An Empirical Study of the Relationship between Risk Management Capabilities and the Use of Financial Derivatives: UK Case Studies

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November 2019

Declaration

"I, Shaoyong Zhang, declare that the PhD thesis entitled 'An Empirical Study of the Relationship between Risk Management Capabilities and the Use of Financial Derivatives: UK Case Studies' is no more than 80,000 words in length. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work".

Signature: Shaoyong Zhang

Date: November 2019

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Abstract

The main aim of this research is to propose a new perspective to explain the usage of financial derivatives by establishing the connection between a firm's risk management capability (i.e., a combined power behind a variety of corporate attributes towards risk and risk management) and corporate behaviours towards the use of financial derivatives. Corporate risk management is key to a firm's survival. The use of financial derivatives as tools to manage risk has been well documented in the literature, however, the relationship between a firm's risk management capability and the use of financial derivatives has not been investigated. In this study, a firm's risk management capability, a relatively new concept, is defined as the ability or power of a business organisation to reduce, adapt to or mitigate risks (impacts and likelihood of a disaster) to levels that are acceptable for the organisation and its management objective, which is embedded in the organisation's structure, relationship, organisation and corporate governance. This thesis has four research objectives, including: 1) To understand the importance of derivatives for corporations and practices of corporate usage of financial derivatives; 2) To understand the current developments of accounting, finance and risk management issues relating to derivatives; 3)To conduct case studies with a view to establishing the connection between a company's risk management capability and the use of financial derivatives; 4) To discuss the implications of research findings for corporate managers and policy makers as regards derivatives and the use of financial derivatives.

This thesis adopts qualitative methodology because of the multifaceted and complex nature of the usage of financial derivatives. Qualitative research provides a more realistic feel of the real world and offers flexible ways of collecting, analysing and interpreting data of the phenomenon under investigation. Corporate risk management behaviour and decisions on the use of derivatives are better served by qualitative research as it is well suited to studying complex interconnections and relationships without reducing the complexity to simple numbers or variables. More specifically, this study chooses case study and content analysis as research methods. In this study, multiple-case design is adopted, including Diageo, Unilever, Intertek Group, Vodafone, Ashtead, and Merlin Entertainments. This study uses the explanatory case study method by investigating the corporate financial information from the annual reports and other documents to establish the association between a firm's risk management capability and the use of financial derivatives. This study combines two main measures (i.e., corporate governance and CSR ratings) that can signal a firm's risk management capability to select the

six cases at different levels of risk management capability. This study has also used content analysis technique in collecting qualitative data and evidence. Content analysis is widely considered the most popular method for qualitative research and is regarded as an effective approach in an exploratory research.

The case studies show that the use of financial derivatives is linking with a firm's risk management capabilities. Top-rated firms in risk management capability used all types of derivatives to manage their financial and operational risk, while low-rated firms used few or no derivatives and provide little details on the use of financial derivatives. The main findings include: 1) Derivatives are very important tools for firms to use to hedge against financial risks and most firms have used derivatives for hedging; none of the six case firms declared to use derivatives for speculative purposes; 2) Derivative risk management is part of corporate governance and in most cases the board of directors of firms is responsible for derivative risk management; 3) Derivatives risk management and information disclosed in the annual reports of these case firms were much different; 4) Although numerous corporate attributes influence the use of derivatives, a firm's risk management capability that reflect the integrated power of management of the firm seems to influence the use of financial derivatives. The main implications of this study comprise: 1) Companies should improve their risk management capability by developing effective corporate governance and enhancing CSR performance; 2) Although numerous corporate attributes influence the use of derivatives, risk management capability that reflects the integrated power of management of a company, to a large extent, determines the use of derivatives; 3) Implementing risk management in a business may bring in a number of financial benefits and therefore it is necessary to have risk management as an integral part of the business's management practice; 4) Accounting standards setters should rethink the requirement of separating the motivations of using financial derivatives between hedging and speculative purposes.

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Abbreviations

BIS	Bank of International Settlements
BVC	Bolsa de Valores de Colombia
CDO	Collateralized Debt Obligation
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CG	Corporate Governance
CSR	Corporate Social Responsibility
ETRs	Effective Tax Rates
EU	European Union
FASB	Financial Accounting Standards Board
FRSs	UK Financial Reporting Standards
FX	Foreign Exchange
GAAP	Generally Accepted Accounting Principle
GDP	Gross Domestic Product
GMM	The Generalized Method of Moments
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
IOSCO	The International Organization of Securities Commissions
IT	Information Technology
MBA	Master of Business Administration
MM	Modigliani & Miller
MNCs	Multinational Corporations
OTC	Over-the-counter
PhD	Doctor of Philosophy
ROA	Return On Assets
SEC	Securities and Exchange Commission
SFAS	Statement of Financial Accounting Standards
UK	United Kingdom

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Chapter 1: Introduction

1.1 Background

This dissertation is about derivatives and the association of a firm's risk management capability with the use of financial derivatives. The importance of financial derivatives has been described by Warren Buffett in a famous quotation of "derivatives are financial weapons of mass destruction". The impact of an abuse of financial derivatives on global financial markets can be very massive as evidenced in the 2007-08 global financial crisis (Acharya et al., 2009; Crotty, 2009). The recent literature has documented the significant impact of financial derivatives on the global economy, banking industries and markets (Zhao and Moser, 2017; Titova et al., 2018).

By definition, derivatives are financial instruments whose value is dependent on, or derived from the value of other financial instruments, events or conditions, known as underlying assets (or 'underlying') (such as shares, bonds, interest rates or currencies). Since the birth of financial derivatives, they have been used as tools in making financial markets functional as well as assisting with the development of financial markets (Halilbegovic and Mekic, 2017). Derivatives can be used by companies to hedge risk, but also used to make speculative gains (Bartram, 2019). Financial derivatives are complicated financial instruments with many unique features. They are risk relevant and value relevant as well, depending on a complexity of various factors and determinants as well as the appropriateness of their usage.

Studies of financial derivatives cover a wide range of subject areas, from accounting, finance, risk management to corporate governance. For instance, one of the key areas that are much controversy is related to accounting treatments of derivatives, e.g., concerning the valuation and disclosures of derivatives as financial instruments. The accounting standards boards across the world have attempted to develop an appropriate accounting standard for derivatives in order to provide more transparent and useful information for the users. Due to the unique nature of derivatives, this process of developing accounting standards for derivatives has been very long, facing so many challenges over the past three decades.

The International Accounting Standards Board (IASB) defines a derivative as a financial instrument with these three characteristics: 1) Whose value changes in response to the change in an underlying variable such as an interest rate, commodity or security price, or index; 2)

That requires no initial investment, or one that is smaller than would be required for a contract with similar response to changes in market factors; 3) That is settled at a future date (International Accounting Standard No. 39). Financial derivatives, such as futures, forward, swap, and options contracts, are often highly leveraged, with the result that small movements in the value of underlying can lead to a disproportionate change in the value of the instrument overall. Therefore, there is a high level of risk attached to financial derivatives (Chen and King, 2014; Marinc and Li, 2014; MacCarthy, 2017). Given this attachment of risk to financial derivatives, risk management of derivatives becomes a core issue to consider for firms with the use of financial derivatives (Miller, 1995; Mayordomo et al., 2014). This is also important for finance and capital market regulators as derivatives have been main financial instruments that are actively trading in the capital markets (Miller, 1995; Levine, 2012; Duffie, 2018). There have been frequent calls for more regulations to restrain the misuse of derivatives.

As financial instruments, derivatives are also commonly used for hedging by business organisations in an attempt to insure against risk exposures and volatility in assets, liabilities, income or expenses. Using derivatives is like a double-edged sword. On the one hand, derivatives, if abused, can cause a high level of risks and on the other hand, they can be a very effective tool to help firms mitigate various financial and operational risk (Li and Yu, 2010). In addition, there is another reason for entering into such contracts, which is often used by traders and enterprises, that is speculation (Rossi, 2013; Bartram, 2019; Entrop and Merkel, 2018). Speculation can offer an opportunity for traders and enterprises to gain substantial amounts of profits. In the 1980s and 1990s there were many cases that traders made huge profits from the trading of financial derivatives.

Historically, derivatives can be traced back to the time when Aristotle lived, but the first ever standardised exchange-traded futures found place at the Chicago Board of Trade in 1864. This kind of contract was based on the grain trade market and it started a trend that reached India and the cotton market in 1875. At the same time, the Samurais had already used a type of derivatives to guarantee their income in case of a bad harvest. Over the time period, the global economic and financial systems have changed radically. After the collapse of the Bretton Woods System in the early 1970s it was said to be a change in the support of power and profit (Bartov et al., 1996; Dooley et al., 2004). This was a change from the production of commodities/resources to the circulation of financial assets, capitals, and lately more on services. Consequently, it means that people wanted to hedge the risk that was considered as

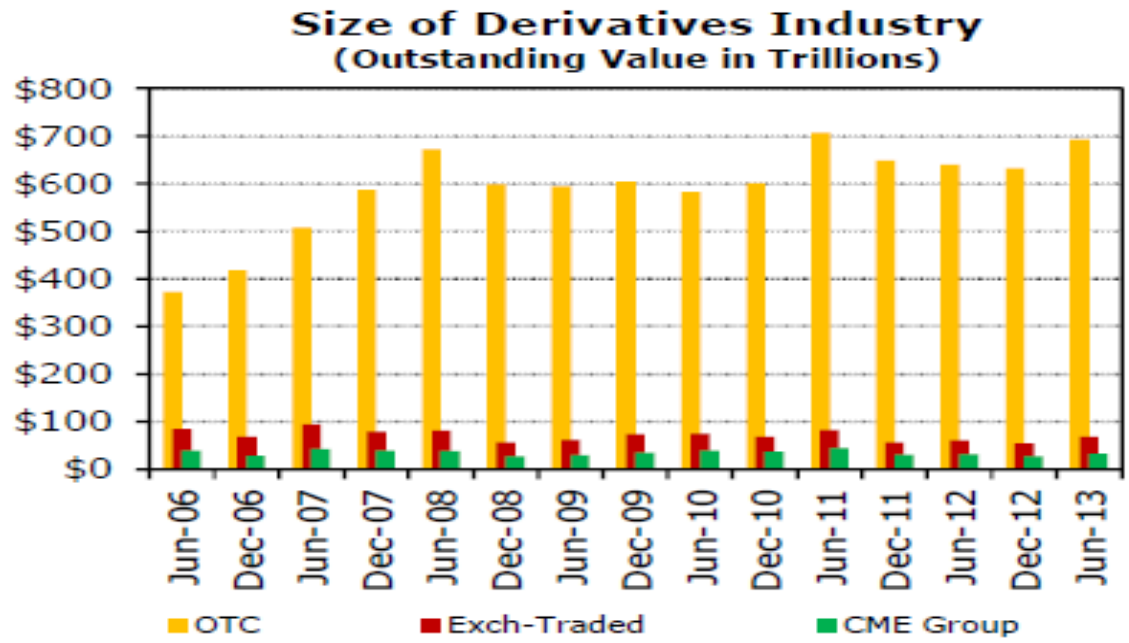
an externality of the markets. For instance, in the manufacturing sectors with the use of a large quantity of raw materials, manufacturers did not want to tolerate the unnecessary risks of dealing indirectly with suppliers that had a rather unstable economic and political regime. So that investors and manufacturers need new instruments to help them to hedge the unnecessary risk including economic, financial, operational and even political risks. This was also the case for foreign exchange markets where currencies fluctuated significantly in the 1990s and 2000s when many dealers and financial institutions counted on financial derivatives to hedge foreign exchange risks (Brown, 2001; Álvarez-Díez et al., 2016).

In sum, financial derivatives were mainly developed with the purpose of assisting investors and corporations to hedge risk. "These derivatives represent a natural extension of the market for similar products that 'unbundle' risks, such as certain interest rate and foreign exchange products. When used properly, credit derivatives can help to diversify credit risk, improve earnings, and lower the risk profile of an institution", according to the US Office of Comptroller of Currency[1]. There are different types of derivatives; some have been well developed recently with a high growth rate (Vo et al., 2019). The next chapter will discuss these types of derivatives. Overall, the growth of derivatives market was remarkable prior to the global financial crisis in particular; this was probably due to the reason that investors had used derivatives to hedge risk and gain speculatively.

There was a short period of time of slowing down of derivatives markets immediately after the global financial crisis of 2007/08. The size of the world derivatives market developed very fast since 2006 and reached the peak in 2008, and remained largely stable since 2008 until 2013, the Bank of International Settlements (2013) and Vo et al., (2019) as shown in Figure 1.1, revealing the size of the derivatives industry. Figure 1.1 is based on the data from the Bank of International Settlements. However, since 2013 the gross market value of outstanding over-the-counter (OTC) derivatives contracts had falling to $11 trillion at end-2017 as shown in Figure 1.2, based on the latest statistics from the Bank of International Settlements. The Bank of International Settlements regularly publishes the information regarding the total outstanding value of OTC and exchange-traded derivatives positions. Table 1.1 shows the total outstanding value of OTC and exchange-traded derivatives positions from June 2009 – June 2013.

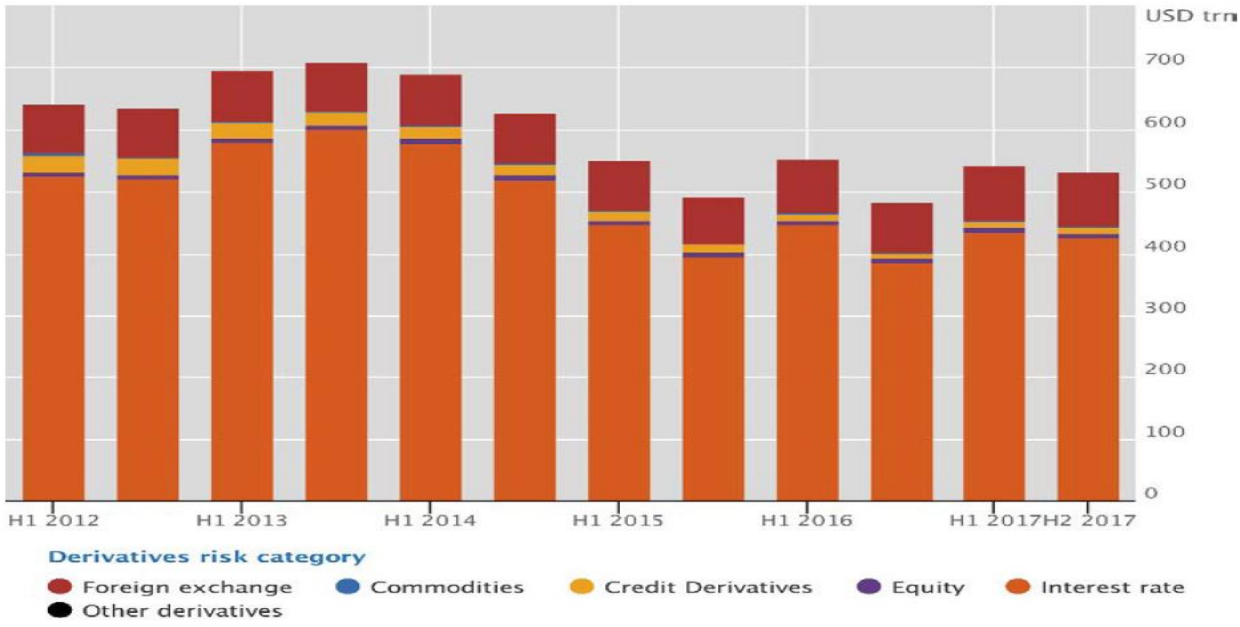
[1] https://www.occ.treas.gov/news-issuances/bulletins/1996/bulletin-1996-43.html (Accessed on 15 July 2017)

Figure 1.1: The size of the world derivative market



Source: Bank for International Settlements and CME Research

Figure 1.2: The notional amount of OTC derivatives (2012-2017)



Source: *BIS OTC derivatives statistics (2019)*

Table 1.1: The total outstanding value of OTC and exchange-traded derivatives (from June 2009 – June 2013)

	Jun-09	Dec-09	Jun-10	Dec-10	Jun-11	Dec-11	Jun-12	Dec-12	Jun-13
Over-the-Counter Derivatives									
Total contracts	**$594,553**	**$603,900**	**$582,685**	**$601,046**	**$706,884**	**$647,811**	**$639,396**	**$632,579**	**$692,908**
FX contracts	**$48,732**	**$49,181**	**$53,153**	**$57,796**	**$64,698**	**$63,381**	**$66,672**	**$67,358**	**$73,121**
Forwards and forex swaps	$23,105	$23,129	$25,624	$28,433	$31,113	$30,526	$31,395	$31,718	$34,421
Currency swaps	$15,072	$16,509	$16,360	$19,271	$22,228	$22,791	$24,156	$25,420	$24,654
Options	$10,555	$9,543	$11,170	$10,092	$11,358	$10,065	$11,122	$10,220	$14,046
Interest rate contracts	**$437,228**	**$449,875**	**$451,831**	**$465,260**	**$553,240**	**$504,117**	**$494,427**	**$489,703**	**$561,299**
Forward rate agreements	$46,812	$51,779	$56,242	$51,587	$55,747	$50,596	$64,711	$71,353	$86,334
Interest rate swaps	$341,903	$349,288	$347,508	$364,377	$441,201	$402,611	$379,401	$369,999	$425,569
Options	$48,513	$48,808	$48,081	$49,295	$56,291	$50,911	$50,314	$48,351	$49,396
Equity-linked contracts	**$6,584**	**$5,937**	**$6,260**	**$5,635**	**$6,841**	**$5,982**	**$6,313**	**$6,251**	**$6,821**
Forwards and swaps	$1,678	$1,652	$1,754	$1,828	$2,029	$1,738	$1,880	$2,045	$2,321
Options	$4,906	$4,285	$4,506	$3,807	$4,813	$4,244	$4,434	$4,207	$4,501
Commodity contracts	**$3,619**	**$2,944**	**$2,852**	**$2,922**	**$3,197**	**$3,091**	**$2,994**	**$2,587**	**$2,458**
Gold	$425	$423	$417	$397	$468	$521	$523	$486	$461
Other commodities	$3,194	$2,521	$2,434	$2,525	$2,729	$2,570	$2,471	$2,101	$1,997
Forwards and swaps	$1,715	$1,675	$1,551	$1,781	$1,846	$1,745	$1,659	$1,363	$1,327
Options	$1,479	$846	$883	$744	$883	$824	$812	$739	$670
Credit default swaps	**$36,098**	**$32,693**	**$30,261**	**$29,898**	**$32,409**	**$28,626**	**$26,931**	**$25,069**	**$24,349**
Single-name instruments	$24,165	$21,917	$18,494	$18,145	$18,105	$16,865	$15,566	$14,309	$13,135
Multi-name instruments	$11,933	$10,776	$11,767	$11,753	$14,305	$11,761	$11,364	$10,760	$11,214
of which index products	-	-	$7,500	$7,476	$12,473	$10,514	$9,731	$9,663	$10,170
Unallocated	**$62,291**	**$63,270**	**$38,329**	**$39,536**	**$46,498**	**$42,613**	**$42,059**	**$41,611**	**$24,860**
Exchange Traded Derivatives									
All Exchange-Traded	**$63,256**	**$73,118**	**$75,418**	**$67,947**	**$82,844**	**$56,563**	**$61,466**	**$54,434**	**$68,264**
Interest rate	$57,733	$67,056	$69,551	$61,943	$76,039	$53,298	$55,580	$48,551	$62,177
Currency	$225	$292	$347	$314	$389	$308	$326	$336	$341
Equity index	$5,299	$5,769	$5,520	$5,689	$6,416	$2,956	$5,560	$5,547	$5,746
CME Group Contracts	**$30,250**	**$34,908**	**$38,850**	**$36,755**	**$44,392**	**$31,007**	**$31,780**	**$26,969**	**$32,400**

Source: *Bank for International Settlements (BIS), 2013.*

Nowadays, firms are well conscious of derivatives as many of them are using derivatives in managing risks. Derivatives are used to reduce the exposure of risk (hedging). Through hedging cash flows from the derivatives are used to offset or mitigate cash flows from a prior market commitment (Sundaram and Das, 2011). Another motive to use derivatives is speculation aiming at profiting from anticipated market movements (Bartram, 2019; Entrop and Merkel, 2018). To use financial derivatives for the speculation purpose will increase risk exposures, so that the potential gain or loss is magnified relative to the initial investment. According to Sill (1997), the success of derivatives market development is largely dependent on the fact that the derivatives could make the financial markets more efficient. Borrowing and lending transpire at lower cost when derivatives are used, resulting in lower transaction costs.

In relation to economic consequences of the use of financial derivatives, there are a number of economic incentives for firms to use derivatives. Particularly, derivatives could be used to maximise the value of firm and return on investments. Allayannis and Weston (2001) find that the use of foreign currency derivatives, for example, has a positive effect on the total firm value by approximately 5 percent on average. Graham and Rodgers (2002) show there is a positive relation between derivatives usage and firm debt capacity, ultimately resulting in an increase in the firm value. Researching foreign currency debt and foreign currency hedging in Asian

economies, Allayannis et al. (2003) find evidence to support the hypothesis of a value maximisation effect of using derivatives. Bartram et al. (2009) find interest rates derivatives usage results in higher firm values. Smith and Stulz (1985) illustrate the decreasing effect of derivatives usage on the firm cost of debt. Froot et al. (1993) declare that the financial derivatives usage is beneficial for mitigating underinvestment problems.

Nevertheless, there are a number of issues relating to the use of derivatives including accounting for derivatives, i.e., how to account for the value of derivatives and to report on it (e.g., Nelson, 1996; Blankey and Schroeder, 2000; Graham and Rogers, 2002; Lopes and Rodrigues, 2008), and risk control and management. "There is inconsistency in the risk management literature regarding the extent to which firms use financial derivatives" (Treanor et al., 2013, p. 64). Concerning financial reporting, for example, firms' financial statements have been presenting a gradual change in the past decades in the uses of derivatives and reporting them with disclosures required by financial reporting regulatory bodies (Graham and Rogers, 2002), associated with the changes of accounting standards and reporting standards.

After the global financial crisis, researchers have paid much attention towards an investigation of derivatives' role in the world financial crisis and given much effort to find out how firms can tackle if a similar situation will repeat in the future (e.g., Acharya et al., 2009; Sabato, 2010; Rossi, 2013). Also, there are rather mixed findings in terms of the determinants of the use of derivatives and the link between the derivatives and financial markets as well as risks involved (Carter and Sinkey, 1998; Marinc and Li, 2014).

It would be interesting to know what are the key factors to determine the use of derivatives. After reviewing the existing literature through searching Google Scholars, the researcher finds there has been an increasing number of studies since the 1990s with the intention of investigating the determinants of corporate usage of derivatives and most prior studies have focused specifically on financial and corporate characteristics such as firm size, leverage, profitability, ownership, industry nature etc. (Nawaz et al., 2018; Geyer-Klingeberg et al., 2019). These studies through the use of regression models treat the corporate characteristics as disconnected individual factors. Few studies have attempted to look at a combined influence behind these individual characteristics that affects the corporate use of financial derivatives. This provides a research gap for this research.

1.2 Research Aim and Objectives

1.2.1 Research aim

The main aim of this research is to propose a new perspective to explain the corporate derivatives usage by establishing the connection between a firm's risk management capability (i.e., a combined power behind a variety of corporate attributes towards risk and risk management) and corporate behaviours towards the use of financial derivatives. Corporate risk-taking and risk management are fundamental to a firm's survival (Yung and Chen, 2018). The use of financial derivatives as tools for risk management has been well documented in the literature. Given the fact that derivatives are risk relevant, it would be interesting to know if companies use more derivatives when they have a high level of risk management capability.

In this study, a firm's risk management capability is defined as the power of management to consolidate skills and technologies into the competencies of a business to deal with uncertainty and the changing business environment. A number of attributes are included in the capability, reflecting in the areas of corporate governance (e.g., internal control, governance structure, risk identification, accountability) and corporate social responsibilities (e.g., dealing and communicating with stakeholders, resolving stakeholder conflicts, mitigating external pressures on social and environmental risks). It also includes the managerial ability of making changes in response to the shift of environments and dealing with uncertainty. Further discussions of risk management capability are given in Chapters 4 and 6 and the measures of risk management capability in Chapter 5.

1.2.2 Research objectives

In order to complete the research aim, this study will focus on four specific objectives as follows:

1) To understand the importance of derivatives for corporations and practices of corporate usage of financial derivatives;
2) To understand the current developments of accounting, finance and risk management issues relating to derivatives;
3) To conduct case studies with a view to establishing the connection between a company's risk management capability and the use of financial derivatives;
4) To discuss the implications of research findings for corporate managers and policy makers as regards derivatives and the use of financial derivatives.

1.2.3 Importance of this study

The significance of this study can be explained from several aspects including practical, academic, and policy. First, as shown in Section 1.1 derivatives are increasingly recognised as useful financial instruments to manage risks for investors and corporations; however, using derivatives is like a double-edged sword, which requires a better understanding of consequences and determinants of the use. A study of risk management of derivatives and the influences of risk management capabilities on the usage of derivatives deems to be important for proper uses of derivatives. On the one hand, it can help companies avoid to take on high levels of derivatives risk. On the other hand, it can assist managers in identifying the right level of derivatives usage in order to hedge a company's risks.

Second, the academic significance is recognised as previous studies on the determinants of derivatives usage have predominately considered individual factors (such as firm size, corporate leverage, industries, market conditions). Few studies have even taken into account the combined force of governance, risk management disclosures, internal control, corporate social responsibilities etc. to analyse corporate behaviours in the use of financial derivatives. This study uses risk management capabilities as the combined force to study their influences on the use of financial derivatives. This provides a new perspective contributing to the literature and overcoming some limitations of previous studies to be identified in later chapters. The design of a risk management capability measure by combining a company's corporate governance and corporate social responsibility performances is an important addition to the existing literature as measures of risk management capabilities have largely been overlooked in the literature.

Third, this study is important for the policy makers as derivatives have been identified as one of the most debateable issues concerning their regulations, accounting standards, and risk management due to the complexity of derivatives and previously reported scandals and disasters in using derivatives (e.g., Barings Bank, China Aviation Oil, Sumitomo Corporation). An understanding of the role of risk management capabilities in managing risks involved in derivatives and determining the use of derivatives deems to offer some implications to the policy makers, accounting standards setters and market regulators of derivatives. Chapter 8 will provide a more detailed discussion on the implications.

Overall, it has been recognised that financial derivatives create many possibilities for companies to manage their risks. However, at the same time they also create many risks affecting the company's liquidity, market and credit risks. The question why non-financial firms engage in using financial derivatives for corporate hedging is one of the most intensively discussed topics in corporate finance (Geyer-Klingeberg et al., 2019, p.203). The above aspects clearly highlight the importance of this study.

1.3 A Synopsis of Research Methods

This is an exploratory study that adopts a qualitative research methodology with the use of six case studies. Qualitative research is a type of scientific research seeking to understand a given research problem from the perspectives of real business and social contexts. It helps to produce findings that were not determined in advance. Qualitative research is effective in obtaining specific information about the values, opinions, behaviours and management context of particular populations (of firms or individuals). Qualitative research allows the researcher to discover new variables and relationships, to reveal and understand complex processes, and to illustrate the influence of the social context (Shah and Corley, 2006). It is, as argued in the literature, a powerful tool for management researchers, which provides a great deal of merits beyond what traditional survey methods can provide (Shah and Corley, 2006). The strength of qualitative research is its ability to provide complex textual descriptions of how people and organisation experience a given research issue. It provides information about the "human", "social" or "organisational" side of an issue – that is, the often-contradictory behaviours, beliefs, opinions, emotions, and relationships of individuals and organisations (Denzin and Lincoln, 2000). Qualitative research is also effective in identifying intangible factors and uncertainties, and corporate behaviours including decision-making. In addition, qualitative research methods are typically more flexible, which allow greater spontaneity and adaption of the interaction between the researcher and the study participant.

Qualitative case study methodology provides tools for researchers to study complex phenomena within their specific contexts. Qualitative case study research is an approach to study that facilitates exploration of a phenomenon within its context using a variety of data sources. The advantage of using qualitative case study is that it ensures the issue is not explored through one lens, but rather a variety of lenses which allows for multiple facets of the

phenomenon to be revealed and understood (Baxter and Jack, 2008). The case study research methodology base on a constructivist paradigm, which claims that truth is relative and that it is dependent on one's perspective. It recognises the importance of the subjective human creation of meaning, but doesn't reject outright some notion of objectivity. Constructivism is built upon the premise of a social construction of reality (Searle,1995). This constructivism methodology fits well with the research question of this thesis as this study attempts to study the influences of a firm's risk management capability on the use of financial derivatives. On the one hand, a firm risk management capability is a power that reflects 'a social construction of a reality' (i.e., an integrated force behind the governance and management structure and organisation of a company towards risk management), which is largely dependent upon the subjective human (i.e., senior managers) behaviour. On the other hand, the use of derivatives is determined by the management of firm, which is primarily connected with the subjective assessment of risks involved and usefulness bestowed by the managers who are individuals.

Six cases were chosen by raking their risk management capabilities. Top two, bottom two and middle-ranked risk management capability companies are the sample for this study. This study designs a measure of a company's risk management capabilities by integrating a company's corporate governance score and corporate social responsibility rating. Six companies included in this study are Unilever, Diageo, Intertek Group, Vodafone Group, Ashtead, and Merlin Entertainments.

In addition, this study has used content analysis as data collection tools. Company annual reports were analysed by focusing on risk management, derivatives disclosures and the use of derivatives aspects. The annual reports cover three years from 2015 to 2017. Content analysis has been widely considered as the most popular method for qualitative research in accounting and business research (Bryman and Bell, 2011). It is an effective approach in conducting an exploratory research (Kolbe and Burnett, 1991) and a useful tool to analyse the documents and texts.

1.4 Research Findings and Contributions

This study establishes the connection between a firm's risk managerial capability and the use of financial derivatives. The study is based on risk management theories that assume a firm with strong risk management capability would use more derivatives as derivatives are complex

financial products that involve high levels of risk. This study defines an organisation's risk management capability as the ability or power of an organisation to reduce, adapt to or mitigate risks (impacts and likelihood of a disaster) to levels that are acceptable for the organisation and its management objective. Risk management capability is embedded in an organisation's structure and corporate governance. This study chooses six cases based on the scoring of risk management capability measured with the use of CSR and corporate governance ratings.

There are several findings from this study. The analysis of case studies shows that most companies have used derivatives for hedging; none of the six case companies declared to use derivatives for speculative purposes. Derivative disclosures are part of corporate reporting and companies are increasingly reporting on their use of derivatives. Given high risk potential and complexity of derivatives, managing derivative risk has been widely recognised to be vital for the users of derivatives, as shown in the annual reports of all case companies. Derivative risk management is part of corporate governance and in most cases the board of directors of a company is responsible for derivative risk management. This research shows that the use of financial derivatives is linking with a company's risk management capability as top-rated firms in risk management capability used more derivatives to manage their financial and operational risk, while two bottom-rated firms used few types of derivatives (such as forward contracts and swap, but not futures and options). Also, derivatives risk management and information disclosed in the annual reports of these case companies were much different. While each case company provides more or less the same level of disclosures of derivatives, the use of derivatives varies across the years.

This thesis has made a number of contributions. Firstly, this thesis has added a new perspective of thinking to the existing literature of determinants of financial derivatives usage by exploring a link between a company's risk management capabilities and the use of derivatives, which hasn't been studied previously. This perspective is significant as risk management capabilities reflect the effect of a firm's overall management quality resulted from an amalgamation of various forces or powers embedded in a company's governance and structure. Previous studies on the use of financial derivatives were predominately based on isolated forces and attributes. This new perspective overcomes the limitations of previous studies by offering an avenue that can provide a comprehensive analysis of the motivates behind the use of financial derivatives as prior literature mostly focused on the determinants of derivatives uses from individual corporate characteristics. The influence of the amalgamated force reflected in the capabilities

of a firm's risk management was barely studied in the financial derivatives literature.

Secondly, this thesis contributes to both the empirical and theoretical literature within financial derivatives and risk management. In particular, it addresses the paucity of qualitative study of risk management capabilities in influencing the use of financial derivatives by non-financial companies. One of the main contributions of this thesis to the existing body of knowledge is it is the first study of its kind to establish the connection between a company's risk management capability and the use of financial derivatives. As noted by Yung and Chen (2018), the literature on managerial capability is quite new and scarce. This thesis is an important addition to the limited studies of risk management capabilities in the context of financial derivative usage of non-financial companies. In addition, the use of qualitative research methodology for derivatives research has been scarce. This study contributes to the literature by adopting a qualitative research approach with the use of case studies and content analysis.

Moreover, this study provides a practical measure of a firm's risk management capabilities for the first time by incorporating the scorings and ratings of firm's corporate governance and CSR. The measure helps to rate a firm's risk management capabilities. This methodology is simple, straightforward and easy to apply, having a practical implication to other settings. In this study, multiple weightings are assigned to corporate governance and CSR so as to have a robust rating outcome for the selection of cases.

1.5 The Structure of Thesis

The structure of this thesis is given as follows. Chapter 1 provides an overview of this study including research background, research aim and objectives, a synopsis of research methods, the main findings and contributions. This chapter justifies the need for this study and highlights the importance of such a study in terms of making contributions to the existing literature.

The next two chapters are concerned with literature review. While Chapter 2 focuses on the basics of derivatives, corporate use of derivatives and derivatives disclosure, Chapter 3 reviews previous studies relating to risk management and management capability. Chapter 2 presents the fundamentals of corporate use of derivatives, including the concepts and types of derivatives, benefits of use of financial derivatives, the determinants of corporate use of derivatives, accounting standards for derivatives, and the disclosure of financial derivatives.

Concerning accounting for derivatives and derivatives disclosures, this study will focus on two main derivatives accounting standards of IFRS and FASB and look at the main requirements and disclosure quality of these standards.

Chapter 3 provides a review of literature relating to risk, risk management and management capability. The purpose of the review is to present the status quo of existing research in these areas on the key issues with a view to identifying a theoretical framework, a research gap and justifying the necessity for this study. The review shows there is a research gap in terms of adopting risk management capability to understand corporate behaviours towards the use of financial derivatives, which is the focus of this study.

Chapter 4 explains the research methodology for this study. It firstly discusses research philosophical issues covering research paradigms, ontology and epistemology, and highlights the importance of interpretivism research and qualitative study. Secondly, this chapter explains the research design. This study will choose case studies and content analysis as research methods with the use of critical analysis. Thirdly, this chapter provides the details of case study research method. Particularly, it explains the procedure of risk management capability ranking and the case selection process. Fourthly, the use of content analysis is described including the details of content analysis design.

Chapter 5 presents six case studies of Unilever, Diageo, Intertek Group, Vodafone Group, Ashtead, and Merlin Entertainments Plc. For each case, an analysis is carried out of risk and risk management, derivatives disclosures, and financial derivatives usage. The final section provides a summary.

Chapter 6 provides case study results and a critical discussion of research findings. Firstly, it provides the results of case studies synopsising the similarities and differences of these cases in terms of the use of financial derivatives. All the case companies indicate the use of financial derivatives in managing their risks. While Section 6.3 provides a discussion on the connections between risk management capability and the use of financial derivatives, Section 6.4 highlights the contributions of this study. The final section gives a summary.

Chapter 7 is the final chapter, presenting the summary and conclusions of study, research limitations, research implications, and areas for further research. Overall, this study, as

demonstrated in Table 7.1, has achieved the four research objectives outlined in Chapter 1 and made valuable contributions to the literature.

Chapter 2: Literature Review I: Derivatives, Corporate Use of Derivatives and Derivatives Disclosure

2.1 Introduction

This chapter is concerned with derivatives and accounting for derivatives by reviewing the existing literature on the use of financial derivatives, the determinants of use of financial derivatives as well as the significance of derivatives-related disclosures. It starts with some fundamental issues relating to derivatives and the types of derivatives (Section 2.2), and then the use of financial derivatives (Section 2.3), covering the growth of financial derivatives, purposes of using derivatives including hedging and speculation, the motivations of using financial derivatives, and derivatives-related financial scandals.

Section 2.4 provides a discussion of the determinants of use of financial derivatives, focusing on reviewing four aspects of the literature: the value relevance of derivatives, managers; background and the use of derivatives, different levels of economic and industry developments, and corporate characteristics and tax effect. The review of prior studies presents a research gap relating to the possible link between firm risk management capability and the use of financial derivatives, which is the main objective of this study.

Section 2.5 explains accounting standards for derivatives. Accounting is an important topic for the firm that uses derivatives as it measures the value of financial derivatives and provides information to the investors and other external users (such as analysts). However, accounting for derivatives has been a difficult topic due to the complex of issues involved in terms of valuations, measurements and uncertainty of derivatives. In Section 2.6, prior studies on derivatives disclosures are reviewed; such a review is essential to provide an understanding of the disclosures of derivatives and valuation of financial derivatives, which offer useful references to consider in data collection and case studies to be reported later on.

The final section 2.7 will provide a summary of this chapter highlighting the main issues and findings from the literature.

2.2 Derivatives and Types of Derivatives

Derivatives have a long history and the earlier form of derivatives can be traced back to the

time when Aristotle lived, but the first ever standardised exchange-traded futures, which are the basic form of derivatives took place in the 1860s at the Chicago Board of Trade (Peery, 2012). Initially this sort of futures contract was primarily based on grain trading and related markets. Later this type of transactions applied to other commodities and financial products in the 1960-70s (Peery, 2012).

It is important to know the basic types of derivatives in order to understand how they might affect the markets' volatility, systematic risk, liquidity and even human behaviour involved, and the motives that corporations use derivatives. Basically, derivatives come in different forms, standard contracts and exotic contracts, formal and informal, regulated and unregulated. Standard contracts, for example, include buying or selling for future delivery, which are usually called forward and futures contracts (Peery, 2012). It also includes contracts that give the holder a right to buy or sell at a fixed price sometime in the future, which is generally referred to as options (Blanco and Wehrheim, 2017). Exotic derivatives are all other types of derivatives that exist (Sesana et al., 2014). This section provides a description of basic types of derivatives with a view to understanding the nature and characteristics of main types of financial derivatives. It also provides a review of existing literature on the functions of these types of derivatives. This section provides a discussion of four main types of financial derivatives, including forwards, futures, options, and swaps.

2.2.1 Forwards

By definition, a forward contract is a customised contract between two parties to buy or sell an asset at a specified price on a future date (Cornell and Reinganum, 1981; Sill, 1997). In other words, a forward contract obligates one party to buy something at a fixed price at a fixed time in the future. This fixed time is called maturity and the counterparty is obliged to sell at an agreed upon price. The purpose of using forward contracts has been well explained in the literature. Mainly the investors and companies use forward contracts to hedge various kinds of risk, *inter alia*, foreign exchange risk (e.g., Bessembinder, 1991; Babich and Kouvelis, 2018). Firms and investors often use these contracts to guarantee a price for a future purchase or sale. The price of a forward contract is made at the start trading date even though a purchase is set to a future date.

2.2.2 Futures

Similar to forward contracts, a futures contract is a legal agreement to buy or sell a particular commodity or asset at a predetermined price at a specified time in the future (Hull,

2000). The key feature of futures contracts that is different from a forward contract is that futures contracts are standardised for quality and quantity to facilitate trading on a futures exchange (Hirsa and Neftci, 2014). The buyer of a futures contract is taking on the obligation to buy the underlying asset when the futures contract expires (Liu and Wang, 2019). The seller of the futures contract is taking on the obligation to provide the underlying asset at the expiration date.

Futures contracts are essentially exchange-traded forward contracts (Hirsa and Neftci, 2014; Gousgounis and Onur, 2018). These contracts are exchange traded and this means that each exchange has a "clearing-house" that matches buys and sales. Futures contracts can be structured to minimise the effects of credit risk and the difference in pricing arises from uncertainty about the interest on mark-to-market proceeds (Hirsa and Neftci, 2014; Popova and Simkins, 2015). This effect is said to be small on short lived contracts, but can be significant on longer contracts. Longer contracts have a certain correlation between the underlying and the interest rate. Futures contracts are runny in contrast to forwards because of daily settlement. Because futures are exchange traded, these contracts are more standardised while forwards can be customised to suit the buyer or the seller. The use of futures contracts is often inefficient or burdensome for corporations because of daily marking to market (Brooks et al., 2001). The position does not require any cash transactions on a daily basis but the margin calls from its financial service providers are often not seen as ideal (Cornell and Reinganum, 1981).

2.2.3 Options

Options have well developed over the past a half century (Sesana et al., 2014; Benzennou et al., 2020). Basically, there are two types of options: call options and put options. A call option gives the holder the right to purchase an asset for a specified price called the exercise price, or strike price (Zvi et al., 2008; Blanco and Wehrheim, 2017). A put option gives the holder the right to sell an asset for a specified exercise price (Zvi et al., 2008; Blanco and Wehrheim, 2017). It is important to know that the holder of an option only has the right, but not the obligation to buy or sell at the expire time. If the buyer chooses not to exercise its right, he/she will be lost nothing but the price he/she paid for these option contracts. This is the same for both calls and puts. However, there is a difference between American and European options. American options can be exercised at any time before expiration whilst European options can only be exercised at expiration. Because of the possibility to exercise at any time with American options, the American option is usually more expensive than European options (Zhu et al.,

2018). Option contracts traded on exchanges are standardised in terms of expiration dates, exercise prices and number of shares. However, the OTC market traded options offer the possibility for tailoring of these standards, which can be considered as a benefit for adjusting to different scenarios. The cost of establishing an OTC option contract, however, is higher than for exchange-traded options (Zvi et al., 2008), especially if the liquidity of the option product is not very well. The most important difference between forward contracts and options is that the holder of an option is not necessary to buy or sell if the option is not profitable, so that the holder will choose not to exercise the option. However, with forward contracts this is not optional.

In general, options are used by businesses and investors both for hedging and speculating purposes, which will be discussed later in the next section. In the finance world, it is quite common that investors use options to increase or decrease their exposure to stocks that are held by the investors. There are many studies examining the impact of the use of options on financial investment and trading performance (e.g., Roll et al., 2009; Blanco and Wehrheim, 2017). Some scholars have shown that investment managers, through their skills in stock selection and market timing, are able to retrieve private information, which is used to their advantage (Beasley et al., 2005). Roll et al. (2009) find that options have an effect on firm value because they help "complete markets and stimulate informed trades". They reveal that these benefits, however, are likely to manifest themselves in active, rather than inactive, options markets. Supporting this observation, Roll et al. (2009) find that firms with more options trading have higher values of Tobin's q[2], after accounting for other determinants of value. It is noted that "Corporate investment in firms with greater options trading is more sensitive to stock prices. Options trading affects firm valuation more strongly in stocks with greater information asymmetry. These results indicate that options trading is positively associated with firm values as well as information production" (Roll et al., 2009, p.345).

2.2.4 Swaps

A swap is a derivative contract through which two parties exchange the cash flows or liabilities from two different financial instruments (Hudson, 2017). Most swaps involve cash flows based on a notional principal amount such as a loan or bond, although the instrument can be almost

[2] "Tobin's q, or the q ratio, is the ratio of the market value of a firm's assets (as measured by the market value of its outstanding stock and debt) divided by the replacement cost of the firm's assets (book value)" (source: http://lexicon.ft.com/Term?term=Tobin%27s-q-ratio).

anything. Usually, the principal does not change hands. Each cash flow comprises one leg of the swap. One cash flow is generally fixed, while the other is variable and based on a benchmark interest rate, floating currency exchange rate or index price (Hudson, 2017). One party makes a payment to the other depending upon whether a price turns out to be greater or less than a reference price that is specified in the swap contract (Pilbeam, 2018). This means that a swap gives the possibility to hedge a stream of risky payments, contrary to options and forwards that are settled on a single date (Cooper and Mello, 1991). For instance, an investor has an adjustable-rate mortgage with yearly interest payments with the current interest rate. If interest rates were to rise significantly the investor's payments would also increase significantly. The solution might be to get a fixed-rate mortgage, but the transaction cost could be substantial and the fixed-rate would be higher than the current rate. The alternative is to find a counterpart and make a swap contract where the investor would agree to make payments to the counterparty equal to the fixed rate. In a swap exchange, the counterparty would pay the bank the adjustable-rate and the only payments the investor would make are the fixed money to the counterparty. The counterparty would agree to this because the counterparty will make money if the adjustable-rate decreases and has to pay the bank less than the fixed money per year. Therefore, the use of swaps is very helpful when some transactions occur repeatedly. Firms that issue bonds make periodic coupon payments, multinational firms frequently exchange currencies, firms that buy commodities as production inputs or that sell them make payments or receive income linked to commodity prices on an ongoing basis (Pilbeam, 2018). Financial institutions have often used credit default swaps (CDS) to manage credit risk exposure and gain transactional efficiency (Arora et al., 2012; Adam and Guettler, 2015; Adam et al., 2007; Aragon et al., 2019).

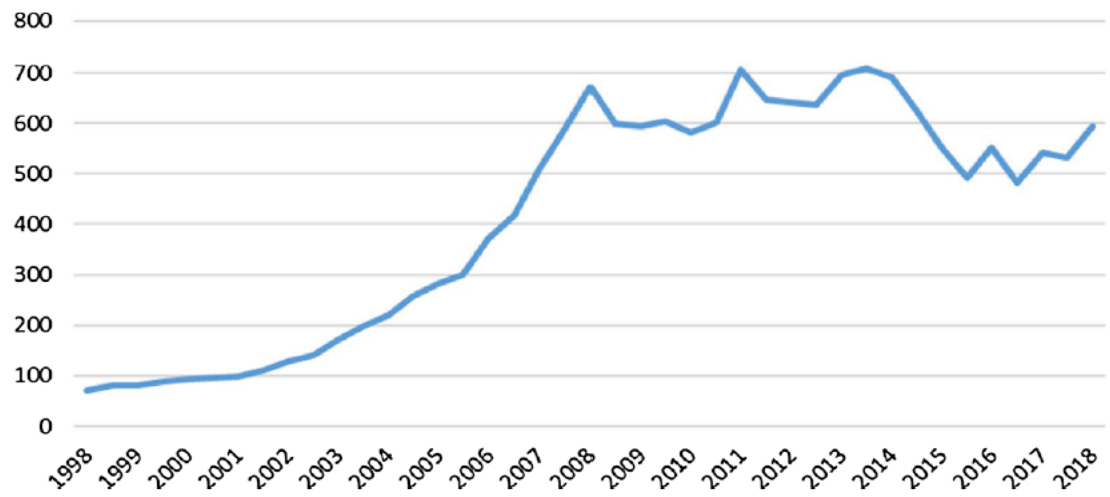
2.3 The Use of Financial Derivatives

2.3.1 The growth of financial derivatives and the users of derivatives

Figure 2.1 presents the growth in the notional amount of OTC derivatives from 1998 to 2018. Figure 2.1 reveals the trend of derivatives growth, based on the data from the Bank for International Settlements (https://www.bis.org). The derivatives market particularly experienced a huge growth worldwide for a decade prior to the global financial crisis in 2007/08, as it provided the investors with the possibility to invest in parts of the markets that were not achievable before. This was particularly the case in Europe and the US where derivatives were favourably considered as the outcome of financial innovations (Shanker, 2000;

Blanco and Wehrheim, 2017). The literature has described the size of the markets and the development of derivatives (e.g., Hull, 2000; Eklund et al., 2012). For instance, Hull (2000) observes that when derivatives are measured in terms of their underlying, their markets are vast and significantly larger than that of the equity market. Because of this, companies cannot avoid to know derivatives even if they like them or not. Eklund et al. (2012) confirm the huge size of derivatives by illustrating that "…The total global value of derivative contracts' underlying assets amounts to just over USD 600,000 billion. This is equivalent to more than 40 times the United States' GDP" (p.1).

Figure 2.1: Growth in the notional amount of OTC derivatives from 1998 to 2018 (in USD trillion).



Source: The Bank for International Settlements (https://www.bis.org)

There are different users, presenting different perspectives on the use of financial derivatives. Finan (2013) documents that there are three different user perspectives on derivatives consisting of the end-user perspective, the market-maker perspective and the economic observer perspective. End users are those users who are corporations, investment managers and investors with the purpose of using derivatives in order to achieve their goals (such as get profit or control their risks or reduce their cost or regulation avoidance). Market-makers, which usually are traders or intermediaries between different end users, buy from end users that sell at low price and sell to end users that want to buy at higher price. Commissions for the trading transactions might be charged. The final perspective is that of the economic observer, whose role is to regulate and supervise the markets. This study is largely concerned with the end-user, i.e., non-financial companies.

2.3.2 The purposes of using financial derivatives

Financial derivatives have been used for centuries as a form of "insurance" against (or as gambles on) price movements of various assets including financial assets and stock indices[3]. Nowadays, as shown in Bodnar et al. (1998), Howton and Perfect (1998), Brown (2001), Watson and Carter (2006), Chen (2011), Li and Marinč (2014), and among others, financial derivatives have been used to manage risk exposure in well-developed markets, and more than 80% of large firms in the US have used derivatives as a significant part of their financial and risk management strategies. As a result, the use of financial derivatives has been a matter of great interest among academics and policymakers (Nguyen et al., 2018).

The use of financial derivatives can largely serve different purposes under different conditions for different users and participants. As shown in the previous section, there are many types of derivatives with different characteristics and operational functions. Actually, in the global market place, thousands of innovative derivatives have been developed to meet the needs of various corporation users and investors. However, it has been a problem for investors to properly evaluate the values of derivatives. The complexity and sophistication of derivatives is probably analogous to the difficulty of valuation (Chang et al., 2018; Lo et al., 2019).

What are the functions of financial derivatives? Why do investors and corporations use financial derivatives? The literature has provided a variety of reasons and motivations for the use of derivatives, depending on the users (including investors) of derivatives and the motivations. Basically, financial derivatives can be used for hedging and speculation purposes.

2.3.2.1 Hedging

Hedging has been identified as one of main purposes of using financial derivatives. It is argued in the literature that corporate use of derivatives by non-financial firms can increase shareholder value through lowering the likelihood of bankruptcy and the cost of financial distress (e.g., Stulz, 2000; Smith and Stulz, 1985; Rossi, 2013). Hedging is the actions that are taken by firms to reduce the risk. It is the broadest and most widely used strategy in risk management (Racicot and Théoret, 2018). The earliest theoretical paper that specifically

[3] For instance, in the 19th century, the use of agricultural forward contracts in the US Midwest to fix the price of agricultural products (e.g., grain), allowed agricultural producers to insure against agricultural price volatility and hence stabilise their income. However, these contracts were generally unregulated and therefore unreliable as either party could potentially renege on the contract.

addresses hedging is Stulz (2000). Stulz (2000) presents a model that shows value-maximising firms pursue active hedging polices that result in more use of derivatives. Accordingly, Stulz (2000) derives an optimal hedging policy for risk-averse agents in the presence of uncertainty in commodity prices.

In a separate study, Smith and Stulz (1985) establish an expected financial distress cost framework to motivate corporate risk management. Distress cost refers to the costs that a firm in financial distress faces beyond the cost of normal operation of the firm (e.g., a higher cost of capital), which is caused by difficulties for the firm to meet its financial obligations. Smith and Stulz (1985) argue that firm value equals the present value of expected cash flows less the present value of expected distress costs and the expected distress costs are a function of distress probability and the costs of distress if it is incurred. Therefore, there is a need for the firm to manage financial distress costs. Corporate financial risk management activities therefore reduce the probability of distress, which results in a decrease of expected costs of distress and an increase of firm value. This is the theory of value relevance of corporate risk management. Froot et al. (1993) expand the corporate risk management literature by arguing corporate risk management as a financing mechanism that helps a firm mitigate its financial constraints, thus increases firm value. Non-financial firms typically cite risk management as the primary reason for their use of derivatives (Anbil et al., 2019).

Various hedging techniques have been proposed in the literature (Allayannis et al., 2001; Loss, 2012; Kuzmina and Kuznetsova, 2018). For instance, operational hedging techniques represent diversification of the markets in which the firm is operating, the region in which the firm is located and geographic distribution of subsidiaries across markets and regions (Allayannis et al., 2001). Firms rely heavily on pass-through, operational hedging, and foreign currency debt to manage financial risk (Aretz and Bartram, 2010; Li and Marinč, 2014).

Financial derivatives hedging can help firms to apply financial strategies to manage their risk exposures stemming from market imperfections and the changing environments (Moles, 2013). While hedging strategies of managing risks are not required in perfect market conditions defined by Modigliani and Miller (1958), in the real financial market conditions, firms do often use financial derivatives to hedge risks when they face a variety of imperfections that can make volatility costly (Guay and Kothari 2003; Racicot and Theoret, 2018). These imperfections fortify the incentives of risk management and the use of derivatives. The incentives behind

hedging can be summarised as tax incentives, financial distress costs, managerial incentives and information asymmetry (e.g., Smith and Stulz, 1985; Dobson and Soenen, 1993; Tufano, 1998; Graham and Rogers, 2002; Aretz et al., 2007; Wei et al., 2017).

- *Tax Incentives of Hedging:* Concerning tax incentives, Smith and Stulz (1985) argue that because the firm tax liability function is convexly shaped, firms can decrease the expected corporate income tax liability and increase the expected post-tax value of the firm under the low hedging cost conditions. Several empirical studies provide evidence supporting this argument (e.g., Nance et al., 1993; Shanker, 2000; Donohoe 2015). For example, Nance et al. (1993) find evidence that firms with more convex tax schedule use hedge intensively and these firms with the use of hedging instruments have significantly more tax credit. Donohoe (2015) presents evidence that derivatives users for hedging avoid more tax than non-users. Donohoe (2015, p.1) estimates the corporate tax savings from the use of financial derivatives, documenting that there is "a 3.6 and 4.4 percentage point reduction in three-year current and cash effective tax rates (ETRs), respectively, after a firm initiates a derivatives program".
- *Financial Distress Costs*: In financial distress condition, hedging can be considered as a safeguard to mitigate bankruptcy probability (Smith and Stulz, 1985). When a firm faces financial distress, various options are available including the change of corporate financial strategy by amending the existing capital structure, and the use of additional equity finance through right issue. It is possible for firms to deal with financial distress by reducing the variance of firm value with the use of hedging strategies. Typically, by mitigating the volatility of cash flows, hedging can lower the probability of bankruptcy cost, resulting in an increase of shareholder values. Hedging delivers an increase in the borrowing capacity that is an important indicator for firms to address financial problems. According to Géczy et al. (1997), decreasing bankruptcy probability helps firms to increase their debt capacity and allows firms to get a necessary loan at lower costs. The existing literature has documented the effectiveness of using derivatives in reducing financial distress costs as hedging can be considered as a safeguard to mitigate bankruptcy probability in financial distress condition (Cassar et al., 2018). Smith and Stulz (1985) explain this aspect of hedging by arguing that firms dealing with financial distress can encounter the problems by reducing the variance of the firm value with hedging strategies. By mitigating the volatility of cash flows, hedging also lowers the probability of bankruptcy cost which leads to a benefit for shareholders. Therefore, hedging provides an increase in the borrowing capacity which is an important

indicator for companies to tackle financial problems. Decreasing bankruptcy probability helps firms increase the debt capacity and allows them to get a necessary loan at lower costs (Geczy et al., 1997).

- *Managerial Incentives*: Managerial incentives have also been recognised as a motive to engage in hedging (DeMarzo and Duffie, 1995; Cassar et al., 2018). Managers have their own incentives in selecting hedging due to the association of firm performance with the firm's management remuneration (Huang et al., 2017). Hedging has been considered to be an incentive for managers, this is because the managerial compensation contract is normally based on the value of the firm which leads to an increase in managers' expected utility. Managers' expected utility largely depends on the distribution of the firm's payoffs. Hedging causes changes in the managers' expected utility by affecting the firms' payoffs. Previous literature has well covered this incentive and documented the manager's motivation to change expected utility. For example, Smith et al. (1985) and Stulz (1984) argue that as managers maximise their expected lifetime utility and their income is an increasing function of the changes in the value of the firm, therefore they tend to actively consider the use of hedging (Smith et al., 1985; Cassar et al., 2018).
- *Information Asymmetry*: The informational role of hedging has been widely accepted in the literature. Information asymmetry is argued to be a major incentive for using hedging strategies (e.g., DeMarzo and Duffie, 1995; Amberg and Friberg, 2016; Manconi et al., 2018). In an efficient capital market, there exists information asymmetry, which influences the firm management behaviour. The literature has well documented that various corporate decisions and strategies are underpinned by information asymmetry. Previous studies have fairly presented evidence indicating information asymmetry as a major incentive for hedging by non-financial firms (Chen and King, 2014). Prior studies have argued that hedging has a positive impact on reducing the amount of noise and increasing the informational content in the firm's profit (DeMarzo and Duffie, 1995). Breeden and Viswanathan (2016) provide an asymmetric information model of hedging, showing that hedging is undertaken by managers with higher ability who want to lock-in the greater profits that result from that ability. They argue that hedging is an attempt to improve the informativeness of the learning process by the higher ability manager. DeMarzo and Duffie (1995) claim that hedging has a positive impact on reducing the amount of "noise" and increasing the informational content in the using firm's profits. According to Breeden and Viswanathan (2016), superior managers are more likely to hedge uncertainties to ensure shareholders about their abilities. Manconi et al.

(2018) show hedging is associated with lower uncertainty (lower implied volatility and analyst forecast dispersion, and greater breadth of ownership). Also, hedging is associated with a lower informed trading intensity, in particular for short selling. Manconi et al (2018) find that short selling profits are more than twice lower on the stocks of firms engaging in corporate hedging.

Indeed, firms try to hedge their financial risks by using different techniques and instruments (Nance et al., 1993; Amberg and Friberg, 2016). Based on the firms' structures and preferences, firms tend to adjust the financial positions or employ financial derivatives instruments. Firstly, by diversifying their investment and financing choices, firms try to avoid risky events or mitigate the harm of results. A firm can also manage the financial risk by changing its assets and liabilities to decrease the exposure to movements in financial prices (Nance et al., 1993; Said, 2017; Santos et al., 2017). The key feature is that diversifying financial position happens naturally in the course of making the routine investment or finance decisions and it often appears without any noticeable comment in financial statements (Gastineau et al., 2001). Secondly, one of the oldest methods of hedging the risk is insurance. Insurance contracts are often purchased by corporations to mitigate the risk (Mayers and Smith, 1982). Insurance preferences can be evaluated as another part of financing decision (Mayers and Smith, 1982). The purchase of insurance contracts not only helps firms to guarantee a particular set of real investment decisions but also leads to guarantee for the firms by being included in other corporate agreements such as subcontracting or bond contracts (Mayers and Smith, 1982).

Géczy et al. (1997) investigate the use of currency derivatives with a view to differentiating among existing theories of hedging behaviour. They argue that firms with greater growth opportunities and tighter financial constraints are more likely to use currency derivatives as firms might use derivatives to reduce cash flow variation that might otherwise preclude firms from investing in valuable growth opportunities. They find that firms with extensive foreign exchange-rate exposure and economies of scale in hedging activities are also more likely to use currency derivatives. Géczy et al. (1997) also present evidence that the source of foreign exchange-rate exposure is an important factor in the choice among types of currency derivatives.

What are the determinants of using financial derivatives to hedge against firm risks? The literature has identified a number of determinants of hedging. A recent meta-analysis study by

Geyer-Klingeberg et al. (2019) find firm size, capital structure and risk exposure are key determinants for the firm decisions to hedge with the use of financial derivatives. They also show firm size, interest coverage and option ownership are key determinants for the extend of hedging. Geyer-Klingeberg et al. (2019) have not considered a firm risk management capability to be relevant to the use of financial derivatives for hedging purposes. This leaves a gap for this study to explore the likely impact of a firm's risk management capability on the use of financial derivatives.

2.3.2.2 Speculation

Speculation is the second strategy for corporate use of derivatives (Shleifer and Vishny, 1997; Gastineau et al., 2001). It is contrary to the popular belief that risk management aims reducing the risk, some managers tend to use financial derivatives to make an extra gain. Such a gain would enhance a firm's financial performance, although there are a variety of risks involved. Speculation is an action and business practice to increase expected reward while raising the degree of uncertainty about achieving the outcome at the same time (Gastineau et al., 2001). In practice, it is questionable that firms use the term 'speculation' for their risk management strategies, even though risk taking activities are evaluated as reasonable and appropriate for firms' operation strategies.

It is noted by Bartram (2019), financial derivatives are effective and efficient tools for risk management through corporate hedging, but they are equally well suited for speculative purposes. Many firms also use derivatives for speculative purposes to make a profit. Several survey-based studies show that firms do use financial derivatives for speculative purposes. For instance, 50% of 1161 international companies indicates that the firm's market view was vital for their use of derivatives (Bodnar et al., 1996). Lins et al. (2011) find about a half of 229 firms from 36 countries took active positions of using derivatives for speculative purposes at least some of the time. Rossi (2013) presents that in many emerging countries (e.g., Brazil, Poland, and Mexico), a number of firms reported severe financial losses directly after the devaluation of local currencies. "Such losses were attributed to the use of derivatives for speculative purposes with firms actively taking positions in the derivatives market" (Rossi, 2013, p.416). Approximately 90% of the derivatives users in the survey conducted by Dolde (1993), over 40% of the firms surveyed by the Wharton Study of Derivatives Usage (Bodnar et al., 1996) and about 50% of the firms studied by Brunzell et al. (2011) are interested in

movements in financial markets with a view to gaining when structuring their derivative portfolios. Contrary to hedging purposes, speculative activity is not anticipated to be correlated to firms' underlying business exposures and derivatives usage for the speculative purpose is expected to increase firm risk (Guay, 1999). The study conducted by Brunzell et al. (2011) with the sample from four Nordic countries (i.e., Denmark, Finland, Iceland, and Sweden) shows that about 62% of listed firms use derivatives. The authors indicate that although the hedging motive clearly dominates, over half of the firms give some weight for additional income as a motive for the use of derivatives (i.e., to use derivatives for speculative purpose). The study provides evidence that "Firm-level diversification is negatively related to hedging, but is positively related to the use of derivatives for additional income. Financial firms use derivatives more for profit than for hedging" (p.355).

Stulz (2000) states that once a firm assumes that it has a corporative advantage in risk taking, it is more likely to exploit these advantages. Sapra (2002) claims that absence of mandatory hedging disclosure encourages firms to follow imprudent risk management and commit excessive speculation. In addition to other factors, firms with a lower level of bankruptcy risk are more inclined to speculation (Stulz, 2000). Firms use derivatives for speculative purposes because of capital market imperfections. Speculating firms encourage managers to speculate through incentive-aligning compensation arrangements and bonding contracts (Géczy et al., 2007). As noted in Bartram (2019), while speculation with derivatives at the firm level may destroy firm value if it increases the expected costs of market imperfections, there are incentives for managers acting in the interest of shareholders to increase the riskiness of the firm in order to realise a wealth transfer from bondholders to shareholders via innovative financial derivatives instruments (Myers, 1977; Blanco and Wehrheim, 2017). Management compensation schemes, in particular stock options, may also reduce managerial risk aversion and create financial incentives for managers to take gambles (through the use of financial derivatives) at the firm level, and managers with inferior management skill can use corporate speculation with the use of financial derivatives to increase the noise associated with firm performance in order to hide their true ability (Breeden and Viswanathan, 2016).

Gastineau et al. (2001) advise that a firm applying to speculate should assess the reward-risk trade-off carefully, and the perceived core competencies, capabilities and advantages should be taken into account as shareholders absolutely would like the firm to bear certain level of business risks but not want the firm to speculate in markets when the company has no access

to information or competitive advantage about transaction costs. Apparently, speculative actions are largely depended on the firm's capability to bear risk consequences. The prior literature has shown that derivatives are used by firms for speculation purposes. Several surveys investigating the motivations and incentives behind using derivatives reveal that speculative trading of derivatives by non-financial companies are also appearing in the business use of financial derivatives (e.g., Dolde, 1993; Bodnar et al., 1996). For example, roughly 90% of the derivatives users in the survey conducted by Dolde (1993) and over 40% of the firms surveyed by the Wharton Study of Derivatives Usage (Bodnar et al. 1996) were interested in using derivatives to gain from movements in financial markets. This present study attempts to identify from six cases whether speculation has been documented by the case companies as the motive for the use of financial derivatives.

Overall, there are many specific reasons for firms entering derivatives. Empirical evidence shows that there are various attributes to the use of financial derivatives including internal and external qualities. It could often be the cases that users of derivatives entered into financial transactions which gradually changed from the original objective of risk management and plain protection against unwanted risks to a quest for financial gain (not necessarily backed by the exposures of their assets or their liabilities) with the objective improved vis-à-vis competitive competitors (Chang et al., 2018); this is the change from hedging to speculation.

2.3.3 The motivations of using financial derivatives by corporations

2.3.3.1 Potential benefits of using financial derivatives

Will the use of financial derivatives create value for the derivatives users? What is the empirical evidence on the benefits of using financial derivatives? The prior studies have well documented the potential benefits of using financial derivatives by corporate and investor users (e.g., Froot et al., 1993; Baril et al., 1996; Géczy et al., 1997; Chen, 2011; Cici and Palacios, 2015). Basically, there are four main benefits why investors and corporations use financial derivatives (Finan, 2013).

Firstly, financial derivatives can be used to help investors and corporations to control risks through hedging (Prampolini and Morini, 2018). According to Sundaram and Das (2011), by using hedging the cash flows from the derivatives are used to offset or mitigate the cash flows

from a prior market commitment. However, findings from empirical studies have been inconclusive about the relationship between the use of financial derivatives and firm risk. For example, focusing on the risks of bank holding companies, Choi and Elyasiani (1997) show that the use of financial derivatives further exposes banks to risks especially for exchange rate risk. Li and Yu (2010) find evidence for the positive relationship between the use of interest rate derivatives and a bank's systematic interest rate risk, which was also supported by studies of Choi et al. (1992), Hirtle (1997), and Gunther and Siems (2002). A recent study by Huan and Parbonetti (2019), with a sample of 555 banks from 18 developed markets from 2006 to 2015, finds that banks' use of financial derivatives actually increased their risk. This increase in risk was mainly driven by banks' use of derivatives for speculative purposes, by "suboptimal hedging to obtain hedge accounting status, or from accounting mismatches that generate volatility in earnings". However, Yong et al. (2009) find that there is no evidence to confirm any impact of the use of financial derivatives on exchange rate risk on a sample of Asia-Pacific banks, while they find that interest rate derivatives activities are positively associated with long-term interest rate risk exposure but negatively associated with short-term interest rate exposure. Carter and Sinkey (1998) investigate the relationship between interest rate derivatives and large community banks and find that interest rate derivatives are positively associated with interest rate risk. The inconclusive results of the above was further analysed by others in the literature, in particular by looking into more specific types of derivatives. For example, Chaudhry et al. (2000) focus on the different types of derivatives instruments (e.g., options, swaps, futures, credit derivatives etc.) and examine how these derivatives affect bank holding companies' exposure to risk. They find that exchange rate options tend to increase risk whereas swaps are mainly used to mitigate risk exposures. The literature on the impact of using financial derivatives on firm value gives a different picture. For example, Nguyen and Faff (2010) find that the use of swap contracts in particular has statistically significant and negative effect on firm value.

Secondly, a benefit of derivatives use is speculation (trading) aiming at profiting from the anticipated market movements (Rossi, 2013; Entrop and Merkel, 2018). As speculation increases the corporate risks, thus the potential gain or loss is magnified relative to the initial investment.

Thirdly, the benefit is related to the cost involved. The use of derivatives implies less transaction costs (e.g., commission costs, trading costs etc.) as shown in Sill (1997), Dobson

and Soenen (1993) and Blanco and García (2017). According to Sill (1997), the derivatives market success is largely based on the fact that the use of derivatives can make the financial markets more efficient. Typically, using derivatives can led users to have less transaction costs, which affect the borrowing and lending cost lower than not using derivatives. Large firms will have lower transaction costs in the securities market due to the large trade volume that is being undertaken.

Lastly, the use of financial derivatives through asset management activities and regulatory restrictions can help investors and corporations to maximise the return on investments (Natter et al., 2016; MacCarthy, 2017). For example, using financial derivatives can help investors and corporations to avoid high taxes (Graham and Rogers, 2002; Donohoe, 2015), lower the likelihood of bankruptcy and the cost of financial distress (e.g., Smith and Stulz, 1985; Marinc and Li, 2014).

2.3.3.2 Risk management role of financial derivatives

Derivatives are financial instruments for risk management and they can contribute to the firm value because effective risk management helps the firm in assuring its future perspectives (Halilbegovic and Mekic, 2017). Firms can manage risk by using derivatives as part of operational hedging strategies (Amberg and Friberg, 2016). The results of Bartram (2019) strongly suggest that non-financial firms use derivatives to reduce risk. Users of derivatives are more exposed to exchange rate risk and interest rate risk before the potential effects of hedging are considered (gross or pre-hedging exposure) (Yong et al., 2009; Brown, 2001; Bartram, 2019).

As explained by Ronnie (2001), the terms "hedging" and "risk management" are often used somewhat interchangeably in the literature as hedging is very much a common risk management strategy for non-financial firms. In order to hedge the risk, firms use different instruments and techniques (including financial derivatives) in accordance with their targets and structures. In relation to hedging techniques, they can be divided into two broad groups: operational hedging and financial hedging. While operational hedging techniques represent diversification of the markets in which the firm operates, financial hedging means applying financial strategies to manage the risk exposures resulting from market imperfections

(Allayannis et al., 2001). As said before, the theorem of Modigliani and Miller (1958) indicates hedging strategies about risks are not really needed in perfect market conditions, this is because within a perfect capital market, financial hedging is irrelevant to firm value. However, Bessler et al. (2019) find that firms' hedging with derivatives have large Tobin's Q, a commonly used measure of firm value creation. Particularly, firms create greater value when they use financial derivatives to hedge foreign exchange risks.

Nowadays, all firms are increasingly aware of derivatives in their corporate strategies as they are more and more using financial derivatives for corporate risk management. Firms' financial statements have been showing a gradual change in the uses of these derivatives and reporting them with disclosure required by financial reporting regulatory bodies (Graham and Rogers, 2002). The consciousness was specially developed since the 2008-09 global financial crisis, which left its spot on the world economy. After that time, researchers have increasingly paid attention towards investigations of derivatives' role in world economic crisis and devoting much effort in finding ways how firms can deal with if a similar situation exists in the future.

Akpinar and Fettahoglu (2016) argue that the key purpose of using financial derivatives is to manage risk and hedging, which arose as a strong method of segregating or relocating risk, from which the effective function of derivatives can be identified. In addition of that, Leland (1998) asserts that hedging would have a contribution toward an increase of a firm's debt capacity, and as borrowing increases it leads to increase in the effect of tax savings and contribute to firm value. Presently, the fast development of international business, the rapid changing of business environments, and the increasing uncertainty of financial markets require companies to take part in the use of financial derivatives through hedging and speculative activities with a view to gaining maximum benefits from derivatives usage. For hedging, this is mainly to protect companies from different financial risks with hedging mechanisms (e.g., foreign exchange risk, credit risk).

The literature has well documented that non-financial firms have used derivatives as financial instruments to hedge entity-level firm risk (e.g., Brown et al., 2006; Guay, 1999; Melumad et al., 1999; Zhang, 2009; Chen and King, 2014; Giraldo-Prieto et al., 2017). Miller (1995) explains how derivatives can help users to control risks and the author comes up with that the banking system is safe because of the usage of derivatives. Finally, he states that financial derivatives need to improve its disclosure. Miller presents that the financial derivatives users

need to improve their knowledge of derivatives and understand possible derivatives related risks. Huang and Gao (2014) also recognise the importance of investors' knowledge and understanding of derivatives and they argue that the current accounting treatment and disclosures of derivatives and derivatives-related information are too complicated. Guay (1999) finds that firms using derivatives can better control the volatility of stock, interest-rate and exchange-rate than the firms that do not use derivative instruments. Trichet (2007) argues that price discovery in the credit derivatives market can help firms reduce the risk of mispricing loans.

Overall, the literature has provided a rich source of references on the motivations of using hedging to mitigate firm risks. Hedging corporate risks with derivatives have increasingly received much attention from different industries and became popular corporate activities for the last decades (Ayturk et al., 2016). This was due to a gradual shift of financial as well as capital market attention toward volatility and its effect on firm's performance and profitability.

2.3.3.3 Impact of financial derivatives on stock markets and the banking industry

The literature has also documented the impact of financial derivatives on stock markets and the banking industry. Financial derivatives are tools in making financial markets more functional as well as assisting with their development (Halilbegovic and Mekic, 2017). Generally, the role of derivatives in financial market, identified more specifically is to provide the quality and quantity of the supply and demand of capital, improve the business climate, and create opportunities for new jobs, and the largest contributing to the decline in unemployment (Halilbegovic and Mekic, 2017).

To capital markets, financial derivatives could be "financial weapons of mass destruction" as explained by Warren Buffett in 2002. During the period of the financial crisis, different nervousness over several risks contributed to great uncertainty. Financial derivatives had a major role in the financial crisis after instruments used to play the subprime mortgage market collapsed. For instance, the gross market value of derivatives fell to $11 trillion at the end of 2017, down from a crisis-level peak of $35 trillion, according to the Bank for International Settlements[4]. Mainly, over-the-counter (OTC) market, in which derivatives contracts are traded

[4] https://www.cnbc.com/2018/05/04/the-value-of-financial-weapons-of-mass-destruction-is-plunging.html

outside stock exchanges were found particularly problematic. This was due to lack of transparency in the market and neither was it regulated to any great extent. The lack of transparency also led the market to great uncertainty in connection to events that might happen in that market, so that it rose a question as to any possible serious problematic impact on any of the investors and participants. Therefore, the crisis gave suggestions to the market regulatory bodies at different levels that there was a need of taking alleviative measures on the OTC derivatives market in order to strengthen financial stability, and therefore the market participants have responsibilities to manage associated risks with the use of financial derivatives. Subsequently, leaders of the G20 countries started making the required amendments in their regulations which have got a contribution to reducing the risk of future crisis (Duffie, 2018). These changes help both financial and non-financial market participants because the market rules help them to manage derivatives. Chui (2012) argue that if derivatives are properly handled, they can provide the holder with substantial economic benefits as proper handling helps the actors to manage market and credit risks with the promotion of financial innovations, the development of the market, and market flexibility and shocks.

Nijskens and Wagner (2011) present that one cause of the financial crisis was the way how banks relocated credit risk[5] in the financial system. Nijskens and Wagner (2011) find that the market expected those risks coming from the use of Collateralized Debt Obligations (CDBs), before the crisis happened. In addition, they deduce that while banks were hedging their individual risks, they caused a bigger risk in the whole financial system. Allen and Carletti (2006) focus on liquidity. They believe that credit risk transfer will be beneficial when there is a uniform demand for liquidity by banks. However, if banks tolerate characteristic liquidity risk and decide to hedge in an interbank market, this credit risk transfer may increase the risk of crisis as it leads to contagion between the sectors.

In another study, Cyree et al. (2011) note that there is no systematic effect on bank values from derivatives use including Credit Default Swap (CDSs) in different periods of growth. Additionally, they do not find proof supporting the assertion that derivatives use increases speculating behaviour of banks and that their contribution was significant to the loss of value

[5] With the usage of derivatives, and especially credit derivatives, banks could change their regulatory needs for costly capital charges, reducing the overall cost of financing (Nijskens and Wagner, 2011). Moreover, "moral Hazard" of financial derivatives are still led to the limited disclosure and incentive problems, which has been regarded as the main reason why many blame derivatives have a significant contribution to the credit crisis, especially credit derivatives (Gaillard and Michalek, 2019).

during the mortgage crisis. Beltratti and Stulz (2012) agree this view by admitting that CDSs did not lead to the credit crisis, as the over-the-counter CDS market was working accurately in the first year of the crisis. A study that was presented by Minton et al. (2010) states that the use of credit derivatives as a hedging method is limited due to moral hazard and adverse selection problems and also, because banks are unable to use hedge accounting[6] when hedging credit derivatives. Finally, in a comparison between credit derivatives and loan sales in US commercial banks (Bedendo and Bruno, 2012), it is accomplished that financial institutions which engage intensively in loan sales confront bigger risks and had higher default rates during the crisis (Gaillard and Michalek, 2019). The credit risk transfer benefits and disadvantages are, surprisingly, stronger for loan sales than for credit derivatives. Choi and Elyasiani (1997) present that the use of financial derivatives further exposes bank holding companies to risks especially for exchange rate risk. Li and Yu (2010) find evidence for the positive relationship between interest rate derivatives and systematic interest rate risk of a bank holding company. Chaudhry et al. (2000) focus on the different types of exchange rate derivatives and how these derivatives affect bank holding companies' exposure to various risk. They find that exchange rate options tend to increase risk whereas swaps are mainly used to mitigate risk exposures. Adam et al. (2007) examine firms' risk management choices in an industry equilibrium in which endogenous output prices are a function of aggregate investment and hedging decisions. They reveal that a single firm's incentive to hedge increases if more firms in the industry choose not to hedge and vice versa. From the current literature it is noticeable that there are opposing views concerning the role that derivatives play in the development of capital markets and the banking industry (Sánchez-Verdasco and Javier, 2018; Geyer-Klingeberg et al., 2019).

Overall, it has been recognised in the literature of the value relevance of derivatives in current

[6] With regard to hedge accounting, PwC (2016) provides an explanation of hedge accounting as follows: "Entities are exposed to financial risks arising from many aspects of their business. Different companies are concerned about different risks (for example, some entities might be concerned about exchange rates or interest rates, while others might be concerned about commodity prices). Entities implement different risk management strategies to eliminate or reduce their risk exposures. The objective of hedge accounting is to represent, in the financial statements, the effect of risk management activities that use financial instruments to manage exposures arising from particular risks that could affect profit or loss (P&L) or other comprehensive income (OCI). In simple terms, hedge accounting is a technique that modifies the normal basis for recognising gains and losses (or revenues and expenses) on associated hedging instruments and hedged items, so that both are recognised in P&L (or OCI) in the same accounting period. This is a matching concept that eliminates or reduces the volatility in the statement of comprehensive income that otherwise would arise if the hedged item and the hedging instrument were accounted for separately under IFRS. Under IFRS 9, hedge accounting continues to be optional, and management should consider the costs and benefits when deciding whether to use it." (https://www.pwc.com/gx/en/audit-services/ifrs/publications/ifrs-9/practical-general-hedge-accounting.pdf) (Accessed on 12/7/2017).

financial markets and potential advantages of using financial derivatives to the users on the one hand. On the other hand, as financial markets are more sensitive compared to non-financial markets, there is a potential high risk for the users to use financial derivatives. So, this forces corporations to have an effective risk management system that result in the increasing use of derivatives to hedge these risks. Therefore, derivatives play a significant role in risk management and in trading securities, of both in over-the-counter and exchange markets.

2.3.4 Derivatives–related bankruptcies and frauds

Indeed, problems with the increased use of financial derivatives were thrown into the spotlight in the late 1980s and 1990s in both the US and the UK when a series of spectacular bankruptcies were attributed to their use[7]. Beyond that technological obstacles, the development of derivatives trading was also hindered by other factors (including regulatory and cultural factors, corporate governance), rising concerns about market stability and impact on the global economy (Allen and Santomero, 1997).

Li and Marinc (2014) observe that the perspective has turned around after the global financial crisis because the increasing risks of financial derivatives have become more evident. Several financial scandals and frauds occurred in the 1990s and 2000s involved the misuse of financial derivatives. The Financial Stability Board[8] (2010) concludes that "the crisis demonstrated the potential for contagion arising from the interconnectedness of OTC derivatives market participants and the limited transparency of counterparty relationships".

Many examples of derivative-related bankruptcies have been exposed, which hugely destroy the public confidence in financial markets and regulatory regimes. In the UK in 1988, a local authority entered into apparently speculative interest rate swaps, in advisedly betting on falling interest rates and leaving the authority with significant commitments of over £500 million. In 1991, Allied-Lyons lost £150 million on foreign currency hedges. The mis-use of derivatives led to unexpected losses in Europe, where in January 1994 Metallgesellschaft, which is a metals,

[7] As a result, the US accounting standard setter, the FASB, launched its financial instruments project in 1986. In the introduction to the disclosure-based financial instruments standard, FAS 105 (1990). The project team stated that, "Many new financial instruments have been and will be created as responses to market volatility, deregulation, tax law changes and other stimuli" (FASB, 1986).

[8] The Financial Stability Board (FSB) is an international body that monitors and makes recommendations about the global financial system (https://www.fsb.org).

mining and oil group in Germany lost $1.6 billion on oil hedges. In 1995, the collapse of Barings Bank in the UK mainly due to misuse of derivatives trading in Japan shocked the business and regulatory communities and drew considerable attention from the business press (The Independent, 1995). The notional amounts of derivatives outstanding at the end of 1995 on a worldwide basis were $69.9 trillion, and in the United States, the notional amount was $23.7 trillion, more than three times the Gross Domestic Product (GDP) (US House of Representatives, 1997). Later in the same testimony, Levitt admitted to the "serious shortcomings of the previous accounting and disclosure guidelines", which meant that the use of derivatives was not visible to investors. This statement reverberated the famous commentary about the dangers of derivatives by Carol Loomis in Fortune Magazine, that ". . . like alligators in a swamp, derivatives lurk in the global economy" (Fortune Magazine, 1994). It became obvious to the wider business community and regulators that these instruments marketed as a vehicle for hedging risk could in fact have the opposite effect, paradoxically, increasing risk. Arthur Levitt made clear in his testimony that the SEC felt it was more appropriate, in spite of the many calls for restrictions on the use of derivatives, that the FASB instead "improve accounting principles applicable to these instruments." By the mid-1990s, many users include investors, regulators and standard setters were becoming acutely aware that an off-balance sheet treatment of derivatives was leading to "problems and abuses" (Butler, 2009).

As consequences of risk involved in financial derivatives, governments and authorities in many countries and at different levels of regulators have paid attention to the development of regulations for derivatives. However, there have been ongoing debates about the effectiveness of regulating derivatives instruments during the past decades. In the area of accounting, for instance as shown later in this Chapter, accounting standard settlers have made several amendments to standards in order to better standardise accounting treatments and disclosures of financial derivatives.

2.4 The Determinants of Use of Financial Derivatives

In terms of the determinants of the use of derivatives, the literature has presented inconclusive findings. Several interesting factors have been identified including value relevance of derivatives, managers' backgrounds, different levels of economic development, and corporate characteristics. It has been an empirical question for many years over if the use of financial derivatives hedging among businesses is actually effective in mitigating financial and

operational risk, and thus positively contributes to the performance of firm and firm value (Lau, 2016). The next subsection aims to discuss the value relevance of using financial derivatives and review the existing literature concerning the relationship between the use of financial derivatives and a firm's performance and characteristics.

2.4.1 The value relevance of derivatives

The firms use derivatives, it is often argued that, because of value relevance of derivatives, i.e., the use of derivatives contributes to firm value. Since the 1980s, the relationship between the use of derivatives and firm performance has attracted much attention. The prior literature has provided different pictures on the potential benefits of the use of derivatives in different settings. Most prior studies support the positive link between the use of derivatives and firm value and performance. In particular, the findings of such a positive relationship appeared strongly prior to the 2007/8 global financial crisis. For example, Guay (1999) finds that through the use of derivatives firms can better control the volatility of stock, interest-rate and exchange-rate than the firms that do not use derivative instruments. Greenspan (1999) notes that the value added of derivatives themselves derives from their ability to enhance the process of wealth creation.

Several studies have provided evidence on the relationship between the use of financial derivatives and market volatility of banks' stock returns and valuations. For example, a recent study by Titova et al. (2018) focuses on the usage of financial derivatives in European banks. The objective of their study is to examine the relationship between bank characteristics, in particular value, performance and volatility of bank stock returns, and its exposure to financial derivatives contracts. In this research, the initial sample includes 300 publicly traded European commercial banks. The study of Titova et al. (2018) is based on two datasets: Bankscope and manually collected information on derivatives use. The period covered ranges from 2005 to 2010. During this period, all banks and companies listed in the European Union had to prepare their financial statements in accordance with IFRS. Performing regression analyses to estimate the impact of derivatives usage on the value, performance and risk of banks in the sample, Titova et al. (2018) find that banks efficiently using hedging derivatives have a lower risk and a higher value. However, this relationship becomes less pronounced or is inversed in the post-crisis period and concerns both trading and hedging derivatives. For banks that are heavily involved in the use of derivatives, market volatility of their stock returns is higher and valuations are lower. Norden et al. (2014) show that banks use credit derivatives to improve

their credit risk management. Mayordomo et al. (2014) focus on the impact of financial derivatives on bank systemic risk and find that there is a strong evidence of certain types of derivative holdings acting as leading indicators of banks' systemic risk contributions. Donohoe (2015) finds that firms can use derivatives to avoid tax by providing insight into the economic incentives that drive the growing use of derivatives-based tax planning strategies.

Kwong (2016) presents a study about how the use of financial derivatives impacts firm performance. Kwong (2016) hypothesises that the market and financial performances of derivatives users are better than those of non-users. Although the firm market value (that was measured with both mean and median) of derivatives users was in general larger than that of the non-users, the multivariate test of Kwong (2016) provides evidence to the contrary.[9] Kwong's study finds that derivatives use has contributed to better performance on ROA (and ROE) – a significant driver of firm market value. The study also finds that the asset turnover of derivatives users has a more positive impact on their ROA and ROE than those of non-users.

Giraldo-Prieto et al. (2017) focus on finding evidence in Colombia on the effect of the use of derivatives on the market value of the sampled company. In this study, 39 companies were selected by the authors and used as the subject of statistical analysis from initially 195 companies listed in the Bolsa de Valores de Colombia (BVC) that were involved in operations with the use of financial derivatives. The authors carry out an estimation exercise to verify if the use of financial derivatives and other variables such as size, leverage, investment growth, level of exposure to international markets, profitability and geographical diversification have any effect on the generation of value in these companies, measured by Tobin's Q. They find significant evidence that the use of the derivatives is positively associated with the market value of the companies, and the use of derivatives seems to generate an approximate value of 6.4% (in the total sample).

[9] Kwong identifies 680 non-financial firms, listed on the main market of Bursa Malaysia from the Thomson Reuters Data stream, for which historical financial data was available for analysis. These firms represent approximately 85% of the 802 listed firms on the main market of Bursa Malaysia as at 31 December 2013, after excluding financial services firms, special purpose vehicles and closed end funds. As explained by Kwong, the financial reports of these firms were checked for derivatives information disclosures. The Bursa Malaysia required publicly listed firms to use IFRSs for their corporate reporting and disclosures via its listing requirements. Hence, the Malaysian publicly listed firms are statutorily required to disclose their investments and exposures in financial instruments, including derivatives contracts within their financial statements. As explained by the author, the financial reports, obtained from Bursa Malaysia's website in electronic format, were scanned for related words using the following search expressions: "derivatives, foreign exchange forward, forward foreign exchange, forward contract, forward exchange contract, futures, swap, commodity, commodities and options".

However, several recent studies present some different pictures. For example, Ayturk et al. (2016) exam the relationship between corporate derivatives use and the firm value in Turkey. The main aim of their research is to find the use of financial derivatives (including currency, interest rate and commodity derivatives) and its effect on firm value of non-financial Turkish firms from 2007 to 2013. Their data is collected from Borsa Istanbul web site, Public Disclosure Platform and Data stream financial database. The reason of their sample starts from 2007 is related to the effective date of IFRS 7 – Financial Instruments: Disclosures. Overall, they find that only 36.42% of the companies in the sample use financial derivatives to hedge their currency, interest rate or commodity price risks, and there is no significant hedging premium or discount for all Turkish non-financial firms. The authors use Tobin's Q ratio analysis with panel data models, Fama-French three-factor time-series analysis and single sector analysis. Except Tobin's Q ratio analysis, they could not find any significant hedging premium or discount for all Turkish non-financial firms, while they show a positive relationship between derivatives use and firm value only in the Tobin's Q ratio analysis with system GMM estimators. In addition, they also test the effects of currency hedging, interest rate hedging and commodity price hedging separately and find similar results as in the case of general derivatives use. Overall, the majority of their results imply that the use of financial derivatives does not affect firm value in the Turkish market. One of the research implications of this study is that corporate behaviours of using derivatives by firms in emerging economies may be different from firms in well-developed markets, such as US markets (e.g., Allayannis and Weston, 2001[10]; Pérez-González and Yun, 2013) and UK markets (e.g., Panaretou, 2013[11]).

In the setting of German non-financial firms, Ahmed et al. (2018) study the relationship between the usage of derivatives and the cost of equity. In their research, they examine the impact of hedging on the cost of equity capital. Their main goal is to investigate the impact of derivatives activities on firms' cost of equity capital by utilising hand-collected data comprising financial derivative instruments usage by a sample of German non-financial firms. Specifically, they compute the relative cost of equity of users and non-users and analyse the source of any

[10] Allayannis and Weston (2001) investigate the effect of foreign currency hedging on firm value by using a large US non-financial firms' data set from 1990 to 1995. They find a statistically significant positive relationship between derivatives use and firm value by conducting univariate analysis, pooled OLS and fixed-effects panel data models.

[11] Panaretou (2013) investigates the effects of hedging activities on firm value for the U.K. large non-financial companies. She finds that the hedging premium is 6% for foreign currency hedging.

difference between these two groups if there exists a difference. They next investigate if firm size and type of derivatives matter in the relation between derivatives use and the cost of equity capital. In addition, they have examined whether there is any significant change in the cost of equity experienced by firms that were non-users of derivatives instruments and later initiated derivatives programmes for risk management purpose. Finally, using a firm's probability of default, they study whether hedging reduces financial distress risk. In this study, they use hand-collected data by firstly obtaining the annual reports from 1999 to 2009 of publicly listed German non-financial firms available in English from firms' official websites, and then building keywords framework to search for information on derivatives use and hedging strategies in each of the annual reports. After that, they find about 70% of their firm-year observations have used derivatives instruments. Finally, the authors consider that despite the widespread use of derivatives for active corporate risk management, there is hardly any empirical evidence available regarding the impact of financial derivatives hedging on the cost of equity outside of a US setting. They also find that the reduction in the cost of equity of derivatives user firms is attributable to their lower market, size and value factor betas. In other words, a firm's use of derivative instruments is associated with the lowering of financial distress risk and this distress risk has a systematic component, which is priced in the cross-section of stock returns. Comparing to the finding of Ayturk et al. (2016) of 36.42% of Turkey's non-financial firms that use derivatives, this 70% finding clearly is an illustration of the huge difference between firms in developed and emerging economies with regard to the use of derivatives.

2.4.2 Managers' background and the use of derivatives

Managers personal characteristics and behavioural traits have recently been identified to be relevant to the use of financial derivatives. Beber and Fabbri (2012) provide a study showing that a manager's personal beliefs and individual characteristics can help explain a large share of the substantial time variation of derivatives use beyond firm characteristics and market fundamentals. They find that managers adjust derivatives notional amounts in response to past foreign exchange returns, as if they were forming views on future currency prices. They also find that firms, where the CEO holds an MBA degree, is younger and has less previous working experience, speculate more. Their study supports the view that overconfident managers taking more risk and using more derivatives. Cronqvist et al. (2012) document that CEOs' personal behaviour can also in part explain corporate financial behaviour of the firms they manage.

Graham et al. (2013) provide evidence that CEOs' behavioural traits (e.g., optimism and managerial risk aversion) are related to corporate financial policies, which affect the use of derivatives.

Interestingly, a recent study by Entrop and Merkel (2018) attempts to investigate the link between the educational background of firm managers and the use of foreign exchange derivatives as well as corporate speculation. More specifically, the main aim of their study is to extend the existing literature by investigating whether the educational background of a firm's managers is related to the amount that the firm uses foreign exchange derivatives and to corporate speculation on the foreign exchange market. They focus on the extent to which a research-dominated education background, as measured by a PhD qualification as the highest degree in research, plays a role in managers' decision making in corporate risk management. After controlling for fundamental firm characteristics, managers' compensation schemes and personal characteristics of the CFOs, they find that the educational background of executives is linked to both the level of a firm's foreign exchange derivatives holdings and to corporate speculation. They show "some evidence that CFOs with a PhD in a business-related area tend to use FX derivatives less, while CFOs with a general business education do so more" (Entrop and Merkel, 2018, p.1). Analysing the managers' behaviour with regard to speculation, Entrop and Merkel find strong evidence that CFOs with a PhD speculate less on the FX market compared to CFOs with another (business) education. They explain this finding as "a research-oriented education is more associated with critical awareness and long-term orientation in corporate decision-making that persuades managers to avoid overconfident behaviour" (ibid, p.1).

2.4.3 Different levels of economic development and economic environments

The levels of economic development and capital market development have been identified in the literature as key determinants of the use of derivatives. For instance, the reasons for the low level of use of derivatives in developing countries (particularly in the investment and the real estate industries) has been revealed in the literature, attributing to the low level of economic development and institutions' inability to deal with complicated risk involved in derivatives (Ameer, 2009; Said, 2017; Giraldo-Prieto et al., 2017; Nawaz et al., 2018). Indeed, the level of use of derivatives differs across countries as well as industries. Studying financial risk and derivative usage, Said (2017) attempts to identify the ways that the United Arab Emirate listed

companies manage their financial risk with the use of financial derivatives. The data of Said's paper comes from United Arab Emirate financial market. The first step is to collect the annual reports and financial reviews, and then the author identifies whether the companies employed derivatives to help them to hedge financial risks. In the third phase the author attempts to determine the types of derivatives these companies utilised against different types of risks. The study finds that 82.9% of selected companies in the United Arab Emirate stock market reported that they used at least one type of derivatives to manage the operation risk of companies. Companies within the hospitality, telecommunication and pharmaceutical industries reported that they used at least one type of derivatives. Moreover, this study shows that within the banking industry only 71% of institutions used financial derivatives. Almost 50% companies within the insurance, real estate, construction, industrial and energy industries did not use any derivatives. Particularly, the study reveals that low use of the financial derivatives within the investment and the real estate industries with the only 25% surveyed firms. Comparing to the use of financial derivatives in west developed economies, this figure is really pretty low. In the view of the author, derivatives as the risk management tools available for hedging real-estate risk are very much in their infancy in United Arab Emirate.

Kim et al. (2017) investigate the impact of corruption on financial derivatives use and firm value in East Asia. Their paper scrutinises the value effect of financial derivatives on domestic firms, domestic multinational corporations (MNCs), and foreign affiliates of foreign MNCs from different aspects of an environment of corruption in both home and host countries by using a novel and hand-collected data set. They choose non-financial firms as their research sample, which are across various industries in some countries in East Asia (including China, Japan, Singapore, Malaysia, Thailand, Philippines and Indonesia). Their data excludes financial firms as financial firms have different incentives for using derivatives comparing to non-financial firms. They classify their data as derivative users or non-users based on information about their use of derivatives. These results suggest that if regulators or policymakers in a given country want to foster the performance of non-financial firms with hedging activities, they should be more active in cracking down on corruption.

2.4.4 Corporate characteristics and tax savings determinants

Corporate characteristics (in particular firm size, the industry and leverage) have been widely identified as the determinants of financial derivatives use. Firm size is a major factor that

determines the use of derivatives. Firms with different sizes can choose different hedging programmes to suit their need. The previous literature reveals that different sizes of firms have used varying types of derivatives and different hedging programmes in line with the risk faced by the firms. For example, a recent study by Adam et al. (2017) shows that the choice of different hedging programmes is associated with firm size. Adam et al. (2017) seek to address why do firms engage in selective hedging with the use of a sample of 92 North American gold mining firms covering the period from 1989 to 1999. They find a negative relationship between selective hedging and firm size, implying that smaller firms speculate more than larger firms. This is rather interesting as many previous studies have often shown larger firms would use more derivatives for speculation purposes. They also find strong evidence that selective hedging is more prevalent among financially constrained firms, suggesting that this practice is driven by asset substitution motives. They detect weak relationships between selective hedging and some corporate governance measures but find no evidence of a link between selective hedging and managerial compensation.

The use of derivatives is also linked with the nature of their businesses with different kinds of risks. Financial institutions have generally used derivatives quite extensively (Titova et al., 2018). Titova et al. (2018) examine the usage of financial derivatives in European banks with a view to finding the relationship between bank characteristics (e.g., value, performance and volatility of bank stock returns, and bank exposures) to the use of financial derivatives contracts. In the case of Germany, Kuzmina and Kuznetsova (2018) find the use of derivatives is associated with the level of foreign exchange risks in the export-oriented companies. Kuzmina and Kuznetsova (2018) use hand-collected data from a sample of German public firms during 2011-2014 to show that firms use currency derivatives more often when they export or import, and especially when exchange-rate fluctuations are larger, but to a lesser extent when having high export and import shares simultaneously. In this study, they analyse German non-financial firms that were listed in the Prime Standard on the Frankfurt Stock Exchange during the period 2011–2014. The authors choose this sample of firms to explore hedging policies of firms because of the distinguishing features of Prime Standard listing, i.e., those firms are subject to an extended list of requirements including the highest level of disclosure and international transparency standards (e.g., the use of IFRS). They find that firms tend to use these derivatives more frequently when having more exposure to foreign-exchange risks, and especially in response to increased exchange-rate volatility. In addition, they also find that being a big exporter and importer at the same time reduces the likelihood of using such derivatives.

Guay and Kothari (2003) find evidence that larger firms with greater investment opportunities have a higher level of derivatives usage. The firm characteristics (in particular financial characteristics, such as asset portfolios, firm cost structures) and corporate strategies have been identified in the literature to influence the use of derivatives. For instance, Nance et al. (1993) show that firms using derivatives have less less-liquid assets and higher dividends, and there is a positive relationship between R&D expenditures and hedging. It is also shown that the cost of hedging activities is an important factor for the financial derivatives usage decision-making (Brown, 2001). However, internal budgeting, performance evaluation and analyst forecast error concerns significantly reduce the usage of derivatives for hedging purposes (Brown, 2001). Guay (1999) shows that the types of derivatives are highly correlated with hedging expectations besides the risk exposures of firms.

Nawaz et al. (2018) examine the relationship between the use of financial derivatives and firm performance in the case of Pakistan SMEs. A qualitative research methodology was employed by their research. The strength of the qualitative approach lies in its ability to provide rich data (Jack and Anderson, 2002). It provides a more realistic feel of the real world and flexible ways of collecting, analysing and interpreting data of the phenomenon under investigation (Lee, 1992). The authors justified the use of qualitative research with the following reasons. First, it can significantly aid for improving the credibility of the qualitative findings (Dick, 1998). Secondly, it allows the relative structured approach for categorising about what essentially needs to be incorporated within its reach in an initialising stage (Harif et al., 2011). Thirdly, it is data driven and emergent approach that provides a reliable, valid and rigorous data collection process (Harif and Hoe, 2016). Lastly, it permits the researchers deep data collection than several other interview types as they make effort to gain insight into the understanding of informant situations. They find 12 financial determinants of financial derivatives' usage (i.e., firm size, leverage, exchange rate exposure,interest rate exposure, liquidity, cash flow volatility, financial distress cost, reduction in taxes, firm value, agency cost, reduction in overall cost and un-invested cash). Particularly, in this study, there are two newly discovered financial determinants of financial derivatives usage including reduction in cost and un-invested cash.

In the setting of Australia, Nguyen and Faff (2002) find that a firm's leverage, size, and liquidity are important determinants of derivatives use, but many other variables do not show their

theoretically predicted significance. Berkman et al. (2002) also show size and leverage are key determinants of derivatives use for a sample of Australian companies.

Tax savings have also been identified as a determinant of the use of financial derivatives. Donohoe (2015) attempts to estimate the corporate tax savings from the use of financial derivatives. According to Donohoe (2015), while it is clear from government reports, anecdotes and academic studies that companies can avoid tax with derivatives, no study directly examines the economic tax effects of the use of these financial instruments. In order to test his hypothesis, the author selects samples meeting the following criteria: 1) publicly traded firms; 2) domestically incorporated firms; 3) firms from non-financial, non-utility industry; 4) at least three years of consecutive observations. All the samples come from Form 10-K. The author identifies two samples consisting of derivatives users and non-users. From 2000 to 2008 there were total 17,446 users. Author designs his research with the application of a regression method. Donohoe finds that firms using derivatives, comparing to non-users, have a 3.6 and 4.4 percentage point reduction in three-year current and cash effective tax rates (ETRs). The author also finds that an overall decrease in current and cash ETRs for firms that begin using derivatives, where the decline in cash ETRs equates to $10.69 million in tax savings for the average firm and $4.0 billion for the entire sample of 375 new derivatives users. All in all, these findings can be summarised that firms use derivatives to avoid tax by providing insight into the economic incentives that drive the growing use of derivatives-based tax planning strategies.

After reviewing all relevant literature, it seems no study has attempted to look at the influence of corporate risk management capability on the use of financial derivatives. This provides a research gap for this study. Before reviewing the risk management capability literature, this chapter discusses derivatives related disclosure and considers the development of accounting standards for financial derivatives. Such a discussion is important for this study as the case studies will use data that is from the cases' financial reports, which were prepared in accordance with the existing financial standards.

2.5 Accounting Standards for Derivatives

The wide use of financial derivatives has also called for the increasing transparency of derivatives information and valuation. It has led to the wide implementation of the derivative accounting guidelines under the International Financial Reporting Standards (IFRS) in many

countries worldwide as in most countries there was no specific guidance developed on accounting for derivatives before the 1990s. This section provides a detailed discussion on accounting for derivatives and derivatives disclosures. "Over the last few decades, the use of financial derivatives has increased exponentially, and consequently the accounting for these derivative instruments has evolved greatly. The development of accounting standards for derivatives is challenging. Perhaps not surprisingly, as a result of this growth, the role that derivatives play in the capital markets has garnered significant attention from researchers, regulators, and financial statement users" (Campbell et al., 2019, p.44). Efforts have been made at various levels involved policy-makers, the standard setters, investors and corporations.

2.5.1 The complex of accounting standards for derivatives

Along with the growth of financial derivatives, there was an increasingly demand for accounting standards to guide firms to value, measure and report on the activities and uses of derivatives as well as associated risks attached to the use of derivatives (Abdel-khalik and Chen, 2015). Given the complex of derivatives and so many aspects concerned, the accounting standards development for derivatives has been challenged tremendously since the 1980s. As documented by Campbell et al. (2019), the accounting for derivatives is inherently complex for a number of reasons. One reason is that the intent behind derivatives use may be different (as shown before it could be hedging or speculation), the decision to enter into a derivatives contract to hedge may be driven by an existing or potential risk exposure, which may or may not be recognised in the firm's accounting and reporting system, and the ability of derivatives to hedge the identified risk exposure may be imperfect or difficult to measure.

Indeed, it has been a long process for major accounting standard setters to develop widely-accepted accounting standards for derivatives as it involves many intertwined issues. The literature in the past two decades has well documented the long process and the difficulties faced by the accounting standards setters such as the FASB of the US and the IASB of IFRS standards setters (e.g., Nelson, 1996; Blankey and Schroeder, 2000; Lopes and Rodrigues, 2008). Studying a sample of 555 banks from eighteen developed markets from 2006 to 2015, Huan and Parbonetti (2019) find that the use of financial derivatives actually increased banks' risk, partially due to "suboptimal hedging to obtain hedge accounting status, or from accounting mismatches that generate volatility in earnings".

In the case of US, for example, the dynamic state of financial markets suggests the need to

develop "broad, general disclosure requirements about financial instruments" including financial derivatives (FAS 105, 1990). The view that high profile derivatives-related failures forced derivatives onto the standard setting agenda was supported by statements made by the US FASB in FAS 133: "Derivatives can be useful risk management tools, and some believe that the inadequacy of financial reporting may have discouraged their use by contributing to an atmosphere of uncertainty. Concern about inadequate financial reporting also was heightened by the publicity surrounding large derivative losses at a few companies. As a result, the Securities and Exchange Commission, members of Congress, and others urged the Board to deal expeditiously with reporting problems in this area" (FAS 133, 1998).

Yet, the financial derivatives accounting standards exercised a very important effect on the financial reporting of a firm. In the literature, there were many discussions on the impacts of these accounting standards on the firms with the use of derivatives and the investors' decision-making. The significance of these specific accounting standards is that they have changed the financial reporting world to a large extent. For instance, Butler (2009) focuses on this area and believes that "… it was the use of financial derivatives that signalled the end of pure cost accounting". All the standards, within the standard-setting community of the FASB and IASB, have a major reporting objective of derivatives, which is the use of economic methods resulted in 'good' financial reporting for uncertain items.

2.5.2 The significance of accounting standards for derivatives

Accounting standards for derivatives marked a milestone in the history of accounting standards development by introducing economic methods into the standards development (Ramirez, 2007; Lopes and Rodrigues, 2008). The presence of financial derivatives caused the accounting standard setters to reconsider the application of the traditional reporting framework. The reporting method that the standards setters chose introduced economic theory into a high-profile area of financial reporting. This financial reporting had far-reaching effects on the accepted form of knowledge in financial reporting. The attempt by the standard setters to introduce economic methods was indeed controversial and attracted much institutional opposition (Campbell et al., 2019). Basically, the main objects of these two accounting standards tended to pay attention on the effect of using fair values which it was argued, would exacerbate volatility in preparers' asset values and income (Bick et al., 2018; Hairston and Brooks, 2019).

It is well-known that significant changes in capital markets and risk appetites of investors provided an impetus for the development of an accounting treatment for derivatives (Haswell and Evans, 2018; Campbell et al., 2019; Hairston and Brooks, 2019). In reality, the development of derivatives and the high-profile bankruptcies due to the misuse of derivatives and frauds involved derivatives, put pressures on standards setters to consider a re-evaluation of measurement techniques used for financial instruments within financial reporting, although other kinds of financial instrument had already proved less problematic[12].

In the US, the FASB developed the main technical components of accounting for derivatives. Even though a standard is created by using economic methods originated from the work of the FASB, the change towards the introduction of economic representation in other jurisdictions was the result of the agreement of the technical components of FAS 133 by the IASB.

After the publication of IAS 39, the IASB then played a significate role in the introduction of economic methods for derivatives. This is because that their increasing jurisdictional reach, particularly after the mandatory adoption by EU listed companies of IFRS after 2005. Nowadays, most firms are aware of the functions of derivatives as they are increasingly using financial derivatives for hedging and trading. For this, a firm's financial statements have to report on the uses of these derivatives and disclose the valuation of derivatives, which is now required by financial reporting regulatory bodies in many countries (Graham and Rogers, 2002; Lopes and Rodrigues, 2008; Hairston and Brooks, 2018).

2.5.3 The two main derivatives accounting standards

This subsection mainly covers the standards from two main standards setters: the FASB of US and the IASB. In the earlier years, financial derivatives were kept off-balance sheet in most countries under individual countries' accounting standards (e.g., under UK GAAP, US GAAP and other national jurisdictions in Europe). From the beginning of this century, there have been some progress made in terms of the establishment of accounting standards for derivatives and the harmonisation or convergence of various standards (Hairston and Brooks, 2018). Most importantly, the related standards from US GAAP and IFRS (as well as voluntary users of IFRS) started from the 2000s dominated the process of accounting standards developments for

[12] For example, debt had traditionally been reported using amortized cost.

derivatives (Hairston and Brooks, 2018). Many other countries have largely adapted these two standards to set up their own standards for the treatment of derivatives (e.g., China).

2.5.3.1 Standards published by two main standard setters

Two main standard setters (i.e., the FASB and the IASB) have published standards relating to derivatives and derivatives related issues. For example, the FASB published SFAS 133 "*Accounting for Derivative Instruments and Hedging Activities*". The IASB published IAS 39 "*Financial Instruments: Recognition and Measurement*" in 1998. In general, the publication of these two standards were regarded to have a huge impact on the change of the environment of financial derivatives reporting. The standards have introduced strong economic representation into this area of financial reporting practice with a view to narrowing the scope of valuation and disclosure practices across the sectors and countries.

As the rapid development of the usage of financial derivatives in the 1990s and 2000s, financial scandals as results of the abuse of derivatives had a dramatic rise prior to the financial crisis in 2008. Some researchers (e.g., Austin, 2008; David and Victoria; 2008 Campbell et al., 2010) show that the catalyst of 2008 financial crisis was the outcome of the unregulated multi-trillion dollars over-the-counter credit default swaps market and related scandals. Therefore, accounting standard setters began to formulate the reporting requirement on information disclosures of financial derivatives activities.

In order to address public concerns on the derivatives and derivatives-related risk, the supervisory bodies across the world have also attempted to implement effective governance systems and improve financial reporting standards for financial derivatives (as shown in the literature, e.g., McDonough, 1993; Bodnar et al., 1996; Grant and Marshall, 1997; Blankley et al., 2002; Ramirez, 2007; Lopes and Rodrigues, 2008). Two main standard setters FASB and IASB have been working on projects related to financial instruments for much of the past 25 years. Unfortunately, the project seems to be unsuccessful as shown in Bean and Irvine (2015), as there have been more concerns from practice that disclosures are growing in length while decreasing in information value.

In the case of US, before the publishing of SFAS 133 "Accounting for Derivative Instruments

and Hedging Activities", the accounting treatment for derivative instruments had changed several times. In 1981, SFAS 52 "Foreign Currency Translation" stated that the accounting treatment for derivative instruments was mainly related to foreign currencies, for instance, forward exchange contracts and currency swaps. Then, in 1984 SFAS 80 "Accounting for Futures Contracts" built up the standards of accounting reporting for futures contracts. In general, "how to use derivatives" was the focus before the publication of SFAS 133. Companies need to recognise the derivative instruments at fair value on the balance sheet and also companies need to recognise any unrealised gains or losses on the income statement if this firm held derivative instruments for only trading purpose. For another case, if a firm held derivative instruments in order to control the risk (hedging) or forecast the prospect of transactions, the accounting treatment for the derivative instruments will be related to hedged items. The hedging instruments was recorded at historical cost (fair value) if the related hedged items were recorded at historical cost. However, if non-financial firms used derivative instruments for hedging purposes and the related hedged transactions were measured at fair value, their derivatives portfolios were recorded at fair value (which was negligible generally). FASB 161 "Disclosures about Derivative Instruments and Hedging Activities", as an amendment of FASB 133, was issued in 2008. The major objective of FASB 161 is to provide enhanced disclosures for derivative instruments and it can be summarised into three related issues: 1) how and why an entity uses derivative instruments; 2) how derivative instruments and related hedged items are accounted for under FASB 133 and its related interpretations; 3) how derivative instruments and related hedged items affect an entity's financial position, financial performance and cash flows. The statement requires that objectives for using derivative instruments be disclosed in terms of underlying risk and accounting designation. In other words, risk management disclosure needs to be related to the derivative instruments if a firm uses derivative products.

The IASB also worked on financial instruments disclosure standard in the past three decades. IAS 32 "Financial Instruments: Disclosure and Presentation" issued in 1995 states that financial instrument is a contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity, and also outlines the accounting requirements for the presentation of financial instruments. IAS 39 "Financial instruments: Recognition and Measurement" issued in 1995 focuses on how to recognise and measure financial assets, financial liabilities, and some contracts that involve buying or selling non-financial items. A definition of financial derivatives was presented in this standard. IFRS 7 "Financial Instruments: Disclosures" was first issued in 2005. In this standard, the standard setter required users to

disclose financial instruments associate with the nature and extent of risks arising from those financial instruments.

Under IAS 39 "Financial Instruments: Recognition and Measurement", a financial instrument is defined as any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity. A financial asset is any asset that is: (a) cash; (b) an equity instrument of another entity; (c) a contractual right; (d) a contract that will or may be settled in the entity's own equity instruments. A financial liability is any liability that is: (a) a contractual obligation; (b) a contract that will or may be settled in the entity's own equity instruments (IAS 32 "Financial Instruments: Presentation"). IAS 32 "Financial Instruments: Presentation" presented that financial instruments generally include shares, primary capital certificates, bonds, cash and financial derivative instruments. Table 2.1 provides the definitions of derivatives from different accounting standards.

In the US accounting standards, a derivative instrument is defined as a financial instrument or other contract with all three of the following characteristics: “1) It has one or more underlings and one or more notional amounts or payment provisions or both. Those terms determine the amount of the settlement or settlements, and, in some cases, whether or not a settlement is required; 2) It requires no initial net investment or an initial net investment that is smaller than would be required for other types of contracts that would be expected to have a similar response to changes in market factors; 3) Its terms require or permit net settlement, it can readily be settled net by a means outside the contract, or it provides for delivery of an asset that puts the recipient in a position not substantially different from net settlement” (SFAS 133).

Table 2.1: Definition of derivatives under different standards

Accounting Standards	Definition:
IAS 39	A *derivative is* a financial instrument: 1. Whose value changes in response to the change in an underlying variable such as an interest rate, commodity or security price, or index; 2. That requires no initial investment, or one that is smaller than would be required for a contract with similar response to changes in market factors; 3. That is settled at a future date.
SFAS 133	A derivative instrument is a financial instrument or other contract with all three of the following characteristics: 1. It has one or more underlings and one or more notional amounts or payment provisions or both. Those terms determine the amount of the settlement or settlements, and, in some cases, whether or not a settlement is required; 2. It requires no initial net investment or an initial net investment that is smaller than would be required for other types of contracts that would be expected to have a similar response to changes in market factors; 3. Its terms require or permit net settlement, it can readily be settled net by a means outside the contract, or it provides for delivery of an asset that puts the recipient in a position not substantially different from net settlement.

It seems that these two accounting standards above present more or less the same definition about derivatives. Overall, a derivative is a financial instrument with all of the following characteristics: 1) whose value changes in response to changes in an "underlying" price or index: an interest rate, a foreign exchange rate, a commodity price, a security price, a credit rating, or an index of any of the above; 2) that requires no initial investment, or significantly less than the investment required to purchase the underlying instrument; 3) that is settled at a future date (Ramirez, 2007). Derivative instruments usually include four specific forms: forward contracts; futures; options and swaps (Zhang, 2008).

There is an interesting feature in the case of derivatives reporting. The new derivatives standards introduced strong economic representation as follows: the immediate balance sheet recognition of derivatives, the use of economic methods of valuation (using either market values or economic models) and the recognition of changes in valuations for derivatives held for trading through the profit and loss account (i.e., income statement).

Table 2.2 provides a list of major derivatives-related accounting standards. Overall, as shown in the literature and previous studies, all the standard setters focused on amending derivatives-related accounting standards during the last 30 years.

Table 2.2. Main derivatives-related accounting standards

Accounting Standards Setters	Accounting requirements	Issue year
Financial Accounting Standards Board	SFAS 80 "*Accounting for Futures Contracts*"	1984
	SFAS 105 "*Disclosure of Information about Financial Instruments with Off-balance Sheet Risk and Financial Instruments with Concentrations of Credit Risk*"	1990
	SFAS 107 "*Disclosure about Fair Value of Financial Instruments*"	1991
	SFAS 119 "*Disclosure about Derivative Financial Instruments and Fair Value of Financial Instruments*"	1994
	SFAS 133 "*Accounting for Derivative Instruments and Hedging Activities*"	1998
International Accounting Standards Board (IASB)	IAS 32 "*Financial Instruments: Disclosure and Presentation*"	1995
	IAS 39 "*Financial Instruments: Recognition and Measurement*"	1995
	IFRS 7 "*Financial Instruments: Disclosures*"	2005
	IFRS 9 "*Financial Instruments*"	2009
UK Financial Reporting Standards (FRSs)	FRS 13 "*Derivatives and Other Financial Instruments - Disclosures*"	1998

In my study, London-listed companies are chosen for case studies with the purpose of examining the relationship between risk management capability and the use of derivatives of a firm. Therefore, IFRS 7 "Financial Instruments: Disclosures", which has been used as the basic standard in European countries since 2005, has been chosen as the main standard for this study.

In the past two decades, IAS 39 and FAS 133 continued to attract political and institutional opposition even after their publication. Yet, different standards have different emphasis as documented in the literature (e.g., Crawford et al., 1997; Dunne et al., 2003). As far as two standards (i.e., FAS 133 and IAS 39) are concerned, there are many similarities as well as differences. Concerning similarities, the aim of two accounting standards (i.e., FAS 133 and IAS 39) was to ensure the recognition of all derivatives on the balance sheet and to introduce the use of fair values based on economic theory for all such instruments after an initial recognition. The fair value of a traded derivative could easily be ascertained from the observed market price. For a non-traded derivative, fair value would be ascertained by reference to a similar category of instruments. If no similar category of instruments could be identified, the derivative valuation would be calculated using an economic model such as an option pricing model. In addition, both standards required immediate recognition in the income statement for periodic changes in the fair value of derivatives unless hedging rules applied. The US standard, FAS 133 states that: "An entity shall recognize all of its derivative instruments in its statement of financial position as either assets or liabilities depending on the rights or obligations under the contracts. All derivative instruments shall be measured at fair value". Similarly, in an introductory section of IAS 39 entitled "Greater Use of Fair Values for Financial Instruments", the standard states: "…significantly increases the use of fair values in accounting for financial instruments". In particular, the standard required the use of fair values for derivatives, which were up until this time "often not even recognised, let alone measured at fair value". In addition, embedded derivatives were singled out for attention. Both standards (i.e., FAS 133 and IAS 39) introduced the following requirements for the users of derivatives:

1) how and why an entity uses derivative instruments?

2) how derivative instruments and related hedged items are accounted for under FASB 133 and its related interpretations?

3) how derivative instruments and related hedged items affect an entity's financial position, financial performance and cash flows?

The statement requires that objectives for using derivative instruments be disclosed in terms of underlying risk and accounting designation. In other words, risk management disclosure needs to be related to the derivative instruments if a firm uses derivatives instruments. Companies need to recognise derivatives instruments at fair value on the statement of financial positions and also companies need to recognise any unrealised gains or losses on the income statement if this firm held derivatives instruments for only trading purpose. For another case, if a company held derivatives instruments in order to control risk (hedging) or forecast the prospect of transactions, the accounting treatment for the derivatives is related to hedged items. The hedging instruments are recorded at historical cost (fair value) if the related hedged items were recorded at historical cost. However, if non-financial firms used derivative instruments for hedging purposes and the related hedged transactions were measured at fair value, their derivatives portfolios were recorded at fair value (which was negligible generally).

Both standards required a strong economic representation of derivatives Whereas the US standard addressed only the reporting of derivatives, the IASC standard included within its scope all financial instruments, which included debt and equity securities in addition to derivatives. The wider scope of IAS 39 meant that its implementation was more problematic, as it attracted objections to the non-derivative elements as well as those concerning derivatives. It is also significant to note that the implementation of the standards was delayed significantly after their publication in 1998. The US standard was not implemented until 2001 and IAS 39 only became mandatory for EU publicly listed companies from 2005 (Dunne et al., 2003). The two main technical complaints directed at FAS 133 and the derivative-elements of IAS 39 related to rules for hedge accounting and the potential volatility caused by the use of fair values when hedge accounting was not permitted.

The standards were also viewed as extremely complex (Melumad et al., 1999; Dunne et al., 2003) and preparers argued that compliance would be costly. The FASB received more than 250 comment letters on the June 1996 exposure draft (ED) “Accounting for Derivatives and Similar Financial Instruments and for Hedging Activities”. An analysis of these letters by Boyd et al. (1996, p.249), which was published in the Journal of Financial Management and Accounting, reveals that 49% came from financial services firms, mostly banks, which were least likely to agree with the ED, with 77% being categorised as ‘disagree’. Typical of such negative comments are these made by Wells Fargo and Company that objected to the proposed standard on the grounds that: “The exposure draft would not produce decision-useful financial

information, would not provide a conceptually consistent model for the subject being studied, would not improve present practice, and would significantly add to accounting complexity." (FASB comment letter no. 177, quoted in Boyd et al., 1996). This demonstrates the extent of the technical concerns expressed by preparers.

When developing new standards in response to the growth of derivatives during the 1980s, standard setters faced choices over reporting methods relating to recognition, valuation and performance reporting. As revealed in several reports, the FASB and IASB found themselves struggling with the problem of how to report derivatives, specifically rules for recognition, valuation and the reporting of changes in value. It turned out that the solution they identified and which was publicised by FAS 133 and IAS 39 invoked financial economics through its use of fair values. If derivatives had not been seen to lead to a series of high-profile bankruptcies, there would have been less pressing need to incorporate economic representation into financial reporting. The perceived risks associated with unreported derivatives constituted a causal antecedent condition for the introduction of economic model-based valuations in this area of financial reporting. The International Organization of Securities Commissions (IOSCO) and IAS 39 (1998) have seen that the increasing use of derivatives, and associated bankruptcies in the business environment caused standard setters to include reporting standards for derivatives on their agendas. In the US, such environmental conditions led directly to the development of FAS 133 (1998). However, from the perspective of the IASC board, a more proximate and pressing cause for action led to the rushed development of the IASC's derivatives standard. In 1995, the IOSCO gave the IASC a 3-year deadline within which time the IASC had to develop a set of core standards, including a standard on financial instruments (including financial derivatives). The pressure from IOSCO at this stage acted as a proximate causal antecedent for the development of the IASC standard, although IOSCO was ultimately only responding itself to developments with derivatives in the US and other business environments. A former IASC board member at that time argued that the motivation of the IASC board was primarily, if not solely, to meet the IOSCO deadline. The fact that the IOSCO deadline drove the speed of development (and, in the end, the choice to copy the US standard for reasons of expediency) is consistent with the view that market concerns about derivatives acted as the fundamental driver for the development of the IASC standard.

It is generally recognised that concerns about risks associated with derivatives was the ultimate driver for development of the new standard (e.g., mediated by the IOSCO) (Ramirez, 2007).

The demands made by the IOSCO for essential standards, including the financial instruments standard, did not develop in a vacuum after all. The major motivation of the IOSCO to include the financial instruments standard would have been influenced by the update in financial derivatives. A 1996 joint report by the Basel Committee and the IOSCO, refers to the "exponential rate of technological and financial innovation, including notably the increased use of derivative products" (Basel Committee and IOSCO: Joint Statement for the Lyon Summit, 1996), and that "the IOSCO is working closely with the International Accounting Standards Committee and the International Auditing Practices Committee to promote the development and implementation of global accounting and auditing standards for international securities issuers as alternatives to the use of national standards" (ibid, p. 3). Finally, the fact that the FASB was influenced by problems relating to derivatives would have indirectly influenced the IASC's standard, which was effectively copied from the US standard. The existence of a derivatives standard in US GAAP would have been expected to lead to the development of such a standard by the IASC irrespective of the immediate demands of IOSCO, given that the derivatives were causing concern in both the US and EU business environments. The joint effort between these bodies promotes the development of derivatives accounting standards, paving the way for the harmonisation and convergency.

Given the progress of accounting standards setters of US and IFRS, various bodies in other countries have gradually adopted the approach based on economic theory. In the UK, the ASB stated that they wanted hedge accounting practice to converge towards the requirements set out in IAS 39. However, at the beginning, the UK standard on hedge accounting was still necessary even though admitting it should, ". . . as far as possible, adopt precisely the same words as IAS 39 . . ." for its standard. In the face of the belief that an independent UK standard was necessary, the development of ASB, FRED 23 (2003) was stopped by the development of IFRS for the EU. According to the project webpage, it shows that "FRED 23 envisaged that a final standard based on its proposals would come into effect early in 2003. However, the convergence proposals . . . have somewhat overtaken FRED 23 and, as a result, the ASB has no intention of taking forward the proposals in the FRED at this time" (ASB Discussion paper for FRED 23, 2002). At the outset, standard setters confronted important opposition from industries *inter alia* financial services (particularly banking groups) as they worried about the possible contraction in the demand for financial derivatives resulting from the accounting requirements to take these products onto the balance sheet. They lobbied the authorities and the EU with a view to blocking or significantly curtailing the requirements of the standards.

2.5.3.2 Main requirements and disclosure quality of IFRS 7

In order to improve the disclosures of financial instruments, including derivatives, the IASB sets up two main categories in IFRS 7. The first category is "Information about the significance of financial instruments", which requires users to provide the significance of derivatives for a company's financial position and performance in the financial statement. IFRS 7 requires users to classify financial instruments, so that it can help the company to group the information disclosure. Sometimes, companies also need to provide their accounting policies in order to explain their derivatives; however, not all companies comply with this requirement (Birt et al., 2013). Another category in IFRS 7 is "Information about the nature and extent of risks arising from financial instruments". Both qualitative and quantitative disclosures are required for companies. The qualitative disclosures require companies to disclose the risk for each type of financial instruments and their risk management policies for managing those risks. There are three requirements for quantitative disclosures: 1) companies are required to disclose summary quantitative data to each risk at the reporting date; 2) disclosures about credit risk, liquidity risk, and market risk and how to manage these risks; 3) concentrations of risk. However, some researchers show that the quantitative disclosures of off-balance sheet risks were always very formulaic. For instance, most companies do not provide specific information on credit quality of assets and the concentration of risk (Ernst and Young, 2008; Papa and Peters, 2011).

SFAS 133 "*Accounting for Derivative Instruments and Hedging Activities*" was issued by the FASB in 1998. As the primary directive with respect to accounting treatments for derivatives in the U.S., SFAS 133 requires that entities record all derivatives as either assets or liabilities at fair value and recognise unrealised gains or losses due to changes in fair value in their income statements. SFAS 133 relates derivatives and risk management, and this standard has also generated some debates on the relationship between derivatives and risk management. Some researchers (Melumad et al., 1999), believe that derivatives will create new risks which are not recognised under historical-cost accounting. They argue that fair value-based recognition will help derivative users to make prudent risk management strategy. However, some opponents (e.g., Sapra, 2002) of the standard argue that using derivatives will help users to hedge their inherent business risk and therefore fair value measurement may produce new problems, for instance, the higher short-term earnings volatility. Sapra (2002) shows that increased reporting

transparency may actually induce a firm to take an excessive speculative position. One controversy of SFAS 133 focuses on whether SFAS 133 can affect a firm's risk management activities. Singh (2004) finds that there is no obvious change in earnings volatility after the adoption of SFAS 133. The same conclusion was also drawn by Park (2004), while Zhang (2009) finds that the interest rate risk exposure, foreign exchange rate risk exposure, and commodity price risk exposure decrease significantly following the adoption of SFAS 133.

Concerning the regulations and accounting standards for derivatives, there has been ongoing debate about the appropriateness of regulatory and accounting treatment for financial derivatives since the 1990s. For instance, accounting standard settlers have made a number of amendments to the standards with a view to regulating the reporting and measuring of financial derivatives instruments. Firstly, ISA 32 was introduced to set out the definitions of financial instruments, financial assets and liabilities among others, which was based on the standard of US SFAS 133 in terms of many aspects involved, e.g., measurement, recognition, derecognition and hedging rules for financial instruments. In 2006, IFRS 7 "Financial Instruments: Disclosures" which contains disclosure requirement was issued and IAS 32 was changed to "Financial Instruments: Presentation" as a new standard. After the global financial crisis in 2007/2008, IAS 39 came under much criticism that incurred loss model about financial instruments is far behind to meet the requirements of users about the real situation of financial instruments. Thus, amendments to ISA 7 and IAS 39 were implemented with a view to making standards simpler and more convenient to adopt and use.

The introduction of IFRS 9 replacing IAS 39 was considered as one of the most noteworthy changes in the accounting treatments for financial instruments in history. The new standard has contained a package including a logical model for classification and measurement, a single, forward-looking "expected loss" impairment model and a substantially reformed approach to hedge accounting (IFRS, 2014). IFRS 9, which expects to be effective for annual period beginning on and after 1 January 2018, provides the principles for recognising and measuring financial assets, financial liabilities and mandates initial fair value measurement for financial derivatives instruments. IFRS 39 provides a definition of fair value as: "the amount for which an asset could be exchanged, or liability settled, between knowledgeable, willing parties in an arm's length transaction". Nonetheless, IFRS 13 amends this definition. "Fair value" is defined in IFRS 13 as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date" (KMPG 2012).

IFRS 13 states that estimating the price of an asset or a liability at the measurement data under current market conditions is the primary objective of measuring fair value, according to IFRS (2012). IFRS 13 specifies that fair value is a market-based measurement with three valuation approaches at market approach, income approach and cost approach. Market approach is based on prices and other relevant information about identical or comparable assets that are generated by market transactions, while income approach basically refers to discounting future amounts and cost approach means to use current replacement cost (Ernst & Young, 2008).

In sum, the development and innovation of financial markets, financial instruments become more and more significant for companies over the past two decades (Hwang, 2002). Accordingly, accounting for financial instruments has attracted much attention of regulators, practitioners and academics. The accounting standards setters attempt to improve reporting and disclosure of derivatives transactions through the issuance of financial reporting standards. In general, these standards require recognition of gains or losses on trading purpose derivatives, and disclosure of notional principal amounts, credit exposures, and fair values of trading and nontrading derivatives.

Overall, under the IFRS, firms are required to disclose whether they use derivative contracts or not for hedging or trading purposes. Further, the IFRS asks firms to provide information about the probability of risks they face and the actions they have taken to properly handling them. After the publication of Statement of Financial Accounting Standards (SFAS) No. 133 "Accounting for Derivative Instruments and Hedging Activities" by the U.S. Financial Accounting Standards Board (FASB) in June 1998, there has been a significant increase in debating benefits and risks involved in the use of derivative instruments as well as the disclosures of derivatives related information in financial reporting.

2.6 Derivatives-related Disclosure

2.6.1 The level of derivatives disclosures

As shown previously, over the past three decades, accounting standard setters have put considerable efforts in mandating publicly-listed firms to disclose key information about their derivatives use and risk management practices (including managing of derivatives-related risks). For example, the IFRS issued major standards on accounting for hedge transactions; most notably IFRS 7 (2005) "Financial Instruments: Disclosures", and IFRS 9 (2009) "Financial Instruments". In the United States, the SEC requires all publicly listed companies

to disclose information about derivatives-related risk. The Financial Reporting Release No. 48 (1997) mandates firms to report forward-looking numerical measures of their market risk exposures related to financial instruments and derivatives.

Hodder et al. (2001) and Huang and Gao (2014) reveal that the requirements on accounting and reporting treatments for derivatives are complicated and as a result it is difficult for investors to understand the disclosures of companies' derivative activities. It is also noted that prior studies mostly focus on the extent or conditions for the derivatives disclosures under IFRS or SFAS standards (e.g. Zhang, 2008; Huang and Gao, 2014; Bean and Irvine, 2015). In order to benefit from the use of derivatives, firms need to control derivatives-related risks and disclose associated risk and firms' risk management practices. Johansen and Plenborg (2013) identify that high users demand for derivatives disclosure coupled with comparatively low user satisfaction and therefore call for more research on why the user's satisfaction is low and how to improve the satisfaction.

Since the 1990s, especially after the publication of Statement of Financial Accounting Standards (SFAS) 133 by the U.S. FASB, there has been increasing interest in debating benefits and risks involved in the use of derivatives instruments as well as the disclosures of derivatives related information under the regime of financial reporting. Typically, there has been a significant increase in research publications relating to accounting for derivatives and derivatives disclosures. Most prior studies indicate that improved and better disclosures of derivatives reduce information asymmetry, which would finally benefit capital markets. In addition, better quality of disclosure expects to lead to a greater liquidity of the stock, which expect to raise demand from large investors and likely result in a decrease of a firm's cost of capital. A study by Levine (2012), for instance, states that the disclosure of derivatives-related accounting information can help to reduce information asymmetry, shed light on the volatility of stock returns. Such information can also be a useful indicator for both domestic and foreign investors in making their choices of use/trading of derivatives.

Having reviewed and characterised accounting literature on disclosures to develop a firm's disclosure theory, Verrecchia (2001) argues that information asymmetry between stakeholders and management reduction is the starting point of developing a comprehensive theory of disclosures. Ernst and Young (2008) present that qualitative disclosures should include a narrative description of different kinds of risks as well as the fund is exposed to and how they

arise. Woods and Marginson (2004) believe that previous accounting disclosure practices on derivatives financial instruments were limited prior to the new reporting regime such as SFAS 119 and 133, and IFRS 7. After issuance of SFAS 119, Edwards and Eller (1996) analysed the top ten US dealer banks' annual reports, and found that the depth of both the qualitative and the quantitative disclosures of financial derivatives had improved.

In terms of the information function of derivatives disclosures, Strouhal et al., (2010) reveal that the low level of information provided for derivatives and derivatives-related transactions can turn derivatives financial instruments into a potential source of private information and furthermore to abnormal returns and not to forget inefficiency of the market. In their view, market participants do not have access to the information they need for their decision-making processes. According to Lopes and Rodrigues (2008), some economic sectors can have greater institutional pressures for disclosure of information than others. The annual report of a company is actually the way of conveying useful information for potential stakeholders to decide about investments, credits and other issues (Amran et al., 2009). Derivatives disclosure is a part of annal report, offering information about a firm's use and valuation of its use of derivatives and risk involved. This study will analyse six cases' disclosure of derivatives and establish a link between a firm's risk management capability and the use of financial derivatives.

Overall, prior research has shown the progress of derivatives disclosure among firms in main industrial countries following the release of accounting standards on derivatives. The level of voluntary disclosures of derivatives-related information has been increased across both firms and industries, in particular in the setting of developed economies. A number of factors have been identified to influence the level of derivatives disclosures of a firm. Lopes and Rodrigues (2008) find that the derivatives disclosure degree is significantly related to four factors, including size, type of auditor, listing status and economic sector respectively.

2.6.2 The quality of derivatives disclosure

The quality of derivatives disclosures has been improved since the publication of new accounting standards (e.g., IFRS 7 and SFAS 133). Prior to the standards, as shown by Chalmers and Godfrey (2000), companies did not disclose much details about derivative accounting policies, which make information less useful and not comparable. They show there were diversity in terms of clarity, details and consistency of companies' disclosures about the

classification of accounting policies for derivatives. Bischof and Ebert (2014) examines the effects of IFRS 7 adoption on disclosure practice from a sample of 171 banks from 28 different countries around the Europe, and finds that the level of disclosures has significantly increased after the year of the standard's first-time adoption. This is because of both a more extensive description of accounting policies and a more elaborate disclosure of information about exposures to significant risks. In a cross-country study, Ragini (2012) reveals that the countries under study (for example, India, US, and Japan) have significant improvement in their overall disclosure scores where Japanese companies have shown the maximum improvement of 59 percent in the overall disclosure scores followed by the US (42 %) and Indian companies (31%).

However, there is no consensus as to the value relevance of derivatives disclosures and particularly the trade-off between the cost incurred for the disclosures and the benefits generated from derivatives disclosure. Some prior studies (e.g., Adznan and Nelsn, 2014; Ahmed et al., 2004; Ameer, 2009; Jorion, 2002; Liu et al., 2004; Wang et al., 2005) argue that the compulsory derivatives disclosure is value-relevant. The disclosed information also provides a huge convenience for the investors to evaluate corporate financial performance and effects of associated derivatives activities. Hence, these disclosures can assist investors to manage their investment activities. Under the U.S. GAAP, some researchers (e.g. McAnally, 1996; Wang et al., 2005) provide evidence that the notional values of derivatives are significantly relevant to the equity valuation, and the notional principal amounts of derivatives (especially futures, forwards, options, and swaps) are positively related to equity valuation. Barth et al. (1996) document that the fair value estimates of securities, loans and long-term debt disclosed under SFAS 107 "Disclosures about fair value of financial instruments", are value-relevant to equity valuation.

In contrast, some studies find that there is no reliable evidence that the derivatives disclosures are relevant to company valuation. For example, Seow and Tam (2002) reveal that the disclosures of notional principal amounts of derivatives are not relevant to company valuation. Bean and Irvine (2015) show that derivatives disclosures are useful to some extent; but because of the formulation of disclosures, most analysts were not satisfied with the level and quality of disclosures. They prefer to make existing disclosures less generic and more company specific. Huang and Gao (2014) examine the usefulness of derivative disclosure from the perspective of Chinese institutional investors in relation to their investment decision-making. They find that derivative disclosure is related to the decision-making, however, the 'current' provisions of

derivatives-related information by Chinese quoted entities are unsatisfied and the disclosure policies are very difficult for the investors to understand. Other studies (e.g., Nelson, 1996; Reynolds-Moehrle, 2005) argue that there is no relationship between the disclosed derivatives-related information and the market response.

To summarise, prior literature in relation to financial derivative disclosures can be divided into two main branches. In the first branch, researchers try to examine the current situation (e.g., the level) of derivative disclosures, and in particular studies attempt to analyse the compulsory derivatives-related disclosure requirements in the companies' annual reports (e.g., Edwards and Eller, 1996; Roulstone, 1999; Blankley et al., 2002; Bhamornsiri and Schroeder, 2004; Lajili and Zeghal, 2005; Dunne et al., 2007; Lopes and Rodrigues, 2008; Othman and Ameer, 2009; Hughes et al., 2011; Oliveira et al., 2011; Savvides and Savvidou, 2012). The main purpose of these studies seeks to find whether companies that have claimed to comply with the derivatives disclosure standards actually provide required information about the derivatives-related activities in their annual reports. Findings of these studies can be generally summarised into two groups: 1) Standards of derivative disclosure are effective. Most companies improve both quality and amount of information about their derivatives-related activities in annual reports after the compulsory derivative regulations were issued. 2) the disclosure of derivatives-related activities has still not achieved the expectation required by investors. The second branch focusing on value relevance and usefulness of derivatives disclosures (i.e., the quality of disclosures) attempts to study whether derivatives disclosures can benefit the disclosers and users and whether derivatives disclosures may affect managers' decision-making. Although the majority of prior literature documented the relevance of derivatives disclosures to the market response and investors' decisions, the findings are still mixed due to several studies revealed no relationship between the disclosures of financial derivatives and firm value.

2.7 Summary

This chapter has provided a discussion of financial derivatives and the main types, the corporate use of financial derivatives, the determinants of financial derivatives use, accounting standards for derivatives, and derivatives-related disclosures. It can be summarised that in general derivatives come in different forms, ranging from standard contracts to exotic contracts, from formal to informal, from regulated to unregulated. Basically, financial derivatives can be divided into four types: forward, futures, option, swap. Each type of derivatives has different

characteristics, and all these four derivatives can be used for hedging and speculation purposes. Hedging purpose is the most common method for firms and investors to use financial derivatives because they always want to manage financial and operational risks. This chapter provides a review of previous studies into various aspects of hedging and speculation as well as risks of use of financial derivatives. It also presents a review of some prior studies on the motivations of using derivatives with a view to highlighting the importance of financial derivatives to the corporate world, as well as reflecting the potential significance of this study by establishing the link of risk managerial capability with the use of financial derivatives.

In this chapter, the development of accounting standards for the derivatives and the debates on accounting for derivatives and derivatives disclosures have also been presented. Accounting provides useful information for the users of information to make decisions. The firms that use financial derivatives are required to provide information to their external users and such disclosures have attracted much research interest, in terms of the relevance of disclosures to the market value of a firm and the impact of such disclosures on the investors' behaviour. It should be recognised that accounting for derivatives has been a difficult topic because of the complex of issues involved in terms of valuations, measurements and uncertainty of derivatives. In this chapter, a review of the academic research on the value relevance of derivatives disclosures is also provided showing mixed results from the prior studies.

Chapter 3: Literature Review II: Risk Management and Management Capability

3.1 Introduction

This chapter provides a review of the literature relating to risk management and management capability. This study is concerned with risk management capability and the use of financial derivatives. One of the main topics is risk management capability, which is closely related to management capability. Because the existing literature has not been very limited in addressing issues of risk management capability, the review will mainly focus on risk management and management capabilities.

This chapter is organised as follows. Firstly, it considers risk management and risk management theories with a focus on fundamental risk management theories – the Modigliani and Miller theory and the link between corporate risk management and the use of financial derivatives. Section 3.3 is concerned with risk and risk management disclosures. Risk and risk management disclosures have been widely considered to be important for investors as part of transparency and it can help a firm to reduce the cost of capital. This section covers current studies of risk and risk management disclosures, the impact of risk management disclosures, and risk management disclosures and the use of financial derivatives. Section 3.4 focuses on management capabilities, reviewing the existing literature relating to management capability, dynamic management capabilities, factors influencing management capabilities and management capability and risk-taking behaviours. A number of factors have been identified in prior studies of their influences in a firm's management capabilities, including manager personal characteristics and background, corporate cultural, organisation objectives and strategies etc. Section 3.5 reviews prior literature on corporate governance and risk management capability, management confidence and risk management capability, and CSR and risk management capability, while Section 3.6 looks at the influences of management capability on firm investment, financing and financial reporting. The final section provides a summary.

3.2 Risk Management and Risk Management Theories

The theoretical frameworks for this study are derived from 1) risk management theory and 2) managerial ability theory (Yung and Chen, 2018). This section is going to discuss theoretical frameworks with a view to identifying the theories and norms that are relevant to the research

and can be used to analyse the impacts of risk management capabilities on the use of financial derivatives.

3.2.1 Risk and the capital market framework of Modigliani and Miller

In the literature risk has been described in different ways. For example, Cabedo and Tirado (2004) define risk as "a series of internal and external factors that condition a corporation's wealth, challenges, opportunities and threats". Schrand and Elliott (1998) refer risk to the potential for loss and opportunities, while Linsley and Shrives (2006) consider risk as the characteristic of any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure. Malz (2011) gives the explanation of risk referring to uncertainty about meeting goals or the potential loss and incomplete control over the outcomes of decisions. Therefore, risk management is one of the most important ways to identify these uncertainties and exposures that a firm faces in order to make better choices to achieve goals and meet them more effectively (Malz, 2011). Risk management is a complex area involving the interactions of various sources of capital and input, along with technology, regulation, governance and communication (Gao et al., 2013).

Corporate risk management theory begins with the perfect capital market framework of Modigliani and Miller (1958). The basic theorem of Modigliani and Miller states that in an efficient market where there is an absence of taxes, bankruptcy and agency costs, and asymmetric information the value of a firm is unaffected by how that firm is financed. Therefore, there is no need for managers of a firm to manage finance and finance risks as they are not value relevant. The firm risk management should concentrate on the management of operational risks and the focus of a firm's managers should be on the identification of positive investment opportunities. In theory, perfectly efficient markets present no arbitrage opportunities as there is no financial risk. Under no arbitrage opportunities, there is no need to use financial derivatives to hedge risk and firms cannot gain either through speculative trading of derivatives. In relation to arbitrage, Shleifer and Vishny (2012) define it as "the simultaneous purchase and sale of the same or essentially similar asset in two different markets for advantageously different price" (p.35). Only imperfect market conditions provide opportunities for arbitrage as the core of the transaction is benefiting value differences in numerous markets. Theoretically, arbitrage does not contain any risk, hence, the logic behind arbitrage strategies

for firms involved in using financial derivatives is to seize the opportunity to make gains by taking no risk. Nonetheless, practically arbitrage trades are not entirely risk-free transactions because of the requirement of certain amount of capital and the presence of settlement risk as well as transaction cost involved (Shleifer and Vishny, 2012).

3.2.2 Corporate risk management and the use of derivatives

Corporate risk management clearly is a very broad topic that has been researched extensively by academics from different fields. For instance, Gastineau et al. (2001) define corporate risk management as "a process of assessing and modifying trade-offs between reward and risk". This is because there is a common belief that higher expected returns are largely accompanied by a greater level of risks. Corporate risk management attempts to identify solutions about the relevant questions by using different methods, tools/instruments and strategies to prevent any falling in the firm value or to benefit from the advantages of making an appropriate decision about risks. The previous literature has recognised that risk-taking and risk management are an essential element of the role of a firm's management (March and Shapira, 1987). According to Aven (2016), contemporary risk assessment and risk management as a scientific field is young, not more than 30-40 years old. As criticised by Miller (1992), earlier literature on risk management focused on single types of risk while missing out on the interdependence to other risks. Only in the 1990s, the academic literature started to focus on an integrated view of risk management including enterprise risk management and strategic risk management (e.g., Miller, 1992; Miccolis and Shaw, 2000; Cumming and Mirtle, 2001; Sabato, 2010). In the beginning of this century, regulators and authorities across the world started to focus on developing some comprehensive risk management frameworks. The most impressive one is the Basel Committee on Banking Supervision (2008).

Risk management theory suggests that the use of derivatives for risk management purposes adds value to a firm[13] by reducing expected taxes and financial distress costs, by mitigating underinvestment and by allowing a firm to increase its debt capacity and take advantage of debt tax-shields without increasing risk.[14] However, managerial risk aversion motives may lead managers to use derivatives to engage in risk management activities in order to protect

[13] However, in the case of French firms, Khediri and Folus (2010) find that the derivative users have lower firm value (as proxied by Tobin's Q) than the nonusers.

[14] Section 2.3 provides a more detailed review of previous studies on the use of financial derivatives in hedging firm risks and the value relevance of use of financial derivatives.

themselves and not necessarily to benefit shareholders as argued by Stulz (1984) and Smith and Stulz (1985). The effectiveness of risk management depends on the results of decisions concerning various trade-offs. In the view of Gastineau et al. (2001), the risk management strategies can be categorised in terms of whether the trade-offs are done for the purpose of hedging, speculation and arbitrage within the context of using financial derivatives.

Derivatives are one of the most common financial instruments for financial risk management. The connection between firm risk management and the use of financial derivatives to hedge various risks has been documented in the literature. For example, Breeden and Viswanathan (2016) provide an asymmetric information model of hedging, showing that hedging is undertaken by a firm's managers with the higher ability who wants to lock-in the greater profits that result from that ability. Other studies include, for example, Liu and Parlour (2009), Adam et al. (2007), Mello and Ruckes (2005) and Loss (2012). Liu and Parlour (2009) consider the interaction between hedging and bidding in a winner-takes-all auction context in which hedging renders winning more valuable and losing more costly. They find that the ability to hedge with financial derivatives makes firms bid more aggressively because of running the risk of over hedging if they lose. Adam et al. (2007) investigate firms' risk management choices in an industry equilibrium in which endogenous output prices are a function of aggregate investment and hedging decisions. Adam et al. illustrate that a single firm's incentive to hedge increases if more firms in the industry choose not to hedge and vice versa. They also relate industry characteristics to the proportion of firms that hedge. Mello and Ruckes (2005) study optimal hedging and production strategies of financially constrained firms in imperfectly competitive markets. They find that oligopolistic firms hedge the least when they face intense competition and firms' financial conditions are similar. Similarly, Loss (2012) investigates risk management of competing firms facing credit constraints and finds that firms' hedging incentives depend on the correlation between the competitors' available internal funds to make profitable investments and on whether competitors' investments mutually reinforce or mutually offset investment returns. The reason is that hedging can ensure that firms optimally coordinate profitable investments and financing policies. This sort of studies indirectly assumes that firms' risk management activities are typically non-observable.

3.3. Risk and Risk Management Disclosures

Derivatives embrace various risk. Risk disclosure is relevant to the valuation of derivatives and

use of financial derivatives instruments. This section provides a literature review of risk and risk management disclosures.

3.3.1 Risk and risk management disclosures

Risk disclosure has been widely recognised as an important aspect for companies to improve their transparency and the literature has increasingly addressed various issues of risk reporting and disclosures, including risk measurement, risk management performance, risk reporting practices and value relevance of risk reporting. Corporate risk disclosure is defined as the reporting of the circumstances that may cause the value of a firm to increase or decrease as well as the measures that are introduced to minimise such risk (Hassan, 2009). Abdallah et al. (2015) note that a high-risk business always means a high-risk investment, and in order to reduce this inherent risk investors demand that financial statements include information that is relevant in helping to accurately assess the risks and uncertainties concerning a business enterprise's future cash flows and operating results. The similar views also appear in other studies such as Meier et al. (1995), Solomon et al. (2000), Abraham and Cox (2007), and Hassan (2014). The US SEC requires public companies to disclose information about risk. However, Abraham and Shrives (2014) reveal that many companies actually disclose little about their risk because they want to signal their good risk management practices and performance, resulting in less risk to be reported.

Elshandidy et al. (2018) provide a wide-ranging and up-to-date (1997–2016) review of the archival empirical risk-reporting literature. All the reviewed papers are classified by Elshandidy et al. into two principal themes: the incentives for and informativeness of risk reporting. Elshandidy's et al. (2018) review demonstrates the areas of significant divergence in the literature specifically: mandatory versus voluntary risk reporting; manual versus automated content analysis; within-country versus cross-country variations in risk reporting; and risk reporting in financial versus non-financial firms. Their review suggests that the current state of risk reporting regulation is at a similar stage to that to fair-value reporting regulation before the IASB issued a specific standard covering fair-value measurement and disclosure. Abdallah et al. (2015) investigate the impact of firm-specific and country characteristics on the corporate risk disclosure practices of firms in the Gulf Cooperation Council countries and find that Islamic financial institutions disclose less risk than do non-Islamic financial institutions.

A high-risk business always means a high-risk investment (Abdallah et al., 2015). So as to reduce this inherent risk investors demand that a company's financial statements include information that is relevant in helping to truthfully assess the risks involved. To improve the quality of risk reporting, the prior literature has proposed that companies should quantify the size of a risk wherever possible (e.g., Linsley and Shrives, 2000; Kim and Yasuda, 2018). The reason for this is that the placing of a monetary value upon a risk enables investors to assess its potential impact upon the company. The literature has also acknowledged that there are significant complications associated with quantifying risks because of a dearth of data (e.g., Elshandidy et al., 2018). Therefore, a risk measurement technique can obviously only be applied in limited circumstances, for example, when applying value at risk (VaR) methodologies (Dowd, 1998). Consequently, senior corporate managers often have to use best judgement to approximate the size of a risk. It is possible that the eventual risk outcome could be completely different from the original estimate. Kadous et al. (2005) note that apparently risk quantification of project proposals should have a positive impact upon the managers' persuasiveness as the credibility of the project is increased; however, their experiment-based research indicates that if the risk inputs to a project are subjective then non-quantification of the proposal is more persuasive. This is because the investor of the proposal is more concerned that the input subjectivity has enabled the preparer of the proposal to handle computations. As the quantification of risks is reliant upon highly subjective inputs, senior managers may want to avoid aggravating judgemental attention by the disclosure of estimates of the sizes of risks.

Within the risk reporting literature, the majority of studies examine the quantity of disclosure, typically measured using words/sentences or some forms of disclosure checklist. For example, Woods and Marginson (2004) use the 1999 annual reports of UK banks to evaluate the usefulness of disclosures from a user's perspective. Their findings suggest that the narrative disclosures are generic in nature, the numerical data incomplete and not always comparable, and that it is difficult for the user to combine both narrative and numerical information in order to assess the banks' risk profile. Lajili and Zeghal (2005) examine risk information disclosures in Canadian annual reports to provide insights into the current risk disclosure environment, its characteristics and the analytical usefulness of the information disclosed to the firm's stakeholders. Their results show that a high degree of risk disclosure intensity reflecting both mandatory and voluntary risk management disclosures. However, the analytical power of such disclosures, as captured by the risk assessment analysis, appears to lack uniformity, clarity and quantification, thus potentially limiting their usefulness. Linsley and Shrives (2006) seek to

examine firms' risk reporting practices and explores risk disclosures within a sample of 79 UK company annual reports using content analysis. As a result, they find that a significant association between the number of risk disclosures and company size. In addition, a significant association between the number of risk disclosures and level of environmental risk as measured by EcoValue‘21TM Ratings’. However, no association is found between the number of risk disclosures and five other measures of risk: gearing ratio, asset cover, quiscore[15], book to market value of equity and beta factor. The results of a sample survey of UK institutional investors (Solomon et al., 2000) provide support for the FASB and ICAEW view, as a significant number of respondents to the survey agreed that directors needed to provide more detailed risk disclosures rather than generalised statements of risk management policy. In identifying risk disclosures to be deficient, the institutional investors acknowledge that it is important to be able to assess the risk profile of a company and this is only possible if relevant risk information is provided (Linsley and Shrives, 2006). Abraham and Shrives (2014) develop a model for assessing the quality of risk disclosures and apply the proposed model to test the existing risk disclosures. As a rustle, they suggest that company managers prefer providing disclosures that are symbolic rather than substantive.

The literature has well documented the growing interest of academic research and practice of reporting on risk management by firms. For the last 20 years, standard setters put considerable efforts in mandating public firms to disclose key information about their risk management practices. Typically, in the U.S., the FASB 133 and IFRS 9 are the major standards on accounting for hedge transactions and related risk management concerned. The Financial Reporting Release No. 48 (1997) requires firms to report forward-looking numerical measures of their market risk exposures related to financial instruments and derivatives. In recent years, these standards have been amended multiple times. Zhang’s (2009) study attempts to find if there have been some changes of risk management disclosure after the published of SFAS 133. Zhang finds that there was a huge change for the speculator firms for their risk management disclosure, but there was no obvious change for the effective hedgers. Ahmad et al. (2015) attempt to measure the level of risk management and internal control disclosures for Malaysian listed firms and also to measure the relationship between the board characteristics and risk management and internal control disclosures level among Malaysian public listed firms. They

[15] “The quiscore measures the likelihood of company failure and is based upon the analysis of a number of financial and non-financial factors for individual companies” (Linsley and Shrives, 2006, p.394).

find that the disclosure level reflects good compliance level among public listed firms and indicates that the board characteristics are effective in monitoring role on risk management and internal control disclosure among Malaysian public listed firms.

Overall, searching the literature tells that research on risk reporting has increased significantly over the past decades. Much of research has focused on the standards of the risk reporting practices of publicly traded firms in developed countries (e.g., Linsley and Shrives, 2006; Iatridis, 2008; Elshandidy et al., 2013), and others focus on the risk reporting practices of publicly traded firms in emerging economies (e.g. Amran et al., 2009; Elkelish and Hassan 2014). Although risk reporting is potentially of interest to a wide range of user groups, recent research has also indicated that current risk reporting is unhelpful and does not convey real meaning (Camphell and Slack, 2008).

3.3.2 The impact of risk management disclosure

Accordingly, there have been growing interests in empirical research on the impact of risk management disclosures, particularly due to the complexities of the business world and the significance of risk involved in the use of financial derivatives, which require firms to provide detailed information on firm risk management policies and practices (Lajili and Zeghal, 2005).

Aebi et al (2012) examine whether the presence of a chief risk officer (CRO) in the executive board of a bank, the line of reporting of the CRO, and other risk management-related corporate risk governance positively affect bank performance during the recent financial crisis of 2007/08. They find that banks, in which the CRO reports directly to the board of directors, perform significantly better in the financial crisis while banks in which the CRO reports to the CEO perform significantly worse than other banks. This is an interesting finding as it has implications for corporate governance policy design. There has not been quite clearer in terms of the role of CROs and their specific responsibility. Although many firms have established the post of CRO, whom to report is not quite clear as in many firms CROs only report to senior managers, not the board of directors.

Risk management is closely related to hedging strategies. Therefore, the relationships between risk management disclosure and hedge and hedging disclosures have attracted much interest in the literature. For example, Kanodia et al. (2000) investigate the desirability of risk

management disclosures and their informational effect on financial derivatives prices. The results of Kanodia et al. (2000) show that the disclosure of hedge decisions and activities does actually improve price efficiency in the futures market and industry output. Sapra (2002) studies hedge disclosures with a focus on the trade-offs between production and risk management distortions and finds that mandatory hedge disclosure drives a firm to take extreme positions in the futures market. Hoang and Ruckes (2016) explore the real effects of hedge disclosure requirements on firm risk management practice and the firm's competitiveness. They examine the interaction between additional mandated hedge disclosures, corporate risk management, and pre-entry product-market competition and find that mandating disclosure of a firm's risk position not only reduces entry rates, but impacts hedging decisions that may have other private and social welfare effects.

Abdallah et al. (2015) explore the impact of firm-specific and country characteristics on the corporate risk disclosure practices of firms in the Gulf Cooperation Council countries. They find that Islamic financial institutions disclose less risk than do non-Islamic financial institutions. Madrigal et al. (2015) study the determinants of corporate risk disclosure in large Spanish companies. Their study intends to identify the factors that explain the extent to which a sample of 35 listed Spanish firms disclose risk-related information. Madrigal's et al. (2015) study focuses on the risk disclosures made in the corporate governance reports during the year 2009[16]. Using the content analysis technique, an index was developed with a view to assessing the amount and quality of the risk information disclosed by Spanish companies. As explained by Madrigal et al. (2015), several characteristics were selected and their influence on the level of risk disclosure was tested empirically. Madrigal et al. (2015) applied regression to test several hypotheses against the dependent variable of risk disclosure. Independent variables include organizational size, profitability and industry membership. They find that sector and risk level are positively related to the extent of corporate risk disclosures.

Interestingly, another study by Semper and Beltrán (2014) was also conducted in the context of Spanish companies, but it shows different results. Semper and Beltrán (2014) study risk disclosure and cost of equity in Spanish firms. The objective of Semper and Beltrán's (2014)

[16] Their study is based on the firms quoted in the IBEX-35 index during the first semester of 2008. The IBEX-35 is a stock market index composed of the thirty-five most liquid Spanish stocks traded in the continuous market. The IBEX-35 index was chosen because it is used as a reference for the Spanish stock market (both at national and at international level). Additionally, all the Spanish companies listed on the New York Stock Exchange (NYSE) belong to the IBEX-35 index.

study is to contrast whether or not the cost of equity for the company is related to its financial and non-financial risk disclosure. The sample used to test the hypothesis comprises data from non-financial companies listed on the Madrid Stock Exchange from 2007 to 2009. Companies for which there were no profit forecasts were eliminated from the sample as forecasts were needed to estimate the cost of equity. Companies for which there was no accounting data were also eliminated. Similarly, the authors also apply regression analysis with the dependent variable of cost of equity and the independent variable of risk disclosure index. The results of their study show that there is no statistically significant relationship between the latter and the cost of equity; and a statistically significant relationship, with a positive sign, between this cost and financial risk disclosure. As suggested by Semper and Beltrán (2014) company risk disclosures appear to introduce unknow contingencies and risk factors rather than only update information about known risks.

In Japan, the research findings are different. A recent study by Kim and Yasuda (2018) focuses on the business risk disclosure and firm risk in Japanese firms. The major aim of Kim and Yasuda's study is to find out the relationship between business risk disclosure and firm risks. Their sample includes Japanese listed companies in fiscal years 2002 and 2003, this is because in Japan mandatory business risk disclosure started in fiscal year 2003. Kim and Yasuda (2018) select companies listed on the first section of the Tokyo Stock Exchange and they exclude those whose fiscal year did not end in March so as to eliminate any possible differences arising from various year-ends. In addition, they exclude finance-related companies (i.e., those involved in banking, securities, insurance, and other financial businesses) as those industries are highly regulated, and substantial differences exist between financial services sectors and other industries. Their final sample comprises 1799 observations. They collect financial data from the NEEDS Financial QUEST. They obtain daily stock return data from the ASTRA manager database. To examine the effects of business risk disclosure contents on a firm's risk, Kim and Yasuda (2018) categorise the contents of business risk items. They use *the number of business risk items* as a main measure of risk disclosures to indicate the amounts of business risk disclosure because they focus on the effects of overall risk disclosure on firm risk. Kim and Yasuda find that the introduction of mandatory business risk disclosure has had a decreasing impact on total risk, suggesting that an increase in business risk disclosure reduces a firm's cost of capital, which is contrary to the results of previous studies. They also find that there is a positive relationship between the number of items in business risk disclosure reports and total risk, indicating that business risk disclosure has an increasing impact on investors' assessment

of firm risk. Although the two effects offset each other, the effects of enhanced disclosure of business risks on reducing the cost of capital exceed the effects on increasing the cost of capital. In this sense, their empirical evidence rejects the criticism that business risk disclosures suffer from possessing a boilerplate nature and that it has policy implications for financial reporting and disclosure regulation.

The literature has also shown different value relevance of risk disclosures between larger firms and SMEs, across different sectors with different market conditions. For example, Miihkinen (2013) presents a research conducted in Finland concerning the usefulness of firm risk disclosures under different firm riskiness, investor-interest, and Finnish market conditions. Miihkinen's (2013) research examines whether the mandatory risk disclosures provided in firms' annual reports contain useful information to investors and whether the usefulness of this type of information depends on contingency factors related to firm riskiness, investor interest, and general market conditions. They retriev the target sample of firms and data on variables from the Thomson One Banker Financial and IBES databases and from the register of Euroclear Finland Oy. The risk disclosure data were handily collected. The research population consists of 504 firm-year observations of the firms quoted on the OMX Helsinki in 2006–2009. Regression method is used to analyse the data. The dependent variable is spread a volume, and the independent variable are contingency factors. The research demonstrates that the quality of risk disclosure has a directly negative influence on information asymmetry. The study also documents that risk disclosures are more useful if they are provided by small firms, high-tech firms, and firms with low analyst coverage. Miihkinen (2013) also finds that momentum in stock markets affects the relevance of firms' risk reports. Studying risk disclosure practice of Chinese companies, Tan et al. (2017) pay particular attention to the factors of international orientation and share price informativeness by examining the impact of textual risk disclosure on the amount of firm-specific information incorporated into share prices (which was measured by stock price synchronicity). The sample of Tan et al. (2017) covers the five-year period from 2007 to 2011 with a total final sample of 5433 observations. Tan et al. (2017) find 1) there is a negative association between stock price synchronicity and risk disclosure, consistent with risk disclosure being useful and informative for investors, and 2) the association is more pronounced among investor-owned firms, because international diversification increases the complexity and risk involved. Hunziker (2013) shows that in Switzerland, there is a very significant association between the number/amount of market risk disclosures and company size. Similarly, a significant association is also found between the number/amount of risk

disclosures and the company's risk proxies by the gearing ratio. However, Hunziker (2013) could not find an association between the number/amount of risk disclosures and the company's performance. Lipunga (2014) reveals a high level of risk disclosure among the sampled banks. The individual bank score range was between 0.76 and 0.88 with an overall score of 0.82, indicating that an average 82% of the disclosure items were actually disclosed in the annual reports of the sampled banks.

Environmental factors have been raised as influential to risk reporting. For example, Elshandidy and Shrives (2016) focus on the environmental incentives for risk reporting and the usefulness of textual risk reporting. Their paper investigates the extent to which environmental incentives influence German non-financial firms in revealing risk information in these firms' annual report narratives. Elshandidy and Shrives (2016) also examine whether risk-related disclosure (i.e., aggregate risk reporting and the tone of news about risk) is useful by investigating its impact on market liquidity and investor perceived risk. The sample selected from Thomson One Banker including 143 firms that provide their annual reports in English. All reports were for financial years ending within the period from January 2005 to December 2009. Elshandidy and Shrives (2016) find that the decision regarding whether to provide or withhold risk information is unlikely to be significantly related to environmental incentives, but is economically and statistically associated with a firm's size and the length of its annual report, while being moderately influenced by factors such as dividends. The decision to disclose is likely to be influenced by the size of the firm and whether or not it produces lengthy annual reports. The results of Elshandidy and Shrives (2016) also suggest that the impact of aggregate risk reporting levels was not observable until a distinction was made between bad and good news about risk. Specifically, Elshandidy and Shrives (2016) find that the German market tends to positively (negatively) price good (bad) news about risk by either improving (worsening) market liquidity through removing (creating) information asymmetries, or reducing (increasing) investor-perceived risk.

A latest study concerning risk disclosure influences on corporate investment efficiency is conducted by Li et al. (2018) with the sample from China. Li et al. (2018) study how risk disclosure influences corporate investment efficiency of Chinese listed companies by using risk disclosure data in annual reports of A-share companies during the period of 2007–2015. The sample comprises were 11313 in final (excluding the financial services industry and firms whose observations without investment efficiency data, observations without risk text data, and

observations with missing other financial data). They find the higher the frequency of risk disclosure in sections of MD&A, the higher the corporate investment efficiency is. The result is also applied to the risk factor section and the whole annual report and also solid under a series of robustness tests. It is indicated that the heterogeneity of risk information in annual reports is weak in China. The disclosures are a sufficient explanation for known risks, which increase information transparency rather than risk perception. In addition, the effect of risk disclosure on corporate investment efficiency is more prominent when the disclosure tone of MD&A is more positive, when there are more keywords about investment in MD&A, and when investors have more demands of information or better ability of information processing.

In sum, the above section provides a review of the prior studies on risk reporting and disclosures. Financial derivatives involve so many types of risks, and derivatives reporting and disclosure are actually risk reporting. The level of risk reporting to some extent depends on the amount of use of derivatives. The use of derivatives is assumed to link with a firm's risk management. Overall, little evidence is available in the existing literature on the relationships between the quality of risk management, the level of risk management disclosures and the use of derivatives (e.g. Guay, 1999; Bean and Irvine, 2015).

3.3.3 Risk management disclosure and the use of derivatives

A possible association between the level of risk management disclosure and the use of derivatives can also be explained from the fundamentals of a corporation. The basic objective of a firm is to maximise its shareholders' value. To achieve this, the firm needs to attract more investors to invest in the business, and the disclosure of more risk management information would expect to lead to a low cost of capital, ultimately enhancing the firm's value for the shareholders. Therefore, the disclosure of risk management information would add value to the firm.

Firstly, information related to corporate governance (such as internal control and risk management system) could help the companies to fulfil the need of the investors as argued by Ismail and Rahman (2011). According to Ismail and Rahman (2011), reporting on the risks and risk management will help firms to inform investors about the firms' future financial position. Elshandidy et al. (2013) and Amran et al. (2009) are able to prove that larger companies disclose more risk information compared to the smaller ones. As the company expands, the

numbers of stakeholders also increase. Thus, the company is obliged to disclose more risk information in order to cater the needs of wider stakeholders. Examining the relationship between the company size and risk disclosure, Linsley and Shrives (2006) find that large companies disclose more information about risks than small companies and company size has a positive relationship between risk disclosure. According to agency theory, larger firms that need more external financing need to disclose more information to different users in order to reduce the agency cost and the risk of information asymmetries will also decline (Watts and Zimmerman, 1983).

Secondly, in order to attract the creditors and investors, firms need to reveal their ability to manage risks, the management needs to disclose more information. Besides, it is believed that large firms are able to bear the cost of additional risk disclosures (Elzahar and Hussainey, 2012). Wen (2012) explains the scenario where companies with good performance opt to disclose more information on internal control in order to differentiate them with poor performance companies. Besides, a good performance company (that is usually measured by high profitability) has almost complete governance structure that expects to lead to better disclosure of internal control. Accordingly, the companies with good profitability also have sufficient financial resources to bear the cost of information disclosure. Overall, it can be established that risk management disclosure is related to the use of derivatives.

3.4 Management Capabilities

3.4.1 Management capability

The literature on management capability is quite new and scarce (Yung and Chen, 2018). According to Selznick (2011), capabilities are the distinctive elements of the enterprise that have the potential to drive the firm forward. Ng et al. (2019) define a capability as "the power of an individual or organization to perform a particular activity with a specific purpose and an intended outcome" (p.179). Capabilities are positioned as a source of strategic competition. Prahalad and Hamel (1990) state capabilities as a product of sharing-based learning capabilities in the enterprises that they transformed into all kinds of knowledge, mastery, experience, cultural codes and technical processes, and turned into business-specific basic ability and as a result, they created non-replicable competitiveness.

Concerning management capabilities, Prahalad and Hamel (1990) define management

capabilities as the power of management to consolidate skills and technologies into the competencies of a business, which allow it to react swiftly to changing opportunities. Lahiri and Kedia (2009) define management capability as the ability to assemble, integrate, and deploy various firm-specific resources, in particular human, organisational and relational, to fulfil diverse client-related business requirements. In other words, management capability is the ability to activate the workforce efficiently and effectively in enterprises. This definition is largely resource-based definition with a focus on various kinds of resources available for a firm to fulfil its objectives. It is possible argue that the stronger a firm has a management capability, the higher level of management of its risk and resources it will have.

Ng et al. (2019) identify a number of skills that are included in management capabilities, including skills involved in motivating others, communicating with stakeholders, making timely decisions, and resolving conflicts, as well as skills in aligning the firm's resources to achieve the goals of a firm. For this study, the researcher believes the skills also include the ability of making changes in response to the shift of environments and dealing with risk. It is argued that management capability is one of the most important ability for businesses because management level is the main body of a business which it decides the allocation of resources and capabilities of an organisation (Zehir et al., 2016). First, management capability is the implementation of integrated strategies or systems designed to plan, control manage business operations and activities to meet existing and future organizational needs. Also, managerial capabilities are rooted in a firm's structure, relationship and organisation and it can be very difficult to segregate managerial capabilities. Managerial capability should be treated as an inseparable totality, which is attached to a firm's structure, relationship and organisation. Ng et al. (2019) focus on the managerial capabilities in family SMEs and explain that managerial capabilities are embedded in the organisation and are business-specific in family SMEs. They argue that managerial capabilities can be difficult to acquire because they are deeply rooted in organisational processes. Management capability comprises a number of dimensions in terms of functions. For example, it can refer to risk management capability, operational management capability, quality control capability etc.

Risk management capability reflects the sophistication of an organization's understanding of its risk portfolio and how to manage those risks (Zou et al., 2010). It is defined by the European Union as "the ability of a Member State or its regions to reduce, adapt to or mitigate risks (impacts and likelihood of a disaster), identified in its risk assessments to levels that are

acceptable in that Member State"[17]. The EU's document specifies that a risk management capability is assessed in terms of the 'technical, financial and administrative capacity' … to carry out adequate (a) risk assessments; (b) risk management planning for prevention and preparedness; and (c) risk prevention and preparedness measures. The assessment of risk management capability therefore covers the whole risk management cycle. Although the EU's risk management capability concept is mainly for the governments of member states and governmental organisations, the fundamentals of the concept can be applied to business organisations. Thus, it is possible to define risk management capability, which is embedded in an organisation's structure and corporate governance, as the ability of the organisation to reduce, adapt to or mitigate risks (impacts and likelihood of a disaster) to levels that are acceptable for the organisation and its management objective.

The Department of Finance of the Australian government published a document entitled "Building Risk Management Capability"[18], which requires an entity to think holistically about the capabilities they need in order to effectively manage risk and determine if there are any capability gaps that should be prioritised to improve the management of risk across the entity. Gao et al. (2013) define the concept of risk management capability building as the process of "creating or enhancing employee and organizational abilities through learning, knowledge and skills exchange to perform risk management tasks in organizations with the aim of managing risks effectively and attaining organizational objectives" (p.680). From this definition, it can be conjectured that risk management capability is related to employee and organisational abilities through learning, knowledge and skills exchange to execute risk management for the purpose of managing risks effectively and attaining organisational objectives. The focus of Gao et al. (2013) is on employee and organisational abilities, largely human capital to ensure risk management to be effective and efficiency.

Managerial capabilities and firm performance are closely related as firm performance is largely determined by a firm's managerial capabilities (Barney and Clark, 2007; Habbershon and Williams, 1999). On the one hand, managerial capabilities enable senior managers (e.g., CEOs, CFOs and executive directors) to evaluate internal and external environments and market

[17] See the EU's COMMISSION NOTICE - Risk Management Capability Assessment Guidelines (2015/C 261/03). https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015XC0808(01)&from=EN [Access on 27 July 2019].

[18] https://www.finance.gov.au/.../comcover-information-sheet-building-risk-managemen... [Access on 28 July2019].

changes, improve firm performance and create competitive advantage. Sirmon et al. (2007) observe that capable managers assign and distribute a firm's resources in ways that lead to the success of the firm. Helfat and Martin (2015) argue that performance variations among firms could arise from heterogeneity in managerial abilities to create, extend, and modify company assets. Therefore, there is a direct link between managerial capabilities and performance.

There are obviously some difficulties to measure management capabilities given the definition. Previously managerial capabilities were measured with a scale developed and validated by Hitt and Ireland (1985), Carmeli and Tishler (2004). The scale measures a firm's ability to perceive opportunities and threats and to develop and communicate its purpose, and it also presents the level of participation by senior managers in firm decision-making. The scale is in large very subjective, which can include many individual items and sub-items. As explained later in the research methodology chapter, this study measures risk management capabilities with the combined scores of corporate governance and corporate social responsibility (CSR).

Managerial capability is determined by many factors. According to Nuthall (2001 & 2009), personality traits, early life experience, education and intelligence are determinants of managerial capability. Based on this, it is possible to posit that managerial risk-taking propensity is also related to managerial capability. Evidence found by Koijen (2014) shows that there is substantial heterogeneity in the ability of the managers in the investment industry. Other studies (e.g., Camerer et al., 2003) with the laboratory experiments also reveal that there is a significant heterogeneity in the ability of decision makers and therefore managerial ability is likely a valuable input to the firm's value. Taking on this view, it is evidenced as shown in Murphy and Zabojnik (2007) and Custodio et al. (2013) that managerial ability is a sought-after asset as firms frequently offer lucrative packages to lure high-ability CEOs and senior managers from other firms.

3.4.2 Dynamic managerial capabilities

In business strategy and management literature, scholars have often used the term 'dynamic managerial capabilities', which refer to the capabilities with which managers create, extend and modify the ways in which firms making a living (Helfat and Martin, 2015). The dynamic managerial capabilities address the question of how firm managers can cope with changing environments and deal with uncertainty. In this way, it is closely related to risk management

capabilities as risk management capabilities are also dealing with the changing environments and uncertainty. The dynamic managerial capabilities concept extends the perspective of dynamic capabilities introduced in Eisenhardt and Martin (2000) by directing attention to the role of managers either as an individual or as a team (Adner and Helfat, 2003). In this study, the researcher adopts the team concept in defining risk management capabilities, that rooted in a firm's structure, relationship and organisation.

Building on previous studies, Ambrosini et al. (2009) suggest that there exist three levels of dynamic capabilities that are closely related to the managers' perceptions of a firm's environmental dynamism. They refer the first level of dynamic capabilities to incremental dynamic capabilities, which concern with the continuous improvement of the firm's resource base. The second level of dynamic capabilities is renewing dynamic capabilities, referring to refresh, adapt and augment the resource base. In the view of Ambrosini et al. (2009), these two levels are conceived as one that represents dynamic capabilities. They consider the third level as regenerative dynamic capabilities, which impact, not on the firm's resource base, but on its current set of dynamic capabilities. Because these capabilities change the way the firm alter its resource base. In this study, the focus of risk management capability will be on the first two levels: incremental dynamic capabilities (in terms of risk management, showing the continuous improvement of the firm's risk management) and renewing dynamic capabilities (in terms of risk management, entailing the adoption of new financial instruments and the increase of use of hedging to gain better performance etc.). It is a fact that risk management is difficult, largely due to the need and cost required to manage and change its operations in response to the uncertainty and shifts in their external environments.

3.4.3 Factors influencing management capabilities

In relation to corporate decision making, a variety of factors have been identified in the literature that influence a managerial decision and management capabilities, including, for example, personal characteristics, background, cultural, organisation objectives and strategies, to organisation value etc. Previous studies (e.g., Yung and Chen, 2018) show that managerial heterogeneity plays an important role in firm decisions including risk-taking, which contributes to a firm's management capabilities. Their view is that in addition to the effects of popularly identified determinants, firm decisions are also determined by the ability of the managers in managing the firm.

Management capability is also associated with the disclosure of risk management. Firms with higher levels of management capability expects to disclose more about their risk management activities and show what they can do as well as their 'good' performance. The previous literature has documented the association between the level of risk and risk management disclosures (Miihkinen, 2013; Kim and Yasuda, 2018; Li et al., 2018). It has shown that firms with higher levels of risk will disclose greater amounts of risk management information in order to justify their corporate behaviours and decisions. Also, when a firm has a higher level of risk, the managers have a greater need to explain the causes of this high risk and to defend to the investors for their corporate risk management actions.

Previous research indicates that corporate disclosure practices are basically motivated by internally driven corporate communication objectives on the one hand, and by external pressures and stimuli on the other hand. Beyer et al. (2010) provide a thorough review of existing literature that studies the financial reporting environment and conclude that there are "two reasons for information environments to develop endogenously: the information asymmetry between capital providers and entrepreneurs with investment opportunities (the valuation problem) and the agency problems that result from the separation of ownership and control (the stewardship problem)" (p.2). It has been argued that disclosure can help ease the adverse selection problem whilst at the same time levelling the field for investors by increasing liquidity, minimising information asymmetry cost and reducing uncertainty about the value of a firm (Verrecchia, 2001).

Companies with higher levels of risk will disclose greater amounts of risk management information as the management have a greater need to explain the causes of this higher risk. In addition, the management could have a strong incentive to provide details to shareholders and the wider stakeholder community about how they are managing these risks and this would also result in a higher level of risk management disclosure. Therefore, the literature often presents a positive association between risk management disclosures (e.g., favourable disclosures) and risk levels of a firm (Kothari et al., 2010). However, one difficulty with this proposition is that companies with higher levels of risk may not want to draw much attention to their 'riskiness' and, conversely, thus may be reluctant to voluntarily disclose significant amounts of their risk management information. By contrast, companies with lower levels of risk, perhaps because of the nature of their business activities or their higher risk management capabilities, may wish

to signal this to the investors and other stakeholders through improved risk management disclosures. A circular relationship between risk levels and risk disclosure may also exist.

The ICAEW argues that companies disclosing more risk management information will find that the marketplace better understands the company's risk position and the company is then deemed to be less risky than before. Therefore, increased risk management disclosure could impact upon the perceived level of company risk, although to what extent is unknown. Previous studies, which test a relationship between leverage that is used to measure risk and the number of disclosures, have not provided a decisive conclusion (Ahmed and Courtis, 1999). For example, Hossain et al. (1995) find no association whilst others (e.g., Malone et al., 1993) show a positive association. Linsley and Shrives (2006) present that companies have a high level of risk management disclosure when they have more risks. Using derivatives will create new risks; therefore, companies may disclose more information about their risk management in order to attract investors.

3.4.4 Managerial capability and risk taking

As shown previously, a firm's management have incentives to use financial derivatives if the value of the firm can be increased; this increase of firm value is beneficial for the shareholders and also for the managers themselves. Also, a review of literature as shown in previous chapters indicates that there are theoretical reasons to support the use of financial derivatives if the firm has a better risk management capability. Of course, there are a number of agency issues that may be relevant in the context of utilisation of financial derivatives, which may lead to opposite outcomes, i.e., a firm with less management capability may use more financial derivatives with a view to mitigating risk exposures faced by the firm. In general, the use of financial derivatives may be argued to be relevant to the skills and experiences of individual managers as the use of derivatives requires the managers to have considerable expertise and a good understanding of complexity of derivatives.

One of the premises that this study is based is the relationship between management capability and risk taking. It can be assumed that when managers feel they have the capability of managing more sophisticated risk, it is expected that they will use more financial derivatives for speculative purposes. Of course, the relationship between managerial risk management capability and the use of financial derivatives for hedging purposes is rather unclear as few

studies as observed from the literature review deal with this and provide evidence. The case study of this research to be reported in Chapter 7 expects to provide some tentative answers to the impacts of a firm's risk management capability on the use of financial derivatives.

The previous literature has recognised the link between managerial capability and risk-taking, although the empirical results are mixed. Yung and Chen (2018) attempt to establish a link between managers' ability and firm risk-taking behaviour, and find that high-ability managers and low-ability managers have opposite effects on firm behaviour and firm value. Young and Chen (2018) present "…high-ability managers are receptive to risk-taking whereas low-ability managers refrain from risk-taking. High-ability managers cut capital expenditures but spend significantly more on research and development projects; low-ability managers reduce both capital expenditures and research and development expenses significantly. High-ability managers are associated with higher levels of firm focus than low-ability managers" (p.1005). In addition, Yung and Chen (2018) reveal that managerial ability is negatively associated with firm leverage, i.e., taking more debt finance and high financial risk. Following on the findings of Yung and Chen (2018), it can hypothesise that low-ability managers would prefer to use few financial derivatives than high-ability managers.

However, it should recognise that how to measure managerial capability is rather undefined. The literature has proposed a number of measures and each of them has merits as well as limitations. Custódio et al. (2013), for example, measure managerial capability using an index increasing with the CEO's general managerial skills, called the CEO general ability index. This study considers both corporate governance and CSR measures to determine risk management capabilities. This is because corporate governance plays a key part in contributing to a firm's risk management capabilities and CSR reflects an integrated performance of a firm's management ability (or power) of dealing with various stakeholders and the changing expectations from the stakeholders and coping with the stakeholders' pressures. CSR has been widely considered to be associated with a firm manager's behaviour including, for example, earnings management (Almahrog et al., 2018), quality management (Frolova and Lapina, 2015), management control (Hosoda, 2018), and enterprise risk management (Rahahleh et al., 2019).

3.5 Corporate Governance, Management Confidence, CSR and Management Capability

3.5.1 Corporate governance and risk management capability

The ASXCGC describes corporate governance as "the framework of rules, relationships, systems, and processes within and by which authority is exercised and controlled in corporations … it encompasses the mechanisms by which companies, and those in control, are held to account. Corporate governance influences how the objectives of the company are set and achieved, how risk is monitored and assessed, and how performance is optimized. Good corporate governance structures should encourage companies to create value (through entrepreneurialism, innovation, development, and exploration) and provide accountability and control systems commensurate with the risks involved" (ASXCGC, 2006:4).

Section 3.4.2 explains the concept of management capabilities. It shows that dynamic managerial capabilities reflect in the effective corporate governance and internal control. In the modern business literature, corporate governance, internal control and risk management are inter-dependent (e.g., Aebi et al., 2012; Ellul, 2015; Lundqvist, 2015). According to agency theory, the board of directors is considered a vital element of a firm's corporate governance based on the premise that the characteristics of the board members determines the board's ability to determine risk strategies and control major financial risk exposures confronting the firm, provide risk information, and monitor risk compliance with applicable laws and regulations. In September 2004, the Committee of Sponsoring Organizations of the Treadway Commission (COSO) issued Enterprise Risk Management (ETM) —Integrated Framework, to provide a model framework for ERM. ERM is defined as: "[A] process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives" (COSO, 2004). ERM provides a significant source of competitive advantage for those who can demonstrate a strong ERM capability and discipline (Stoh, 2005). ERM is the methods and processes used by firms to manage risks and seize opportunities related to the achievement of their objectives. In this way, ERM assists the board of directors and the firm to ensure that management actively work through a process of identifying and analysing risks. An effective ERM expects to assist in ensuring fewer surprises, enhancing management and exploitation of opportunities, improving planning and performance, enhancing information processing and communication, improving accountability, assurance and governance. ERM

requires a structured approach to risk assessment and management and it puts huge demand for risk management capability on a firm.

Indeed, the boundaries between these concepts may appear rather blurred at times and it is not always clear if risk management is a sub-division of internal control or vice versa (Spira and Page, 2003). However, the dominant recurring theme is that risk management and internal control are integral parts of the process of corporate governance (McRae and Balthazor, 2000; Hoitash et al., 2009). In the literature, risk management is often seen as an important dimension of good governance as well as a tool (such as used in determining and controlling the use of derivatives) to aid the achievement of corporate strategic objectives. It is argued that because a firm risk management is a holistic approach embedded through the organisation, it provides a multifaceted platform for corporate governance when the firm focusing on value maximisation through risk management (Malik et al., 2020). Malik et al. (2020) find that the valuation outcomes of enterprise risk management are affected by the structure and composition of the board-level risk committee, which is part of the corporate governance mechanism.

In the US, numerous regulatory reforms, particularly the Sarbanes-Oxley Act of 2002 are significantly expanding public policies related to effective corporate governance and risk management. If corporate governance mechanisms are not in place to effectively manage the ever-changing portfolios of risks faced by the firm, shareholder value is at risk and stakeholder concerns are raising. In the UK, all incorporated companies listed on the London Stock Exchange are subject to the Combined Code on Corporate Governance issued by the Financial Reporting Council. The Code, first released in 2003 combined the Cadbury and Greenbury reports on corporate governance, the Turnbull report on Internal Control, the Smith Guidance on Audit Committees and some recommendations of the Higgs Report. The Turnbull Report sets out how directors of listed companies should comply with the UK's Combined Code requirements in respect of internal controls, including financial, operational, compliance and risk management. More specifically, the Combined Code requires that the board should, at least annually, conduct a review of the effectiveness of the enterprise's system of internal controls and should report to shareholders that they have done so. The review should cover all material controls, including financial, operational and compliance controls and risk management systems.

Corporate governance as one of main indicators of risk management capability of a firm is considered to be associated with managers' (over-)confidence. DeMarzo and Duffie (1995) analyse a model of risk management where corporate profits serve as a signal of a manager's ability. Affective corporate governance expects to reduce firm risk, resulting in lower costs of capital. Adam et al. (2015) examine the relationship between overconfidence and corporate governance by investigating whether managerial overconfidence can help explain the observed discrepancies between the theory and practice of corporate risk management. The sample of their study is 92 gold mining firms in North America, which were included in the Gold and Silver Hedge Outlook[19]. Firms not included in the survey tend to be small or privately-held corporations. The basic methodology used by Adam et al. (2015) is to run panel regressions with firm fixed effects in order to focus on the time-series variation in hedge ratios and hedge ratio volatility. They find that managers increase their speculative activities with the use of derivatives following speculative cash flow gains, while they do not reduce their speculative activities following speculative losses. This asymmetric response is consistent with the selective self-attribution associated with overconfidence. In addition, their results show that managerial overconfidence, which has been found to influence a number of corporate decisions, also affects corporate risk management decisions.

Previous research has mainly focused on the financial services sectors, particularly banking. Mongiardino and Plath (2010) illustrate that the risk governance in large banks seems to have improved only to a limited extent despite increased regulatory pressure induced by the credit crisis. There are also some researchers that focus on the other aspects of risk management and corporate governance for banks (e.g., board characteristics, CEO pay and ownership) (e.g., Erkens et al., 2010; Fahlenbrach and Stulz, 2011; Minton et al., 2010). Adams and Mehran (2003) study the importance of taking differences in governance between banking and non-banking firms into consideration. Erkens et al. (2010) investigate the relationship between corporate governance and performance of financial firms focusing on the period of the 2007/2008 financial crisis. They find that firms with more independent boards and higher institutional ownership experienced worse stock returns during the crisis. Cornett et al. (2010) examine the relationship between corporate governance, risk management mechanisms and bank performance in the crisis, and find that better corporate governance (to be measured by a more independent board, a higher pay-for-performance sensitivity, and an increase in insider

[19] It is a quarterly survey of derivatives activities conducted by Ted Reeve.

ownership) has a positive relationship to the banks' crisis performance.

Few studies have documented the positive relationship between corporate governance and the use of derivatives. For example, Allayannis et al. (2003) test the hypothesis that strong corporate governance is associated with value-increasing use of derivatives and find strong evidence that the use of currency derivatives for firms that have strong internal firm-level or external country-level governance is associated with a significant value premium. Huang et al. (2017) relate derivatives usage to the level of corporate governance and monitoring mechanisms, managerial incentives and investment decisions of UK firms. They find evidence, which suggests that the monitoring environment (such as board size) influences both currency and interest rate derivatives usage. They also find that managerial compensation plans influence derivatives usage. In addition, they reveal that investment decisions are affected by the governance and managerial compensation plans of firms, which in turn impact on the firm's usage of derivatives. In the setting of UK, there is a strong tendency for UK firms to reduce derivatives usage in situations where derivatives usage should be increase. This is probably due to the impact of misuse of derivatives prior to the global financial crisis.

We argue that a strong risk management capability, which is characterised by an effective risk management infrastructure and a high-level risk governance structure, promotes a strong risk culture at all levels of the firm, approves corporate risk strategy and risk appetite, and monitors organisational risk mitigation plans including the use of financial derivatives to hedge the firm financial and operating risks. A firm with a strong risk management capability expects to adopt a robust and effective hedging system to safeguard against major financial risks that could seriously affect firm performance and its market value. A firm with a strong risk management capability expects to effectively carry out its risk management responsibilities such as risk oversight, fostering risk culture, and improving the quality of risk monitoring and reporting.

3.5.2 Management confidence and risk management capability

This study is concerned with the possible connection between firm risk management capability and the use of derivatives. It is generally recognised that firm risk taking is largely determined by the firm's management ability of managing risk and risk appetite, which is connected with managerial confidence. Managerial confidence has been widely identified as a key factor influencing managers' risk behaviours and a firm's corporate financing and investment

strategies (e.g., Broihanne et al. 2014; Choi et al., 2018; He et al., 2019). In this study, it is argued that the use of financial derivatives is also influenced by the managers' risk appetite and confidence of their ability of managing risks.

Previous studies have presented a fair amount of empirical evidence on the influence of managers' (over-)confidence on risk-taking behaviours. For instance, Broihanne et al. (2014) study the relationships between overconfidence, risk perception and the risk-taking behaviour of financial professionals. Their paper highlights the role played by overconfidence and risk perception in the risk-taking behaviours of finance professionals. The study was based on interviews and questionnaires with 64 high-level professionals' interviews and 61 questionnaires conducted in May 2011. The sample includes 39 fund managers, 12 CFOs, three CEOs, five wealth managers, two analysts and three treasurers. Broihanne et al. (2014) demonstrate the risk that these respondents are willing to assume is positively influenced by overconfidence and optimism, and negatively influenced by the professionals' risk perception. Moreover, they find the stock return volatility anticipated is, in most cases however, an insignificant determinant of the risk that professionals are ready to assume.

Studying the relationship between overconfidence and risk, Yang and Zhu (2016) investigate the effect of overconfidence and gender on trading activity in experimental asset markets under a symmetric information setting. They measure the degree of overconfidence in three forms (i.e., miscalibration, a better-than-average effect, and the illusion of control) and design two treatments (i.e., ambiguity and risk) that differ by the prior information available about the distribution of the dividend in the asset market. They find that overconfidence in the sense of a better-than-average effect only plays a role in increasing trading volume when subjects are not provided with information on the dividend distribution. Their finding is largely consistent with the results of Fellner-Röhling and Krügel (2014). Yang and Zhu (2016) find that when the distribution of outcome variables is unknown, overconfidence arising from misestimating the variance of the outcome could lead to more trading. Their results also suggest that men are more confident than women in relation to the better-than-average effect. As for trading activity, men and women were trading roughly the same amount in the risk treatment, while men were trading more in terms of the ambiguity treatment. The gender differences in their experiment could be explained, according to Yang and Zhu (2016), by the Chinese culture.[20] The results of

[20] Yang and Zhu (2016) explain that among the Hofstede's five major cultural dimensions, masculinity, relates to

Yang and Zhu (2016) indicate that gender seems to play a similar role to overconfidence in increasing trading when ambiguity rather than risk represents asset return uncertainty. In other words, the higher the degree of uncertainty in the market, the stronger the belief a trader will hold that his or her ability in trading is relatively better.

Kim et al. (2018) study the impact of CEO overconfidence on stock price crash risk and find that firm with overconfident managers are more crash prone. Cui et al. (2019) find a significant and positive relation between managerial ability and stock price crash risk measures, suggesting that high-ability managers increase firm-level future stock price. Cui et al. (2019) find that the positive relationship between managerial ability and crash risk is more pronounced when managers have possessed better knowledge of operational information and engage in more risk-taking activities.

A latest study by He et al. (2019) looks at the association between managerial overconfidence, internal financing, and investment efficiency in China. He et al. (2019) try to explore the impact of managerial overconfidence on internal financing from a behavioural finance perspective. They also examine how the dynamics between managerial overconfidence and internal financing affect investment inefficiency (i.e., investment scales, overinvestments, and under investments) in China's state-owned and non-state-owned enterprises. Their data were from China's stock markets with a focus on the A-shares that were traded on the Shanghai and Shenzhen Stock Exchanges over the period from 2010 to 2015. Two variables were used in their study: Managerial overconfidence and investment efficiency. They find that increased internal financing expands business investment, reduces underinvestment, and thus improves investment efficiency. However, as they note in the paper that this can also lead to overinvestment. Internal financing is a mediator between managerial overconfidence and investment efficiency. Overconfident managers are more inclined to increase internal financing. Due to the single-dominant-shareholder ownership structure and the absence of efficient corporate governance among most Chinese listed firms, managerial overconfidence and overinvestment are intensified in SOEs. In non-SOEs, by contrast, they have no significant relationship. Non-SOEs have much poorer access to external financing than SOEs, and they face serious financing restraints. Internal financing thus becomes their main source of financing, and investments become more efficient in non-SOEs.

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the societal norms governing the societal roles attached to women and men (Hofstede, 1983).

Choi's et al. (2018) study focuses on the managers' overconfidence and how the confidence affects their decision making. They document that the previous literature shows that managerial overconfidence, through biased cognitive perceptions, affects top managers' capital budgeting decisions. Due to miscalibration and the better-than-average bias, overconfident managers overestimate future payoffs to their investments and believe that they can control the investment outcome. Choi et al. (2018) test the effect of overconfidence on the asymmetric association between cash flow and investments. Their empirical study utilises a variety of databases including Execucomp, Compustat, and CRSP covering the period 1992–2012. They consolidate the data extracted from Execucomp and Compustat to construct the overconfidence variables. They use the intersection of CRSP and Compustat databases to obtain investment-cash flow sensitivity and other economic variables. Choi et al. (2018) find that managerial overconfidence leads to an asymmetric and downward sticky investment-cash flow sensitivity. In other words, cash strapped managers tend to pursue empire building if they believe that payoffs to their investments can cover the high financing costs. Moreover, as overconfident individuals reinforce their optimistic beliefs about future projects through self-attributed successes, they predict that overconfident managers, encouraged by prior favourable outcomes, might induce an even stickier investment-cash flow sensitivity. In addition, they show these results are stronger for unconstrained firms which implies that financial constraints curb the empire building incentive of overconfident CEOs. This study provides an interesting result of optimistic beliefs of overconfident managers than less-overconfident managers.

Merkle (2017) focus on the relationship between overconfidence and investment. In order to test for overconfidence and its consequences for investment behaviour, they obtain survey responses and transaction data for a sample of clients at Barclays Stockbrokers. As the result they find in a panel survey of UK investors that participants expect their portfolios to yield higher returns than the market (over placement), expect higher returns than will be realised (over estimation), and underestimate the volatility of their portfolios (over precision). They generate theoretical predictions for the influence of overconfidence on a set of investment behaviours including trading activity, risk taking, and portfolio diversification etc. Pikulina et al. (2017) examine the relationship between overconfidence and investment and uncover that subjects who are substantially overconfident with respect to their own skill choose inappropriately high investment levels, whereas underconfident subjects make insufficient investments.

Overall the majority of prior studies find management confidence influences their risk taking and consequently the use of financial derivatives. Most studies refer to management confidence as the confidence of individual managers. It would be interesting to know if the findings remain the same if management collectively are overconfidence.

The literature has recognised the influences of senior managers personal characteristics such as age, gender, education level, experience on risk-taking behaviours and decision-making of the firms. Serfling (2014) studies the relationship between riskiness of corporate policies and CEO age with the initial sample consisting of all ExecuComp firm-years between 1992 and 2010, which exclude utilities and financial firms. The author obtains financial statement data from the Compustat files, stock return data from the Center for Research in Security Prices (CRSP) files, and institutional ownership data from Thomson-Reuters Institutional Holdings Database. After merging the databases and removing observations with missing values, the sample consists of 20,973 firm-years, 2356 unique firms, and 4493 unique CEOs. Serfling (2014) obtains CEO age from ExecuComp and uses the natural logarithm of CEO age in multivariate regressions. The author finds that CEO age is negatively related to firm stock return volatility and older CEOs invest less in R&D, manage firms with more diversified operations, make more diversifying acquisitions, and maintain lower operating leverage. Serfling (2014) shows that total firm risk and the riskiness of both investment and financial policies are lowest when both the CEO and the next most influential executive are older and highest when both of these managers are younger. In addition, the author finds some empirical evidence that suggests that firms appear to want older (younger) CEOs to take fewer (more) risks, which implies that CEO (in particular their personal characteristics) and firm risk preferences are aligned.

Gender has often been used to study the influence of manager personal characteristics on risk-taking behaviours. For instance, Faccio et al. (2016) focus on impact of the CEO gender on the corporate risk-taking by extending the literature on how managerial traits relate to corporate strategy choices. They document that firms run by female CEOs have lower leverage, less volatile earnings and a higher chance of survival than otherwise similar firms run by male CEOs. They find that firms run by female CEOs tend to make financing and investment choices that are less risky than those of otherwise similar firms run by male counterparts.

3.5.3 CSR and Risk Management Capability

CSR refers to management's obligation to make decisions beyond legal requirements that are desirable in terms of society's values and objectives (Mosley et al., 1996). Indeed, the establishment of a CSR strategy and implement of CSR initiatives that integrate social, environmental, ethical concerns into business management capability has become a crucial component of a firm's long-term sustainability and competitiveness. CSR is actually related to various attributes of risk management capability, including, for example, CEO confidence (Tang et al., 2015; McCarthy et al., 2017), experience (Cronqvist and Yu, 2017), and CEO's general human capital (Chen et al., 2020). It is argued in the literature that a firm's CSR engagement can be significantly alternated by these attributes, such as CEO's general human capital.

Also, it can be argued that the relationship between CSR and a firm's risk management is reciprocal. CSR is activities and functions performed by a firm to manage its social and environmental risks. To engage in CSR is to manage the conflicts of interests among various stakeholders. In the literature, "CSR as risk management" was referred by several prior studies (e.g., Kytle and Ruggie, 2005; Frederiksen, 2018). In an earlier study by Spicer (1978), the CSR and risk relationship were investigated and it was found that there was a negative correlation between the two as CSR increased, risk decreased. Orlitzky and Benjamin (2001) present a meta-analytic review of the literature on CSR and firm risk and find support for a negative relationship between CSR and risk.

As argued by Husted (2005), the relationship between CSR and risk management is fairly straightforward. This can be supported by a number of studies including Bowman (1980) who has spurred many studies on risk in strategic management, particularly mentions that CSR as a means for reducing business risk. Clearly, according to this argument, firms with proactive CSR engagement in managerial practices such as engaging stakeholders and protecting the environment tend to have reduced potential sources of business risk. The mutual relationships between CSR and risk management are undeniable (Kytle and Ruggie, 2005; Diffey, 2007). Diffey (2007) argues that CSR is about risk management from the perspective of stakeholders and risk management is about CSR because CSR shows how to avoid social and environmental risk.

CSR is an instrument to mitigate risk that is a significant part of corporate strategy and management. Husted (2005, p.176) argues that "corporate social responsibility is a kind of real

option. As a real option, CSR projects provide a way of reducing the downside business risk of the firm and are thus an essential element in the risk management of the corporation". Kytle and Ruggie (2005) also support that CSR is a necessary element of risk management for an international company as CSR provides the framework and principles for stakeholder engagement and copying with corporate risk and ultimately serve as a countermeasure for social risk.

In addition, it can be argued that CSR capability (Lee et al., 2016) is a part of overall management capability of a firm. Corporate capabilities for social responsiveness improve a firm's competitive advantage. A recent study by Lee et al. (2018) find that CSR performance of a firm increases the ability of the firm's CEO. It shows that "firms with more able CEOs are associated with more socially responsible activities and fewer socially irresponsible activities, and are associated with more stakeholder CSR rather than third-party CSR" (Lee et al., 2018, p.391). The argument put forward by the authors is that more able CEOs have less career concerns so that these CEOs are more willing to undertake long-term investments in socially beneficial activities, leading to better CSR performance. Similar findings also appear in García-Sánchez and Martínez-Ferrero (2019). García-Sánchez and Martínez-Ferrero' (2019) results show that most able CEOs make investments in social and environmental practices that lead to greater financial performance. They acknowledge that the role that CEO ability plays in social and environmental strategies is particularly pertinent in munificent environments that foment managerial discretion.

So, based on the above, it seems to be logic to infer that CSR and risk management capability are closely related and CSR could be an important indicator of risk management capability. This conjecture will be used in designing risk management capability rating to be reported in Chapter 4.

3.6 The influences of management capability on firm investment, financing and financial reporting

The previous studies have used a number of proxies to represent risk-taking and their consequences in order to demonstrating the impact of management capability. Habib and Hasan (2017), for example, examine the link between the management capability and stock price crash

risk by empirically studying the effect of managerial ability on firm-level investment efficiency and how this affects future stock price crash risk. Using an optimisation procedure incorporating several firm-level characteristics variables, the authors calculated firm efficiency, and then regressed it on six firm characteristics that affect firm efficiency (including firm size, firm market share, cash availability, life cycle, operational complexity, and foreign operations). The residual term derived from this regression is the component reflecting managerial ability. They document that inefficient investments increase crash risk, which is more pronounced for the sub-sample of more able managers.

Andreou et al. (2017) present a research about the impact of management capability on corporate investment during the crisis period. In their research, they document there is a strong positive relation between pre-crisis managerial ability and corporate investment during the crisis period, which remains robust in the presence of a large array of control variables that capture corporate governance attributes, executive compensation incentives and CEO characteristics. As shown in Andreou's et al. (2017) paper, this relationship was prevalent only among firms with CEOs that had general managerial skills, rather than firm specific skills. Their data came from the COMPUSTAT/CRSP merged database for the fiscal year of 2008. In their research, Andreou et al. use different dependent variables that cover the three main areas including investments, financing and firm value. They measure "crisis-period corporate investment" with capital expenditures divided by net assets in the beginning of the year, while crisis-period firm value is measured by using Tobin's Q, defined as the market value of equity, plus total debt, plus preferred stock liquidating value, minus deferred taxes and investment tax credits, all deflated by the book-value of assets. Managerial ability was the independent variable in their research. The authors adopt the method proposed by Demerjian et al. (2012) to measure the managerial ability. This measure of managerial ability captures the ability of firm managers to produce more revenue while using either the same or even fewer resources than their peers in the same industry. Size, leverage, profitability, cash flow and growth opportunities were used as control variables in Andreou's et al. (2017) study. They document a positive and robust relationship between pre-crisis managerial ability and crisis-period corporate investment. In an attempt to gain more insight into the types of managerial ability most effective during the crisis, Andreou et al. (2017) provide evidence that managers with general skills (versus managers with firm-specific skills) were driving their firms' scale of corporate investment. Additionally, they provide evidence that there is a positive relation between pre-crisis managerial ability and crisis-period financing. Finally, Andreou et al. show

that the increased crisis-period investment activity is mediated on market valuation, revealing some strong positive relations between the levels of investment undertaken by high managerial ability individuals and firm value.

Mishra (2014) provides an examination of the relationship between the CEO general managerial skills and the cost of equity capital. The author argues that a firm's key talent, such as a high-ability CEO, constitutes a significant part of its organisation (human) capital, and therefore that firm with higher organisation capital is exposed to higher risk premiums. Mishra (2014) follows Custódio's et al. (2013) approach by using the CEO general ability index. Custódio et al. (2013) argue that because generalist CEOs that constitute a larger share of organisation (human) capital, are likely to have incentives not aligned with those of shareholders (thus exacerbating a firm's agency problems) and may have incentives to take higher risks than specialist CEOs, investors are likely to demand higher rates of return from firms headed by generalist CEOs. Mishra (2014) uses the data beginning from 1993 to 2006 with the sample of S&P 1500 firms that were used in Custódio et al. (2013) and finds that generalist CEOs cost shareholders significantly more in terms of increased financing costs, apart from their pay packages.

Hu and Liu (2015) focus on the relationship between CEO's career experiences and corporate investment. They hypothesise that CEOs with more diverse career experiences are less likely to be constrained by insufficient internal capital. The potential mechanism is that rich external experiences help CEOs accumulate social connections and these connections mitigate information asymmetry and lead to better access to external funds. They selected all CEOs of firms on the Zhong-Zheng 800 index[21] at the end of 2010 as an initial sample and excluded the CEOs of financial firms and the firms that became publicly-listed after 2004. The final sample of Hu and Liu (2015) includes 563 firms and 1332 CEOs covering the 10-year period from 2000 to 2010. They find that firms with CEOs who have more diverse career experiences exhibit lower investment-cash flow sensitivity and exploit more outside funds including both bank loans and trade credit. They also find that firms that hire CEOs that have experiences in financial institutions or governments display similar patterns, however, even controlling for

[21] China stock market has a number of indices, including, for example, Zhongzheng (China Securities) 200, Zhongzheng 500, Zhongzheng 700 and Zhongzheng 800 to measure the share performance of listed companies. Zhongzheng 700 include samples of small- and medium-sized companies, while Zhongzheng 800 covers all-sized ones.

such experiences, the effect of diversity still remains very strong. Their findings are more pronounced among financially constrained firms. Their results show that connections gained through CEOs' diverse career experiences indeed reduce financial constraints and assist firms in obtaining external debt financing. Hu and Liu (2015) suggest that the diversity of CEOs' career experiences is an important dimension for capturing CEOs' personal characteristics and could exert systematic impacts on corporate investment and financing decisions.

Focus on the managerial ability and corporate investment opportunity, Lee et al. (2018) examine whether firms operated by superior managers can obtain more favourable investment opportunities using data on U.S. industrial firms during the period from 1988 to 2015. In order to investigate the research question, Lee et al. adopt unbalanced firm-level panel data for the period. The result of Lee et al. (2018) shows that there is a significantly positive relationship between managerial ability and investment opportunity after controlling for several firm characteristics and fixed effects.

A few studies have attempted to look at the associations between managerial ability and financial reporting. For example, García-Meca and García-Sanchez (2018) study the influence of managerial ability on the quality of their financial reporting. The sample for analysis is composed of 877 observations, corresponding to 159 banks from nine countries, for the time period of 2004 to 2010. Economic and financial data were obtained from the Compustat database, and corporate governance data were obtained from the EIRIS database and the Spencer & Stuart Board Index. The results confirm that managerial abilities play an important role in shaping the quality of financial reporting in banks, and that capable bank managers are less likely to manage earnings opportunistically to meet bank short-term earnings benchmarks.

From the above review, it can be concluded that managerial ability has a strong influence on firm investment, risk management and financial decision. Managerial ability also contributes to the quality of financial reporting. However, there are no prior studies attempting to reveal an association between managerial ability and the use of financial derivatives. It would be interesting to know if a firm's managerial ability, and particularly risk management capability is associated with the use of financial derivatives. One of the main objectives of this study is to investigate the connection between risk management capability and the use of financial derivatives.

3.7 Summary

This literature review chapter provides a review of prior studies into risk management and management capability by looking at risk management theories, risk management disclosures, management capabilities, corporate governance, management confidence, and manager characteristics and risk-taking behaviours. This chapter starts with a discussion of risk management and risk management theories. Although over the past a half century, many theories and models have been proposed to explain the motivation of risk management, the most influencing theory is Modigliani and Miller's (1958) perfect capital market framework, which provides a persuasive explanation for the irrelevance of financial risk management under a perfect capital market. Due to imperfect capital markets, risk management becomes value relevance and as a result firms adopt different risk management approaches with different motivations to mitigate risk (e.g., hedging) or speculate on risk (e.g., speculation).

This chapter next discusses risk and risk management disclosures. Risk and risk management disclosures have been widely recognised as an important aspect of corporate transparency. The importance of such disclosures is increasingly appreciated by investors and the literature has evidenced the impact of risk and risk management disclosures on the market and investor behaviours. Accordingly, the literature has increasingly tackled various issues of risk reporting and disclosures, including risk measurement, risk management performance, risk reporting practices and value relevance of risk reporting.

This chapter further considers management capabilities by firstly discussing management capabilities and dynamic management capabilities, which are closely related to risk management capabilities. The literature has widely adopted the 'power' as the characteristics of management capabilities, i.e., the power of management to consolidate skills and technologies into the competencies of a business, which is underpinned by a number of skills including skills of 'motivating others, communicating with stakeholders, making timely decisions, and resolving conflicts, as well as skills in aligning the firm's resources to achieve the goals of a firm'. In this study, risk management capabilities are defined as a firm's management power to deal with uncertainty and the changing environments with a view to maximising the value for the firm shareholders. Thus, a firm's management have incentives to use financial derivatives for the purpose of enhancing the value of firm. Risk management capabilities are largely matching characteristics of dynamic managerial capabilities.

The following section in this chapter centres on risk management capability with corporate governance, management confidence, and CSR with a view to building connections between corporate governance, CSR and risk management capability. These perspectives of corporate governance, management confidence and CSR are related each other, having close connections with risk management capability and they will be considered in analysing the six cases concerning the link of risk management capabilities with the use of financial derivatives to be reported later in this thesis. Derivatives have become important tools for risk management and they are widely used by businesses to hedge risk and/or obtain speculative gains. However, due to the complex nature of derivatives, derivatives are also exposing to many risks and it would expect firms with high risk management capability will be able to manage those risks and thus use more complicated derivatives.

Chapter 4: Research Methodology

4.1 Introduction

Every piece of research is always underpinned by an appropriate research methodology. Research methodology is related to research philosophy and research methodological design, which guide the researcher to undertake a scientific research process or activity with a view to achieving the research objective(s).

This chapter discusses research methodology adopted for this study. Firstly, it discusses research methodological issues by looking at research paradigms, ontology and epistemology (including positivism and interpretivism), and research methodology choice. Then, Section 4.3 explains the research design of this study, explaining the methods of case study and content analysis used for this study, which are presented in Section 4.4 and Section 4.5 respectively. In Section 4.4, the design of risk management capability ranking is also explained in detail, while in Section 4.5, the key words/themes and sub-words/themes used in content analysis are presented. Given the nature of this study, overall this study adopts qualitative research. The final section provides a summary.

4.2 Research Methodological Issues

To provide a description of research design for this study, it is necessary to discuss research methodological issues as they are the foundations for understanding the choice of right research approaches to fit a study. First, it needs to consider research philosophy. Research philosophy in principle guides the approach used to address research questions and the analytic methods employed by the researcher to investigate research questions. Research philosophy can be understood from different perspectives. For example, one of the perspectives is to consider ontology, epistemology and axiology aspects of research methodology. The other perspective is to look at the data used in a research with a view to approaching research questions by examining the nature of data: qualitative or quantitative data. Some research methodology scholars argue that a researcher's ontological and epistemological stance actually guides a study as a whole (e.g., Neuman, 2003; Bryman and Bell, 2007). Business and management researchers, such as those in accounting and finance research, share the common bond with all disciplines that it is necessary for one to be aware of the philosophical assumptions related to the empirical world (e.g., business environments, accountancy, financial markets, regulatory

regime etc.) and the perceived relationship between theory and knowledge. This section explains the fundamental aspects of research philosophy: research paradigm, ontology, epistemology, positivism and interpretivism, and axiology.

4.2.1 Research paradigms

Basically, research paradigms are fundamental beliefs that affect the ways to conduct business research, including the choice of a particular research methodology. All academic studies are essentially based on some underlying philosophical assumptions about what constitutes a 'valid' research and which research method(s) is(are) appropriate for the development of knowledge in a given discipline or study (Antwi and Hamza, 2015). Therefore, a fundamental issue for the researchers to consider is not only related to the choice of the methodologies but related to the acknowledgement of the research paradigms (Sobh and Perry, 2005). The term ‘Paradigm’, which is derived from a Greek word 'paradeigma', was first used by Kuhn in 1962 to denote a conceptual framework. In general, a research paradigm provides a convenient model for examining problems and finding solutions for a researcher. Olsen et al. (1992) consider that 'paradigm' implies a pattern, structure and framework or system of scientific and academic ideas, values and assumptions, which reflects in the implementation of research process.

It is commonly argued that there are two contrasting research paradigms: positivist and interpretivist (Bryman and Bell, 2007; Neuman, 2003). A positivist research often starts with a thorough review of prior literature or theory, followed by a period of data collection, hypotheses developed and tested, finally, the findings that lead to the revision of theory. Bryman and Bell (2007) sub-head their section on positivism as ‘a natural science epistemology’ which captures the essence of the position. A positivist study can be said to be the process of collecting data and testing generalisable propositions to verify factual information (Bryman and Bell, 2007).

The positivist research paradigm underpins quantitative methodology. The objectivist ontology and empiricist epistemology need suitable objective research methodology, in which the measuring variables and testing hypotheses are associated with general causal explanations (Sarantakos, 2005; Marczyk et al., 2005). A positivist research focuses on collecting and gathering hard data in the form of numbers in order to observe the changes and summarise evidence. The data collection techniques focus on gathering hard data to enable evidence to be presented in the quantitative form.

By contrast, qualitative methodology is underpinned by interpretivist epistemology and constructionist ontology. This methodology explains event through the participants' experiences. Merriam (1988) explains that qualitative methodology assumes that meaning is embedded in the participants' experiences and that this meaning is mediated through the researcher's own perceptions. In general, researchers often place themselves into the event, such as participating in the activities, interviewing key people, taking life histories, taking case studies and analysing related documents, to observe participants in order to find the result and interesting phenomena that worth further exploring. Comparing to quantitative research methodology, the users of qualitative methodology do not believe in experimental or quasi-experimental research designs. The users of qualitative methodology believe that reality is multifaceted and complex so that only study in the laboratory cannot explain the nature of events (Candy, 1991).

As a whole, the research process involved in a study has three major dimensions: ontology, epistemology and methodology (Blanche and Durrheim, 1999), and research paradigm includes all these three dimensions (Beech, 2005). Research paradigm can be regarded as the "basic belief system or worldview that guides the investigator" (Guba and Lincoln, 1994).

4.2.2 Ontology and Epistemology

The word 'ontology' in the Oxford dictionary is defined as follows: 1) The branch of metaphysics dealing with the nature of being; 2) A set of concepts and categories in a subject area or domain that shows their properties and the relations between them (https://www.lexico.com/en/definition/ontology). Blaikie (2010) states that ontology can be defined as "the science or study of being" and how people recognise the nature of reality. In other words, ontology can also be regarded as a system of belief that helps an individual reflect about what constitutes a fact (Antwi and Hamza, 2015; Bryman and Bell, 2011). The ontology is "reality", which can be more specifically explained as a systematic account of existence (Gruber, 1993). Ontology refers to a branch of philosophy concerned with expressing the nature and structure of the world (Wand and Weber, 1993). In other words, ontology can explain the form and nature of reality.

Ontology can be divided into two branches: objectivism and constructionism. Objectivism

considers that reality is objectively given and it is independent of the researcher. Positivists also assume that reality is measurable, and therefore scholars can adopt scientific methods to schematise the knowledge generation process, as well as with the help of quantification to improve accuracy in the description of parameters and the relationship among the parameters (Antwi and Hamza, 2015). Constructivism stresses that knowledge emerges through the individuals' interaction with the environment in the course of experience. In other words, social and business reality is a human construct. Constructionism is usually understood to be an overarching label for qualitative studies that focus on how social and business realities are constructed. Constructionism and interpretivism share much common. In general, interpretivism is a constructionist approach that focuses on individuals' experiences and the meanings individuals attach to such an experience. Interpretive academics think that reality comprises of individual's subjective experiences of the whole world; therefore, reality is socially created (Mutch, 2005). In other words, a reality is a human construct. In an interpretive study, there are no correct or incorrect theories. Instead, theories should be judged through "how interesting they are to the researcher" as well as those included in the same areas. Interpretive paradigm is reinforced by observation and interpretation, thus to observe is to collect information about events, while to interpret is to translate the information by diagram inferences or by adjudicating the match between the information and some abstract shapes (Aikenhead, 1997). Overall, the interpretive paradigm is concerned with exploring the world as it is from subjective experiences of individuals. This study is based on the interpretive paradigm by exploring the connections between a firm's risk management capability and the use of financial derivatives through contents analyses of corporate financial reports. This is because the corporate behaviours (e.g., the use of financial derivatives) are largely influenced by 'social' reality (including regulations, social culture, corporate characteristics, risk management policies and corporate strategies, the availabilities of derivatives etc.).

While ontology deals with the sets of philosophical questions about "what is reality?", epistemology considers a philosophical question of "how do we understand reality?". In other words, epistemology focuses on potentials, nature, sources and limitations of knowledge in the field of a study. Sobh and Perry (2005) explain that epistemology is the relationship between that reality and the scholar. There are two broad epistemological positions, which are paralleling to ontological positions of objectivism and constructionism (or constructivism): positivism and interpretivism. Epistemology is usually defined as the nature of a clarification: what kind of methodology will be used, what valid structure it is necessary to have, what

evidence is needed, or how to answer the question 'why our knowledge is knowledge'. Bryman and Bell (2007) argue that the central point of orientation is the question of whether social entities can and should be considered objective entities that have a reality external to social actors. Table 4.1 shows the detailed differences between positivism and interpretivism.

Table 4.1: Differences between positivism and interpretivism

Assumptions	Positivism	Interpretivism
Nature of reality	Objective	Subjective
Goal of research	Try to explain things and predict future	Try to understand things and always with weak prediction
Focus of interest	Try to find out the general regulation	Try to find out the specific point
Knowledge generated	Absolute	Relative
Relationship between researchers and their subjects	Separation	Participative
Desired information	How many people think and what is the specific thing	What some people think and what kind of problems they have and how they deal with them

Neuman (2003) explains that positivism sees social science as an organised method for uniting deductive logic with exact experiential observations of an individual's behaviour in order to learn and confirm a set of probabilistic causal laws, which can be used to forecast general models of human and organisational activity. In addition, interpretivists think that the world is constructed, interpreted, and experienced by people in their contacts with each other and with broader social systems (Guba and Lincoln, 1985; Merriam, 1988; Bogdan and Biklen, 1992; Maxwell, 2006).

Bryman and Bell (2007) imply the epistemological issue as "an issue concerning the question of what is regarded as acceptable knowledge in a discipline". Epistemological assumptions can be mapped along a continuum with positivism on one extreme and interpretivism on the other. Four major sources of knowledge related to finance, accounting and business research can be summarised as follows: 1) Intuitive knowledge; 2) Authoritarian knowledge; 3) Logical knowledge; 4) Empirical knowledge. Sometimes, the research process of a study may integrate all these four sources of knowledge within only one single study. For instance, intuitive

knowledge can help users to choose a research area, and authoritative knowledge can be used for literature review, whereas logical knowledge can always be used to analyse the primary data. Moreover, empirical knowledge is a good choice to help a researcher to generate research conclusions.

Positivist and interpretivist rely on different kinds of data for research. Positivists use quantitative data as quantitative data provides objective information that researchers can use to make scientific assumptions (Pham, 2018). In other words, quantitative research can be regarded as more 'scientific' in its methods than qualitative research and thus more trustworthy. In addition, a positivist researcher believes that there are sets of laws and regulations to be followed, therefore, it is vital to avoid the error. However, everything has two sides. An inflexible method can avoid the mistake, but it may not be a satisfactory method to explain a reality or a phenomenon. Positivists tend to disregard unexplained phenomena. Furthermore, positivist researchers in general neglect individuals' emotional, which may affect the human behaviour. By contrast, interpretivists can use qualitative data to provide a detailed description of participants' feelings, opinions, and experiences, and interprets the meanings of their actions. Qualitative data gives a better quality of information and insights that actually reflect the dynamics of reality and human organisations. Moreover, interpretivists prefer to use qualitative data as it is often associated with a high level of validity because data in such researches tends to be trustworthy and honest (e.g., data from interviews and surveys). Comparing with quantitative data (mostly secondary data), qualitative data is often affected by human behaviour, such as experiences, values and beliefs. Therefore, the reliability of qualitative data is undermined to a certain extent as well. This study will follow the interpretive paradigm by using qualitative data to be collected through six case studies and content analysis, which will be explained later on.

4.2.3 Research methodology choice

Research method is often referred to the techniques used by the researcher to discover the reality. It is a research strategy that translates ontological and epistemological principles into guidelines that show how a piece of research is to be conducted (Sarantakos, 2005). Research methodology, as explained in previous sections, can be divided into two different categories of methodologies in terms of types of data used for research: quantitative and qualitative research. These two methodologies are always used on different models of research with different

epistemologies and different structure of representation (Denzin and Lincoln, 2000). Kumar (2011) suggests that there are three main considerations to take into account in order to make a decision between the choice of quantitative and qualitative research: (1) the objective of the research; (2) how the variable is measured; and (3) how the information is analysed.

Quantitative research is underpinned by the positivist research paradigm. Positivist research focuses on collecting and gathering quantitative data in order to observe the changes and summarise evidence. The data collection skills concentrate on collecting hard data to enable evidence to be presented in the quantitative form (Sarantakos, 2005; Marczyk et al., 2005). By contrast, qualitative research is underpinned by interpretivist epistemology and constructionist ontology. This kind of research explains event through the participants' experiences. This study adopts qualitative research given the multifaceted and complex nature of the use of financial derivatives and the measure of risk management capability. According to Antwi and Hamza (2015), qualitative research is used to explain what is seen nearby and sometimes to come up with or produce new hypotheses and theories. In general, a researcher uses qualitative research to explore a phenomenon that is little or do not known before. This study uses qualitative research as there is little known of possible links between a firm's risk management capability and the use of financial derivatives.

4.3 Research Designs

By definition, research design is "…the blueprint for the collection, measurement and analysis of data" (Phillips, 1971). As an important part of research process, research design is "the plan and structure of investigation so convinced as to obtain answers to research questions" (Kerlinger, 1986). There are several factors to consider in designing a piece of research. Fundamentally, the design of a research should be relevant to the underlying research problem. In this study the research problem is related to if there is a connection between a firm's risk management capability and the use of financial derivatives.

This study uses qualitative research because of several reasons. Firstly, quantitative research can cause endogeneity. As it has been identified in the literature, one of the problems in using a quantitative study of the relationship between the use of derivatives and firm risk management is that both are endogenously determined, and in many cases the relationships are driven by similar variables (Allayannis et al., 2003). Secondly, to measure managerial

capability is rather too subjective and thus no quantitative measures would be able to reflect the nature of capability. Thirdly, risk management behaviour and decisions of using financial derivatives are better served by qualitative research as qualitative studies are well suited to studying complex interconnections and relationships without reducing the complexity to simple numbers or variables.

In previous financial derivatives research, most studies have used quantitative research. Recognising the limitation of quantitative approach in identifying corporate behaviours and the decision usefulness of using derivatives, Huang and Gao (2014) and Nawaz et al. (2018) have used qualitative research methods. Recently, Nawaz et al. (2018) use a qualitative research methodology to examine the relationship between the use of financial derivatives and firm performance in the case of Pakistan SMEs. It is argued by the authors that the strength of the qualitative approach lies in its ability to provide rich data. Qualitative research provides a more realistic feel of the real world and offers flexible ways of collecting, analysing and interpreting data of the phenomenon under investigation (Lee, 1992; Jack and Anderson, 2002). Nawaz et al. justify the use of qualitative research with three specific reasons including: 1) it can significantly aid for improving the credibility of the qualitative findings; 2) it allows the relative structured approach for categorising about what essentially needs to be incorporated within its reach in an initialising stage; 3) it is data driven and emergent approach that provides a reliable, valid and rigorous data collection process, and 4) it permits the researchers deep data collection than several other interview types as they make effort to gain insight into the understanding of informant's situations.

More specifically, this study will choose case studies and content analysis as research methods with the use of critical analysis.

4.4 Case study

4.4.1 Case study research method

Case study as a research method has grown significantly in reputation as an effective methodology to study and investigate complex issues in real business and world settings. It is argued that case study research can be a robust research method particularly when a holistic, in-depth investigation is needed. One of the reasons for the recognition of case study as an effective research method is that the researcher is increasingly becoming more concerned about

the limitations of quantitative methods in providing holistic and in-depth explanations of corporate behaviours and management decision-making. Using the case study research method, the researcher will be able to go beyond the quantitative statistical results and understand the behavioural conditions through the actor's perspective and the business' operation and practices. As observed by Tellis (1997), by including both quantitative and qualitative data, case study research can be more effective in helping explain both the process and outcome of a phenomenon through complete observation, reconstruction and analysis of the case(s) under study.

Yin (1984, p. 23) defines the case study research method as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used". In fact, the case study research method enables the researcher to closely study the actual data within a specific context that can be very unique and dynamic. In most cases, a case study researcher will select a small number of individual cases as the subjects of study. In this study, six companies will be chosen as the subjects of analysis of cases with a view to identifying the possible association between a firm's risk management capability and the use of financial derivatives. The next subsection will give the details of case selection process of this study.

For the use of case study research method, it is important to consider the proper design of a case study. The researcher can adopt a single-case or multiple-case design, which is subject to the issue and subject of study in question. In this study, a multiple-case design is adopted, including six public listed companies (i.e., Diageo, Unilever, Intertek Group, Vodafone, Ashtead, and Merlin Entertainments) listed on the London Stock Exchange[22]. Particularly, in cases where there are no other cases available for replication, the researcher can only adopt the single-case design. Certainly, the drawback of a single-case design is its inability to provide a generalising of applying conclusion, in particular when the events and cases are rare. The multiple-case study design, on the other hand, will be more effective when it is used in real-life events that present numerous sources of evidence through replication rather than sampling logic. It is quite clear, regardless of a single-case design or multiple-case study design, the generalisation of results from any case studies stems on theory rather than on populations (Yin,

[22] The selection of these cases is given in the next sub-section.

1984). As explained by Campbell (1975), by replicating the case through pattern-matching, a technique linking several pieces of information from the same case to some theoretical propositions, a multiple-case design enhances and supports better the findings and empirical results, which help raise the level of confidence in the robustness of the method. Based on this reason, this study adopts a multiple-case design.

According to Yin (1984), there are several categories of case study, including exploratory, descriptive and explanatory case studies. While exploratory case studies aim to explore any phenomenon in the data which serves as a point of interest to the researcher, descriptive case studies set to describe the natural phenomena which occur within the data in question. For example, what strategies are used by a company in terms of managing foreign exchange risk and how the company uses them. The goal set by the researcher is to describe the data as they occur. It has been suggested that descriptive case studies could be in a narrative form. In applying the descriptive case study method, the challenge for the researcher is that he or she must begin with a descriptive theory to support the description of the phenomenon or case. If this does not success, there is a possibility that the description does not give a rigour analysis and such a lack of rigour could occur during the whole project.

With regard to an explanatory case study, it examines the data closely both at a surface and deep level with the intention of explaining the case or phenomena in the data. On the basis of the data, the researcher may then form a theory and set to test this theory. Yin and Moore (1987) also note that explanatory cases can also be deployed for causal studies where pattern-matching can be used to examine certain phenomena in very complex and multivariate cases. Further, Yin and Moore observe that these complex and multivariate cases can be explained by three rival theories including: a knowledge-driven theory, a problem-solving theory, and a social-interaction theory. As far as knowledge-driven theory is concerned, it requires that eventual commercial products, for example, goods and marketing channels, are the results of ideas and discoveries from basic research. This is also applied to the problem-solving theory, although the problem-solving theory considers more external sources rather than from basic research. On the other hand, the social-interaction theory argues that overlapping professional network causes researchers and users to communicate frequently with each other.

For this study, the researcher uses the explanatory case study method by investigating the corporate financial information from the annual reports and other documents closely both at a

surface and deep level in order to identify the association between a firm's risk management capability and the use of financial derivatives. Such an identification may then be used for forming a theory so that a further research can test this theory.

4.4.2 Risk management capability ranking design

To select company cases, this study uses a designed ranking system to rank firm risk management capabilities. This study selects two companies from the top, two companies from the bottom and two companies in the middle of ranking of firm risk management capabilities.

Having searched the literature and websites on the Internet, the researcher finds there is no risk management capability ranking system or index, nor risk management capability data available. The reason for a lack of such a measure or index may be that this risk management capability concept is rather new.

Because there is no risk management capability ranking system that can be adopted straightway, there is a need to develop such a system; such a system expects to make a contribution to the literature. A ranking system can be designed in many different ways, depending on the emphasis of elements or components in a measure or ranking. In the design of a ranking system, it is important to ensure the relevant data are combined in specific ways to create an index which is then used to rank the subjects (e.g., institutions, activities, projects, performance). Clearly, it is imperative for a good ranking system to ensure the measure(s) to accurately replicate the characteristics and quality of the subject to be rated.

This study attempts to combine two main measures that can signal a firm's risk management capabilities: corporate governance and CSR ratings. The justification is based on the direct relationships between corporate governance and risk management, and CSR and risk management. The discussion and supporting literature on the connections between corporate governance and risk management capability, and CSR and risk management capability were given in the previous chapter[23].

Firstly, the relationship between corporate governance and risk management has been well

[23] Specifically, Section 3.5.1 focuses on corporate governance and risk management capability and Section 3.5.3 deals with the link between CSR and risk management capability.

documented in the literature (e.g., Sobel and Reding, 2004; Tao and Hutchinson, 2013; Ellul, 2015). The ASXCGC describes corporate governance as "the framework of rules, relationships, systems, and processes within and by which authority is exercised and controlled in corporations … it encompasses the mechanisms by which companies, and those in control, are held to account. Corporate governance influences how the objectives of the company are set and achieved, how risk is monitored and assessed, and how performance is optimized. Good corporate governance structures should encourage companies to create value (through entrepreneurialism, innovation, development, and exploration) and provide accountability and control systems commensurate with the risks involved" (ASXCGC, 2006:4). It is also noted that the responsibility for managing risk in a firm in terms of direction, authority and oversight rest with the structure of governance and the board of directors provides direction, authority, and oversight across the company concerning the appropriateness and effectiveness of risk management, controls, and processes. In many companies, a risk management committee is structured under the board of directors.

The literature has widely recognised that effective corporate governance contributes to the function of corporate risk management and firm values. Tao and Hutchinson (2013) reveal that the composition of the risk and compensation committees as a core constituent of corporate governance is positively associated with risk, which, in turn, is associated with firm performance. The literature acknowledges that effective corporate governance ensures both current and future risks that affect all stakeholders are identified and that the appropriate internal controls are used to mitigate, and in some cases turn risk into opportunities, reflecting the risk management capabilities. Drew and Kendrick (2005) document that five elements of corporate governance (i.e., Culture, Leadership, Alignment, Systems, and Structure) support the development of an integrated and robust approach to corporate risk, and help senior executives anticipate and handle the complexities of risk inherent in meeting strategic objectives to manage strategic risk. Also, corporate governance principles have commonly been used by firms to develop their risk management system and manage financial and operational risks.

Secondly, the mutual relationship between corporate social responsibility (CSR) and a firm's risk management is also recognised. Corporate social responsibility (CSR) is regarded as activities and functions performed by a firm to manage its social and environmental risks and manage the conflicts of interests among external stakeholders. Kytle and Ruggie (2005) use

"Corporate social responsibility as risk management" as the title of their work as part of the Corporate Social Responsibility Initiative at the Kennedy School of Government.[24] The mutual relationships between CSR and risk management are undisputed (Kytle and Ruggie, 2005; Diffey, 2007). According to Diffey (2007), CSR is about risk management from the perspective of stakeholders and risk management is about CSR as CSR shows how to avoid risk or minimise risk, which is a subject matter of risk management process. CSR is an instrument to mitigate risk that is a significant part of corporate strategy and management. Kytle and Ruggie (2005) document that CSR programmes are a necessary element of risk management for global companies because they provide the framework and principles for stakeholder engagement, can supply a wealth of intelligence on emerging and current social issues/groups to support the corporate risk agenda, and ultimately serve as a countermeasure for social risk. Indeed, CSR is a crucial part of the process of risk management that involves identifying appropriate social risks, defining their influence and showing means of reducing the likelihood of social risk and its consequences.

Based on the above arguments, this study assigns weightings to these two aspects of rating, i.e., corporate governance and CSR. It is normal for any ranking that weightings are 'subjectively' assigned. In order to reduce the subjectivity, the researcher assigns five weightings comprising 30% vs. 70%, 40% vs. 60%, 50% vs. 50%, 60% vs. 40%, and 30% vs. 70%[25] to corporate governance dimension and CSR dimension in order to obtain comprehensive scores for these sample companies. Based on the scores, two top, two middle and two bottom ranked companies are selected as the cases for this study. The formula of comprehensive scoring designed for this study is given as follows:

$$\text{The Score of Risk Management Capability} =$$
$$(70\% * Mean\ Value\ of\ CG + 30\% * Mean\ Value\ of\ CSR)$$
$$+ (60\% * Mean\ Value\ of\ CG + 40\% * Mean\ Value\ of\ CSR)$$
$$+ (50\% * Mean\ Value\ of\ CG + 50\% * Mean\ Value\ of\ CSR)$$

[24] "The Corporate Social Responsibility Initiative at the Kennedy School of Government is a multi-disciplinary and multi-stakeholder program that seeks to study and enhance the public role of the private enterprise. It explores the intersection of corporate responsibility, corporate governance and strategy, public policy, and the media. It bridges theory and practice, builds leadership skills, and supports constructive dialogue and collaboration among different sectors. It was founded in 2004 with the support of Walter H. Shorenstein, Chevron Corporation, The Coca-Cola Company, and General Motors" (Kytle and Ruggie, 2005).

[25] An extension of weightings to further percentages of 20% vs. 80% and 10% vs. 90% does not alter the ranking of the sample.

$$+ (40\% * Mean\ Value\ of\ CG + 60\% * Mean\ Value\ of\ CSR)$$

$$+ (30\% * Mean\ Value\ of\ CG + 70\% * Mean\ Value\ of\ CSR).$$

4.4.3 Case selection process

As explained previously, this study uses a combination of corporate governance ratings and CSR scores as a measure of a firm's risk management capability with a view to choosing company cases at three different levels of risk management capability: high, middle and low levels.

This study chooses non-financial services firms as financial services sectors are under different regulations in terms of the use of derivatives and risk management. The process of selecting case companies as follows: Firstly, all the companies that are included in the Institute of Directors (IoD) corporate governance index from 2015 to 2017[26] are listed as potential samples. Secondly, all the financial services companies, which have the different regulations and rules on derivatives and risk management from non-financial companies, are then removed from the list. Thirdly, these non-financial companies that were continuously listed over three years between 2015 and 2017 are selected as the final sample. Fourthly, the researcher averages CG and CSR rankings and applies the both averages to the risk management capability ranking score formula (shown as Equation 1 above) to obtain the final scores of risk management capability of the sample. Finally, the six company cases are chosen according to their risk management capability scores.

IoD provides corporate governance ratings for the companies over the three-year periods. CSRHub provides CSR access to corporate social responsibility and sustainability ratings and information on over 17 thousand companies from over 40 countries/regions. CSRHub rated 12 indicators including employee, environment, community and governance performance. Data from CSRHUB has recently been widely used in previous studies (e.g., Thanetsunthorn, 2015; Subramaniam et al., 2017; Keong et al., 2018; Braune et al., 2019). This study also uses

[26] See: "The Great Governance Debate – Towards a Good Governance Index for Listed Companies" published by Institute of Directors in association with Cass Business School (https://www.iod.com/news-campaigns/good-governance-debate/). The full ranking of good governance index for listed companies was on the page 6, 10 and 12 respectively between 2015 and 2017 IoD reports. All these companies are the 100 largest companies listed on the London Stock Exchange. For example, on IoD's report 2015 page 5, "To be included in the study a company must be in the 100 largest companies listed on the London Stock Exchange on 27/3/15 (excluding investment trusts)".

CSRHUB scoring data.

Table 4.2 shows the data of all the initial samples and rankings. From the list it is clear that Diageo and Unilever are the top two companies, scoring over 86%. The bottom two companies are Ashtead Group and Merlin Entertainments plc. Scoring below 67.54% 64.31% respectively. Other two companies chosen that belong to the middle range of risk management capability are Vodafone Group and Intertek Group, scoring at 78.55% and 78.47% respectively.

Table 4.2: Firm risk management capability ranking

	2015	2016	2017	CG Average %	CSR Average %	Total Average (70%30%)	60%40%	50%50%	40%60%	30%70%	Final
Diageo	744.4	755	837	78%	98%	84%	86%	88%	90%	92%	88%
Unilever	793.8	778	791	79%	96%	84%	86%	87%	89%	91%	87%
National Grid	731.6	744	754	74%	95%	81%	83%	85%	87%	89%	85%
Croda International plc	800	727	762	76%	93%	81%	83%	85%	86%	88%	85%
Kingfisher	609.1	762	802	72%	96%	80%	82%	84%	87%	89%	84%
Pearson	789.5	687	708	73%	95%	79%	82%	84%	86%	88%	84%
Glaxosmithkline	760.4	728	627	71%	96%	78%	81%	83%	86%	88%	83%
Johnson Matthey	790	722	749	75%	91%	80%	82%	83%	85%	86%	83%
GKN	769.2	724	824	77%	89%	81%	82%	83%	84%	85%	83%
Mondi plc	750	724	746	74%	92%	79%	81%	83%	85%	87%	83%
Whitbread	731.8	740	700	72%	93%	79%	81%	83%	85%	87%	83%
Royal Mail plc	604	755	780	71%	94%	78%	80%	83%	85%	87%	83%
Smiths Group	800	737	813	78%	86%	81%	81%	82%	83%	84%	82%
Compass Group	580	750	805	71%	93%	78%	80%	82%	84%	86%	82%
Astrazeneca plc	787.9	729	756	76%	88%	79%	81%	82%	83%	84%	82%
Marks & Spencer Group	767.9	750	723	75%	89%	79%	80%	82%	83%	85%	82%
BT Group	653.7	727	751	71%	92%	77%	79%	82%	84%	86%	82%
Bunzl	880	711	760	78%	84%	80%	81%	81%	82%	82%	81%
Intercontinental Hotels Gro	723.5	745	805	76%	86%	79%	80%	81%	82%	83%	81%
United Utilities Group plc	616.7	758	702	69%	92%	76%	78%	81%	83%	85%	81%
Royal Dutch Shell	761.1	750	707	74%	87%	78%	79%	80%	82%	83%	80%
Reckitt Benckiser Group plc	690	739	706	71%	88%	76%	78%	80%	81%	83%	80%
Smith & Nephew	793.3	747	774	77%	82%	79%	79%	80%	80%	81%	80%
SSE plc	725	689	734	72%	87%	76%	78%	79%	81%	82%	79%
Centrica plc	670.4	720	780	72%	86%	76%	78%	79%	81%	82%	79%
Vodafone Group	713.9	744	761	74%	84%	77%	78%	79%	80%	81%	79%
Barratt Developments plc	658.8	725	735	71%	87%	76%	77%	79%	80%	82%	79%
Taylor Wimpey plc	657.1	705	722	69%	88%	75%	77%	79%	81%	82%	79%
Intertek Group	900	740	751	80%	77%	79%	79%	78%	78%	78%	78%
Severn Trent plc	665	734	747	72%	84%	75%	77%	78%	79%	80%	78%
Next	744.4	763	728	75%	81%	76%	77%	78%	78%	79%	78%
Rolls-Royce Holdings plc	796	648	701	72%	84%	75%	77%	78%	79%	80%	78%
Burberry Group	720	720	694	71%	83%	75%	76%	77%	78%	79%	77%
Informa plc	633.3	704	765	70%	83%	74%	75%	77%	78%	79%	77%
Berkeley Group Holdings	723.1	641	764	71%	82%	74%	75%	76%	78%	79%	76%
British American Tobacco	621.4	793	784	73%	77%	74%	75%	75%	76%	76%	75%
Hikma Pharmaceuticals	800	675	786	75%	74%	75%	75%	75%	75%	74%	75%
BAE Systems	710.8	706	693	70%	79%	73%	74%	75%	76%	76%	75%
ITV	676	725	724	71%	78%	73%	74%	74%	75%	76%	74%
Sky plc	624.4	672	759	69%	80%	72%	73%	74%	75%	77%	74%
Fresnillo plc	800	706	728	74%	74%	74%	74%	74%	74%	74%	74%
BP	684.2	694	762	71%	76%	73%	73%	74%	74%	75%	74%
Associated British Foods	781.8	655	791	74%	73%	74%	74%	74%	74%	73%	74%
Bhp Billiton	700	728	766	73%	74%	73%	73%	74%	74%	74%	74%
Rio Tinto	688.9	724	731	71%	73%	72%	72%	72%	72%	73%	72%
Tesco	478.5	603	739	61%	80%	66%	68%	70%	72%	74%	70%
Easyjet	746	714	747	74%	66%	71%	71%	70%	69%	68%	70%
Babcock Intl Group plc	730	711	758	73%	64%	71%	70%	69%	68%	67%	69%
Sage Group	750	769	768	76%	59%	71%	69%	68%	66%	64%	68%
Ashtead Group	700	717	749	72%	62%	69%	68%	67%	66%	65%	67%
Merlin Entertainments plc	785.7	736	769	76%	50%	68%	66%	63%	61%	58%	63%

4.5 Content analysis

4.5.1 Content analysis research method

In addition to the case study as the main research method, this study has also used content analysis technique in collecting qualitative data and evidence concerning the use of financial derivatives and a firm's risk management policies and strategies from published annual reports. Content analysis is widely considered the most popular method for qualitative research (Kolbe and Burnett, 1991; Bryman and Bell, 2011). Content analysis is regarded as an effective approach in exploratory research, where there is no need to make generalisation (Kolbe and Burnett, 1991). It is a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding (Krippendorff, 1980; Weber, 1990). Bryman and Bell (2011) note that the popularity of content analysis is because content analysis can be used as a useful tool to analyse the documents and texts.

For this research, as the core research objective is to identify possible impacts of a firm's risk management capability on the use of financial derivative, it requires qualitative evidence and thematic advent, which can be extracted from the annual reports published by the firms. Annual reports are the most reliable documents available for the public as they are verified by the third independent party. Content analysis has been extensively employed in the study of corporate reporting (e.g., Abbott and Monsen, 1979; Gruber, 2014; Hart, 2014).

Basically, content analysis is a class of techniques for mapping symbolic data into a data matrix suitable for further analysis. Content analysis involves measurement, not 'analysis' in the usual sense of the word. Texts (particularly annual reports, published documents) and transcripts have been by far the most common objects of content analysis. In order to achieve the purpose of this research, some samples of company statements and disclosures will be selected. Therefore, content analysis is used in this study to analyse disclosures of a case firm's risk and risk management (including policy, strategy, organisation etc.) and the use of derivatives in companies' annual reports.

4.5.2 Content analysis design

Content analysis is widely considered as a research tool used to determine the presence of certain words, themes, or concepts within given text. Using content analysis, researchers can quantify and analyse the presence, meanings and relationships of such certain words, themes

or concepts. In this study, content analysis is used to determine the presence of certain words from the annual reports published by the case companies.

In this study, content analysis design starts with the identification of key words/themes relating to the research questions, considering the risk management capability aspect and the derivatives usage aspect. Table 4.3 lists the key words/themes and sub-themes that were used in identifying the relevant information from the annual reports of case companies over the three-year period.

Table 4.3 key words/themes and sub-words/themes used in content analysis

Key words/themes	*Sub-words/themes*	Key words/themes	*Sub-words/themes*
Risk	Risk Exposures Uncertainty Hazard Gamble Speculation	Derivatives	Derivatives Forward Futures Option Swap Financial instrument
Risk management	Risk management Risk control Risk mitigation Risk governance Risk audit	Hedging	Hedging Foreign exchange contracts Interest rate risk Transaction exposure hedge Hedging instrument Hedging strategy
Capability	Capability Ability Be able to Capability Competence	Speculation	Speculation Speculative gain Speculative loss Trading purpose
Corporate governance	Corporate governance Board of directors Audit committee Risk management committee Risk strategy Risk management policy	Derivatives Valuation	Notional amount Fair value IFRS 7 IFRS 9

4.6 Summary

This chapter provides a discussion of research methodology for this study and a description of the research design. Given the nature of this research and its research objectives, this study uses case studies on the grounds that this research method facilitates the development of a deeper understanding of the role of different types of controls and risk management capabilities and their impact upon the use of financial derivatives. Case studies are particularly useful for an exploratory research, where an inductive approach can be adopted, using theory to explain empirical observations and also inform refinements and extension of theory (Otley and Berry, 1994).

This study uses the interpretivism because it recognises the influence of organisational context upon the choice and use of financial derivatives as well as the adoption of risk management tools. Nevertheless, the limitations of case study research and content analysis are fully acknowledged, including, for example, its dependence on the materials available from the cases and the resulting lack of ability to validate a theory from the findings. However, it is strongly argued by the researcher that case study provides valuable analytic evidence to support the development of a theoretical framework on the (non-)association between the risk management capability of a firm and the use of financial derivatives.

Overall, this study chooses cases from top 100 companies from FTSE's top 350 listed companies. Listed companies are selected because listed companies have an obligation to provide the public with the annual reports and they usually have better financial resources to report on their risk management and the use of derivatives. Furthermore, these selected companies are selected with the use of a designed risk management capability rating system combining corporate governance and CSR aspects from the company list of DoI reports. The companies are chosen based on the ratings of the top, bottom and middle levels of risk management capabilities. Case study approach is adopted to analyse six case companies for the three years. Content analysis is used to analyse the reports published by these companies and other online documents. In this Chapter, the design of risk management capability ranking and the key words/themes and sub-words/themes of content analysis are explained.

Chapter 5: Risk Management Capabilities and the Use of Derivatives: Case Studies

5.1 Introduction

This chapter presents case studies as part of empirical research. The case study offers practical insights of business in developing their risk management and the use of derivatives. The six cases were chosen according to the criterions explained in Chapter 4: two top rated companies in risk management capability (i.e., Unilever and Diageo), two bottom rated companies in risk management capability (i.e., Ashtead and Merlin Entertainments plc.), and two middle-rated companies (i.e., Vodafone Group and Intertek Group). This chapter focuses on the details of risk and risk management, derivatives disclosures, and the use of derivatives of case companies. Prior to an analysis, there will be a brief introduction to the case company[27]. Critical analyses of the case study results will be presented in Chapter 6.

5.2 Case Study 1: Unilever

5.2.1 Introduction to the case of Unilever

Unilever is a British-Dutch transnational consumer goods company co-headquartered in London and Rotterdam. Unilever has a long history of almost 150 years. Its operation scope is organised into four main parts: Personal Care (including production and sale of skin care and hair care products, deodorants and oral care products); Home Care (including production and sale of home care products including powders, liquids and capsules, soap bars and other cleaning products); Foods (including production and sale of soups, bouillons, sauces, snacks, mayonnaise, salad dressings, margarines and spreads); and Refreshment (including production and sale of ice cream, tea-based beverages, weight-management products and nutritionally enhanced staples sold in developing markets).

Unilever's corporate purpose is to achieve "the highest standards of corporate behaviour towards everyone we work with, the communities we touch, and the environment on which we have an impact"[28]. In the company's annual reports, it shows that the company is a business founded on "a sense of purpose, and their unique heritage" that still shapes the way the

[27] As company websites provide much detailed information about the history of those case companies, an introduction is deliberately to be brief.

[28] See: https://www.unilever.com/about/who-we-are/our-values-and-principles/ (Accessed on 07/08/2019)

company does business today.

With regard to corporate strategies, the company developed overall strategy and long-term strategy. Overall strategy is also called as 'Vision'. There are several major parts of the vision of Unilever: Business; Health; Livelihood; and Environment. Also, there are five parts of long-term strategic choices of Unilever listed on the company's official website. Table 5.1 profiles the content of long-term strategy of Unilever.

Table 5.1 Long-term strategy of Unilever

Portfolio choices	Category choices
	Active portfolio management
	Building a Prestige business
Brands and innovation	A focused approach to innovation
	Driving efficiency and margins
	Increased investment in digital marketing
Martet development	Routes to market
	Emerging markets
	E-commerce
Agility and cost	Zero-based budgeting
	Manufacturing base and overheads
	Leveraging scale
People	Attracting talent
	Developing talent
	Values-led and empowered

Source: Adapted from Unilever's website: https://www.unilever.com/about/who-we-are/our-strategy/ (accessed on 01/4/2019)

In addition, four parts of 'Growth' strategies presented by the company include consistent, competitive, profitable, responsible as shown as follows:

- Consistent - The company aims to deliver consistency in underlying sales growth, core operating margin and free cash flow by continuously investing in their supply chain, their brands and marketing, their people and IT.
- Competitive - By investing in innovation, Unilever can grow its market share while also seeking to enter new markets and new segments.
- Profitable - Unilever seeks continuous improvement in their world-class manufacturing to drive cost savings and higher returns, providing extra fuel for growth as cash is redeployed in new strategic opportunities.
- Responsible - Growth that is responsible and involves having a positive social impact

and reduced environmental footprint, which is the essence of the USLP[29] and is essential in protecting and enhancing the company's reputation.

It was reported that Unilever had a strong leadership. The company's former CEO, Paul Polman, who received the Business for Peace Award in Oslo for his efforts to reduce the company's environmental footprint and increase its positive social impact while simultaneously doubling the size of the corporation (Oetzel and Miklian, 2017). Paul Polman held the CEO position for a decade, leading an effective leadership team of Unilever and building the strong management capabilities. This may have contributed to the top rating of Unilever for its risk management capability among the sample companies, based on the rating designed in this study.

5.2.2 Risk and risk management of Unilever

Unilever well identifies key risks it faces ever year. For example, in 2015, 13 main risks were identified and reported in its annual report (Unilever's Annual Report, 2015, p.40-41). Appendix 1 lists all the risks reported by Unilever in 2015 and their description. In 2016, a new risk was identified and reported in the annual report, which is called 'Climate Change'. This is really interesting as this risk wasn't mentioned before. The recognition of this new type of risk could be due to external pressures from environmentalists and other stakeholders, and the impact of the Paris Climate Accord. The Accord is, under the UN Framework Convention on Climate Change, the world's first comprehensive climate agreement to be effective on November 4, 2016. As one of the global consumer goods producers, Unilever clearly has an obligation to fulfil its duties towards the Paris Climate Accord. This could be the reason that from 2016 it reported on climate change and potential risk on its business.

According to Unilever's Annual Report 2016 (p.38), climate changes and governmental actions to reduce such changes may disrupt the company's operations and/or reduce consumer demand for Unilever's products. The company recognised, as shown in the Annual Report (2016), that climate changes are occurring around the globe that could impact its business in various ways. They could lead to water shortages which would reduce demand for those of Unilever's products that require a significant amount of water during consumer use. They could also lead to an increase in raw material prices or reduced availability. The company also recognised that

[29] USLP refers to the Unilever Sustainable Living Plan, see: www.unilever.com/sustainable-living (Accessed on 1/4/2019).

governments may take action to reduce climate change such as the introduction of a carbon tax that could impact the company's business through higher costs or reduced flexibility of operations. Indeed, it is possible that climate change could result in making products less affordable or less available for consumers, which can result in reduced growth and profitability for Unilever.

In order to deal with this kind of newly reported risk, Unilever has adopted four risk management methods as follows: 1) The company seeks to develop products that will require less water during consumers' use; 2) Unilever aims to minimise the impact of their products and production processes on climate change through committing to emission reduction targets and have developed a roadmap to be carbon positive by 2030; 3) Unilever monitors trends in raw material availability and pricing, and proactively reformulates their products where appropriate; 4) Unilever monitors governmental developments around actions to combat climate change and act to minimise the impact on their operations. Interestingly, as reported by Energy Manage Today (2017), "Unilever has been quite vocal in terms of speaking out for sustainability in recent years and particularly in recent months. In February, the company announced that by 2050, all of its plastic packaging will be either reusable, recyclable or compostable".[30] It seems that the company was very sensitive to this kind of risk due to the fact that its potential impact on the performance could be huge. As far as the company's risk management is concerned, Unilever was well aware of this new type of risk and its potential impact. Managing of climate risk was considered and planned by the company at the top level as reported in the Annual Report of 2016 and 2017.

There was no new kind of risk that was reported in the Annual Report 2017. However, Unilever paid much attention to climate change risks and opportunities, as shown that the description of climate change risk and opportunities occupies two pages in the annual report, covering "what is climate change risks" and "the impact of climate change risks to Unilever". For instance, on page 32 of the Annual Report 2017 a paragraph reads as follows:

"*As a growing number of investors demand more information on how companies are addressing the effects of climate change, Unilever recognises the importance of disclosing climate-related risks and opportunities. Adopting the Taskforce on Climate-Related Financial*

[30] See: report by Jennifer Hermes on June 5, 2017 "Dropping Out of Paris Accord May Have 'Done Us a Favor,' Says Unilever CEO". https://www.energymanagertoday.com/dropping-paris-accord-may-done-us-favor-says-unilever-ceo-0170465/

Disclosures (TCFD) recommendations is an important step forward in enabling market forces to drive efficient allocation of capital and support a smooth transition to a low-carbon economy".

Overall, the company operates a wide range of risk management processes and activities across all its operations including strategy, planning, execution and performance management. According to Unilever's report, the company has integrated risk management into every stage of the above processes and business cycle. In addition, these procedures are formalised and documented and are increasingly being centralised and automated into transactional and other information technology systems (The Annual Report, 2017, p.26).

With regard to risk management responsibilities and structures, the 'Organisation' part of Annual Report 2017 (p.26) writes that:

"The Boards assume overall accountability for the management of risk and for reviewing the effectiveness of Unilever's risk management and internal control systems. The Boards have established a clear organisational structure with well-defined accountabilities for the principal risks that Unilever faces in the short, medium and long-term. This organisational structure and distribution of accountabilities and responsibilities ensure that every country in which we operate has specific resources and processes for risk review and risk mitigation. This is supported by the Unilever Leadership Executive, which takes active responsibility for focusing on the principal areas of risk to Unilever. The Boards regularly review these risk areas, including consideration of environmental, social and governance matters, and retain responsibility for determining the nature and extent of the significant risks that Unilever is prepared to take to achieve its strategic objectives".

It can be seen that the board has oversighted the overall aspect of risks and risk management and the leadership executive of the company is responsible for managing all kinds of risks including social and environmental risks.

Risk management information appeared in Unilever's Annual Reports from 2015 to 2017. This type of information was always written in three parts in its annual report, consisting of "Risk appetite and approach to risk management", "Governance", and "Notes to the consolidated financial statements (Financial risks)". For the "risk appetite and approach to risk management"

part, for example, the company provided a list of all the principal risks and its related risk management methods. In 2017, more information was given with respect to risk and risk management. In the Annual Report 2017, the company presents “Organisation; Foundation and Principles; Processes; and Assurance and Re-assurance” related information prior to the risk and risk management table.

It seems these disclosures provide a better picture to the external stakeholders on the structure and responsibility of risk management, which is likely to show outside stakeholders its strong risk management capabilities. Moreover, the company’s corporate audit function plays a vital role in providing to both management and the boards an objective and independent review of the effectiveness of risk management and internal control systems throughout the whole company (The Annual Report, 2017, p.26).

In the Governance parts, almost all the reports of Unilever mentioned that the company would strengthen their risk management capability. For instance, in Annual Report 2017 (p.35), it mentions that: “A minimum of five face-to-face meetings are planned throughout the calendar year to consider important corporate events and actions, for example, the half-year and full-year results announcements of the Unilever Group; the development of and approval of the overall strategy of the Unilever Group; oversight of the performance of the business; review of risks and internal risk management and control systems; authorisation of major transactions; declaration of dividends; convening of shareholders’ meetings; succession planning; review of the functioning of the Boards and their Committees; and review of corporate responsibility and sustainability, in particular the Unilever Sustainable Living Plan”. The above may illustrate the managers’ confidence in dealing with risks through various activities, which expect to strengthen the risk management capability of Unilever.

In the Notes to the consolidated financial statements, some detailed information about derivatives and hedge accounting was given. According to accounting standards of financial derivatives, companies should disclose all the quality and quantity information about financial derivatives they have used. In the case company of Unilever, all the information about financial derivatives and hedge accounting was showed in the Notes to the consolidated financial statements section. For example, in Annual Report 2016 (p.115), it shows that “On 31 December 2016 Unilever had undrawn revolving 364-day bilateral credit facilities in aggregate of US$6,550 million (2015: US$6,550 million) with a 364-day term out. As part of the regular

annual process, the intention is that these facilities will again be renewed in 2017". Other information on the derivatives and hedge accounting was also shown in other parts of annual reports over the period.

5.2.3 Derivatives disclosure of Unilever

Unilever did not separate financial derivatives information as a single part in its annual report. Almost all the disclosure of financial derivatives was appeared in the 'Notes to the financial statement' part. According to Unilever's annual reports from 2015 to 2017, "derivatives are measured at fair value with any related transaction costs expensed as incurred".

Derivatives information is mainly reported under notes to the financial statements. The company reports derivatives under separate sections of assets and liabilities. In the treasury risk management section, there is a specific section concerning derivatives and hedge accounting. It is reported that the company used fair value to measure derivatives and any related transaction costs recorded as expense. There are several ways to treat the changes in the value of derivatives, depending on the use of derivatives as reported in the Annual Report 2016. It states that:

"Certain derivatives are held to hedge the risk of changes in value of a specific bond or other loan. In these situations, the Group designates the liability and related derivative to be part of a fair value hedge relationship… Derivatives are also held to hedge the uncertainty in timing or amount of future forecast cash flows. Such derivatives are classified as being part of cash flow hedge relationships. For an effective hedge, gains and losses from changes in the fair value of derivatives are recognised in equity. Any ineffective elements of the hedge are recognised in the income statement. If the hedged cash flow relates to a non-financial asset, the amount accumulated in equity is subsequently included within the carrying value of that asset. For other cash flow hedges, amounts deferred in equity are taken to the income statement at the same time as the related cash flow." (The Annual Report, 2016, p.115).

In addition to the disclosures of financial derivatives usage, Unilever also reported its use of commodity derivatives. For instance, the company reports in Annual Reports 2016 (p.117) and 2017 (p.123) that "At 31 December 2016, the Group had hedged its exposure to future commodity purchases with commodity derivatives valued at €441 million (2015: €221 million)"

and “At 31 December 2017, the Group had hedged its exposure to future commodity purchases with commodity derivatives valued at €382 million (2016: €441 million)”.

5.2.4 Financial derivatives usage of Unilever

Unilever has used financial and commodity derivatives to hedge its risk, but not for speculative purposes. In the Annual Report 2017, it clearly states that: “We make use of plain vanilla derivatives, such as interest rate swaps and foreign exchange contracts, to help mitigate risks” (p.21). According to the Annual Report of Unilever, “…Certain derivatives are held to hedge the risk of changes in value of a specific bond or other loan. In these situations, the Group designates the liability and related derivative to be part of a fair value hedge relationship. The carrying value of the bond is adjusted by the fair value of the risk being hedged, with changes going to the income statement. Gains and losses on the corresponding derivative are also recognised in the income statement. The amounts recognised are offset in the income statement to the extent that the hedge is effective. When the relationship no longer meets the criteria for hedge accounting, the fair value hedge adjustment made to the bond is amortised to the income statement using the effective interest method” (the Annual Report 2017, p.121).

Furthermore, derivatives are also used by the company to hedge cash flows risk. The Annual Report 2017 states: “Derivatives are also held to hedge the uncertainty in timing or amount of future forecast cash flows. Such derivatives are classified as being part of cash flow hedge relationships. For an effective hedge, gains and losses from changes in the fair value of derivatives are recognised in equity. Any ineffective elements of the hedge are recognised in the income statement. If the hedged cash flow relates to a non-financial asset, the amount accumulated in equity is subsequently included within the carrying value of that asset. For other cash flow hedges, amounts deferred in equity are taken to the income statement at the same time as the related cash flow. When a derivative no longer qualifies for hedge accounting, any cumulative gain or loss remains in equity until the related cash flow occurs. When the cash flow takes place, the cumulative gain or loss is taken to the income statement. If the hedged cash flow is no longer expected to occur, the cumulative gain or loss is taken to the income statement immediately” (p.121).

In 2015, Unilever used derivatives to hedge against interest rate risk, foreign exchange risk and commodity risk, and the derivative financial liabilities were €28,334 million, which was more

than year 2014 of €25,315 million. Meanwhile, three derivatives were used by Unilever, which were cross currency swaps, interest rate swaps and commodity future contracts. The fair value of these derivatives was €109 million in total. This was a slightly increase than the fair value of 2014, which was €97 million. Comparing to the figures of 2015, the derivatives usage in 2016 did not have much change. There were still three types of derivatives used in that year, and the type was the same as the previous year. The total value of these derivatives decreased overall, comparing to 2015, which was €105 million. From the Annual Report 2016, it can be seen that the value of cross currency swaps increased than 2015, but the use of interest rate swaps dropped down in that year. The three types of derivatives used remained the same in 2017, however, the value of financial derivatives was raising significantly to €361 million. Except commodity contracts, both cross currency swaps and interest rate swaps went up fast in that year. Table 5.2 shows the usage of derivatives of Unilever from 2015 to 2017.

Table 5.2: Derivatives usage of Unilever from 2015 to 2017

	€ million Trade and other receivables	€ million Financial assets	€ million Trade payables and other liabilities	€ million Current financial liabilities	€ million Non-current financial liabilities	€ million Total
31 December 2015						
Foreign exchange derivatives including cross currency swaps						
Fair value hedges	–	1	–	–	–	1
Cash flow hedges	29	45	(34)	–	–	40
Hedges of net investments in foreign operations	–	155[a]	–	–	–	155
Hedge accounting not applied	39	25[a]	(26)	(118)	(5)	(85)
Interest rate swaps						
Fair value hedges	–	–	–	–	–	–
Cash flow hedges	–	–	–	–	(1)	(1)
Hedge accounting not applied	–	4	–	–	–	4
Commodity contracts						
Cash flow hedges	5	–	(10)	–	–	(5)
Hedge accounting not applied	–	–	–	–	–	–
	73	230	(70)	(118)	(6)	109
	Total assets	303	Total liabilities		(194)	109

	€ million Trade and other receivables	€ million Financial assets	€ million Trade payables and other liabilities	€ million Current financial liabilities	€ million Non-current financial liabilities	€ million Total
31 December 2016						
Foreign exchange derivatives including cross currency swaps						
Fair value hedges	-	-	-	-	-	-
Cash flow hedges	36	-	(76)	-	-	(40)
Hedges of net investments in foreign operations	-	174[a]	-	(27)	-	147
Hedge accounting not applied	79	(133)[a]	(67)	(134)	-	(255)
Interest rate swaps						
Fair value hedges	-	3	-	-	-	3
Cash flow hedges	-	4	-	-	(4)	-
Hedge accounting not applied	-	43	-	(14)	(6)	23
Commodity contracts						
Cash flow hedges	21	-	(3)	-	-	18
Hedge accounting not applied	(1)	-	-	-	-	(1)
	135	91	(146)	(175)	(10)	(105)
	Total assets	226	Total liabilities		(331)	(105)

	€ million Trade and other receivables	€ million Financial assets	€ million Trade payables and other liabilities	€ million Current financial liabilities	€ million Non-current financial liabilities	€ million Total
31 December 2017						
Foreign exchange derivatives including cross currency swaps						
Fair value hedges	-	-	-	-	-	-
Cash flow hedges	32	-	(40)	-	-	(8)
Hedges of net investments in foreign operations	-	9	-	(103)[a]	-	(94)
Hedge accounting not applied	13	73	(54)	35[a]	-	67
Interest rate swaps						
Fair value hedges	-	2	-	-	-	2
Cash flow hedges	-	2	-	(18)	(335)	(351)
Hedge accounting not applied	-	30	-	-	-	30
Commodity contracts						
Cash flow hedges	12	-	(19)	-	-	(7)
Hedge accounting not applied	-	-	-	-	-	-
	57	116	(113)	(86)	(335)	(361)
	Total assets	173	Total liabilities		(534)	(361)

Table 5.3 provides the total values of derivatives assets and derivatives liabilities for the years of 2017 and 2016. While both the liabilities and assets increased, the significant increase was derivatives liabilities €185 million to €421 million consisting of €86 million of current liabilities and €335 million of non-current liabilities as given in details in Table 5.4. This indicates that the company had used more derivatives to hedge against interest rate risk, credit risk and commodity risk. It reports: "The Group is exposed to the risk of changes in commodity prices in relation to its purchase of certain raw materials. At 31 December 2017, the Group had hedged its exposure to future commodity purchases with commodity derivatives valued at €382 million (2016: €441 million)" (Unilever Annual Report, 2017, p.123). Reported in the previous year report, the future commodity purchased with commodity derivatives valued at €221 million at 31 December 2015.

Table 5.3: Fair values of derivatives assets and liabilities in 2017 and 2016

The Group is exposed to the risks of changes in fair value of its financial assets and liabilities. The following table summarises the fair values and carrying amounts of financial instruments.

Fair values of financial assets and financial liabilities	€ million Fair value 2017	€ million Fair value 2016	€ million Carrying amount 2017	€ million Carrying amount 2016
Financial assets				
Cash and cash equivalents	**3,317**	3,382	**3,317**	3,382
Held-to-maturity investments	**163**	142	**163**	142
Loans and receivables	**463**	398	**463**	398
Available-for-sale financial assets	**564**	509	**564**	509
Financial assets at fair value through profit or loss:				
Derivatives	**116**	91	**116**	91
Other	**139**	132	**139**	132
	4,762	4,654	**4,762**	4,654
Financial liabilities				
Preference shares	**-**	(125)	**-**	(68)
Bank loans and overdrafts	**(995)**	(1,147)	**(992)**	(1,146)
Bonds and other loans	**(23,368)**	(15,844)	**(22,709)**	(15,053)
Finance lease creditors	**(147)**	(165)	**(131)**	(143)
Derivatives	**(421)**	(185)	**(421)**	(185)
Other financial liabilities	**(177)**	-	**(177)**	-
	(25,108)	(17,466)	**(24,430)**	(16,595)

Table 5.4: Current vs non-current derivatives liabilities of Unilever

15C. FINANCIAL LIABILITIES

Financial liabilities[a]	Notes	€ million Current 2017	€ million Non-current 2017	€ million Total 2017	€ million Current 2016	€ million Non-current 2016	€ million Total 2016
Preference shares		**-**	**-**	**-**	-	68	68
Bank loans and overdrafts[b]		**513**	**479**	**992**	899	247	1,146
Bonds and other loans		**7,181**	**15,528**	**22,709**	4,367	10,686	15,053
Finance lease creditors	20	**11**	**120**	**131**	9	134	143
Derivatives		**86**	**335**	**421**	175	10	185
Other financial liabilities[c]		**177**	**-**	**177**	-	-	-
		7,968	**16,462**	**24,430**	5,450	11,145	16,595

[a] For the purposes of this note and note 17A, financial assets and liabilities exclude trade and other current receivables and trade payables and other liabilities which are covered in notes 13 and 14 respectively.
[b] Financial liabilities include €1 million (2016: €2 million) of secured liabilities.
[c] Includes options and other financial liabilities to acquire non-controlling interests in Carver Korea and EAC Myanmar, refer to note 21.

Unilever used same kinds of financial derivatives during these three years, however, the levels of usage of derivatives was different across these years, which were 0.21%, 0.19% and 0.59% of total assets respectively. In 2017, more derivatives were used comparing to the previous two years. In addition, Unilever claimed that it used these financial derivatives only for hedging purposes and there were no derivatives in the case of Unilever used for the trading purpose between 2015 and 2017. Appendix 2 shows the time series of derivatives liabilities of Unilever reported in Annual Report 2017.

Overall, the case indicates that the company has established a risk management system and identified risk management responsibilities, exhibiting a strong risk management capability.

The case company has used derivatives for hedging purposes in mitigating mainly interest rate risk, foreign exchange risk and commodity risk, and the usage of financial derivatives varied across the three years.

5.3 Case Study 2: Diageo

5.3.1 Introduction to the case of Diageo

Diageo plc. is a British multinational alcoholic beverages company, with its headquarters in London and offices located in six continents. The company produces a variety of brands including, for example, Smirnoff, Johnnie Walker, Baileys and Guinness etc. As a multinational corporation, Diageo sells its products in over 180 counties/regions and has offices in over 80 countries/regions around the world.

Originated from a family business that produced Scotch whisky, the business has developed significantly since the 1750s. In 1997 Diageo was formed to become a public listed company trading on the London Stock Exchange after the merger of Guinness and Grand Metropolitan. Since the merger, the company has adopted takeover strategies with a view to achieving the market share increase and expanding the product range. The ambition of Diageo is “to be one of the best performing, most trusted and respected consumer products companies in the world”. To achieve this ambition, the board of directors has developed six executional priorities as shown in Table 5.5.

Table 5.5: Six executional priorities of Diageo's strategies

Keep premium core vibrant	Diageo's premium core brands account for roughly two-thirds of net sales. Ensuring they have a vibrant premium core is therefore critical to their overall performance
Increase participation in mainstream spirits	Mainstream spirits is a sizeable and growing opportunity. Diageo have invested in mainstream spirits and have a strong foundation from which to drive growth.
Continue to win in reserve	Diageo builds their reserve brands by ensuring they are available in the most influential outlets. Diageo also build their reputations with the bartenders and consumers who set trends.
Drive innovation at scale	Diageo builds on their existing brands, anticipate new consumer occasions and create the brands of tomorrow with a focus on scale and speed.
Build an advantaged route to consumer	Consumers are at the heart of Diageo's business. Using insights, they ensure they understand where to invest their resources so that Diageo's brands are consistently presented.
Embed productivity to drive out costs and invest in growth	Diageo is focused on every day efficiency, effectiveness and agility to reduce costs and create fuel for their growth.

Source: Diageo Annual Report 2017, p.4

More recently, Diageo has stressed the importance of developing sustainable business and set up sustainability and responsibility priorities as well as their commitment to governance and ethics. As reported in Annual Report 2017, Diageo commits to the following aspects, including: creating a positive role for alcohol in society, building thriving communities, reducing the company's environmental impact, and pursing highest standards of governance and ethics. The details are given in Table 5.6.

Table 5.6: Diageo's social and environmental commitment

Creating a positive role for alcohol in society	Diageo is committed to alcohol playing a positive role in society through their work to promote moderation and tackle alcohol misuse. Diageo remains focused on delivering the five Global Producers' Commitments and their own stretching 2025 targets.
Building thriving communities	Diageo wants to continue to make Diageo a great, safe and diverse place to work for their people. They want to build sustainable supply chains and create programmes that empower communities and individuals and increase their access to opportunity.
Reducing Diageo's environmental impact	Diageo is dependent on the natural resources they share with the communities around their and with the wider world. Diageo is working to reduce their impact in the areas of water, carbon, packaging and waste.
Highest standards of governance and ethics	Diageo is constantly looking for ways to strengthen their culture of integrity and help Diageo's people make the right choices. The new technology they have adopted globally enables stronger central oversight, ensures a greater impact on risk and is easy to use for their and Diageo's partners.

Source: Diageo Annual Report 2017, p.4

5.3.2 Risk and risk management of Diageo

The company has developed corporate governance and risk management strategy under the Board of Directs with the established several committees. Each committee has clearly defined terms of reference, procedures and responsibilities.

Risk management information appeared in Diageo's annual reports from 2015 to 2017. The contents of risk management are presented in three parts within its annual report, which is very similar to other case companies. Three parts are "Risk Management and Principal Risks"; "Corporate Governance"; and "Notes to the Financial Statements". In the "Risk Management and Principal Risks" part, Diageo's annual reports list all principal risks and the related risk

management methods adopted by the company. Comparing to the Annual Report in 2015, in the Annual Report 2016 there were two new sources of risks reported: “international tax” and “data privacy”. An additional kind of risk reported in Diageo’s Annual Report of 2017 is “market restrictions and indirect tax”. However, “talent risk” that was written in the previous annual reports of 2015 and 2016 was not listed in the Annual Report 2017.

Also, in the “Risk Management and Principal Risks” part, the company provided more details and gave the information about “who focused on these risks” with more specific responsibilities. For example, it states: “the Diageo Executive reviews the effectiveness of risk management through the Audit & Risk Committee, and the Board exercise independent review through the Audit Committee, supported by Global Audit & Risk” (Diageo Annual Report 2015, p.20; Annual Report 2016, p.19; Annual Report 2017, p.20). In addition, the idea of how to improve the company’s risk management was written in this part as follows: “We believe that great risk management starts with the right conversations that drive better business decisions” (Diageo Annual Report 2015, p.20; Annual Report 2016, p.19; Annual Report 2017, p.20). Interestingly, the same statement appears in these years, which does not reflect the changing nature of the market, environment, risk as well as corporate strategy. Analysing the reports of these three years, it seems that there was no obvious change in terms of this part over the three years’ reports.

In the Governance parts, Diageo claims that the company will strengthen their risk management ability. For example, Annual Report 2016 states that:

“An ongoing process has been established for identifying, evaluating and managing risks faced by the group. This process, which complies with the requirements of the Code, has been in place for the full financial year and up to the date the financial statements were approved and accords with the guidance issued by the FRC in September 2014, Guidance on Risk management, Internal Control and related Financial and Business Reporting. The Board confirms that, through the activities of the Audit Committee described below, a robust assessment of the principal risks facing the company, including those that would threaten its business model, future performance, solvency or liquidity has been carried out. These risks and mitigations are set out above in the section of this Annual Report dealing with principal risks.” (p.62)

In Diageo’s Annual Report 2017, the Risk & Audit committee of Diageo presents that:

"The Diageo Executive and Board considered the risks described here as the group's principal risks for this financial year. Our principal risks reflect a turbulent external environment with significant change across many fronts. Macroeconomic volatility sits alongside deep political change and a continued threat from terrorism. Cyber security threats continue to evolve. Shifting social and consumer trends, driven in part by profound technological developments, provide a huge opportunity for innovation. Protectionism and local trade and regulatory policies have led to excise tax increases and restrictive regulations. Meanwhile the international tax environment continues to evolve. Alongside all of this, we remain deeply committed to operating in the right way in everything we do, and our risks on non-compliance with laws and regulations, including on data privacy, and our long-term commitments to sustainability, demonstrate our continued commitments here. Our Risk Management global standard emphasises leadership behaviours and on ensuring risk management is a basic part of doing business every day.

We continue to develop our risk planning work around Brexit and continue to work closely with our industry bodies to seek clarity on the transition process. The Audit Committee and Board also receive periodic updates on emerging or topical risks. During the year, the Audit Committee received an update on terrorism and political violence, and the Board received training on crisis management" (Diageo's Annual Report 2017, p.19).

The management of Diageo believed that "great risk management drives better commercial decisions, creating a growing, resilient and sustainable business" (Diageo Annual Report 2015, p.20; Diageo Annual Report 2016, p.19; Diageo Annual Report 2017, p.20). The management of Diageo also considered that great risk management starts with the right conversations that drive better business decisions. As reported in Diageo Annual Reports from 2015 to 2017, the company had its own separate audit and risk management committee at the executive level and the board of directors has the audit committee to review risk management. For instance, in Diageo Annual Report 2017 (p.20), it declares that "the Diageo Executive reviews the effectiveness of risk management through the Audit & Risk Committee, and the Board exercise independent review through the Audit Committee, supported by Global Audit & Risk." According to the company annual reports, both the Audit & Risk Committee and the Audit Committee regularly review the corporate strategy and risk management including compliance and ethics of the company. As explained by the company in its annual reports, at each of the audit committee meetings, the audit committee reviews detailed reports from the heads of the

Global Risk & Compliance and Global Audit & Risk teams and has oversight of the minutes of meetings of management's Audit & Risk Committee, the work and reporting of the committee of both the Global Risk & Compliance and the Global Audit & Risk during the year focuses on recent acquisitions, cyber security and change in the company. The Committee in turn is thus able to keep under review the operation of the risk controls and compliance framework in these areas concerned. Also, in Diageo's Annual Report 2017 (p.48) it shows that the global risk and compliance team provided rigorous oversight of the company's risk management, controls and compliance and ethics programme. In Diageo's Annual Reports 2015, 2016 and 2017, it reports that "lost-time accidents now occur more frequently at offices than at other sites, and we are introducing new procedures to ensure safety in offices is addressed through risk management committees". In 2016, Diageo had risk management training and the training was mandatory for a wider group within the business, in order to address the increased risk of volatility (Diageo Annual Report 2016, p.49).

Diageo did not separate its corporate risk information and financial instrument information in its reports. As other five selected case companies, in the "Notes to the Financial Statement" part, there was some information reported about Diageo's credit risk, liquidity risk and market risk; and how to hedge against these kinds of risk. There was no noticeable change of Diageo's annual reports from 2015 to 2017 concerning information in this part. The company claims that "…The culture, capability and diversity of the Board contributed to the Board's effectiveness" (Diageo Annual Report 2017, p.61). Combing corporate governance and CSR scoring, Diageo was ranked as the top two in terms of risk management capabilities, based on the rating designed in this study.

5.3.3 Derivative disclosure of Diageo

Under the accounting standards relating to financial derivatives, companies should disclose all the quality and quantity information about the derivatives they have used. All the information about the derivatives and hedge accounting should be reported in the Notes to the consolidated financial statements section.

In the case of Diageo, almost all the information about derivatives was disclosed in the "Notes to the Financial Statement" part. Diageo's annual reports did not disclose financial derivatives information in isolation in a single detached part. According to IFRS 7, users need to report the

significance of financial derivatives for financial position and performance, the nature and extent of risks, and how those risks are managed. Diageo reports the purposes of its use of derivatives. For example, the company's annual reports state that "The group does not use derivatives for speculative purposes. All transactions in derivatives financial instruments are initially undertaken to manage the risks arising from underlying business activities" (Diageo's Annual Report 2015, p.120; Diageo's Annual Report 2016, p.128; Diageo's Annual Report 2017, p.132). The company disclosed that all four kinds of financial derivatives (i.e., futures, forwards, swaps and options) were used by Diageo every year during the period from 2015 and 2017 under the study. The percentage of value of derivatives over assets of Diageo were 1.21%, 2.73% and 1.63% respectively for years 2015, 2016 and 2017.

The company reported there was no obvious gain or loss of using derivatives during these three years. In its accounting policies, derivatives financial instruments were measured at fair value using a discounted cash flow technique based on market data applied consistently for similar types of instruments. Gains and losses on derivatives that do not qualify for hedge accounting treatment were taken to the income statement as they aroused.

5.3.4 Financial derivatives usage of Diageo

Diageo documents that: "The group's funding, liquidity and exposure to foreign currency and interest rate risks are managed by the group's treasury department. The treasury department uses a range of financial instruments to manage these underlying risks" (Diageo's Annual Report 2017, p.130) and "the group does not use derivatives for speculative purposes. All transactions in derivative financial instruments are initially undertaken to manage the risks arising from underlying business activities" (ibid, p,130). Particularly, the Group clearly points out its use of hedging of net investment in foreign operations. "The group hedges a certain portion of its exposure to fluctuations in the sterling value of its foreign operations by designating borrowings held in foreign currencies and using foreign currency spots, forwards, swaps and other financial derivatives" and "at 30 June 2017 foreign currency borrowings and financial derivatives designated in net investment hedge relationships amounted to £6,746 million (2016 – £6,787 million)" (ibid, p.130).

Diageo has used financial derivatives to hedge against foreign currency, commodity price risk, and interest rate risk. As shown in its Annual Report (2017), for example, the company states:

“The group has an exposure to interest rate risk, arising principally on changes in US dollar, euro and sterling interest rates. To manage interest rate risk, the group manages its proportion of fixed to floating rate borrowings within limits approved by the Board, primarily through issuing fixed and floating rate borrowings and commercial paper, and by utilising interest rate derivatives” (p.130). Derivatives were also used to mitigate commodity risks. It is reported that: “The group is exposed to commodity price risk. Commodity price risk is managed in line with the principles approved by the Board either through long term purchase contracts with suppliers or, where appropriate, derivative contracts. The group policy is to maintain the total commodity exposure Value at Risk below 75bps of forecast gross margin in any given financial year. Where derivative contracts are used the commodity price risk exposure is hedged up to 24 months of forecast volume principally through exchange-traded futures” (The Annual Report, 2017, p.130).

There was not a great deal of information about the type of derivatives used by Diageo. In the Annual Report 2015 (p.123), it reports that Diageo used cross currency swaps to control foreign exchange and interest risks. In both 2016 and 2017 reports, some types of derivatives were using by Diageo (The Annual Report, 2016 & 2017). Table 5.7 shows the derivatives usage of Diageo during these three years.

Table 5.7: Derivatives usage of Diageo between 2015 and 2017

Contractual cash flows

	Due within 1 year £ million	Due between 1 and 3 years £ million	Due between 3 and 5 years £ million	Due after 5 years £ million	Total £ million	Carrying amount at balance sheet date £ million
2016						
Borrowings[i]	(2,058)	(2,853)	(558)	(4,621)	(10,090)	(10,129)
Interest on borrowings[i, iii]	(358)	(449)	(360)	(1,415)	(2,582)	(73)
Finance lease capital repayments	(29)	(58)	(69)	(86)	(242)	(242)
Finance lease future interest payments	(13)	(20)	(13)	(54)	(100)	–
Trade and other financial liabilities[ii]	(2,435)	(199)	(8)	(4)	(2,646)	(2,638)
Non-derivative financial liabilities	(4,893)	(3,579)	(1,008)	(6,180)	(15,660)	(13,082)
Gross amount receivable from derivatives	947	153	106	1,566	2,772	–
Gross amount payable on derivatives	(647)	(144)	(73)	(1,130)	(1,994)	–
Derivative instruments[iii]	300	9	33	436	778	498

	Due within 1 year £ million	Due between 1 and 3 years £ million	Due between 3 and 5 years £ million	Due after 5 years £ million	Total £ million	Carrying amount at balance sheet date £ million
2017						
Borrowings[i]	(2,458)	(1,253)	(1,350)	(3,998)	(9,059)	(9,042)
Interest on borrowings[i, iii]	(334)	(421)	(366)	(1,461)	(2,582)	(68)
Finance lease capital repayments	(26)	(74)	(41)	(42)	(183)	(183)
Finance lease future interest payments	(9)	(12)	(7)	(3)	(31)	–
Trade and other financial liabilities[ii]	(2,693)	(34)	(173)	(3)	(2,903)	(2,889)
Non-derivative financial liabilities	(5,520)	(1,794)	(1,937)	(5,507)	(14,758)	(12,182)
Cross currency swaps (gross)						
– Receivable	61	122	122	2,302	2,607	–
– Payable	(41)	(82)	(82)	(1,853)	(2,058)	–
Other derivative instruments (net)	(94)	13	2	–	(79)	–
Derivative instruments[iii]	(74)	53	42	449	470	110
2015						
Borrowings[i]	(1,920)	(2,556)	(968)	(4,365)	(9,809)	(9,838)
Interest on borrowings[i, iii]	(340)	(479)	(334)	(1,434)	(2,587)	(68)
Finance lease capital repayments	(38)	(50)	(70)	(104)	(262)	(262)
Finance lease future interest payments	(13)	(19)	(16)	(23)	(71)	–
Trade and other financial liabilities[ii]	(2,172)	(54)	(143)	–	(2,369)	(2,353)
Non-derivative financial liabilities	(4,483)	(3,158)	(1,531)	(5,926)	(15,098)	(12,521)
Gross amount receivable from derivatives	97	478	176	1,360	2,111	–
Gross amount payable on derivatives	(162)	(374)	(110)	(1,154)	(1,800)	–
Derivative instruments[iii]	(65)	104	66	206	311	131

It can be seen from the case of Diageo that there was a significant change of derivatives usage between 2015 and 2016. In 2016 the derivatives use was more than two times than the derivatives used in 2015. Then in 2017, derivatives use dropped quickly, which was €470 million in total. The changes of derivatives usage seem to be less relevant to the risk management strategy and risk management capabilities of the firm as there were little changes in both risk management strategy and risk management capability of Diageo over the period.

5.4 Case Study 3: Intertek Group

5.4.1 Introduction to the case of Intertek Group

Intertek Group is a total quality assurance provider to industries worldwide with more than 1,000 laboratories and offices in over 100 countries and regions. The company, with a history of more than 130 years, provides assurance, testing, inspection and certification solutions for clients' operations and supply chains, including the areas of R&D, raw materials sourcing, components suppliers, manufacturing, transportation, distribution and retail channels, and consumer management. Intertek listed on the London Stock Exchange on 29 May 2002. Now it is one of the FTSE 100 companies.

The company, based on information from the company website, has established a corporate governance system, in which the Board is responsible for the proper management of the Company and is also accountable to the Company's shareholders for ensuring that principles of good governance are applied. The Company is committed to high standards of corporate governance, business integrity and professionalism in all its activities, as shown in the company website.[31] The Board of Intertek is responsible for establishing and maintaining the internal control system and for reviewing the effectiveness of the system.

5.4.2 Risk and risk management of Intertek Group

From the information shown in its annual reports and websites, Intertek has set up its risk management framework. Under the framework, the Board has overall responsibility for the establishment and oversight of the Group's risk management framework. This work is complemented by the Group Risk Committee. The Group Risk Management is responsible to manage, assess and promote the continuous improvement of the Group's risk management, controls and assurance systems. The Head of Internal Audit and the Group General Counsel have accountability for reporting the key risks that the company faces, the controls and assurance processes in place and any mitigating actions or controls of risks. Risks are formally identified and recorded in a risk register for the significant countries and for each business line and support function. The risk register is updated at least twice each year and is used to plan the company's internal audit and risk strategy. The system of having a risk register seems to be unique to this case as other cases do not report to have a similar system.

[31] See: https://www.intertek.com/about/compliance-governance/ (Accessed on 07/08/2019).

The company identifies a number of areas that principal risks could arise, including operational risks that cause from occupational health, safety and security, facilities, industry and competitive landscape, IT systems and data security, legal and regulatory risk that results from litigation, business ethics, and regulatory and political landscape, and financial risk. For each of these risks, Intertek Group recognises approaches to mitigate the impact of risks and provides updates on the risks and effectiveness of risk management. During these three years, 11 kinds of risks appeared repetitively in the annual reports. Intertek Group record their risks through using 'risk register', according to Intertek annual report 2015 (p.39), 2016 (p.34) and 2017 (p.36).

During these three years (2015 – 2017), the responsibility of Intertek's Board was clearly written in the annual reports. For example, one of the responsibilities of the Board is for the company's audit and risk management. "The Board sets the Company's risk appetite to achieve its strategic objectives and annually reviews the effectiveness of the Company's risk management and internal control systems. The activities of the Audit & Risk Committee, which assist the Board with its responsibilities in relation to risk setting and management." (Intertek's Annual Report 2015, p.55; Intertek's Annual Report 2016, p.56; Intertek's Annual Report 2017, p.66). The Risk Control and Assurance Committee plays a key role with regard to Intertek's risk management, as explained in the Annual Report 2015 (p.62). "There are two key elements to the work of the Risk Control and Assurance Committee: 1) To oversee the development and improvement of the Group's risk management, internal controls and assurance framework and the related procedures and systems; and 2) To oversee the operation and implementation of the procedures and systems identified." The similar information can also be found in the Annual Report 2016 (p.63) and the Annual Report 2017 (p.68). As similar to other companies, the Board authorised the Committee to review the effectiveness of the Company's financial reporting and internal controls and risk management systems together with procedures for the identification, assessment and reporting of key risks (Intertek's Annual Report 2015, p.78; Intertek's Annual Report 2016, p.82; Intertek's Annual Report 2017, p.78). Also, the exact responsibility of the committee was provided in each year annual report. For instance, "the Committee can confirm that it reviewed the Group's internal controls and risk management systems and concluded that there was a sound and effective control environment in place across the Group during 2015 and up to the date upon which these financial statements were approved. No material weaknesses had been identified" (Intertek's Annual Report, 2017, p.84).

5.4.3 Derivative disclosure of Intertek Group

Intertek Group has used derivatives financial instruments to hedge against financial risks and disclosed information on the use of derivatives. In its financial statement, derivatives financial instruments are recognised initially and subsequently at fair value and attributable transaction costs are recognised in profit or loss when incurred. The gain or loss on remeasurement to fair value at each period end is recognised in the income statement except where derivatives qualify for hedge accounting. Table 5.8 provides an example of disclosures of derivatives in terms of liabilities and assets.

Table 5.8: Disclosures of derivatives financial liabilities and assets of Intertek Group

2017	Carrying amount £m	Contractual cash flows £m	Six months or less £m	6-12 months £m	1-2 years £m	2-5 years £m	More than five years £m
Non-derivative financial liabilities							
Senior term loans and notes	677.9	777.4	10.5	85.1	164.8	327.5	189.5
Other loans	2.1	2.1	–	2.1	–	–	–
Trade payables (note 12)	126.7	126.7	122.1	2.9	1.3	0.3	0.1
Put option liability over non-controlling interest	8.7	9.2	–	–	–	9.2	–
	815.4	**915.4**	**132.6**	**90.1**	**166.1**	**337.0**	**189.6**
Derivative financial liabilities/ (assets)							
Forward exchange contracts:							
Outflow	–	440.9	440.9	–	–	–	–
Inflow	(1.0)	(441.9)	(441.9)	–	–	–	–
	(1.0)	**(1.0)**	**(1.0)**	**-**	**-**	**-**	**-**
Total	**814.4**	**914.4**	**131.6**	**90.1**	**166.1**	**337.0**	**189.6**

2016	Carrying amount £m	Contractual cash flows £m	Six months or less £m	6-12 months £m	1-2 years £m	2-5 years £m	More than five years £m
Non-derivative financial liabilities							
Senior term loans and notes	897.7	1,031.8	13.1	94.9	142.8	535.7	245.3
Other loans	4.8	4.8	–	4.8	–	–	–
Trade payables (note 12)	107.3	107.3	103.9	3.1	0.3	–	–
Put option liability over non-controlling interest	8.6	9.6	–	–	–	9.6	–
	1,018.4	1,153.5	117.0	102.8	143.1	545.3	245.3
Derivative financial liabilities/ (assets)							
Forward exchange contracts:							
Outflow	–	658.1	657.9	0.2	–	–	–
Inflow	(8.0)	(666.1)	(665.9)	(0.2)	–	–	–
	(8.0)	(8.0)	(8.0)	–	–	–	–
Total	1,010.4	1,145.5	109.0	102.8	143.1	545.3	245.3

Source: Intertek Group Annual Report (2017), p.135.

5.4.4 Financial derivatives usage of Intertek Group

Overall, as reported by the company, Intertek Group uses derivative financial instruments to

hedge against its financial risks, but not use derivatives to speculate. It reports that: “The Group uses derivative financial instruments, including interest rate swaps and forward exchange contracts, to hedge economically its exposure to foreign exchange and interest rate risks arising from operational, financing and investment activities. In accordance with its treasury policy, the Group does not hold or issue derivative financial instruments for speculative purposes” (the Annual Report, 2017, p.129). However, little information is available on the specific usage of derivatives and an assessment of the effectiveness of using derivatives.

5.5 Case Study 4: Vodafone Group

5.5.1 Introduction to the case of Vodafone Group

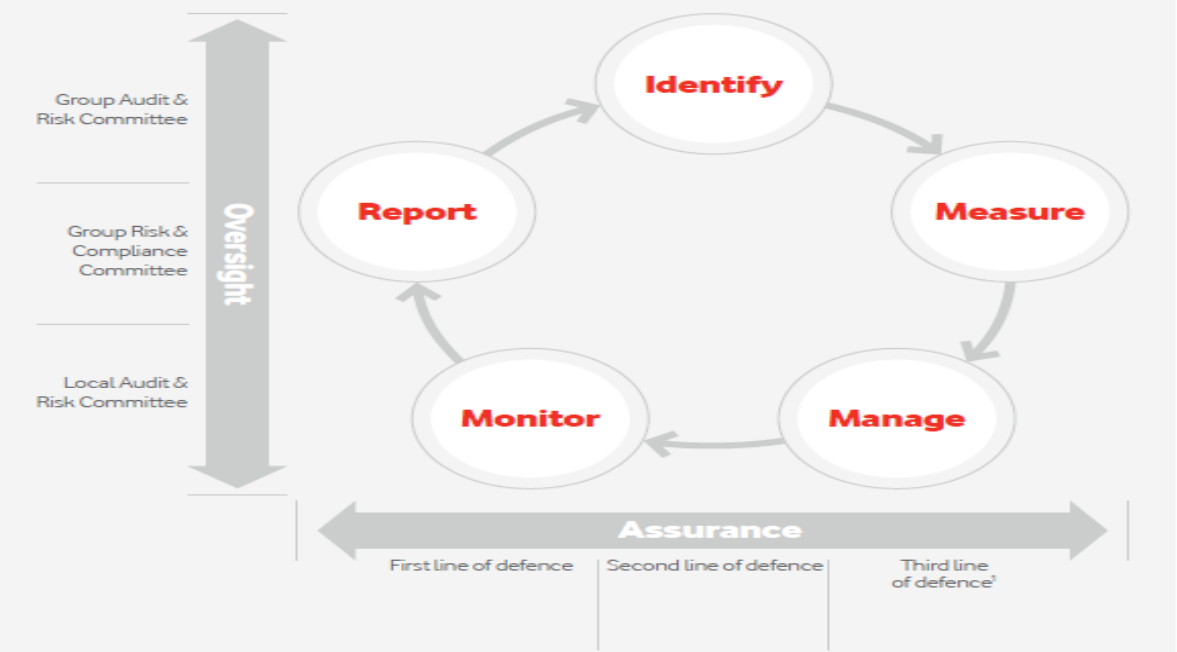
Vodafone Group is one of the world’s largest telecommunications groups, with a significant presence in Europe, the Middle East, Africa and Asia Pacific. The company’s vision is “to connect everybody to live a better today and build a better tomorrow”. Vodafone has risen rapidly since its inception in 1982 to become one of the largest mobile network operators in the world and one of the largest companies in the world (Ibbott and O’Keefe, 2004).

Vodafone Group has been fairly described in several prior case studies (e.g., Dodourova, 2003; Tariq Anwar, 2003; Ibbott and O’Keefe, 2004; Stuer et al., 2010). Most of these case studies were concerned with Vodafone’s marketing, corporate expansion, R&D, and technology innovation; none of them was related to the use of derivatives and risk management.

5.5.2 Risk and risk management of Vodafone Group

As shown in the company’s report and websites, Vodafone Group has established a global framework for identifying and managing risk within its defined tolerance levels, as claimed by the company (The Annual Report, 2017, p.29). Figure 5.1 shows the framework presented in Vodafone’s Annual Report 2017.

Figure 5.1: Risk management and internal control framework of Vodafone



According to the Annual Report (2017, p.28), this framework was designed to provide the executive committee and board with a clear line of sight over risk and to enable informed decision-making. It covers:

Identify:

- Risks identified in each local market and entity of the Group;
- Strategic risk reviews at top level with senior leadership;
- Principal risks reviewed and agreed by the management and the Board.

Measure:

- Risk tolerance set by the management and the Board for all principal risks;
- Consolidation and escalation across the Group using standardised scoring and categorisation.

Manage:

- Controls set to manage the risk within tolerance and ownership defined;
- Risk action plans created to manage risks within tolerance.

Monitor:

- Co-ordinated assurance across the "three lines of defence"[32] assesses the effectiveness

[32] 'Three lines' is a term that used by Vodafone to describe a systematic approach to how the company manage risk and provide assurance to the Board that risks are managed effectively. The first line of defence typically sits with the business operations, the second line of defence has oversight over the first line of defence (e.g., risk

of the controls.

Report:

- Inform Executive Committee and the Board on how effectively risks are being managed;
- Risk management information used to inform strategy, capex and resourcing decisions.

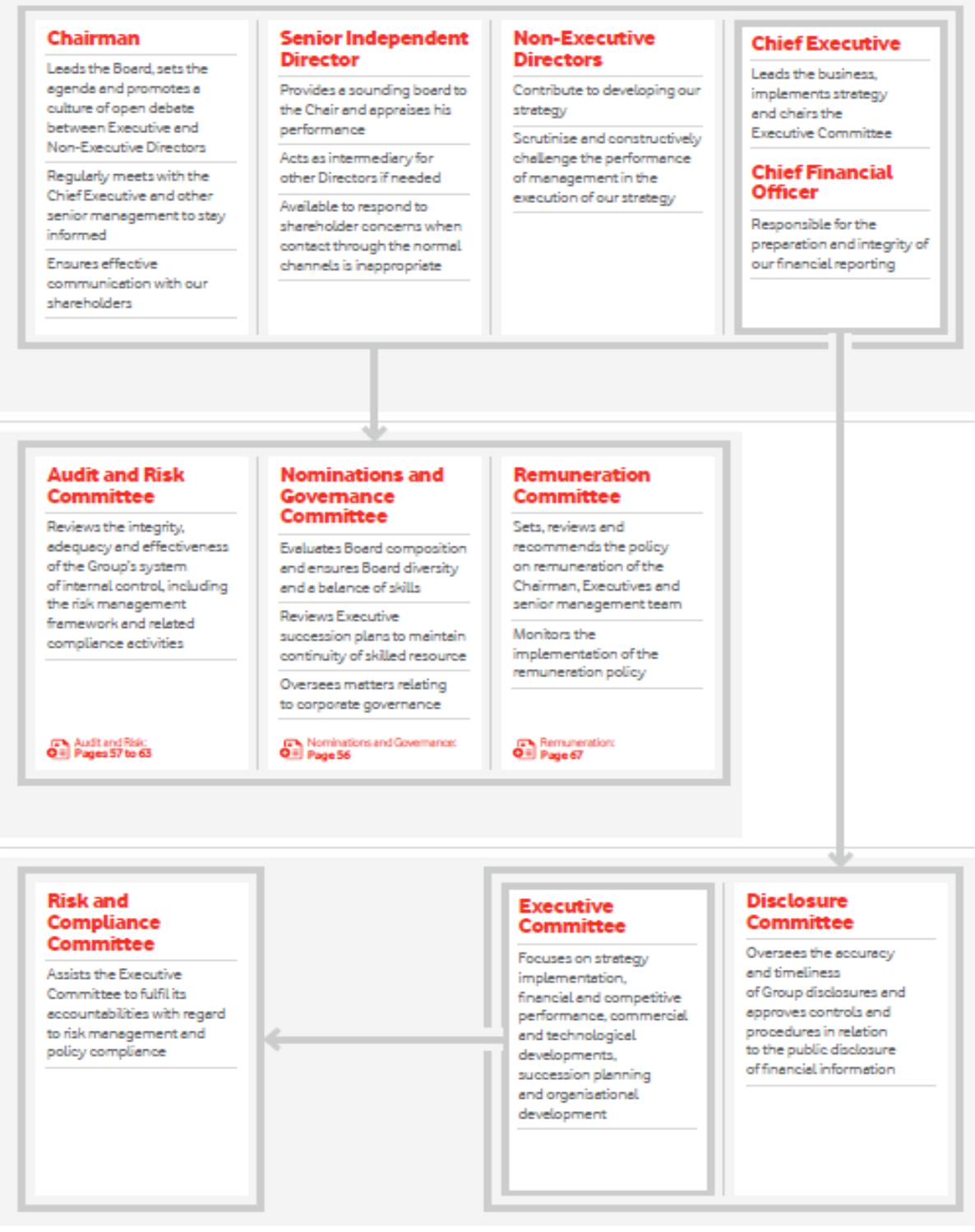
Vodafone Group takes a two-stage process to identify its principal risk. In the first stage, all local markets and entities identify their priority risks which are consolidated into a Group-wide view. In the second stage, interviews with over 40 senior leaders across the Group are conducted to gain their insights on these priority risks in order to finalise the Group's principal risks.

The risk management responsibilities of various committees and management are given in Figure 5.2. The Board of directors is responsible for maintaining a risk management and internal control system and for managing principal risks faced by the company. Vodafone Group also clearly states that: "Such a system is designed to manage rather than eliminate business risks and can only provide reasonable and not absolute assurance against material mistreatment or loss".[33]

management) and the third line of defence are the independent assurance providers (e.g., Internal Audit) (The Annual Report 2017, p.29).

[33] Interestingly, this similar statement also appears in other case company such as Merlin Entertainments plc. emphasising the internal control and risk management system aims to manage business risk, rather than to eliminate risks.

Figure 5.2: Risk management responsibilities of various committees



Specifically, the company's treasury function manages centrally the group's funding requirement, net foreign exchange exposure, interest rate management exposures and counterpart risk arising from investments and derivatives. The company recognises and reports

its credit risk of derivatives as shown in Table 5.9.

Table 5.9: Credit risk of derivatives of Vodafone Group 2017

Credit risk

The Group considers its exposure to credit risk at 31 March to be as follows:

	2017 €m	Restated 2016 €m
Cash at bank and in hand	1,856	2,196
Repurchase agreements	–	3,415
Cash held in restricted deposits	1,109	1,000
UK government bonds	466	833
Money market fund investments and bank deposits	6,979	7,311
Derivative financial instruments	4,282	5,443
Other investments – debt and bonds	7,919	8,027
Trade receivables	5,335	6,037
Other receivables and accrued income	2,886	4,055
	30,832	**38,317**

The structure of Vodafone's annual reports did not change a lot from 2015 to 2017. Risk and risk management information were disclosed in three parts of the company's annual reports, which is similar with other five selected case companies. The risk management strategy of Vodafone Group was published as follows:

"Vodafone recognizes that effective risk management is critical to enable us to meet our strategic objectives. The Board has overall responsibility for the Group's risk management and internal controls system. The Audit and Risk Committee, under delegation from the Board, monitors the nature and extent of risk exposure against risk appetite for our principal risks. At an operational level, risks are reviewed and managed by the Executive Committee and through its delegated sub-committee, the Risk and Compliance Committee." (Vodafone Annual Report, 2015, p.32; Vodafone Annual Report, 2016, p.23).

There was not obvious change of Vodafone's risk management strategy in 2017. The principal risks of Vodafone in 2015 and 2016 were relatively similar. "Major enterprise contracts" and "superior customer experience' were identified as two new sources of risks which were added in the report of 2017. In Vodafone's Annual Report 2015, some changes about enterprise risk

management were listed. For example, “Vodafone is in the process of making a number of changes aimed at strengthening its enterprise risk management. These include: 1) transferring responsibility for risk from the Group Audit Director to the Group Compliance Director (now Group Risk and Compliance Director); 2) creating a new Head of Risk role to report to the Group Risk and Compliance Director; 3) amending the terms of reference of the former Policy and Compliance Committee to make it a Risk and Compliance Committee; 4) improving accountability for, and tracking of, principal risks across functions and local markets; 5) ensuring our global risk community is better connected and therefore better placed to share best practices; 6) developing an integrated assurance plan to help identify and gaps and overlaps in the management of our principal risks across the ‘three lines of defence’ in accordance with best practice risk management.” (Vodafone Annual Report 2015, p.37). It can be seen that Vodafone Group separated their ‘risk’ responsibility from Group audit director from 2015.

For the corporate governance part of Vodafone’s annual reports, the responsibility of Chair of the Board of Directors was revealed every year between 2015 and 2017. According to Vodafone’s Annual Report 2015 (p.58) and also Annual Report 2017 (p.59), “The Chairman then held one-to-one interviews with each of the Directors to discuss the reports. The Directors were asked for their views on, amongst other things; strategic oversight; priorities for change; Board composition and expertise; effectiveness of the Board’s engagement with shareholders; risk management and internal control; Board dynamics and the induction process for new Directors.” This sentence above cannot be found in Vodafone’s Annual Report 2016; however, the same responsibility of Chairman was written at the beginning of the ‘Corporate Governance’ part in Annual Report 2016. “The Committee met four times during the year as part of its standard schedule of meetings. No supplementary meetings were necessary in the year. For the next financial year, we have resolved to increase the standard number of meetings to five to ensure we have adequate time to meet our increased responsibilities particularly in relation to risk management.” (Vodafone’s Annual Report 2015, p.63). However, the Committee met five times and six times in 2016 and 2017 respectively. “The Committee met five times during the year under its standard schedule of meetings, an increase from the four meetings in the last financial year, a change reflecting its increased responsibilities particularly in relation to risk management” (Vodafone’s Annual Report 2016, p.47). “The Committee met six times during the year, five times under its standard schedule of meetings plus an additional meeting in October 2016 to cover a specific external auditor independence matter” (Vodafone’s Annual

Report 2017, p.59).

The company explains the function of the risk and compliance committee in its Annual Report 2015 (p.71) as follows.

"This is a sub-committee of the Executive Committee comprising three Executive Committee members. It is appointed to assist the Executive Committee to fulfil its accountabilities with regard to risk management and policy compliance. In particular, the Committee conducts deep dives into key compliance risks to assess whether they are being effectively managed, approves changes to policies, and maintains an overview of the status of compliance throughout Vodafone so clear and accurate reports can be made to the Audit and Risk Committee twice a year. Deep dives this year covered the policies relating to network resilience, branded partner markets, business continuity management and the Group Enterprise business. The Committee also received regular reports on the culture of compliance across the organization including the use of the Speak Up whistleblowing channel, the results of the People Survey and completion of mandatory training programmes on the Code of Conduct."

5.5.3 Derivative disclosure of Vodafone Group

Vodafone Group provides the details of their use of derivatives. The company uses fair value to measure derivative financial instruments on the contract date and remeasure them with fair value at each reporting data. All the information about derivatives financial instruments were appeared in the 'Notes of financial statements' section. The description of Vodafone's use of derivatives was identical in these three annual reports. It states: "The Group's activities expose it to the financial risks of changes in foreign exchange rates and interest rates which it manages using derivative financial instruments. The use of financial derivatives is governed by the Group's policies approved by the Board of Directors, which provide written principles on the use of financial derivatives consistent with the Group's risk management strategy. Changes in values of all derivatives of a financing nature are included within investment income and financing costs in the income statement unless designated in an effective cash flow hedge relationship or a hedge of a net investment in foreign operations when changes in value are deferred to other comprehensive income or equity respectively. The Group does not use derivative financial instruments for speculative purposes." (Vodafone's Annual Report 2015, p.151; Vodafone's Annual Report 2016, p.134; Vodafone's Annual Report 2017, p.150).

Vodafone Group clearly reported that they did not use financial derivatives for speculative purposes.

Table 5.10 provides information on the use of derivatives against Vodafone Group's investment income and financing costs. Vodafone Group uses fair value to measure financial derivatives. Table 5.11 presents an example of fair value measure of derivatives presented by Vodafone Group.

Table 5.10: Vodafone Group's investment income and financing costs (2017)

	2017 €m	Restated 2016 €m	Restated 2015 €m
Investment income:			
Available-for-sale investments:			
Dividends received	–	1	–
Loans and receivables at amortised cost	426	529	433
Fair value through the income statement (held for trading)	20	9	36
Other[1,2]	28	–	614
	474	**539**	**1,083**
Financing costs:			
Items in hedge relationships:			
Other loans	170	224	286
Interest rate and cross-currency interest rate swaps	(235)	(127)	(143)
Fair value hedging instrument	22	(140)	(537)
Fair value of hedged item	(16)	166	487
Other financial liabilities held at amortised cost:			
Bank loans and overdrafts	419	284	518
Bonds and other loans[2]	1,243	926	849
Interest charge/(credit) on settlement of tax issues[3]	47	19	(1)
Equity put rights and similar arrangements[4]	–	–	12
Fair value through the income statement (held for trading):			
Derivatives – forward starting swaps and futures	(244)	121	(72)
Other[1]	–	573	–
	1,406	**2,046**	**1,399**
Net financing costs	**932**	**1,507**	**316**

Notes:
1 Amounts for 2017 include net foreign exchange gain of €136 million (2016: €573 million loss; 2015: €614 million gain) arising from net foreign exchange movements on certain intercompany balances.
2 Amounts for 2017 include net foreign exchange losses of €641 million (2016: €299 million; 2015: €351 million).
3 Amounts for 2017 include an increase (2016: increase, 2017: decrease) in provision for potential interest on tax issues.
4 Includes amounts in relation to the Group's arrangements with its non-controlling interests.

	2017 €m	Restated 2016 €m
Included within non-current assets:		
Trade receivables	362	471
Amounts owed by associates and joint ventures	27	122
Other receivables	130	623
Prepayments	378	163
Derivative financial instruments	3,672	4,414
	4,569	**5,793**
Included within current assets:		
Trade receivables	4,973	5,566
Amounts owed by associates and joint ventures	325	219
Other receivables	918	1,207
Prepayments	1,197	1,315
Accrued income	1,838	2,225
Derivative financial instruments	610	1,029
	9,861	**11,561**

	2017 €m	Restated 2016 €m
Included within non-current liabilities:		
Other payables	30	123
Accruals	154	183
Deferred income	204	165
Derivative financial instruments	1,349	1,428
	1,737	**1,899**
Included within current liabilities:		
Trade payables	6,212	7,420
Amounts owed to associates and joint ventures	14	67
Other taxes and social security payable	1,261	1,315
Other payables	1,220	961
Accruals	5,683	7,616
Deferred income	1,716	1,967
Derivative financial instruments	728	550
	16,834	**19,896**

The carrying amounts of trade and other payables approximate their fair value. The fair values of the derivative financial instruments are calculated by discounting the future cash flows to net present values using appropriate market interest and foreign currency rates prevailing at 31 March.

	2017 €m	Restated 2016 €m
Included within derivative financial instruments:		
Fair value through the income statement (held for trading):		
Interest rate swaps	553	1,119
Cross-currency interest rate swaps	944	439
Options	63	81
Foreign exchange contracts	76	75
	1,636	**1,714**
Designated hedge relationships		
Interest rate swaps	61	28
Cross-currency interest rate swaps	380	236
	2,077	**1,978**

	2017 €m	Restated 2016 €m
Included within derivative financial instruments:		
Fair value through the income statement (held for trading):		
Interest rate swaps	2,248	2,564
Cross-currency interest rate swaps	126	298
Options	12	46
Foreign exchange contracts	103	292
	2,489	**3,200**
Designated hedge relationships:		
Interest rate swaps	212	486
Cross-currency interest rate swaps	1,581	1,757
	4,282	**5,443**

Table 5.11: Fair value measures of derivatives of Vodaphone Group

Fair value of financial instruments

The table below sets out the valuation basis[1] of financial instruments held at fair value by the Group at 31 March.

	Level 1[2]		Level 2[3]		Total	
	2017 €m	Restated 2016 €m	2017 €m	Restated 2016 €m	2017 €m	Restated 2016 €m
Financial assets:						
Fair value through the income statement	–	–	4,323	2,466	4,323	2,466
Derivative financial instruments:						
Interest rate swaps	–	–	2,460	3,049	2,460	3,050
Cross-currency interest rate swaps	–	–	1,707	2,056	1,707	2,055
Options	–	–	12	46	12	46
Foreign exchange contracts	–	–	103	292	103	292
Interest rate futures	–	–	3	5	3	5
	–	**–**	**8,608**	**7,914**	**8,608**	**7,914**
Financial investments available-for-sale:						
Listed equity securities[4]	3	3	–	–	3	3
Unlisted equity securities[4]	–	–	82	104	82	104
	3	**3**	**82**	**104**	**85**	**107**
	3	**3**	**8,690**	**8,018**	**8,693**	**8,021**
Financial liabilities:						
Derivative financial instruments:						
Interest rate swaps	–	–	614	1,147	614	1,147
Cross-currency interest rate swaps	–	–	1,324	675	1,324	675
Options	–	–	63	81	63	81
Foreign exchange contracts	–	–	76	75	76	75
	–	**–**	**2,077**	**1,978**	**2,077**	**1,978**

Notes:
1 There were no changes made during the year to valuation methods or the processes to determine classification and no transfers were made between the levels in the fair value hierarchy.
2 Level 1 classification comprises financial instruments where fair value is determined by unadjusted quoted prices in active markets for identical assets or liabilities.
3 Level 2 classification comprises items where fair value is determined from inputs other than quoted prices that are observable for the asset or liability, either directly or indirectly. Derivative financial instrument fair values are present values determined from future cash flows discounted at rates derived from market sourced data.
4 Listed and unlisted securities are classified as held for sale financial assets and fair values are derived from observable quoted market prices for similar items. Details are included in note 13 "Other investments".

Source: Vodaphone Group Annual Report (2017), p.152.

The above table shows that Vodaphone uses interest rate swaps, cross-currency rate swaps, options and foreign exchange forward contracts to hedge against its financial risks. Among those instruments, swaps are the largest.

5.5.4 Financial derivatives usage of Vodafone Group

Vodafone Group's activities expose it to financial risks of foreign exchange rates and interest rates and the company has used derivatives financial instruments to manage these risks. As declaimed by the company, Vodafone did not use derivatives financial instruments for speculative purposes.

Vodafone Group uses derivatives (including futures, options, interest rate swaps, cross-currency interest rate swaps and foreign exchange swaps) to manage both interest rate risk and foreign exchange risk. It states: "We manage the basis on which we incur interest on debt

between fixed interest rates and floating interest rates depending on market conditions using interest rate derivatives. The Group enters into foreign exchange contracts to mitigate the impact of exchange rate movements on certain monetary items" (Annual Report, 2017, p.140). The Group designates certain derivatives into three categories to hedge financial risks, including fair value hedges, cash flow hedges and net investments in foreign operations hedges. Fair value hedge refers to the hedge of the change of fair value of recognised assets and liabilities, while cash flow hedges are the hedges of highly probable forecast transactions or hedges of foreign currency or interest rate risks of firm commitments. Vodafone explains in detailed on the use of derivative financial instruments. For example, it explains that: "The Group's policy is to use derivative instruments (primarily interest rate swaps) to convert a proportion of its fixed rate debt to floating rates in order to hedge the interest rate risk arising, principally, from capital market borrowings. The Group designates these as fair value hedges of interest rate risk with changes in fair value of the hedging instrument recognised in the income statement for the period together with the changes in the fair value of the hedged item arising from the hedged risk, to the extent the hedge is effective. Gains or losses relating to any ineffective portion are recognised immediately in the income statement" (Vodafone's Annual Report, 2017, p.149).

The company reports the process of using derivatives financial instruments and emphasises the governance of using financial derivatives. For example, in the annual report, it states that: "The use of financial derivatives is governed by the Group's policies approved by the Board of Directors, which provide written principles on the use of financial derivatives consistent with the Group's risk management strategy. Changes in values of all derivatives of a financing nature are included within investment income and financing costs in the income statement unless designated in an effective cash flow hedge relationship or a hedge of a net investment in foreign operations when changes in value are deferred to other comprehensive income or equity respectively" (Vodafone's Annual Report, 2017, p.148).

Interestingly, Vodaphone reports their uses of derivative instruments to hedge currency and interest rate risk are transacted by specialist treasury personnel, recognising the potential risk involved and the complexity of derivatives. To use specialist personnel to transact derivatives wasn't mentioned by other case companies. The use of financial derivatives of Vodafone between 2015 and 2017 is given in Table 5.12. The company provides the details on the use of foreign exchange derivatives as shown in Table 5.13.

Table 5.12: The use of financial derivatives of Vodafone between 2015 and 2017

At 31 March 2015	Gross amount €m	Amount set off €m	Amounts presented in balance sheet €m	Related amounts not set off in the balance sheet: Right of set off with derivative counterparties €m	Related amounts not set off in the balance sheet: Cash collateral €m	Net amount €m
Derivative financial assets	4,005	–	4,005	(726)	(2,542)	737
Derivative financial liabilities	(984)	–	(984)	726	30	(228)
Total	**3,021**	**–**	**3,021**	**–**	**(2,512)**	**509**

At 31 March 2016	Gross amount €m	Amount set off €m	Amounts presented in balance sheet €m	Related amounts not set off in the balance sheet: Right of set off with derivative counterparties €m	Related amounts not set off in the balance sheet: Cash collateral €m	Net amount €m
Derivative financial assets	4,304	–	4,304	(1,216)	(2,837)	251
Derivative financial liabilities	(1,564)	–	(1,564)	1,216	110	(238)
Total	**2,740**	**–**	**2,740**	**–**	**(2,727)**	**13**

At 31 March 2017	Gross amount €m	Amount set off €m	Amounts presented in balance sheet €m	Related amounts not set off in the balance sheet: Right of set off with derivative counterparties €m	Related amounts not set off in the balance sheet: Cash collateral €m	Net amount €m
Derivative financial assets	4,282	–	4,282	(1,505)	(2,654)	123
Derivative financial liabilities	(2,077)	–	(2,077)	1,505	384	(188)
Total	**2,205**	**–**	**2,205**	**–**	**(2,270)**	**(65)**

Table 5.13: The use of foreign exchange derivatives of Vodafone Group (2017 vs. 2016).

The currency split of the Group's foreign exchange derivatives (which includes cross-currency interest rate swaps and foreign exchange swaps) is as follows:

	2017		Restated 2016	
	Payable €m	Receivable €m	Payable €m	Receivable €m
Sterling	1,176	6,576	22,625	18,026
Euro	23,167	5,556	14,762	24,496
US dollar	4,246	19,482	9,799	12,872
Japanese yen	–	–	851	–
Other	5,420	4,813	6,814	1,005
	34,009	**36,427**	**54,851**	**56,399**

Source: Vodaphone Group Annual Report 2017 (p.143)

Generally, all four kinds of financial derivatives were used by the company between 2015 and 2017, including 'Interest rate and cross currency interest rate swaps', 'put options over non-controlling interests', 'Foreign exchange forward contracts', and 'Interest rate futures'. The value of interest rate swaps was always the highest among these derivatives contracts. There were no financial liabilities of foreign exchange contracts in 2015. Vodafone's annual reports explain net financial instruments as follows: "Financial assets and liabilities are offset and the amount reported in the consolidated balance sheet when there is a legally enforceable right to offset the recognised amounts and there is an intention to settle on a net basis or realise the

asset and settle the liability simultaneously. Derivative financial instruments that do not meet the criteria for offset could be settled net in certain circumstances under ISDA (International Swaps and Derivatives Association) agreements where each party has the option to settle amounts on a net basis in the event of default from the other. Collateral may be offset and net settled against derivative financial instruments in the event of default by either party. The aforementioned collateral balances are recorded in "other short-term investments" or "short-term debt" respectively." (Vodafone's Annual Report 2015, p.156; Vodafone's Annual Report 2016, p.139; Vodafone's Annual Report 2017, p.153).

5.6 Case Study 5: Ashtead

5.6.1 Introduction to the case of Ashtead

Ashtead is an international equipment rental company with networks located in several countries. The company rents a full range of construction and industrial equipment across a wide variety of applications to a diverse customer base. It is the largest equipment rental company in the UK with 196 stores. The company started from Ashtead Plant Hire Company Ltd. backed to 1947. In 1984 it was listed as a public listing company and created a vehicle to acquire other firms. The current business model is shown in the company's website as: "We create value through the short-term rental of equipment that is used for a wide variety of applications to a diverse customer base. Our rental fleet ranges from small hand-held tools to the largest construction equipment and is available through a network of stores in the US, Canada and the UK"[34]. The company sets up its objective as "…to deliver sustainable value and above average performance across the economic cycle, thereby extending our industry-leading position and delivering superior total returns for shareholders"[35].

5.6.2 Risk and risk management of Ashtead

The company identifies risk from a broad perspective. "Our main risks relate to economic conditions, competition, financing, business continuity, people, health and safety, the environment and laws and regulations" (Ashtead Annual Report 2017, p.11). The company recognises the importance of identifying and managing financial and non-financial risks faced by Ashtead. According to Ashtead's Annual Report (2017), the company has developed a

[34] http://www.ashtead-group.com/aboutus/ourbusinessmodel.aspx (Accessed on 04/08/2019)
[35] http://www.ashtead-group.com/aboutus/default.aspx.(Accessed on 04/08/2019).

rigorous risk management framework designed to identify and assess the likelihood and consequences of risks and to manage the actions necessary to mitigate their impact (p.34).

Risk management information appeared in Ashtead's annual reports from 2015 to 2017. Similar with other five selected companies, there are three parts of risk management information: risk management and principal risks, governance, and notes to the financial statements.

In the company's Annual Reports 2015, 2016 and 2017, the responsibility of Board was written as follows: "The Board has overall responsibility for risk management, setting of risk appetite and implementation of the risk management policy". In Ashtead's Annual Report 2015 (p.47), the following was given: "The Board confirms that there is a process for identifying, evaluating and managing significant risks faced by the Group. This process has been in place for the full financial year and is ongoing. Under its terms of reference, the Group Risk Committee meets semi-annually or more frequently if required, with the objective of encouraging best risk management practice across the Group and a culture of regulatory compliance and ethical behaviour. The Group Risk Committee reports annually through the Audit Committee to the Board".

In general, the board of directors of Ashtead has its own responsibility of risk management and internal control and for maintaining an appropriate relationship with the Group's auditor to the Audit Committee and oversight of corporate reporting. In addition, the Committee assists the Board in discharging its responsibility for oversight and monitoring of financial reporting, risk management and internal control. "The Company's objective is to maintain a strong control environment which minimises the financial risk faced by the business. It is the Committee's responsibility to review and assess the effectiveness of the Company's internal financial controls and internal control and risk management factors. The Committee receives regular reports from internal operational audit, outsourced internal audit and the Group Risk Committee. The Group's risk management processes are an area of focus as they adapt to reflect changes to our risk profile as a result of our significant growth, both organic and through bolt-on acquisitions" (Ashtead Annual Report 2015, p.50; Ashtead Annual Report 2016, p.57; Ashtead Annual Report 2017, p.63). From the information above and reported in the annual reports, Ashtead had an independent risk committee, which is very similar to other case companies such as Diageo. However, comparing to Diageo, the ranking of Ashtead's risk management capability is relatively lower.

5.6.3 Derivatives disclosure of Ashtead

As reported in the company's Annual Report (2017), the activities of Ashtead mainly faced interest rate and currency risk. Interest rate risk is monitored on a continuous basis and managed through the use of interest rate swaps, while currency risk is managed through the use of forward foreign exchange contracts where appropriate. "The Group periodically utilises interest rate swap agreements to manage and mitigate its exposure to changes in interest rates. However, during the year ended and as at 30 April 2017, the Group had no such swap agreements outstanding" (p.120). Apparently, due to immateriality of the use of derivatives, Ashtead did not provide any detailed information on the specific amounts of derivatives. Its financial statements did not report financial instruments either in its assets or liabilities side.

Overall, there was little information available from the annual reports of Ashtead on the use of derivatives, although the company mentioned that when necessary and appropriate derivatives were used to manage foreign currency and interest rate risk.

5.6.4 Financial derivatives usage of Ashtead

According to Ashtead Annual Report 2015, "At 30 April 2015, the Group had no derivative financial instruments. The embedded prepayment options included within the $900m and $500m senior secured loan notes are closely related to the host debt contract and hence, are not accounted for separately. The loan notes are carried at amortised cost" (p.99). The same information about Ashtead did not use derivatives in 2016 and 2017 can be found in Ashtead Annual Reports 2016 (p.117) and 2017 (p.122) respectively. Ashtead does not exclude the possibility to use financial derivatives to help them hedge against risks. For example, in Ashtead Annual Report 2015 (p.97), it states: "The Group periodically utilises interest rate swap agreements to manage and mitigate its exposure to changes in interest rates. However, during the year ended and as at 30 April 2015, the Group had no such swap agreements outstanding". The Annual Report 2016 (p.116) reads: "The credit risk on liquid funds and derivative financial instruments is limited because the counterparties are banks with high credit ratings assigned by international credit rating agencies".

Ashtead used other method to control credit risk. It reports: "…The Group has a large number of unrelated customers, serving over 570,000 during the financial year, and does not have any

significant credit exposure to any particular customer. Each business segment manages its own exposure to credit risk according to the economic circumstances and characteristics of the markets they serve. The Group believes that management of credit risk on a devolved basis enables it to assess and manage it more effectively. However, broad principles of credit risk management practice are observed across the Group, such as the use of credit reference agencies and the maintenance of credit control functions" (Ashtead Annual Report 2017, p.121).

Ashtead just recently used derivatives (mainly interest rate swaps and forward foreign exchange contracts) to manage interest rate risk and currency risk as at the end of 2017 (Annual Report 2017, p.122). Ashtead clearly stated that the company did not trade in financial instruments. Within the governance structure, the Board of directors or through delegated authority, the Finance and Administration Committee, approves any derivatives transactions. Recently, the company started to use derivatives with a small amount (i.e., immateriality). The company's annual report (2017) reveals that the activities of Ashtead mainly faced interest rate and currency risk. Interest rate risk is monitored on a continuous basis and managed through the use of interest rate swaps, while currency risk is managed through the use of forward foreign exchange contracts where appropriate. "The Group periodically utilises interest rate swap agreements to manage and mitigate its exposure to changes in interest rates. However, during the year ended and as at 30 April 2017, the Group had no such swap agreements outstanding" (p.120).

Due to the immateriality concerning the use of derivatives, Ashtead did not provide any detailed information on the specific amounts of derivatives. Its financial statements did not report financial instruments either in its assets or liabilities side. Given the fact that the business involved in three main countries and have a diversity of customers, it would anticipate the company had used more derivatives in managing foreign currency risk and credit risk. Because the company operates in three countries (US, Canada and UK) with revenues and expenses occurred in local currencies. It is likely that the company faces transaction and translation risks of foreign currency. There is no information on how the company deals with foreign currency translation risk, although the company recognises the significant impact of translation risks on firm financial condition and performance. The company reports: "Our reporting currency is the pound sterling, the functional currency of the parent company. However, the majority of our assets, liabilities, revenue and costs are denominated in US dollars. Fluctuations in the value of the US dollar with respect to the pound sterling have had, and may continue to have, a

significant impact on our financial condition and results of operations as reported in pounds" (Annual Report, 2017, p.43).

5.7 Case Study 6: Merlin Entertainments

5.7.1 Introduction to the case of Merlin Entertainments

Merlin Entertainments is Europe's leading and the world's second-largest visitor attraction operator, focusing on location-based, family entertainment. It is in the leisure industry. The company was created in 1999 with the strategy of creating "a high growth, high return, family entertainment company based on strong brands and a global portfolio that is naturally balanced against the impact of external factors"[36]. This strategy statement also appears in annual reports.

The company operates two main product types of Midway attractions and theme parks, and splits across three operating groups of Midway attractions, LEGOLAND parks, and resorts theme parks. As revealed in the company websites and Annual Report (2017), the company has identified six growth drivers to achieve its business objectives, including growing the existing estate through planned investment cycles, exploiting strategic synergies, transforming their theme parks into destination resorts, rolling out new Midway attractions, new LEGOLAND park developments as well as strategic acquisitions.

5.7.2 Risk and risk management of Merlin Entertainments

The company management has identified the principal risks including safety, security, innovation, brand development and customer satisfaction, people availability and expertise, competition and intellectual property, commercial impact of external threats to city centres leading to displacement of tourists, annual welfare, availability and delivery of new sites and attractions, IT robustness, technological developments and cyber security, anti-bribery and corruption, liquidity/cash flow risk, and foreign exchange translation risk[37]. The above list is very detailed, however less details are given on the effect of those risk on the performance of the company.

[36] https://www.merlinentertainments.biz/about-us/our-strategy/ (accessed on 03/08/2019)

[37] Interestingly, the company uses foreign currency translation risk, instead of foreign exchange transaction risk. Translation risk is a matter of concern from the accounting perspective, which in many ways is beyond the control of management. Translation risk, comparing to transaction risk is less significant from the business operation management perspective. The company does not specify much on the changing in foreign exchanges.

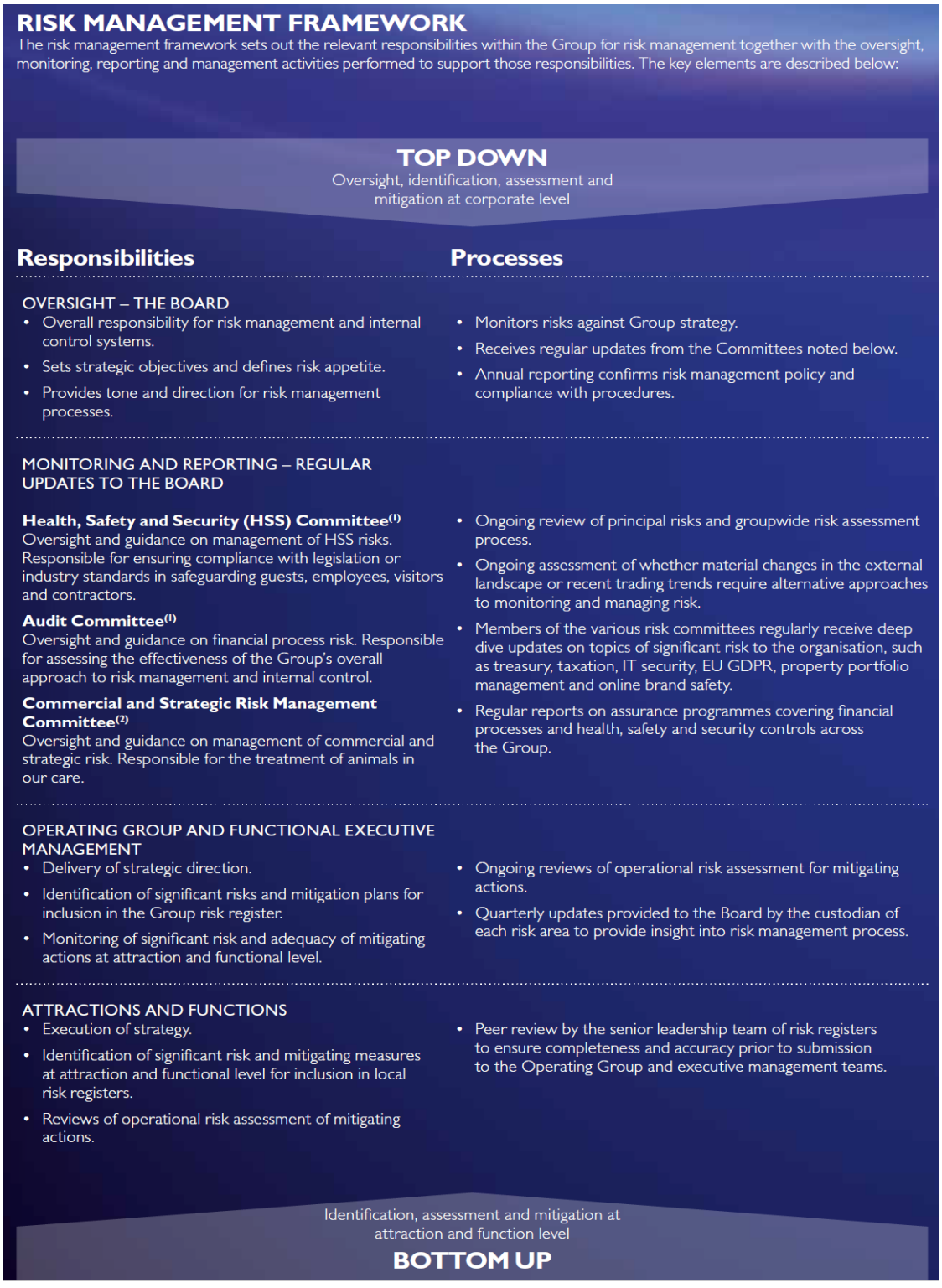
Merlin Entertainments' board of directors is responsible for maintaining effective internal control and risk management systems. The company has developed an internal control framework. The Annual Report 2017 states: "The internal control framework is designed to manage, rather than eliminate, the risk of failure to achieve the Group's objectives and can only provide reasonable, but not absolute, assurance against material misstatement or loss" (p.34).

Merlin Entertainments develops a risk management framework as show in Figure 5.3. The company's risk management framework specifies the relevant responsibilities within the company for risk management together with the oversight, monitoring, reporting and management activities performed to support those responsibilities. It is the board of directors that has the overall responsibility for risk management and internal control systems. The board of directors sets strategic objectives, defines risk appetite, provides tone and direction for risk management processes, as well as monitors risks against the strategies of company. Under the framework, the board expects to receive regular updates from several committees, including Health, Safety and Security Committee, Audit Committee, and Commercial and Strategic Risk Management Committee.

The company's board of directors reviews the Group's principal risks as well as the risk management framework in place to mitigate these risks, concluding that the risk management framework remains fit for purpose (Annual Report 2017, p.51). This statement reported in the annual report seems to be different from the guidance set in the internal control framework that is to manage, rather than to eliminate risk. Each year, as claimed in the annual report (2017), the board carries out a robust assessment of the principal risks facing the company including those that would threaten its growth drivers, future performance, solvency or liquidity as well as the group's approach to risk management. The outputs from these reviews are then used to perform liquidity and debt covenant headroom analysis.

In terms of risk management disclosures, the company provides the principal risks disclosures which describe these risks and explain how they are being managed and mitigated. In addition, it reports the directors' explanation in the viability statement of how they have assessed the prospects of the group over what period they have done so and why they considered that period to be appropriate and their statement as to whether they have a reasonable expectation that the Group will be able to continue in operation and meet its liabilities.

Figure 5.3: Merlin Entertainments' risk management framework



5.7.3 Derivatives disclosure of Merlin Entertainments

The company did not provide much details on the use of derivatives, apart from some general

statements on hedge accounting and included derivatives as financial assets and liabilities in the balance sheet as shown in the consolidated statement of financial position of 2017 (Table 5.14).

Table 5.14: Merlin Entertainments' Consolidated Statement of Financial Position (2017)

	Note	2017 £m	2016 £m
Non-current assets			
Property, plant and equipment	3.1	2,092	1,841
Goodwill and intangible assets	3.2	1,018	1,017
Investments	5.1	59	49
Other receivables	3.4	11	13
Deferred tax assets	2.4	33	38
		3,213	2,958
Current assets			
Inventories	3.4	37	36
Trade and other receivables	3.4	100	86
Derivative financial assets		5	3
Cash and cash equivalents	4.1	309	215
		451	340
Total assets		3,664	3,298
Current liabilities			
Interest-bearing loans and borrowings	4.2	7	5
Finance leases	4.4	1	–
Derivative financial liabilities		3	5
Trade and other payables	3.4	306	300
Tax payable		37	39
Provisions	3.5	5	3
		359	352
Non-current liabilities			
Interest-bearing loans and borrowings	4.2	1,271	1,147
Finance leases	4.4	190	88
Other payables	3.4	28	28
Provisions	3.5	72	65
Employee benefits	5.2	6	11
Deferred tax liabilities	2.4	171	179
		1,738	1,518
Total liabilities		2,097	1,870
Net assets		**1,567**	**1,428**
Issued capital and reserves attributable to owners of the Company		1,563	1,424
Non-controlling interest		4	4
Total equity	4.5	**1,567**	**1,428**

5.7.4 Financial derivatives usage of Merlin Entertainments

Merlin Entertainments used derivatives to manage company credit risks as the company reported in its 2017 Annual Report: "The Group manages credit exposures in connection with financing and treasury activities including exposures arising from bank deposits, cash held at banks and derivative transactions" (p.123). It also shows that "the Group has a policy of actively managing its interest rate risk exposure using a combination of fixed rate debt and

interest rate swaps" (ibid, p.121). The case company also uses derivatives (e.g., forward contracts) to manage foreign exchange risk. "Any significant cross-border trading exposures would be hedged by the use of forward foreign exchange contracts" (Annual Report 2017, p.122).

5.8 Summary

This chapter presents six case companies in terms of their risk and risk management, the use of financial derivatives and the disclosures of derivatives. The six companies were chosen in accordance of their ranking of risk management capabilities based on the rating system designed in this study, which was reported in Chapter 4. Six companies are: Unilever, Diageo, Intertek, Vodafone, Ashtead, and Merlin Entertainments. All of them were listed on the London Stock Exchanges. These companies cover a diverse business scope and operate globally. The case analysis results of risk management capability and the use of financial derivatives will be provided in the next chapter.

Chapter 6 – Case Study Results and Discussions

6.1 Introduction

This chapter provides case study results and a discussion. The six case companies reflect different levels of risk management capability as shown in the research method chapter. Although these companies come from different industries, they are very much involved in global businesses as their operations extend beyond the UK. All the case companies have indicated the use of financial derivatives in managing their risk as reported in the previous chapter. The next section discusses the results with a summary of the use of financial derivatives by these six companies. It presents some observations based on the case study results, which then lead to a discussion in Section 6.3 on the connections between risk management capability and the use of financial derivatives. Section 6.4 highlights the contributions of this study. The final section gives a summary.

6.2 Results of Case Studies

In terms of the use of financial derivatives, six companies have different situations as shown in Table 6.1. All these companies face interest rate risk, foreign exchange risk and market risks. Among these six companies, Unilever, Diageo, and Vodafone used all these four types of financial derivatives over the periods. Intertek used all four types in these years except in year 2015 it did not use options. The bottom two cases, Ashtead and Merlin Entertainment used only forward and swap financial instruments. Both used forward and swap to manage their foreign exchange risk and credit risks.

Table 6.1 The use of financial derivatives of six case companies

	Forward			Futures			Options			Swap		
	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017
Unilever[1]	√	√	√	√	√	√	√	√	√	√	√	√
Diageo[2]	√	√	√	√	√	√	√	√	√	√	√	√
Intertek[3]	√	√	√	√	√	√	×	√	√	√	√	√
Vodafone[4]	√	√	√	√	√	√	√	√	√	√	√	√
Ashtead[5]	√	√	√	×	×	×	×	×	×	√	√	√
Merlin[6]	√	√	√	×	×	×	×	×	×	√	√	√

Notes:

1. Unilever reported the use of forward and swaps and provided the amount for each type of derivatives, but did not gave the details on the use of options. The amount of options was included in other financial liabilities.
2. Diageo reported it had used forward, futures, options, and swaps to control its risks, but did not disclose the amount of each of these four derivative contracts.
3. Intertek reported its use of forward, swaps, options in all these three years. Intertek mentioned futures as part of liability driven investment, but did not give specific information on the amount of futures.
4. Vodafone reported it had used derivatives to control risks and gave the details on forward, futures, options and swap.
5. Ashtead mentioned the periodical use of interest rate swaps and forward foreign exchange contracts to manage interest rate and foreign exchange risk, but did not provide the details on these individual usage from 2015-2017.
6. Merlin Entertainments only reported it had used forward and swaps, but did not disclose the amount of each types of derivatives.

More specifically, Unilever used commodity forward contracts to hedge against the risk of changes in commodity prices in relation to its purchase of certain raw materials. As disclosed, all commodity forward contracts hedge future purchases of raw materials and the contracts were settled either in cash or by physical delivery (Unilever Annual Report, 2017, p.123). In the case of Vodafone, it took additional protection from euro and UK dollar interest rate movements by using interest rate futures or swaps through fixing interest rates or reducing interest rates. Ashtead's activities expose it mainly to interest rate and currency risk. According to the company, interest rate risk was monitored on a continuous basis and managed, where

appropriate, through the use of interest rate swaps whereas, and the use of forward foreign exchange contracts to manage currency risk was considered on an individual non-trading transaction basis. The case company periodically utilises interest rate swap agreements to manage and mitigate its exposure to changes in interest rates.

The above finding does not confront with the findings of prior studies. For example, in Panaretou (2013) it reports overall 86.88% of the firms in the UK sample use derivatives to manage at least one type of price risk and the use of currency and interest rate derivatives is more widespread than the use of commodity derivatives. In this study, all six case companies reported their use of financial derivatives, although the extent varied.

Following an analysis of six cases, it could draw some observations, which provide implications for the viewpoint made for this study.

- Two top-rated and two middle-rated risk management capability companies i.e., Unilever, Diageo, Intertek and Vodafone used financial derivatives over the years in managing their financial risks (e.g., interest rate risk, foreign exchange risk and commodity risk) that impact on their cash flows. Two bottom-rated risk management capability companies i.e., Ashtead and Merlin Entertainments documented little or no financial derivatives used in their risk management. Ashtead did not used much financial derivatives over the period of three years. Ashtead only documents that when necessary and appropriate derivatives are used to manage foreign currency and interest rate risk, which is quite subjective and the statement is rather ambiguous. From the analysis, it seems that these bottom-rated companies were less confident comparing to other case companies in this study in using financial derivatives to hedge their foreign exchange currency, credit risk and interest rate risk. Both bottom-rated companies did not use futures and options. This probably can back the viewpoint that the use of financial derivatives is like to be influenced by a company's risk management capability.

- The risk management information disclosed in the annual reports of these case companies were much different. For example, two top-rated companies (i.e., Unilever and Diageo) reported more information in the risk and risk management parts, not only reported their identification of risks and how to manage these risks, but also the future strategy or plan about related risk management approach(es). It seems that

companies reported more information about derivatives and its related risk management when they have stronger risk management capability.

- All these six case companies that have disclosed the use of financial derivatives report their purpose of use of derivatives and none of them declaims the use of financial derivatives for speculative purposes. While derivatives can be effective and efficient tools for corporate hedging, they are equally well suited for speculative purposes as argued by Bartram (2019), possibly even under the guise of hedging. None of the six case companies claimed that they have used derivatives for speculations. This claim seems to be questionable, on the one hand, given the potential speculative functions of derivatives. The 'non-speculative' claim is not within the previous findings of other survey studies (e.g., Bodnar et al., 1998; Lins et al., 2011; Bodnar et al., 2014) that show companies admit to speculative uses of derivatives.[38] On the other hand, it can be argued that stronger shareholder rights under the regime of an effective corporate governance[39] system should better align the interests of managers and shareholders and prevent managers' speculation with the use of derivatives that is not in the interest of shareholders. Likewise, strong creditors rights should reduce risk shifting by speculating with the use of derivatives (Bartram, 2019). As a result, all these companies claimed they did not use derivatives for speculative purposes.
- It can conclude from these case studies that the motivation of using financial derivatives by non-financial firms is predominately to manage their operational risks including financial risk. However, companies did not specify individual attributes (e.g., tax incentives, financial distress costs, managerial incentives and information asymmetry) to motive their use of financial derivatives.

6.3 Discussion

Managing risk is a fundamental concern in today's dynamic global environment for multinational corporations. Financial derivatives have been a tool for managing risk through firms' engagement in hedging with the use of derivatives. All six case companies have reported

[38] For example, in a survey by Bodnar et al. (2014), a half of 1161 global firms indicate that the firm's market view is important for their use of derivatives. Lins et al. (2011) find about 50% of 229 firms from 36 countries imply that they did take active positions at least some of the time in using derivatives for speculative purposes.
[39] Corporate governance has some clear implications for risk management decisions and the use of derivatives for hedging and speculation (Bartram, 2019).

the use of derivatives to hedge against their financial risk to some extent. In theory, derivatives are financial instruments that derive their value from an underlying asset, market index, or condition. The value of a derivative contract is predominately dependent on the value of the underlying, not the contract itself. While derivatives have existed in some form for centuries, academics still find it extremely difficult to quantity the use and value of derivatives as well as risks contained in derivatives contract due to the complexity of initial and ongoing valuations. The case studies reveal this situation as none of them provides the details on risks contained in the derivatives. In terms of valuation, they just follow the accounting standards with the use of fair-value measurement. However, little details have been given on the application of fair values and alternative quantifications.

It is known that companies can use financial derivatives to offset the risk that fair values or cash flows will be negatively impacted by adverse price or market movements (e.g., foreign currency and interest rate). Alternatively, companies may use financial derivatives to increase their risk exposure through speculation. Speculation refers to the act of companies taking derivative positions that are not offset by an asset or liability. These positions are taken based on the companies' market views regarding the movements of underlying such as interest rates, foreign exchange rates or other various market conditions. Overall, the use of financial derivatives, either to hedge or speculate, is directly correlated with a company's total risk exposure, influenced by the risk management capability of the company. None of the case companies have admitted to use financial derivatives for speculative purposes. This should be interpreted carefully as by definition, speculation refers to the act of companies taking derivative positions, which is based on the companies' market views regarding the movements of underlying. Before taking decisions on the use of financial derivatives, a firm expects to carry out detailed market analysis. This analysis, which lead to market views on the likely changing of underlying, itself seems to be speculating, even it is under the guise of hedging. All the case companies have considered hedging; however, it is unclear as to the motivations of engaging in hedging. As shown in the literature review chapter, there are various theories of hedging, which suggest that corporations to hedge in order to 1) reduce their tax liabilities, 2) reduce the expected cost of financial distress, 3) reduce conflicts between shareholders and bondholders, and 4) improve the coordination between financing and investment. The case studies reveal little evidence to confirm any of the above motivations. The information provided by the companies seems to be too general. The case companies engage in corporate risk management on a regular basis as documented in their annual reports and corporate

websites. It seems that for most these firms, the main objective of their risk management activities entails using hedge against their foreign exchange rate and interest rate risks. It can be argued that the use of derivatives by the case firms is in line with existing positive theories that justify risk management at the corporate level as beneficial to the shareholders of a business in the presence of capital market imperfection. Concerning the presence of capital market imperfections, Aretz and Bartram (2010) provide a review of previous studies examining whether corporate hedging can increase shareholder value. Particularly, Aretz and Bartram (2010) look at the implication of derivatives use from a corporate risk management perspective. Aretz and Bartram (2010) deduce that corporations do not just use financial derivatives, but rely heavily on pass-through, operational hedging and foreign currency debt to manage financial risk. It is shown that derivatives use was just one part of a broader financial strategy that considers the type and level of financial risks, the availability of risk-management tools, and the operating environment of the corporation. The theoretical argument suggests that shareholders' wealth can be increased through corporate hedging by exploiting capital market imperfections. However, the documents from the case companies do not reveal the reasons to confirm this theoretical proposition. As noted by Aretz and Bartram (2010) that existing theoretical explanations have little to no explanatory power for determining which firms use derivatives. My study presents an alternative perspective to determine which firms use derivatives. As explained in the literature review chapter, capital market imperfections provide affirmative rationales for the link between firm risk management capability and the use of financial derivatives as corporate risk management can create corporate value due to reducing direct and indirect costs of financial distress, costly external financing and taxes.

The six case companies have all provided information on their principal risks and risk management framework. It seems that risks have been received much attention across the companies and particularly the boards of directors of these companies have considered risks as a strategic issue. Most the case companies assign the board of directors with the primary responsibility of developing risk management frameworks and monitoring risk management strategies and implementations. Under the guidance of the FRC (2014), the board has ultimate responsibility for overall risk management of a firm. However, to support and exercise its risk oversight role, the board usually delegates this function to a board-level committee (such as Risk Management committee, Commercial and Strategic Risk Management Committee) and continues its monitoring role by establishing the right "tone at the top" to ensure the overall risk management function is matched with corporate strategy and financing decisions. Usually,

the main purpose of the board-level committee is to oversee the functions of risk management, review the process of internal control, and receive regular reports from management. This committee usually communicates with the full board regarding the risk profile of a firm and provides recommendations on any strategic risk-related decisions. Such decisions include, for example, the use of derivatives to hedge against a firm's foreign exchange risks.

These six companies are all operating in international markets with businesses located in many countries/regions and should share many common features in facing foreign currency exposures and the changing business environments that can greatly affect their credit risks. It seems that these companies have adopted different approaches to deal with these risks, reflecting in the varying levels of use of financial derivatives. Given the complex and huge risk potentials of financial derivatives, it is expected that companies with strong risk management capabilities are able to use more derivatives as financial derivatives if they are used appropriately can be very effective in managing financial risks. The case studies above, to some extent, advocate this expectation.

In many cases, information was repeating over three years. It seems the later year report just copied the previous reports without giving any explanation. This repetition does not reflect the changing nature of the market, the external environment, and the corporation strategy. For example, in the case Diageo, there are many statements appeared exactly the same across these three years. "We believe that great risk management starts with the right conversations that drive better business decisions" (Diageo Annual Report 2015, p.20; Annual Report 2016, p.19; Annual Report 2017, p.20).

Although case companies claim they did not use financial derivatives for speculative purposes, companies did admit that financial derivatives were used as part of their risk management. When a company applies risk management (such as internal control and implementing a risk management system), the purpose is not to eliminate risk, but to manage business risk. In this case, to have gains through the use of financial derivatives can be achieved by anticipating the market movements and making right decisions. Therefore, the clear cut between hedging against risks and speculative purposes of using financial derivatives is rather blurred, given both have impacted on the firm value and risks facing the companies. This raises a question about the existing accounting standards requiring a company to distinguish between hedging and speculative purposes of financial derivatives.

According to COSO (2004), the higher the effectiveness of a firm's enterprise risk management, the greater the ability of the firm to achieve its strategic objectives i.e. strategy, operations, reporting, and compliance. As argued, risk management capability is the fundamental indicator of a firm's overall ability of managing the portfolio of risk confronting the firm. Therefore, the higher the level of risk management capability of a firm, the better the ability of the firm to use financial derivatives to hedge its operating and financial risks as part of its corporate strategy.

6.4 Contributions to the Literature

This thesis contributes to both the empirical and theoretical literature within financial derivatives and risk management. In particular, it addresses the paucity of qualitative study of risk management capabilities in associating with the use of financial derivatives by non-financial companies. One of the main contributions of this thesis is it is the first study of its kind to establish the connection between a company's risk management capability and the use of financial derivatives. As noted by Yung and Chen (2018), the literature on managerial capability is quite new and scarce. This thesis is an important addition to the limited studies of risk management capabilities in the context of financial derivatives usage.

Also, the literature has identified the drivers of tax incentives, financial distress costs, managerial incentives and information asymmetry behind the use of financial derivatives by non-financial firms to manage their financial risk. The findings of case studies presented in this thesis provide a new perspective, i.e., risk management capabilities that drive the use of financial derivatives by non-financial firms. This perspective is significant as risk management capabilities reflect the effect of a firm's overall management quality resulted from an amalgamation of various forces or powers embedded in a company's governance, relationship, organisation and structure. Previous studies on the use of financial derivatives were predominately based on isolated forces and attributes. This new perspective overcomes the limitations of previous studies by offering an avenue that can provide a comprehensive analysis of the motivates behind the use of financial derivatives as prior literature mostly focuses on the determinants of derivative uses from individual corporate characteristics. The influence of the amalgamated force reflected in the capabilities of a firm's risk management has barely been studied in the financial derivatives literature.

The existing risk management theories (e.g., Bessembinder, 1991; Froot et al, 1993; Leland, 1998) suggest that the use of financial derivatives for risk management purposes will add value to a firm through reducing expected taxes or financial distress costs, mitigating underinvestment, and/or reducing expected taxes. For example, by mitigating underinvestment or increasing the debt level to take advantage of debt tax shield, a firm can add value to its stocks. On the other hand, managerial risk aversion motives may lead managers to use financial derivatives to engage in risk management activities (including the use of derivatives to speculate) to protect themselves, which will not benefit shareholders (Géczy et al., 2007). Therefore, it is still a question as to the real benefit of using financial derivatives. The existing literature focuses on the value relevance of use of derivatives by mainly considering corporate hedging and the implications of hedging on corporate value. As pointed by Bartram (2019), only a few studies investigate the effect of derivatives usage on firm risk and exposures and these studies have almost exclusively looked at U.S. firms, and their conclusions are mixed. Few studies have looked at the link between a firm risk management capability and the use of derivatives. This study has filled in this gap by making an exploratory study with the use of six case companies. It is acknowledged that it is difficult through case studies of three years data to assess the extent of hedging accurately due to the complex combination of various hedging tools with different time horizons, payoff profiles, notional amounts, exercise prices etc. and also due to limited accounting disclosure presented by the case companies.

Moreover, this study provides a practical ranking of a firm's risk management capabilities for the first time by incorporating the scorings and ratings of a firm's corporate governance and corporate social responsibilities. The risk management capability ranking helps to rate a firm's risk management capabilities. This methodology of designing the ranking measure is simple, straightforward and easy to apply, having a practical implication to other settings. In this study, multiple weightings are assigned to corporate governance and CSR so as to have a robust rating outcome for the selection of cases based on their risk management capabilities.

6.5 Summary

This chapter provides a discussion of case results and highlights the contributions. The case results cover the use of financial derivatives, risk management and risk management disclosures of these case companies. Overall, these six cases have reported the use of financial derivatives in their risk management. However, top rated companies in terms of risk

management capability use all four types of financial derivatives in hedging their financial and operating risks, and disclose more information on their use of derivatives. Two bottom-rated case companies have just used forward contracts and swap, but not futures and options. They also provide very briefed information on the use of financial derivatives with one or two sentences. No quantitative information was presented. Overall, the results of case studies presented in this study can be used to establish the connections between a firm's risk management capability and the use of financial derivatives.

In this chapter, contributions to the literature have been highlighted covering three aspects including this is the first study of its kind to establish the connection between a company's risk management capability and the use of financial derivatives; this study presents a new perspective to understand the determinant of the use of financial derivatives by non-financial firms; and this study provides a practical rating design of a firm's risk management capability by combining both a firm's corporate governance and CSR scores.

Chapter 7: Conclusions, Limitations, Implications and Areas for Further Study

7.1 Summary and Conclusions

Financial derivatives create many possibilities for companies and market participants to manage their risks. For instance, companies can use derivatives (e.g., futures, forward contracts and options) to insure themselves against unforeseen fluctuations in an interest rate or a foreign exchange rate. In sum, the use of financial derivatives can help companies and market participants reduce risks, but at the same time, also creates risks including liquidity risk, market risk and credit risks (e.g., counterparty risks). Geyer-Klingeberg et al. (2019) recently document that: "The question why non-financial companies engage in corporate hedging ranks among the most intensively discussed topics in corporate finance" (p.203). This clearly highlights the importance of this study as derivatives are the most widely-used tools for corporate hedging and risk management. Many previous studies have presented the value relevance of using derivatives and identified a number of motivations for businesses to engage in the use of derivatives. Given the complications of financial derivatives and difficulties of valuing financial instruments, investors have put much pressure on accounting standards setters to develop more transparent and useful valuation and disclosure standards. Research studying accounting treatments and disclosures of derivatives has also received great interests in the literature. However, few studies have looked into the specific use of financial derivatives from derivatives disclosures made by individual companies.

Despite increasing literature on the role of managerial capabilities in raising a company's performance, relationships between managerial capabilities and the use of financial derivatives have not been investigated. This provides a gap for this study with potentials to contribute to the literature.

This current thesis through case studies establishes the connection between a company's risk management capability and the use of financial derivatives. Risk management capability is a relatively new concept that has not been widely applied in business and finance research. In this study, a company's risk management capability is defined as the ability or power of a business organisation to reduce, adapt to or mitigate risks (impacts and likelihood of a disaster) to levels that are acceptable for the organisation and its management objective. Risk

management capability is embedded in an organisation's structure, relationship, and governance (Zou et al., 2010; Gao et al., 2013; Zehir et al., 2016).

Non-financial companies, by and large make greater use of financial derivatives and the usage is often underpinned by more complex environments and corporate strategies. Prior literature has identified a variety of factors that determine the usage of financial derivatives. These factors are more related to corporate characteristics such as ownership, company size, the industry, profitability, financial leverage, and more recently corporate governance. The findings are still inconclusive, due to different settings and sources of data being used. Therefore, on the one hand, there is a need for further research in adding more empirical evidence as to the influences of corporate characteristics on the use of financial derivatives. On the other hand, there is a need to study the influence of a company's risk management capability on the use of financial derivatives in order to incorporate individual corporate characteristics into the integrated power of the company as a whole. This study has attempted to address this issue by considering the influence of a company's risk management capability.

In the light of the latest developments of accounting standards, the increased information requirements, the growing impact of corporate governance, the increased importance of financial risk disclosures, and the much attention given on the use of financial derivatives by non-financial companies, this study seeks to address a significant gap in the existing literature as to the association of a company's risk management capability with the usage of financial derivatives. From a different perspective, this thesis has focused on four research objectives, including: 1) To understand the importance of derivatives for corporations and practices of corporate usage of financial derivatives; 2) To understand the current developments of accounting, finance and risk management issues relating to derivatives; 3) To conduct case studies with a view to establishing the connection between a company's risk management capability and the use of financial derivatives; 4) To discuss the implications of research findings for corporate managers and policy makers as regards derivatives and the use of financial derivatives. Table 7.1 illustrates the completion of these research objectives and specifies the chapter covered in this thesis relating to these objectives, along with main conclusions.

Table 7.1: Research objectives and conclusions

Research Objectives	Chapters covered	Main conclusions
To understand the importance of derivatives for corporations and practices of corporate usage of financial derivatives;	Chapters 1, 2 and 5	• Derivatives are very important tools for corporations to use to hedge against financial risks; • Most companies have used derivatives for hedging; none of the six case companies declared to use derivatives for speculative purposes; • A number of corporate factors have contributed to the use of financial derivatives; • Derivatives disclosures are part of corporate reporting and companies are increasingly reporting on their use of derivatives.
To understand the current development of accounting, finance and risk management issues relating to derivatives;	Chapters 1, 2, 3, 5 and 6	• Accounting for derivatives has been one of the most challenging areas in terms of measurement, valuations and disclosures; • Standard setters have made progress in harmonising accounting treatment of financial instruments (including derivatives); • Given high risk potential and complexity of derivatives, managing derivative risk has been widely recognised to be vital for the users of derivatives; • Various risk management theories have been developed in finance that can be used to explain corporate behaviours in using financial derivatives; • Risk management capability, which is embedded in an organisation's structure, relationship, and corporate governance, is the ability of an organisation to reduce, adapt to or mitigate risks (impacts and likelihood of a disaster) to levels that are acceptable for the organisation and its management objective; • Derivative risk management is part of corporate governance and in most cases the board of directors of a company is responsible for derivative risk management.
To conduct case studies with a view to establishing the	Chapters 5 & 6	• Six cases consist of two top, two middle and two bottom rated risk management capability companies;

connection between a company's risk management capability and the use of derivatives;		• The case studies show that the use of financial derivatives does link with a company's risk management capability; • Top-rated companies in risk management capability used more derivatives to manage their financial and operational risk, while low-rated companies used little or no derivatives; • The use of derivatives varied across the years, although each case company provided more or less the same level of disclosures of derivatives; • Derivatives risk management and information disclosed in the annual reports of these case companies were much different.
To provide a discussion of research implications for corporate managers and policy makers as regards derivatives and the use of financial derivatives.	Chapters 6 & 7	• Companies should improve their risk management capability by developing effective corporate governance and enhancing CSR performance; • Although numerous corporate attributes influence the use of derivatives, risk management capability that reflects the integrated power of management of a company, to a large extent, determines the use of derivatives; • Implementing risk management in a business may bring in a number of financial benefits and therefore it is necessary to have risk management as an integral part of the business's management practice; • Accounting standards setters should rethink the requirement of separating the motivations of using financial derivatives between hedging and speculative purposes.

7.2 Research Limitations

This study has several obvious limitations. Like other studies with the use of case studies, this study has predominately used the selected cases within the context of large companies listed on the London Stock Exchange. It is necessary to emphasise that this study only investigated the links between risk management capability and the use of financial derivatives from FTSE 100 non-financial companies, so it may therefore produce different findings with reference to financial companies, smaller companies, as well as companies from other jurisdictions.

This study uses case studies with interpretative approaches, particularly the use of text interpretation. Interpreting the text and information to some extent is rather subjective as the researcher decides what to include or leave out. This study obviously cannot avoid this limitation imbedded in a case study-based research. The selection of cases is based on a risk management capability rating, that was designed by measuring only a company's corporate governance and CSR performance. There may be other attributes (such as corporate culture, ownership structure, the nature of industry etc) that can also influence a company's risk management capability. These attributes were not included in the rating due to unavailability of quantified indicators and associated data.

Also, the results from these case studies may not be able to be generalised to other settings such as small companies, and companies based in different markets. A variety of factors can influence the outcomes of case studies such as the sectors where the cases based, the timing when the case data presented, and documents availability etc.

This study uses extensive secondary sources to develop an appreciation of the context of risk management capability through six case studies within which a company's use of financial derivatives is related. It is limited to some extent that the primary sources of data if used could give different findings. Secondary sources based on the publications of annual reports and other documents (e.g., corporate governance rating and CSR scoring) are subjected to the reliability of data, which is beyond the control of the researcher.

7.3 Research Implications

The findings of this study offer a number of implications for business managers and policy makers including regulators. Firstly, the association of a company's risk management capability with the use of financial derivatives suggests that businesses need to strengthen its risk management capability in order to effectively use financial derivatives to hedge against financial and operational risks. As derivatives are a double-edged sword since they are basically leveraged products and instruments, they encompass huge risks if they are improperly used. A company shouldn't use financial derivatives if it does not have adequate risk management capability to mitigate the risks involved in the derivatives. As shown in this study, hedging by applying financial derivatives has been one of risk management strategies used by non-financial companies to manage risks. Companies use hedges to protect themselves against a

number of exposures, including, among others, risks of interest rates, foreign exchanges, commodity prices and equity market. It should recognise, however, using derivatives is like a double-edged sword. If a company has a strong risk management capability, derivatives can be beneficial for the company. On the other hand, derivatives were also referred to as weapons of mass destruction by Warren Buffet, which indicates the would-be consequences of misuse of derivatives. Misuse of financial derivatives can destroy a business as shown in several well-known cases with huge losses caused by inappropriate use of derivatives (e.g., Procter & Gamble with losses of US$157 million lost on the swaps market; Orange County with losses of US$1,810 million in 1994, due to reverse repo operations; Metallgesellschaft with losses of US$1,340 million in 1994, due to using oil forwards). In using financial derivatives, a company's senior management and board of directors should have a clear picture about its risk management capability. It is the board's responsibility to ensure that the process of risk management that is in pace is well thought-out and complete. One of the most important steps in designing a risk management strategy for a company is to evaluate its risk management capability that will be able to deal with the scope and complications of risks that the business is exposed to.

Over the past three decades, the growth of derivatives has been tremendous and this is due to numerous factors like improvement in corporate governance resulting in a rise of risk management capabilities, progress in derivatives accounting bringing about an enlargement of derivatives disclosures and a rising quality of derivatives financial information, and technological enhancements leading to the development of sophisticated risk management tools. This study has revealed the changes in accounting for derivatives and the corporate behaviours in derivatives disclosures. However, the case studies show that none of six companies had used derivatives for speculation purposes. This may raise a question concerning accounting standards whether it is necessarily pertinent to require a non-financial company to separate hedging and speculating reporting on their use of financial derivatives. To accounting standards setters, it seems to be necessary to reconsider accounting standards for derivatives, particularly relating to derivatives disclosures.

Of course, the accurate measurement and effective control of company financial and operational risks are of crucial importance to the companies' managers and regulators. Hedging has widely used by companies to manage financial risks, in particular the company that uses financial derivatives. Before the global financial crisis, financial derivatives were main

channels for non-financial companies to manage financial risks. Although the growth of using financial derivatives by non-financial companies has been less impressive since the global financial crisis, as shown in this thesis most case companies with risk management capabilities are still adopting financial derivatives to manage their financial risks. No doubt, implementing risk management by using financial derivatives in business organisations may bring in a number of financial benefits and therefore it is necessary to improve risk management capabilities and embed risk management as an integral part of an organisation's governance and structure.

As reported by Harvard Business Review[40], David B. Weinberger, a former managing director of Swiss Bank Corporation in the capital markets and treasury area explains: "*In today's complex world, financial risk management is not just a theoretical nicety; it is a practical necessity. Derivative instruments can help companies manage their risks with maximum efficiency. And used properly, derivative instruments don't create surprises. They help minimize them*".

7.4 Areas for Future Research

This study of the interconnection between a company's risk management capability and the use of financial derivatives raises some intriguing directions for future research. This study shows that companies, drawn from FTSE top companies and rated by a combination of their corporate governance scoring and CSR ratings, that have better risk management capabilities are disclosing more derivatives-related information and using financial derivatives to manage their operational and financial risks. This study focused on large companies, but it did not cover small or medium-sized companies. It would be a useful avenue for future research to examine whether similar phenomena occur in smaller companies.

For most of the case studies, this study had mainly based on a single source of data of annual reports. Although annual reports are the most reliable source of publicly available data, there are possibilities that other sources exist that could offer more insights of a company's management decision-making and behaviours in terms of the use of financial derivatives and

[40] See "Using Derivatives: What Senior Managers Must Know" in Harvard Business Review (the January–February 1995 Issue), https://hbr.org/1995/01/using-derivatives-what-senior-managers-must-know. (Accessed on 18/02/2020)

determining the risk management policies and strategies. It would be possible for future research to explore the use of other sources of data for such a study. Ideally, future studies should be based on multiple sources of data from varying size of business organisations.

Even through this thesis with the adoption of a qualitative study (i.e., case study) provides a deep examination of the connection between a company's risk management capability and the use of financial derivatives, future research can be extended to use other methodologies, such as quantitative research to test the relationship between risk management capability and the use of derivatives with a view to generalising such a relationship to a large population of business organisations. Also, future research could pay more attention to the use of other qualitative methods such as ethnographic research, in-depth interviews, and focus groups as qualitative approaches are able to provide rich data and provide more realistic feel of the real world and flexible ways of collecting, analysing and interpreting data (Lee, 1992; Jack and Anderson, 2002).

This study has highlighted the importance of research on the interrelationship between risk management capability, the use of financial derivatives and derivatives disclosures. Considering the very limited number of studies carried out in this area, numerous avenues are available for further study to expand the interrelationship in different contexts and in particular to further investigate to what extent such an interrelationship holds. René Stulz (2000), former the editor of the Journal of Finance says: "(…) risk management is part of the social sciences. What makes social sciences different is that their object of study changes continuously, in this case partly as a result of financial innovation. Understanding these changes and how they influence risk is critical in times of great uncertainty. Risk management is not rocket science – it cannot be, since the past does not repeat itself on a sufficiently reliable basis. Future risks cannot be understood without examining the economic forces that shape them." It is important for future research to give much attention to examine the economic forces behind risk, risk management, and the use of financial derivatives.

Corporate behaviour can be different, in particular companies in developed markets and emerging economies expect to behave differently. It would be interesting to study if corporate behaviours of using derivatives by companies in emerging economies are different from companies in well-developed markets. Although limited previous studies document corporate behaviours in using financial derivatives (e.g., Ayturk et al., 2016; Kwong, 2016; Giraldo-

Prieto et al. (2017), comparative studies of behaviour differences between companies in these different markets are scarce. Future research can be carried out in comparing companies between these different economies in the use and influences of financial derivatives.

Another area that can be considered for future research is related to managers' background and characteristics. For example, gender has been identified as a key factor influencing senior managers' attitude towards risk and risk-taking behaviours (Arun et al., 2015; Faccio et al., 2016; Aribi et al., 2018). Prior studies show that companies run by female CEOs have lower leverage, less volatile earnings and a higher chance of survival than if companies run by male counterparts. Firms run by female CEOs tend to make financing and investment choices that are less risky than those of similar companies run by male CEOs. It would be interesting to investigate if companies run by female CEOs tend to use less derivatives than similar companies that are run by male counterparts. The sample provided in this study is rather too small and it is impossible to identify the gender impact on managerial risk management capability and the use of financial derivatives. Similarly, future research could look into the influences of experience, education, cultural belief of senior corporate managers (e.g., CEOs and CFOs) on a company's risk management capabilities and their impact on the use of financial derivatives. It would also be interesting to study if religions (such as Islam) have any impact on the relationship between the risk management capabilities and the use of financial derivatives. Corporate behaviours toward risk are different in the context of Islamic finance where risk sharing dominates (Akin et al., 2016; Minhat and Dzolkarnaini, 2018). Further research can also investigate if a company using more Islamic financing instruments will use few financial derivatives given the fact that Islamic financing instruments contain less risk exposures comparing to conventional financing instruments (Siddiqui, 2008; Akin et al., 2016; Minhat and Dzolkarnaini, 2017).

Overall, as emerging topics, risk management capability and financial derivatives usage offer tremendous opportunities for developing future research and it is expected that research into a firm's risk management capability will attract more attention in the academic world in the future.

References

Abbott, W. F., & Monsen, R. J. (1979). On the measurement of corporate social responsibility: Self-reported disclosures as a method of measuring corporate social involvement. *Academy of Management Journal*, 22 (3), 501 – 515.

Abdallah A. A., Hassan M. K., & McClelland, P. L. (2015). Islamic financial institutions, corporate governance, and corporate risk disclosure in gulf cooperation council countries. *Journal of Multinational Financial Management*, 31, 63-82.

Abdel-khalik, A., & Chen, P. (2015). Growth in financial derivatives: The public policy and accounting incentives. *Journal of Accounting and Public Policy*, 34(3), 291-318.

Abraham, S., & Cox, P. (2007). Analyzing the determinants of narrative risk information in UK FTSE 100 annual reports. *British Accounting Review,* 39, 227-248.

Abraham, S., & Shrives, P. J. (2014). Improving the relevance of risk factor disclosure in corporate annual reports. *British Accounting Review*, 46, 91-107.

Acharya, V., Philippon, T., Richardson, M., & Roubini, N. (2009). The financial crisis of 2007-2009: Causes and remedies. *Financial Markets, Institutions & Instruments*, 18, 89-137.

Adam, T., Dasgupta, S., & Titman, S. (2007). Financial constraints, competition, and hedging in industry equilibrium. *Journal of Finance*, 62, 2445-2473.

Adam, T., & Guettler, A. (2015). Pitfalls and perils of financial innovation: The use of CDS by corporate bond funds. *Journal of Banking & Finance*, 55, 204-214.

Adam, T. R., Fernando, C. S., & Golubeva, E. (2015). Managerial overconfidence and corporate risk management. *Journal of Banking & Finance*, 60, 195-208.

Adam, T. R., Fernando, C. S., & Salas, J. M. (2017). Why do firms engage in selective hedging? Evidence from the gold mining industry. *Journal of Banking & Finance*, 77, 269-282.

Adams, R., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 94 (2), 291–309.

Adams, R. B., & Mehran, H. (2003). Is corporate governance different for bank holding companies? *Federal Reserve Bank of New York Economic Policy Review*, 9, 123-142.

Aditya, R., & Bhaskar, V. (2017). Integration of spot & derivatives commodity market-budget 2017, what it means? *International Journal of Innovative Research & Studies*, 7(11), 231-233.

Adner, R., & Helfat, C. E. (2003). Corporate effects and dynamic managerial capabilities.

Strategic Management Journal, 24, 1011-1025.

Adznan, S., & Nelson, S.P. (2014). Financial instruments disclosure practices: Evidence from Malaysian listed firms. *Procedia-Social and Behavioural Sciences*, 164, 62-67.

Aebi, V., Sabato, G., & Schmid, M. (2012). Risk management, corporate governance, and bank performance in the financial crisis. *Journal of Banking & Finance*, 36, 3213-3226.

Ahmad, R. A. R., Abdullah, N., Jamel, N. E. S. M., & Omar, N. (2015). Board characteristics and risk management and internal control disclosure level: Evidence from Malaysia. *Procedia Economics and Finance*, 31, 601-610.

Ahmed, A.S., Beatty, A. & Bettinghaus, B. (2004). Evidence on the efficacy of interest-rate risk disclosures by commercial banks. *The International Journal of Accounting*, 39(3), 223-251.

Ahmad, K., & Courtis, J. K. (1999). Associations between corporate characteristics and disclosure levels in annual reports: A meta-analysis. *British Accounting Review*, 31(1), 35-61.

Ahmed, S., Judge, A., & Mahmud, S. E. (2018). Do derivatives use reduce the cost of equity? *International Review of Financial Analysis*, 60, 1-16.

Ahmed, H. A. & Mohd, G. N. A. (2013). A longitudinal examination of intellectual capital disclosures and corporate governance attributes in Malaysia. *Asian Review of Accounting*, 21(1), 27–52.

Aikenhead, G. S. (1997). Toward a first nations cross-cultural science and technology curriculum. *Science Education*, 81, 217-238.

Allayannis, G. S., Lel, U., & Miller, D. P. (2003). Corporate governance and the hedging premium around the world. *SSRN Electronic Journal*, 10.2139/ssrn.1361222.

Allayannis, G., & Weston, J. P. (2001). The use of foreign currency derivatives and firm market value. *The Review of Financial Studies,* 14(1), 243-276.

Allen, F., & Carletti, E. (2006). Credit risk transfer and contagion. *Journal of Monetary Economics*, 53(1), 89-111.

Allen, F., & Santomero, A. M. (1997). The theory of financial intermediation. *Journal of Banking & Finance*, 21(11-12), 1461-1485.

Almahrog, Y., Ali Aribi, Z., & Arun, T. (2018). Earnings management and corporate social responsibility: UK evidence. *Journal of Financial Reporting and Accounting*, 16 (2). 311–332.

Álvarez-Díez, S., Alfaro-Cid, E., & Fernández-Blanco, M. O. (2016). Hedging foreign exchange rate risk: Multi-currency diversification. *European Journal of Management and*

Business Economics, 25(1), 2-7.

Alzoubi, E. S. S., & Selamat, M. H. (2012) The effectiveness of corporate governance mechanisms on constraining earning management: Literature review and proposed framework. *International Journal of Global Business*, 5(1), 17–35.

Akpinar, O., & Fettahoğlu, A. (2016). Does the use of derivatives affect firm value? Evidence from Turkey. *Journal of Transnational Management*, 21(2), 53-61.

Amberg, N., & Friberg, R. (2016). Three approaches to risk management – and how and why Swedish companies use them. *Journal of Applied Corporate Finance*, 28, 86-94.

Ambrosini, V., Bowman, C., & Collier, N. (2009). Dynamic capabilities: An exploration of how firms renew their resource base. *British Journal of Management*, 20, S9-S24.

Ameer, R. (2009). Value-relevance of foreign-exchange and interest-rate derivatives disclosure: The case of Malaysian firms. *The Journal of Risk Finance*, 10(1), 18-90.

Amran, A., Rosli, A., & Hassan, B. (2009). Risk reporting: An exploratory study on risk management disclosure in Malaysian annual reports. *Managerial Auditing Journal,* 24(1), 39-57.

Amrour, M. (2000). Internal control: Governance framework and business risk assessment at reed elsevier. *AUDITING: A Journal of Practice & Theory*, 19(1), 75-81.

Anbil, S., Saretto, A., & Tookes, H. (2019). How does hedge designation impact the market's perception of credit risk? *Journal of Financial Stability*, 41, 25-42.

Andreou, P. C., Cooper, I., Lopez, I. G. O., & Louca, C. (2018). Managerial overconfidence and the buyback anomaly. *Journal of Empirical Finance*, 49, 142-156.

Andreou, P. C., Karasamani, I., Louca, C., & Ehrlich, D. (2017), The impact of managerial ability on crisis-period corporate investment. *Journal of Business Research*, 79, 107-122.

Antwi, S. K., & Hamza, K. (2015). Qualitative and quantitative research paradigms in business research: A philosophical reflection. *European Journal of Business and Management,* 7(3), 217-225.

Aragon, G. O., Li, L., & Qian, J. (2019). The use of credit default swaps by bond mutual funds: Liquidity provision and counterparty risk. *Journal of Financial Economics*, 131(1), 168-185.

Aretz, K., & Bartram, S. M. (2010). Corporate hedging and shareholder value. *Journal of Financial Research*, 33, 317-371.

Aretz, K., Bartram, S. M., & Dufey, G. (2007). Why hedge? Rationales for corporate hedging and value implications. *The Journal of Risk Finance*, 8(5), 434-449.

Arora, N., Gandhi, P., & Longstaff, F. A. (2012). Counterparty credit risk and the credit

default swap market. *Journal of Financial Economics*, 103, 280-293.

ASX (Australian Stock Exchange) Corporate Governance Council. 2006. Principles of good corporate governance and good practice recommendation: Exposure draft of changes, 1–42. Australian Stock Exchange, November.

Augier, M., & Teece, D. J. (2009). Dynamic capabilities and the role of managers in business strategy and economic performance. *Organization Science*, 20, 410-421.

Austin, M. (2008). An analysis of the financial crisis of 2008: Causes and solutions. available at SSRN: http://ssrn.com/abstract=1295344. Accessed on 11 Oct. 2016.

Aven, T. (2016). Risk assessment and risk management: Review of recent advances on their foundation. *European Journal of Operational Research*, 253(1), 1-13.

Ayturk, Y., Gurbuz, A. O. & Yanik, S. (2016). Corporate derivatives use and firm value: Evidence from Turkey, *Borsa Istanbul Review*, 16(2), 108-120.

Babich, V., & Kouvelis, P. (2018). Introduction to the special issue on research at the interface of finance, operations, and risk management (iFORM): Recent contributions and future directions. *Manufacturing & Service Operations Management*, 20(1), 1-18.

Ball, R. (2001). Infrastructure requirements for an economically efficient system of public financial reporting and disclosure. *Brookings-Wharton Papers on Financial Services*, 18, 127–169.

Baril, C.P., Ralph, L., Benke, Jr., & Buetow, G.W. (1996). Managing risk with derivatives. *Management Accounting*, 78, 20.

Barney, J. B., Clark, D. N. (2007). *Resource-based Theory: Creating and Sustaining Competitive Advantage*. Oxford: University Press.

Barth, M. E., Beaver, W. H., & Landsman, W. R., (1996). Value-relevance of banks fair value disclosures under SFAS No. 107. *The Accounting Review*, 71(4), 513-537.

Bartov, E., Bodnar, G. M., & Kaul, A. (1996). Exchange rate variability and the riskiness of U.S. multinational firms: Evidence from the breakdown of the Bretton Woods system. *Journal of Financial Economics*, 42(1), 105-132.

Bartram, S. M. (2019). Corporate hedging and speculation with derivatives. *Journal of Corporate Finance*, 57, 9-34.

Bartram, S. M., Brown, G. W., & Fehle, F. R. (2009). International evidence on financial derivatives usage. *Financial Management*, 38(1), 185-206.

Basel Committee on Banking Supervision. (June 2008). Principles for sound liquidity risk management and supervision. *Basel: The Bank for International Settlements*.

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and

implementation for novice researchers. *The Qualitative Report*, 13(4), 544-559.

Bean, A., & Irvine, H. (2015). Derivatives disclosure in corporate annual reports: Bank analysts' perceptions of usefulness. *Accounting and Business Research*, 45 (5), 602-619.

Beasley, M. S., Clune, R., & Hermanson, D. R. (2005), Enterprise risk management: An empirical analysis of factors associated with the extent of implementation. *Journal of Accounting and Public Policy*, 24(6), 521-531,

Beber, A., & Fabbri, D. (2012). Who times the foreign exchange market? Corporate speculation and CEO characteristics. *Journal of Corporate Finance*, 18(5), 1065-1087.

Bedendo, M., & Bruno, B. (2012). Credit risk transfer in U.S. commercial banks: What changed during the 2007-2009 crisis? *Journal of Banking & Finance*, 36(12), 3260-3273.

Beech, N. (2005). *Research Methodology Course Notes*. Glasgow: Strathclyde Business School, University of Strathclyde.

Beltratti, A., & Stulz, R. M. (2012). The credit crisis around the globe: Why did some banks perform better? *Journal of Financial Economics*, 105, 1-17.

Benzennou, B., Gwilym, O. A., & Williams, G. (2020). Commonality in liquidity across options and stock futures markets. *Finance research letters*, 32, https://doi.org/10.1016/j.frl.2019.01.008.

Berelson, B. (1952). *Content Analysis in Communications Research.* New York: Free Press.

Berkman, H., Bradbury, M. E., Hancock, P., & Innes, C. (2002). Derivative financial instrument use in Australia. *Accounting & Finance*, 42, 97-109.

Bessembinder, H. (1991). Forward contracts and firm value: Investment incentive and contracting effects. *Journal of Financial and Quantitative Analysis*, 26, 519-532.

Bessler, W., Conlon, T. & Huan, X. (2019). Does corporate hedging enhance shareholder value? *A meta-analysis, International Review of Financial Analysis*, 61, 222-232.

Beyer, A., Cohen, D. A., Lys, T. Z., & Walther, B. R. (2010). The financial reporting environment: Review of the recent literature. *Journal of Accounting and Economics*, 50(2-3), 296-343.

Bhamornsiri, S., & Schroeder, R. G. (2004). The disclosure of information on derivatives under SFAS No. 133: Evidence from the Dow 30. *Managerial Auditing Journal*, 19(5), 669-680.

Bick, P., Orlova, S., & Sun, L. (2018). Fair value accounting and corporate cash holdings. *Advances in Accounting*, 40, 98-110.

Birt, J., Rankin, M., & Song, C.L. (2013). Derivatives use and financial instrument disclosure in the extractives industry. *Accounting & Finance*, 53(01), 55-83.

Bischof, J., & Ebert, M. (2014). IFRS disclosures and risk perception of financial instruments. *Schmalenbach Business Review*, 66, 276-308.

Black, F., & Scholes, M. (1973). The pricing of options and corporate liabilities. *Journal of Political Economy*, 81(3), 637-654.

Blaikie, N. (2010). *Designing Social Research: The Logic of Anticipation*. Great Britain: Polity Press.

Blanche, M. T., & Durrheim, K. (1999). *Research in Practice: Applied Methods for the Social Sciences*. South Africa: University of Cape Town Press.

Blanco, I., & García. (2017). The hidden cost of financial derivatives: Options trading and the cost of debt. https://ssrn.com/abstract=2908924.

Blanco, I., & Wehrheim, D. (2017). The bright side of financial derivatives: Options trading and firm innovation. *Journal of Financial Economics*, 125, 99-119.

Blankey, A., & Schroeder, R. (2000). Accounting for derivatives under SFAS No. 133. *The Mid-Atlantic Journal of Business*, 36(1), 17-35.

Blankley, A., Lamb, R., & Schroeder, R. (2002). The disclosure of information on market risk: Evidence from the Dow 30. *Managerial Auditing Journal*, 17(08), 438-451.

Bodnar, G. M., Giambona, E., Graham, J. R., & Harvey, C. R. (2014). A guide to corporate risk management. https://ssrn.com/abstract=2479483.

Bodnar, G.M., Hayt, G.S., & Marston, R.C. (1996). Wharton survey of derivatives usage by US non-financial firms. *Financial Management*, 25(4), 113-133.

Bodnar, G.M., Hayt, G.S., & Marston, R.C. (1998). Wharton survey of financial risk management by US Non-financial firms. *Financial Management*, 27(4), 70-91.

Bogdan, R., & Biklen, S. K. (1992). *Qualitative Research for Education: An Introduction to Theory and Methods*. London: Allwyn and Bacon.

Bouslah, K., Kryzanowski, L., & M'Zali, B. (2018). Social performance and firm risk: Impact of the financial crisis. *Journal of Business Ethics*, 149(3), 643-669.

Bowman, E. H. (1980). A risk/return paradox for strategic management. *Sloan Management Review*. 21(3), 17–31.

Boyd, J. F., Gregory, S. H., Richard, C. R., & Charles, W. S. (1996). A review of industry reaction to proposed changes in derivatives accounting. *Journal of International Financial Management and Accounting*, 7(3), 243-258.

Braune, E., Charosky, P., & Hikkerova, L. (2019). Corporate social responsibility, financial performance and risk in times of economic instability. *Journal of Management and Governance*, https://doi.org/10.1007/s10997-019-09476-y.

Breeden, D. T., & Viswanathan, S. (2016). Why do firms hedge? An asymmetric information models. *The Journal of Fixed Income Winter*, 25(3), 7-25.

Broihanne, M. H., Merli, M., & Roger, P. (2014). Overconfidence, risk perception and the risk-taking behavior of finance professionals. *Finance Research Letters*, 11(2), 64-73.

Brooks, C., Rew, A. G., & Ritons, S. (2001). A trading strategy based on the lead–lag relationship between the spot index and futures contract for the FTSE 100. *International Journal of Forecasting*, 17(1), 31-44.

Brown, G. (2001). Managing foreign exchange risk with derivatives. *Journal of Financial Economics*, 60(2-3), 401-448.

Brown, G., Crabb, P., & Haushalter, D. (2006). Are firms successful at selective hedging? *Journal of Business*, 79, 2925-2949.

Brunzell, T., Hansson, M., & Liligeblom, E. (2011). The use of derivatives in Nordic firms. *The European Journal of Finance*, 17(6), 335-376.

Bryman, A., & Bell, E. (2011). *Business Research Methods*. Oxford: Oxford University Press.

Butler, C. (2009). *Accounting for Financial Instruments*. London: John Wiley & Sons Ltd.

Cabedo J. D., & Tirado, J. M. (2004). The disclosure of risk in financial statements. *Accounting Forum*, 28, 181-200.

Callahan, C., & Soileau, J. (2017), Does enterprise risk management enhance operating performance? *Advances in Accounting*, 37, 122-139.

Camerer, C. F., Issacharoff, S., & Loewenstein, G. (2003). Regulation for conservatives: Behavioral economics and the case for "Asymmetric Paternalism". *University of Pennsylvania Law Review*, 151,1211-1254.

Campbell, D., & Slack, R. (2008). *Analysts' Perspectives on the Materiality of Voluntary Narratives in Annual Reports*. UK: ACCA.

Campbell, D. T. (1975). Degrees of freedom and the case study. *Comparative Political Studies*, 8, 178-193.

Campbell, J. L., Mauler, L. M., & Pierce, S. R. (2019), A review of derivatives research in accounting and suggestions for future work. *Journal of Accounting Literature*, 42, 44-60.

Campbell, R. H., John, R. G., & Murillo, C. (2010). The real effects of financial constraints: Evidence from a financial crisis. *Journal of Financial Economics*, 97(03), 470-487.

Candy, P. (1991). *Self-direction for Lifelong Learning.* San Francisco: Jossey-Bass.

Carmeli, A., & Tishler, A. (2004). Resources, capabilities, and the performance of industrial firms: A multivariate analysis. *Managerial and Decision Economics*, 25(6-7), 299-315.

Carter, D. A., & Sinkey, J. F. (1998). The use of interest rate derivatives by end-users: The

case of large community banks. *Journal of Financial Services Research*, 14(1), 17-34.

Cassar, G. J., Gerakos, J. J., Green, J. R., Hand, J. R. M., & Neal, M. (2018). Hedge fund voluntary disclosure. *The Accounting Review*, 93(2), 117-135.

Castanias, R. P., & Helfat, C. E. (1991). Managerial resources and rents. *Journal of Management*, 17, 155-171.

Cerbioni, F., & Parbonetti, A. (2007). Exploring the effects of corporate governance on intellectual capital disclosure: An analysis of European biotechnology companies. *European Accounting Review*, 16(4), 791-826.

Chalmers, K. G., & Godfrey, J. M. (2000). Practice versus prescription in the disclosure and recognition of derivatives. *Australian Accounting Review*, 10(21), 40-50.

Chang, C. W., Lin, B., & Yu, M. (2018). Derivatives trading information, stock market behavior, and financial institutions. *International Review of Economics & Finance*, 55, 324-325.

Chaudhry, M., Christie-David, R., Koch, T., & Reichert, A. (2000). The risk of foreign currency contingent claims at US commercial banks. *Journal of Banking & Finance*, 24 (9), 1399-1417.

Chen, J., & King, T. D. (2014). Corporate hedging and the cost of debt. *Journal of Corporate Finance*, 29, 221-245.

Chen, J., Liu, X., Song, W., & Zhou, S. (2020). General managerial skills and corporate social responsibility. *Journal of Empirical Finance*, 55, 43-59.

Chen, Y. (2011). Derivatives use and risk taking: Evidence from the hedge fund industry. *Journal of Financial and Quantitative Analysis*, 46, 1073-1106.

Choi, J. J., & Elyasiani, E. (1997). Derivative exposure and the interest rate and exchange rate risks of US banks. *Journal of Financial Services Research*, 12 (2), 267-286.

Choi, J. J., Elyasiani E., & Kopecky, K. J. (1992). The sensitivity of bank stock returns to market, interest and exchange rate risks. *Journal of Banking & Financial*, 16 (5), 983-1004.

Choi, P. M. S., Chung, C. Y., & Liu, C. (2018). Self-attribution of overconfident CEOs and asymmetric investment-cash flow sensitivity. *The North American Journal of Economics and Finance*, 46, 1-14.

Chui, M. (2012). *Derivatives Markets, Products and Participants: An Overview*. Switzerland: Bank for international Settlement.

Cici, G., & Palacios, L. (2015). On the use of options by mutual funds: Do they know what they doing? *Journal of Banking & Finance*, 50, 157-168.

Cole, S., Giné, X., & Vickery, J. (2017). How does risk management influence production decisions? Evidence from a field experiment. *The Review of Financial Studies*, 30(6), 1935-1970.

Cooper, I. A., & Mello, A. S. (1991). The default risk of swaps. *The Journal of Finance*, 46, 597-620.

Corbetta, P. (2003). *Social Research: Theory, Methods and Techniques.* SAGE Publications, Ltd.

Cornell, B., & Reinganum, M. R. (1981). Forward and futures prices: Evidence from the foreign exchange markets. *The Journal of Finance*, 36, 1035-1045.

Cornett, M. M., McNutt, J. J., & Tehranian, H. (2010). The financial crisis, internal corporate governance, and the performance of publicly-traded US bank holding companies. *Working Paper, Boston College*.

COSO (Committee of Sponsoring Organizations of the Treadway Commission) (2004). Enterprise Risk Management — Integrated Framework 2004, New York

Cronqvist, H., Makhija, A. K., & Yonker, S. E. (2012). Behavioral consistency in corporate finance: CEO personal and corporate leverage. *Journal of Financial Economics*, 103(1), 20-40.

Cronqvist H., & Yu, F. (2017). Shaped by their daughters: Executives, female socialization, and corporate social responsibility. *Journal of Financial Economics*, 126, 543-562.

Crawford, L. E., Wilson, A. C., & Bryan, B. J. (1997). Using and accounting for derivatives: An international concern. *Journal of International Accounting, Auditing and Taxation*, 6(1), 111-121.

Crawford, V. P., & Sobel, J. (1982). Strategic information transmission. *Econometrica,* 50, 1431–1451.

Crotty, J. (2009). Structural causes of the global financial crisis: A critical assessment of the 'new financial architecture'. *Cambridge Journal of Economics*, 33(4), 563–580.

Cui, H., Chen, C., Zhang, Y., & Zhu, X. (2019). Managerial ability and stock price crash risk. *Asia-Pacific Journal of Accounting & Economics*, 26(5), 532-554.

Culp, C.L., & Miller, M.H. (1996). *The SEC's Costly Disclosure Rules*. London: Wall Street.

Cumming, C., & Mirtle, B. (2001). The challenges of risk management in diversified financial institutions. *Federal Reserve Bank of New York Economic Policy Review*, 7, 1-17.

Cummins, J. D., Phillips, R. D., & Smith, S.D. (2001). Derivatives and corporate risk management: Participation and volume decisions in the insurance industry. *The Journal of Risk and Insurance*, 68, 51-91.

Custódio, C., Ferreira, M., & Matos, P. P. (2013). Do general managerial skill spur innovation? *SSRN Electronic Journal*, 10.2139/ssrn.2289701.

Custódio, C., & Metzger, D. (2014). Financial expert CEOs: CEO's work experience and firm's financial policies. *Journal of Financial Economics*, 114, 125-154.

Cyree, K., Huang, P., & Lindley, J. T. (2011). The economic consequences of banks' derivatives use in good times and bad times. *Journal of Financial Services Research*, 41(3), 1-24.

Daniel, H., & Martin, R. (2017). Corporate risk management, product market competition, and disclosure. *Journal of Financial Intermediation*, 30, 107-121.

David, S., & Victoria, I. (2008). Bank lending during the financial crisis of 2008. *Journal of Financial Economics*, 97(3), 319-338.

DeMarzo, P. M., & Duffie, D. (1995). Corporate incentives for hedging and hedge accounting. *Review of Financial Studies*, 8 (3), 743-771.

Demerjian, P. R., Lev, B., Lewis, M. F., & McVay, S. E. (2013). Managerial ability and earnings quality. *The Accounting Review*, 88(2), 463-498.

Denzin, N. K., & Lincoln, Y. S. (2000). The Sage *Handbook of Qualitative Research.* USA: SAGE Publications.

Dhaliwal, D., Naiker, V., & Navissi, F. (2010) The association between accruals quality and the characteristics of accounting experts and mix of expertise on audit committees. *Contemporary Accounting Research*, 27(3), 787–827.

Dick, B. (1998). Convergent interviewing: A technique for qualitative data collection [On line]. Available at http://www.aral.com.au/resources/iview.html (Accessed on 10 June 2018)

Diffey, B. L. (2007). *Sunbeds, Beauty and Melanoma*. *Br. J. Dermatol*, 157(2), 350-360.

Dixit, A. (1980). The role of investment in entry-deterrence. *The Economic Journal*, 90 (357), 95–106.

Dobson, J., & Soenen, L. (1993). Three agency – cost reasons for hedging foreign exchange risk. *Managerial Finance*, 19(6), 35-44.

Dodourova, M. (2003). Industry dynamics and strategic positioning in the wireless telecommunications industry: The case of Vodafone Group plc. *Management Decision*, 41(9), 859-870.

Dolde, W. (1993). The trajectory of corporate financial risk management. *Journal of Applied Corporate Finance*, 6(3), 33-41.

Donohoe, M. P. (2015). The economic effects of financial derivatives on corporate tax

avoidance. *Journal of Accounting and Economics*, 59, 1-24.

Dooley, M. P., Folkerts-Landau, D., & Garber, P. (2004). The revived Bretton Woods system. *International Journal of Finance and Economics*, 9, 307-313.

Dowd, K. (1998). *Beyond Value at Risk: The New Science of Risk Management*. Wiley, New York.

Drew, S. A. W., & Kendrick, T. (2005). Risk management: The five pillars of corporate governance. *Journal of General Management*, 31(2), 19-36.

Duffie, D. (2018). Financial regulatory reform after the crisis: An assessment. *Management Science*, 64(10), 4471-4965.

Dunne, T., Fox, A., & Helliar, C. (2007). Disclosure patterns in derivatives reporting by UK firms: Implications for corporate governance. *International Journal of Accounting, Auditing and Performance Evaluation*, 4(3), 231-2447.

Dunne, T., Helliar, C., & Power, D. (2003). Digging deep into derivatives: Accounting for derivatives – how the accounting standards stack up. *Balance Sheet*, 11(3), 23-28.

Eastburn, R. W., & Sharland, A. (2017). Risk management and managerial mindset. *The Journal of Risk Finance*, 18(1), 21-47.

Ederington, L. H. (1979). The hedging performance of the new futures markets. *The Journal of Finance*, 34, 157-170.

Edwards, G.A., Jr, & Eller, G.E. (1996). Derivatives disclosures by major US banks. *Federal Reserve Bulletin*, 82(9), 791-801.

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, 21, 1105-1121.

Eklund, J., Sandström M., & von Rosen, J. S. (2012). The derivative market is facing major changes. *Economic Commentaries*, 6, 1-7.

Elkelish, W., & Hassan, M. K. (2014). Organizational culture and corporate risk disclosure: An empirical investigation for UAE listed companies. *International Journal of Commerce and Management Research,* 24(4), 277-299.

Ellul, A. (2015). The role of risk management in corporate governance. *Annual Review of Financial Economics*, 7, 279-299.

Elshandidy, T., Fraser, I., & Hussainey, K. (2013). Aggregated, voluntary, and mandatory risk disclosure incentives: Evidence from UK FTSE all-share companies. *International Review of Financial Analysis*, 30, 320-333.

Elshandidy, T., & Shrives P. J. (2016). Environmental incentives for and usefulness of textual risk reporting: Evidence from Germany. *The International Journal of Accounting*, 51(4),

464-486.

Elshandidy, T., Shrives, P. J., Bamber, M., & Abraham, S. (2018). Risk reporting: A review of the literature and implications for future research. *Journal of Accounting Literature*, 40, 54-82.

Elzahar, H., & Hussainey, K. (2012). Determinants of narrative risk disclosures in UK interim reports. *The Journal of Risk Finance*, 13(2), 133–147.

Entrop, O., & Merkel, M. (2018). Managers' research education, the use of FX derivatives and corporate speculation. *Review of Managerial Science*, https://ssrn.com/abstract=3032991.

Erkens, D., Hung, M., & Matos, P. (2010). Corporate governance in the 2007-2008 financial crisis: Evidence from financial institutions worldwide. *Working Paper, University of Southern California*.

Ernst & Young (2008). *Observations on the Implementation of IFRS 7 in Corporate Entities.* London: EYGM Limited.

Faccio, M., Marchica, M., & Mura, R. (2016). CEO gender, corporate risk-taking, and the efficiency of capital allocation. *Journal of Corporate Finance*, 39, 193-209.

Fahlenbrach, R., & Stulz, R. M. (2011). Bank CEO incentives and the credit crisis. *Journal of Financial Economics*, 99, 11-26.

Fama, E. F., & Jensen. M. C. (1983). Separation of ownership and control. *Journal of Law and Economics*, 26(2), 301-325.

Farzanegan, E. (2018). Dependence structure between the TEHRAN stock exchange and the derivatives market of the IRAN mercantile exchange: CopulaGARCH Approach. *International Journal of Economics and Management*, 12(2), 457-471.

Fellner-Röhling, G., & Krügel, S. (2014). Judgmental overconfidence and trading activity. *Journal of Economic Behavior & Organization*, 107, 827-842.

Finan, M. B. (2013). *Theory of Interest and Derivatives Market*. USA: Arkansas Tech University.

Financial Services Authority. (2008). *Strengthening Liquidity Standards*. UK: Financial Services Authority.

Florio, C., & Leoni, G. (2017). Enterprise risk management and firm performance: The Italian case. *The British Accounting Review,* 49(1), 56-74.

FRC (2014). *Guidance on Risk Management, Internal Control and Related Financial and Business Reporting*. London: Financial Reporting Council.

Frederiksen, T. (2018). Corporate social responsibility, risk and development in the mining

industry. *Resources Policy*, 59, 495-505

Frino, A., Ibikunle, G., Mollica, V., & Steffen, T. (2018). The impact of commodity benchmarks on derivatives markets: The case of the dated Brent assessment and Brent futures. *Journal of Banking & Finance*, 95, 27-43.

Frolova, I., & Lapina, I. (2015). Integration of CSR principles in quality management. *International Journal of Quality and Service Sciences*, 7(2-3), 10.1108/IJQSS-03-2015-0033.

Froot, K.A., Scharfstein, D.C., & Stein, J.C. (1993). Risk management: Coordinating corporate investment and financing policies. *Journal of Finance*, 48, 1629–1658.

Fudenberg, D., & Tirole, J. (1984). The fat-cat effect, the puppy-dog ploy, and the lean and hungry look. *American Economic Review*, 74, 361–366.

GAO (Government Accountability Office). (1996). *Content Analysis: A Methodology for Structuring and Analyzing Written Material.* USA: U.S. Government Accountability Office.

Gao, S.S., Sung, M., & Zhang, J. (2013). Risk management capability building in SMEs: A social capital perspective. *International Small Business Journal*, 31(6), 677-700.

Gaillard N., & Michalek, R.J. (2019). How and why moral hazard has distorted financial regulation. In: hira A., gaillard N., cohn T. (eds) The failure of financial regulation. *International Political Economy Series*, Palgrave Macmillan.

García-Meca, E., & García-Sánchez Isabel-María (2018). Does managerial ability influence the quality of financial reporting? *European Management Journal*, 36(4), 544-557.

García-Sánchez, I-M, Martínez-Ferrero, J. (2019). Chief executive officer ability, corporate social responsibility, and financial performance: The moderating role of the environment. *Business Strategy and the Environment*, 28, 542– 555.

Gastineau, G. (2001). Exchange-Traded funds: An introduction. *The Journal of Portfolio Manangement*, 27(3), 88-96.

Géczy, C. C, Minton, B. A., & Schrand, C. M. (1997). Why firms use currency derivatives. *The Journal of Finance*, 52, 1323-1354.

Géczy, C. C., Minton, B. A., & Schrand, C. M. (2007). Taking a view: Corporate speculation, governance, and compensation. *The Journal of Finance*, 62, 2405-2443.

Germain, L., Galy, N., & Lee, W. (2014). Corporate governance reform in Malaysia: Board size, independence and monitoring. *Journal of Economics and Business*, 75, 126–162.

Geyer-Klingeberg, J., Hang, M., & Rathgeber, A. W. (2019). What drives financial hedging? A meta-regression analysis of corporate hedging determinants. *International Review of*

Financial Analysis, 61, 203-221.

Gigler, F., & Hemmer, T. (1998). On the frequency, quality, and informational role of mandatory financial reports. *Journal of Accounting Research*, 36, 117–147.

Giraldo-Prieto C. A., Uribe, G. J. G., Bermejo, C. V., & Herrera, D. C. F. (2017). Financial hedging with derivatives and its impact on the Colombian market value for listed companies. *Contaduríay Administración*, 62 (5), 1572-1590.

Goel, A., & Tanrisever, F. (2017). Financial hedging and optimal procurement policies under correlated price and demand. *Production and Operations Management*, 26(10), 1924-1945.

Gorton, G., & Rosen, R. (1995). Banks and derivatives. *NBER Macroeconomics Annual*, 10, 299-339.

Gousgounis, E., & Onur, E. (2018). The effect of pit closure on futures trading. *Journal of Commodity Markets*, 10, 69-90.

Graham, J. R., Harvey, C. R., & Puri, M. (2013). Managerial attitudes and corporate actions. *Journal of Financial Economics*, 109(1), 103-121.

Graham, J. R., & Rogers, D. A. (2002). Do firms hedge in response to tax incentives? *The Journal of Finance*, 57, 815-839.

Grant, K., & Marshall, A.P. (1997). Large UK companies and derivatives. *European Financial Management*, 3(2), 191-208.

Greenspan, A. (1999). *Financial Derivatives. Before the Futures Industry association*. Florida: Boca Raton.

Gruber, S. (2014). *Intangible Values in Financial Accounting and Reporting: An Analysis from the Perspective of Financial Analysts*. Springer Gabler.

Gruber, T.R. (1993). Toward principles for design of ontologies used for knowledge sharing. *International Journal Human-computer Studies*, 43, 907-928.

Guay, W. R. (1999). The impact of derivatives on firm risk: An empirical examination of new derivative users. *Journal of Accounting and Economics*, 26, 319-351.

Guay, W., & Kothari, S. P. (2003). How much do firms hedge with derivatives? *Journal of Financial Economics*, 70, 423-461.

Guba, E. G., & Lincoln, Y. S. (1985). *Naturalistic Inquiry.* USA: SAGE.

Guba, E. G. & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of qualitative research, Sage, Thousand Oaks, CA*, 105-117.

Guo, H. (2017). Risk efficiency of hedging strategy in China financial market. *Perspectives in Science*, 7, 19-23.

Gupta, S. L. (2017). *Financial Derivatives: Theory, Concepts and Problem.* Delhi: PHI

Learning.

Gunther. J. W., & Siems, T. F. (2002). The likelihood and extent of banks' involvement with interest rate derivatives as end users. *Research in Finance*, 19, 125-142.

Habbershon, T. G., & Williams, M. L. (1999). A resource-based framework for assessing the strategic advantages of family firms. *Family Business Review*, 12(1), 1-25.

Habib, A., & Hasan, M. M. (2017). Managerial ability, investment efficiency and stock price crash risk. *Research in International Business and Finance*, 42, 262-274.

Hacısalihzade, S.S. (2018). Derivatives and structured financial instruments. in: Control engineering and finance. *Control and Information Sciences*, 467, 241-262.

Hairston, S. A., & Brooks, M. R. (2019). Derivative accounting and financial reporting quality: A review of the literature. *Advances in Accounting*, 44, 81-94.

Halilbegovic, S., & Mekic, A. (2017). Usage of derivatives in emerging markets: The case of Bosnia and Herzegovina. *Asian Economic and Financial Review*, 7(3), 248-257.

Haniffa, R. M., & Cooke, T. E. (2005). The impact of culture and governance on corporate social reporting. *Journal of Accounting and Public Policy*, 24(5), 391-430.

Harif, M. A. A. M., & Hoe, M. K. A. (2016). Technological determinants of purchase decision of client-server hardware system in Malaysia SME's business. *Review of Integrative Business and Economics Research*, 5(4), 395-410.

Harif, M. A. A. M., Hoe, C. H., Hussin, Z., Isa, F. M., Othman, S. N., & Din, M. S. (2011). The determinant factors of successful franchise business in Malaysia. *International Review of Business Research Papers*, 7(1), 1-15.

Hansson, S. O., & Aven, T. (2014). Is risk analysis scientific? *Risk Analysis*, 34(7), 1173-1183.

Hart, R. P. (2014). *Communication and Language Analysis in the Corporate World.* USA: Premier Reference Source.

Hassan, M. K. (2009). UAE corporation-specific characteristics and level of risk disclosure. *Managerial Auditing Journal*, 24(7), 668-687.

Hassan, M. K. (2014). Risk narrative disclosure strategies to enhance organizational legitimacy: Evidence from UAE financial institutions. *International Journal of Disclosure and Governance.* 11(1), 1-17.

Haswell, S., & Evan, E. (2018). Enron, fair value accounting, and financial crises: A concise history. *Accounting, Auditing & Accountability Journal*, 31(1), 25-50.

He Y., Chen C., & Hu Y., (2019), Managerial overconfidence, internal financing, and investment efficiency: Evidence from China. *Research in International Business and*

Finance, 47, 501-510.

Helfat, C. E., & Martin, J. A. (2015). Dynamic managerial capabilities: Review and assessment of managerial impact on strategic change. *Journal of Management*, 41(5), 1281–1312.

Helfat, C. E., & Winter, S. G. (2011). Untangling dynamic and operational capabilities: Strategy for the (N) ever-changing world. *Strategic Management Journal*, 32(11), 1243–1250.

Herráiz, Á. C., & Monroy, C. R. (2012), Evaluation of the trading development in the Iberian energy derivatives market. *Energy Policy*, 51, 973-984.

Hirsa, A., & Neftci, S.H., (2014), *An Introduction to the Mathematics of Financial Derivatives*. London: Academic Press.

Hirtle, B. (1997). Derivatives, portfolio composition, and bank holding company interest rate risk exposure. *Journal of Financial Services Research*, 12 (2), 243-266.

Hitt, M. A., & Ireland, R. D. (1985). Corporate distinctive competence, strategy, industry and performance. *Strategic Management Journal*, 6, 273-293.

Hoang, D., & Ruckes, M. (2016). Corporate risk management, product market competition, and disclosure. *Journal of Financial Intermediation*, doi: *10.1016/j.jÞ.2016.07.003*.

Hodder, L., Koonce, L., & McAnally, M.L. (2001). SEC market risk disclosures: Implications for judgment and decision making. *Accounting Horizons*, 15(1), 49-70.

Hoitash, U., Hoitash, R., & Bedard, J. C. (2009). Corporate governance and internal control over financial reporting: A comparison of regulatory regimes. *The Accounting Review*, 84(3), 839-867.

Hossain, M., Perera, M. H. B., & Rahman, A. R. (1995). Voluntary disclosure in the annual reports of New Zealand companies. *Journal of International Financial Management and Accounting*, 6(1), 69-87.

Howton, S. D., & Perfect, S. B. (1998). Currency and interest-rate derivatives use in US firms. *Financial Management,* 27, 111-121.

Hsiao. Y., & Tsai, W. (2018). Financial literacy and participation in the derivatives markets. *Journal of Banking and Finance*, 88, 15-29.

Hu, C., & Liu, Y. (2015). Valuing diversity: CEOs' career experiences and corporate investment. *Journal of Corporate Finance*, 30, 11-31.

Huan, X., & Parbonetti, A. (2019). Financial derivatives and bank risk: Evidence from eighteen developed markets. *Accounting and Business Research*, DOI: 10.1080/00014788.2019.1618695.

Huang P, Kabir H., & Zhang, Y. (2017). Does corporate derivative use reduce stock price exposure? Evidence from UK firms. *The Quarterly Review of Economics and Finance*, 65, 128-136.

Huang, Z., & Gao, S. (2014). The usefulness of derivative disclosures for investment decision-making: Perceptions of Chinese institutional investors. *Journal of Chinese Economic and Foreign Trade Studies,* 07(3), 173-192.

Hudson, A. (2017). *Law on financial derivatives*. London: Sweet & Maxwell, 6th edition.

Hughes, S.B., Wood, A. L., & Hodgdon, C. (2011). Bank response to SEC disclosure guidance issued during the 2007-2008 US financial crisis. *Research in Accounting Regulation*, 23(2), 149-159.

Hull, J. C. (1997). *Options, Futures, and Other Derivatives*. India: Prentice Hall.

Hull, J. C. (2000). *Options, Futures, and Other Derivatives.* India: Pearson, 4th edition.

Humphrey, W. S. (1989). *Managing the Software Process.* MA: Addison Wesley.

Hunziker, S. (2014). Internal control disclosure and agency costs - evidence from Swiss listed non-financial companies. *IFZ Working Paper Series ISSN 1662-520X,* https://blog.hslu.ch/ifz/files/2014/06/1.pdf

Hurwitz, H. (2010). Is bad news really more credible than good news? Evidence from management forecasts. *Working Paper, Columbia University*.

Husted, B.W. (2005), Risk management, real options, corporate social responsibility. *Journal of Business Ethics*, 60, 175–183

Hutton, A., Miller, G.S., & Skinner, D.J., (2003). The role of supplementary statements with management earnings forecasts. *Journal of Accounting Research*, 41, 867–890.

Hwang, A. L. J. (2002). Comparative analysis of accounting treatments for derivatives. *Journal of Accounting Education,* 20, 205-233.

Iatridis, C. (2008). Accounting disclosure and corporations' financial attributes: Evidence from the UK stock market. *International Review of Financial Analysis,* 17(2), 219-241.

Ibbott, C., & O'Keefe, R. (2004). Transforming the Vodafone/Ericsson relationship. *Long Range Planning*, 37(3), 219-237.

Ismail, R., & Rahman, R.A. (2011). Institutional investors and board of directors' monitoring role on risk management disclosure level in Malaysia. *The IUP Journal of Corporate Governance*, 6(2), 37-61.

Jack, S. L., & Anderson, A. R. (2002). The effects of embeddedness on the entrepreneurial process. *Journal of Business Venturing*, 17(5), 467-487.

Jaggi, B., Leung, S., & Gul, F.A. (2009). Family control, board independence and earnings

management evidence based on Hong Kong firms. *Journal of Accounting and Public Policy*, 28 (4), 281–300.

Johansen, T. R., & Plenborg, T. (2013). Prioritising disclosures in the annual report. *Accounting and Business Research*, 43 (6), 605-635.

Jones, M. (2011). *Creative Accounting, Fraud and International Accounting Scandals.* Chichester, UK: John Wiley & Sons.

Jorion, P. (2002). How informative are value-at-risk disclosures? *The Accounting Review*, 77(4), 911-931.

Kadous, K., Koonce, L., & Towry, K. L. (2005). Quantification and persuasion in managerial judgement. *Contemporary Accounting Research*, 22(3), 643-686.

Kanodia, C., Mukherji, A., Sapra, H., & Venugopalan, R. (2000). Hedge disclosures, future prices, and production distortions. *Journal of Accounting Research*, 38, 53-82.

Keong, L., Ramakrishnan, S., & Hishan, S. (2018). Corporate social responsibility practice of Malaysian public listed government-linked companies: A dimensional analysis. *Management Science Letters*, 8(5), 417-426.

Kerlinger, F. N. (1986). *Foundations of behavioural research*. Holt, Rinehart and Winston, New, York.

Khediri, K. B., & Folus, D. (2010). Does hedging increase firm value? Evidence from French firms. *Journal Applied Economics Letters*, 17(10), 995-998.

Kim, H. T., Papanastassiou, M., & Nguyen, Q. (2017). Multinationals and the impact of corruption on financial derivatives use and firm value: Evidence from East Asia. *Journal of Multinational Financial Management*, 39, 39-59.

Kim, H., & Yasuda, Y. (2018). Business risk disclosure and firm risk: Evidence from Japan. *Research in International Business and Finance*, 45, 413-426.

Kim, K., Kim, M., & Qian, C. (2018). Effects of corporate social responsibility on corporate financial performance: A competitive-action perspective. *Journal of Management*, 44(3), 1097-1118.

Kinney, W., & McDaniel, L. (1989). Characteristics of firms correcting previously reported quarterly earnings. *Journal of Accounting and Economics*, 11, 71–93.

Koijen, R. S. J. (2014). The cross-section of managerial ability, incentives, and risk preferences. *The Journal of the American Finance Association*, 69(3), 1051-1098.

Kolbe, R. H., & Burnett, M. S. (1991). Content-analysis research: An examination of applications with directives for improving research reliability and objectivity. *Journal of Consumer Research*, 18, 243-250.

Kothair, S. P., Li, X., & Short, J. E. (2009). The effect of disclosures by management, analysts, and business press on cost of capital, return volatility, and analyst forecasts: A study using content analysis. *The Accounting Review*, 84(5), 1639-1670.

Kothari, S. P., Ramanna, K., & Skinner, D. J. (2010). Implications for GAAP from an analysis of positive research in accounting. *Journal of Accounting and Economics*, 50 (2-3), 246-286.

Krause, T., & Tse, Y. (2016). Risk management and firm value: Recent theory and evidence. *International Journal of Accounting & Information Management*, 24(1), 56-81.

Krippendorff, K. (1980). *Content Analysis: An Introduction to Its Methodology.* USA: Newbury Park.

Krishnan, J. (2005). Audit committee quality and internal control: An empirical analysis. *The Accounting Review*, 80(2), 649–675.

Kuhn, T. S. (1962). *The Structure of Scientific Revolutions.* USA: University of Chicago Press.

Kumar, R. (2011). *Research Methodology.* USA: SAGE.

Kuzmina, O., & Kuznetsova, O. (2018). Operational and financial hedging: Evidence from export and import behaviour. *Journal of Corporate Finance*, 48, 109-121.

Kwong, L. C. (2016). How corporate derivatives use impact firm performance? *Pacific-Basin Finance Journal*, 40, 102-114.

Kytle, B., & Ruggie, J. G. (2005). Corporate social responsibility as risk management: A model for multinationals. *Corporate Social Responsibility Initiative Working Paper No. 10. Cambridge, MA: John F. Kennedy School of Government, Harvard University*.

Lahiri, S., & Kedia, B. A. (2009), The effects of internal resources and partnership quality on firm performance: An examination of Indian BPO providers. *Journal of World Business*, 15(2), 209-224

Lajili, K., & Zeghal, D. (2005). A content analysis of risk management disclosures in canadian annual reports. *Canadian Journal of Administrative Sciences*, 22(2), 125-142.

Lai, J., Lin, W., & Chen, L. (2017). The influence of CEO overconfidence on ownership choice in foreign market entry decisions. *International Business Review*, 26(4), 774-785.

Lau, C. K. (2016). How corporate derivatives use impact firm performance? *Pacific-Basin Finance Journal*, 40, 102-114.

Lee, B. (1992). A nested tobit analysis for a sequentially censored regression model. *Economics Letters*, 38(3), 269-273.

Lee, C., Wang, C., Chiu, W., & Tien, T. (2018). Managerial ability and corporate investment

opportunity. *International Review of Financial Analysis*, 57, 65-76.

Lee, E., Lee, H., Pae, J. & Park, S. (2016), The important role of corporate social responsibility capabilities in improving sustainable competitive advantage. *Social Responsibility Journal*, 12(4), 642-653.

Leland, H. E. (1998). Agency costs, risk management, and capital structure. *Journal of Finance*, 53, 1213-1243.

Levine, R. (2012). The governance of financial regulation. *International Review of Finance*, 12, 39-56.

Li, J., Pike, R., & Haniffa, R. (2008). Intellectual capital disclosure and corporate governance structure in UK firms. *Accounting and Business Research*, 38(2), 137-159.

Li, L., & Yu, Z. (2010). The impact of derivatives activity on commercial banks: evidence from U.S. bank holding companies. *Asia-Pacific Financial Markets*, 17, 303-322.

Li, S., & Marinč, M. (2014). The use of financial derivatives and risks of U.S. bank holding companies. *International Review of Financial Analysis*, 35, 46-71.

Li, Y., He, J., & Xiao, M. (2018). Risk disclosure in annual reports and corporate investment efficiency. *International Review of Economics & Finance*, https://doi.org/10.1016/j.iref.2018.08.021.

Lima, Z., & Huchzermeier, A. (2017). Integrated operational and financial hedging with capacity reshoring. *European Journal of Operational Research*, 260(2), 557-570

Lins, K. V., Servaes, H., & Tamayo, A. (2011). Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *The Journal of Finance*, 72(4), 10.1111/jofi.12505.

Linsley, P. M., & Shrives, P. J. (2006). Risk reporting: A study of risk disclosure in the annual reports of UK companies. *The British Accounting Review,* 38(1), 387-404.

Lipunga, A. M. (2014). Risk disclosure practices of Malawian commercial banks. *Journal of Contemporary Issues in Business Research*, 3(3), 154-167.

Li, S., & Marinč, M. (2014). The use of financial derivatives and risks of U.S. bank holding companies. *Financial Institutions in the Global Financial Crisis*, 35, 46-71.

Li, L., & Yu, Z. (2010). The impact of derivatives activity on commercial banks: Evidence from U.S. bank holding companies. *Asia-Pacific Financial Markets*, 17 (3), 303-322.

Liu, C.C., Ryan, S.G., & Tan, H. (2004). How banks value-at-risk disclosures predict their total and priced risk: Effects of bank technical sophistication and learning over time. *Review of Accounting Studies*, 9(2/3), 265-294.

Liu, T., & Parlour, C. A. (2009). Hedging and competition. *Journal of Financial Economics*,

94 (3), 492-507.

Liu, Z., & Wang, J. (2019). Supply chain network equilibrium with strategic financial hedging using futures. *European Journal of Operational Research*, 272(3), 962-978.

Lopes, P. T., & Rodrigues, L.L. (2008). Accounting for financial instruments: A comparison of European companies' practices with IAS 32 and IAS 39. *Research in Accounting Regulation*, 20(2), 73-275.

Loss, F. (2012). Optimal hedging strategies and interactions between firms. *Journal of Economics & Management Strategy*, 21, 79–129.

Lundqvist, S. A. (2015). Why firms implement risk governance – Stepping beyond traditional risk management to enterprise risk management. *Journal of Accounting and Public Policy*, 34(5), 441-466.

MacCarthy, J. (2017). The effect of financial derivatives on the financial performance of firms in the financial sector in Ghana. *European Journal of Business and Management*, 9(34), 1905-1912.

MacKenzie, D., & Millo, Y. (2003). Constructing a market, performing theory: The historical sociology of a financial derivatives exchange. *American Journal of Sociology*, 109(1), 107-145.

Manconi, A., Massa, M., & Zhang, L. (2018). The informational role of corporate hedging. *Management Science*, 64(8), 3843-3867.

Madrigal, M. H., Guzmán, B. A., & Guzmán, C. A. (2015). Determinants of corporate risk disclosure in large Spanish companies: A snapshot. *Contaduríay Administración*, 60(4), 757-775.

March, J. G., & Shapira, Z. (1987). Managerial perspectives on risk and risk taking. *Management Science*, 33, 1404–1418.

Marczyk, G., DeMatteo, D., and Festinger, D. (2005). *Essentials of Research Design and Methodology,* John Wiley and Sons, Inc.

Malik, M. F., Zaman, M., & Buckby, S. (2020), Enterprise risk management and firm performance: Role of the risk committee. *Journal of Contemporary Accounting & Economics*, 16(1), 1-22.

Malim, M. R., Halim, F. A., Murad, A., Maad, H. A., & Annuar, N. F. M. (2017). The impact of derivatives on Malaysian stock market. *Journal of Physics*, 890, http://iopscience.iop.org/article/10.1088/1742-6596/890/1/012130/meta

Malone, D., Fries, C., & Jones, T. (1993). An empirical investigation of the extent of corporate financial disclosure in the oil and gas industry. *Journal of Accounting, Auditing*

and Finance, 8(3), 249-273.

Malz, A. M. (2011). *Financial Risk Management*. John Wiley & Sons.

Maxwell, J. A. (2006). *Qualitative Research Design: An Interactive Approach.* USA: Thousand Islands.

Mayers, D., & Smith, C. W. (1982). On the corporate demand for insurance. *The Journal of Business*, 55(2), 281-296.

Mayordomo, S., Rodriguez-Moreno, M., & Pena, J. I. (2014). Derivatives holdings and systemic risk in the US banking sector. *Journal of Banking & Financial,* 45, 84- 104.

McCarthy S., Oliver B., & Song S. (2017). Corporate social responsibility and CEO confidence. *Journal of Banking and Finance*, 75, 280-291.

McCrae, M., & Balthazor, L. (2000). Integrating risk management into corporate governance: The turnbull guidance. *Risk Managementi*, 2(3), 35-45.

Meidell, A., & Kaarbøe, K. (2017). How the enterprise risk management function influences decision-making in the organization – A field study of a large, global oil and gas company. *The British Accounting Review*, 49(1), 39-55.

Meier, H. H., Tomaszeweski, S. G., & Tobing, R. (1995). Political risk assessment and disclosure in annual financial reports: the case of the Persian Gulf War. *Journal of International Accounting, Auditing and Taxation,* 4(1), 49-68.

Mello, A. S., & Ruckes, M. E. (2005). Financial hedging and product market rivalry. *Working Paper, University of Wisconsin-Madison.*

Mello, M. (2017). Derivatives and exchange rate hedging strategies in Uruguayan firms. *Documentos de trabajo*, https://ideas.repec.org/p/bku/doctra/2017005.html .

Melumad, N., Weyns, G., & Ziv, A. (1999). Comparing alternative hedge accounting standards: Shareholders perspective. *Review of Accounting Studies*, 4, 265-292.

Merkle, C. (2017). Financial overconfidence over time: Foresight, hindsight, and insight of investors. *Journal of Banking & Finance*, 84, 68-87.

Merriam, S. (1988). *Qualitative Research and Case Study Applications in Education.* San Francisco: JosseyBass.

McAnally, M. (1996). Banks, risk, and FAS 105 disclosures. *Journal of Accounting, Auditing & Finance*, 11(3), 453-490.

McDonough, W.J. (1993). *The Global Derivatives Market*. New York: Federal Reserve Bank of New York Quarterly Review.

Miccolis, J., & Shaw, S. (2000). *Enterprise Risk Management: An Analytic Approach*, New York: Tillinghast-Towers Perrin.

Michailova, J., Mačiulis, A., & Tvaronavičienė, M. (2017). Overconfidence, risk aversion and individual financial decisions in experimental asset markets. *Economic Research-Ekonomska Istraživanja*, 30(1), 1119-1131.

Miihkinen A. (2013). The usefulness of firm risk disclosures under different firm riskiness, investor-interest, and market conditions: New evidence from Finland. *Advances in Accounting*, 29(2), 312-331.

Milgrom, P., & Roberts, J. (1982). Predation, reputation, and entry deterrence. *Journal of Economic Theory*, 27, 280–312.

Miller, K. D. (1992). A framework for integrated risk management in international business. *Journal of International Business Studies*, 23, 311-331.

Miller, M. H. (1995). Do we really need more regulation of financial derivatives? *Pacific-Basin Financial Journal*, 3, 147-158.

Minton, B., Taillard, J. P. A., & Williamson, R. (2010). Do independence and financial expertise of the board matter for risk taking and performance? *Working Paper, Ohio State University*.

Mishra, D. R. (2014). The dark side of CEO ability: CEO general managerial skills and cost of equity capital. *Journal of Corporate Finance*, 29, 390-409.

Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, 48(3), 261-297.

Moles, P. (2013). *Financial Risk Management: Sources of Financial Risk and Risk Assessment*. Edinburgh Business School, Heriot-Watt University, Edinburgh.

Mongiardino, A., & Plath, C. (2010). Risk governance at large banks: Have any lessons been learned? *Journal of Risk Management in Financial Institutions*, 3, 116-123.

Morini, M. (2017). Managing derivatives on a blockchain. A financial market professional implementation. *A Financial Market Professional Implementation Available*, https://ssrn.com/abstract=3075540 .

Mosley D., Pietri P. H., & Megginson L.C. (1996), *Management: Leadership in Action Harper Collins*. USA: SAGE.

Murphy, K. J., & Zabojnik, J. (2006). *Managerial capital and the market for CEOs*. UK: Economics Department, Queen's University.

Mutch, C. (2005). *Doing Educational Research: A Practitioner's Guide to Getting Started.* Wellington: NZCER Press.

Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5, 147-175.

Natter, M., Rohleder, M., Schulte, D., & Wilkens, M. (2016). The benefits of option use by mutual funds. *Journal of Financial Intermediation*, 26, 142-168.

Nance, D. R., Smith, C. W., & Smithson, C. W. (1993). On the determinants of corporate hedging. *The Journal of Finance*, 48(1), 267-284.

Nawaz, M., Harif, M. A. M., & Azhari, A. (2018). The financial determinants of the financial derivatives' usage within SME businesses in Pakistan. *Advances in Social Sciences Research Journal*, 5(10), 375-394.

Nelson, K.K. (1996). Fair value accounting for commercial banks: An empirical analysis of SFAS no. 107. *The Accounting Review*, 71(2), 161-182.

Neuman, W. L. (2003). *Social Research Methods: Qualitative and Quantitative Approaches*. Boston: Allyn and Bacon.

Ng, P. Y., Dayan, M., & Benedetto, A. D. (2019). Performance in family firm: Influences of socioemotional wealth and managerial capabilities. *Journal of Business Research*, 102, 178-190.

Nguyen, H., & Faff, R. (2002). On the determinants of derivatives usage by Australian companies. *Australian Journal of Management*, 27(1), https://doi.org/10.1177/031289620202700101.

Nguyen, Q., Kim, T., & Papanastassiou, M. (2018). Policy uncertainty, derivatives use, and firm-level FDI. *Journal of International Business Studies*, 49(1), 96–126.

Nijskens, R., & Wagner, W. (2011). Credit risk transfer activities and systemic risk: How banks became less risky individually but posed greater risks to the financial system at the same time. *Journal of Banking & Finance*, 35(6),1391-1398.

Norden, L., Silva, B. C., & Wagner, W. (2014). Financial innovation and bank behavior: Evidence from credit markets. *The Journal of Finance*, 43 (C), 130-1454.

Nuthall, P. L. (2001). Managerial ability – A review of its basis and potential improvement using psychological concepts. *Agricultural Economics*, 24(3), 247-262.

Nuthall, P. L. (2009). Modelling the origins of managerial ability in agricultural production. *The Australian Journal of Agricultural and Resource Economics*, 53(3), 413-436.

Oetzel, J., & Miklian, J. (2017). Multinational enterprises, risk management, and the business and economics of peace. *Multinational Business Review*, 25(4), 270-286.

Oliveira, J., Rodrigues, L.L., & Craig, R. (2011). Risk-related disclosure practices in the annual reports of Portuguese credit institutions: An exploratory study. *Journal of Banking Regulation*, 2, 100-118.

Olsen, M. E., Lodwick, D. C., & Dunlap, R. E. (1992). *Viewing the world ecologically.* San

Francisco: Westview Press.

Organisation for Economic Co-Operation and Development [OECO], (2011), Corporate Loss Utilization Through Aggressive Tax Planning. *OECE Publishing Paris,* France.

Orlitzky, M., & Benjamin, J. D. (2001). Corporate social responsibility and firm risk: A meta-analytic review. *Business and Society*, 40(4), 369–396.

Osgood, C.E. (1959). The representational model and relevant research methods. In: Pool, Ithiel de Sola (Ed.), Trends in Content Analysis. *University of Illinois Press, Champaign, IL*, 33–88.

Othman, R., & Ameer, R. (2009). Market risk disclosure: Evidence from Malaysian listed firms. *Journal of Financial Regulation and Compliance*, 17(1), 57-69.

Otley, D. T., & Berry, A. (1994). Case study research in management accounting and control. *Management Accounting Research*, 5, 45-65.

Papa, V., & Peters, S. (2011). *User Perspective on Financial Instruments Risk Disclosures under International Financial Reporting Standards*. London: CFA Institute.

Park, J. (2004). Economic consequences and financial statement effects of SFAS No. 133 in bank holding companies. *University of Wisconsin at Madison Dissertation.*

Panaretou, A. (2013). Corporate risk management and firm value: Evidence from the UK market. *The European Journal of Finance*, 20 (12), 1161-1186.

Peery, G. F. (2012). *The Post-Reform Guide to Derivatives and Futures*. John Wiley & Sons.

Pérez-González, F., & Yun, H. (2013). Risk management and firm value: Evidence from weather derivatives. *The Journal of The American Finance Association*, 68(5), 2143-2176.

Pham, L. (2018). A review of key paradigms: Positivism, interpretivism and critical inquiry. *The University of Adelaied*, 10.13140/RG.2.2.13995.54569.

Pilbeam, K. (2018). *Finance and Financial Markets*. Red Globe Press.

Pikulina, E., Renneboog, L., & Tobler, P. N. (2017). Overconfidence and investment: An experimental approach. *Journal of Corporate Finance*, 43, 175-192.

Phillips, B. S. (1971). *Social Research: Strategy and Tactics*. UK: MackMillan publishing, 2nd edition.

Popova, I., & Simkins, B. (2015). OTC vs. exchange traded derivatives and their impact on hedging effectiveness and corporate capital requirements. *Journal of Applied Corporate Finance*, 27(1), 63-70.

Pool, Ithiel de Sola (Ed.). (1959). *Trends in Content Analysis.* USA: University of Illinois Press.

Prahalad, C. K., & Hamel, G. (1990). *Core competency concept*. USA: Harvard Business

Review, 64.

Prampolini, A., & Morini, M. (2018). Derivatives hedging, capital and leverage. https://ssrn.com/abstract=2699136 .

Ramirez, J. (2007). *Accounting for Derivatives: Advanced Hedging under IFRS*. UK: John Wiley & Sons Ltd.

Raber, R. W. (2003). The role of good corporate governance in overseeing risks. *The Corporate Governance Advisor*, 11(2), 11-16.

Racicot, F-E., & Théoret, R. (2018). Multi-moment risk, hedging strategies, & the business cycle. *International Review of Economics & Finance*, 58, 637-675.

Ragini (2012). Corporate disclosure of intangibles: A comparative study of practices among Indian, US, and Japanese companies. *Vikalpa*, 37(3), 51-72.

Rahahleh, N. A., Bhatti, M. I., & Misman, F. N. (2019). Developments in risk management in Islamic finance: a review. *Journal of Risk and Financial Management*, 12, doi.org/10.3390/jrfm12010037.

Reynolds-Moehrle, J. (2005). Management's disclosure of hedging activity: An empirical investigation of analysts and investors' reactions. *International Journal of Managerial Financial*, 1(2), 108-122.

Rogers, J.L., & Stocken, P. (2005). Credibility of management forecasts. *The Accounting Review*, 80, 1233–1260.

Roll, R., Schwartz, E., & Subrahmanyam, A. (2009). Options trading activity and firm valuation. *Journal of Financial Economics*, 94(3), 345-360.

Ronnie, B. (2001). Accounting for derivatives and corporate risk management policies. *London Business School Accounting Subject Area No. 018*. https://ssrn.com/abstract=298021.

Rossi, J. L. (2013). Hedging, selective hedging, or speculation? Evidence of the use of derivatives by Brazilian firms during the financial crisis. *Journal of Multinational Financial Management*, 23(5), 415-433.

Roulstone, D. T. (1999). Effect of SEC financial reporting release no. 48 on derivative and market risk disclosures. *Accounting Horizons*, 13(4), 343-363.

Saakian, D. B. (2018). Statistical mechanics and financial markets: Antagony between derivatives and market self-regulation. *Chinese Journal of Physics*, 56, 988-993.

Sabato, G. (2010). Financial crisis: Where did risk management fail? *International Review of Applied Financial Issues and Economics*, 2, 12-18.

Said, A. (2017). Managing financial risk by using derivatives: A study of United Arab

Emirate listed companies. *Economics and Finance Review*, 5(2), 5-13.

Said. R., Omar. N., & Nailah, A. W. (2013). Empirical investigations on boards, business characteristics, human capital and environmental reporting. *Social Responsibility Journal*, 9(4), 534–553.

Santos, R. B., Lima, F. G., Gatsios, R. C., and Almeida, R. B. (2017). Risk management and value creation: New evidence for Brazilian non-financial companies. *Applied Economics*, 49(58), https://doi.org/10.1080/00036846.2017.1343451.

Sánchez-Verdasco & Javier (2018). The use of derivatives to hedge market risk in corporate financing. https://ssrn.com/abstract=3230485 .

Sapra, H. (2002). Do mandatory hedge disclosures discourage or encourage excessive speculation? *Journal of Accounting Research,* 40, 933-964.

Sarantakos, S. (2005). *Social Research.* Australia: Melbourne: Macmillan Education.

Savvides, S. C., & Savvidou, N. (2012). Market risk disclosures of banks: A cross-country study. *International Journal of Organizational Analysis*, 20(4), 379-405.

Selznick, P. (2011). *Leadership in Administration: A Sociological Interpretation*. USA: Quid Pro Books.

Shah, S. K., & Corley, K. G. (2006). Building better theory by bridging the quantitative-qualitative divide. *Journal of Management Study*, 43(18), 21-35.

Searle, J. R. (1995). *The Construction of Social Reality*. Simon and Schuster

Semper, D. C., & Beltrán, J. M. T. (2014). Risk disclosure and cost of equity: The Spanish case, *Contaduríay Administración*, 59(4), 105-135.

Seow, G. S., & Tam, K. (2002). The usefulness of derivative-related accounting disclosures. *Review of Quantitative Finance and Accounting*, 18(3), 273-291.

Serfling, M. A. (2014). CEO age and the riskiness of corporate policies. *Journal of Corporate Finance*, 25, 251-273.

Schrand, C., & Elliott, J. (1998). Risk and financial reporting: A summary of the discussion at the 1997 AAA/FASB conference. *Accounting Horizons,* September, 271-282.

Schilit, H. (2010). *Financial Shenanigans Tata.* New York: McGraw-Hill Education.

Sesana, D., Marazzina, D., & Fusai, Gianluca. (2014). Pricing exotic derivatives exploiting structure. *European Journal of Operational Research*, 236(1), 369-381.

Shanker, L. (2000). An innovative analysis of taxes and corporate hedging. *Journal of Multinational Financial Management*, 10(3-4), 237-255.

Sheedy, E., & Griffin, B. (2018). Risk governance, structures, culture, and behavior: A view from the inside. *Corporate Governance an International Review*, 26(1), 4-22.

Shleifer, A., & Vishny, R. W. (2012). A survey of corporate governance. *The Journal of Finance*, 52(2), 737-783.

Sill, K. (1997). The economic benefits and risks of derivative securities. *Business Review*, 1, 15-26.

Singh, A. (2004). The effect of SFAS 133 on the corporate use of derivatives, volatility, and earnings management. *Pennsylvania State University Dissertation.*

Sirmon, D. G., Hitt, M. A., & Irland, R. D. (2007). Managing firm resources in dynamic environments to create value: Looking inside the black box. *Academy of Management Review*, 32(1), 273-292.

Skinner, D. (1994). Why firms voluntarily disclose bad news. *Journal of Accounting Research,* 32, 38–60.

Smith, C. W., & Stulz, R. (1985). The determinants of firms' hedging policies. *Journal of Financial and Quantitative Analysis*, 20(4), 391-405.

Sobel, P. J. & Reding, K. F. (2004). Aligning corporate governance with enterprise risk management. *Management Accounting Quarterly*, 5(2), 29–37.

Sobh, R., & Perry, C. (2005). Research design and data analysis in realism research. *European journal of marketing*, 40 (11-12), 1194-1209.

Solomon, J., Solomon, A., Norton, S. D., & Joseph, N. L. (2000). A conceptual framework for corporate risk disclosure emerging from the agenda for corporate governance reform. *The British Accounting Review,* 32(4), 337-478.

Spicer, B. H. (1978). Investors, corporate social responsibility, and information disclosure: An empirical study. *Accounting Review*, 53, 94–111

Spira, L., & Page, M. (2003). Risk management: The reinvention of internal control and the changing role of internal audit. *Accounting, Auditing & Accountability Journal*, 16(4), 640-661.

Stemler, S. (2001). An overview of content analysis. *Practical Assessment, Research &Evaluation*, 7(17), 137-146.

Stocken, P. C. (2000). Credibility of voluntary disclosure. *RAND Journal of Economics*, 31, 359–374.

Stoh, P. J. (2005). Enterprise risk management at United Health Group. *Strategic Finance*, 87, 26-35.

Strouhal, J., Bonaci, C., & Matis, D. (2010). Accounting for derivatives: Hedging or trading? *Wseas Transaction on Business and Economics*, 7 (3), 242-251.

Stuer, C., Husig, S., & Biala, S. (2010). How to create and sustain an open and radical

innovation capability in the fuzzy front end: The case of Vodafone Group R&D Germany and selected ongoing radical innovation projects. *International Journal of Product Development*, 11(3-4), 196-219.

Stulz, R. (1984). Optimal hedging policies. *Journal of Financial and Quantitative Analysis*, 19, 127-140.

Stulz, R.M. (2000). *Why Risk management is Not a Rocket Science.* Financial Times, Mastering Risk, Series, June 27.

Subramaniam, N., Kansal, M., & Babu, S. (2017). Governance of mandated corporate social responsibility: Evidence from Indian government-owned firms. *Journal of Business Ethics*, 143(3), 543-563.

Sundaram, R. K., & Das, S. R. (2011). *Derivative principle and practice*. New York: McGraw-Hill Irwin.

Tan, Y., Zeng, C. C., & Elshandidy, T. (2017). Risk disclosures, international orientation, and share price informativeness: Evidence from China. *Journal of International Accounting, Auditing and Taxation*, 29, 81-102.

Tang Y., Qian C.L., Chen G.L., & Shen R. (2015). How CEO hubris affects corporate social (IR) responsibility, Strategy Management Journal, 36, 1338-1357.

Tao, N. B., and Hutchinson, M. (2013). Corporate governance and risk management: The role of risk management and compensation committees. *Journal of Contemporary Accounting & Economics*, 9(1), 83-99

Tariq Anwar, S. (2003). CASES Vodafone and the wireless industry: A case in market expansion and global strategy. *Journal of Business & Industrial Marketing*, 18(3), 270-288.

Tellis, W. M. (1997). Application of a case study methodology. *The Qualitative Report*, 3(3), 1-19.

Thanetsunthorn, N. (2015). The impact of national culture on corporate social responsibility: Evidence from cross-regional comparison. *Asian Journal of Business Ethics*, 4(1), 35-56.

Themsen, T. N., & Skærbæk, P. (2018). The performativity of risk management frameworks and technologies: The translation of uncertainties into pure and impure risks. *Accounting, Organizations and Society*, 67, 20-33.

Titova, Y., Penikas, H., & Gomayun, N. (2018). The impact of hedging and trading derivatives on value, performance and risk of European banks. *Empirical Economics*, 1, 1-31.

Treanor, S. D., Carter, D. D., Rogers, D. A., & Simkins, B. J. (2013). Operational and

financial hedging: friend or foe? Evidence from the U.S. airline industry. *Journal of Accounting and Finance*, 13, 64-91.

Triana, P. (2009). *Lecturing Birds on Flying: Can Mathematical Theories Destroy the Financial Markets?* London: Wiley.

Trichet, J. C. (2007). *Some Reflections on the Development of Credit Derivatives.* Boston: Keynote Address at the 22nd Annual General Meeting of the International Swaps and Derivatives Association (ISDA).

The Financial Stability Board (2010), *Implementing OTC Derivatives Market Reforms*, Financial Stability Board.

Tufano, P. (1998). Agency costs of corporate risk management. *Financial Management*, 27(1), 67-77.

United States Government Accountability Office [Gao], (2011), Financial derivatives: Disparate tax treatment and information gaps create uncertainty and potential abuse, *Report to Congressional Requesters,* September

Verrecchia, R. (2001). Essays on disclosure. *Journal of Accounting and Economics*, 32(1-3), 97-180.

Vo, D. H., Huynh, S. V., Vo, A. T., & Ha, D. T. (2019). The importance of the financial derivatives markets to economic development in the world's four major economies. *Journal of Risk and Financial Management*, 12, 35.

Wand, Y., & Weber, R. (1993). On the ontological expressiveness of information systems analysis and design grammars. *Journal of Information Systems*, 3(4), 217-237.

Wang, L., Alam, P., & Makar, S. (2005). The value-relevance of derivative disclosures by commercial banks: A comprehensive study of information content under SFAS Nos. 119 and 133. *Review of Quantitative Finance and Accounting*, 25(4), 413-427.

Wang, D., Sutherland, D., Ning, L., Wang, Y., & Pan, X. (2018). Exploring the influence of political connections and managerial overconfidence on R&D intensity in China's large-scale private sector firms. *Technovation*, 69, 40-53.

Watson, R., & Carter, J. (2006). *Asset Securitisation and Synthetic Structures: Innovations in the European Credit Markets*. London: Euromoney Books.

Watts, R., & Zimmerman, L. (1983). Agency problems, auditing and the theory of the firm: Some evidence. *Journal of Law & Economics*, 14, 311-68.

Weber, R. P. (1990). *Basic Content Analysis.* USA: Newbury Park.

Wei, P., Xu, L., & Zeng, B. (2017). Corporate hedging, firm focus and firm size: The case of REITs, *Managerial Finance*, 43(3), 313-330.

Wen, X. (2012). Corporate characteristics and internal control information disclosure-evidence from annual reports in 2009 of listed companies in Shenzhen stock exchange. *Physics Procedia*, 25, 630–635.

Williams, D.R., Duncan, W.J., Ginter, P.M., & Shewchuk, R.M. (2006). Do governance, equity characteristics, and venture capital involvement affect long-term wealth creation in US health care and biotechnology IPOs? *Journal of Health Care Finance*, 33 (1), 54-71.

Woods, M., & Marginson, D. E. W. (2004). Accounting for derivatives: An evaluation of reporting practice by UK banks. *European Accounting Review*, 13(2), 373-390.

Yang, X., & Zhu, L. (2016). Ambiguity vs risk: An experimental study of overconfidence, gender and trading activity. *Journal of Behavioral and Experimental Finance*, 9, 125-131.

Yin, R. K. (1984). *Case study research: design and methods*. USA: Sage Publications.

Yin, R., & Moore, G. (1987). The use of advanced technologies in special education. *Journal of Learning Disabilities*, 20(1), 60.

Yong, H. H. A., Faff, R., & Chalmers, K. (2009). Derivative activities and Asia-Pacific banks' interest rate and exchange rate exposures. *Journal of International Financial Markets Institutions and Money*, 19 (1), 16-32.

Yuan, Y., Tian, G., Lu, L. & Yu Y. (2019). CEO ability and corporate social responsibility. *Journal of Business Ethics*, 157, 391–411.

Yung, K., & Chen, C. (2018). Managerial ability and firm risk-taking behaviour. *Review of Quantitative Finance and Accounting, Springer*, 51(4), 1005-1032.

Zehir, C., Yıldız, H., Köle, M., & Başar, D. (2016). Superior organizational performance through SHRM implications, mediating effect of management capability: An implementation on Islamic banking. *Procedia - Social and Behavioral Sciences*, 235, 807-816,

Zhang, H. (2008). Effect of derivative accounting rules on corporate risk-management behaviour. *Journal of Accounting and Economic*, 47, 244-264.

Zhang, J. (2009). The Contracting benefits of accounting conservatism to lenders and borrowers. *Journal of Accounting and Economics,* 45(1), 27-54.

Zhao, F., & Moser, J. (2017). Bank lending and interest-rate derivatives. *International Journal of Financial Research*, 8(4), 23-37.

Zhu, S., He, X., & Lu, X. (2018). A new integralequation formulation for American put options. *Quantitative Finance*, 18(3), 483-490.

Zou, P. X. W., Chen, Y., & Chan, T. (2010). Understanding and improving your risk management capability: Assessment model for construction organizations. *Journal of*

Construction Engineering Management, 136 (8), 854-863.

Zvi, B., Kane, A., & Marcus, A. J. (2008). *Investments*. New York: McGraw-Hill Irwin, 8th edition.

Appendixes

1.2.2 Appendix 1: Principal risks reported by Unilever in 2015

Risk Area	Description of Risk
Brand Preference	Consumer tastes, preferences and behaviours are constantly changing and Unilever's ability to anticipate and respond to these changes and to continue to differentiate their brands and products is vital to Unilever business. They are dependent on creating innovative products that continue to meet the needs of our consumers. If they are unable to innovate effectively, Unilever's sales or margins could be materially adversely affected.
Portfolio Management	Unilever's growth and profitability are determined by their portfolio of categories, geographies and channels and how these evolve over time. If Unilever does not make optimal strategic investment decisions then opportunities for growth and improved margin could be missed.
Sustainability	Unilever's vision to accelerate growth in the business while reducing their environmental footprint and increasing their positive social impact will require more sustainable ways of doing business. This means reducing their environmental footprint while increasing the positive social benefits of Unilever's activities. They are dependent on the efforts of partners and various certification bodies to achieve their sustainability goals. There can be no assurance that sustainable business solutions will be developed and failure to do so could limit Unilever's growth and profit potential and damage their corporate reputation.
Customer Relationships	Maintaining strong relationships with Unilever's existing customers and building relationships with new customers who serve changing shopper habits are necessary to ensure their brands are well presented to their consumers and available for purchase at all times. The strength of their customer relationships also affects our ability to obtain pricing and competitive trade terms. Failure to maintain strong relationships with customers could negatively impact the terms of business with the affected customers and reduce the availability of their products to consumers.

Talent & Organisation	Unilever's ability to attract, develop, organise and retain the right number of appropriately qualified people is critical if they are to compete and grow effectively. This is especially true in their key emerging markets where there can be a high level of competition for a limited talent pool. The loss of management or other key personnel or the inability to identify, attract and retain qualified personnel could make it difficult to manage the business and could adversely affect operations and financial results.
Supply Chain	Unilever's supply chain network is exposed to potentially adverse events such as physical disruptions, environmental and industrial accidents or bankruptcy of a key supplier which could impact their ability to deliver orders to their customers. The cost of company's products can be significantly affected by the cost of the underlying commodities and materials from which they are made. Fluctuations in these costs cannot always be passed on to the consumer through pricing.
Safe and High-Quality Products	The risk that raw materials are accidentally or maliciously contaminated throughout the supply chain or that other product defects occur due to human error, equipment failure or other factors cannot be excluded.
Systems and Information	Increasing digital interactions with customers, suppliers and consumers place ever greater emphasis on the need for secure and reliable IT systems and infrastructure and careful management of the information that is in Unilever's possession. Disruption of Unilever's IT systems could inhibit their business operations in a number of ways, including disruption to sales, production and cash flows, ultimately impacting our results. There is also a threat from unauthorised access and misuse of sensitive information. Unilever's information systems could be subject to unauthorised access or the mistaken disclosure of information which disrupts Unilever's business and/or leads to loss of assets.
Business Transformation	Unilever is continually engaged in major change projects, including acquisitions and disposals and outsourcing, to drive continuous improvement in Unilever's business and to strengthen our portfolio and capabilities. Failure to execute such transactions or change projects successfully, or performance issues with third party outsourced

	providers on which they are dependent, could result in under-delivery of the expected benefits. Furthermore, disruption may be caused in other parts of the business.
External Economic and Political Risks and Natural Disasters	Adverse economic conditions may result in reduced consumer demand for Unilever's products, and may affect one or more countries within a region, or may extend globally. Government actions such as fiscal stimulus and price controls can impact on the growth and profitability of Unilever's local operations. Social and political upheavals and natural disasters can disrupt sales and operations. In 2015, more than half of Unilever's turnover came from emerging markets including Brazil, India, Indonesia, Turkey, South Africa, China, Mexico and Russia. These markets offer greater growth opportunities but also expose Unilever to related economic, political and social volatility.
Treasury and Pensions	The relative values of currencies can fluctuate widely and could have a significant impact on business results. Further, because Unilever consolidates its financial statements in euros it is subject to exchange risks associated with the translation of the underlying net assets and earnings of its foreign subsidiaries. Unilever are also subject to the imposition of exchange controls by individual countries which could limit Unilever's ability to import materials paid in foreign currency or to remit dividends to the parent company. Currency rates, along with demand cycles, can also result in significant swings in the prices of the raw materials needed to produce Unilever's goods. Unilever may face liquidity risk, i.e. difficulty in meeting its obligations, associated with its financial liabilities. A material and sustained shortfall in Unilever's cash flow could undermine Unilever's credit rating, impair investor confidence and also restrict Unilever's ability to raise funds. Unilever is exposed to market interest rate fluctuations on their floating rate debt. Increases in benchmark interest rates could increase the interest cost of Unilever's floating rate debt and increase the cost of future borrowings. In times of financial market volatility, Unilever are also potentially exposed to counter-party risks with banks, suppliers and customers. Certain businesses have defined benefit pension plans, most now closed

	to new employees, which are exposed to movements in interest rates, fluctuating values of underlying investments and increased life expectancy. Changes in any or all of these inputs could potentially increase the cost to Unilever of funding the schemes and therefore have an adverse impact on profitability and cash flow.
Ethical	Unilever's brands and reputation are valuable assets and the way in which they operate, contribute to society and engage with the world around the company is always under scrutiny both internally and externally. Despite the commitment of Unilever to ethical business and the steps they take to adhere to this commitment, there remains a risk that activities or events cause they to fall short of our desired standard, resulting in damage to Unilever's corporate reputation and business results.
Legal and Regulatory	Unilever is subject to national and regional laws and regulations in such diverse areas as product safety, product claims, trademarks, copyright, patents, competition, employee health and safety, the environment, corporate governance, listing and disclosure, employment and taxes. Failure to comply with laws and regulations could expose Unilever to civil and/or criminal actions leading to damages, fines and criminal sanctions against us and/or Unilever's employees with possible consequences for their corporate reputation. Changes to laws and regulations could have a material impact on the cost of doing business. Tax, in particular, is a complex area where laws and their interpretation are changing regularly, leading to the risk of unexpected tax exposures. International tax reform remains a key focus of attention with the OECD's Base Erosion & Profit Shifting project and the EU's action plan for fair and efficient corporation taxation.

(Source: Adapted from Unilever Annual Report 2015, P40-41)

1.2.3 Appendix 2: Maturity analysis of derivatives liabilities of Unilever

The following table shows Unilever's contractually agreed undiscounted cash flows, including expected interest payments, which are payable under financial liabilities at the balance sheet date:

Undiscounted cash flows	Notes	€ million Due within 1 year	€ million Due between 1 and 2 years	€ million Due between 2 and 3 years	€ million Due between 3 and 4 years	€ million Due between 4 and 5 years	€ million Due after 5 years	€ million Total	€ million Net carrying amount as shown in balance sheet
2017									
Non-derivative financial liabilities:									
Preference shares		-	-	-	-	-	-	-	-
Bank loans and overdrafts		(522)	(221)	(1)	(1)	(260)	-	(1,005)	(992)
Bonds and other loans		(7,558)	(1,577)	(2,546)	(2,026)	(2,058)	(9,953)	(25,718)	(22,709)
Finance lease creditors	20	(20)	(18)	(17)	(16)	(17)	(118)	(206)	(131)
Other financial liabilities		(177)	-	-	-	-	-	(177)	(177)
Trade payables, accruals and other liabilities	14	(12,861)	(215)					(13,076)	(13,076)
Deferred consideration		(26)	(36)	(27)	(515)	(3)	(9)	(616)	(511)
		(21,164)	(2,067)	(2,591)	(2,558)	(2,338)	(10,080)	(40,798)	(37,596)
Derivative financial liabilities:									
Interest rate derivatives:									
Derivative contracts – receipts		349	64	727	51	754	1,380	3,325	
Derivative contracts – payments		(319)	(19)	(753)	(19)	(797)	(1,440)	(3,347)	
Foreign exchange derivatives:									
Derivative contracts – receipts		24,935						24,935	
Derivative contracts – payments		(25,258)						(25,258)	
Commodity derivatives:									
Derivative contracts – receipts									
Derivative contracts – payments		(19)						(19)	
		(312)	45	(26)	32	(43)	(60)	(364)	(534)
Total		(21,476)	(2,022)	(2,617)	(2,526)	(2,381)	(10,140)	(41,162)	(38,130)
2016									
Non-derivative financial liabilities:									
Preference shares		(4)	(4)	(4)	(4)	(4)	(72)	(92)	(68)
Bank loans and overdrafts		(909)	(4)	(243)	-	-	-	(1,156)	(1,146)
Bonds and other loans		(4,700)	(1,335)	(1,669)	(1,882)	(1,634)	(6,733)	(17,953)	(15,053)
Finance lease creditors	20	(24)	(18)	(18)	(17)	(16)	(127)	(220)	(143)
Other financial liabilities		-	-	-	-	-	-	-	-
Trade payables, accruals and other liabilities	14	(13,252)	(224)	-	-	-	-	(13,476)	(13,476)
Deferred consideration		(151)	(114)	(24)	-	(490)	(10)	(789)	(594)
		(19,040)	(1,699)	(1,958)	(1,903)	(2,144)	(6,942)	(33,686)	(30,480)
Derivative financial liabilities:									
Interest rate derivatives:									
Derivative contracts – receipts		56	420	-	-	-	-	476	
Derivative contracts – payments		(70)	(429)	-	-	-	-	(499)	
Foreign exchange derivatives:									
Derivative contracts – receipts		9,263	-	-	-	-	-	9,263	
Derivative contracts – payments		(9,580)	-	-	-	-	-	(9,580)	
Commodity derivatives:									
Derivative contracts – receipts		-	-	-	-	-	-	-	
Derivative contracts – payments		(3)	-	-	-	-	-	(3)	
		(334)	(9)	-	-	-	-	(343)	(331)
Total		(19,374)	(1,708)	(1,958)	(1,903)	(2,144)	(6,942)	(34,029)	(30,811)