

**HEDGING MARKET RISK, MARKET IMPERFECTIONS, FIRM
CHARACTERISTICS AND FIRM VALUE:
A CRITICAL LITERATURE REVIEW**

**BY
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DECLARATION

This independent Study paper is my original work and has not been presented for a degree in any other University.

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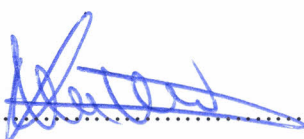
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LIST OF ABBREVIATIONS AND ACRONYMS

CPR	Commodity Price Risk
FCR	Foreign Currency Risk
GMM	General Method of Moments
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
IRR	Interest Rate Risk
MM	Modigliani and Miller
MNC	Multi-National Corporation
NPV	Net Present Value
NSE	Nairobi Securities Exchange
OLS	Ordinary Least Squares
R&D	Research and Development
SA	South Africa
UK	United Kingdom
US	Unites States
VAR	Value-at-risk
2SLS	Two Stage Least Squares

ABSTRACT

There has been growing academic and industry interest in hedging market risk as a result of globalization of economic activity that has led to rapid and continuous changes in the business environment. With the collapse of the Bretton woods fixed exchange rates in 1973, increasingly volatile interest rates and wider fluctuation in oil and other commodity prices, firms are facing unprecedented uncertainty in their operations. The uncertain environment is due to presence of market imperfections of taxes, transaction costs and information asymmetry. Therefore firms have increasingly become risk focused since adverse changes in market price risk even threaten the survival of otherwise successful firms. Firms evaluate their exposures and seek to mitigate it through hedging so as to safeguard their market value. While hedging could reduce the likelihood of adverse outcome so as to ensure a firm's future existence and profitability, it leads a firm to incur additional costs involved in setting it up which may offset the hedging benefit. Firm characteristics can either strengthen or weaken the relationship between hedging and firm value. This desk review of relevant theoretical and empirical literature explores the optimality of the relationship between hedging market risk and firm value. Empirical evidence tests on the relationship between hedging market risk and firm value has been constrained heavily due to lack of available data on hedging activities. The hedging premiums with respect to empirical review findings are mainly dependent on sample size adopted, firm characteristics incorporated and specific empirical methods used in analysis. From the review findings, a debate rages on among academics about the relationship between hedging market risk and firm value that manifests itself in the approaches adopted in addressing endogeneity problem as a result of diverse firm characteristics, operationalization of hedging and firm value concepts and multiplicity of empirical methods that consider the issues of causality. The differences in research methodology adopted explains some of the inconsistent conclusions notwithstanding that there is even lack of consensus among some studies that use identical or very similar research designs. The endogeneity potential problem due to variables such as industry, firm size, profitability and investment opportunity is admittedly a proxy that produces biased results. Research gaps emerging in the literature review include; adopting alternative proxy definition for hedging, test the possibility of a reverse causality between hedging and Tobin's Q, controlling potential endogeneity to provide robust results, employing panel data fixed-effects regression to control for any time constant unobserved firm characteristics, considering cross sectional variation to avoid any industry-specific bias factors and establishing the relationship between operational hedges and firm value. The review of literature recommend future research effort for bridging the knowledge gaps using alternative paradigms to address methodological issues of empirical studies, causality issues, fixed-effects and adopting instrumental variables to control for potential endogeneity issue.

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Hedging has become a critical dimension of corporate financial policy, particularly in the view of global financial and economic crises resulting from increased globalization and liberalization of international financial markets (Zhou & Wang, 2013). The rapid changes in the business environment and activities expose firms to market risk where market imperfections exist (Moles, 2013). The board of directors of a firm has the overall responsibility of managing the market risk inherent in a firm in order to achieve an appropriate balance between risk and return and therefore minimise potential adverse effects on firm performance. Firms evaluate the probability of occurrences of the markets risks and their likely financial performance impact. As per IFRS, 9, all the gains or losses arising from market risk are accounted for in an entity's statement of income.

According to the Delloite Global Risk Management Survey in 2012, the existence of the position of a chief risk officer has steadily grown in many firms. The percentage of firms with a chief risk officer was 89 per cent in the 2012, up from 65 per cent in 2002 and a slight increase over the 86 per cent reported in 2010. The exchange rate between the Kenya shilling and major hard currencies especially the US dollar has been quite volatile from Sh.75.84 in 2010 to Sh.102.30 in 2015 while the crude oil price rose dramatically in 2010 to \$100 per barrel but subsequently dropped to \$40 per barrel in 2015 (KNBS, 2015). The Capital Market Authority has licensed the Nairobi Securities Exchange to implement a futures market platform where firms can seek cushion against interest rate fluctuations, exchange rate volatility and commodity price changes. The trends show significant focus on market risk. Adverse changes in commodity prices and exchange rates may increase costs or reduce revenues that even threaten the survival of otherwise successful firms. Bartram (2002) argues that firms evaluate their exposures and seek to mitigate it through hedging.

The concept of hedging market risk and firm value has therefore become a popular subject of industry and academic discourse for some time now. Recent literature in corporate finance has fostered an improved understanding of why nonfinancial firms may hedge and many researchers are interested in whether hedging increases firm value. Hence, the following questions ought to be answered; Why do firms hedge? Does hedging add value?

1.1.1 Hedging Market Risk

Market risk is the exposure that the fair value or future cash flows of financial instruments will fluctuate due to changes in market variables such as interest rates, commodity prices and currency exchange rates (IFRS 9, 2015). Globalization has led to rapid and continuous change in the business environment and organization to become increasingly risk focused. Financial market exposure to an organization, may lead to a possibility of loss to a firm if it is not mitigated. Therefore firms have become more sensitive to movements in currency exchange rates, interest rates and commodity prices in addition to variability of expected cash flows. A change in firm's expected cash flows depends on the effect of changes in the variables affecting future sales volumes, prices and costs (Bartram, Brown & Conrad, 2011). Market risks therefore affect the firm's income and the value of its holdings of financial instruments (IFRS 9, 2015).

The firm risks arise through countless transactions of a financial nature, including sales and purchases, direct investments, working capital management, dividend and financing decisions (Moles, 2013). The risks can also arise as a result of legal transactions, new projects, mergers and acquisitions and debt financing. The firms activities lead to either transactional, translation or economic exposure (Cheol & Bruce, 2008). Transaction exposure occurs where the value of payables and receivables in a foreign currency will vary directly with changes in the foreign exchange rate. An accounting exposure arises from the translation of foreign currency items into the reporting currency while preparing the consolidated financial statements that create bookkeeping losses or gains that impact on the cash flows of a firm (Madura, 2012). Economic exposure relates to the sensitivity of the firm's cash flows to exchange rate movements which affect the value of the firm. Cheol and Bruce (2008) argued that the exposures assume the extent to which an unexpected change in a risk factor changes the value of firms future expected cash flows and ultimately a firm's profitability.

Currency exposure relates to unexpected exchange rate changes in the currency portfolio holding of a firm (Madura, 2012). It occurs from translation of transactions that are denominated in foreign currencies at the rates in effect on the date of each transaction. Organisations may also carry out transactions in foreign currencies or may have foreign operations. Firms with greater variation in cash flows or accounting earnings resulting from exposure to exchange rate risk have greater potential benefits of foreign currency hedging.

Interest rate exposure is the risk that the future profitability and/or cash flows of a firm will fluctuate because of changes in the market interest rates that can't be predicted with a degree of accuracy (Madura, 2012). A firm is exposed to interest rate risk as it borrows funds including short term loans (overdrafts) and also holding cash deposits with financial institutions. If a company has large amounts of floating-rate debt, it could be vulnerable to interest-rate rises. Alternatively, a company with large fixed-rate debt could have higher debt costs than necessary, if interest rates fall. Thus interest margin may increase as a result of changes in the prevailing levels of base borrowing rates (Cheol & Bruce, 2008). Firms employ interest rate derivatives to mitigate the interest rate risks (Chance & Brooks, 2009). Allayannis and Weston (2001) operationalized interest rate exposure by considering the ratio of principal notional amount of derivatives to firm size while Tufano (1996) used a dummy variable for interest rate derivatives to proxy for hedging if a firm hedges or not.

Commodity price risk is the exposure commonly faced by firms that are heavily sensitive to commodities price changes (Lookman, 2004). It includes risk on activities on grain, jet fuel, oil and gas, and precious metals such as gold. The possibility of adverse price changes in the future creates risk and therefore firms enter into a derivative contract in which a commodity is the underlying asset to reduce price risk. Lookman (2004) evidenced the importance of commodity price risk by classifying the risk as a primary risk because of its contribution to the total volatility of a firm's cash flows and argued that the increase in firm value caused by hedging should be significantly greater for hedging primary versus secondary risks.

The term 'hedging' implies the notion of protection or minimizing exposure to market risk by reducing market imperfections (Cvitanic & Zapatero, 2004). Hedging denotes the activities in which firms undertake to reduce their exposure to price, interest rate or exchange rate risk using asset/ liability management techniques such as use of debt, financial derivatives or operational activities (Zhou & Wang, 2013). The reduction of risks also involves activities such as payment of insurance premiums or incurring transaction costs in the employing derivative products. The additional cost burden leads managers to consider benefits to be derived from reducing or eliminating risk (Chance & Brooks, 2009). Therefore, firms sacrifice some potential profits in order to reduce the impact of adverse events. Hedging is effective if it reduces cash flow volatility which results in reduced frictional costs (Lookman, 2004). Allayannis et al. (2001) postulates that firm hedge transaction exposure with currency derivatives to increase firm value by reducing costs associated with market imperfections.

Modigliani and Miller (1958) argued that hedging is irrelevant to a firm because in a perfect market, investors are able to eliminate risk by holding well diversified investments. However, Allayannis and Weston (2001) suggested that hedging is a value-increasing strategy for most firms by introducing some friction such as taxes and costly financing. In the presence of market imperfections, hedging can be valuable as it allows firms to decrease taxes and the probability of entering into costly financial distress (Smith & Stulz, 1985). Firms can reduce the probability of incurring financial distress costs associated with bankruptcy by maintaining greater short-term liquidity (Nance, Smith, and Smithson, 1993). Hedging can also help to ensure that a firm will have enough internal cash flow and access to external capital to fund attractive investment opportunities, thereby alleviating the underinvestment problem (Froot, Scharfstein, and Stein, 1993). Firms can hedge against risk through operational hedging techniques, hedging using financial derivatives or taking insurance covers (Merton, 1993).

Operational hedging involves a strategy that hedges firm risk exposure by means of non-financial instruments. It relates to use of internal organizational strategies such as matching of cash inflows and outflows, intercompany netting of receipts and payments, leading and lagging mainly to manage currency exposure (Allayannis & Weston, 2001). Many companies have set operations in other countries that interlock the firms to transactional, translation and economic exposures. Firms can minimise volatility arising from market price risk by also adopting natural hedges such as holding cash balances in foreign currencies to hedge against any foreign currency denominated amounts payable. Firms can also issue foreign debt to protect themselves from interest and currency exposure. A firm with revenues denominated in foreign currencies can issue foreign debt, since this creates a stream of cash outflows in a foreign currency (Allayanis & Ofek, 2001). Firms also adopt operational hedging techniques through operating geographic and business segment diversification.

Firms can also hedge using financial derivatives. A financial derivative is an instrument that derives its value from the value of some other financial asset such as a commodity or a financial asset, such as a stock price, a commodity price, an exchange rate or an interest rate (Chance & Brooks, 2009). The financial derivatives include futures, options, forwards and swaps. Derivatives instruments are used by companies and individuals to transfer, for a price, any undesired risk to other parties, or speculate against financial risk and allow management of the risks with greater certainty and precision. Bartom (2002) argued that if a company uses derivatives for hedging purposes, the use of the derivatives may reduce cash flow volatility

and the volatility of corporate earnings, which in turn will increase the value of the firm. The need to hedge against market risks has led to growth in derivatives market and increased adoption of derivatives and other financial products by many firms (Moles, 2013). Nonfinancial firms use derivatives mostly for hedging but in past years, derivatives have been considered as off-balance sheet items. However, derivatives are now recorded as statement of financial position items at their fair value and any changes in their market values must be reported in the income statement (IFRS 9, 2015).

1.1.2 Market Imperfections

Market imperfections constitute market frictions that exist in a real world. Modigliani and Miller (1958) described a perfect world as one with no market frictions such as taxes, transaction costs such as agency costs and financial distress costs and has disclosure of all information. The imperfections lead to fluctuations of firms' future expected earnings cash flows which influence firms' value. Financial distress is the firms' inability to meet its financial obligations that can lead to bankruptcy (Opler & Titman, 1994). Costly financial distress reduces future expected earnings. Asymmetric information arises due to the fact that managers generally have better information about the future prospects of the firms than do outsiders investors (Meyers & Majluf 1984). Agency costs relate to underinvestment cost that occurs when firms have many growth opportunities and external financing is more expensive than internally generated funds (Bessembinder, 1991 and Froot, Scharfstein & Stein, 1993).

Firms evaluate their exposures and seek to mitigate the adverse effects of uncertainty that results due to market friction. Therefore, corporate risk management can lower the present value of bankruptcy and financial distress costs (Smith & Stulz, 1985). Froot et al. (1993) and DeMarzo and Duffie (1995) theorizes that firms with greater information asymmetry derive greater benefits if the firm hedges. Smith and Stulz (1985) argued that a risk-averse manager will undertake more hedging activities when their compensation is related to the volatility of corporate income. Leland (1998) suggests that tax shields associated with debt financing provide an incentive for risk management.

1.1.3 Firm Characteristics

Firm characteristics are firm specific features that influence the relationship between hedging and firm value (Allayannis and Ofek, 2001). Allayannis and Weston (2001) adopt Leverage, liquidity, investment opportunities, profitability and firm size as major firm characteristics

influencing the decision to hedge. Bartram et al. (2012); Carter et al. (2006) and Jin and Jorion (2006) pointed out that firms operating across borders and those in oil, airline and gas industries are more likely to hedge. Firms with high leverage and low profitability are more likely to encounter financial distress in the future. Aretz and Bartram (2010) argued that firm characteristics affect the robustness of results and lead to endogeneity if not controlled.

Froot et al. (1993) argued firms with greater variability of cash flows are more likely to experience financial distress and hence are more likely to hedge and hedgers are more likely to have larger investment opportunities. Geczy, Minton and Schrand (1997) conclude that firms with greater growth opportunities, have extensive foreign exchange rate exposure and economies of scale in hedging activities are more likely to use currency derivatives. Further, argue that smaller firms might have a greater incentive to hedge to reduce the probability of encountering financial distress, which is more costly for them as opposed to larger firms which are thus more likely to hedge. Leland (1998) posits that firms with greater debt capacity are associated with increased interest deductions that reduce tax liabilities.

1.1.4 Firm Value

Firm value is based on the present value of expected future earnings cash flows of a firm (Damodaran, 2002). Firms' strives to stabilize earnings and its continued growth ability by taking advantage of various investment opportunities that lead to less variability of cash flows and hence less sensitivity in equity value movements. The future expected cash flows are however uncertain. Modigliani and Miller (1958) proposed that when capital markets are perfect, the total value of a firm is equal to the market value of the total cash flows generated by its assets. Therefore to maximize value, a firm seeks to minimise potential adverse effects of future expected cash flow volatility due to market imperfections (Lookman, 2004).

When market risk exist, it can increase costs or reduce revenues that adversely impact on the expected future cash flows and hence the firms value Bartram et al. (2011). Increased risks are also likely to significantly jeopardise firms' profitability and even survival. Smith and Stulz (1985) argued that shareholders hire managers because they have specialized resources that increase the value of the firm. Bartram (2002) indicated that hedging risk increases firm value by reducing expected taxes, expected costs of financial distress and other agency costs. Allayannis and Weston (2001) proxy firm value using market-to-book ratio while Jin and Jorion (2006) employ Tobins Q ratio.

1.2. Research Problem

Firms strive to increase shareholder value that is based on the present value of its future expected cash flows (Damodaran, 2002). However, market risk increases the uncertainty of future expected cash flows. The risks arise through cross-currency cash flows of foreign sales and purchases, direct investments, dividend decisions, working capital management and financing transactions. Modigliani and Miller (1958) argued that in a perfect market, the value of a firm is independent of its risk structure because rational investors are assumed to diversify their own portfolio. However, in presence of markets imperfections, hedging can increase the firm value through reducing the firm's taxes, costs of financial distress and underinvestment problem. Adverse changes in commodity prices, interest rates and exchange rates may even threaten the survival of otherwise successful firms. Firms evaluate their exposures and seek to mitigate it through hedging so as to increase their net cashflow and market value (Bartram, 2002). Hedging is desirable if its benefits outweigh the costs involved in setting it up so as to ensure companies' future profitability and existence. Firms intensify hedging risks by employing extensive operational hedging and financial derivatives.

The empirical evidence based on the contextual differences on the nature of relationship between hedging currency risk, interest rate and commodity risk and firm value in different industries reveals mixed results. Whereas Jin and Jorion (2006), and Allayannis and Weston (2001) indicate that hedging is value-destructive, Carter et al. (2006), and Bartram et al. (2011) among other studies reveal that the use of hedging is a beneficial and a value-enhancing exercise. In the airline industry, a positive relation between hedging and firm value was evident while in the oil and gas exploration industry, it was found that hedging does not lead to higher firm value. Further, non-financial gas utilities and gold mining firms present evidence of conflicting nature of relationship. Firm characteristics can either strengthen or weaken the relationship between hedging and firm value. Hedging firms appear to be larger, have greater growth opportunities and information asymmetry, are slightly more profitable, more leveraged, more geographically diversified and have higher foreign sales than non-hedging. The majority of empirical studies focused on more developed nations over different time frame of study and samples sizes in their analysis.

Globally, a positive a relationship was notable for empirical studies by Ayturk, Gurbuz, and Yanik (2016), Bartram, Brown, and Conrad (2011), Aretz and Bartram (2010), Cyree and Huang (2004), and Allayannis and Weston (2001). However, studies by Fauver and Naranjo

(2010) and Jin and Jorion (2006) provide support for a negative relationship between hedging and the firm value. Allayannis et al. (2012), Tufano (1996) found evidence consistent with managerial incentives that managers holding more stocks undertake hedging while Geczy, Minton and Schrand (1997) and Haushalter (2000) do not find any evidence that share holdings affect hedging. Jin and Jorion (2006) in a study of 119 US oil and gas producers found that hedging has a negative effect on firm value while Carter et al. (2006) in their study of 28 US airlines found that firm value is positively related to hedging future jet fuel. The empirical studies present diverse nature of the relationship between hedging and firm value based on the multiplicity of empirical methods that consider the issues of causality and operationalization of hedging concepts and firm value.

In Kenya, notable studies on hedging and firm value by Nasurutia (2013) and Chanzu and Gekara (2014) employed small samples. Nasurutia (2013) established the effectiveness of derivatives in managing foreign exchange exposure among 10 commercial banks and found a negative relationship with foreign exchange exposure. However, this study considered banks that are market players and use derivatives for speculation. Chanzu and Gekara (2014) investigated the effects of use of derivatives on financial performance of 10 listed firms at the NSE and found that price discovery in derivatives contributes positively to financial performance of companies listed at the NSE. In Nigeria, Tijani & Mathias (2013) studied the extent of use of derivative products for risk management by 78 non-financial firms. The study revealed a very low usage of derivatives but failed to indicate whether use of derivatives minimizes variation in firms' market value. In South Africa, Walker et al. (2014) determined the impact of hedging with derivatives on 44 listed non-financial companies but did not find support in favour of hedging as a value increasing activity. There is need for a study that incorporates mediating market imperfections instrumental variables and controls potential endogeneity of firm characteristics such as industry, firm size, profitability and investment opportunity and time period of study so as to provide robust results. This study therefore attempts to resolve the question: What is the nature of relationship between hedging market risk and the firm value?

1.3. Research Objectives

The main objective of this study was to review theoretical and empirical literature on the nature of relationship between hedging market risk and the firm value and identify research gaps thereon.

The study sought specifically to address the nature of relationship between hedging market risk and firm value and:

- i. To carry out a critical review of the nature of relationship.
- ii. To determine the mediating effect of market imperfections.
- iii. To determine the moderating effect of firm characteristics.

1.4. Value of the Study

The study contributes additional insight to existing body of knowledge in academic discourse and provides insight on how hedging affect firm value. It also gauges adequacy of existing theory and identifies unresolved issues that serve as guide to future research.

The report also provides arguments to policy makers on whether hedging creates or destroys firm value in their attempt to protect earnings and cash-flows from the adverse price, interest-rate and exchange-rate fluctuations. This study will be resourceful since it could be used as a basis of review of the existing policies.

This study allows non-financial firms to critically evaluate their practice of hedging market risk and the extent to which it is effective towards firm performance. Insights will be gained on the importance of adopting financial derivatives and operational hedging in quality decision making and thus organizations design innovative value-adding hedging programs.

1.5. Organization of the Study

The study is organized into four chapters. Chapter one presents the introduction of the study and contains the background of the study; explains what the research problem is; objectives of the study and how the study is organized. Chapter two reviews theories of corporate hedging of capital structure irrelevance, financial distress deadweight costs, tax incentives, underinvestment problem, managerial risk aversion and information asymmetry in order to inform expected relationships among the study variables.

Chapter three presents an analytical review of empirical discourse on the impact of hedging on management of risk, the nature of the relationship between market risk hedging and firm value and a summary of research gaps identified thereon. Chapter four presents a summary of the findings, conclusions, recommendations and suggestions for further research.

CHAPTER TWO

THEORETICAL LITERATURE REVIEW

2.1 Introduction

This chapter presents theories of corporate hedging of capital structure irrelevance, information asymmetry hypothesis, financial distress costs, tax incentives, underinvestment problem and managerial risk aversion.

2.2 Capital Structure Irrelevance Theory

The proponents of capital structure irrelevance theory, Modigliani and Miller (1958, 1961) argued that corporate hedging does not add value to the firm when there are no market imperfections such as asymmetric information, taxes or transaction costs. Investors can achieve risk reduction at least as efficiently through diversification. Value is created by making profitable investments that generates the total cash flows that determines the value of a firm. If capital markets are perfect, shareholders have all the necessary information about a firm's risk exposures to create their desired risk profiles and well-diversified portfolio; therefore, it is irrelevant to the firm to hedge in this condition.

Smith and Stulz (1985); and Myers and Majluf (1984) criticized the irrelevance theory because it considered a market with no imperfections that does not exist in the real world. Thus the conclusion that investors can achieve risk reduction at least as efficiently through diversification may not hold because investors don't have all the necessary information about a firm's systematic risk exposures. The theory is however valuable to this study as it provides the framework on which hedging is premised; that if no market imperfection exists, then there would be no need to hedge. In order to achieve risk reduction, firms engages in hedging to reduce cash flow volatility and this increase firm value. The theory therefore provides the basis to consider a real world that incorporates market imperfections.

2.3 Information Asymmetry Hypothesis

Breeden and Viswanathan (1998) and DeMarzo and Duffie (1995) put forward a managerial theory of hedging based on asymmetric information. Information asymmetry between principals and agents leads to agency problems when managers have more information about the firm's activities than shareholders. Jensen and Meckling (1976) hold that an agent is more likely to act in the interest of the principal if the principal can verify the agent's actions. High

institution ownership firms should enhance information availability and thus reduce the incentive by a firm to hedge. Even though shareholders can hedge on their own, corporate hedging is an equilibrium strategy when managers have private information on their firm's expected payoff. DeMarzo and Duffie (1995) argued that hedging gives uninformed equity holders reduced noise in their information sets concerning the variability of a firm payoff. Firms with greater information asymmetry derive greater benefits if the firm hedges.

Breeden and Viswanathan (1998) argued that higher ability managers hedge to mitigate the effect of hedgeable risks on firm performance and signal their capability by undertaking hedging. Lower ability managers, who do not hedge signal their managerial capability when they consider a risk management program costly. The premise of their argument is that firm performance depends on managerial ability and other contingencies that are not directly controllable by management such as currency fluctuations. Non-controlling shareholders cannot separate managerial ability from external contingencies and therefore quality managers are more likely to hedge when information asymmetry is high.

Haushalter (2000) and Minton and Schrand (1997) critique the theory in that it assumes that majority of financial managers believe that they are able to "beat the market" and which dismisses the vital concept of market efficiency. It is also unlikely that managers would view derivatives as a primary tool for managing information asymmetry. The theory is however, valuable to this study as it supports the mediating variable of market imperfection of information asymmetry on the influence of hedging on firm value. The reduction of market imperfections resulting from information asymmetry minimises the noise in the information sets and at the same time signals qualified and competent managers. Thus, managers hedge to mitigate the effect of risks on firm performance, value and signal their capability.

2.4 Financial Distress Costs Hypothesis

Mayers and Smith (1982) profound the financial distress deadweight cost hypothesis and argued that introduction of transaction costs of financial distress can induce firms to hedge financial price risks since the probability of incurring the costs is reduced. Therefore, hedging can increase firm value.

Financial distress is the inability of a firm to meet its current financial obligations as they mature due to insufficient cash flow (Opler & Titman, 1994). When a firm experiences

financial distress, it faces a conflict of either cash shortage on its assets or debt overhang on its liabilities. Financial distress attracts direct fees for professional assessment and other charges incurred by the renegotiation of debt. It also attracts indirect costs that relate to lost opportunities of lost sales, decreased productivity, and losses of market positions which the company misses as a result of a deteriorating solvency position (Altman, 1983).

Mayers and Smith (1982), Smith and Stulz (1985), and Nance, Smith, and Smithson (1993) argued that hedging can increase firm value, whenever there are expected costs of financial distress. The future cash flows of the firm are subject to uncertainty and in situation when cash flows are low, a firm could fail to meet fully and timely its fixed payment obligations. Thus it is more likely to experience financial distress for firms with greater variability of cash flows. Hedging can increase firm value by reducing cash flow volatility and the probability of distress. Smith and Stulz (1985) argued that the transaction costs of financial distress can induce firms to hedge financial price risks since the probability of incurring the costs is reduced. The possibility of a bankruptcy is larger when firms have more fixed claims, and as such firms with higher debt ratios are more likely to hedge. A higher volatility of a firm's income stream results in a higher possibility of financial distress and hence a greater advantage to hedge.

The hypothesis has been criticised on the fact that there is no clear prediction whether or not smaller firms should hedge more or less than larger firms (Nance et al., 1993 & Bartram et al., 2009). Thus, the theory fails to provide evidence on whether costs of financial distress and economies of scale explain hedging activities. The hypothesis also only pays little attention to the issue of agency conflicts. The hypothesis is however, applicable to this study based on the fact that whenever there are expected costs of financial distress, the future cash flows of the firm are subject to uncertainty. Hedging reduces the cash flow volatility resulting from financial distress direct and indirect costs to increase the firm value. The hypothesis also conjectures the link between leverage fixed claims that accelerates the possibility of a bankruptcy and thus justifies the need to hedge to minimize cash flow variability. Further, financial distress costs is a transaction cost that creates friction in a capital market that necessitates a firm to undertake hedging to increase firm value since individual investors can't create riskless portfolios. Therefore the theory provides link for both mediator variable of financial distress cost and moderating variable of leverage on the effect of hedging on firm value.

2.5 Underinvestment Problem Hypothesis

Bessembinder (1991) and Froot, Scharfstein, and Stein (1993) originated the underinvestment problem hypothesis. Underinvestment occurs when firms have many growth opportunities and external financing is more expensive than internally generated funds. Myers (1977) and Myers and Majluf (1984) argued that fixed claims in the capital structure provide equity holders with incentives to forgo positive net present value projects if the gains accrue primarily to fixed claimholders. Consequently firms have incentives to underinvest in some positive NPV projects to transfer wealth from bondholders. Bessembinder (1991) and Froot et al. (1993) argued that the costs of underinvestment will be greater for those firms with more growth options in their investment opportunity set and lose more value if these projects are forgone. Hedging reduces the probability that the firm will default on its debt payments and increase stockholders' expected cash flows on undertaking a positive NPV projects.

Bessembinder (1991) assumes that a firm simultaneously determines its hedging and debt policies before selecting the optimal level of investment. Froot et al. (1993) argued that a firm's hedging activity can mitigate the underinvestment problem that results from variation in cash flow and thus increase firm value. Firms can use internal and/or external funds to finance investment projects. Froot et al. (1993) assumed that financing costs increase with the level of external financing and that the marginal benefit of investment declines with the level of investment. Volatility is costly because if internal funds are relatively scarce in some states of nature, positive NPV projects may be rejected if the marginal cost of external funds exceeds the marginal benefit. Hedging allows a firm to shift internal funds into states where they would otherwise be scarce and permits financing valuable investment project.

Lookman (2004) criticized the hypothesis since it does not indicate the time period that one should structure hedging activities and assumes that all the risks are marketable and thus can be hedged. The hypothesis is however applicable to this study since hedging can alleviate the underinvestment problem by increasing the number of states in which ordinary shareholders are residual owners. This could be achieved by shifting cash from investments with sufficient cash flows to where the firm's financial commitments are insufficient. Hedging permits the company to finance valuable investment projects and increase firm value. The underinvestment costs variable is therefore supported by this theory.

2.6 Managerial Risk Aversion Hypothesis

Smith and Stulz (1985) postulated the manager risk aversion hypothesis and conjectured that hedging can help align the interests of the agent and the principal. The hypothesis further 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 is concentrated in the firm they manage. If a manager is compensated in the form of stock to align his incentives with that of the shareholders, Smith and Stulz (1985) argue that a risk-averse manager will undertake more hedging activities to decrease the volatility of own portfolio thus maximize their personal utility functions. If managers have concave utility functions and the variability of their compensation is related to the volatility of corporate income or cash flows, then volatility can be costly and managers will often prefer to hedge because of their own risk aversion (Stulz, 1984; and Smith & Stulz, 1985).

If managers cannot effectively hedge corporate volatility in their personal accounts or if it is cheaper for the firm to hedge than it is for managers, then corporate hedging can improve managerial welfare. It can be optimal for a firm to hedge for the benefit of managers if doing so reduces the risk premium managers' demand and likewise reduces their required compensation. If managerial compensation depends on the stock price, then the level of stock price or the stock price volatility will affect their compensation plan. Therefore, managers have incentives to hedge to reduce earnings volatility if their compensation depends on the level of stock prices. Tufano (1996) and Graham and Rogers (2002) found that managers who hold more stock tend to hedge more. Consequently, Smith and Stulz (1985) predicted a positive relation between managerial wealth invested and hedging.

A critique of this hypothesis by Allayannis and Ofek (2001) is that it relies on the assumption that managers face significant costs when trading in hedging contracts for their own account otherwise they would be able to adjust the risks they face without having to involve the firm directly in any hedging activities. The theory is however applicable to this study because if the interests of the managers and their principal are aligned, the managers would be motivated to hedge so as to reduce the variability of their earnings in form of compensations tied to the firm. If hedging can improve managerial welfare, then by managers undertaking hedging the firm could likewise benefit and thus hedging would increase the firm value.

2.7 Tax Incentives Hypothesis

Smith and Stulz (1985) postulated the tax incentive hypothesis and argued that imperfect capital markets that results from presence of taxes creates opportunity for corporate hedging that can add value to the firm. If the structure of taxes of a firm is a progressive effective marginal tax rate, it may prompt firms to undertake hedging activities. The income tax rate increases with the level of taxable income. Tax loss carrybacks and forwards decrease the tax liability because profits in one year can be offset by losses in another year. When firms face a convex tax function, hedging reduces the volatility of a firm's taxable income and hence reduces expected tax liability (Smith & Stulz, 1985). In turn, the lower expected tax payments increase the present value of the firm.

Leland (1998) theorized that firms increase leverage in response to greater debt capacity, the associated increase the tax deductibility of greater interest payments thus reduces tax liabilities and increases firm value by reducing the volatility of income and/or reducing the probability of financial distress. Nance, Smith and Smithson (1993) tested the determinants of real hedging activity and proposed that firms with more convex tax schedules hedge more. Larger firms unlike small firms are expected to gain more from hedging because transaction costs usually exhibit economies of scale and in setting up a risk management program and contracting capable employees. In this case, larger firms can be expected to hedge.

The hypothesis has been criticized by Graham and Rogers (2002); Tufano (1996); Geczy et al. (1997) who found no evidence that firms hedge to reduce expected tax liability. It does not predict a clear relationship between firm size and hedging. The tax incentive to hedge is small relative to other hedging incentives and that firms reduce income volatility by other means other than using derivatives. However, this theory is applicable to the study because if the objective of a particular firm is to minimise taxes, then it should focus on minimising the volatility of taxable income that could be achieved through hedging to maximize firm value.

2.8 Chapter Summary

The chapter has presented a detailed review of theories anchoring this study. The theories presented include capital structure irrelevance, financial distress costs, tax incentives, underinvestment problem, managerial risk aversion and information asymmetry hypothesis. The objective of the theoretical review was to provide an understanding of the theories anchoring this study. The next chapter presents the empirical literature review.

CHAPTER THREE

EMPIRICAL LITERATURE REVIEW

3.1 Introduction

This chapter presents an analytical review of empirical discourse on the nature of the relationship between market risk hedging and firm value and a summary of research gaps identified thereon.

3.2 Market Risk Hedging and Firm Value

There is mixed empirical evidence on the nature of the relationship between commodity risk exposure, interest risk exposure and foreign currency risk exposure and firm value. Jin and Jorion (2006) argued that the hedging premium depends on the types of risks to which the firm is exposed. Bartram et al. (2011) reported insignificant effect of currency hedging on firm value but a higher Q ratio for firms that engage in interest rate hedging.

Ayturk, Gurbuz, and Yanik (2016) examined the effect on firm value of use of financial derivatives by non-financial Turkish firms for period of 2007-2013. The study employed a system GMM estimator to control for endogeneity and concluded a positive relationship between derivatives use and firm value. The study failed to consider effects of operational hedging and information asymmetry imperfections that could be explored in future research.

Jankengard (2015) investigated the effect of foreign exchange exposure on firm value for 257 listed Swedish firms using regression analysis. The study found evidence consistent with the hypothesis that derivatives usage is more value creating in firms with centralized currency exposure management than in firms with a decentralized approach. The study failed to control for industry endogeneity concerns and the results may have exhibited industry bias.

Chanzu and Gekara (2014) investigated the effect of use of derivatives on financial performance of companies listed at the NSE. The study targeted 11 companies listed at the NSE and employed a questionnaire to collect data from finance officers of the firms listed and NSE officers. The findings indicated derivatives contributed positively to the financial performance of companies listed on the NSE. The study employed a small sample that could limit generalization of results. The use of a questionnaire could have resulted in response error and hence it provides an area to pursue in further research by applying secondary data.

Ahmed, Azevedo, and Guney (2013) examined the effect of hedging using different financial derivatives on firm value for 288 nonfinancial UK firms listed at the London Stock Exchange (LSE) over the time period of 2005-2012. The study considered futures, forwards, options and swaps as the derivatives used for hedging and specified the type of risk hedged. Their findings revealed mixed results for the association between FCR, CPR and IRR hedging and firm value. Further research can explore the precise effect of using different financial derivatives hedging on firm value.

Bartram, Brown, and Conrad (2011) investigated the effect of derivatives on risk and firm value using a sample of 6,888 firms in 47 countries for the period 2000 and 2001. The firms in the sample accounted for 60.6% of overall global market capitalization or 76.8% of global market capitalization of nonfinancial firms. The study found that derivatives users do have higher average Q ratios than non-users but the effect on firm value is small. However, the study found relatively little evidence that the effect of derivatives vary across firm risk and value. Hedging decisions could further be considered simultaneously with risk aversion incentives and information asymmetry.

Bartram, Brown, and Fehle (2009) presented international evidence on the use of financial derivatives for a sample of 7,292 non-financial firms for the year 1999 to 2001 from 48 countries that represented 99.3% of global market capitalization. The study established that the use of interest rate derivatives was associated with higher firm value across a large set of both U.S. and international firms. The study however, failed to explain whether there existed opportunities to increase value with interest rate derivatives only rather than use of foreign exchange currency and commodity price derivatives that could be resolved in future research.

Kim, Mathur and Nam (2006) studied the use of both operational hedging and derivatives in foreign exchange risk management of U.S. firms. Their findings supported the hypothesis that the two hedging methods complement, rather than substitute each other. This is consistent with Allayannis, Ihrig & Weston (2001) findings who examined the relation between financial and operational hedges using a sample of 265 U.S. non-financial multinational corporations between 1996 and 1998. However the study found that operational hedging was not an effective substitute for financial risk management. In addition, they showed that while firms operational hedges were not associated with higher value, the use of operational hedges, in conjunction with foreign currency derivatives improves firm value.

3.3 Hedging Market Risk, Market Imperfections and Firm Value

When market imperfections exist, it leads to fluctuations of firms future expected earnings cash flows which determine firms value. Choi, Mao and Upadhyay (2013) examined the hedging activities of US pharmaceutical firms that are subject to a high level of information asymmetry during 2001–2006 using multivariate regression. The study found that the use of derivatives is associated with greater firm value and that the value enhancement is larger for firms subject to greater information asymmetry. Tufano (1996) found that the motivation for managers to use commodity derivatives was manager's risk aversion, which hardly adds value to a firm. The studies did not consider cross-industry effect of hedging on firm value.

Allayannis, Lel, and Miller (2012) concentrated on monitoring shareholders pressure on managers and its impact on firm value implication of derivatives use. They found that the use of derivatives increased firm value in well-governed firms in support of managerial risk aversion. Nguyen and Faff (2011) investigated the nature of relationship between the use of derivatives and firm value in the Australian setting. Although prior studies have suggested that the use of derivatives is value enhancing by taking advantage of market frictions, their study found that the use of derivatives are negatively related to firm value. Their evidence suggested that Australian investors, possibly due to information asymmetry, were unable to make an informed judgement of whether firms use derivatives for hedging purposes.

Graham and Rogers (2002) found no evidence that firms hedge in response to tax convexity but firms hedge to increase debt capacity that increases tax benefits. Haushalter (2000) found that find that hedging increases with the debt ratio and higher leverage increases the probability of distress and is an incentive to hedge. The studies failed to indicate clearly the direction of hedging/leverage causality in attempt to balance financial distress costs.

Allayannis and Ofek (2001) examined a sample of S&P 500 nonfinancial manufacturing firms on whether firms use currency derivatives for hedging or speculative purpose. They found evidence that firms use derivatives for hedging and the use of currency derivatives for hedging is significantly associated with firms which have higher foreign sales, foreign trades and increasing trend of R&D expenditures consistent with the underinvestment hypothesis. However, the study included a sample of the US manufacturing firm with assets above 100 USD million only and used individual exchange rates instead of an exchange-rate index.

Visvanathan (1998) examined the use of interest rate swaps by S&P 500 nonfinancial firms and found evidence supporting theories of transaction cost of financial distress. The study concluded that the use of interest rate derivatives could be related to strategies meant to increase value and that financial distress costs and not the interest rate sensitivity of operating cash flows that induces large firms to use swaps to alter their interest payments from fixed- to floating-rate debt. Further study can be undertaken since researches in financial decision including hedging have the reverse causality concern and these decisions are firm-choice and the special characteristics of these firms might bias the result of empirical tests.

Bodnar, Hayt and Marston (1998) surveyed derivatives usage by 399 U.S. non-financial firms. Among derivative users, 83% used derivatives to hedge foreign exchange risk, 76% use derivatives to hedge interest rate risk and 56% use derivatives to hedge commodity price risk. The study employed questionnaires that could suffer respondent bias and further research based on secondary data could assist to validate the findings.

3.4 Hedging Market Risk, Firm Characteristics and Firm Value

The extent of hedging depends on firm characteristics as well as the alternative methods of managing risk (Choi, Mao & Upadhyay, 2013). Some firm characteristics can affect both firm value and derivatives use (Allayannis et al., 2012). However Allayannis and Ofek (2001) argued that firm characteristics can either strengthen or weaken the relationship between hedging and firm value. Bartram et al. (2011); Carter et al. (2006) and Jin and Jorion (2006) concluded that firms operating across borders and those in oil, airline and gas industries are more likely to hedge.

Walker, Kruger, Migiro and Sulaiman (2014) determined the impact of hedging with derivatives on company value of 44 listed non-financial companies in South Africa (SA) from 2006 to 2009 and compared with companies in the USA in terms of how the use of derivatives impact on the company value. The findings in South Africa indicated that hedging companies appear to be larger, slightly more profitable, more leveraged, pay more dividends, more geographically diversified and have higher foreign sales than non-hedging companies. The study did not find support in favour of hedging as a value increasing activity. The sample of 44 non-users was small relative to other studies like Allayannis and Weston (2001). The study did not also focus on the managements' decision to hedge and other hedging techniques such as operational hedging that can be pursued in further research.

Hagelin (2004) examined 101 Swedish firms use of currency derivatives on the association between firm characteristics and hedging. The study used survey data which enables to differentiate between hedging aimed at translation exposure and transaction exposure. The survey responses showed that more than 50% of the firms employed financial hedges and that transaction exposure is more frequently hedged than translation exposure. However this study relied on survey data for only one year and further research can be undertaken using data covering a longer period to enable achieve robust results.

Geczy, Minton and Schrand (1997) investigated the use currency derivatives for 372 of the Fortune 500 nonfinancial firms in 1990 using logit regression estimates of the likelihood of using currency derivatives. The study found that firms with greater growth opportunities are more likely to use currency derivatives and that the use of derivatives increases the value of the firm. The study failed in estimation of a possible reverse causality between hedging and Tobin's Q hence provides an area for further research.

Pantzalis, Simkins and Laux (2001) examined the impact of operational hedges of 220 US multinational corporations on their exchange rate exposure. The study found that the firm's ability to construct operational hedges, measured by variables describing the operations of breadth and depth of the MNC network impacts the firm's exchange rate risk exposure. The study further found that multinational corporations with greater breadth are less exposed to currency risk whereas firms with more highly concentrated networks are more exposed. The study failed to effectively control for financial hedges.

Jin and Jorion (2006) argued that firms in certain industries may be more likely to hedge if exposed to more readily identified, larger, or more easily hedged types of risk. Jensen (1986) suggests that there is adverse effect of industry diversification to firm value because of the agency problems between management and shareholders. Chowdhry and Howe (1999) in a model claimed that operational hedging emerged only if a firm faced a combination of exchange rate and demand uncertainty and predicted that firms were likely to use financial instruments to a greater extent to hedge short-term exposure and rely on operational hedging more heavily to hedge long term exposure. The studies failed to control for firm size in their cross-sectional regressions that may cause a correlated omitted variable problem of misstating the significance of the other variables in the regression.

Table 1: Summary of gaps identified in Hedging Market Risk, Market Imperfections Firm Characteristics and Firm Value Relationship Literature

Researcher & Focus of Study	Research findings	Research gaps
Ayturk, Gurbuz, and Yanik (2016) examined the effect of derivatives on firm value by non-financial Turkish firms for period of 2007-2013.	The study employed a system GMM estimator to control for endogeneity and concluded a positive relationship between derivatives use and firm value.	The study failed to consider effects of operational hedging and natural hedging due to data unavailability that could be explored in future research.
Jankengard (2015) investigated the effect of foreign exchange exposure on firm value for 257 listed Swedish firms.	The study found that derivatives usage is more value creating in firms with centralized currency exposure management than in firms with a decentralized approach.	The study considers hedging to be systematically associated with the use of derivatives, disregarding the fact that hedging can be pursued by other avenues such as operational hedging that can be explored in future
Chanu and Gekara (2014) investigated the effect of derivatives use on performance of 11 listed firms NSE.	The study indicated that derivatives contribute positively to the financial performance of companies listed in NSE.	The sample employed by the study was too small to enable generalization and use of the questionnaire lead to response error and provide an area to pursue in further research.
Tijani & Mathias (2013) studied the extent of use of derivative products for risk management by non-financial firms in Nigeria and identify the factors that most influence their use.	The study revealed a low usage of derivatives and a relative majority of respondents focus their risk management on minimizing liability associated with cash flows and minimizing variability in accounting earnings.	The survey study failed to indicate whether use of derivatives minimize variation in firms' market value. A further research using secondary data to eliminate respondent bias could assist to establish the effect of firm value on use of derivatives.

Researcher & Focus of Study	Research findings	Research gaps
Zhou and Wang (2013) assessed the effect of use of derivatives on exchange risk for 148 UK firms using the trade-weighted index for the year.	The study found evidence that UK nonfinancial firms use currency derivatives to hedge exchange rate risk, and that such hedging is effective in lowering exchange exposure.	Only 9.46% of the firms exhibited statistically significant exchange rate exposure coefficient and due to this low coefficients a further research can consider a bilateral exchange rate over a longer period of time.
Allayannis, Lel, and Miller (2012) concentrated on monitoring pressure on managers from shareholders and the derivatives impact on firm value	They study reported a strong evidence on the use of derivatives for firms that had strong internal firm or external country-level governance association with a value premium	There was no sufficient empirical evidence on the question what exposures companies' hedge: firm value, cash flows accounting earnings or market imperfections and thus there is need to explore it in further research.
Bartram, Brown, and Conrad (2011) investigated the effects of derivatives on firm value using a sample of 6,888 firms in 47 countries for the period 2000 and 2001	The study found that derivatives users do have higher average Q ratios than non-users and that the effect on firm value is small. Hence it is evident that firms overall employ derivatives to reduce risk	Hedging decisions could also be considered simultaneously with managerial risk aversion and governance decisions. Classifying a firm has either a derivative user or non-user frequently used raises major concerns of endogeneity issues that could be also addressed in further research.
Fauver and Naranjo (2010) investigated the usage of derivatives of 1700 U.S. firms from 1991 to 2000	The study found that in the presence of agency costs and monitoring problems, the usage of derivatives has an adverse effect on firm value.	However, no partition of the sample on the basis of size or type of derivative or exposure hedged was done hence providing an area of further research.
Jin and Jorion (2006) investigated the hedging activities of 119 U.S. oil and gas producers from 1998 to 2001 and evaluate the effect on firm value	The study verified that hedging reduces the firm's stock price sensitivity to oil and gas prices. However the study found that hedging does not seem to affect market values for oil	The study employed a fixed effects model and assumes that foreign exchange exposure is constant over time. Since firm's circumstances change over time, its currency risk exposure is also expected to vary over time

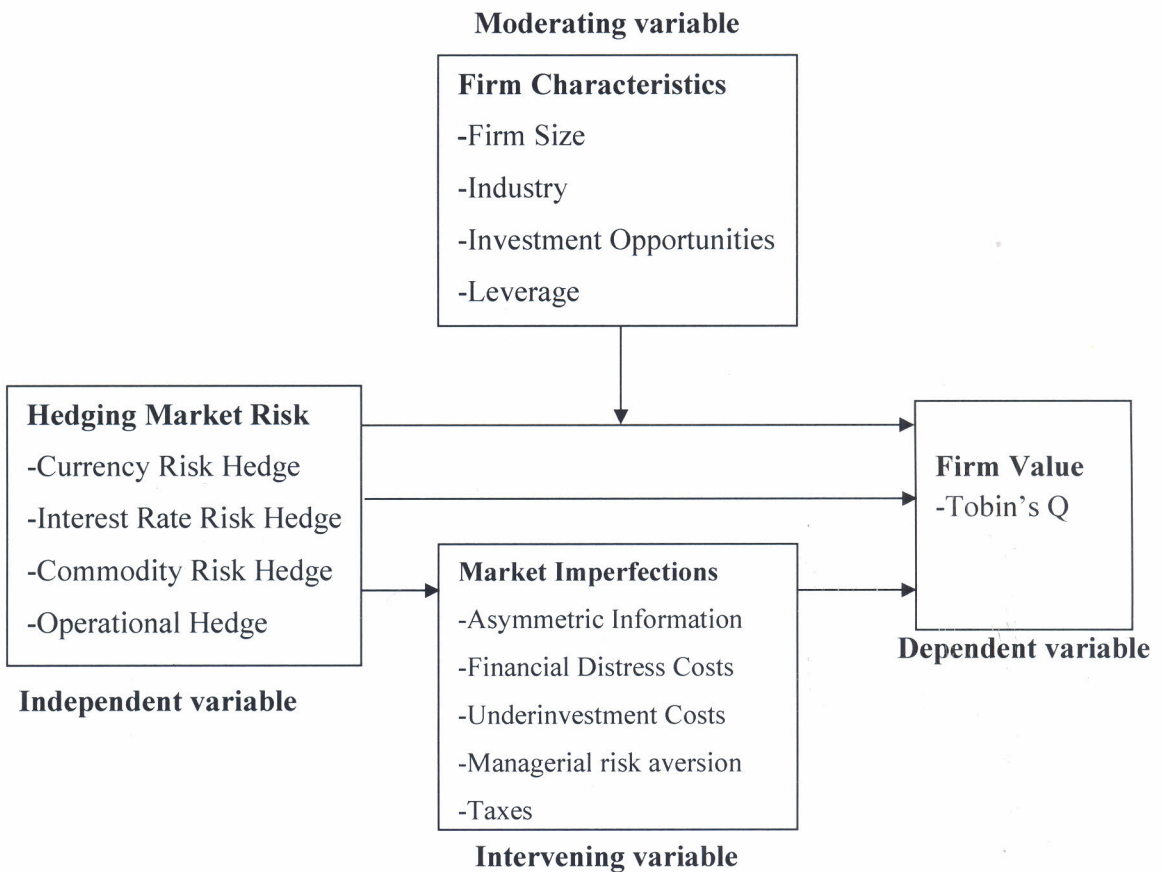
Researcher & Focus of Study	Research findings	Research gaps
Hagelin (2004) examined 101 Swedish firms use of currency derivatives and its association with firm characteristics and hedging	The survey responses showed that more than 50% of the firms employ financial hedges and that transaction exposure is more frequently hedged than translation exposure.	The study used survey data for only one year and further research can be undertaken using secondary data covering a longer period to establish whether recorded relationships hold over time.
Allayannis and Weston (2001) The study examined the effect of currency derivatives usage on relative market value	The study employed pooled and fixed-effects regressions of the use of derivatives on firm value and concluded that hedging is associated with higher firm value.	If firms with large values of Tobin's Q have many profitable investment opportunities, then the firms may have an added incentive to hedge and thus there is a need to test for the reverse causality of value and hedging
Allayannis and Ofek (2001) examined a sample of S&P 500 nonfinancial firms on whether firms use currency derivatives for hedging or speculation using regression	The study found evidence that firms use derivatives for hedging since it significantly reduces the exchange rate exposure and that the level of derivatives use depends only on a firm's exposure through foreign sales.	The exchange rate exposure is simultaneously determined by a firm's real operation proxied by foreign sales and its financial hedging which are positively correlated and their control in further research is necessary to minimize endogeneity bias.
Geczy, Minton and Schrand (1997) examined the use of currency derivatives in order to differentiate among existing theories of hedging	The result found that high Tobin's Q firms reflects higher investment opportunity consistent with the underinvestment costs hypothesis and hence more incentives to hedge.	The study failed to completely eliminate the problem of endogeneity of firm characteristics. Further research effort is necessary on possibility of a reverse causality between hedging and Tobin's Q.
Tufano (1996) examined hedging activities of 48 firms in the gold-mining industry.	The study showed that the use of commodity derivatives in the gold mining sector is motivated by managers' risk aversion.	The study did not consider outsider block-shareholders but only managerial stock ownership of gold mining industry and thus there is need for further studies.

Summarized by Author, 2016

3.5 The Conceptual Framework

The study adopted the conceptual framework in Figure 1. In the framework, the independent variables, intervening variable and the mediating variable were precursors to the dependent variable. The conceptual model considers how hedging market risk, market imperfections and firm characteristics can influence the firm value. The conceptual schema identifies hedging market risk as the independent variable, market imperfection as the intervening variable, firm characteristics as the mediating variable and firm value as the dependent variable.

Figure 1: Conceptual Model



Source: Author, 2016

The review of previous studies establish that hedging market risk have conflicting effect on firm value. When market risk exists it can increase costs or reduce revenues that adversely impact on the cash flows and hence the firm's value. It has been demonstrated empirically in presence of market imperfections, hedging can reduce cash flow volatility that influences the firm value. The extent of hedging depends on firm characteristics and as such hedging is value enhancing when the respective firm characteristics are considered.

Firm value depends on the present value of expected future cash flows that is influenced by the level of market imperfections. Hedging can improve firm value through its contribution to reducing market imperfections that determine the course of action needed to achieve the desired organizational outcomes. Firm characteristics influence the relationship between hedging and firm value by either strengthening or weakening it.

3.6 Chapter Summary

The chapter presented an analytical review of empirical discourse on the impact of hedging on management of risk, the nature of the relationship between market risk hedging and firm value and summary of research gaps identified thereon. The chapter further presented the conceptual framework. The next chapter presents a summary of the findings, conclusions, recommendations and suggestions for further research.

CHAPTER FOUR

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

4.1 Introduction

This chapter presents a summary of the findings, conclusions, recommendations and suggestions for further research.

4.2 Summary of Findings

There has been a drastic increase in empirical research on the nature of relationship between hedging and firm value mainly focusing on non-financial firms. However, empirical research support has been constrained heavily due to lack of data on hedging activities. Further in less developing economies, financial reporting on hedging activities has not attained similar strength in focus as compared to its remarkable heights in developed markets. Subsequently, hedging activities are systematically associated with the use of derivatives disregarding the fact that managers hold positions on derivatives with an aim to outperform the market in case their expectations are realized. IFRS 9 requirement of mandatory disclosure of risk management activities in annual reports has greatly improved the availability of secondary data on hedging in order to reduce non-response bias associated with surveys samples.

The findings of empirical research on the derivatives types employed for hedging such as futures, forwards, options and swaps reveals inconsistent results on the individual association between firm value and foreign currency derivative risk hedging or interest rate risk hedging. Studies on hedging commodity price risk which is a primary risk reveals that it does not lead to higher firm value.

Empirical studies conducted in different industries show inconsistent results on the nature of relationship between hedging and firm value. In the airline industry, a positive relationship between hedging and firm value was found while in the oil and gas exploration and production industry, it was found that hedging does not lead to higher firm value. The findings reveal that the various characteristics of different industries may be the cause that some studies in specific industries find stronger support for hedging than others. In addition, the findings reveal that while firms operational hedges are not associated with higher value, the use of operational hedges, in conjunction with currency derivatives, improves firm value.

The findings with respect to hedging premiums are mainly dependent on sample size, control variables and specific methodology used. The control variables adopted by different empirical studies include profitability, leverage, investment opportunity and industry diversification. The findings also reveal that some control variables are considered in some empirical studies while testing the incentive to hedge and are excluded in other studies. Further, Ordinary least squares regression analysis has been extensively applied to determine the extent of corporate hedging but is admittedly a ‘noisy’ method that can lead to biased results. The empirical studies adopted related variables to proxy for hedging activities that may be jointly determined and thus the findings may reflect an endogeneity bias.

Prior studies conducted considering varying firm size generated different results on the nature of the relationship between hedging and firm value. Studies on large U.S. non-financial firm with assets greater \$500 million found a positive relationship between hedging and firm values while those on firms with assets greater than \$20 million found a negative relationship between hedging and firm value. The time period bias also presents mixed results on the nature of the relationship between firm value and foreign currency derivative risk hedging or commodity price risk hedging or interest rate risk hedging. Some past empirical studies considered one or two year time periods of study while others considered five or ten years.

4.3 Recommendations

There is need to adopt a robust test approach to establish the nature of the relationship between firm value and foreign currency derivative risk hedging or commodity price risk hedging or interest rate risk hedging to ensure that the coefficients obtained are not biased and have consistent estimators. A panel data fixed-effects regression would be ideal in order to remove any time constant unobserved firm characteristics by holding constant the average differences across firms in the explanatory variables before model estimation.

The potential endogeneity also identified in several empirical studies resulting from omitted variables bias that produces inconsistent random-effects estimates could be minimized by examining these relations within a simultaneous equation framework or adopting instrumental variables approach. Further, the use of operational hedges, in conjunction with foreign currency derivatives, improves firm value and therefore firms should complement both financial and operational hedging.

4.4 Conclusions

Most of empirical studies reviewed focused on a questionnaire-based survey approach as regards measuring corporate hedging and derivative users or non-users. The empirical research findings remain somewhat diverse and inconclusive on the relationship between hedging market risk and the firm value. The main reason for the diversity on the firm value/hedging relationship relates to the multiplicity of empirical methodology that consider the issues of causality, diverse firm characteristics, operationalization of hedging concepts and firm value and use of panel data.

Hedging commodity risk which is a primary risk exposure hedging indicates that it does not lead to higher firm value and hence it may be a noisy proxy for agency problems motivated by managers' risk aversion. Further, the firms operational hedges are not associated with higher value; however, the use of operational hedges in conjunction with foreign currency derivatives improves firm value.

The vast of empirical of studies reviewed concentrated on large firms operating in the United States, United Kingdom, Europe, Australia and other big economies. The small potential gains from derivatives hedging when compared to firm size, operating and investment cash flows could leads to a conclusion that the observed increases in firm value may have other causes. Findings from these studies could be difficult to generalize for relatively small sized firms in developing countries like Kenya where financial markets are less efficient. The time period for empirical studies should cover appropriate time period to avoid the research result only reflecting phenomenon specific to that period and not capturing the whole trend of effect of hedging on firm value. The time period of study could bias the empirical results and further research effort could consider varying the length of time period of study to enable achieve robust results.

4.5 Limitations of the Study

The methodology adopted for this study was review of literature only and thus identified gaps that can be addressed in future research. Most empirical reviewed studies focused on the use of survey data for analysis because of the general unavailability of data on hedging activities. Firms' position in derivatives was not disclosed and was considered an important component of strategic competitiveness. Thus the studies could have suffered non-response error and this could have limited the robustness of the results and conclusion made thereon.

The vast of empirical studies reviewed concentrated on large firms operating in the United States, United Kingdom, Europe, Australia and other developed economies. Few studies however available from Kenya and other African countries were also considered. The conclusion made on the review of those empirical studies could probably not be applicable to Kenya and other African countries. The findings from these studies could be difficult to generalize for relatively small sized firms in developing countries like Kenya where financial markets are less efficient. The gaps however provide an opportunity for further research.

4.6 Suggestions for Further Research

There is need to control for potential existence of endogeneity concerns by adoption of instrumental variables moderated by firm characteristics in future research in order to achieve robust results on the nature of the relationship between hedging and firm value. There is also a need to test the possibility of a reverse causality between hedging and firm value. If firms with large values of Tobin's Q have many profitable investment opportunities, then these firms may have an added incentive to hedge and may thus reflect the fact that high-Q firms have an incentive to hedge, and not that hedging causes higher values.

In an attempt to enhance the generalization of the results, further research effort ought to consider cross sectional variation within sectors to avoid any industry-specific bias factors and examine if firms in a broad cross-industry sample differ in their behaviour.

A further approach can also be adopted that relates to the extent of hedging based on the improved information provided by the financial statements such as the notional amounts of derivatives, the types of derivatives used and the direction of the derivatives, use of foreign debt among others to validate the existing inconsistent findings.

Further research can also focus on whether factors such as the information asymmetry, managerial risk aversion motives (risk governance) or operational hedges play a more significant role than derivatives in establishing the nature of the relationship between corporate hedging and firm value.

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