ASHESI UNIVERSITY COLLEGE

DEVELOPING A DERIVATIVE SECURITIES MARKET IN GHANA: REQUISITE CONDITIONS

By

DANIEL EKERUMEH ADUODEH

Dissertation submitted to the Department of Business Administration, Ashesi University College
In partial fulfillment of the requirements for the award of Bachelor of Science Degree in Business Administration

APRIL 2010

DECLARATION

I hereby declare that this dissertation is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature:……

Candidate's Name:……

Date:……

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by Ashesi University College.

Supervisor's Signature:……..

Supervisor's Name:…….

Date:……

ACKNOWLEDGEMENT

I would love to acknowledge the founder and maker of all things, who has made all things for us to learn, explore, understand and apply to our existence. My wholehearted appreciation goes to my wife Priscilla Daniel-Aduodeh, for allowing me follow my dream, my two daughters (Danielle and Michelle) and my unborn child.

I also acknowledge my mother, Mrs. Selina Aduodeh for her financial support during the course of this study.

It would be impossible not to acknowledge the input of my supervisor, Mr. Daniel Torvinyo for his immense role played through counseling, late night editing, guidance and encouragement during this study.

Finally, I acknowledge the roles played by all my friends in assisting me during the research towards the completion of this project; I say a big thank you!

ABSTRACT

The development of a derivative securities market in Ghana was studied with the focus on the requisite conditions which form a foundation upon which a successful derivatives market would thrive. The study addressed the availability of participants, the presence or absence of a legal regulatory framework and the possibility of developing a derivatives market. The importance of this study is to provide a platform for which business could unbundle and redistribute risk through hedging, allow for price discovery and increase the inflow of global resources into Ghana.

The researcher used SPSS 16.0 software for windows in analyzing the quantitative data on the level of awareness of derivative instruments, the possibility of developing a derivative market in Ghana, organizations currently involved in any form of derivative trading and number of derivative contracts traded. The qualitative data collated through interview was analyzed using content analysis. Themes and keywords from the interview were isolated and described. The study found that Ghana is ready for the development of a derivatives market but lacks the needed legal and regulatory framework for derivatives trading.

It is recommended that policy makers should pass the law allowing the development of a derivatives market. With effective investor education, Ghana could start gradually probably with the establishment of a commodity exchange since the economy is commodity based.

Table of Contents

LIST OF TABLES

CHAPTER 1

INTRODUCTION

Risk is as an inevitable and integral component of doing business. However, when the level of risk is too high, it can adversely affect the financial position of the firm. It is this need to manage risk that led to the genesis of the derivative market. The purpose of this research is to explore the possibility of developing a derivative securities market in the emerging economy of Ghana.

This chapter captures the background to the project, the research problem, and objectives of the study, research questions, data collection method and the outline of the dissertation.

1.1 Background to the Project

The world of finance in the last twenty five years has seen the inevitable emergence of derivative securities. The derivatives markets globally is very huge, this now amounts to tens of trillions of dollars in monetary terms. Despite the continuous growth of the derivative market globally and its commensurate liquidity, developing economies such as that of Ghana have not fully participated in the current trend. Although Ghana can boast of a fully fledged capital market the derivatives securities market segment is non-existent.

1.1.1 Overview of Derivative Securities Market and the Ghana Stock Exchange

A derivative can be defined as a financial instrument whose value depends on (or derives from) the values of other, more basic, underlying assets (Hull, 2006). This implies that the price of a derivative security is not arbitrary, but it is inextricably linked to the price of the underlying asset. A classification of derivatives is between commodity and financial derivatives. Futures or options on gold or cocoa are commodity derivatives while futures or options on the Ghanaian Cedi, stock market indices are financial derivatives. Derivatives can also be classified as the basic and complex derivatives. Basic derivatives are forwards/futures contract and options contracts. Other derivatives such as hybrids, swaps, swaptions, synthetic derivatives, exotic products are all classes of the complex derivatives (ibid, 4).

The Ghanaian Stock Exchange (GSE) which was incorporated in 1989 and started activities in 1990 has grown into an organized exchange with over 30 listed companies. The Ghanaian capital market can boast of a market capitalization of over Seventeen billion Ghana Cedis (approximately 13billion US Dollars) as at 22 March, 2010. Despite the volatility which is a characteristic of the global stock exchanges, the GSE has performed well. There has been an increase in the GSE index from 4,833.33 points in 2006 to 5814.71 points in 2010. This increase can be attributed to the fact that the fundamentals of the listed companies are very strong and they are doing well in their respective industries.

The economies of nations are dependent on the financial and real assets markets because of their ability to provide liquidity. With the increase of foreign companies coming into the country, there is the possibility of more companies being listed on the GSE. It is based on this conditions that developing a derivative securities market in Ghana would be important because a developed underlying securities market is one of the prerequisites for developing a derivative market. The focus of the Ghanaian Derivatives securities market will be more on its risk-management capabilities.

1.2 Research Problem

The derivative securities market is not a new phenomenon in the global financial market. However, in the African context it is almost non-existent with only South Africa boasting of an organized over- the - counter derivative market. Prior studies have shown that investors have used these derivative instruments to hedge[1] and to speculate[2] in currencies, commodities, stocks, bonds and other assets (Hull, 2006). This has seen an inflow of capital into countries with an organized derivative market. With the present discovery of oil in Ghana, this presents a perfect opportunity for developing a derivatives market. Oil as a commodity is traded using the forward and futures contracts in order to hedge against price volatility and this would be done better over an organized derivatives market.

[1] Making an investment to reduce the risk of adverse movement in an asset
[2] Engaging in the buying and selling of a commodity with an element of risk on the chance of profit

This study seeks to find out whether the conditions in the Ghanaian markets are suitable for the development of a derivative securities market. Investors, speculators and other market participants are constantly looking for ways of managing risk and hedging the needs of investors. Derivatives play the perfect role of unbundling and redistributing such risks. This study will find out the necessary conditions for establishing a derivative securities market in a Ghanaian context.

1.3 Objectives

The objectives of this study will narrow down on how a derivative securities market can be developed in the Ghanaian setting. In essence, this research seeks to:

- Analyze the possibility of developing a derivative securities market in Ghana, and
- Analyze the requisite conditions necessary for the development of a derivative market.

1.4 Research Questions

The following research questions are relevant to this study:

- Is there an operational legal framework for developing a derivative securities market in Ghana?

- Does the existing capital market in Ghana form a solid basis for developing a derivative securities market?
- Are there participants ready to be involved in the use of derivative instruments?

1.5 Data Collection

Data for this study will be mainly primary data. These will be obtained through personal interviews of officials from the Securities and Exchange Commission (SEC) responsible for establishing a regulatory framework for developing a derivatives market and also certain institutional investors.

1.6 Outline of Dissertation

This study is organized into five chapters. The introduction summarizes the background to the study, objectives of the study, research questions, data collection and a presentation of the study's outline.

The second chapter is the literature review which will evaluate and critically analyze previous literature on the subject. In this chapter, gaps identified in the literature are identified and addressed.

The third chapter is a review of the methodology which includes the data collection method, types of data, sample size used and the limitations of the methods.

The fourth chapter presents and analyses the data gathered for the study and explains the possibility of establishing a Ghanaian derivative market.

The final chapter is a discussion of key results from the previous chapter. The result of this study informs the recommendations given for the development of a derivative securities market in Ghana.

CHAPTER 2

LITERATURE REVIEW

The operational consistency of a derivative market hinges on the volatility of the underlying asset such as volatility in commodity prices, stocks, bonds and foreign exchange. Liquidity is also very essential to the operation of a derivative market. The financial market transfer funds from those with surpluses to those with deficits (Mishkin, 2006). The party with the surplus funds wants a guarantee that funds given would be repaid, while the party with the deficit position also wants an assurance that funds received would be repaid. The risk exposures created in financial markets are better handled by an organized derivative market because of its inherent ability to provide hedging. A recent survey indicated that more than 90% of the world's largest companies headquartered in different countries around the globe use derivatives to manage their manifold risk exposures[3].

2.1 What is a Derivative?

Swan (2000) defines a derivative as a "promise" whose market value depends, first, on the strength of the promissor's ability to perform and, second, on the value of the underlying assets. Hull (2006) defines a

[3] A survey conducted by the International Swaps and Derivatives Association (ISDA) and released at its annual general meeting (2003) as cited in (Andersen, 2006)

derivative as a financial instrument whose value depends on (or derives from) the values of other, more basic, underlying variables. Swan's definition of a derivative directly refers to the ability of the derivatives to replicate a financial instrument e.g. bonds, stocks. However, in most recent cases, the definition of derivatives is also evolving, as they are traded on non main-mainstream variable such as weather, electricity and energy (Weber, 2008). Hull's definition on the other hand captures the fact that the derivatives market is evolving by taking into cognizance that derivatives derive their values from any underlying variable. However, Weber believes Hull's definition does not recognize the risk that the counterparty of a derivative contract may default. In other words the definition of a derivative must include any underlying variable and capture the risk of a counterparty defaulting.

Derivatives allow investors to unbundle and redistribute various risks: foreign exchange, interest rate, market, and default risks- and thus, facilitates cross-border capital flows and create more opportunities for portfolio diversification (International Monetary Fund, 1998). Derivatives are traded both in an organized exchange and over-the-counter (OTC) by derivatives dealers. (Tsetsekos et al, 2000) define a derivative market as a trading forum or a system that links a central marketplace (such as a trading floor or an electronic trading system), where all those with buying and selling interests in a product designed to permit the shifting of risk can meet, with a mechanism (such as a clearing house) for intermediating, validating, and enhancing the credit of anonymous counterparty. Basically, it is the meeting

point of all participants involved in the use of derivative instruments, where exchange can be made based on their varying positions.

There are different types of derivatives traded in a derivatives market; these include forward, futures, options and swaps (Osei, 2007).

2.1.1 Forward Contracts

The forward contract is relatively simple derivative, it is an agreement between two parties to buy or sell an asset at a certain future time at a certain price. The party that has agreed to buy has a long position while the party that has agreed to sell has a short position. The forward contracts are normally traded over- the –counter (OTC). This contract gives an obligation to both counterparts to fulfill their contracts at the specified time (Bodie et al, 2008).

2.1.2 Futures Contracts

Like a forward contract, a futures contract is an agreement to buy or sell an asset at a certain time in the future for a certain price. However, unlike forward contracts, futures contracts are normally traded on an exchange. To make trading possible, the exchange specifies certain standardized features of the contract. As the two parties to the contract do not necessarily know each other, the exchange also provides a mechanism that gives the two

parties a guarantee that the contract will be honored (Hull, 2006). The largest exchanges on which futures are traded include the Chicago Board of Trade (CBOT), the Chicago Mercantile Exchange (CME) and the South Africa Futures Exchange (SAFEX).

2.1.3 Options Contracts

Options are traded both on an organized exchange and in the OTC market. There are two basic types of options. A call option gives the holder the right to buy the underlying asset at a certain date for a certain price. The party with the long position has the ability to exercise the contract or not. A put option gives the holder the right to sell the underlying asset by a certain date for a certain price. The party with the short position has the obligation to exercise the contract if asked to do so. The date specified in the contract is known as the expiration date or the maturity date. The price specified in the contract is the exercise price or the strike price (Bodie et al, 2008).

Options are either American or European, a distinction that has nothing to do with geographical location. American options can be exercised at any time to the expiration date, whereas European options can be exercised only on the expiration date itself (Hull, 2006).

2.1.4 Swaps

A swap is an agreement between two parties to exchange cash flows in the future. The agreement defines the dates when the cash flows will be paid. The cash flows are calculated over a notional principal amount, which is not usually exchanged between counterparties (Hull, 2006). Examples of swaps are currency swaps, interest rate swaps and commodity swaps. An interest rate swap is an agreement between two parties to exchange interest obligations or receipts in the same currency on an agreed amount of notional principal for an agreed period of time. A currency swap is an agreement between two parties to exchange payments or receipts in one currency for payments in another. Commodity swaps are hedging instruments; one party (commodity user/buyer) agrees to pay a fixed price for a designated quantity of a commodity to the counter party (commodity producer/seller), who in turn pays the first party a price based on the prevailing market price for the same quantity (Nwaobi, 2008).

2.2 Participants in Derivatives Markets

Three broad categories of traders can be identified: hedgers, speculators, and arbitrageurs (Hull, 2006). The three major participants in the derivatives market are in it for varying reasons as discussed below; however their participation is crucial for the liquidity and volatility necessary for the operation of a derivatives market.

- Arbitrageurs if placed on a risk spectrum are the risk averse participants who take positions in two or more instruments to lock in a profit. For example if the price of the same product is different in two markets, the arbitrageur will simultaneously buy in the lower priced market and sell in the higher priced one (Osei, 2007).
- Speculators are positioned at the risk taking end of the risk spectrum; they bet on movements in the market and try to lock in a profit by using the leverage created by derivatives contracts.
- Hedgers are risk neutral participants who use derivatives to reduce their exposure to risk from future price movement in a commodity, financial security or currency market. This is done by undertaking in forward or futures contract or purchases of the commodity security or currency in the OTC forward or the organized futures market (ibid,15).

2.3 Structuring a Derivative Exchange

Financial price risk has important implications for both the private and public sectors of any economy. According to Tsetsekos et al (2000) price fluctuations not only affect business profits but can also affect a firm's survival. The changes in exchange rates intensify competition from other countries. This can be seen in the depreciation and appreciation of currencies for instance the Ghanaian cedi to the US dollar. Commodity price fluctuations result in changes in input prices and costs. This could be problematic especially in economies that are dependent on commodity exports in this

case Ghana. Governments are also affected by volatile markets, particularly in developing countries, where commodities exports account for a large share of total exports affecting tax revenues. This is a snapshot of the risk faced globally, from institutions of government, to businesses and to a larger extent the global economy.

The primary function of a derivatives exchange is to facilitate the transfer of risk among economic agents by offering mechanisms for liquidity and price discovery. Liquidity refers to the ability to buy and sell large volumes of derivatives contracts in a relatively short period of time without affecting prices. If risks are to be transferred efficiently, there must be a large number of agents ready to buy or sell. In other words, there must be agents who desire to reduce risk (that is, to obtain price insurance) and agents who want to accept risk (that is, to provide price insurance). The exchange brings together a large number of participants, making quick transactions at high volumes feasible. Price discovery refers to the establishment of a price for an asset. This makes it possible for participants outside the exchange to easily obtain this information and find what price for the asset is at any moment (Tsetsekos et al, 2000).

The development of a derivatives market is hinged on the fact that the without the participants there is no market (ibid, 2). In other words an economy ready for the establishment of a derivative market must have within it, the participants willing to take risk and counterparty willing to take on risk.

According to Tsetsekos and Varangis (2000), a critical element in the efficient transfer of risk among market participants is the microstructure of the derivatives exchange, which includes the following:

- Regulatory oversight
- Trading systems
- Settlement and clearing procedures
- Membership of the exchange
- Ownership of the clearinghouse and
- products traded

According to Leuthold (1992) the establishment of derivatives exchanges in emerging markets requires certain preconditions including:

- Well-functioning cash markets
- A large number of traders and speculators
- A legal structure that includes a system of property rights and enforceable contracts
- Well functioning credit institutions
- The support of the government and policymakers
- Adequate financial resources (particularly for the clearing-house) and
- The absence of competing derivatives products and exchanges.

The fact that derivatives exchanges perform similar roles and offer similar products does not necessarily mean that their microstructure is the same

worldwide. As emerging markets who imitate bigger and more experienced derivatives markets latter realize and embark on reforms to offer more appropriate services (Cruz and Guedira, 2006).

Leuthold throws light on the underpinnings of the functionality of the derivatives market functionality. An example would be the well- functioning cash market; what qualifies for a well functioning cash market and how is it measured. A clearer view of these criteria would have been either the number of deal traded in the cash market or total capitalization of the market. Another example would be the large number of traders and speculators; for the purpose of replication in structuring a derivatives exchange, what constitutes a large number of traders and speculators. He further listed the support of government and policymakers as one of the conditions of developing a derivatives market. The downside to this condition is the possibility of having a government or policymakers that are risk averse, therefore unwilling to support the development of a derivatives market.

The success of a derivative market is determined to a large extent by the soundness of the foundation on which it is built. According to Tsetsekos and Varangis (2000) the microstructure of a derivative exchange is important for several reasons. Firstly, it provides insights into the workings of the market through an examination of the features of the exchange and of the linkages that allow a disciplined flow of orders and execution of transactions. Secondly, it plays an important role in creating and disseminating market

information. Finally, market arrangements have implications for the long-term properties of derivatives contracts and the returns on underlying assets. The important elements of the microstructure of the derivative exchange include trading mechanisms, clearing arrangements, the regulatory structure, and the choice of derivatives products to be traded (Tsetsekos et al, 2000).

The literary works of Leuthold (1992) and Tsetsekos et al (1997) both have intersections in the conditions necessary for developing a derivatives market; legal and regulatory structure, trading mechanisms and clearing arrangements. However Tsetsekos et al (1997) includes a variable necessary for the functionality of the derivatives market especially in an emerging economy or a market still totally unaware of the derivatives market. This variable is the choice of derivatives product to be traded. In other words, there should be a systematic method to the introduction of derivatives products especially in an emerging economy. This could be based on the participants' awareness of that derivative security and strength of the local market.

Roopnarine et al (2005) in their study with the objective to determine the feasibility of developing the capital markets of the Caribbean Community (CARICOM) sub region through the enhancement of derivatives trading in the two largest financial markets of that region, those of Trinidad & Tobago and Jamaica. Their study was conducted solely with the aid of primary data through in-depth interviews with representatives of the financial institutions. They concluded that there were too few Caribbean investors and corporations

who will participate in derivatives trading to make the creation of a formal exchange worthwhile. They also expressed the view that the potential danger of using derivative contracts locally involves the size of the market itself. If the market is so small, if one participant defaults the entire system may be de-stabilized. Therefore in order for the market to develop in this region, there needs to be adequate regulation (self-regulation or governmental regulation) governing trading activities and dissemination of relevant education and training of market participants.

From this research, it seems clear that the education on the use of derivative instruments is very crucial based on the fact that derivatives seem to be complex instruments. Even though the developed financial markets have moved on to more complex forms of derivatives (hybrids), the underdeveloped or developing financial markets are still skeptical about developing a derivatives market. The reality is that on a psychological level, humans are adamant to change so educating the participants on the uses of the derivatives instruments could demystify the concept of derivatives.

If the participants are well educated and trained, derivative trading will improve the good organization of the capital market by making it more competitive because of the pertinent need to hedge risk. Their research further encapsulates the need for regulation of derivatives markets. The objectives of derivatives regulation are to ensure the integrity of markets, to deter manipulation by agents, and to protect participants from losses arising from fraud or the insolvency of counter-parties (Roopnarine et al, 2005).

Whether markets should be regulated or not does not seem to be the appropriate question, but rather if government intervention will weaken or strengthen private regulation Greenspan's dairy (as cited in Roopnarine et al, 2005). The characteristics of the market should determine, if any, the optimal form of government regulation (ibid, 8). Market characteristics include the types of instruments traded, the types of market participants, and the nature of the relationships among market participants.

2.4 Development of Equity Derivative Market

The development of derivative markets in emerging economies plays a special role in this context as more institutional money is managed on a global scale. Financial globalization facilitates greater diversification of investments and enables risk to be transferred across national financial systems through derivative instruments (Jobst, 2007). Remolona (1993), states that the most successful exchange derivatives are those which add liquidity to the underlying markets. Both studies complement each other by providing the understanding of cash inflows into economies with organized derivative markets as speculators are willing to provide liquidity by expecting to make some money of their risk exposure. This buttresses the necessity for a derivatives market in emerging economies especially Ghana as regards to this study.

Jobst (2007) further discusses the importance of exchange traded derivatives as opposed to the OTC derivatives. This study highlights that most equity derivatives in emerging Asia are exchange traded derivatives, which are formalized and regulated. Although Remolona (1993) showed that the OTC market was actually more liquid in terms of notional principal. In the case of a developing economy, it would be advisable to develop an organized derivatives market because of the intermediary called the clearinghouse and a proper arbitration system which would reduce the default risk by either party.

Fratzscher (2006) pinpoints the strong development of equity derivatives in Korea and India is a reflection of a robust operational and legal infrastructure backed up by an organized cash market. According to Jobst, both countries have well designed trading platforms, which provides access to both domestic and foreign institutional investors and reliable tax regimes which ensures the equitable treatment of cash and derivatives trade. Moreover, the study also shows that countries lagging have weak trading infrastructures, no universal market practices, shortcomings in relevant laws that create uncertainty about whether derivatives contracts can be enforced, bans on short selling and restrictions on investment by foreigners.

Jobst (2007) provides some insight into the workings of the Asian emerging derivatives market and pitches its success on certain requisite conditions such as a legal framework backed by an organized cash market. According to the study, countries lagging in the establishment of derivatives markets had

not created a foundation by meeting the requisite conditions for developing a derivatives market.

However, education in these derivatives securities is not part of the requisite conditions talked about by their literary works. On the one hand, it can be assumed that before an economy embarks on the development of a derivatives market it should be well educated and informed in the operations of these instruments. On the other hand, looking at the abysmal rate at which derivatives markets have been established in the emerging markets of Africa, arguably, it could be attributed to lack of education on the subject. Categorically speaking, in citing the requisite conditions in developing a derivatives market, education ought to be a part of the conditions.

2.5 A Survey of Emerging Derivatives Market

Lien and Zhang (2008) in their article review the role of derivatives in emerging markets especially in a commodity dependent economy. They concluded that established derivatives markets increased capital inflows into the emerging economies. Aning (2007) in his article attributed the inefficiencies in commodity pricing to the absence of a commodities exchange in Ghana. However, he stated that cocoa was the only commodity which is well priced because it is traded on a global market therefore allowing all other commodities in Ghanaian economy exposed to volatility. Both articles attribute the development of a derivative market to increased cash inflows

and price discovery abilities respectively. Although Aning (2007) is more concerned with commodities traded without an organized exchange locally in Ghana other than cocoa. This is because a commodity futures markets offers a platform for dealing with the price risks that the commodity producers face, thereby insulating them from price volatility.

Morgan (2001) as cited by (Lien and Zhang, 2008) offered a background study on policy attempts to reduce the effects of price volatility on primary commodity markets and reviewed the roles of futures markets in less developed countries (LDCs) and the current extent of the development of futures markets trading in LDCs. He showed that for more extensive use of commodities futures markets, the government and the traders must be educated on the advantages of the derivatives market. Aning (2007) concurred by stating some of the advantages such as price discovery for traders and farmers thereby increasing the productivity of the commodity sector. The possibility of uplifting the current state of locally produced commodity from small scale base, lacking proper storage into a more industrial production level with proper storage.

Claessens and Coleman (1991) as cited in (Lien and Zhang, 2008) in a study discovered that hedging using futures contracts reduced the price variability of coffee in Papua New Guinea from 10.5% to 0.4%. Claessens and Varangis (1991) as cited in (Lien and Zhang, 2008) developed a simulation for an oil importing country using futures and options contracts to hedge against price fluctuations. They locked in prices for its one month ahead (short-term) and

for its six months ahead (long-term) and discovered that these hedge strategies could potentially reduce the price volatility by 72 to 85% and 65 to 81% respectively.

Dodd (2000) analyzed the various derivatives products in the East Asian economies, including foreign exchange forwards and swaps, interest rate swaps, the author showed that, on the one hand, derivatives products facilitated capital flows to Asia by unbundling and redistributing risk; on the other hand, derivative products facilitated unproductive activities and lowered safeguards. According to Lien and Zhang (2008) there is now a consensus that, though derivatives did not cause the East Asian crisis, they amplified its effects on the financial systems of emerging market economies.

The derivative instruments seems to be a doubled edged sword with the ability to confer benefits on the users by reducing price variability and also amplify any pending crisis within an economy. The latter could be the main reason why developing economies such as that of Ghana frown on the development of a derivatives securities market. These contrasting ideas could lead to certain questions within any developing economy; do we really need a derivatives market? Is there the possibility of increasing liquidity without the establishment of a derivatives market? However, from most of the literatures reviewed the developments markets based on increased globalized cash inflow is hinge on developing a derivatives exchange.

Dodd in his study showed the downside of the derivatives market and how they create the possibility of raising risk in the financial system, generating

more unpredictable crisis dynamics. According to Labaton and Calmes (2009), the global financial crisis 2009 which began in the United States of America was blamed on the complexities of the ever evolving nature of the derivatives market. The United States of America decided to regulate the derivatives market by asking Congress to move quickly on legislation that would allow federal oversight over the complex derivatives products.

Emerging economies developing a derivatives market can take a cue from the country with the largest derivatives market and enforce proper regulations, and also choose the derivatives product to be traded. However, the major challenge for the developing countries would be to what extent they should regulate their markets and still allow risk transference. (Dodd, 2000) emphasizes that regulations should include updating accounting rules, capital and risk management requirements for financial institutions, and more transparent reporting of derivatives market transactions for both exchange traded and OTC derivatives.

Osei (2007) in his article considers how the establishment of a derivative market in Ghana can improve the capital structure and profit-making ability of the commercial banks and corporate bodies. The resultant effect will be the acceleration of future growth prospects of the economy in the long run. Nevertheless, he stated that there are certain requirements for the effective functionality of a derivatives market. These include the supervisory role of the Central bank to enable participants stick to the regulatory guidelines. However, the most important requirement would be the upgrading of SEC

laws so derivatives are catered for thereby creating a legal framework for derivatives trading.

2.6 Chapter Summary

From the array of literary works reviewed on derivatives, their use, the development of a derivatives security market, it is obvious that derivatives act as efficient transferor of risk among market participants- which include hedgers, speculators and arbitrageurs. They also enable emerging economies hedge commodity prices, allow for price discovery, inflow of foreign institutional investors and possible future economic growth. The literature also exposes the downside of the derivatives market in terms of its unregulated nature, lack of transparency and ability to magnify pending crisis.

However, the success of a derivatives securities market are based on the soundness of the foundation on which it is built. A well organized derivative market is built on the foundation of market participants, a functional cash market, a legal and regulatory framework, choice of derivatives products to be traded, all ultimately provides a sound foundation upon which a derivatives securities market can thrive. The issue of how much regulation is needed in the derivatives market should be dependent on the particular economy where it is traded. The economies responsible for developing a

derivatives market must decide on the level of regulation needed to enable transparency.

The gap identified in the literatures reviewed which should be of utmost importance in the development of a derivative securities market is the area of education. Several variables where earmarked as requisite conditions for establishing a derivative market without any emphases on education. Osei (2007) and Tsetsekos et al (2000) had commonalities in their studies about the need for a regulatory framework in establishing a derivatives market. However, the educational gap would render the development of a derivative securities market null and void. Education on the concepts of derivatives is the key that would allow proper functionality of derivatives in emerging economies such as that of Ghana.

CHAPTER THREE

RESEARCH METHODOLOGY

INTRODUCTION

The objectives of this study is to analyze the possibility of developing a derivatives securities market in Ghana and analyze the requisite condition necessary for the development of a derivative market. Based on these objectives, this chapter discusses the research tools, instrumentation and the methods of data collection used by the researcher to meet these objectives. This chapter spells out the types of data and their sources, sample size, questionnaire design and the chapter concludes with a discussion on the limitations of the data collection. Prior studies examined by the researcher on developing a derivatives securities market mostly used interview questionnaire, or solely interviews for their data collection.

3.1 Type and Source of Data

This researcher relied mostly on primary data. The primary data was obtained from two main sources- institutional investors and the Securities and Exchange Commission (SEC). The institutional investors comprised of brokerages and commercial banks which are participants in the financial derivatives market. Primary data were collected from the institutional

investors with the aid of interview questionnaires. Primary data was also obtained from the Securities and Exchange Commission (SEC) which is the regulatory body for the Ghanaian securities market[4] with the aid of an interview guide. The interview guide provided the structure for the interview which aided the researcher in obtaining data from the Head of the Research & Market Department at the SEC. The researcher chose the number of data sources based on the assumption that the size would not affect the operational consistency of the study. The interview questionnaires contained both close and open ended questions which were directly addressed to the objectives of the study.

3.1.2 Sample Size

The unit of analysis for this study was institutional investors- commercial banks, brokerages and the Securities Exchange Commission (SEC), in the city of Accra, Ghana. The non-probability sampling technique was used in this study. The convenience sampling and purposive sampling was used. Convenience sampling assumes a homogenous population where one person is not much different from the other. The researcher chose this sampling technique because it is inexpensive, simple and it chooses the groups that are easiest to reach. Another rationale behind the researcher decision in using convenience sampling is because the institutional investors since they

[4] (http://www.secghana.org)

are a homogenous population, they could be exposed to the same knowledge base, thereby reducing the bias in the sampling method.

Purposive sampling selection was used for the officials at the SEC because they possess the necessary information that would enhance this research. One of the research questions of this study is, is there a legal framework for the development of the derivatives market? The answer to this question can only be obtained from the SEC because they are the regulatory body for the Ghanaian securities market. So the decision by the researcher to use purposive sampling is not flawed because the target group is specifically chosen due to the information they posses.

Names of Institutional Investors Sampled (Participants)

- IC Securities Ltd
- Databank Brokerage Ltd
- Standard Chartered Bank Ltd
- Strategic African Securities Ltd
- EDC Stockbrokers Ltd

3.1.3 Mode of Data Collection

Data collection methods for this study included the use of interview questionnaires and personal interviews. Interview questionnaires were filled in by the institutional investors. The researcher after selecting the

institutional investors using the convenience sampling method chose to visit their various offices to administer the interview questionnaires.

An interview guide was used for structuring the interactions during the personal interview with the personnel from SEC. The information obtained was recorded with the use of an MP3 player[5] and was transcribed by the researcher for the purpose of analysis. Data for the research was collected over a five day period as it was convenient for the institutional investors. The data from the personal interview was collected in one day from the SEC.

The researcher decided to use interview questionnaires because it is easier to administer and is best suited for the type of research embarked on.

3.1.4 Questionnaire Design

The designed questionnaires administered to the institutional investors were straightforward and unambiguous. It consisted of open ended and closed ended questions. The researcher decided to use both types of questions to as much as possible extract both subjective and objective answers to the questions asked. The open ended questions were asked at the end of the questionnaire in an attempt not to dissuade the respondents. The closed ended questions had a range of response categories for the respondents to pick from. The interview questionnaire was aimed at exploring the level of

[5] A digital audio device that has the primary function of storing, organizing and playing audio files

awareness of derivatives securities and the level of acceptance of establishing a derivatives securities market.

3.2 Methods of Analysis

The analytical methods used for this study was twofold, firstly the SPSS 16.0 for windows was used for the analyses of the quantitative part of the study while content analysis was used for the qualitative part of the study. Emphasis is placed on the frequency and percentages at which certain trends occurred during the analyses of the quantitative data, then the researcher explained the trends and phenomenon which occurred. The qualitative data collated through interviews was analyzed based on content by generation of themes and signal keywords which serves as an auxiliary base to explain the research questions.

3.3 Limitations of the Study

- Some of the institutional investors already had their stance on the derivatives markets, stating there was no need for its establishment which in the long run affected the objectivity of their response.

- The much needed data from the SEC was quite difficult to collect because of the bureaucratic nature of the organization which affected the timing of the data collection.

CHAPTER 4

ANALYSIS OF RESEARCH DATA AND RESULTS

The data for this research are laid out, and analyzed and reported in this chapter. The chapter proceeds with the analysis of the data from the prospective participants in the usage of the derivatives instruments. It then proceeds with a descriptive analysis of the data obtained from the SEC. The quantitative data was analyzed using the SPSS 16.0 software for windows while the qualitative was analyzed based on content analysis. The chapter ends with a discussion of the implications of the research results.

4.1 Layout of Data

The data presented below collated over a week period aided by interview questionnaires from the prospective participants in the derivatives market. Although certain variables in the data from the participants did not directly address all the research questions however, they throw more light on the problem statement of the study- the necessary conditions for establishing a derivatives market.

Frequency Table(s)

Table 4.1 **CDI**

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	5	100.0	100.0	100.0

Table 4.2 **NC**

	Frequency	Percent	Valid Percent	Cumulative Percent
1000-5000	1	20.0	100.0	100.0
Nil	4	80.0		
Total	5	100.0		

Table 4.3 **LAD**

	Frequency	Percent	Valid Percent	Cumulative Percent
Low	2	40.0	40.0	40.0
medium	2	40.0	40.0	80.0
High	1	20.0	20.0	100.0
Total	5	100.0	100.0	

Where,

CDI = Are you conversant with derivative instruments?

NC = what is the number of derivative contracts traded by your organization?

LAD = what is the level of awareness about derivatives within your organization?

Table 4.4 **PDD**

	Frequency	Percent	Valid Percent	Cumulative Percent
low	2	40.0	40.0	40.0
medium	1	20.0	20.0	60.0
high	2	40.0	40.0	100.0
Total	5	100.0	100.0	

Table 4.5 **WDD**

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	2	40.0	40.0	40.0
no	3	60.0	60.0	100.0
Total	5	100.0	100.0	

Table 4.6 **OCDT**

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	1	20.0	20.0	20.0
No	4	80.0	80.0	100.0
Total	5	100.0	100.0	

Where,

PDD = how possible is it to develop a derivatives market in Ghana?

WDD = would you welcome the idea of developing a derivatives market in Ghana?

OCDT = is your organization currently involved in any form of derivatives trading?

The results displayed in the table(s) above are a summary statistics and frequency table of measured variables which would aid this study in data analysis.

4.2 Analysis of Results

From the table(s) above, the frequency table is a highlight of the number of times respondents picked a certain variable over the other. From Table 4.1, it may be observed that the CDI showed a frequency of 5 and a percentage of 100 which is indicative that all the respondents were conversant with the derivatives instruments. One of the research questions of this study is; are there participants ready for the use of derivative instruments traded on the market. Invariably, in order to develop a derivatives market, the prospective participants should be conversant with derivatives. According to Hull (2006), for a derivative market to function there must be participants- these include

arbitrageurs, speculators and hedgers. My study focused more on institutional investors such as banks and brokerages, although individual investors could also be participants in the derivatives market. My findings generalized the participants as one unlike Hull whom further broke down the participants into categories of arbitrageurs, speculators and hedgers. However prior studies researched in my literature show that market participants take various positions for varying reasons, so it would be difficult from the researcher's perspective to categorize the participants. My research findings is inextricably linked to the research question of; are there participants ready to be involved in the derivatives market, because it is impossible for anybody to trade in derivatives without firstly being conversant with derivatives.

Table 4.2 is the frequency table that shows NC as the number of contracts traded by the respondents. My findings showed that only 20% of a sample size of 5 was involved in any form of derivatives contract within the range of 1000-5000 contracts. On the one hand this result might not be a direct answer to the research questions presented in this study; on the other hand it throws light on the research problem of the suitability of the Ghanaian market for development of a derivative market. Although there could be some discrepancy due to the small sample size used in conducting this study, however a 20% of sample sizes were involved in the use of derivatives, which is a good indication of the suitability of the Ghanaian market for the development of its own derivative market. According to Osei (2007), the development of a derivatives exchange in Ghana could start small and then

begin to grow. This study shows a prevalent minimal percentage of derivatives contracts which are done over- the- counter which could be likened to Osei's study. Although Osei's proposition was on the development of an organized exchange, my findings showed that the participants involved in some form of derivatives trading in Ghana did it in bi-lateral over- the-counter trade. One of the objectives of this study is to analyze the possibility of developing a derivatives security market in Ghana. The finding from my study showed the number of contracts (1000-5000) traded although is very small based on the sample size but is indicative on the possibility of establishing a derivatives security market.

Table 4.3 shows that the LAD which represents the level of awareness of derivatives within the respondents organization was broken down into categories of high, medium, low and was represented by 20%, 40%,40% respectively. A higher percentage of the sample size fell into the categories of medium and low which is indicative of a skew towards the lower side of the derivative awareness spectrum. My study was aimed at unveiling the requisite conditions needed for developing a derivatives securities market and from the array of literatures studied, education on the subject of derivatives was not inclusive. According to Tsetsekos et al (2000), they identified the trading mechanism, legal regulatory structure, choice of products to be traded as some of the requisite conditions for the development of a derivatives market. However from my study, based on the results from the LAD table, education ought to be a vital part of the requisite conditions in the establishment of a derivative market. This is indicative from

the higher percentage shown in the lower spectrum of the level of awareness of derivatives securities within the organizations of the prospective participants. One of the research questions of this study is; are there participants ready to be involved in the use of derivative instruments. According to the analyses shown in Table 4.1, at the individual level, the respondents were all conversant with derivatives instruments while Table 4.3 reflects that 80% within the organizations fell within the medium and low categories of the level of awareness. The readiness of the participants' involvement in the derivatives market is hinged on their level of awareness of derivative instruments.

There was an even distribution between high and low in Table 4.4 above. The analyses of PDD which is a scale of the possibility of developing a derivatives market in Ghana. Due to the small sample size there was some discrepancy because the possibility of having a higher or lower percentage for the possibility of developing a derivatives market could have been skewed in any of the directions. However, the 40% and 20% of the high and medium spectrum respectively on PDD believed the existing capital market in Ghana gave a perfect platform for developing a derivatives market. While the 20% on the low end believed that the capital market in Ghana was not vibrant enough for the development of a derivative market. Tsetsekos et al (1997) and Leuthold (1992) identified the choice of derivatives and capital market as necessary conditions for the development of the derivative market. Although the study of the latter does not measure the capital market in terms of quantity of trade or market capitalization, so my findings showing 40% of

respondents believing that the capital market in Ghana is a good platform for developing a derivatives market seems to be without measure. The intersection between my data, Leuthold's and Tsetsekos would be that Ghana has a vibrant capital market and Ghana is a commodity based economy (second largest cocoa exporter) so developing a derivative market is possible. These findings from existing literature and my research supports my research question of if the capital market in Ghana forms a solid base for establishing a derivatives market.

Table 4.5 shows the percentage of respondents from the data that are willing to welcome the development of a derivatives market. Sixty percent of the respondent disagreed with the idea of developing a derivatives market while 40% agreed to the development of a derivative market. This result is geared towards answering the research question of are there participants willing to be involved in the derivatives market. My data from Table 4.5 above shows a lower percentage of the population in favor of developing a derivatives market. This result could be linked to Table 4.3 which is a measure of the level of awareness about derivatives within the organizations. The implication of this is that without proper education on the subject of derivatives, it may be a futile exercise in developing a derivatives securities market. The reasons behind the rejection of the idea of developing a derivatives market among the respondents was solely based on educational grounds- inadequacies in knowledge on the concept of derivatives. However, the 40% that welcomed the idea was based on the rationale that developing a derivatives market

would further deepen the market by encouraging more speculators to the market and enable efficient price discovery.

Table 4.6 shows the percentage of the respondents involved in any form of derivatives trading and only 20% is indicative of any form of derivative trading. Even in the absence of an organized derivatives securities market in Ghana, a few institutional investors are involved in some futures contracts used as hedge against the depreciation of the cedi to other trading currencies (especially the US dollar). This result from these analyses the availability of prospective participants who would readily use the derivative instruments. This finding also answered the research question on availability of participants ready to use derivatives instruments. Although the percentage is low in terms of respondents involved in any form of derivatives trading however this discrepancy could be hinged on the small sample size used for this study. Even though there is not a developed derivatives exchange in Ghana, the participation of certain institutional investors in bi-lateral OTC contracts, is a direct response to the availability of participants which is a requisite condition for developing a derivative securities market.

4.3 Themes from the Interview Data

In analyzing the interview data, the two relevant themes which emerge have been discussed in this section. They should be relevant in answering the research question- is there an operational legal framework for developing a

derivatives market in Ghana. These themes are: legal framework for developing a derivatives market and education. These are discussed next:

4.3.1 Legal Framework for Developing a Derivatives market

It has been observed form the literature review of this study that almost all writers on the subject identify legal framework as a requisite condition for developing a derivatives market. From the interview, the data reveal that there is clearly no legal framework for the development of a derivatives securities market in Ghana. The respondent clearly stated the illegalities of derivatives securities in Ghana. He stated it thus:

"*The law in Ghana is against and forbids derivatives; it is illegal in Ghana therefore, there is no legal framework for developing a derivatives market and this is due to the risk "averseness" of the Ghanaian people. People are skeptical because Ashanti Gold went into some hedging strategy that completely burnt them because their internal hedgers allowed their hedge books to over bloat. So that has diminished the political will to initiate the derivatives market*".

These comments provide necessary evidence that there is actually no legal framework for the development of a derivative securities market. However, the respondent enumerated certain factors which in his view could be the underlying reasons for the absence of a derivatives market. These factors include: in his perception, the unwillingness of most Ghanaian's to take on

risk and a mismanaged hedging strategy by Ashanti Gold which cost them a lot of money. These factors could be a cause for the skeptical nature towards the development of a derivatives market.

Further analyses of the interview data however revealed that the Securities and Exchange Commission (SEC) were working on the legal and regulatory framework which would make the development of a derivatives market possible. Although the SEC is responsible for drafting the law necessary for derivatives trading, it would have to pass through Parliament to be passed into law. According to the respondent, "let's hope that by next year when the law is passed it will open the flood gates for derivatives". Even though the direct answer to the research question- is there a legal framework for the development of a derivative securities market is in the negative, according to his response, but the possibilities of passing the law next year is a positive step.

The legal and regulatory framework is seen as the bedrock upon which all other conditions necessary for the development of a derivatives securities market rest. This is further buttressed by the response from the interviewee who believes Ghana has all the conditions necessary for the development of an organized derivatives market.

"I *think we have it all in this country from the feasibility study. The banks will be willing they say as long as the legal and regulatory framework is put in place they would participate in derivative trading. We will also need the participants, the brokers, the infrastructure also should be there, and in*

Ghana we have the entire infrastructure, we have a clearinghouse, deposits, the financial institutions are there, the IT system is not to bad in the country so it is very easy all we need is just the linkage and that is formed when a derivatives market is formed." These comments made by the interviewee seems to provide evidence that the necessary conditions for developing a derivatives securities market are in place except the legal and regulatory framework.

4.3.2 Education

Education not in its broadest sense but in derivatives instruments was a recurrent theme in the responses obtained from this interview. The interviewee kept emphasizing the necessity of educating individual and institutional investors on the uses of derivative instruments and highlighted the possibility of inculcating it into the school curriculum. The rationale behind the interviewee's emphasis on education could be traced directly to the readiness of the Ghanaian market and economy for developing a derivatives market. As presented in the responses drawn from the interview, the imports and exports businesses in Ghana should be able to hedge against fluctuations in the cedi/dollar rates. An example from the data is the case of the Tema Oil Refinery (TOR) which is involved in the importation of petroleum products and is invariably exposed to exchange rate volatility. The use of a derivative instrument such as a forward or futures contract could

possibly lower the risk of its exposure to the fluctuation in the currency exchange rates.

4.4 Research Results and Implications

The research concludes on the results obtained from the data analysis that the absence of a legal regulatory framework is responsible for the absence of a derivatives securities market in Ghana. Even though other requisite conditions are present such as the presence of participants, a capital market, the level of awareness of derivative is still low. The study therefore finds that education is a vital requisite condition for developing a derivatives securities market.

The results above imply that although necessary conditions are available no matter the size or quantity, the absence of a legal framework makes the derivatives trading illegal and therefore forfeits the purpose of developing a derivatives market. Although the study finds out that there is the possibility of passing into law next year the legal framework necessary for the development of a derivatives securities market. The time sensitivity of passing the law is vital to this study because the study has answered most of the research questions with the exception of one. This implies that even if the economy, the Ghanaian markets and participants are ready for the trading of derivatives instruments, it would be considered as illegal unless the legal framework is put in place by the Parliament passing the required laws.

Chapter 5

SUMMARY ANALYSIS, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

The concluding chapter of this study presents a summary of the analysis done in the previous chapter. This is followed by discussions of the topic with reference to imports from previous chapters and the analysis done. The discussion unfolds to analyze the requisite conditions for the development of a derivatives securities market. Conclusions to the study, recommendations for the development of a derivative markets and recommendations for future studies are presented in this chapter.

5.1 Summary Analysis

The development of a derivatives securities market is based on certain conditions that must be met. A well-organized derivative market is built on the foundation of market participants, a functional cash market, a legal and regulatory framework. All these make a sound foundation upon which a derivatives market can thrive. Even though the economy of Ghana seems ready for the development of a derivatives market, without the legal framework it is absolutely impossible to develop it. Education of market participants is critical in determining the extent to which the market can flourish.

5.2 Discussion of Findings

The discussions emanating from my findings will be channeled through the current oil finding in Ghana and what it means to developing a derivatives market. The role of education on the concept of derivatives and the role of market participants in the development of a derivatives market in Ghana.

5.2.1 The Oil Discovery in Ghana

The nation of Ghana is relishing the current discovery of oil in its subsoil. Without a doubt there is now an addition to Ghana's export commodities and an inevitable addition in revenue to the economy. However, a question arises; how will the nation deal with the volatility in the global commodities market especially that of crude oil? The structure of every market is made up of the buyers and sellers; the seller wants to be able to make a profit from the trade after deducting their production cost while the buyer wants to pay a fair price for the product. The product in this scenario is oil which is highly influenced by the laws of supply and demand thereby exposing it to price volatility.

The development of a derivatives security market in Ghana will not have come at a better time because oil is traded on futures and forwards contracts. The producer (Ghana) of the commodity takes a position to deliver the oil at a certain price to the buyer using a forward contract. This trade is

done on an organized derivatives market. The arbitration system within the market guarantees the buyer will receive the underlying and the producer will be paid the amount settled in the contract. The price paid by the buyer is not dependent on the prevailing market price but the price agreed in the contract. This gives the producer a hedge against the price volatility in the market. The oil find in Ghana provides a perfect platform for the development of a derivatives security market in Ghana. This will provide a good opportunity for providing hedging and open the market to speculators.

Another important aspect with the oil find in Ghana and the possible development of the derivatives market would be the availability of more global cash inflow. These cash inflow would come into the economy through the participants in the derivatives market and would help deepen the economy. The participants in the market would either speculate, hedge or be involved in arbitrage. Either way, the inflow of cash to the derivatives market would be a welcome step in further deepening the economy of Ghana.

5.2.2 The Role of Education and Market Participants

Education in all ramifications would dispel and quell certain fears about the derivatives instrument and market. Before the derivatives market is developed, people especially the participants should be well versed in the benefits as well as the potential risk involved in the use of derivative instruments. The perception of the Ghanaian is that they are risk averse which in itself is not a bad thing. However, with proper education on the

derivatives instruments and insight about the possible return to risk, would make more people interested in the derivatives market. The interested parties can work hand in hand with brokers who are well versed in the use of derivative instruments thereby reducing their exposure to the risk inherent in the market.

The education on derivatives instrument can start in schools especially business schools where finance is taught, the SEC officials should be properly educated and all other willing participants. The education of the SEC officials is very crucial, because they are the body necessary for the legal and regulatory framework for developing the market. History shows that a company in Ghana called Anglo Gold lost a lot of money due to an over-bloated hedge position. This situation possibly could be responsible for prevailing skepticism in the developing of a derivative securities market. Nevertheless, that situation is not good enough to halt an economy which is ready for the development of a derivatives securities market. The skepticism that hangs over the minds of Ghanaians can be dispelled through proper education on the functionality of a derivatives securities market.

The market participants possessing the awareness and potential benefits of the derivatives market must play a crucial role in the development of the derivatives securities market. They will have to cajole and if possible keep lobbying for the passing of the law necessary for the development of a derivatives securities market.

5.3 Conclusion

The role of participants, Securities and Exchange Commission (SEC) and the government is very important in the development of a derivative securities market. Without the participants whether the institutional investors or individual investors, there would be no one in the derivatives market to hedge, speculate or be an arbitrageur. Participants are relevant to the development of the derivatives market. The role of the SEC is that of regulators of the entire securities market, which makes them custodian of the legal framework needed to be passed into law that would enable the development of a derivatives securities market.

The role of government is also very vital to the development of a derivatives securities market because from the study it shows that although the SEC prepares the legal and regulatory framework, the government would have to pass it into law. The crux of this research shows that although there exists within Ghana the necessary conditions required for the development of a derivative market, albeit the most important- legal and regulatory framework is unavailable.

The aims of this study has been fulfilled as the research as analyzed the possibility of developing derivatives securities market in Ghana, and has also analyzed the requisite conditions necessary for its development. Significantly, this research shows that there is absolutely no legal framework in place currently that will allow for the development of a derivative market. However, the study also showed that the necessary regulatory body (SEC) is

working very hard to get the law passed which should make it possible for trade in derivatives to grow in the country.

5.3 Recommendations

There are certain setbacks within the Ghanaian market and economy that ought to be rectified to ensure proper business facilitation.

- These recommendations include the establishment of a commodities exchange where commodities can be traded and risk can be unbundled and redistributed to participants willing to take on risk. The rationale behind the development of a commodities exchange is based on the fact that Ghana is a commodity based economy.
- This study has opened up possible areas for further research, and one of those areas is hinged on when the legal and regulatory framework necessary for derivative trading is passed into law. This will be how far the SEC should go in regulating the derivatives securities market without removing profit making through risk taking (speculation).
- Market watchers and participants should present a quotation paper to SEC and parliament for consideration so as to speed up the processes leading to the enactment of the relevant law

Bibliography

Andersen, T. J. (2006). *Global Derivatives.* Essex: Pearson Education Limited.

Aning, A. (2007). Development of Ghana Commodity Exchange- Expected Impacts and Benefits. *United Nations Conference on Trade and Developmet*, (pp. pp 1-16). Accra.

Bodie, Z., Kane, A., & Marcus, A. J. (2008). *Investments.* Singapore: McGraw-Hill.

Cruz, F. C., & Guedira, A. (2006). Derivatives Exchange in Morocco: Dream or Reality? *School of Business, Economics and Law* , pp 11-53.

Dodd, R. (2002). Derivatives, the shape of the International Capital flows and the virtues of prudential regulation. *World Institute for Development Economic Research* , pp 93.

Dodd, R. (2002). The Structure of the OTC Markets. *The Financier* , pp 1-4.

Ernst, W. J. (2008). *A Short History of Derivative Security Markets.* Crawley: University of Western Australia.

Fratzscher, O. (2006). Emerging Derivatives Markets in Asia. *Chapter for Asian Financial Market Development* .

Hull, J. C. (2006). *Options, Futures and other Derivatives.* New Jersey: Prentice Hall.

International Monetary Fund. (1998). World Economic Outlook. Washington DC.

Jobst, A. A. (2008). The Development of Equity Derivatives Markets . *International Journal of Emerging Markets* , pp 163-180.

Labaton, S., & Calmes, J. (2009, May 13). *Obama Proposes a First Overhaul of Finance Rules*. Retrieved March 16, 2010, from The New York Times: http://www.NYTimes.com

Leuthold, R. M. (1992). Access to Futures and Options Markets: Own versus Existing Markets. *Paper prepared for the Conference on Risk Managemnt in Liberalizing Economies.* Pris: Association Fracaise des Banques.

Lien, D., & Zhang, M. (2008). A Survey of Emerging Derivatives Markets. *Emerging Markets Finance & Trade Vol.44* , pp 39-69.

Mishkin, F. S. (2004). *The Economics of Money,Banking and Financial Markets.* New York: Pearson Publications Company.

Nwaobi, G. C. (2008, July 28). The Economics of Financial Derivatives Instruments. *Munich Personal RePec Archive* , pp. pp 1-74.

Osei, V. (2007). *Developing a Derivatives Market for Ghana: Issues and Policy Options.* Accra: Bank of Ghana.

Remolona, E. M. (1993). The Recent Growth of Financial Derivative Markets. *Federal Reserves Bank of New York Quarterly Review* , pp 1-16.

Roopnarine, K. A., Seuraj, S., & Watson, P. K. (2005). Toward the enhancement of derivatives trading in the caricom subregion. pp 1-33.

Swan, E. J. (2000). *Building the Global Market, A 4000 Year History of Derivatives .* The Hague: Kluwer Law International.

Tsetsekos, G., & Varangis, P. (1993). Lessons in Structuring Derivatives Exchange. *World Bank Research Observer* , pp 85-98.

Tsetsekos, G., & Varangis, P. (1997). The Structure of Derivatives Exchanges: Lessons from Developed and Emerging Markets. *World Bank sponsored research* , pp 3- 10.

Appendix A

INTERVIEW QUESTIONNAIRE

Questionnaire No……..

Thank you for participating in the filling of this interview questionnaire. Your thoughtful response is greatly appreciated and helpful for this academic research.

---

1) What is your occupation? Please state…….

2) What is your understanding of a derivative?.....
.....

3) Are you conversant with derivative instrument ☐ Yes ☐ No

4) Is your organization currently involved in any form of derivative trading?

☐ Yes ☐ No

5) If yes to Q4, what is the number of contracts?

☐ 1-1000 ☐ 1000-5000 ☐ 5000 and above

6) What is the level of awareness about derivatives within your organization?

☐ Nil ☐ Low ☐ Medium ☐ High

7) On a scale how possible is it to develop a derivatives market in Ghana?

☐ Very Low ☐ Low ☐ Medium ☐ High ☐ Very High

8) Would you welcome the idea of developing a derivatives exchange in Ghana? Yes ☐ No ☐

9) If yes to Q8, what are you reasons? Please state.....

Appendix B

Research Interview Guide

Thesis Topic: Developing a Derivatives Securities market in Ghana: Requisite conditions

The purpose of this interview is for academic purposes. Your thoughtful response is greatly appreciated and helpful for this academic research.

Date of Interview……..

Q1. Is there a legal framework presently in Ghana for the trading of derivatives?

……
……
……
……
……

Q2. Is the Ghanaian economy ready for the possibility of developing a derivatives market?

……
……
……
……
……

Q3. What are the necessary conditions for developing a functional derivatives market?

……
……
……