Business School.

______________________________                               ________________
Adeniyi Adekoya                                                 Date:

Appreciation

Many thanks for taking your time to complete the survey questionnaire. My aim is to obtain as many results as possible, and also to meet my target sample of 100-120.
Also I will appreciate if you can pass on this survey to any of your colleagues that is manager / risk manager of Irish financial and non-financial institutions to complete who meet any or preferably all of the following criteria of - Risk Manager of Financial and Non-Financial Institutions in Ireland

Many thanks and God Bless.

Adeniyi Adekya

Survey Questionnaires

Research questions

Section 1: Background

1. Please state your Age? (18-30 years) (31-45 years) (46-60 years) (61 or older years)

2. Please select your Academic Qualification (s)? Certificate / Diploma ☐, BSc Degree ☐, MSc. Degree ☐, Ph.D. Degree ☐, Professional Qualification (ACCA, ACA, CIMA and Others) ☐

3. About your Institution or Company (Financial) or (Non-Financial Institution in) Ireland?

4. Are you a Risk Manager / Manager in charge of risk management of a Financial and Non-Financial Institutions in Ireland? Yes ☐ / No ☐ (If your answer is ‘No’, skip to Question 6).
5. Please how long have you been working as a Risk Manager / Manager in charge of risk management for your Institution or Company? Less than 1 year ☐, Between 1- 5 years ☐, 5- 10 years ☐, 10 years + ☐

6. Please have you worked as a Risk Manager / Manager in charge of risk management for another Institution / Company before this current job? Yes ☐ / No ☐ (If your answer is ‘No’ skip to Question 8)

7. If Yes, how long? Less than 1 year ☐, Between 1- 5 years ☐, 6- 10 years ☐, 10 years + ☐

**Section 2: 2008 Financial and Economic Crisis**

8. Your Institution/ Company was affected by the Financial and Economic Crisis of 2008

<table>
<thead>
<tr>
<th>A Little</th>
<th>A Lot</th>
<th>Not at All</th>
</tr>
</thead>
</table>

9. Your Institution / Company was affected badly by the Financial and Economic Crisis of 2008 as a result of using derivatives contacts

**Strongly Agree, Agree, Neutral , Disagree, Strongly disagree**

10. Please the requirements for the ‘New Capital Transparency and Adequacy - (Basel III)’ do have impact on your Institution / Company risk management operation

<table>
<thead>
<tr>
<th>A Little</th>
<th>A Lot</th>
<th>Not at All</th>
</tr>
</thead>
</table>

**Section 3: Risk Variables and Management**
11. Your Institution/Company have change their attitude towards ‘Risk Management’ as a result of the Financial and Economic crisis of 2008
   **Strongly Agree, Agree, Neutral, Disagree, Strongly disagree**

12. Your Institution / Company was affected by any of the following risk variables

   **A Little, A Lot, Not at All**

- Interest rate risk
- Foreign exchange risk
- Credit risk
- Liquidity risk
- Commodity risk
- Operational risk
- Weather risk
- Political risk
- Technological risk
- Off-balance sheet risk
- Insolvency risk

13. As the Risk Manager, you quantify or measure the risk variables affected by your Institution / Company on a regular basis which is the volatility that is defined as the annual standard deviation of returns.
   **Always, Regularly, Sometimes, Never**

14. As the Risk Manager, you set the ‘Risk Limit /Appetite’ for your Institution / Company on a regular basis.
   **Always, Regularly, Sometimes Never**
15. As the Risk Manager, you monitor the quantification / measurement of risk variables and the risk limit set for the Institution / Company which impact positively and improve the company operations a regular basis.

A Little, A Lot, Not at All

16. The following risk variables have strong impact-(positively) on your Institution / Company operations.

A Little, A Lot, Not at All

Interest rate risk
Foreign exchange risk
Credit risk
Liquidity risk
Commodity risk
Operational risk
Weather risk
Political risk
Technological risk
Off-balance sheet risk
Insolvency risk

17. The following risk variables have strong impact-(negatively) on your Institution / Company operations.

A Little, A Lot, Not at All

Interest rate risk
Foreign exchange risk
Credit risk
Liquidity risk
Commodity risk
Operational risk
Weather risk
Political risk
Technological risk
Off-balance sheet risk
Insolvency risk

Section 4: Derivatives Contracts and Hedging Strategies

18. Your Institution / Company use Derivatives Contracts for the purpose of the following.

    Always, Regularly, Sometimes, Never

Hedge in-house risk
Sell to clients for hedging
For own-account trading

19. Your Institution / Company use the following derivative instruments / contracts to manage and hedge risk variables

    A Little,  A Lot,  Not at All

Forward Contracts
Future Contacts
Option Contacts
Swaps Contracts
Credit Defaults Swaps (CDS)
20. The following derivative instruments / contracts have strong impact (positively) in managing and hedging risk variables of your Institution / Company operations. i.e. creating liquidity efficiency income.

A Little, A Lot, Not at All

Forward Contracts
Future Contacts
Option Contacts
Swaps Contracts
Credit Defaults Swaps (CDS)

21. The following derivative instruments / contracts have strong impact (negatively) in managing and hedging risk variables of your Institution / Company operations. i.e. Consequences for poor management leading to liabilities.

A Little, A Lot, Not at All

Forward Contracts
Future Contacts
Option Contacts
Swaps Contracts
Credit Defaults Swaps (CDS)
22. As the Risk Managers of your Institution / Company, you decide on the types and usage of derivative contracts.

**Always, Regularly, Sometimes, Never**

23. Please how often do your Institution / Company use derivative contracts to manage and hedge risk variables?

**Monthly, Quarterly, Bi-yearly, Yearly, Never**

24. Based on the outcome of previous experience of hedging risk variables, will you recommended the use of derivative contracts to other colleagues in the industry to manage and hedge risk variables?  Yes □ / No □

25. The following hedging strategies are more successful in creating security and long-term value for the Institution / Company.

**A Little, A Lot, Not at All**

Forward Contracts
Future Contacts
Option Contacts
Swaps Contracts
Credit Defaults Swaps (CDS)
Stripped Mortgage-Backed Securities
Structured Notes
Hedge Funds
26. As the Risk Manager of your Institution / Company, you evaluate the Soundness of your Counter-Party when implementing your hedging strategies.

Always, Regularly, Sometimes, Never

27. As the Risk Manager, you believe that what constitutes effective use of derivatives contracts to hedge risk variables is ‘risk reduction’ which ultimately will improve your institutions risk management policy.

Strongly Agree, Agree, Neutral, Disagree, Strongly disagree

28. Please is there any barrier(s) in Ireland to effectively use derivatives contracts to hedge risk variables?

A Little, A Lot, Not at All

Section 5: General

29. Please is there any financial incentives as a measure of reward by the management of your institution/company to take on more risks on behalf of the company? Yes □ / No □

30. If Yes? What is the reward? Bonus□, Salary increment □, Share of company profit □, Promotion □

Many Thanks

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