# Securities Clearing and Settlement on Ghana Stock Exchange

A Study of an Emerging Stock Market

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This work or any part thereof has not previously been presented in any form to the University or to any other institutional body whether for assessment or other purposes. Save for any express acknowledgements, references and/or bibliographies cited in the work, I confirm that the intellectual content is the result of my own efforts and no other person.

## *Formal Research Proposal*

Economic liberalisation that took place in the 1980s, mostly in Europe and the US, laid the foundation for a more open economic, financial and political environment for cross-border securities trading. Securities trading can be divided into three different parts and this dissertation will concentrate on the last part i.e. “post-trade” which is often referred to as clearing and settlement. Securities clearing and settlement mean the comparison of information from buyer and seller and the transaction of exchanging security ownership against payment or in some cases free of payment (Norman, 2008). Securities can be both traded on exchange or off exchange in the over-the-counter market (McInish, 2003).

This dissertation will concentrate on studying securities clearing and settlement procedures in Ghana Stock Exchange (GSE). The rationale for this topic is the attractiveness of emerging markets in terms of development and progress of securities trading and the reasons behind it. Ghana has been chosen as an example due to the fact that the GSE All-share Index increased 64% per cent last year (January-October 2008) when all of the major stock exchange indices came down like never before (Kew & Bowers, 2008).

Financial deregulation and securitisation have contributed to the development of the financial markets and today, clearing and settlement is an industry where millions of transactions are processed every day. In 2006, the Euroclear Group settled transactions valued EUR 452 trillion (Norman, 2008), which gives an insight into how big a business securities settlement industry is. Within the European Union, securities trading has become more and more standardised and securities are not held in physical form anymore but they are traded electronically and only show as records in the owner’s account. In addition to the facilitation of financial markets, the rapid development and easy accessibility to new technology have been the main reasons behind the growth of global financial markets. (Norman, 2008) Large telecommunications companies have been expanding more and more of their operations to Africa, Ghana being one of those countries. This will bring better means of communication to Ghana with the rest of the world as well as contribute to the development of securities trading procedures.

As stated previously, this dissertation will concentrate on post-trade functions of a stock exchange in an emerging market. The emphasis will be on the fact that Ghana Stock Exchange still operates as a physical market and trading is carried out manually. (Citibank, 2009) However, there have been aspirations for automation of trading. This dissertation will also illustrate the economy of Ghana and what role GSE plays in it. These issues will cover the political and economical situation as well as the current status of the financial markets. Also the role of emerging countries in the global economy will be briefly covered in order to look at the financial liberalisation and securities trading from other perspective.

The current state of the financial world is not very stable and in order to create financial success, new ways have to be considered. Africa is one part of the world which has not been as greatly affected by the financial crisis as the western world. Hence, emerging countries possess a great deal of potential in the world today. Opinions on Africa and emerging countries are diverse and some are more controversial than others. It is important to look at the economic and political situation in Ghana from different viewpoints and establish opinion on the grounds of the findings.

I have established my research question and further defined it with follow-up questions for support and specification. Research question for this dissertation is constructed as follows:

- What are the processes of clearing and settlement in securities trading on Ghana Stock Exchange?
- What are the defining aspects of a physical securities market?
- Are there any risks involved in automation of trading and what are the benefits?

The available literature on the subject concentrates mainly on clearing and settlement functions within the developed world especially the EU and the United States. However, the stock exchanges in emerging markets have not been publicly studied. The research methodology applied in this dissertation will be realist approach and deductive in nature. Research methods will be principally concentrating on qualitative data and on using secondary sources. Primary research can possibly be used in order to complement the research in case of secondary data showing lack of adequate and thorough information. (Saunders, Lewis & Thornhill, 2007)

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## *Abstract*

The purpose of this dissertation is to illustrate the securities clearing and settlement on Ghana Stock Exchange in the light of international standards set for these processes. The method used was to survey existing literature of clearing and settlement and emerging market countries and compare and contrast it with data concerning clearing and settlement processes on Ghana Stock Exchange.

The findings of the research were that Ghana Stock Exchange fulfils many of the existing international standards; however there are some major deficiencies. As the lack of studies concerning the topic has been addressed, the value of this dissertation was to identify main characteristics of clearing and settlement on Ghana Stock Exchange in order to evaluate and assess the processes.

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## *Glossary of Acronyms*

BIS – Bank of International Settlement

BOG – Bank of Ghana

BRIC – Brazil, Russia, India and China

CCP – Central Counterparty

CSD – Central Securities Depository

DP – Depository Participant

DTCC – Depository Trust and Clearing Coporation

DVP – Delivery Versus Payment

FDI – Foreign Direct Investment

GDP – Gross Domestic Product

GIS – Ghana Inter-bank Settlement system

GSE – Ghana Stock Exchange

IMF – International Monetary Fund

ISIN – International Securities Identification Number

LDC – Less-Developed Country

LDM – Licensed Dealing Member

MNC – Multinational Corporation

NASDAQ – National Association of Securities Dealers Automated Quotation

RTGS – Real-Time Gross Settlement system

SEC – Securities Exchange Commission

SRO – Self-Regulatory Organisation

SSA – Sub-Saharan Africa

SSI – Standard Settlement Instructions

STP – Straight-Through Processing

SWIFT – Society of Worldwide Interbank Financial Telecommunication

TARGET – Trans-European Automated Real-time Gross-settlement Express Transfer

TCS – Trading, Clearing and Settlement

WB – World Bank

# 1. Introduction

This dissertation is a report of a study of an emerging stock market in Ghana with the focus on securities clearing and settlement. The study was based primarily upon secondary research. This first chapter of the dissertation presents the background as well as aims, objectives, rationale and limitations of the study. Furthermore, the chapter concludes by giving background information on Ghana and Ghana Stock Exchange (GSE).

Today the global economy is shaped by an ideology which in international political economy is referred to as neoliberalism. In the 1980s, one of the main objectives became to promote free markets and decrease state intervention in many aspects of the economy, which was achieved through privatisation and deregulation of markets. (Balaam & Veseth, 2005, p.63) As a consequence the international financial order; rules, institutions and procedures developed for controlling international financial flows in industrialised countries were dismissed and the new order enabled the around clock and around the world free flow of private capital. Hence, the financial liberalisation laid the foundation for a more open economic, financial and political environment for cross-border securities trading. (Helleiner, 2005, p.169)

The financial markets and understandably the post-trade i.e. securities clearing and settlement industry benefited from the financial liberalisation; the industry has enjoyed significant increase in both turnover and the number of trades processed in the recent years. Technological innovations have also played a great role in the growth of financial markets in terms of the development of information technology and enabling the replacement of physical securities. Book-entry securities facilitated the securities clearing and settlement providers to expand their services in scale, scope and speed along with the development of computer systems. (Norman, 2008, p.5)

Apart from the developed the world, the financial liberalisation spread quickly also to the developing countries. The promotion of universalisation of the new world order was based on the grounds of global competitiveness and efficiency in order to achieve reduction in poverty and inequality. (Wade, 2005, p.292) This suggested that developing countries should turn their economies around, generally from state-domination to market domination. (Nwankwo & Richards, 2001, p. 165) Thus, neoliberal policies advocated the development of stock exchanges in the developing countries and for example contributed towards the establishment of GSE which was incorporated in 1989 and trading began in November 1990. (GSE, 2008c) The international policy suggested that national capital markets in developing countries would benefit from international capital inflows through purchases of stocks and bonds. Naturally this meant that the developing countries would expand their national capital markets and open them to international investors. (Maxfield, 2009, p.43) However, there is always the other side of the coin and the developing countries' participation in the international economic system dominated by developed countries can be also seen as more harmful than beneficial depending on the point of view.

The role of emerging markets[1] within the global economy is changing when considering such great economic powers like China and India today. Therefore emerging markets are an interesting subject to study. Ghana has been chosen for the reason that it has recently risen to the ranks of emerging markets as well as the fact that the GSE is a fascinating example of an exchange where the all-share index increased 64 percent last year (between January and October 2008) when all of the major stock exchange indices came down like never before (Kew & Bowers, 2008; Eskola, 2008).

This undergraduate dissertation will concentrate on studying securities clearing and settlement process on GSE from international perspective prior the implementation of central securities depository i.e. before March 2009 (National Australia Bank, 2009; GSE, 2008g). As there are different instruments traded on GSE, the focus was on equities. The aim was to objectively illustrate clearing and settlement process in the light of development of a fairly new industry to Ghana and find out if the process differs from the set international minimum standards. There is a lack of research concerning clearing and settlement and the objective of this study was to provide guidance of clearing and settlement practices for international banks that are considering offering Ghana as an investment alternative for their clients, as well as provide GSE an overview of the clearing and settlement process in order to evaluate the state of the current system and identify possible future course of action. Also

[1] The term "emerging markets" was coined by the International Finance Corporation (IMF) in the 1980s to refer to developing countries with stock markets that were beginning to show the features of the developed stock markets in industrial countries. (Nellor, 2008) The terms developing countries and emerging markets are treated as equal in this dissertation as they are used more or less synonymously also in other instances.

the role of emerging countries in the global economy along with financial liberalisation and securities trading will be briefly covered in order to review the basis for the operation of the stock exchange as well as clearing and settlement of securities in Ghana. Limitations to research include the fact that it was not possible to investigate clearing and settlement process on site but the research relied on secondary sources i.e. others' perceptions. The material concerning the topic was not easily accessible, in addition a lot of the information concerning clearing and settlement on GSE was labelled confidential or was outdated.

## *1.1. Ghana*

Ghana is located in West Africa in the Gulf of Guinea with population of nearly 24 millions. After colonisation and being under the British rule, Ghana was the first sub-Saharan African (SSA) country to gain its independence in 1957. The mainstay of the economy of Ghana is agriculture which accounts for about 35% of GDP and employs about 55% of the workforce. (CIA, 2009) Agriculture consists primarily of cocoa and cocoa products as Ghana is the second largest producer of cocoa in the world (International Cocoa Initiative, 2007). In addition, Ghana is a resource-rich country with minerals such as gold, diamonds, manganese ore, and bauxite. (CIA, 2009) In 2007, a major oil discovery was made in the coast of Ghana which has contributed towards the international investor interest. (U.S. Department of State, 2009) The banking sector is also vivid in Ghana with a long historical background dating back to 1896. (Amidu, 2007, p.68) The international banks have been welcomed to the country as they offer services for foreign investors for international transactions, thus attracting FDI (foreign direct investment). (UNCTAD, 2003, p.20) Despite of this, in SSA poverty is not history and approximately a quarter of the world's population live on less than a dollar a day. (World Bank, 2001 in Amonya, 2007) However, due to the rich mineral and cocoa resources and growing interest on tourism, Ghana has one of the highest GDPs per capita in Africa. (U.S. Department of State, 2009)

## *1.2. Ghana Stock Exchange*

Ghana Stock Exchange is the only securities market in Ghana and is located in the capital Accra. The securities traded on the exchange include equities and corporate and government bonds. In the GSE, both foreign and local companies are allowed to list and at the moment there are 35 listed equities of

33 different companies including mining (gold), breweries, banking, oil and manufacturing, all of which represent the fundamentals of the Ghanaian economy. The mission for the GSE is to act as a facilitator for wealth creation, economic growth and development. (Citibank, 2009 p.2; Appendix 3)

As the economy of Ghana also the stock exchange is still developing; GSE does not have an electronic trading system but the trades are executed manually using white boards and bargaining slips on the GSE trading floor. A bargaining slip is completed by the brokers who provide three copies of the slip, one for the GSE, one for the buying broker and one for the selling broker. At the end of the day's trading session, all the bargaining slips i.e. completed trades are manually entered into a computer at the GSE. (Citibank, 2009, p.4)

Despite the establishment of the GSE, the economy of Ghana is still largely based on agriculture and gold mining. However, GSE has been acting as a facilitator in attracting investment to the country especially after the recent oil findings. Main sources of FDI have traditionally been the US and the UK (UNCTAD,2003 p.9) though, China and Russia (Kew & Bowers, 2008) have shown recent interest towards Ghana as for example the Chinese government has promoted business cooperation between China and Ghana with USD 5 billion (approx. EUR 4 billion). (CCTV, 2008) This can be considered a sign of the new multipolar world order that has been emerging largely as a consequence of the financial crisis and its effects on the US economy as well as the whole developed world. (Zaiki, 2008)

# 2. Literature Review

The first part of this chapter will review the current empirical literature concerning securities clearing and settlement, emerging markets and Ghana. The second part of this chapter concentrates on reviewing conceptual literature regarding securities clearing and settlement on Ghana Stock Exchange.

## 2.1. Empirical Literature

### 2.1.1. Securities Clearing and Settlement

Trade and post-trade industries are characterised as network industries, similar to for example telecommunications and transport networks industries. Despite comparable features in policy and strategic issues, financial post-trade processing is still significantly different and it is difficult to directly apply standard analysis developed for other network industries. There is a need for descriptive analysis as well as development of new theoretical models to fully understand the specific economic features of the industry. (Milne, 2007, p. 2947) Descriptive material of trading platforms and post-trade processing is fairly easy to obtain but there usually is absence of the application of any coherent analytical framework. Furthermore, the material can sometimes be affected by uncritical bias from different interest groups. (Milne, 2007, p. 2948) The scope of the literature concerning securities clearing and settlement is quite narrow as Milne (2007, p.2946) points out. The main concentration of the literature is on the financial market integration and consolidation within the European Union (EU) (Serifsoy & Weiß, 2007) as well as on cost reductions through vertical and horizontal integration of business units (Milne, 2007, p.2946). Studies of emerging markets have not been widely carried out.

Milne (2007, p.2946) recognises the importance of the industry within the financial markets and is in awe by the fact that such a key industry is so under-researched. The importance of the industry is characterised by the fact that the costs of clearing and settlement of securities constitute an extensive amount of the economic resources spent in the whole of financial industry (Milne, 2007, p.2946) which is also illustrated in Norman (2008, p.3) and Serifsoy & Weiß (2007, p.3035). Milne (2007, p.2948) also identifies on the lack of knowledge of the clearing and settlement industry among those other than professionals, compared to securities trading itself. However, the necessity of the clearing and settlement process needs to be emphasised; if it is left out, the trade execution will be incomplete and of no value to the investor (Milne, 2007, p.2948; McInish, 2003, p.103). Furthermore, the high costs of cross-border securities clearing and settlement have to be acknowledged for the reason that the trading process is more economic and efficient and it is the clearing and settlement part which usually increases the costs of the whole transaction. (Serifsoy & Weiß, 2007, p.3035) However, the industry itself has been making significant efforts in order to achieve cost reductions as well as reduce operational risk[2] in post-trade processing. It has been acknowledged that progress on achieving both of these goals can be made with automated processing with minimum manual intervention i.e. by implementing so-called straight through processing (STP) from trade to settlement. (Milne, 2007, p.2946)

Risk management and systemic risks[3] of post-trade processing have also been studied. In addition, the market microstructure has been studied more extensively but until recently there has been little or no literature on the industrial organisation of trading and post-trade activities. (Milne, 2007, p.2946) In addition, theoretical models of the industrial organisation have been developed for example to analyse competition between central securities depositories (CSDs)[4]. (Holthausen and Tapking, 2004 in Milne, 2007, p. 2950)

### *2.1.2. Securities Clearing and Settlement in the EU*

The growing number of cross-border trades and the call for more economic and efficient trading, clearing and settlement structures have contributed to the need of integrated securities market. (Schmiedel & Schönenberger, 2006, p.344-45) Thus, integration has been one of the main objectives

[2] "The risk of human error or a breakdown of some component of the hardware, software or communications systems that is crucial to settlement" (BIS, 2003, p.36)

[3] "The risk that the failure of one participant in a transfer system, or in financial markets generally, to meet its required obligations will cause other participants or financial institutions to be unable to meet their obligations (including settlement obligations in a transfer system) when due. Such a failure may cause significant liquidity or credit problems and, as a result, might threaten the stability of financial markets" (BIS, 2003, p.48)

[4] "A facility (or an institution) for holding securities, which enables securities transactions to be processed by book entry. Physical securities may be immobilised by the depository or securities may be dematerialised (i.e. so that they exist only as electronic records). In addition to safekeeping, a central securities depository may incorporate comparison, clearing and settlement functions" (BIS, 2003, p.12)

of financial authorities in the past decades especially within the EU. Even though the creation of the single currency should have endorsed the creation of the single financial market, it still is not reality due to the lack of pan-European trading and post-trade infrastructures. (Milne, 2007, p.2946) The time and method of implementation of integrated value payments system, Target-2[5] along with pan-European securities settlement service is process considered controversial as for example the development of regulatory framework has been somewhat complex. (Milne, 2007, p.2960)

Securities clearing and settlement industry allows different types of integration such as interoperability, alliances, joint ventures and mergers. The main objectives of the integration are to find solutions to maximise economies of scale as well as reduce the transaction costs of the final users. This is due to competitive pressures, cooperation between market participants and policy decisions that exist within the market. (Schmiedel & Schönenberger, 2006, p.340) During the past years, stock exchanges have diversified their operations into related business areas such as derivatives trading, post-trading services and software sales. These diversifications relate largely to the demutualised stock exchanges that are profit-oriented and not so much to the smaller mutual exchanges that cannot be characterised as profit-seeking. (Serifsoy, 2007, p.3001) This has been criticised as in reality, integrated exchanges still lack technical integration of different processes thus leaving potential efficiencies of scope unrealised. (Milne, 2007, p.2959) However, in the banking sector the development has been the opposite; there has been initiation of outsourcing and offshoring of the bank “back-office” activities i.e. securities clearing and settlement department for example to distant and less expensive locations such as India. Technological developments such as the Internet and telephone banking have enabled decentralisation of these activities. (Dicken, 2007, p.404)

Many national markets within the EU have traditionally been vertically integrated with providing all of the three main activities of securities transaction, i.e. trading, clearing and settlement (TCS), in one location. However, in the United States the Depositories Trust & Clearing Corporation (DTCC) has the monopoly over securities clearing and settlement activities even though trading takes place in several exchanges. Though, the concentration of clearing and settlement within one institution increases the

[5] “The securities settlement service proposed by the European Central Bank for the Euro zone. Described by the European Central Bank as a ”common technical service” for central securities depositories providing harmonised IT facilities that would affect delivery versus payment settlement for securities against central bank money” (Norman, 2008, p.326)

possibility of STP, it also increases the barriers to entry and by that affects decreasingly on the level of innovation within the industry. (Serifsoy & Weiß, 2007, pp.3047-48) Clearing and settlement industry is in constant motion; technological development and regulatory changes are happening all the time. Both of these need to work in unison because technological development puts pressure on improvement of the regulatory framework at same pace in order to respond to the changes. (Milne, 2007, p.2960)

Despite technological innovations, market restructuring and promotional attempts by the European Commission (EC), the Single European Financial Market still is not reality; the securities transaction industry in the EU remains highly inefficient and inconsistent and most of all highly fragmented. The draw-backs in the development of the single market are influenced by different private companies that are driven by acting on their own interests which leave the common interest in the background. These players include stock exchanges and different financial intermediaries such as custodians, who are striving for better financial results through either horizontal or vertical integration. (Serifsoy & Weiß, 2007, p.3034-35; Norman, 2008, p.265) The differences of interest arise from the fact that some players may benefit from the fragmentation of the industry whereas some prefer more concentrated model. (Schmiedel & Schönenberger, 2006, p.340) It has been suggested that the crucial element in succeeding in developing the Single European Market is the transformation of the competitive fragmentation, private ownership and increasing number of regulators existing within the EU securities market, into a regulated monopoly model of the U.S. employed by the DTCC. (Serifsoy & Weiß, 2007, pp.3055-56; also Schmiedel & Schönenberger, 2006, p.340; Norman, 2008)

However, the EU has had a different route of development and possesses dissimilar characteristics to the United States; the success behind the DTCC has been the common regulatory framework with a single regulator (U.S. SEC), common language, homogeneous tax and legal systems which are all absent within the EU. However, even with more favourable setting, the development and implementation process of the DTCC took over three decades so the completion of the integration and consolidation of securities clearing and settlement processes in the EU will take time. (Norman, 2008, p. 265-66) In addition, the cost of cross-border securities transactions within different EU countries is higher than within the vast US markets. Consequently, the loser in the costly and ineffective securities transaction infrastructure is ultimately the investor who can be also described as the driving force behind the European economy. (Norman, 2008, p.265) To conclude, the success of the single

European market depends on the competence in designing well-functioning governance mechanisms as well as issues concerning central counterparty (CCP)[6] clearing and competition and the execution of supervisory framework. (Schmiedel & Schönenberger, 2006, p.344-45)

### 2.1.3. Emerging Markets

The discussion concerning emerging markets, and especially their role in the global economy and globalisation, is diverse and more or less controversial. Depending on the viewpoint the terms and themes have different meanings to them. The term emerging markets is difficult to define because there is not one single definition but there are several descriptions depending on the mode of classification. In addition, due to the lack of criteria it is complex to determine which countries qualify as emerging markets because the countries studied possess such diverse features that cannot be consistently compared. The diverseness can be found in differences in comparing for example economic structures, property rights regimes or political systems of two distinct countries such as Russia and India (Sevic, 2005, p.1).

Pilbeam (2005, p.461) defined emerging market as "the market of a country which is experiencing rapid economic growth but whose income per capita usually makes it a low to middle income country". Generally, emerging markets are connected with investor interests that arise from the attractiveness of international portfolio diversification in hedging risk. (Pilbeam, 2005, p.16) The term emerging markets is often used only to refer to the so-called BRIC-countries or more broadly Latin American, Eastern European and Southeast Asian countries that have enjoyed rapid economic growth in the recent years. (Pilbeam, 2005, pp.16-17; Sevic, 2005, p.1)

Text books do not often employ the term emerging markets but countries with low income levels and low industrialisation are often referred to as less-developed countries (LDCs) (Balaam and Veseth, 2005, p.504) or developing countries (Dicken, 2007, p.502). Nevertheless, the term emerging market can in some occasions be used synonymously with developing countries. (Sevic, 2005, p.4) Nellor (2008) uses the term emerging markets to refer to countries that have financial markets and attract

[6] "An entity that is the buyer to every seller and seller to every buyer of a specified set of contracts, e.g. those executed on a particular exchange or exchanges" (BIS, 2003, p.12)

investor interest. More specifically emerging markets are described in this context as sub-Saharan African countries (incl. Ghana) enjoying private sector-led growth as well as having investible markets. To maintain the growth in the future macroeconomic policies and capital account prudential policies should be implemented. However, Ghana has been referred to as moving towards a change from being a frontier market[7] and becoming an emerging market along with seven other SSA countries. (Nellor 2008)

The study of emerging markets has been based on the classical models developed for examining trends in industrialised countries. However, the models have not been seen effective due to the fact that emerging markets are more prone to sudden changes and their performance is more difficult to categorise. (Sevic, 2005, p.7) Nellor (2008) emphasises the importance of private sector development and financial liberalisation in achieving economic growth. Yet some views of the emerging markets are optimistic, even they have not been able to avoid crises in the past (Sevic, 2005, p.2); take for example financial crisis of Southeast Asia or Latin America in the end of 1990s (Balaam & Veseth, 2005, pp. 175-85) or Ghana which has suffered from periodic economic crises throughout its history. (O'Malley, 1999, p.834) However, state-owned enterprises and institutions still form a large part of the emerging markets' economies. (Sevic, 2005, p.7) Low institutional capacity exists within emerging markets meaning that they do not function in the way they are expected or they function inappropriately. In addition, corruption and low regard for rule of law can be found in these countries because often inconsistencies can be found between legal system and legal order. (Sevic, 2005, p.3)

Critics claim that the neoliberal policies implemented also in developing countries have only benefited extremely wealthy investors as well as a relatively small number of large multinational corporations (MNCs). This has sometimes been referred to as neocolonialism, as the old colonial powers continue to have economic dominance over developing countries. (Balaam & Veseth, 2005, p.325) Neoliberalism has been defined as "the defining economic paradigm of our time – it refers to the policies and processes whereby a relative handful of private interests are permitted to control as much as possible of social life in order to maximise their personal profit". (Chomsky, 1998, p.7) Conversely, there are also supporters for the financial globalisation and Mandelbaum (2002 in Balaam and Veseth,

[7] "Term described countries with markets that are smaller and less liquid than those in the more advanced emerging markets" (Nellor, 2008)

2005, p.65) has more positive a view of the free markets and their externalities; free markets, peace and democracy form a virtuous circle where one promotes the other. According to this view, striving towards peace creates the justification for free markets. However, this has been criticised with evidence from the implementation of free markets and privatisation in sub-Saharan Africa. The policies have been developed to most of all encourage foreign investment as well as citizens' participation in investment and ownership. Still, the economic and financial conditions in these countries allow only active participation of MNCs and national leaders among which corruption can be found in many SSA countries. Thus, these policies have not endorsed reduction in poverty but rather made the situation even worse. (Nwankwo & Richards, 2001, p.176-77)

The economic performance of sub-Saharan African countries has been compared to Southeast Asian economies in 1980s. (Nellor, 2008; Anon., 2008) However, good economic performance in Africa is mostly found in countries that have rich natural resources especially oil, where economic growth can be achieved through exportation. Also African countries can seek economic growth through import substitution as well as intraregional trade. Nevertheless, reliance on exportation of commodities is risky due to the fluctuation in prices. (Nellor, 2008) Additionally, many African countries still suffer from civil wars and cycles of violent unrest which makes achieving sustainable growth more difficult. (Anon., 2009)

### *2.1.4. Emerging Stock Markets*

One of the reasons for establishment of stock exchanges in developing countries has been the creation of capital to conduct infrastructure development. Sub-Saharan Africa has 22 stock exchanges, but most in their infancy. Most of the stock exchanges have a short history as they were established after 1990s; the exceptions being Nairobi Stock Exchange in Kenya which was established in 1920s and JSE Limited of Johannesburg in South Africa established before 1900. Apart from the JSE Limited of Johannesburg, the market capitalisation is usually low in SSA exchanges and private contribution is minimal, as private investors account for less than 10 percent of the total market capitalisation. Compared to South Asia, where stock exchanges were established before 1950s, SSA market capitalisation is abysmal. However, the young age of the exchanges in SSA is not the main reason behind poor performance; the reasons stretch from historical issues to poor governance and poor savings culture. There have been discussions about the establishment of a pan-African stock exchange in order to increase investment in the region in the form of increasing domestic liquidity as well as improve access to global markets. (Amonya, 2007) Thus, developed financial markets have been acknowledged to have contributed towards economic growth by increasing the pool of funds, decreasing risk, and enabled the transfer of funds from savers to investors. Despite many attempts, financial markets in developing countries have not developed as anticipated. One of the fundamental obstacles against the development is the lack of incentive by the corrupt financial and political elites as they believe financial markets pose a threat to their power, hence restraining opportunities to new investors. (Kholdy & Sohrabian, 2008, p. 495)

Moreover, Sevic (2005, p.4) criticises the emerging markets' ability to sustain development in the financial sector; emerging markets have "problems with the efficiency and effectiveness of the legal system, market control, accounting and disclosure requirements, market discipline, prudential control and supervision, monetary policy and central bank's ability to maintain price stability, exchange rate regimes etc". Furthermore, most of the emerging markets have a bank-based financial system (Sevic, 2005, p.2) which makes it difficult to apply market-based regulatory system due to low institutional capacity and low absorption capacity of the innovative technology (Sevic, 2005, p.5).

Additionally, according to Sevic (2005, p.3) there has hardly ever been evidence that stock market performance in emerging markets can be perceived as an indication of the good performance of the economy. Furthermore, the word uncertainty can be attached to emerging markets performance due to instability in the legal system which can lead to more serious problems in the financial markets. (Sevic, 2005, p.4) Maxfield (2009, p.46) comments on the reasons for policy changes and why lower income countries should not pursue to open local stock exchanges that stem for example from the fact that there is a lack of empirical studies concerning stock exchange development in such countries and also lack in the criteria used in measuring the efficiency of the stock market performance. However, according to Levine and Servos (1998 in Maxfield, 2009, p.46), the stock market activity and economic growth are in correlation in low and middle income countries which also Maxfield (2009, p.46) herself agrees upon. There has been evidence on positive externalities a stock exchange creates in a lower income country, including "providing a local source of government finance, disruption of entrenched power structures and building financial literacy as well as encouraging entrepreneurship" (Maxfield, 2009, pp.46-47).

Emerging stock markets have been characterised as having low liquidity and low daily turnover as well as lack of capital supply. (Charitou & Panayides, 2009, pp.53) Market makers in developed countries have been found to improve stock liquidity (Jain, 2003 in Charitou & Panayides, 2009, p.53), lower price volatility and lower transaction costs (Westerholm *et al.,* 2003 in Charitou & Panayides, 2009, p.53). Different market making systems can be found in most developed capital markets working along with electronic limit order book design. It has been suggested that market regulators in emerging markets should adopt one of the three market making designs in order to create a more efficient and attractive trading venue for international investors. The three market making systems are; the *quote-driven market making system* (NASDAQ, London Stock Exchange), the *centralised market making system in an order-driven market* (New York Stock Exchange, Deutsche Börs), and the *non-centralised market making system in an order-driven market* (Euronext, Germany's Xetra etc.). Hence, the regulatory authorities in emerging markets should thoroughly consider which of the market making designs would be best suitable to achieve their objectives in order to avoid unnecessary costs. The factors worth considering include for example the current exchange design and the costs of restructuring, the size of the emerging market, domestic and international attitudes towards the existing exchange design and market designs in countries hosting the target foreign capital. (Charitou & Panayides, 2009, p.75)

Despite economic growth in recent years, the rise of the emerging markets may have come to an end; the effects of the financial crisis are visible and in 2008 emerging stock markets fell by more than those of the developed world. Over the past five years, emerging market economies have grown by an annual average of more than 7%. The global financial crisis has affected to exports, hence export-led economies are vulnerable due to growing reliance on American consumer markets. However, the dependence of the US markets can be a bit exaggerated and emerging markets with high savings and modest debt, for example China, will have a better opportunity to survive the global financial crisis as such emerging markets have much sounder economies than the big rich ones. (Anon., 2009)

### *2.1.5. Economic Reforms and Ghana Stock Exchange*

The history of Ghana is characterised by periodic downturns in macroeconomic policies which have led to for example volatile and high inflation and significant swings in exchange rate. Economic reforms were needed in order to bring back the country from the brink of collapse and reform was initiated in 1983 when the inflation was shocking; around 123 percent. The reforms were based on promoting market approach in order to achieve development through trade and financial sector liberalisation. (Kyereboah-Coleman & Aqyire-Tettey, 2008, p.365) The GSE was established as a result of these reforms and its role in the economic development has been studied. In a global context, stock markets are considered to be “financial institutions where funds can be raised in order to finance investment so as to achieve high-economic growth and hence development” (Kyereboah-Coleman & Aqyire-Tettey, 2008, p.375). However, in smaller markets prudent macroeconomic policies can be regarded as a prerequisite for a country to gain maximum benefits from stock markets. Reduction in inflation and interest rates needs to be achieved and these should be applied with appropriate monetary policies in order to ensure macroeconomic stability and hence better stock market performance. (Kyereboah-Coleman & Aqyire-Tettey, 2008, p.376)

The economic reforms that have been led by the World Bank (WB) and the International Monetary Fund (IMF), have also promoted accountability and transparency in corporate governance practices in the developing world as they are attracting more and more international capital. (Tsamenyi, Enninful-Adu & Onumah, 2007, p.319) Furthermore, Ghana is one of the first countries in Sub-Saharan Africa to have implemented these policies. (Tsamenyi, Enninful-Adu & Onumah, 2007, p.332) The disclosure and transparency have been researched by studying the features among Ghanaian listed firms. The results indicate that the level of disclosure in Ghana is low. (Tsamenyi, Enninful-Adu & Onumah, 2007, p.332) Despite of this, the economic reforms of the country have been cited as a success story by the international financial community. (Fortune Magazine, 2001 in Tsamenyi, Enninful-Adu & Onumah, 2007, p.332) The research was limited to companies listed on GSE which is quite a small sample size as many of the companies registered and operating in Ghana are privately or state owned and thus not adequately representative. In addition, disclosures in Ghana are strictly restricted and annual reports are usually not published. Although, annual reports of all companies are required to be submitted to the Registrar General’s Department, this is not always enforced, and the department may not be able to provide such information on request. (Tsamenyi, Enninful-Adu & Onumah, 2007, p.332) This type of research is necessary in the light of being an incentive for foreign investment in Ghana. (Ahunwan, 2002 in Tsamenyi, Enninful-Adu & Onumah, 2007, p.332) However, better macroeconomic policies including reduction of interest and exchange rates as well as promotion of accountability and transparency of the Ghanaian companies are essential in striving for economic development in the country.

## 2.2. Conceptual literature

### 2.2.1. Securities Clearing and Settlement on GSE

A framework titled "Securities Clearance and Settlement Matrix" has been developed in order to "assess securities clearance and settlement systems based on international standards and best practices" (Guadamillas & Keppler, 2001, p.1). A structured analysis has been provided concerning the securities clearing and settlement including for example the definition of the major risks, the objective and scope of the clearing and settlement systems and recognition of the participants and their roles. Clearing and settlement systems and processes in all countries have common features and functions, and the means for lowering costs and improving efficiency are similar. However, the local legal and cultural structures influence on the specifics of a particular national system and these do not necessarily downgrade the functionality of the system but only illustrate the characteristic differences between countries. The analysis is needed with the purpose of identifying the primary policy and organisational and operational features of the industry. (Guadamillas & Keppler, 2001, p.1) (See Appendix 1 for Clearance and Settlement Matrix)

The framework is based on a number of different international standards and best practices such as Lamfalussy[8] and G30[9], which have been produced for assessing the quality of a securities clearing and settlement system. In this framework these standards and best practices have been modified to match up with the conditions found in emerging markets. For example book-entry format securities have been made as a norm for emerging stock markets along with electronic clearing and settlement. The framework does not concentrate on any specific issue but takes a broader view based on an assessment of the way in which the clearing and settlement system operates. (Guadamillas & Keppler, 2001, p.18) In following chapters, securities clearing and settlement on GSE has been

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[8] "European Central Bank's six minimum standards for the design and operation of cross-border, multi-currency netting schemes or systems" (ECB, 2009)

[9] "The Group of Thirty is a private, nonprofit, international body composed of very senior representatives of the private and public sectors and academia. The G30 aims to deepen understanding of international economic and financial issues, to explore the international repercussions of decisions taken in the public and private sectors, and to examine the choices available to market practitioners and policymakers" (Group of Thirty, 2009). G30 has also provided standards for securities clearing and settlement.

presented in the light of this framework and principally the more the securities clearing and settlement system on GSE complies with the issues stated in the framework, the more secure and efficient the process is considered to be. In other words, security and efficiency increase the effective operation of the system and increases the participants' (including investors) understanding of the obstacles and challenges that are entailed in taking part in trading on GSE. (Guadamillas & Keppler, 2001, p.1) The central bank has the responsibility for establishing an adequate level of standards for clearing and settlement. (Clacher, Doriye, Mohamed & Satta, 2006)

#### *2.2.1.1. Clearing and Settlement Processes*

The securities trade completion process has two stages; clearing and settlement (Kohn, 2004, p.527), and both of these consist of different phases including matching, comparison (clearing) and settlement generally by payment against the delivery of securities. (Nolan & Amos, 2001, p.73) Clearing is defined as "the process of transmitting, reconciling and, in some cases confirming payment orders or security transfer instructions prior to settlement" (BIS, 2003, p.13). Whereas settlement is described as "the completion of a transaction, wherein the seller transfers securities or financial instruments to the buyer and the buyer transfers money to the seller" (BIS, 2003, p.45). The objective for clearing and settlement process is that the system is prompt and reliable as well as cost-effective and convenient to use. (Guadamillas & Keppler, 2001, p.19)

As the name cross-border trade implies, the counterparties are located in respective countries. However, cross-border settlement refers to settlement that takes place in a country that is different from the country in which one or both of the counterparties are located. Generally, institutional investors such as banks use global custodians to settle their cross-border trades. (Guadamillas & Keppler, 2001, p.26) Global custodians provide custody services in the country it is located as well as in several other countries throughout the world. (BIS, 2003, p.25) A global custodian settles the trades in the local market through a local agent that acts as its sub-custodian[10]. (Guadamillas & Keppler, 2001, p.26) The use of local agents through global custodians is common in Ghana as for example participation in the Ghana Inter-bank Settlement system (GIS) is limited only to licensed clearing

[10] "Where one custodian (e.g. a global custodian) holds its securities through another custodian (e.g. a local custodian), the latter is known as a subcustodian" (BIS, 2003, p.47)

banks in Ghana who are members of SWIFT[11]. The GIS is a real time gross settlement system established to handle large value inter-bank payments in Ghana. (Citbank, 2009, p.10) (See also Appendix 2 Market Participants and Licensed Dealing Members on GSE)

The Ghanaian market is physical for equities and bonds and fixed income is held in book-entry format. The settlement is carried out manually but it is centralised in the GSE which also oversees the trading and makes sure that trades settle on time. As the securities are held in physical form in Ghana and trading is carried out manually, there is no automated link between the trading system and the settlement system, thus DVP[12] (delivery versus payment) does not occur. (Citibank, 2009, p.12; GSE, 2008g) Compared to the STP and the basic DVP settlement process, the trade completion on GSE acquires manual intervention. The process on GSE is illustrated in Figure 1 and takes place as follows:

> In case of a buy, the selling broker delivers a transfer form to the buying broker. After the form is completed by the buyer's custodian, the buying broker delivers the transfer form to the custodian for completion. Then the transfer forms are completed and handed back to the selling broker. The transfer form and certificate are delivered to the registrar who issues a registrar's receipt to the buying broker via the selling broker on T+2[13]. The buying client's account will be debited on T+3. The payment is made to the broker and the registrar's receipt will be handed to the local agent. The exchange of payment (which is made by cheques) and documents between the buying and selling brokers takes place at T+3 which is in accordance with the international standard.
>
> Citibank, 2009, p.11

[11] "A cooperative organisation created and owned by banks that operates a network which facilitates the exchange of payment and other financial messages between financial institutions (including broker-dealers and securities companies) throughout the world. A SWIFT payment message is an instruction to transfer funds; the exchange of funds (settlement) subsequently takes place over a payment system or through correspondent banking relationships" (BIS, 2003, p.47)

[12] "The Principle that both parties to a settlement should exchange assets at the same time". (McInish, 2003, p.100) "A link between a securities transfer system and a funds transfer system that ensures that delivery occurs if, and only if, payment occurs" (BIS, 2003, p.20)

[13] Definition of T+1 – ""*T + n*" where *T* is the trade date and *n* is the number of days later the settlement will take place" (Kohn, 2004 p,. 532)

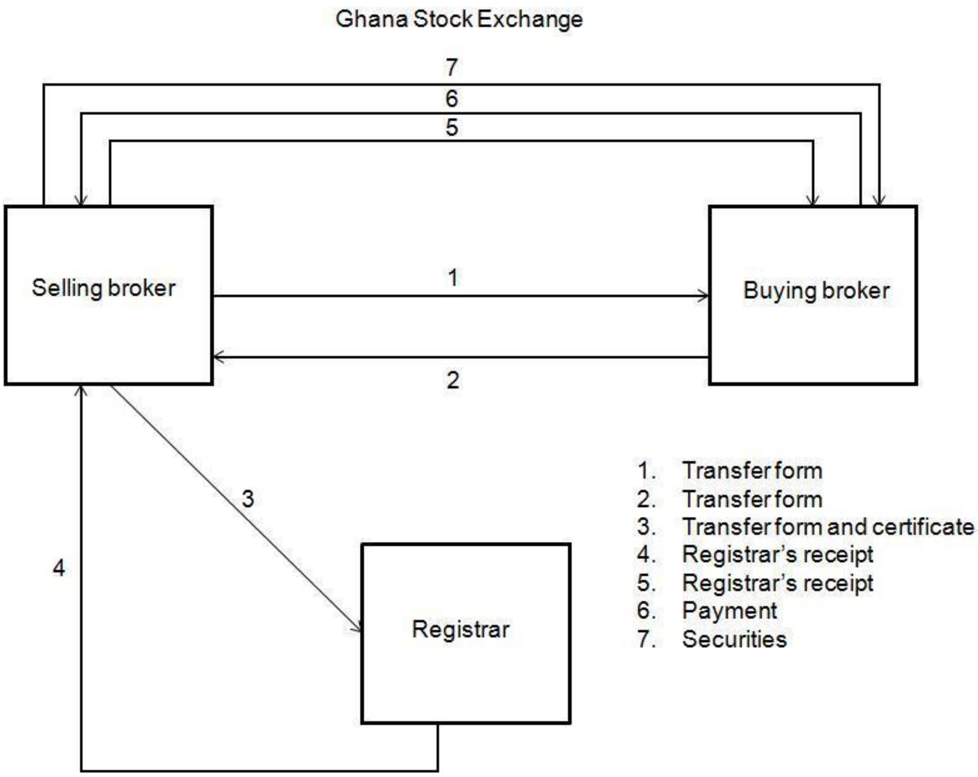


**Figure 1 Settlement process on GSE (author's interpretation of Citibank, 2009 p.11)**

The main difference between settlement system on GSE and the basic settlement system used around the world is that in Ghana there are different phases that have to be carried out in order for the settlement to be final. Registrar's receipt and transfer forms are passed back and forth from one party to another which makes the whole process complicated and time-consuming. Whereas the basic DVP settlement process illustrated in Figure 2 is carried out automatically as the standard settlement instructions (SSI) have been entered into the clearing and settlement system by the both parties; the buyer and the seller. (Nolan & Amos, 2001, p.73)

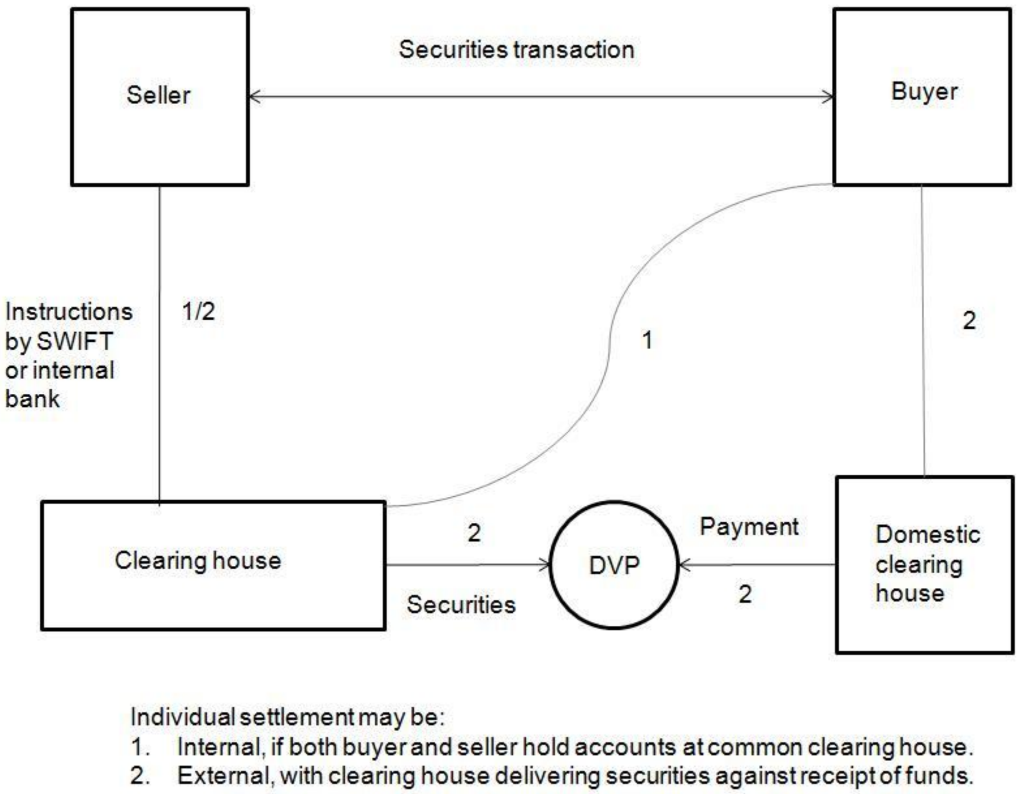


**Figure 2 Basic DVP settlement process (Nolan & Amos, 2001, p.73)**

International Organisation of Standardisation has developed standards for securities messages and especially all stock exchanges should adopt the ISIN numbering system for all securities issued which is defined in the ISO Standard 6166. This system has been adopted by GSE and the ISIN system is applied to all securities traded on GSE. (Citibank, 2009, p.1) According to the international standards, trade matching should be done after the trade as soon as possible, however it should be done no later than T+1. The un-official pre-matching of the trades with the buying/selling broker is carried out through local agents in Ghana. The trade comparison between direct market participants is accomplished by T+0 and then matched trade details will be linked to the settlement system. However, the recommendation for indirect market participants including institutional investors and other indirect trading parties to achieve positive affirmation of trade details by T+1 does not occur in Ghana.

The transfer of securities as well as the transfer of money are both time consuming, thus the deadline for settlement is set to a date after the trade date. Nowadays, most markets have so called rolling settlement which means that the settlement of securities takes place every business day and after a certain number of days after the trade has been executed in the exchange (BIS 2003 p.43). Many systems have traditionally been designed to settle trades T+5, however the length of time has been reduced mainly due to the fact that the longer it takes to settle a securities trade the more likely it becomes that the settlement may not take place. (Guadamillas & Keppler, 2001, p.19) GSE has implemented rolling settlement that occurs in T+3, thus complying with the recommendations according to which final settlement for all trades should occur no later than T+3. (Citibank, 2009, p.1; GSE, 2008g)

#### *2.2.1.2. Settlement Risk*

The settlement process exposes market participants and clearing and settlement systems to different risks and the system should be designed to minimise the exposure to these risks. The main risks relating to securities clearing and settlement processes are divided into six different categories; credit risk[14] and systemic risk are identified as the most common ones. The risks mainly arise due to the large number of different instances involved in the process which can be minimised through for example STP can be implemented to reduce risk related to counterparty and DVP (delivery versus payment) to reduce exposure to principal risk[15]. (McInish, 2003, p.111) However, cross-border trading increases the exposure to clearing and settlement related risks as well as makes compensation procedures more complex. This is due to conflicting laws, rules and interests in respective countries. (McInish, 2003, pp.104-108) Thus, achieving safety and efficiency is important for a settlement system. (Guadamillas & Keppler, 2001, p.20)

The movement of cash and securities does not take place simultaneously which is the prerequisite for delivery versus payment (DVP) to occur. (BIS, 2003, p.20) As stated previously, in Ghana a link between the securities and fund transfer system has not been established, thus DVP does not occur. (Citibank, 2009, p.12; GSE, 2008g) However, some local agent banks have made arrangements with the local brokers whereby only banker's checks with same day clearance are accepted in order to reduce principal risk. (Citibank, 2009, p.11)

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[14] "The risk that a counterparty will not settle an obligation for full value, either when due or at any time thereafter. In exchange-for value systems, the risk is generally defined to include replacement cost risk and principal risk" (BIS, 2003, p.17)

[15] "The risk that the seller of a security delivers a security but does not receive payment or that the buyer of a security makes payment but does not receive delivery. In this event, the full principal value of the securities or funds transferred is at risk" (BIS, 2003, p.39)

Netting is the balancing of obligations by trading partners which can be applied to cash payments as well as to securities transfers. Netting is used to decrease costs and risks because the size of mutual obligations is reduced and counterparties settle only one smaller transaction instead of multiple large transactions. This also reduces the total of payments made in foreign currencies both in terms of value and volume. (McInish, 2003, pp.108-9) Thus, netting also decreases the exposure to exchange rate risk[16]. Netting can be achieved either bilaterally between two counterparties or multilaterally among a group of trading partners (McInish, 2003, p.109). If netting is not possible, stock markets are then encouraged to reduce settlement risk through Real Time Gross-Settlement System (RTGS) which provides continuous real-time settlement of funds or securities transfers individually on an order by order basis without netting the transfers. (BIS, 2003, p.41) Due to low liquidity level on GSE and the absence of central counterparty[17] (CCP), securities netting does not occur and trades are settled on trade-by trade basis. RTGS is only applicable to funds transfer as the GIS performs this function in Ghana (Citibank, 2009, p.10).

A central securities depository immobilises securities in its depository in a way that buying and selling of securities is only shown as records on the investor's securities and cash accounts. (Norman, 2008, p.12) This reduces the risk of losing the certificates and increases the efficiency of the securities transfer as the whole process becomes much faster. This also means that book-entry securities are fungible i.e. the owner does not own any particular security but is entitled to the quantity of securities registered that are held in a pool of similar securities held by the depository in its books. (Nolan & Amos, 2001, p.82) However, there is no CSD operating in Ghana[18] at the moment and the securities are held in physical form; they are deposited into subcustodians' vaults for safekeeping. (Citibank, 2009, p. 2; GSE, 2008g)

Today, clearing mostly refers to central counterparty clearing, where the CCP becomes buyer to every seller and seller to every buyer. CCP guarantees on behalf of both of the trading parties that the

[16] "Risk associated with fluctuations in exchange rates" (Kohn, 2004, p.37)

[17] "An entity that is the buyer to every seller and seller to every buyer of a specified set of contracts, e.g. those executed on a particular exchange or exchanges" (BIS, 2003, p.12)

[18] Note: In 2007 the Ghanaian Parliament passed the Central Securities Depository Act which facilitated the establishment of a CSD. Automation project was almost completed in the end of 2008 but was halted due to a fire outbreak. However, after two years the dematerialisation of securities began and CSD started to operate in March 2009. (Citibank, 2009, p.2; National Australia Bank, 2009; GSE, 2008g)

transaction will be complete by undertaking the transfer of funds and securities even though one of the parties may default. CCP clearing makes it easier to manage counterparty risks by supplying a single counterparty instead of several. From 1990s onwards along with electronic trading platforms, CCP clearing began to appear in the European securities markets. (Norman, 2008, p.10-11) However, in Ghana CCP clearing has not been employed due to absence of CCP in the market.

Short selling is in some instances used to add liquidity in the market. However, there are risks related to short selling and it must be guarded against manipulative practices through regulation. This usually involves a combination of short selling and securities lending and restricts short sales to only liquid equities. The risk can be reduced further by disclosing short sales and securities lending positions and reporting them to the regulator. (Guadamillas & Keppler, 2001, p.31) Short selling and securities lending are not permitted in the GSE as the equities have low liquidity. (Citibank, 2009, p.12)

#### *2.2.1.3. Legal Issues*

Clearing and settlement system should be established on a sound legal basis that is also able to accommodate technological advances in the operation of the system and does not constitute a constraint for the operation or future development of the system. There is a variety of laws and legal concepts that can affect the performance of clearing and settlement systems including: contract laws, company laws, bankruptcy and insolvency laws, custody laws and property laws. All the laws concerning securities clearing and settlement need to be enforced and enforceable in all relevant jurisdictions. Also specific and comprehensive and fair arbitration processes that are clear and unambiguous need to be established in order to settle disputes without them becoming a subject of court. (Guadamillas & Keppler, 2001 p.22)

The nominee concept of beneficial ownership of securities is recognised under Ghanaian law and securities are registered on actual settlement date along with the signed receipt issued by the registrars. However, the actual certificate must be issued within two months of settlement date, as this is the legal norm in the Companies Code. The certificates and denominations are recorded and tracked in the subcustodian’s certificated management system. The shares can be sold by only using the registrar’s receipt received on settlement date even though the certificates have not yet been received. (Citibank, 2009, p.13)

Failed trades are rare in Ghana and all discrepancies during the pre-matching process are advised to report immediately to the broker and concerned client on T+1 thus aiding the speed of resolution process of the discrepancy. Broker is responsible for any failure of the trade and the market authorities will investigate the reason for failure in settlement and initiate a buy-in[19] on T+6 so that the shares can be delivered to the buyer. The fines imposed on the broker will be twice the amount the broker would have received as commission and the fines have to be paid immediately. If the broker has not met the obligations on T+8, the broker can be suspended. Investor Protection Fund at the GSE covers for any trade obligations. The fund has not yet been used, but would be used to cover any defaulting broker. In addition, the rules regarding the use of the fund are still to be formalised. (Citibank, 2009, p.13)

#### *2.2.1.4. Regulatory Oversight Issues*

The financial markets have been tightly regulated due to the political sensitivity of the industry. (Howells & Bain, 2004, p.358) The fear of market failure is the driving force behind regulation which can act both for and against the markets as it may result in false notion of protection among for example investors or banks, thus lead to them taking greater risks than they would normally do. (Howells & Bain, 2004, p.361) However, fair, effective and efficient regulatory oversight must be enforced to securities clearing and settlement system and ensure that it operates fairly, effectively and efficiently and reduces systemic risk. (Guadamillas & Keppler, 2001, p.22)

In most cases, the responsibility for provision of regulatory oversight for securities clearing and settlement is carried out together with the general supervision of the securities markets without any special attention being put on clearing and settlement issues. However, there is a trend towards regulatory oversight being implemented at two levels that is substituting the traditional direct supervision. The regulator conducts the oversight of the Self-Regulatory Organisations (SROs) (including CSDs and exchanges) activities and these institutions perform the same function regarding their participants. (Guadamillas & Keppler, 2001, p.23) As opposed to statutory regulation, self-

[19] "A purchase of securities in the open market by the lender, where the borrower is not able to deliver the securities to the lender in accordance with the terms of the transaction (e.g. on the settlement date). All costs are borne by the borrower in this case" (BIS, 2003, p.10)

regulation leaves an element of risk to both the industry and the companies within the industry. (Howell & Bain, 2004, p.363)

The Bank of Ghana (BoG) is the central bank in Ghana and a government institution that provides implementation of monetary policy (Bank of Ghana, 2008) and the Stock Exchange Act of 1971 governs the GSE (Citibank, 2009, p.9). The securities industry in Ghana is governed by the Securities Industry Law 1993, among other things this brought about the establishment of the Securities and Exchange Commission (SEC). SEC acts as the sole regulator in the securities market in Ghana and its primary mission is to protect investors and maintain the integrity of the securities market. In addition, SEC provides education for market operators, policy makers and investors concerning their respective rights and obligations. (Securities Exchange Commission Ghana, 2003) SEC also carries out regular inspection of Licensed Dealing Members' (LDMs) operations and books. (Citibank, 2009, p.7; GSE, 2008g) Brokers are required to submit return reports to the GSE. In addition, listed companies are required to submit annual and quarterly financial statements to the SEC and the GSE. SEC also investigates the possible breaches of securities laws and provides settlement of disputes arising on the securities market. (Citibank, 2009, p.7)

Custodian banks are regulated by the Bank of Ghana, which is also responsible for regulating all the banks in Ghana. The Bank of Ghana is responsible for ensuring the stability of the financial system. The local agent banks are obliged to report security positions to the SEC and foreign exchange positions to the central bank. (Citibank, 2009, pp.7-8)

#### *2.2.1.5. Clearing and Settlement Institutions and their Participants*

The cost of clearing and settlement process is of great importance as mentioned in Chapter 2.1.1. The transaction cost per unit should be clearly indentified in order to avoid an unfair situation for the investor. In addition to minimising risk, the clearing and settlement institutions and participants should be able to take advantage of economies of scale. (Guadamillas & Keppler, 2001, p.23)

As mentioned in Chapter 2.2.1.2., there is no CSD operating in Ghana. However, dematerilisation of securities and implementation of CSD would lower the transaction costs as well as improve the security of the transaction by reducing exposure to different types of risks.

There are a set of membership regulations for becoming a licensed dealing member on GSE. The membership has to be applied after the requirements are met, which include a minimum stated capital as well as a minimum for liquid funds. The restrictions have been developed to manage and monitor the participation in the operations on GSE. (GSE, 2008g) (See Appendix 2 for licensed dealing members)

#### *2.2.1.6. Safeguarding Issues*

Safeguarding policies should be applied in order to secure securities, funds and all associated records. As previously stated, the safeguarding on GSE has been endorsed by SEC and the Bank of Ghana. (Citibank, 2009, p.7-8)

#### *2.2.1.7. System Capacity*

The clearing and settlement system should maintain an adequate capacity to process current and anticipated future transaction volume, including estimated peak day and peak hour volume demands. Also in case of an unanticipated crisis, the operational capacity should be able to transfer system control to a crisis-recovery system that is used as a back-up. The data must be transferred within an acceptable time-frame without loss of data or significant reduction in service levels. (Guadamillas & Keppler, 2001, p.24)

The trading volume on GSE is low (Kew & Bowers, 2008); in October 2008, on average only 23 shares were traded per day (Eskola, 2008), which can also explain the increase in the GSE All-share Index in 2008. However, the volume and value of shares traded has been on the increase; the volume increased by 90% in 2008 and the value increased over 170%, which is the highest value of shares traded in the history of GSE. (GSE, 2008f) This means that more pressure is put on the clearing and settlement system as the volume has increased significantly. In addition, the upward trend has been forecasted to continue (GSE, 2008f), thus implementation of CSD is necessary in order to manage the increasing trade volumes. At present, many African states have very poor fixed line telecommunications infrastructure, which has also been one of the constraints behind economic growth. (Ford, 2008) Vodafone Group plc, an UK telecommunications company bought 70 % of Ghana Telecommunications in 2008 with USD 900 million (approx. EUR 729 million) which will enhance mobile and Internet communications in Ghana (Sandler & Stewart, 2008). This is worth noting because the improvement of clearing and settlement system in Ghana relies largely on technology development.

In conclusion, the literature review was based on current empirical and conceptual literature. However, the lack of studies concerning clearing and settlement industry is apparent. The recent developments in Europe, where stock markets are mature, are concerning integration and consolidation of the securities market. GSE is in very different stage of development as clearing and settlement processes are carried out manually. Despite the lack of infrastructure and funding, developing stock markets are trying to catch up mature markets.

# 3. Methodology

This chapter will describe the methods used in carrying out the study and emphasise the analysis of data. The methodology evolved as the study progressed and finally only secondary sources were used. The research was carried out in a 5-month period, starting from the beginning of October, 2008, to the end of February, 2009. Timeline of the study concentrates on the time between 2001 and the beginning of 2009.

At first, also primary research was considered to be included in the study. However, carrying out primary research through interviews with representatives from Ghanaian banks as well as GSE proved to be impossible due to the lack of interest towards the study on their behalf. Thus, the study was based on multiple-source secondary data including both area and time series based data (Saunders, Lewis & Thornhill, 2007, p.249) such as journals and newspaper articles, research papers, books as well as financial market profiles of Ghana. The data used was first evaluated for validity and reliability and only data produced by well-known authorities or other reputational sources were accepted.

The research began with defining the aim and objective of the study; however these evolved along with the study and took their final form towards the end. The lack of available information on securities clearing and settlement on GSE affected on the formulation of research aim and objective. As the available data was scarce, the aim and objective were also simplified.

The study was based solely on qualitative data as quantitative data was not essential in assessing the clearing and settlement process on GSE. There was no predetermined theoretical or descriptive framework used for the data collection process. (Saunders, Lewis & Thornhill, 2007) The data collection began with narrowing down the scope of the study and only data relating to stock exchanges, securities clearing and settlement, and emerging markets were qualified as the main subjects for the research. There is a massive amount of information available on these topics and the scope of the data was then further narrowed to only consist of the previously mentioned but with emphasis on either sub-Saharan Africa or Ghana.

The advantages of using secondary data were that it was fairly easily accessible and the data collection took less time than conducting primary research. However, without previously established relationships to financial institutions, it would have been impossible to get hold of the data concerning clearing and settlement on GSE. The disadvantages of secondary data were the fact that data concerning securities clearing and settlement on Ghana was available only from two sources; Citibank and the GSE webpage. However, this data was compared with other similar studies that had been carried out on the subject which were not possible to include as references in this context. Furthermore, the comparison of data revealed similar information and it seems that all of them have used GSE webpage as their main source. Thus, there is a lack of primary research on clearing and settlement on GSE. Thus, as not personally being introduced to the clearing and settlement processes on GSE, the accuracy of the data remains unidentified.

Secondary data enabled to look at the research topic from different perspectives, thus enabling a broad view on the subject. However, secondary data can be affected by bias and subjectivity and as for example the subject of emerging markets is controversial, the source of the data is important to acknowledge in order to define the point of view from which it has been published. Additionally, the research is influenced by the researcher’s personal experience and observation of securities clearing and settlement in emerging markets in Finland between 2008 and 2009.

# 4. Analysis and Findings

As stated in Chapter 1, this dissertation examined the securities clearing and settlement processes on Ghana Stock Exchange. This chapter is constructed in terms of analysing the themes presented in Chapter 2 and then presenting the findings of the research.

It is important to acknowledge how and when the financial system in the developing countries has evolved. It is fairly new phenomenon and the infrastructure does not allow trading at the same volume as in more mature exchanges. Clearing and settlement are also a problem due to the lack of technology which is the fundamental reason for the whole trading process being more risky. Also the political and economic framework in emerging countries is still developing and needs to be addressed when evaluating the efficiency or scope of the clearing and settlement systems as well as the stock exchange operations. Additionally, political corruption is also a threat as it is considered to be one of the reasons of restraining financial development and growth in developing countries.

As it has been addressed in many instances before, it is important to acknowledge that even though emerging market economies have gained access to the global financial markets they remain subject to rather than participants in, their operations. (McGrew, 2005, p.213) Furthermore, Ghana is dependent on financial and technical assistance from abroad especially through foreign direct investment. The flow of FDI has been on the decline due to the current global financial crisis, which is an example of the negative effects of financial liberalisation and globalisation (James, 2009). Even the poorest nations in the world, whose banks seemed to have little exposure to the complex financial instruments that caused the crisis, are suffering mainly due to globalised financial markets and especially repatriation of international capital. (Davis & Childress, 2009)

In the light of this study, the idea of pan-African stock exchange sounds too optimistic, as the EU with mature stock markets and proper funding is struggling with the implementation of the integrated securities market. Also the fundamental reason behind the establishment of stock markets in developing countries remains rather unclear. Even though it has been suggested that stock market activities are in correlation with economic growth, still many sub-Saharan African countries with stock markets are struggling with severe poverty.

The idea for implementation of stock exchanges and financial liberalisation came from the developed nations; it seems like they ordered SSA countries to open their markets for international investors and left them on their own when financial borders were broken down.  SSA economies have not traditionally been market-based and the indigenous people have not been accustomed to the market economy. The unintentional lack of knowledge and proficiency of financial markets among indigenous people has led to the poor performance of the stock exchanges, thus not contributing towards the economy in the way anticipated. This can be improved by providing better education of the operation of financial markets, thus engagement in the form of intellectual and financial capital especially from the developed nations would be essential.

Ghana is still a physical market while dematerialisation of securities and establishment of central securities depositories has become the norm around world including in emerging markets. Compared to mature stock exchanges in the US and the EU, Ghana has gone through development at much faster pace. As mature markets have been evolving through decades, Ghana has had only 20 years to build an exchange that should be consistent with the international standards. Hence, there would be no reason for assessing and evaluating clearing and settlement processes on GSE with a framework developed for mature stock markets. The framework used in this study has been developed especially for emerging markets and is appropriate for drawing a broad analysis of the process. Nevertheless, in this context the framework was useful, as the objective was to study how these processes are generally carried out in Ghana without a clear definition of a specific part of the process.

It is unclear, what measures are taken in Ghana to manage risks involved in clearing and settlement. Apart from the fact that the system operator, SEC and the clearing and settlement participants (See Appendix 2) have distinguished roles, there is little evidence concerning efficient risk management on GSE. For instance, the research does not illustrate the exposure to registrar risk, which is evident in Ghana due to the physical nature of the securities and registrar's involvement in the settlement process. Also the exposure to different other risks has not been emphasised enough in the previous studies concerning GSE.

The clearing and settlement processes on GSE differ from the set international norms mainly due to the fact that securities are still traded in physical form. However, some of the required features have been adopted such as the use of ISIN system and the T+3 settlement cycle which are also employed in mature stock markets. As stated previously, the use of effective risk management tools on GSE has not been well reported. There is a lack of basic means of risk management such as DVP, STP, netting and the absence of CCP and CSD. Legal protection has been organised ultimately by Bank of Ghana, however there is no evidence of its functionality. As fraudulent actions have been addressed as one of the main problems in financial market operations in other developing countries, it is unusual that the threat has not come up regarding Ghana especially when knowing the unstable economic history of the country.

Securities clearing and settlement on GSE has been characterised by lengthy and complex manual processes while the global trend has been simplification and automation. In addition, the low trading volume has led to misinterpretations of the performance of the GSE All-share Index. However, the volume of trades has been on the increase which has contributed towards Ghana becoming an emerging market. As it has become evident from the literature review many of the points made by Citibank of clearing and settlement on GSE can also be found on the GSE webpage. This leads to the fact that as this study has not relied on any primary research; there is no actual evidence on the efficiency and functionality of the clearing and settlement processes but they are only based on assumptions because the fundamental motive behind the main source of data is unclear and it may be biased.

The clearing and settlement system in Ghana complies with most of the recommendations presented in the framework. The main deficiency has been the absence of central securities depository. However, the CSD has been implemented in March, 2009 and will significantly improve the efficiency and lower costs of clearing and settlement process as it has become automated. In conclusion, being aware of the clearing and settlement process in financial markets is essential as “securities markets are only as good as the infrastructure that supports them” (Norman, 2008, p.265).

# 5. Conclusion and Recommendations

The lack of technology and infrastructure are holding back Ghanaian stock market and other emerging stock markets. At the time of the study, GSE did not meet all of the minimum standards set for clearing and settlement process. This supported the existing conception of the low level of development of stock markets in developing countries. The aim of the study stated in chapter 1, was accomplished in the way that a comprehensive description of the clearing and settlement process on the GSE was established. However, further research is needed in order to define the specifics of the process. The objective that was also stated in chapter 1 was achieved to the extent that the characteristics of the clearing and settlement process were illustrated and recommendations for future course of actions will made later in this chapter to the GSE.

GSE and SEC Ghana should embark on offering more education and information on financial markets in order to maximise the benefits that can be gained through their operations. As stated in previous chapter, the state of risk management is poor in GSE and there is a high risk exposure in clearing and settlement. Different risk management tools have been demonstrated briefly in this dissertation and GSE should really look into applying at least some of them. However, the improvement of clearing and settlement system requires funding and as addressed previously, developed nations should be more engaged in the development of stock exchanges in developing countries. In addition, technology transfer is necessary, in order for the stock exchange as well as clearing and settlement system to build capacity. However, this leads to the problem of neo-colonialism; as mentioned before, liberalisation and MNCs have not assisted the developing countries but kept them aside of the globalised world. As China and India have recently become key players in the world economy, they should start to speak also for other emerging market countries in global venues and make their voices heard. Thus, their actions will contribute towards promoting equality between north and south.

Primary research concerning securities clearing and settlement in Ghana and other emerging markets needs to be carried out by both academics and professionals as the area is so under-researched. Clearing and settlement form an essential part of the securities trading and for emerging stock markets to sustain development, it is important to be aware of the processes that are executed in the background in order to maintain and enhance the efficiency of the system. The modernisation of the clearing and settlement processes lays a good foundation for further studies and recommendation is to further research how the implementation process of the new CSD along with the dematerialisation of securities has taken place on GSE and how risk management and legislation correspond with these changes.

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## *Appendix 1 Securities Clearance and Settlement Matrix*

| *Relevant factors* | *Components* | *Standards* | *Status in the Country* | *Recommendations* |
|---|---|---|---|---|
| **1 - Clearing and Settlement processes:**<br><br>Objective: to have prompt and reliable systems in processing trades, a cost-effective and a convenient system for its participants | 1.1 Settlement cycle | - A market should achieve settlement by three days after trade date. (T+3) | | |
| | 1.2 Trade matching | - Trade matching should occur as soon after the trade as possible. All comparisons of trades between market participants should be done by T+1.<br>- If possible, automated links should be established between the trading system and the settlement system. | | |
| | 1.3 Trace confirmation / affirmation | - Institutional investors and custodians should be members of a trade comparison system that achieves positive affirmation of trade details. | | |
| | 1.4 System integration | - There should be an integrated central system for trade matching, book entry settlement of securities and book entry settlement of payments. | | |
| | 1.5 Common message standard | - All traded securities issues should have had a security identification number that meets the International Securities Industry Numbering (ISIN) standards. | | |
| **2 – Settlement Risk**<br><br>Objective: Achieve final and irrevocable DP and improve the overall efficiency of the settlement process | 2.1 Final and irrevocable delivery versus payment (DVP) | - DVP should be employed as the method for settling all securities transactions. | | |
| | 2.2 Same day funds | - Payments associated with securities transactions should be made in same-day funds.<br>- The system should provide prompt final settlement on the day of value, preferably during the day and at a minimum at the end of the day. | | |
| | 2.3 Netting and real time gross settlement (RTGS) as settlement methods to reduce risk | - Netting and RTGS are effective settlement mechanisms. The regulator and market participants should study market volumes and participation to determine which mechanism is appropriate for their market place and have a clear understanding of the financial risks affected by the netting process.<br>- Multilateral netting schemes should have clearly defined procedures, ensure settlement in the case of inability to settle by the participant with the largest single net-debit position and have publicly disclosed criteria for admission which permit fair and open access. | | |
| | 2.4 Asset segregation | - The pool of securities or interests held in a depository should be protected against the claims of the depository's and broker's general creditors. | | |
| | 2.5 Settlement assurance procedures | - Margin requirements may be used in combination with other mechanisms to manage risk to market participants, clearinghouses and exchanges. | | |
| | 2.6 Liquidity risk | - Central clearing organizations and CSDs (System Operators) should maintain adequate sources of liquidity to meet their financial obligations on a timely basis. Reliance on one source may pose significant risks in the event of a financial crisis, and consideration should be given to diversifying liquidity sources to reduce such risks. The level of necessary liquidity sources should be based on an assessment of the risks to which the organization is subject and should be subject to regulatory review. | | |

| *Relevant factors* | *Components* | *Standards* | *Status in the Country* | *Recommendations* |
|---|---|---|---|---|
| | 2.7 Short selling | - Short selling is regarded as a useful mechanism in some jurisdictions as an aid to liquidity. Where short setting is permitted, regulation must guard against manipulative practices, including those associated with a significant short position. In some jurisdictions this involves a combination of short sales and securities lending and restricting short sales to liquid stocks. Disclosure of short sales and securities lending positions (or, at least, their reporting to the regulator) is a tool for the further reduction of risk. | | |
| | 2.8 Securities borrowing | - Securities lending and borrowing should be encouraged as a method of expediting the settlement of securities transactions. There is a legitimate and important role for securities lending in those markets that permit short selling. | | |
| **3 – Legal issues**<br><br>Objective: Sound legal basis that is also able to accommodate technological advances in the | 3.1 Netting (legal basis) | - There should be sound legal basis for netting including the legal recognition of novation. | | |
| | 3.2 Clear definition of property rights | - There should be a clear legal definition of securities property rights. | | |
| | 3.3 Bankruptcy and insolvency laws | - The pool of securities of interests held in a depository should be protected against the claims of the depository's and broker's general creditors. | | |
| | 3.4 Electronic documents and signatures | - The law should recognize electronic documents and signatures to facilitate securities trading clearing and settlement. | | |
| | 3.5 Conflicts of laws | - There should be clear mechanisms to resolve legal uncertainties and conflicts. | | |
| | 3.6 Pledging | - Procedures for creating and enforcing a pledge of interests in securities should be simplified in order to encourage the collateralization of credit exposure in an immobilized or dematerialized system. | | |
| **4 – Regulatory oversight issues**<br><br>Objective: The system for clearance and settlement of securities transactions should be subject to regulatory oversight, and designed to ensure that it is fair, effective and efficient and that it reduces systemic risk | 4.1 Regulation of central clearinghouses and CSDs as SROs | - The system for clearance and settlement of securities transactions should be subject to regulatory oversight and designed to ensure that it is fair, effective and efficient and that it reduces systemic risk.<br>- The securities regulator should have the authority to license System Operators as SROs and review and approval their rules.<br>- The participants should be subject to supervision by a governmental authority or self regulatory authority subject to governmental oversight.<br>- As a SRO, a central clearinghouse or CSD should have sufficient organizational structure and capacity to enforce its rules and the securities laws and regulations. | | |
| | 4.2 The authority to issue directions (orders and directives) | - The securities regulator should have the power to issue directions (orders and regulations) regarding the clearance and settlement of securities transactions and clearing and settlement participants. | | |
| | 4.3 The authority to inspect regulated entities and enforce securities laws and regulations | - The securities regulatory authority should have the authority to conduct periodic inspections and require reports and enforce securities laws and regulations. | | |

| *Relevant factors* | *Components* | *Standards* | *Status in the Country* | *Recommendations* |
|---|---|---|---|---|
| | 4.4 Governance of clearinghouse and CSDs | - A System Operator should provide its participants with a meaningful opportunity to participate in the administration of its affairs. Participants should a fair voice in the manner in which decisions are made. Participants should be kept adequately informed of proposed rule changes and should be furnished with annual audited financial statements, an audited annual report on internal controls and other relevant reports on a regular basis. | | |
| | 4.5 Adequacy of Resources to perform oversight responsibilities | - The securities regulator should have sufficient staff capability with appropriate knowledge and skills to perform its oversight responsibilities. | | |
| **5. Clearing and Settlement Institutions and their participants**<br><br>Objective: Take advantage of economies of scale of settlement procedures | 5.1 Central Securities Depository (CSD) | - A CSD should be in place, and the broadest possible industry participation should be encouraged. A CSD's principal function is to immobilize or dematerialize securities, thereby assuring that the bulk of securities transactions are processed in book-entry form.<br>The depository system provides the basis for achieving efficient and low risk transaction settlements. The most important feature of the book-entry method is that a transfer of a given quantity of an issuer from one account to another can be affected by a simple debit or credit on the books of the CSD. Other important features include trade clearance, safe custody, and settlement/post settlement processing of securities and information, such as corporate actions and dividend/interest processing. | | |
| | 5.2 Membership Standards | - There should be an appropriate balance between the need for system security and broad participation in the clearing and settlement system. | | |
| **6. Safeguarding Issues**<br><br>Objective: Safeguarding of securities and funds under its control and associated records | 6.1 Integrity of records | - A System Operator should be capable of protecting against reasonably anticipated internal or external threats to the integrity of its operations.<br>- A System Operator should have appropriate procedures to back-up data.<br>- A System Operator should develop contingency plan to minimize disruptions. | | |
| | 6.2 Safeguarding of securities and funds | - A System Operator should have sufficient safeguards to ensure the safety of funds and securities under its control. | | |
| **7. System Capacity**<br><br>Objective: Provide the system with an adequate operational capacity | 7.1 Operative capacity | - A System Operator should maintain adequate capacity to process reasonably anticipated volume, including projected peak volume demands. A Systems Operator should establish formal current and future capacity estimates, conduct periodic capacity stress tests, and conduct independent annual reviews to assess whether these systems can perform adequately.<br>- A System Operator should have backup systems and contingency plans on how it will operate in the event of computer failure or if the computers are unavailable because of a disaster. A System Operator should periodically test these backup systems and plans. | | |

(Guadamillas & Keppler, 2001, pp.30-32)

## *Appendix 2 Market Participants and Licensed Dealing Members on GSE*

| **Brokers** | **Registrars** | **Custodians** |
|---|---|---|
| Cal Brokers Ltd | Ghana Commercial Bank Ltd | Barclays Bank of Ghana Ltd |
| CDH Securities Ltd | Merchant Bank Ghana Ltd | Merchant Bank (Ghana) Ltd |
| Databank Brokerage Ltd | NTHC Ltd | Stanbic Bank Ltd |
| EDC Stockbrokers Ltd | | |
| First Atlantic Brokers Ltd | | |
| Gold Coast Securities Ltd | | |
| HFC Brokerage Services Ltd | | |
| IC Securities | | |
| Merban Stockbrokers Limited | | |
| New World Renaissance Securities | | |
| NTHC Securities Ltd | | |
| Prudential Securities Ltd | | |
| SDC Brokerage Services Ltd | | |
| SIC-Financial Services Ltd | | |
| Strategic African Securities Ltd | | |
| Worldwide Securities Ltd | | |

(GSE, 2008a; GSE, 2008b; GSE, 2008e)

## *Appendix 3 Listed Equities on GSE*

| | Symbol | Company Name | Nature of Business |
|---|---|---|---|
| 1 | AADs | AngloGold Ashanti Limited | Exploration, development and mining of gold |
| 2 | ABL | Accra Brewery Comapny Ltd | Brewing of beer/malt drinks and the manufacture of aerated club soft drinks |
| 3 | AGA | AngloGold Ashanti Limited | Exploration, development and mining of gold |
| 4 | ALW | Aluworks Ltd | Production and sale of aluminium based products, which consist of aluminium sheet-in-coil, circles, flat sheets, corrugated roofing sheets |
| 5 | AYRTN | Ayrton Drugs Manufacturing Company Ltd | Manufacture, importation, exportation and sale of pharmaceuticals |
| 6 | BOPP | Benso Oil Palm Plantation Limited | Producing and processing crude palm oil |
| 7 | CAL | CAL Bank Limited | Banking and related services |
| 8 | CFAO | CFAO (Ghana) Ltd | General merchandising of consumer goods and equipments, marketing of motor vehicles |
| 9 | CLYD | Clydestone (Ghana) Limited | System Integration, outsourcing, network design |
| 10 | CMLT | Camelot Ghana Ltd | Advance printing of pre-printed and customised forms, security printing |
| 11 | CPC | Cocoa Processing Company | Processing of raw cocoa beans into semi-finished and confectionery products |
| 12 | EBG | Ecobank Ghana Limited | Banking and related services |
| 13 | EIC | Enterprise Insurance Company Ltd | Provision of insurance services |
| 14 | ETI | Ecobank Transnational Incorporation | Financial institution and bank holding company |
| 15 | FML | Fan Milk Ltd | Production of dairy products |
| 16 | GCB | Ghana Commercial Bank Ltd | Banking and related services |
| 17 | GGBL | Guinness Ghana Breweries Ltd | Production of beer/malt drinks and non-alcoholic liquor |

| | | | |
|---|---|---|---|
| 18 | GSR | Golden Star Resources Ltd | Mining, mine development and gold exploration in Ghana and West Africa |
| 19 | GWEB | Golden Web Ltd | Processing of vegetable oil |
| 20 | HFC | HFC Bank Ltd | Investment management and savings |
| 21 | MLC | Mechanical Lloyd Company Ltd | Sales and servicing automobile and equipments |
| 22 | PBC | Produce Buying Company Ltd | To purchase cocoa beans from farmers and to store them in purpose-built sheds at village/society level, cart these to collection points for inspection grading and sealing by the Cocoa Board's Quality Control Dept. |
| 23 | PKL | Pioneer Kitchenware Ltd | Production of aluminium household wares such as heavy Casseroles etc. |
| 24 | PZ | PZ Cussons Ghana Ltd* | N/A |
| 25 | SCB | Standard Chartered Bank (Ghana) Ltd | Banking and related services |
| 26 | SG-SSB | SG-SSB Ltd | Banking and related services |
| 27 | SIC | SIC Insurance Company Limited | Insurers and reinsurers generally for risks of every type and description |
| 28 | SPL | Starwin Products Limited | Manufacturing of pharmaceutical drugs. |
| 29 | SPPC | Super Paper Products Company Ltd | Manufacture of toilet rolls, printing, typing and writing papers |
| 30 | SWL | Sam Wood Ltd | Publishing, printing and related businesses |
| 31 | TBL | Trust Bank Gambia* | Banking and related services |
| 32 | TOTAL | Total Petroleum Ghana Ltd | Marketing of petroleum products and services |
| 33 | TRANSOL | Transol Solutions Ghana Limited | Prepaid voucher and Top-Up products, third party payments, electronic funds transfer infrastructure and supports services and automated teller machine services |
| 34 | UNIL | Unilever (Ghana) Ltd | Manufacturing of soaps, detergents, foods and personal products. distribution and service enterprises |
| 35 | UT | UT Financial Services UT* | N/A |

(GSE, 2008d; *Ampah, 2009)