THE EFFECTS OF HEDGING STRATEGIES ON FINANCIAL PERFORMANCE OF TOTAL PLC

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DECLARATION

This research project is my original work and has not been presented to any other examination body. No part of this research should be reproduced without my consent or that of University of Nairobi.

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The research project has been submitted with my approval as The University of Nairobi Supervisor.

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DEDICATION

I would like to dedicate this research project to my wife, parents, my brothers, my sisters and my friends who in one way or another have encouraged and nurtured in me the desire to work hard and have been my greatest supporters. They have given me the inspiration to pursue my education to the highest level.

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ABBREVIATIONS

DWH **–** Durbin-Wu-Hausman

GDP- Gross domestic product

MNCs – Multinational Corporations

REM – Random Effect Model

ROA **–** Return on Asset

ROCE **–** Return on Capital Employed

ROE – Return on Equity

USD **-** United States Dollars

ABSTRACT

Reducing corporate risks through hedging strategies has gained prominence with firms in the contemporary globalized market making more imperative the identification and administration of the corporate exposure to sources of risk, such as the foreign exchange rates, interest rates, equity securities and commodity prices. This formed the nexus of the study whose objective was to establish the effect of hedging on firm performance while controlling for firm size, leverage and growth. This study adopted explanatory research design and allowed the researcher to quantitatively through hypothesis testing measure relationships between variables. The study relied solely on quarterly data for the period 2006Q1-2014Q2. This involved integrating financial reports/data as a main procedure to gather accurate, less biased data and increase the quality of data being collected. Correlation analysis, co-integration analysis and error correction were carried out to determine whether there are short run or long run effects of hedging on performance. Findings from correlation analysis revealed that there is a negative and statistically significant relationship between hedging firm performance, (r=-0.5026, p-value=0.004<0.05). Correspondingly, findings of the ordinary least squares regression analysis showed that there is a very weak negative and statistically significant relationship between hedging and firm performance, (-1.11E-05 p-value=0.01<0.05). In addition, results from cointegration analysis could not confirm long run effect of hedging on firm performance. However, error correction revealed that there is a negative short run effect of hedging on performance. The study concluded that leverage dampen firm performance as funds allocated to trading in derivatives for speculative purposes amount to misapplication of funds from the core business of the company. The study therefore recommends that firms should diversify their leverage strategies and introduce robust and tested econometric and financial models to forecast international oil prices. Further, the study recommends that regulatory authorities should work together in conjunction with industry players to put in place relevant policy, legal and regulatory framework to limit monopolistic tendencies in the international oil market.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Reducing corporate risks with the use of hedging strategies has been an increasingly popular corporate activity during the last decades. This evolution is directly related to the gradual shift of interest to the volatility of the financial and capital markets worldwide and to the crucial effect this volatility has on the performance and the profitability of firms. The constantly transforming financial environment and the activation of firms in the contemporary globalized market makes more and more imperative the identification and administration at the management level of the corporate exposure to sources of financial risk, such as the foreign exchange rates, the interest rates, the equity and the commodity prices. This chapter provides the background to the study, research problem, objectives and value of the study. The concept of hedging strategies, financial management and their relationship has also been stipulated. In addition this chapter provides a brief explanation about MNCs in Kenya.

1.1.1 Hedging Strategies

In the corporate world, the economic environments that business organizations operate in have over time grown more complex. The global economic environment has grown to a point where market turbulence and volatility have increasingly created challenges for firms to be able to forecast their business and earnings against the backdrop of uncertainties. A direct result of these challenges lies in the methods that organizations

utilize financial vehicles in an effort to offset any unforeseen financial risks that may arise (Brown 2001).

Hedging is one way of off-setting risk in order to improve firm value. If the market is perfect, hedging would have no value. Actually, in real world, the financial market is imperfect and hedging can directly affect the cash flow of the firm. Hedging reduces the variability of expected cash flows about the mean of the distribution with reduction of risk as a result. This is positive for a single firm because the higher prediction of future cash flow improves the planning capability of the firm and the firm may be able to undertake activities of specific investments that otherwise might not have been considered (Promborg 2004).

Most of the international firms utilize various hedging or arbitrage strategies to stabilize financial earnings or firm value especially when there are obvious inconsistencies in global exchange movements. Evidence shown by Baker, Foley, and Wurgler (2008) indicates that action conducted by MNCs will directly affect the resulting corporate valuation. However, researchers such as Guay and Kothari (2003) show that hedging can only have a minor impact on a firm's volatility and value.

A study by Libo Yin and Liyan Han in (2011) discussed the pros and cons of both forwards and options when hedging international portfolios. They provided evidence why and when forwards would be preferred over options with empirical results of top line performance. Yin and Han (2011) found that across all circumstances, the optimal

combination of forward contracts should outperform the use of a single protective put in currency foreign exchange.

They also illustrated that foreign exchange options are important in an increasingly competitive financial environment and provide an appropriate tool for currency hedge strategies. Ultimately the findings noted above tell us that forwards generally should be used in place of single option strategies, but when options are deployed in such a notion as a straddle or other call/put relationship, the performance is drastically increased.

There is a spectrum of opinions regarding foreign exchange hedging. Some firms feel hedging techniques are speculative or do not fall in their area of expertise and hence do not venture into hedging practices. Other firms are unaware of being exposed to foreign exchange risks. There are a set of firms who only hedge some of their risks, while others are aware of the various risks they face, but are unaware of the methods to guard the firm against the risk. There is yet another set of companies who believe shareholder value cannot be increased by hedging the firm's foreign exchange risks as shareholders can themselves individually hedge themselves against the same using instruments like forward contracts available in the market or diversify such risks out by manipulating their portfolio (Giddy and Dufey 1992).

There is also a vast pool of research that proves the efficacy of managing foreign exchange risks and a significant amount of evidence showing the reduction of exposure with the use of tools for managing these exposures. In one of the more recent studies,

Allayanis and Ofek (2001) used a multivariate analysis on a sample of S&P 500 non-financial firms and calculated firms exchange-rate exposure using the ratio of foreign sales to total sales as a proxy and isolated the impact of use of foreign currency derivatives (part of foreign exchange risk management) on a firm's foreign exchange exposures. They found a statistically significant association between the absolute value of the exposures and the (absolute value) of the percentage use of foreign currency derivatives and prove that the use of derivatives in fact reduce exposure.

Among the available studies on the choice of hedging strategies, Géczy *et al.* (1997) argues that currency swaps are more cost-effective for hedging foreign debt risk, while forward contracts are more cost-effective for hedging foreign operations risk. This is because foreign currency debt payments are long-term and predictable, which fits the long-term nature of currency swap contracts. Foreign currency revenues, on the other hand, are short-term and unpredictable, in line with the short-term nature of forward contracts.

A survey done by Marshall (2000) also points out that currency swaps are better for hedging against translation risk, while forwards are better for hedging against transaction risk. This study also provides anecdotal evidence that pricing policy is the most popular means of hedging economic exposures. These results however can differ for different currencies depending in the sensitivity of that currency to various market factors. Regulation in the foreign exchange markets of various countries may also skew such results.

1.1.2 Financial Performance

Performance may be defined as the reflection of the way in which the resources of a company are used in the form which enables it to achieve its objectives. According to Heremans (2007) financial performance is the employment of financial indicators to measure the extent of objective achievement, contribution to making available financial resources and support of the organization with investment opportunities.

Rutagi (1997) defines financial performance as to how well an organization is performing. Other researchers define performance of the organization as the extent to which an organization achieves its intended outcome (Namisi 2002). The general assumption among both researchers and practitioners is that effective risk management lead to business profitability. Most studies divide the determinants of financial performance into two categories, namely; internal and external factors. Internal determinants are within the control of organization management and can be broadly classified into two categories, i.e. financial statement variables and non-financial statement variables (Linyiru 2006). While financial statement variables relate to the decisions which directly involve items in the balance sheet and income statement, non-financial statement variables involve factors that have no direct relation to the financial statements.

The examples of non-financial variables may include the number of branches, status of the branch (e.g. limited or full-service branch, unit branch or multiple branches) location and size of the organization. External factors are those factors that are considered to be

beyond the control of the management of an organization. Among the widely discussed external variables are competition, regulation, concentration, market share, ownership scarcity of capital, money supply, inflation and size (Haron 2004). It has also been pointed out that financial performance can be measured by use of accounting based measures such as return on assets (ROA), return on equity (ROE), return on capital employed (ROCE) or restrictive use of market based measures such as market value of equities (Gani and Jermias 2006).

1.1.3 The effect of Hedging strategies on Financial performance of MNCs

Multinational transactions exposure is an important source of risk for multinational corporations. To mitigate the impact of exchange-rate fluctuations, it has been claimed that multinational corporations can employ risk-management strategies not only through financial derivatives, but also through operational hedges. MNCs operate in a large number of foreign countries; the currencies of these countries generally do not move in the same direction at the same time." Conversely, many corporations with large worldwide networks, such as Coca Cola, EABL, Uniliver, commercial Banks such as Equity Bank, Kenya Commercial bank among others make extensive use of forms of hedging strategies.

These could be either financial or operational risk-management strategies. While several studies in other parts of the world have examined either firms' financial hedging or firms' operational hedging activities, to the best of my knowledge, scanty literature exist on hedging simultaneously for MNCs in Kenya. To the extent that the decision to use

financial hedging strategies is related to (and affected by) the operational strategies that a firm employs, it is important to examine how these strategies contribute to the overall goal of mitigating risk and improving shareholder value.

Most international companies have a financial strategy that works as a guideline and regulates the mandate regarding risk management. One major financial risk for multinational companies is the foreign exchange rate risk, which occurs when performing international transactions. The risk of currency fluctuations can be reduced and stabilized by hedging (Allayannis & Weston 2001). Financial derivatives such as options, forward and swap contracts are the most financial instruments used for hedging (Black *et al*. 2008). Derivatives are not only used for hedging purposes; they can also be used in a speculative purpose in form of proprietary trading. This is a way for companies to earn additional return outside their core business (Hagelin 2003).

Modigliani and Miller's (1958) hypotheses found that global companies' financial policies do not have any impact on its value. If financial markets are efficient, hedging activities by the firm does not add any value because the investor would then be able to build such a diversified portfolio that would allow them to eliminate the risks and would make the payment of a premium for the firm adopting a hedging policy unnecessary. Yet, when some of the hypotheses made by Modigliani and Miller (1958) are relaxed, it is possible to show that company's hedging policy would add value to the firm.

Whether hedging policy has or not impact on firm value needs an empirical answer. The literature, however, has not reached a consensus. The empirical results found show divergences with respect to the impact of the use of currency derivatives on firm value for developed countries. In the United States case, Allayannis and Weston (2001) found a positive relation and a hedging premium of nearly 5% for multinational firms that use currency derivatives. Jin and Jorion (2004), studying the same country, but limiting the study to firms in the oil and gas sector, showed a negative and statistically non-significant relation between the use of commodity derivatives and firm value. Clark *et. al.* (2006), using a sample of French companies, showed evidence that the use of currency derivatives does not affect firm value. However, Hagelin *et. al.* (2004), in a similar study for Swedish firms, found evidence that the use of derivatives has a significant and positive impact on firm value. This paper casts light on this question by analyzing the effects of hedging activities on the financial performance of MNCs in Kenya.

1.1.4 Multinational Corporations in Kenya

Multinational entities have played a major role in international trade for several centuries. A number of multinational corporations (MNCs) from developing economies are becoming key players in the global economy including Coca Cola, Total Plc among others. Multinational corporations engage in very useful and morally defensible activities in Third World countries for which they frequently have received little credit. Significant among these activities are their extensions of opportunities for earning higher incomes as well as the consumption of improved quality goods and services to people in poorer regions of the world. Compared to local firms, multinational corporations provide

developing countries with critical financial infrastructure and enormous resources for economic and social development (Kaloki 2001).

MNCs in Kenya were established as early as 1950, specializing in manufacturing, assembly and service sectors. Most of these multi-national companies operating in Kenya have stepped up expansion plans, lured by the country's attractiveness following the promulgation of new constitution in August 2010, and established of the East Africa Community common market which embrace borderless trade. British American Tobacco, Nestle Kenya, Weetabix East Africa Limited, Bata Shoe Company, Toyota East Africa and Cadbury East Africa are amongst the multinational corporations that already have announced multi-billion shilling expansion plans in the race to tap new demand in the emerging Eastern Africa region and part of North Africa (Oloko 2006). The expansion is set to shoot up the contribution of the manufacturing sector to Kenya's GDP and provide new jobs in the sector as Kenya's economy is recovering with optimism that it shall gain momentum in line with the goal to make the country a middle income economy by 2030 (Mwangi 2011).

The increasing interest of MNCs in Kenya is linked to the formation of the East Africa Community common market, which is expected to create a market of about 134 million people, a combined GDP of US $ 74.5 billion, average per capita income of US $558 which shall allow for the free movement of factors of production, goods and services among the five member states (Blunt and Jones 2008).

1.2 Research Problem

During the last two decades there have been numerous studies trying to analyze the determinants and the theoretical motives behind this corporate activity, as well as its correlation with other corporate aspects such as the capital structure of the firm, the amount of leverage, the investment policy and the growth opportunities of the firm. However, limited is the extent of research with respect to the question of whether hedging strategies is a value increasing profitability and its impact on firm value, if any.

A plethora of empirical evidence supports contemporaneous hedging strategies to mitigate its effects on financial performance (Ball and Brown 1968; Ohlson 1979; Holthausen and Verrecchia 1988; Lev 1989; Ryan 1995). However, risk continues to have varying significant effect on performance of firms across countries. This has led to a search for multi-pronged strategies to incorporate in risk management (Beaver 1981; Lev and Ohlson 1982), an important source of which is the strategies used by MNCs. A risk strategy has the potential to affect risk-return trade-off expectation by signaling that the firm's returns are likely to improve or otherwise, as (Choi and Jeter 1992) find that the more geographically dispersed a firm is, the more likely it is to use hedging strategies.

Risk management theories (Smith and Stulz (1985), Froot, Scharfstein, and Stein (1993), and Leland (1998)) suggest that risk management adds value to a firm by reducing expected taxes or financial distress costs, by mitigating underinvestment, or by allowing a firm to increase its debt capacity and take advantage of debt tax-shields without an increase in risk. Previous empirical literature has examined which theories of hedging

are borne out in the data (Tufano (1996), Haushalter (2000), and Graham and Rogers (2002) find a significant effect of risk management strategies on performance. More recently, another stream has examined directly the impact of corporate risk management on firm value (Allayannis and Weston (2001), Carter, Rogers, and Simkins (2003)) establishing that risk is an important determinant of performance.

Studies by Allayannis and Weston (2001); Marshall (2000); Brown (2001); itemized details around hedging strategies used by firms that utilize foreign exchange transactions and operate businesses across continents, finding evidence of significant effect of risk management strategies in the UK and US MNCs. Al-Thuneibat, Ali; Khamees, Basheer Ahmad; Al-Fayoumi and Nedal (2008) conclude that there is no clear or significant effect of risk management strategies on performance. Hagelin and Pramborg (2004) conducted a study that comprised Swedish firms who utilize foreign exchange exposure hedging. As would be expected, findings of the study showed that through the use of hedge strategies, firms were able to reduce valuation volatility and exchange rate risk. In Kenya, literature especially on the area of hedging and financial performance of MNCs is limited.

This study therefore sought to closely examine the effect of hedging strategies used by MNCs listed in the NSE with a view to establish its impact on their performance. This study seeks to address the question as to what kind of hedging strategies are used by Total Plc? And more importantly, what are the effects of hedging strategies on financial performance of Total Plc?

1.3 Research Objective

The objective of the study was to investigate the effects of hedging strategies on financial performance of Total Plc;

1.4 Value of the Study

The purpose of this study was to explore hedging strategies adopted by MNCs in Kenya and their impact on financial performance. It tried to clarify the relationship between existing hedging theory and the reality of company's hedging strategies, by answering how and why they influence financial performance in the international business organizations.

This study contributes to the literature by providing explanation on the concepts that matters financial performance in multinational corporations. The studies provides the reader an understanding of how hedging theories contribution to business risk mitigation and organization's profitability. Financial risk management is critical to the survival of any corporation. Investors who have real money at risk must understand the exposures facing the firms in which they invest, they must know the extent of risk management at these companies and they must be able to distinguish between good risk management programs and bad ones. Without this knowledge, they may be in for some big surprises.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the review of various literature related to the area of study. It covers key theories relevant to the study, empirical studies on hedging strategies and its effects on financial performance of Multinational corporations.

2.2 Theoretical Review

Theories state that risk management increases firm value in an imperfect capital market by reducing expected tax liabilities and financial distress costs, and by increasing firms' debt capacity. Several studies document that firms may use financial instruments for speculation (Geczy, Minton and Schrand 2007), and managers may hold derivative positions for their own advantage that might not be in parallel with shareholders' benefit (Stulz 1984; Smith and Stulz 1985). The pooling of speculative, self-interest, and hedging in derivative positions makes investors cautious in valuing derivative contracts used by firms.

Theories in the context of principal-agent conflict of interests explain this empirical evidence by focusing on managers' motivation for hedging. Stulz (1984), Smith and Stulz (1985) explain the incentive of risk-averse managers to hedge when they can mitigate the risk of their own interests in the firm by hedging the same risk at corporate-level. Several empirical studies support these theories. In their confidential survey Géczy *et al*. (2007) highlight the issue of speculation in the use of derivatives. In order to understand

hedging and other risk management activities in Multinational companies; awareness of the existing theories within the area is an advantage.

2.3 Theories in Hedging

Analysis of the determinants of corporate financial performance is essential for all the stakeholders, especially for investors. The Anglo-Saxon corporate governance focus on maximizing shareholder value. This principle provides a conceptual and operational framework for evaluating business performance. The value of shareholders, defined as market value of a company is dependent on several factors: the current profitability of the company, its risks, its economic growth essential for future company earnings (Branch, and Gale 1983). All of these are major factors influencing the market value of a company. Other studies (Brief and Lawson 1992; Peasnell 1996) argue the opposite, that financial indicators based on accounting information are sufficient in order to determine the value for shareholders.

MNCs have strategically positioned themselves in the global market with a view of enhancing their performance. Indeed, a company's financial performance is directly influenced by its market position. Profitability can be decomposed into its main components: net turnover and net profit margin. Ross *et al.* (1996) argues that both can influence the profitability of a company. If a high turnover means better use of assets owned by the company and therefore better efficiency, a higher profit margin means that the entity has substantial market power, and is efficient in managing its financial risks, which include fluctuations in turnover and operating costs.

Risk and growth are two other important factors influencing a firm's financial performance. Since market value is conditioned by the company's results, the level of risk exposure can cause changes in its market value (Fruhan 1979). Economic growth is another component that helps to achieve a better position on the financial markets, because market value also takes into consideration expected future profits (Varaiya *et al.*1987). Compared to other firms, MNCs are big in size. According to Mathur and Kenyon (1997), the size of the company can have a positive effect on financial performance because larger firms can use this advantage to get some financial benefits in business relations. Large companies have easier access to the most important factors of production, including human resources. Also, large organizations often get cheaper funding.

In the classical theory, capital structure is irrelevant for measuring company performance, considering that in a perfectly competitive world performance is influenced only by real factors. Recent studies contradict this theory, arguing that capital structure play an important role in determining corporate performance (Kakani, *et al.,* 2001). Barton & Gordon (1988) suggest that entities with higher profit rates will remain low leveraged because of their ability to finance their own sources. On the other hand, a high degree of leverage increases the risk of bankruptcy of companies.

A common feature of MNCs is their huge asset base. According to Beaver, Ketller and Scholes (2004), total assets is considered to positively influence the company's financial performance. A large volume of sales (turnover) is not necessarily correlated with

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improved performance. Studies that have examined the relationship between turnover and corporate performance were inconclusive.

The main objective of the company has evolved over time the need for short term profit is replaced by the need for long-term growth of the company (sustainable growth). Therefore, a sustainable growth rate higher than one would have a positive impact on performance. For the companies listed at the stock exchange, its ability to distribute dividends is a proof of financial stability. However, until now there was no proof of a link between this factor and profitability, since profits can be used for purposes other than to distribute dividends.

2.3.1 Optimal Hedging Theories

Company's risk management covers a wide spectrum of theories rather than a single accepted framework. Optimal hedging theories have been developed over time. Most of them focus on the ability of hedging to increase firm value, management incentives and what type of derivatives firms should use. Moreover, there is an important trade-off between the cost and gains of risk aversion (Froot *et al*. 1993; DeMarzo and Duffie 1995). However, the optimal hedging theory works as a guideline rather than a model of estimations. This is because it fails to reveal companies' different risk profiles, which differ by business, products and people (Froot *et al*. 1993).

2.3.2 Risk Management Theory

Two classes of theories explain why managers undertake risk management activities. The first is based on shareholder value maximization. The other is based on diversification motives for owners or personal utility maximization for managers. The shareholder maximization argument states that firms hedge to reduce the various cash flows that are exposed to volatilities. The literature advances three typical lines of explanation.

First, hedging reduces the expected cost of financial distress (Mayers and Smith (1982); Smith and Stulz (1985)). Second, hedging may also be motivated by tax incentives. When firms face a convex tax function, hedging should help reduce expected taxes (Mayers and Smith (1982), Smith and Stulz (1985)). Hedging can also increase a firms's debt capacity, therefore generating greater tax advantages from greater leverage (Leland (1998). Finally, hedging may also help relieve the problem of underinvestment, that is, when firms have many growth opportunities and external financing is more expensive than internally generated funds (Froot, *et al.* (1993).

Another strand of theory claims that hedging stems from the incentive of managers to maximize their personal utility functions. Risk-averse managers engage in hedging if their wealth and human capital are concentrated in the firm they manage and if they find the cost of hedging on their own account is higher than the cost of hedging at the firm level (Stulz (1984) and Smith and Stulz (1985)). In addition, hedging may serve as a signal that helps outside investors better observe managerial ability (DeMarzo and Duffie (1995).

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On the whole, however, there is mixed support for value maximization theories. Mian (1996) surveys their implications and reports that the only reliable observation is that hedging firms tend to be larger. Similarly, Tufano (1996) examines the hedging activities of gold mining firms and finds no support for the value maximization theory. Furthermore, he finds strong evidence that supports the managerial risk-aversion theory, according to which managers who hold more stock tend to undertake more hedging activities.

More recently, researchers have been examining the direct relation between firm value and hedging. Allayannis and Weston (2001) provide the first related evidence. They find that the market value of firms using foreign currency derivatives is 5% higher on average than for nonusers. This result is economically important, but puzzling in view of the mixed empirical evidence on hedging theories.

2.3.3 Firm Value Maximization Theory

Firm value maximization theories states that firms can hedge to reduce certain costs or capital market imperfections related to volatile cash flows. There are typically three lines of explanations. First, hedging can reduce deadweight costs of financial distress (Mayers and Smith (1982), Smith and Stulz (1985)). Second, hedging may also be motivated by tax incentives. When firms face a convex tax function, hedging should help reduce expected taxes (Mayers and Smith (1982), Smith and Stulz (1985)). Hedging can also increase a firms's debt capacity, by generating greater tax advantages from greater leverage (Leland (1998). These two explanations imply that corporate hedging can add

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value when firms face convex costs such as progressive taxation and bankruptcy costs. Similarly MacKay and Moeller (2007) argue that hedging can add value if revenues are concave in product prices.

This theory is based on the fact that, exchange rate exposure has potentially positive or negative impact on the profitability and value of the firm. This is captured in the valuation process in terms of the firm's stock returns. Thus, the approach to modeling the exchange rate exposure has been to regress the exchange rate on firms' returns. Based on research of Smith and Stultz (1985), the tax structure would influence a company's hedging decision. As long as the cost of hedging is not too large, a firm that can reduce the variability of its pre-tax firm value trough hedging would be able to reduce its expected tax liability and increase its expected post-tax firm value.

Fisher's (1907) on interest rates made it clear that the value of an investment project is equal to the discounted cash flow that this investment generates to its owner(s). The most simple and intuitive formula illustrating this principle is the investment formula calculating the present value of a single investment project under certainty. The Modigliani-Miller Theorem is a cornerstone of modern corporate finance. At its heart, the theorem is an irrelevance proposition: The Modigliani-Miller Theorem provides conditions under which a firm's financial decisions do not affect its value.

Modigliani-Miller (1980) explains that with well-functioning markets (and neutral taxes) and rational investors, who can undo' the corporate financial structure by holding

positive or negative amounts of debt, the market value of the firm – debt plus equity depends only on the income stream generated by its assets as shown in equation.

2.3.4 Manager's Personal utility Maximization theory

Another strand of theory claims that hedging stems from the incentive of managers to maximize their personal utility functions. Risk-averse managers may engage in hedging if their wealth and human capital are concentrated in the firm they manage and if they find the cost of hedging on their own account is higher than the cost of hedging at the firm level, Stulz (1984), Smith and Stulz (1985).

The information asymmetry let managers have more information than outsiders. A firm's decision whether to hedge or not and how much to hedge depends on a manger's utility function, his views about market, and visibility of the firm's accounting information, etc. Smith and Stultz (1985) show that mangers' risk aversions can lead them to hedge but they don't necessarily do so. They point out the compensation function is linear or convex would influence the hedging decisions for managers. The more option-like features (convex function) in firm's compensation plan, the less the firm is expected to hedge and when mangers have significant fraction of the firm, one would expect the firm to hedge more (linear function).

2.4 Empirical Review

Harvey and Marston (2011) risk management survey, 49% of financial and 54% of American firms indicate that their forecast for interest rate is very important or important in their interest rate hedging decisions. Borokhovich, Brunarski, Crutchley, and Simkins

(2004) show the impact of outside directors on the level of using interest rate derivatives. In the light of this evidence, researchers aim to clarify derivatives used as *real* hedging by focusing on mechanisms through which firms are able to control or identify motivation in the use of derivatives.

Callahan (2002) also looks at the effect of hedging but in a time series framework. He first computes the alpha in a regression of mining firms stock returns on a market index. Second, he regresses the alpha on a hedging variable and does not find much relationship. Such setup has little statistical power, however, and does not directly addresses the relationship between the level of firm value and hedging activities. With constant hedging, a firm could be worth a fixed proportion more than a non-hedger, which implies that the relative rate of change in the price, or alpha, would be no different. Instead, our paper looks directly at the price level embodied in the Q ratio, which is a better measure of value added.

The study by Edelshain (1993) found that four factors representing the internal organization of currency exposure management (e.g., who manages the risk, 'use of operational techniques', 'presence of organizational measures', and 'use of strategic methods') determines the methods a company uses to manage its currency exposure and found a positive association between the use of forward market contracts as well as centralized treasury.

Based on the previous findings that suggested companies are generally risk averse (Belk and Glaum 1990; Davis *et al*, 1991; Belk 2002) studied foreign exchange risk management for the firms in three countries UK, Germany and the US. Results confirmed previous findings in all three countries in varying degrees. For example, the total risk aversion was twice or more than twice as frequently encountered in the US and German companies than with the UK sample. For the German firms with centralized treasury functions all companies' hedging was decided upon and carried out by the parent companies. In the two German decentralized treasuries, one firm was divided into profit centers according to product and in the other the parent hedged all the currency risk of its most important subsidiary, but all the other subsidiaries hedged autonomously.

A study by Morey and Simpson (2001) on the efficacy of simple strategies for hedging foreign exchange risk for the period of January 1974 and December 1998 suggests that there are generally five hedging strategic approaches: to always hedge, to never hedge, to hedge when the forward rate is at a premium, to hedge only when the premium is large, and a strategy based upon relative purchasing power parity. The study finds that a strategy which hedges based upon large premium has generally outperforms the other strategies for the period 1989–1998 whereas for the whole sample and at time horizon period, an un-hedged strategy performs better than a hedged strategy.

Hagelin and Pramborg (2004), itemized details around hedge strategies facilitated in firms that utilize foreign exchange transactions. This particular study was conducted in a sample of Swedish firms who utilize foreign exchange exposure hedging. As would be

expected, findings of the study showed that through the use of hedge strategies, firms were able to reduce valuation volatility and exchange rate risk. In addition to basic exchange rate hedging, Hagelin and Pramborg (2004) stated that larger firms may have lower overall exposure merely based on the capacity to use operational hedges. Essentially the use of financial vehicles in a hedge strategy will lower the overall risk exposure to the company.

A study by Afta and Atia (2011) also indicates that Pakistani firms having higher foreign sales are more likely to use foreign exchange derivative instruments in order to reduce exchange rate exposure. The study concludes that (i) the optimal usage of foreign exchange derivative instruments may enable Pakistani firms to smooth their future cash flows by reducing opportunistic behavior of shareholders and managers, hence, minimizing the agency costs of debt and equity; and (ii) the policy makers should develop a well-organized exchange traded derivative market in Pakistan for the benefit of financially constrained firms with highly variable cash flows and foreign sales.

Furthermore, the study also highlights that effective usage of derivative instruments may enable corporations to define their hedging policies that are compatible with firm's internal investment and financing policies. Therefore, properly planned and implemented investment, financing and hedging policies, will not only facilitate firms in achieving their primary goal of shareholders' wealth maximization, but may also enhance economic stability.

A study by Libo Yin and Liyan Han in 2011 discussed the pros and cons of both Forwards and Options when hedging international portfolios. They provided evidence why and when Forwards would be preferred over options with empirical results of top line performance. Findings of Yin and Han (2011) found that across all circumstances, the optimal combination of forward contracts should outperform the use of a single protective put in currency foreign exchange. They also illustrated that foreign exchange options are important in an increasingly competitive financial environment and provide an appropriate tool for currency hedge strategies. Ultimately the findings noted above tell us that Forwards generally should be used in place of single option strategies, but when options are deployed in such a notion as a straddle or other call/put relationship, the performance is drastically increased.

Chiang and Lin (2005) clearly listed out two types of hedge strategies implemented within many multinational corporations across the globe. The subject of the study consisted of Taiwanese non-financial firms from 1998-2002. They reached two defined results: Foreign Currency Derivatives are effective in implementing a currency hedge strategy and foreign denominated debts always increase exchange rate exposures when compared to foreign currency derivatives.

The researcher identified few studies done in Kenya on the foreign exchange risk; Kamau (2009) did a study on an assessment of the impact of foreign exchange fluctuations on projects partly funded through foreign currency denominated loans Oloo (2011) conducted an empirical study of spot market efficiency on Kenya's foreign exchange

bureaus Cherutoi (2006) did a study on extent of commercial banks exposure to foreign exchange risk and Mumo (2011) conducted a survey of foreign exchange risk management practices by oil companies in Kenya. In Tanzania, the researcher also identified Assad (2011) who did a study on a survey of foreign currency risk awareness and management practices in Tanzania, a research study supported by a grant from the Investment Climate and Business Environment Research Fund, jointly funded by Trust Africa and IDRC.

2.5 Summary of Literature Review

Some studies indicate that performance is positively influenced by hedging strategies while others argue that hedging strategies are a critical source of risk in themselves hence having a negative effect on performance in the long run. Meanwhile, previous research suggests that hedging strategies are responsible for failure and even bankruptcy of firms (Hagelin and Pramborg 2004; Allayannis 2011; Hooper 2012; Anderson *et al* 2010). Capital market researchers have constantly debated on the hedging instruments and strategies arguing that they account for performance deviations either positive or negative (Linn and Sofie 2012; Sivakumar and Runa 2009; Yin and Han 2011).

Prior studies also reveal that operational and financial strategies are critical in exploring the association between hedging strategies and performance of a firm (Mayers and Smith 1982, Smith and Stulz 1985; Leland 1998; Kamau, 2009). Researchers have selected varied strategies and proxies to measure hedging. Some studies suggest that, futures,

options, swaps and forward contracts are better measures, others just group them into either operational or financial while others view them as strategic firm decisions.

Consequently, the complexity of valuation processes and firm performance measurement might obscure the hedging strategies in empirical studies. We can see from the literature above that firm's hedge decisions are based on two classic theories: shareholder value maximization and manager's personal utility maximization. In addition to these two rationales, there are still many firm characteristics like firm size would be related to hedging. Consistent with the above literatures, hedging can add value to firms by reducing taxes, costs of financial distress and agency costs.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research design, the description of the study population, the sampling procedures, and data collection procedures, data collection instrument, data analysis techniques and the limitation of the study.

3.2 Research Design

This study adopted descriptive research design. It was intended to explain, and simply describe the phenomena being studied (Lisa 2008). This allowed the researcher to quantitatively, through hypothesis testing measure relationships between variables. This involved integrating financial reports/data as a main procedure to gather accurate, less bias data and increase the quality of data being collected (Cresswell, 1998; Sekaran, 2000). Secondary data was obtained from the quarterly financial statements of Total Plc for the period 2006Q4-2014Q2.

3.3 Population

Population in statistics is the specific population about which information is desired. According to Mugenda and Mugenda (2003), a population is a well-defined or set of people, services, elements, and events, group of things or households that are being investigated. The population of study comprised all the quarterly reports of Total Plc. The quarterly reports starting 2006Q4-2014Q2 were available. This therefore formed the sample of the study.

3.4 Data Analysis

The study applied descriptive statistics, simple and multivariate regression as well as correlation analysis. Descriptive statistical analysis is a uni-variate analysis which consists of charts, graphs, measures of central tendency and measures of dispersion, the standard deviation (Bryaman et al. 2003). Under simply regression, the Ordinary Least Square regression was carried out to estimate the effect of each independent variables under the study on the firm's performance, which is the dependent variable. The regression was then performed to determine how the individual independent variables contribute to the dependent variable jointly. However, before the multiple regressions could be performed, the correlation matrix analysis is carried out. The purpose is to isolate the independent variables that might be highly correlated with each other. This isolation is necessary so as to avoid the effect of autocorrelation. Auto correlation if present will negate the meaningful interpretation of the multiple correlation analysis.

A correlation matrix includes the values of the correlation coefficient for the independent variables (Robson, 2002; Belt 2008). In order to avoid the effect of autocorrelation, we only include independent variables with low correlation. Infact a very low correlation between the independent variables is even preferred. For the purposes of correlation matrix analysis, the Pearson correlation 'r', a measure of the strength of the Linearity between the pair wise independent variables are classified as follows:

- Very low correlation 'r' is under 0.2
- Low correlation, 'r' is $0.2 \leq r \geq 0.4$
- Moderate correlation, 'r' $0.4 \leq r \geq 0.7$

- High correlation 'r' $0.7 \leq r \geq 0.91$

- Very high correlation $r \geq 0.91$ (Pfeifer, 2000).

The variable of the study are as summarized below:

Dependent variable (Y) – is the return on total asset (ROA) measure of the company's financial performance.

Independent Variables:

Risk hedging, (X_1) - Measured by the value of derivative hedging by the firm

Firm size (X_2) – Measured by the total firm's asset and value

Leverage (X_3) – Measured by the debt to equity ratio

Growth (X_4) – Measured by the net capital spending.

The multiple regression model is then quoted as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where: e is the error term, reconciling the actual value of Y and the estimated Y value as per the model.

B_0 being the value of Y, independent of the effects of the individual independent variables as explained above.

$\beta_1, \beta_2, \beta_3$ and β_4 represent the change in Y value corresponding to unit change in X_1 X_2 X_3 and X_4 respectively.

Descriptive statistics was used to profile the effect of each independent variable on the dependent variable. Mainly the mean and the standard deviation was used in the study. The descriptive statistics have been used to determine the parametric values of the characteristics of Top Management Teams (TMP) on the performance of the firm, (Hambrick et al 1986; Bryman and Bell, 2003; Irungu 2007). Multicolinearity was

checked in the multiple regression model by examining the Variance Inflation Factor (VIF) for each independent variable. The use of VIF in analyzing the independent variables is to establish whether the variables are closely correlated and if they screen one another when used under multiple regression analysis. The rule of thumb requires that if a VIF of variable in question is highly collinear (Hair et al, 1998) no independent variable.

3.5 Operationalization of Variables

Quarterly data on net income and total assets were collected for computation of Return on total Assets, as measure of performance dependent variable (Y). The measure of the extent of hedging activities X_1 comes from quarterly surveys of derivative hedging activities of the company.

Data on the total assets X_2 of the firm was collected to measure firm size. In addition, the study collected data on firm's shareholders equity and long term debt. A ratio was computed to obtain the debt to equity ratio as a measure of leverage X_3. Growth of a firm X_4 was measured by the net capital spending. To obtain this value, the net fixed assets at the start of the quarter are deducted from the sum of depreciation and the net fixed assets at the end of the quarter as illustrated in Table 3.1 below.

Table 3.1 : Operationalization of Variable

Variable	Measurement
Return on Asset (RoA)	The ratio of net income over the previous quarter to total assets (Net Income / Total Assets)
Hedging variable	Measured by the value of derivative hedging by the firm in each quarter.
Firm size	Total firm assets in the quarter
Leverage	The book value of long-term debt divided by the book value of equity (Total Debt / Owner's Equity)
Growth	Net capital spending= Net Fixed Assets $_{\text{End of quarter}}$ − Net Fixed Assets $_{\text{Start of quarter}}$ + Depreciation

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

In this chapter are various analytical tools used in the study. We also state the hypothesis both the null and the alternative hypothesis for each independent variable. We also analyze the statistical significance for the study and the conclusions thereof.

4.1 Descriptive Statistics

Preliminary analysis to observe the general (time-series) behavior of the series reveals that all the series exhibit non-stationarity albeit at different degrees. Structural breaks between years 2008-2009 coincide with the global financial crisis implying that spillover effects affected the firm. Firm size exhibits a linear time trend and markedly grew in 2013Q4 into 2014 corresponding to expansion in firm growth.

In addition to the sample mean, median, maximum, minimum and standard deviation for each series, Table 4.1 presents the summary statistics. The mean ROE is 0.019, whereas hedging value stood at 1240. Leverage was 0.46, mean growth 5383 and size 148283.

Table 4.1 : Descriptive Statistics

	Performance	Hedging	Leverage	Growth	Size
Mean	0.019324	1240.129	0.463010	5383.467	148283.0
Median	0.018682	1352.000	0.368460	3522.000	144543.0
Maximum	0.040363	2012.000	0.734353	47304.00	248770.0
Minimum	-0.006559	287.0000	0.287401	-2039.000	105223.0
Std. Dev.	0.008831	584.9611	0.172586	8526.712	34776.20

Source: (Field data, 2014)

4.2 Correlation Analysis

Correlation analysis was carried out to establish the strength and nature of relationship between firm performance, hedging, leverage, size and growth. Results in Table 4.2 indicate that there is a negative relationship between hedging, leverage growth, firm size and firm performance. However, only hedging, leverage and firm size were statistically significant.

Table 4.2 : Correlation Analysis

	Performance	Hedging	Leverage	Growth	Size
Performance	1.000000				
Hedging	-0.502614	1.000000			
Leverage	-0.675640	0.586050	1.000000		
Growth	-0.422469	0.492380	0.353059	1.000000	
Size	-0.653393	0.773390	0.796663	0.457175	1.000000

Source: (Field data, 2014)

4.3 Regression Analysis

The summary of multiple regression together with the ANOVA is presented below. Firm performance (Y) has a function of; Hedging X_1, Firm size X_2, Leverage X_3 and Growth X_4.

Table 4.3: Model Summary

Model Summary

Model		R	R Square	Adjusted R Square	Std. Error of the Estimate
dimension0	1	$.886^a$	.785	0.726	0.008

a. Predictors: (Constant), HEDGING, GROWTH, LEVERAGE, FIRM SIZE

Source: (Field data, 2014)

From the above table, adjusted R square is 0.785 showing a relationship between the observed and predicted values of the dependent variable. This indicates that all the independent variables accounts for 78.5% of the firm performance*.*

On the other hand, ANOVA table shows results of analysis of variance, sum of squares, degree of freedom (df), mean square, regression and residual values obtained from regression analysis. From table 4.4 below, the mean square is 0.02. The F static which is regression mean square divided by the residual mean was 2.35. Degree of freedom df was 3.00. Statistically, the overall relationship was very significant with significant value, P value = 0.025, (P < 0.05) as shown below.

Table 4.4: ANOVA

ANOVA^b

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	0.001	3	0.02	2.35	.025^a
Residual	0.002	26	0.01		
Total	0.002	29			

a. Predictors: (Constant), HEDGING, GROWTH, LEVERAGE, FIRM SIZE

b. Dependent Variable: FIRM_PERFORMANCE

Source: (Field data, 2014)

From the coefficient table below, the first variable (constant) represents the constant, also referred to in books as the Y intercept, the height of the regression line when it crosses the Y axis. In other words, this is the predicted value of firm performance when all other variables are 0. The Beta values (β) are the values for the regression equation for predicting the dependent variable from the independent variable.

Table 4.5: Regression Coefficients

Coefficients^a

Model	Unstandardized Coefficients		T	Sig.
	B	Std. Error		
1 (Constant)	0. 2054	5.483	3.468	0.0251
GROWTH X_2	-5.21E-07	2.16E-07	-2412	0.0232
LEVERAGE X_4	-4.19E-02	1.59E-02	-2.628	0.0142
FIRM SIZE X_3	3.67E-07	6.18E-08	5.933	0.000
HEDGING X_1	-1.11E-05	4.06E-06	-2.736	0.0111

a. Dependent Variable: FIRM_PERFORMANCE

Source: (Field data, 2014)

Summary of the result:

The regression indicates that all the coefficients $\beta 0$, $\beta 1$, $\beta 2$, $\beta 3$ and $\beta 4$ are all significant and therefore model is written as:

$Y = 20.54 - 1.11E\text{-}05X_1 - 5.21E\text{-}07X_2 + 3.67E\text{-}07X_3 - 4.19E\text{-}02X_4$

This means that all the four independent variables play an important role in determining the performance of the firm. R-squared is equally significant at 78 percent, this means that 78% of firm performance is attributed to the independent variables.

4.4 Discussion of Research Findings

In the corporate world, the economic environments that business organizations operate in have over time grown more complex. The global economic environment has grown to a point where market turbulence and volatility have increasingly created challenges for firms to be able to forecast their business and earnings against the backdrop of uncertainties.

A direct result of these challenges lies in the methods that firms utilize financial vehicles in an effort to offset any unforeseen financial risks that may arise. This study analyzed effects of hedge strategies implemented by Total PLcs and test the effects of various hedging strategies utilized in foreign exchange transactions on firms' performance. This work contributed to the research on arbitrage theory by illustrating various hedging strategies that are shown to either positively or negatively affect firm financial performance.

From the findings of this study, it can be concluded that hedging is one of the factors that influence on firm performance. This concurs with Allayannis and Weston (2001) report that the corporate use of foreign currency derivatives by non-financial firms in the US has a positive impact on firm value. He further asserted that firms utilize various hedging or arbitrage strategies to stabilize financial earnings or firm value especially when there are obvious inconsistencies in global exchange movements. More so, evidence shown by Baker, Foley, and Wurgler (2008) indicated that hedging adopted by MNCs will directly affect the resulting performance of the firm. However, researchers such as Guay and Kothari (2003) show that hedging can only have a minor impact on a firm's volatility and value.

Firms utilize various types of financial derivatives as hedge instruments to further calculate or insure against uncertainties in the market which may erode firm value and performance. Included in these financial instruments are currency options and futures, forwards, swaps, etc. vast majority of companies utilize these types of hedge instruments. However, there are handfuls which utilize commodity based hedges in lieu of financial based options. Firms that utilize financial hedges must indeed determine the correct instruments and implementation that are most effective for their environment. In other words, just because a straddle strategy with foreign exchange options is successful for other firms, it does not necessarily mean that that type of hedge will be successful for all firms. Industry type, exposure, business structure, etc. must be taken into account when choosing a hedging strategy.

From the findings, there was no specific hedging derivative that has been shown to be used by Total Plc, however, there was values in their financial statements that shows hedge contributions. According to Yin & Han (2011) there has been no prescriptive hedge strategy for firms; however, he suggested that the use of forward contracts in hedge strategies will outperform the use of currency options.

This indicates that there is obviously no preferred method of hedge strategy among companies. The evidence shows that different instruments are preferential in different economic environments. In summary, each and every firm that engages in hedge strategies to mitigate risk must identify what the exposures are, what potential costs that exposure could inflict, and how to implement a hedge strategy that most effectively deals with that exposure.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter contains the conclusion and recommendations emanating from the study. It also contains recommendations for further study.

5.2 Summary of Findings

The purpose of this study was to explore hedging strategies adopted by Total Plc and its effects on financial performance. It tried to clarify the relationship between existing hedging theory and the reality of company's hedging strategies, by answering how and why they influence financial performance in the international business organizations. This was achieved by applying co-integration analysis to establish the short and long run relationship. Co-integration results indicated that overall there is weak long-run relationship between financial performance and hedging at Total Plc. The error correction results show that there is a short run effect of hedging on the financial performance of the firm.

Findings from correlation analysis showed that there is a negative and statistically significant relationship between hedging, leverage growth, firm size and firm performance. In addition, leverage and firm size were statistically significant. Similarly, results from ordinary least squares regression mirrored correlation analysis results that there is a negative and statistically significant relationship between hedging and firm performance. Firm growth and leverage exhibited a negative and statistically significant

relationship. This implies that an increase in hedging, firm growth and leverage have a dampening effect on firm performance. However, firm size indicated a positive and statistically significant relationship with firm performance implying that an increase in firm size leads to improved performance.

Results of the correlation analysis indicated that there is a negative relationship between hedging, leverage growth, firm size and firm performance. However, only hedging, leverage and firm size were statistically significant. More so, regression test showed that all the coefficients B_0, B_1, B_2, B_3 and B_4 are all significant. This means that all the four independent variables play an important role in determining the performance of the firm. R-squared is equally significant at 78 percent, this means that 78% of firm performance is attributed to the independent variables holding other factors constant.

Engle and Granger two-step cointegration test revealed that the null of no cointegration cannot be rejected. This implies that there are no long run effects of hedging and firm performance. The Augmented-Dickey-Fuller test of the residual reveals that the null of no cointegration cannot be rejected. Further, the p-value of error correction term indicates that there is a negative short run effect of hedging on performance.

5.3 Conclusion

Hedging strategies of a firm play a pivotal role in risk management at Total Plc's performance by providing a buffer for shocks in international oil prices. Therefore proper management of risks is critical to the attainment of the firm's long term vision.

Given that there exists a short-run relationship between hedging and financial performance at Total Plc, the null hypothesis that hedging no effect on the firm's financial performance was rejected consistent with Younus (2006), Aliero, Abdullahi and Adamu (2013). The study therefore concludes that albeit the objective of hedging using derivatives is to enhance performance it actually plays a negative role in the firm's performance.

Similarly, the hypothesis that inflation has no predictive power on Kenya's economic growth was also rejected. Previous studies, Tun Wai, (1959); Paul, Kearney and Chowdhury (1997), support this conclusion. Indeed, inflation has contingent effect on the relationship between aggregate credit to private sector and Kenya's economic growth. The study concludes that inflation is an impediment as it negatively affects purchasing power hence negatively impacting on the productive sector and hence slowing economic growth. Further, the study concludes that increasing interest rates dampen the level of economic growth by increasing the cost of capital. This conclusion is similar to that of Udoka (2012), and Anaripour (2011) who concluded that increase in interest rate leads to a decrease GDP.

5.3 Recommendations

This study recommends that Total Ltd should establish a robust and tested framework for risk management. These could include internal financial and econometric models to forecast oil prices.

The firm should also diversify its oil sources to avoid lock in to high prices from a few suppliers in exchange for reduced volatility. In addition this should involve active participation in exploration and extraction through subsidiaries in various parts of the world. These in turn will leverage the firm's competitive edge with respect to supplier prices.

The international market for oil should also be restructured to eliminate monopolistic tendencies that distort prices. These could include legislations at the international arena through the World Trade Organization.

The study recommends that the government should enact legislations and guidelines anchor low oil prices through elimination of volatility in oil prices. This will spur economic activity by significantly reducing the cost of production and thus translating into welfare gains to the citizens.

5.4 Limitations of the Study

One of the limitations incurred during this study was that, some data were very difficult to obtain. Specifically, it was a challenge to access data on hedging variables, however, the researcher resort to secondary data that eventually provided the required information. Resources were more challenge in undertaking this study as well as time. Secondary data, which included publications and financial reports, may have been incomplete and long overdue. Some secondary data like financial statements lacked explanation and therefore

to arrive at the conclusions made in the study reference had to be made to the background events and the literature reviewed.

The hedging strategies in most MNCs in Kenya were not reflected in their financial statements and therefore, the research had to limit the scope only to Total PLC. Despite these challenges, the researcher had to device solutions and made adequate provisions to reduce these challenges.

5.5 Suggestions for Further Research

Since studies on impact of hedging on financial performance has not been fully studied, the researcher recommends that further and extended research be carried out on other MNCs in Kenya in order to come up with more findings that this study may not have been able to reveal.

More so, this study did not include specific hedging strategies, as result further study is recommended to include hedging factors like swap, forward contracting and options and their influence on the financial performance in MNCs. A more detailed study can be conducted to establish whether hedging derivatives can reduce exposure to risk, reduce cash flow volatility and thus diminish the financial distress costs.

Lastly, the study recommends that future studies should use a large sample and a number of firms to confirm the effects of hedging on firm performance. This should be conducted using panel data approach.

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APPENDICES

APPENDIX I: DATA

	FIRM_GROWTH	FIRM_HEDGING	FIRM_LEVERAGE	FIRM_PERFORMANCE	FIRM_SIZE
2006Q4		486	0.3444638864586371	0.02185833895631183	105223
2007Q1	1873	291	0.3163671285498696	0.02784753960154413	112685
2007Q2	2535	287	0.3382875387867069	0.03070098383696416	113840
2007Q3	1628	434	0.3458517483798576	0.02762635846127307	115940
2007Q4	2777	460	0.3255142231947484	0.03257853991069305	113541
2008Q1	-117	651	0.287400983191293	0.03267103103880291	113342
2008Q2	2327	540	0.3007857026542908	0.04036297700759238	120779
2008Q3	6001	406	0.3155669665263889	0.02476461434477122	127238
2008Q4	3935	892	0.3241441441441442	-0.006559039810666893	118310
2009Q1	5549	934	0.3559261954068021	0.01894158590954659	122693
2009Q2	545	875	0.3757988595920554	0.01782435433822173	124717
2009Q3	1871	934	0.3785365467881927	0.0161071964507079	122616
2009Q4	5886	1025	0.3684603746801397	0.01649276337933356	127753
2010Q1	5959	1212	0.3330192235205428	0.01970146179255346	135929
2010Q2	8336	1812	0.3690647598401631	0.02162885485864096	146471
2010Q3	-1840	1760	0.3691480803135859	0.01998021350048083	144543
2010Q4	4178	1870	0.3391979892608248	0.01447974505629079	143718
2011Q1	-2039	1352	0.3186827045859411	0.02693939636538308	149892
2011Q2	6164	1756	0.3275820560147661	0.01868202685375268	150519
2011Q3	7445	2012	0.3357700316071723	0.02132077995706542	156983
2011Q4	11932	1976	0.6911470117742006	0.0145322434150772	164049
2012Q1	2558	1882	0.6563417335918028	0.02191012911113099	167685
2012Q2	7907	1886	0.6666394034815087	0.00944795128326857	170619
2012Q3	2981	1796	0.687648520198747	0.01806143305409218	173685
2012Q4	629	1626	0.6552774520507325	0.01407212985002532	171829
2013Q1	5474	1472	0.6718012455210165	0.00901954993127421	176062
2013Q2	2180	1306	0.6753728324478844	0.01515838302732041	169873
2013Q3	3109	1362	0.708117723156533	0.01655460263677772	170587
2013Q4	8021	1418	0.7179815778934721	0.0096489155505703466	173491
2014Q1	47304	1758	0.7190460971574672	0.01411303576124113	243392
2014Q2	6396	1973	0.7343526399035926	0.01257788318527153	248770

APPENDIX II - GRAPHICAL REPRESENTATION OF THE DATA

Firm Performance

Firm Size

Leverage

Hedging

Firm Growth