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DISSERTATION

Topic:

**FOREIGN EXCHANGE RISK MANAGEMENT :
THE CHALLENGES OF TEMA PORT – GHANA**

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DISCLAIMER

The views expressed in this document are those of the authors and do not necessarily reflect the position of the Port of Tema.

DEDICATION

To my mother **N'GUETTA AssemienBla Yvonne** whose health has deteriorated considerably during my stay in Senegal for the Master in Banking and Finance and has left us on March 15, 2012.

FOREWORD

Africa, like the rest of the world, is caught up in the vast global momentum of deregulation in the realm of finance. Competition between banks has become further heightened due to decreasing funding and placements linked to the emergence of financial markets. The interest price risks as well as rising interest and exchange rates demand keen mastery of management techniques crucial to the sector.

A further motivation is the need for the African banking and finance sector to meet international standards in terms of investment-risk ratios and internal controls.

CESAG, in response, has developed a post-graduate bilingual programme in banking and finance. This programme, established in collaboration with the BCEAO, the BEAC, the Bank of France, the French Development Agency, the European Union, the World Bank, the French Ministry of Foreign Affairs and the African Capacity Building Foundation, provides advanced training to candidates from financial institutions as well as from private and public structures.

The Masters in Banking and Finance prepares trainees to assume responsibilities in all sectors linked to the field of finance. Likewise, it ensures the management and mastery of banking and financial risks.

After eight months theoretical trainees, students have to complete their knowledge with an internship training in banking, financial firm or a public administration to consolidate their skills with a writing of a thesis on actualised and usefull theme.

This document is output six months internship at TEMA Port located in Ghana. Our stay at TEMA Port is an excellent one in the sense that it permit us to improve our knowledge and mastery of the english language and collaborate with sociable and lovely workers.

ACKNOWLEDGEMENT

I cannot start this report without giving SPECIAL THANKS to the ALMIGHTY GOD for his blessing on me and my entire family during my stay in Senegal and my attachment at the Golden Jubilee Terminal of Tema Port.

I am specially indebted to my wife ASSEMIEN Boka Odette and my children Olivia and Samuel for their spiritual support, spiritual encouragement and for being there when they were needed

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I am extremely grateful to all the Port of Tema staff who in one way or the other helped hone my skills me to acquire knowledge during my internship at Golden Jubilee Terminal.

Finally I would like to thank all those who participated directly or indirectly to the realisation of this project

God bless you all.

ACRONYMS AND ABBREVIATIONS

ALM	Assets and Liabilities Management
BIS	Bank for International Settlements
FX	Foreign exchange market
GHS / GH¢	Ghana cedi
GJT	Golden Jubilee Terminal
GPHA	Ghana Ports and Harbours Authority
ICDs	Inland Clearance Depots
IMF	International Monetary Fund
ISO	International Organization for Standardization
MPS	Meridian Port Service
OTC	Over-The-Counter
TEU	Twenty feet Equivalent Unit
USD	United States Dollar

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INTRODUCTION

In 1944, the Bretton Woods fixed exchange-rate system was created based on the gold exchange standard. Each national currency was assessed according to its gold value and was freely convertible into gold.

Governmental monetary authorities rarely adjusted these fixed FX rates. However In 1971, the international trade and financial transactions put stress on the gold standard and led to the end of U.S. dollar/gold convertibility.

The need for currency risk management started to arise after the breakdown of the Bretton Woods system and the end of the US dollar peg to gold in 1973 (Papaioannou, 2001).

In the monetary sphere, the period since the breakdown of the Bretton Woods system was dominated by efforts to bring inflation under lasting control. Therefore in 1976, a new system of floating currencies was established with a volatility currency fluctuation by Governmental monetary authorities.

The volatility of floating FX rates has a significant impact on the profits of multinational businesses because the foreign exchange market is extremely active. According to the IMF classification, Ghana's Monetary Policy Framework is Inflation targeting and Bank of Ghana managed floating with no pre-determined path for the exchange rate. This policy creates a monetary instability for the companies such as the Port of Tema which operate in the country and at international level.

The global financial crisis in 2008 showed a visible connection between domestic and international financial stability and demonstrated the importance of adequate risk management.

For all types of organisations, there is a need to understand the risks being taken when seeking to achieve objectives and attain the desired level of reward. Managing exchange rate risk exposure is important for reducing a firm's vulnerabilities to major exchange rate movements, which could adversely affect profit margins and the value of assets.

Taking into consideration its specific business and the institution's exposure to foreign exchange risk, the Port of Tema conduct his activities and deals with his customers mainly in USD Dollar and GHS (Ghana cedi).

Facing the volatility of the market and the fierce full competition, the main issue is: What are the challenges of Tema Port to insure its perennity?

The main objective of this study is to investigate and bring out the challenges of foreign exchange risk management at Tema Port.

To better cope with the main objective, we may need to focus on the following specific objectives.

- To investigate the impact of foreign exchange risk management on the institution's profitability and on its customers.
- Set out the minimum policies and procedures that each institution needs to have in place to prudently manage and control its exposure to foreign exchange risk.

This study which examines the challenges of foreign exchange risk management at Tema Port – Ghana will involve both qualitative and quantitative data; it will also be supplemented with interviews. Overall, we will:

- Review the standard measures of exchange rate risk;
- Examine best practices on exchange rate risk management;
- Analyse the advantages and disadvantages of various hedging strategies;
- Collect and analyse data from the FX market;
- Interview the customers and the Authorities of the Port;
- Compare the exchange rates of the Port one the one and the exchange rate from the market one the other hand.

The organization of the study is as follows:

- In Chapter 1, we'll present a broad scope of risks and the main types of Foreign exchange risk.
- In Chapter 2, we'll review the main elements of exchange rate risk management and an overview of the hedging instruments for managing exchange rate risk.
- In Chapter 3, we'll present the activities of Tema Port and its challenges in foreign exchange risk management.
- In Chapter 4, we'll analyse quantitative and qualitative data and make recommendations.

FIRST PART:

FOREIGN EXCHANGE RISK AND HEDGING INSTRUMENTS

In this part of our work, we are concerned with risk, foreign exchange risk management and hedging instruments theories. This part gives an overview of the literature of other researchers and writers about foreign exchange risk management. The historical back ground of exchange rate risk is explained.

Chapter 1 : Risk and the main types of Foreign exchange risk

In this section of our study, we are going to define “risk” and present the main type of foreign exchange risk.

1.1. Concept of risk

Risks exist because entities, companies and organizations have assets of a material or immaterial nature that could be subject to damage that has consequences on the entity in question. Four concepts are important here:

- Asset
- Asset damage
- Consequences for the entity
- Possible but uncertain causes

The notion of risk in general is not problematic, but difficulties arise when we look for a formal definition. Paradoxically, risk management methods rarely provide such a formal definition.

Risk can be defined as:

- The combination of an asset, a threat capable of damaging that asset and vulnerabilities exploited by the threat to damage the asset, or
- The combination of an asset, a type of damage that may occur to the asset and the circumstances in which this damage may occur. (ISO Guide 73)

Risk is the possibility of actual outcome being different from the expected outcome. It includes both downside and upside potential. Downside potential is the possibility of actual results being adverse compared to the expected results and upside potential is the possibility of actual results being better than the expected results. After their assessment, risks need to be treated. This means a decision about:

- Accepting them as such,
- Avoiding them completely due to structural changes to wipe them off,
- Reducing them,
- Transferring or sharing them with a third party.

1.2. Foreign exchange risk

Michael Adler and Bernard Dumas define foreign exchange risk in terms of the variability of unanticipated charges in exchange rates. That is, they define exchange rate risk in terms of the unpredictability of exchange rates. (Maurice D. Levi, 2009)

Foreign exchange risk is the exposure of an institution to the potential impact of movements in foreign exchange rates. The risk is that adverse fluctuations in exchange rates may result in a loss of a domestic currency.

Foreign exchange risk arises from two factors: currency mismatches in an institution's assets and liabilities (both on- and off-balance sheet) that are not subject to a fixed exchange rate vis-a-vis the other currency. Such risk continues until the foreign exchange position is covered.

It is the change in the domestic currency value of assets and liabilities to the changes in the exchange rates. This may be positive or negative. Positive exposure gives rise to Gain and negative exposure gives rise to loss (Gurvinder S. Gandhi, 2006)

1.3. Main types of Foreign exchange risk

Companies face four general types of FX risk: Financial Risk; Translational Risk; Transactional or Commitment Risk and Economic, Operational, or Competitive Risk.

The three main types of exchange rate risk that we consider in this paper are (Shapiro, 1996; Madura, 1989):

1.3.1. Translational FX Risk

Translation risk is basically balance sheet exchange rate risk and relates exchange rate moves to the valuation of a foreign subsidiary and, in turn, to the consolidation of a foreign subsidiary to the parent company's balance sheet. Translation risk for a foreign subsidiary is usually measured by the exposure of net assets (assets less liabilities) to potential exchange rate moves. In consolidating financial statements, the translation could be done either at the end-of-the-period exchange rate or at the average exchange rate of the period, depending on the accounting regulations affecting the parent company.

1.3.2. Transactional FX Risk

Transaction risk is basically cash flow risk and deals with the effect of exchange rate moves on transactional account exposure related to receivables (export contracts), payables (import contracts) or repatriation of dividends. An exchange rate change in the currency of denomination of any such contract will result in a direct transaction exchange rate risk to the firm.

1.3.3. Economic, Operational, or Competitive FX Risk

Economic risk reflects basically the risk the firm's present value of future operating cash flows from exchange rate movements. In essence, economic risk concerns the effect of exchange rate changes on revenues (domestic sales and exports) and operating expenses (cost of domestic inputs and imports). Economic risk is usually applied to the present value of future cash flow operations of a firm's parent company and foreign subsidiaries. Identification of the various types of currency risk, along with their measurement, is essential to develop a strategy for managing currency risk.

1.4. Foreign exchange Market

The foreign exchange market involves the purchase and sale of national currencies. A foreign exchange market exists because economies employ different national currencies. If the world economy used a single currency there would be no need for foreign exchange markets.

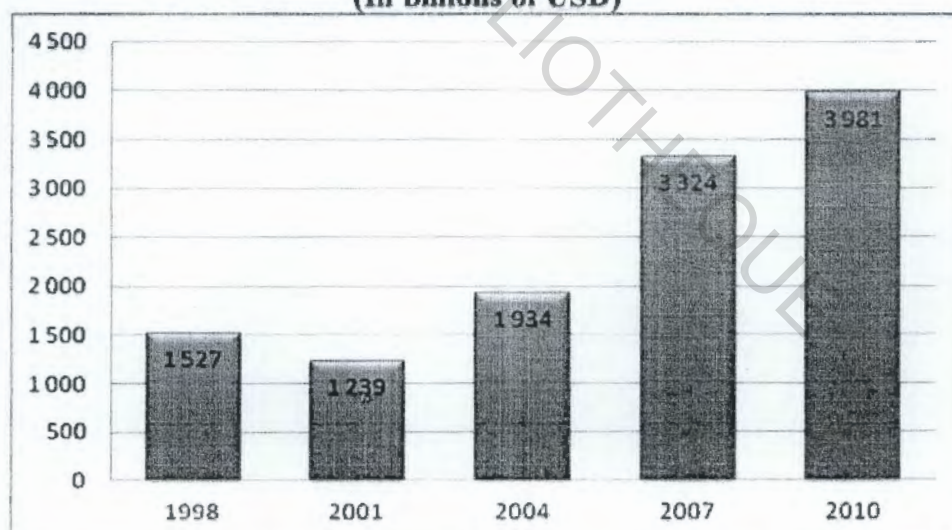
Unlike a stock market, the foreign exchange market is divided into levels of access. At the top is the interbank market, which is made up of the largest commercial banks and securities dealers. The levels of access that make up the foreign exchange market are determined by the size of the amount of money with which they are trade.

Turnover of exchange-traded foreign exchange futures and options have grown rapidly in recent years, reaching \$168 billion in April 2010 (double the turnover recorded in April 2007 : Table 1)

Table 1 : Global foreign exchange market turnover by instrument

Average daily turnover in April, in billions of US dollars					
Instrument	1998	2001	2004	2007	2010
Foreign exchange instruments	1 527	1 239	1 934	3 324	3 981
Spot transactions	568	386	631	1 005	1 490
Outright forwards	128	130	209	362	475
Foreign exchange swaps	734	656	954	1 714	1 765
Currency swaps	10	7	21	31	43
Options and other products	87	60	119	212	207
<i>Memo:</i>					
<i>Turnover at April 2010 exchange rates</i>	<i>1 705</i>	<i>1 505</i>	<i>2 040</i>	<i>3 370</i>	<i>3 981</i>
<i>Exchange-traded derivatives</i>	<i>11</i>	<i>12</i>	<i>26</i>	<i>80</i>	<i>168</i>

Source : BIS - Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity in 2010

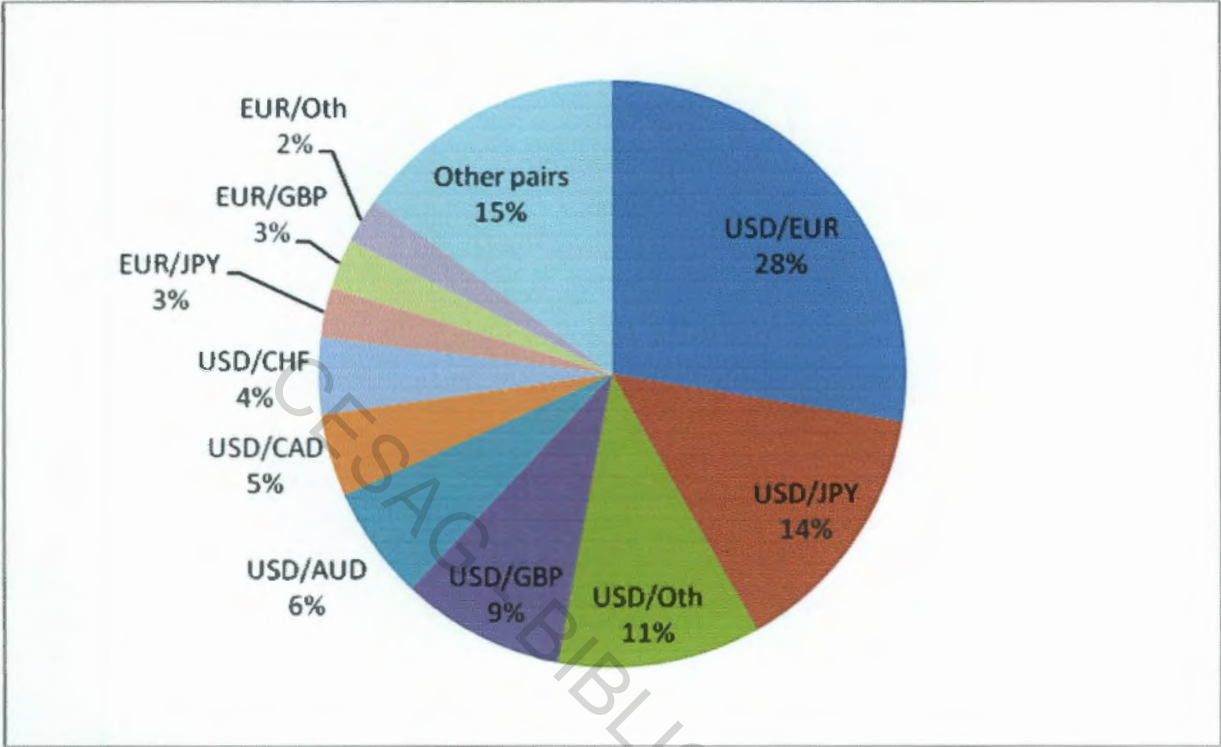
**Figure 1 : Main foreign exchange market turnover, 1998 - 2010
(In billions of USD)**

(Source: BIS)

On the spot market, according to the 2010 Triennial Survey (BIS), the most heavily traded currency pairs were :

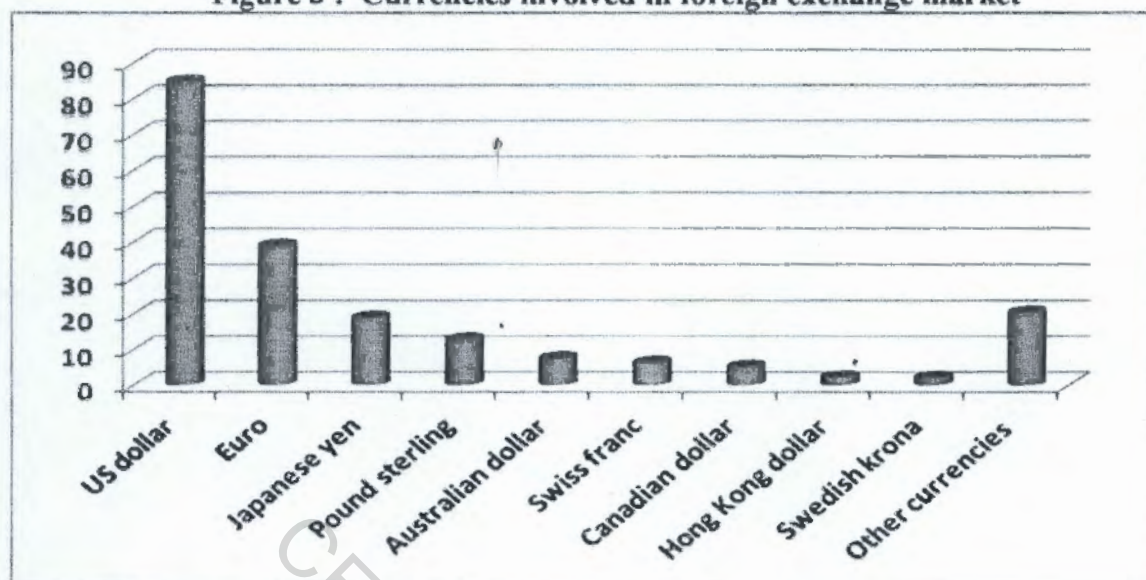
- EURUSD: 28%
- USDJPY: 14%
- GBPUSD: 9%

Figure 2 : Pairs involve in foreign exchange market



Source: BIS Triennial Central Bank Survey, September 2010

The US currency was involved in 84.9% of transactions, followed by the euro (39.1%), the yen (19.0%), and sterling (12.9%) (See Figure 3). Volume percentages for all individual currencies should add up to 200%, as each transaction involves two currencies.

Figure 3 : Currencies involved in foreign exchange market

Source: BIS Triennial Central Bank Survey, September 2010

The foreign exchange market is unique because of:

- Its huge trading volume representing the largest asset class in the world leading to high liquidity;
- Its geographical dispersion;
- Its continuous operation: 24 hours a day except weekends, i.e. trading sessions from 20:15 GMT on Sunday until 22:00 GMT Friday;
- The variety of factors that affect exchange rates; the low margins requirements compared to other markets of fixed income;
- And the use of leverage to enhance profit or loss margins with respect to account size.

The foreign exchange market is extremely active. It is primarily an over the counter market, except for the exchanges traded futures (ETF) and option. It is difficult to assess the actual size of the foreign exchange market because it is traded in many markets.

This chapter aims to clarify the concept of Exchange rate risk. The next is designed to present exchange rate risk management and hedging.

Chapter 2: Exchange rate hedging instruments or strategies

This chapter presents the basics of exchange rate risk management and the hedging instruments.

Hedging is a risk management technique, primarily done to protect the foreign exchange exposures against the volatility of exchange rates, by using traditional instruments or derivatives. Once you have a clear idea of what your foreign exchange exposure will be and the currencies involved, you will be in a position to consider how best to manage the risk.

The three main foreign exchange hedging strategies are (Bragg, 2010):

- Not hedge the exposure
- Hedge the exposure through business practices
- Hedge the exposure with derivatives

2.1. Exchange rate risk management principle

Managing foreign exchange risk requires a clear understanding of the amount at risk and the impact of changes in exchange rates on this foreign currency exposure. To attain this objective, sufficient information must be readily available to enable appropriate actions foreign to be taken within acceptable, often very short, time periods.

It is only through the accurate and timely recording and reporting of information on exchange transactions and currency transfers that foreign currency exposure can be measured and foreign exchange risk controlled. Accordingly, each institution engaged in foreign exchange activities needs to have an effective accounting and management information system in place that accurately and frequently records and measures its foreign exchange exposure and the impact of potential exchange rate changes on the institution.

The elimination or reduction of such exposures is accomplished by entering into transactions that create offsetting risk positions. The concept is that when an institution has an open position which entails a risk that it wishes to avoid or minimise, the institution can undertake a further transaction which compensates for the risk and acts as a hedge. If the hedge is effective, any gain or loss on the hedged risk position will be offset by a loss or gain on the hedge itself.

2.2. Internal hedging (natural hedging) instruments or strategies

Before purchasing external hedges, the company should first look for internal ones. Internal techniques for hedging against currency risk are the methods that the company is setting up to do it without any external instrument. Internal hedges have a relatively low cost; we present below some of them.

2.2.1. Netting

Netting is probably one of the most used methods. The idea is to reduce the number of transactions that a firm needs to make in order to cover an exposure. It requires the firm to have a centralized organization of its cash management. The centralization means that the company collects foreign currency cash flows between subsidiaries and groups them together so as an inflow offsets an outflow in the same currency. Two types of netting exist: bilateral and multilateral netting. Netting is an appropriate and easy to implement technique to hedge transaction exposure.

2.2.2. Pre-payment

Import commitments can include an option to prepay. This is used if currency is thought to appreciate; then prepaying enables the company to pay at a lower rate. If the future rate finally depreciates, the firm is worse off than if it had done nothing. However, there are some limits set by certain governments, which restrict the use of this method.

2.2.3. Leading and lagging

Companies can use the above technique (accelerate or delay the original payment) but within its divisions or subsidiaries. In this case, it is called leading and lagging. If the currency of a subsidiary is sought to appreciate it may accelerate its payment (leading) and realize the payment before the currency appreciates. The reverse is true if a currency is expected to depreciate, then the company will delay its payment (lagging). However, the firm should not only take into account the gain or loss from the currency but also the cost from increasing/ decreasing the liquidity. This tool is quite popular for hedging transaction exposure since it allows for liquidity and risk management at the same time.

2.2.4. Long term structural changes

Restructuring is a more complex task than hedging a currency transaction. However, once the restructuring is finished, the reduction of the exposure has a long-term effect. The firm can act on four parameters: change the sales, change the foreign suppliers, change the foreign production factories or change the foreign debt. The idea is to change the relationship between cash inflows and outflows. Restructuring is a very attractive technique to manage economic exposure. However, a main disadvantage is that this tool is quite difficult to apply and cannot be reversed immediately.

2.2.5. Price adjustments

Price adjustments can be made in different manners. First, when the local currency of a subsidiary is devaluating, the subsidiary can increase the price, so as to cancel the effect of devaluation. This technique is particularly used in countries where devaluation is high and where derivative markets are inefficient. On the side of the disadvantages, the difficult implementation of this method needs to be signaled. Prices cannot be raised without any consideration about competitors because if the price increases too much the customer will choose an equivalent and cheaper product from a competitor. In the same logic, a firm can increase the export price. But then the price adjustment is even more complex, since the company has to face not only local but also international competitors. Second, the company can change the currency of billing. Third, the firm can use export currency of billing to transfer profits from one affiliate to another. The purpose is to raise or lower intergroup selling prices by billing rate adjustment so that profits appear in hard currency or low-tax companies. This technique is very aggressive and can be forbidden by regulation.

2.2.6. Assets and Liabilities Management (ALM)

Asset Liability Management (ALM) is related to leading/lagging and has the same rationale: for currencies likely to appreciate, increase assets and reduce liabilities. For currencies likely to depreciate do the reverse. To illustrate, suppose a currency appreciates. A firm will then increase its assets by increasing investment and reduce its liabilities by reducing the short-term debt. The long-term assets/liabilities are more difficult to change. Long-term debt cannot be reduced easily and buildings cannot be sold promptly. ALM can be used for hedging translation exposure.

2.3. Derivatives

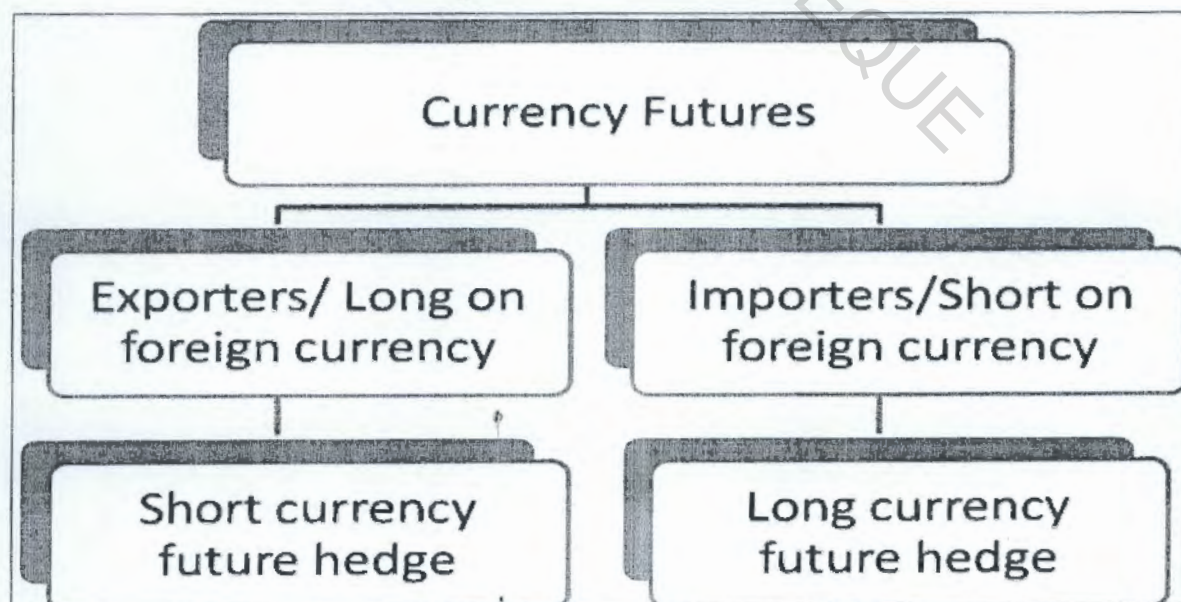
The ingenuity of Market players faced in the difficulty of anticipating and forecasting the evolution of currency exchange rate has been to invent new instruments called derivatives. A derivative product is a financial instrument whose value is determined by, or derived from, the value of an underlying instrument.

The use of hedging techniques is a mean of managing and controlling foreign exchange risk. In this regard, many different financial instruments can be used for hedging purposes, the most commonly used, being derivative instruments.

2.3.1 Futures

Currency Futures are one of the derivatives, where exporters and importers can hedge their positions by selling and buying future contracts. It provides a means to hedge the trader's position who wishes to lock in exchange rates on futures currency transactions. By purchasing (long hedge) or selling (short hedge) currency futures, a firm can fix the incoming and outgoing cash flows in one currency with respect to others.

Figure 4 : Exhibit of futures



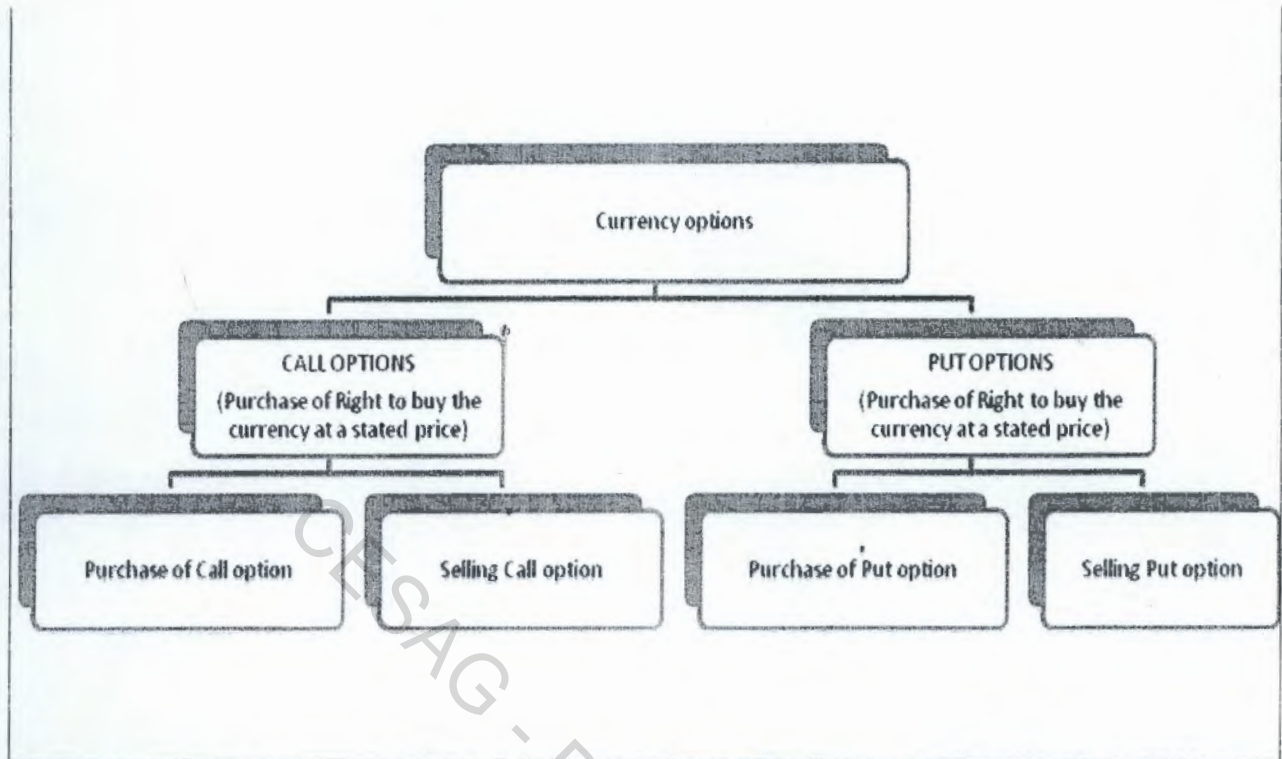
Source: Gurvinder S. Gandhi, Hedging Foreign Exchange Risk - Isn't it also a Risk? August 2006, p.261

Forward Contracts are a commitment to settle at a fixed forward price. This provides only upside benefit from a favourable movement in the underlying exchange rates, but not downside protection. The most direct method of hedging FX risk is a forward contract, which enables the exporter to sell a set amount of foreign currency at a pre-agreed exchange rate with a note that there are no fees or charges for forward contracts since the lender hopes to make a “spread” by buying at one price and selling to someone else at a higher price.

A forward exchange contract—also called a forward currency contract—is an agreement between you and your bank in which the bank agrees to buy or sell a certain amount in a foreign currency at a fixed rate of exchange on, or during a period up to, a particular date. As an exporter entering an export contract in a foreign currency, a forward exchange contract allows you to determine at the time you sign the contract the exchange rate which will apply to future payments from your buyer. In a forward exchange contract, your bank quotes a forward exchange rate for buying a specified foreign currency from you and for paying you in domestic currency. A fixed forward exchange contract states the type and amount of foreign currency the bank will buy the agreed exchange rate and the specific date on which you’ll pay the foreign currency to the bank. A forward exchange contract can state a series of agreed exchange dates, with corresponding exchange rates, in order to match the payment dates under your export contract (for example, if you’re receiving payments from your buyer in installments). If you have several export sales contracts in a particular foreign currency, a forward exchange contract can cover payments under all of those contracts

2.3.2 Options

Currency Options are instruments, which give the buyer of the option the right but not the obligation to execute a specified transaction in the underlying currency pair. This gives the buyer the flexibility to execute settlement or not. They are different from other derivatives in that they provide downside protection against risk and also an upside benefit from favorable movements in the underlying exchange rates. While FX options hedges provide a high degree of flexibility, they can be significantly⁸ more costly than FX forward hedges

Figure 5 : Exhibit of options

Source: Gurvinder S. Gandhi, Hedging Foreign Exchange Risk - Isn't it also a Risk? August 2006, p.261

2.3.3. Swaps

Another popular instrument is the swap. In a swap, companies exchange funds directly. Two companies in two different countries agree to sell each other their own home currencies at current spot rates and at the same time they agree to buy back the currencies at a given future date and a given exchange rate. It is like borrowing and lending at the same time with the same counterpart. Swaps are currently very popular and provide a long-term flexible hedge with low transaction costs. Moreover, they are off-balance sheet instruments and do not show up on the financial statements of a company.

We can distinguish between two kinds of swaps:

- Currency swap: a company simultaneously purchases and sells a given currency at a fixed exchange rate and then re-exchanges those currencies at a future date. Thus we hedge foreign currency cash flows and foreign debt.
- Foreign exchange swap: we have no interim interest payments, but instead the notional amounts are re-exchanged at a different exchange rate.

Financial instruments used for hedging are not distinguishable in form from instruments that may be used to take risk positions. Before using hedging products, institutions must

ensure that they understand the hedging techniques and that they are satisfied that the instrument meets their specific needs in a cost-effective manner.

Further, the effectiveness of hedging activities should be assessed not only on the basis of the technical attributes of individual transactions but also in the context of the overall risk exposure of the institution resulting from a potential change in asset/liability mix and other risk exposures such as credit, interest rate and position risk.

2.4. Methodology of research

This part on will analyse the methods and procedures that will be employed in the course of the study.

2.4.1. Analysis plan

This work which examines the challenges of Tema Port in the foreign exchange risk management. It will involve both qualitative and quantitative data, as the collected data will be used to show the challenges in the forecasting of exchange rate, it will also be accompanied with charts, qualitative tools like yield curve..

2.4.2. Data collection

The data will be collected from the web search. The data used for our investigation will come mostly from Bank Of Ghana, Tema Port, FOREXPRO, BIS and Staff calculations and the use of local and specialised press. We will also make use of financial statements from Finance Department of GJT in order to run our analysis about the foreign exchange risk management.

2.4.3. Data analysis

Given a research of this nature we are intended to work with samples of value since we cannot cover the entire financial statements of Ghana Ports and Harbours Authority(GPHA). To do so we are going to build the yield curve with data from Bank of Ghana and compare the exchange rate forecast by the Authority of the Port with the real one obtain by calculation.

SECOND PART:

**ACTIVITIES OF TEMA PORT AND RECOMMENDATIONS FOR MANAGING
EXCHANGE RATE RISK**

The main focus of this part is the presentation and analysis of the data collected qualitatively and quantitatively from the secondary sources. Our study will be organised in two main parts: analysis of the data collected and recommendations.

Chapter 3: The activities of Tema Port and its challenges in foreign exchange risk management

In this chapter, we are going to present The Port, its activities and the challenges face by the staff in foreign exchange risk management.

3.1. Presentation of the Tema Port

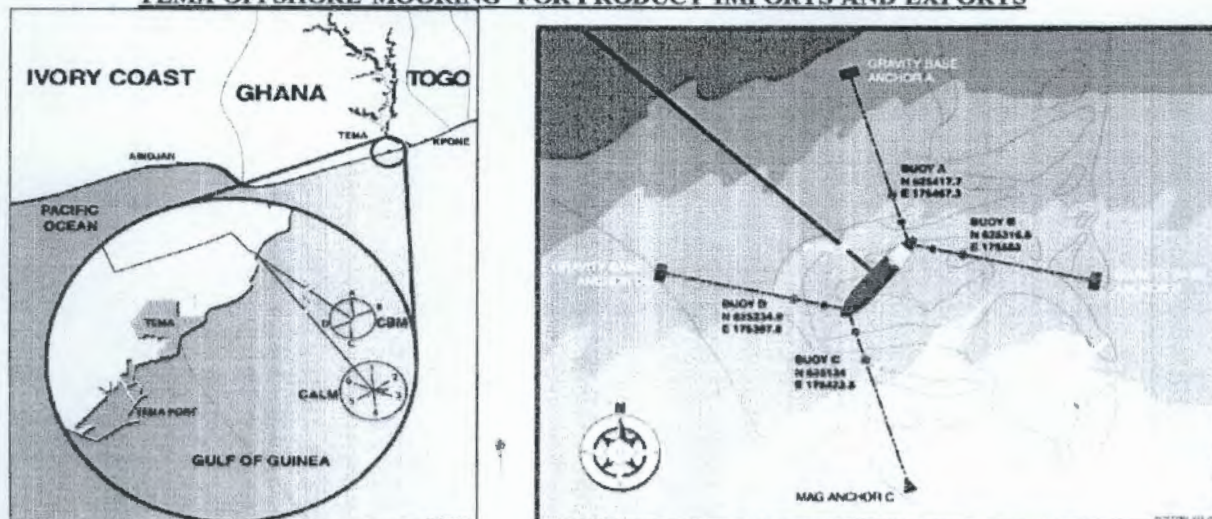
GHANA'S largest Port is Tema, which opened in 1962 as part of a government drive to boost the country's industrial development. The aim was to relieve pressure on the existing port of Takoradi as well as to provide port facilities for a major aluminum smelter. Over the years, Tema Port has evolved into a large multipurpose complex with 11 berths and various specialised harbours and terminals. Today, the Port of Tema covers 3.9 million square metres of land and 1.7 million square metres of harbour water. Tema handles a wide range of cargo including conventional cargo such as bagged products, iron and steel and sawn timber as well as containers, dry bulks and oil products. The port also handles large volumes of transit cargo for the landlocked countries north of Ghana to achieve its function. The Port employ about 2000 daily casual workers (Dock labour staff) and has about 1800 permanent staff.

The Tema Harbour has four (4) units namely;

- The Headquarters,
- Tema Port,
- Tema Fishing Harbour,
- Golden Jubilee Terminal.

Within the port's environs are Inland Container Depots (ICDs), Shipping companies, Warehouses, Haulage companies and other stakeholders. There are other private offshore facilities.

There are currently about nine (9) private stevedoring companies operating in port in addition to the ports own stevedore section. The introduction of private stevedore companies was aimed at promoting efficiency through competition to improve productivity, good service delivery, customer service satisfaction, and to also encourage private partnership in the port.

TEMA OFFSHORE MOORING FOR PRODUCT IMPORTS AND EXPORTS**3.2. The Golden Jubilee Terminal(GJT)**

The Golden Jubilee Terminal (GJT) was built in March 28, 2007 and was inaugurated by the former president H. E. John A. Kuffour. It was designed to decrease congestion at the ports and to move the devanning of containers out of the main port onto the ICD's. The terminals also provides easy handling conventional cargos and also assist clients with high level of service. The terminal has many departments and one of these departments where I did my attachment was the finance department. The Golden Jubilee Terminal being an off-dock container devanning terminal was constructed in outside the port to cope with the continuing increase in volumes of containerized traffic.

GJT is located 300m from the western gate of the Tema main harbour and it is accessible by road at all sides. The volume of container transfers coming from the main container terminal, Meridian Port Services (MPS) Terminal is about 80%.

The total container throughput within six (6) months of operation i.e. from 29th March 2007 was 4000 TEU'S and currently Golden Jubilee Terminal (GJT) transfers between 450 and 500 TEU'S a week from the port to the terminal. When the terminal is fully operational the volume is expected to increase between 1500 and 2000 TEU'S a week. Moreover, Golden Jubilee Terminal (GJT) also delivers about 1500 and 2000 vehicles a month.

3.3. Data and statistics on Tema Port traffic

Tema port is a multipurpose port with a dedicated container terminal. Cargo traffic includes containers, conventional cargo, dry bulk, liquid bulk, roll cargo amongst others.

Table 2 : Cargo traffic (x 1,000 TONNES)

	2000	2001	2002	2003	2004
IMPORT					
Liquid bulk	2,064	2,096	2,079	1,963	2,608
Dry bulk	1,576	1,289	1,258	1,139	1,202
General cargo	257	311	233	323	530
Bagged cargo	493	724	1,024	1,112	737
Containerised	916	958	1,425	1,997	2,185
TOTAL	5,308	5,379	6,020	6,553	7,264
EXPORT					
Liquid bulk	291	335	248	215	356
Dry bulk	37	34	38	52	64
General cargo	162	157	159	45	59
Bagged cargo	60	53	28	42	37
Containerised	350	334	344	480	660
Forest products	0.5	0.9	0.6	1.5	0.3
TOTAL	910	932	820	837	844
TOTAL CARGO	6,219	6,312	6,841	7,391	9,621

Source: Ghana Ports and Harbours Authority.

Containerized traffic however has had an average growth rate of 16% from 2000 to 2010 and by 2010 formed 56% of total cargo traffic. 76% of the ports cargo traffic is imports. These consist mainly of containerized cargo, Break bulk cargo such as rice, sugar, fertilizer etc., liquid and dry bulk cargo. Exports consist of Agricultural Bulk like cocoa, shea nuts, pineapples, banana etc. most of these cargo are containerized and shipped via reefer vessels or units. The refrigerated fruit terminal with a holding capacity of 2000 tons was completed in 2007; this has contributed to the increase in fruit exports (esp. pineapple and banana) export

increasing needs of all of its customers.⁸



3.4. Challenges in foreign exchange risk management

The Port of Tema faces many challenges but in our study, we'll focus only on the challenges linked to foreign exchange risk management.

3.4.1. Foreign Exchange policy of Tema Port

The currencies used by the Port of Tema are:

- USD: US Dollar (USA)
- EUR: Euro (Europe)
- XOF: West Africa (CFA zone)
- GBP: Sterling (UK)
- SEK: Swedish Krona
- JPY: Yen (Japan)

But the main currency (USD) is used for transaction between the Port, its customers and suppliers (**APPENDICE A** and **APPENDICE B**). Local suppliers and staff are paid in GHS but foreigner suppliers and customers are paid in USD.

3.4.2. Forecasting of the exchange rate

The managers of the Port forecast the exchange rate by using the daily report of Bank of Ghana which focuses on the banks' transactions and the forex bureau rates.

Risk managers of the Port often think and argue that stress testing can incorporate the risk of an unusually turbulent market environment. They substitute a conservative calculation, for example by the analysis of largest historical data from Bank of Ghana and record them within a given time interval. They hope to better represent statistics and forecast the exchange rate. The crudeness of this strategy, commits their firm to hold a much higher level of foreign exchange risk. Thus they reduce the efficiency of trading business. For example, every day the customers complain because they don't understand why the exchange rate fluctuate all the time and doesn't allow them to follow efficiently clients' account.

The table below shows us the challenges face by the Authority of the Port.

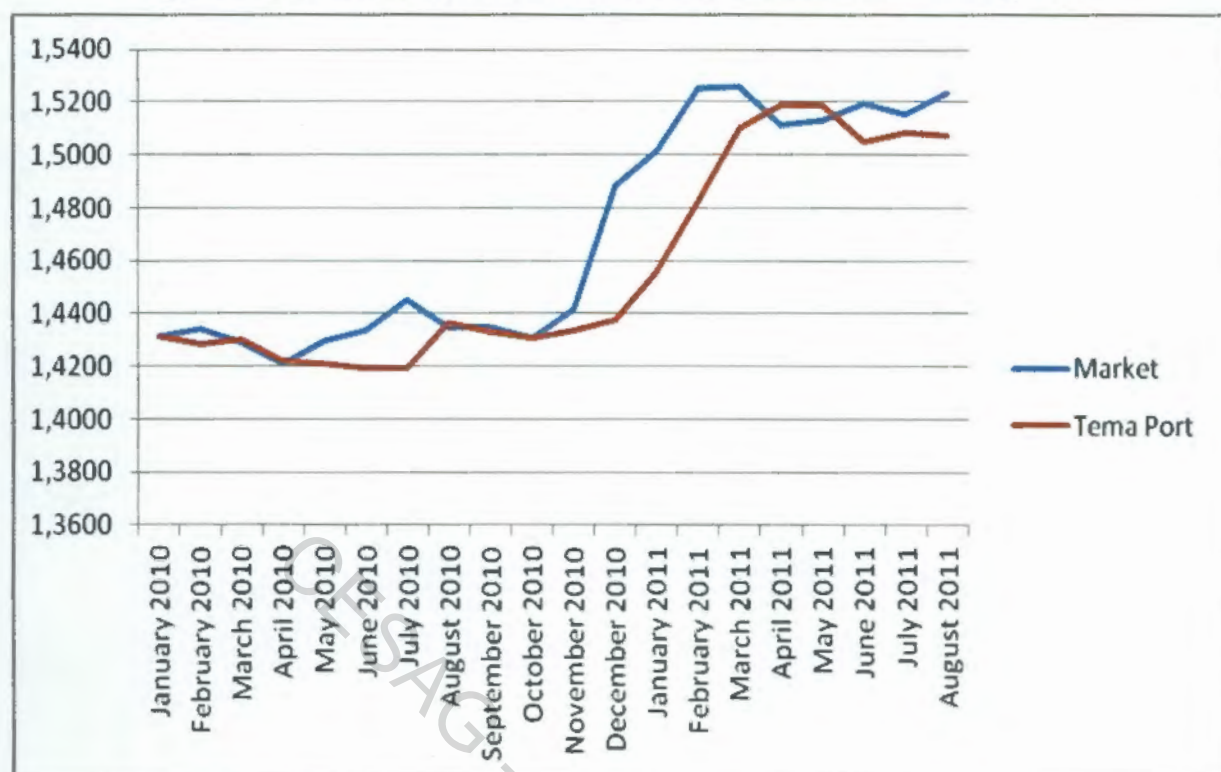
Table 3 : Market and Port exchange rate(USD/GHS)

Period	Tema Port (Forecast)	Market (real exchange rate)	Difference in pips (1pip=0,0001)
January 2010	1,4312	1,4313	1
February 2010	1,4282	1,4343	61
March 2010	1,4299	1,4293	6
April 2010	1,4222	1,4210	12
May 2010	1,4207	1,4294	87
June 2010	1,4194	1,4334	140
July 2010	1,4194	1,4453	259
August 2010	1,4365	1,4345	20
September 2010	1,4333	1,4345	12
October 2010	1,4305	1,4306	1
November 2010	1,4338	1,4415	77
December 2010	1,4374	1,4883	509
January 2011	1,4559	1,5014	455
February 2011	1,4825	1,5250	425
March 2011	1,5100	1,5256	156
April 2011	1,5188	1,5115	73
May 2011	1,5188	1,5128	60
June 2011	1,5050	1,5193	143
July 2011	1,5087	1,5156	69
August 2011	1,5075	1,5231	156

Source : *Golden Jubilee Terminal*

Tema Port exchange rate is the rate used to charge the customers and the market rate is the rate obtained by calculation using the data from **Table 3**.

The curve (red) drawn above represents the evolution of the exchange rate (USD_GHS) used by the Authorities of the Port.

Figure 6 : Exhibit of evolution between market and Port exchange rate

Source: Data from Table 3

The exchange rate of Tema Port follows the trend of the market but it's very difficult to have exactly the same amount at any given period. We have sometimes a spread which shows the challenges of the management board. (e.g. October 2010 to March 2011). The spread in this period was very high (**155 pips**). Such situation could be very disastrous for the customers.

3.4.3. Tema Port exchange rate exposure

- 1- Assume that The Port of de Tema has a contract to buy goods in USA. The contract is signed for 10,000,000 USD (14,338,000 GHS) on November 2010 and would be paid for on February 2011. If the Authority of the Port doesn't use forward agreement, the Port would have to pay 14,825,000 GHS instead of 14,338,000 GHS.
- 2- Let's suppose the Port put \$10,000 into a Ghanaian stock market tracker.

The investment is not hedged, and so the Port is exposed to changes in the exchange rate between the dollar and the cedi.

Suppose over 3 months the tracker goes up 20% in local GHS terms:

- If the dollar and the cedi are at the same exchange rate after 3 months as when the Port made the investment, the holding is now worth \$12,000. (i.e. \$10,000 increased by 20%).
- Say the dollar appreciated by 25% versus the cedi over 3 months. The holding would be worth \$9,600 ($12,000 / 1.25$). i.e. the cedi position now buys fewer dollars.
- Say the dollar depreciated by 25% versus the cedi over 3 months. The holding would be worth \$16,000 ($12,000 / 0.75$). i.e. the cedi position now buys more dollars.

As you can see, currency risk can dramatically affect the returns, ranging from magnifying your gains to turning gains into losses in the own currency. The basic rule is:

- When the foreign currency strengthens versus the own currency, the overall return goes up
- When the foreign currency weakens versus the own currency, the overall return goes down

3.4.4. Hedging instruments used by the Port of Tema

At Tema Port, the missing link is a real Foreign Exchange Risk Management Policy. To increase its profits and minimize its losses, the Port deal essentially in US Dollar with local and foreign customers.

The main foreign exchange instruments used by the Port of Tema are:

- Natural hedging strategies : the Port uses essentially Netting, Pre-payment, Leading / lagging and ALM(Assets and Liabilities Management)
- Financial instruments: the main instrument in which the Port is authorized to trade is the Forward contract. It's used only for spare parts and fuel.

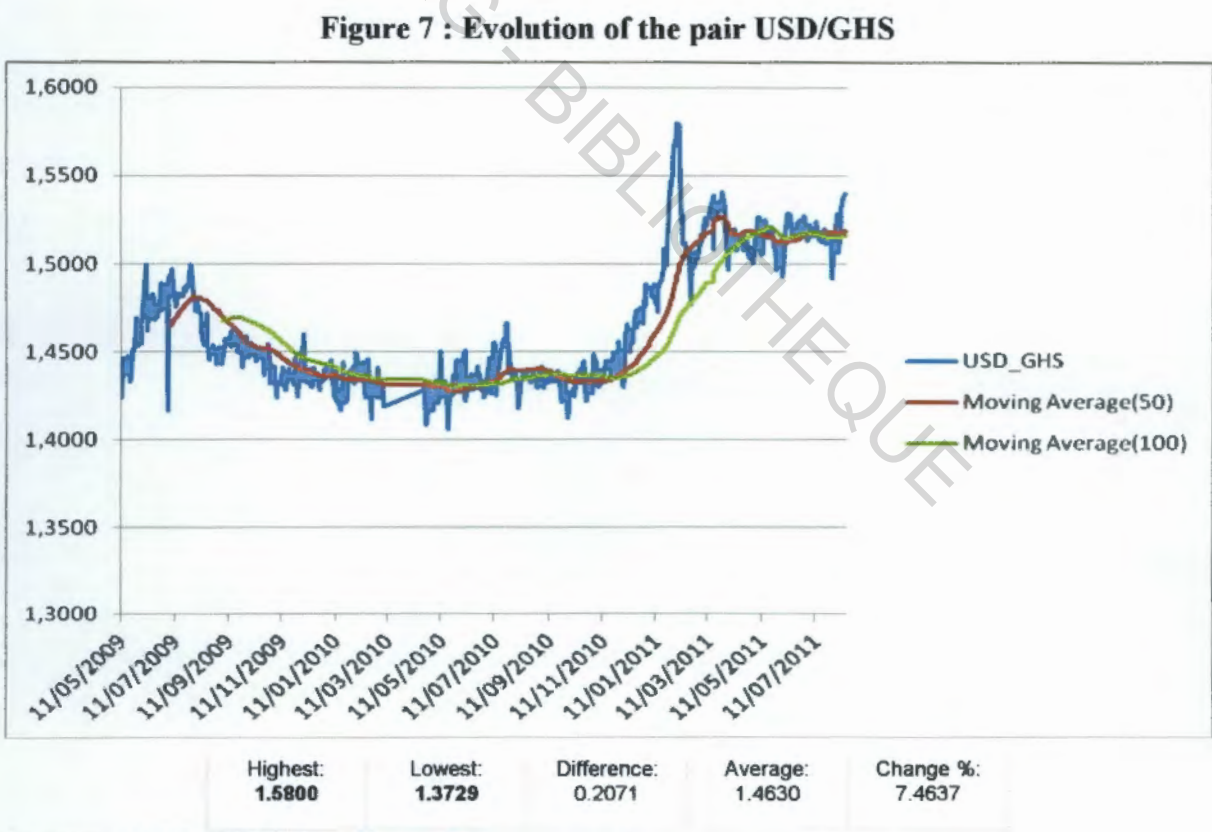
Chapter 4: Quantitative and qualitative data and recommendation

The main focus of this chapter is the presentation and analysis of the data collected from the secondary sources. It will summarize findings of the analyses of the data collected and also involve recommendations.

4.1. Quantitative and qualitative data

This will be the source of the bulk of our data. The data will be collected from the web search (Bank of Ghana and Ghana, Ghana Stock Exchange and FOREXPRO)

The figure below presents the evolution of the pair USD/GHS.



Source: FOREXPRO: <http://www.forexpro.com/>

The floating-currency system exhibits volatile currency fluctuations. For example, the following chart display U.S. dollar exchange rates with the Ghanaian Cedi and demonstrate significant short-term FX volatility.

Figure 8 : Volatility of the pair USD/GHS



Source: Data from FOREXPRO: <http://www.forexpro.com/>

The U.S. dollar/Ghana cedi exchange rate is volatile. In fact, from October 2010 to May 2011, the spread was 0.0883(883 pips).

The volatility of floating FX rates could have a significant impact on the profits of the Port of Tema businesses.

4.2. Volatility Estimation

The volatility of exchange rate plays a central role in the activities of the port. Despite the important role of this parameter, though, exchange rate risk measurement methodologies at Tema Port rarely take into account the complexities of volatility estimation. Risk managers compute a rolling set of volatilities from a fixed sample of historical data on financial market, updated at some specified regular interval for different types of contracts and market conditions. The principal underlying risk (the volatility) could have a significant impact on the

accuracy of exchange rate measurement exercise, although risk managers rarely take them into account.

4.3. Building of the yield curve

Based on the findings of this study that state that risk management the following recommendations can be made:

- Using the results of tender published by Bank of Ghana (**APPENDICE A**), we can calculate the current yield.

Table 3 : Evolution of interest rate

Echéance	08/10/2011	Calculation date	11/10/2011			
	Month	Last interest rate	Maturity 1	Maturity 2	Duration	Current yield
GHS 1M	1	9,63%	Fri/11/2011	Fri/11/2011	31	10,212%
GHS 2M	2	9,63%	Sun/12/2011	Mon/12/2011	62	10,168%
GHS 3M	3	9,63%	Wed/01/2012	Wed/01/2012	92	10,126%
GHS 4M	4	10,04%	Sat/02/2012	Mon/02/2012	125	10,524%
GHS 5M	5	10,45%	Sun/03/2012	Mon/03/2012	153	10,923%
GHS 6M	6	10,86%	Wed/04/2012	Wed/04/2012	183	11,313%
GHS 7M	7	10,88%	Fri/05/2012	Fri/05/2012	213	11,283%
GHS 8M	8	10,91%	Mon/06/2012	Mon/06/2012	244	11,262%
GHS 9M	9	10,93%	Wed/07/2012	Wed/07/2012	274	11,232%
GHS 10M	10	10,95%	Sat/08/2012	Mon/08/2012	307	11,198%
GHS 11M	11	10,98%	Tue/09/2012	Tue/09/2012	336	11,180%
GHS 1Y	12	11,00%	Thu/10/2012	Thu/10/2012	366	11,151%
GHS 2Y	24	11,50%	Fri/10/2013	Fri/10/2013	731	11,048%
GHS 3Y	36	11,80%	Sat/10/2014	Mon/10/2014	1098	10,759%
GHS 4Y	48	12,15%	Sun/10/2015	Mon/10/2015	1462	10,532%
GHS 5Y	60	12,50%	Tue/10/2016	Tue/10/2016	1827	10,312%

Source: Calculate with Data from Bank of Ghana(<http://www.bog.gov.gh/>)

Methodology: bootstrapping

It is a method for constructing a (zero-coupon) fixed-income yield curve from the prices of a set of coupon-bearing products, e.g. bonds and swaps.

Using these zero-coupon products it becomes possible to derive par swap rates (forward and spot) for all maturities by making a few assumptions (including linear interpolation). The term structure of spot returns is recovered from the bond yields by solving for them recursively, by forward substitution. This iterative process is called the **Bootstrap Method**.

After the calculation, we can build the yield curve (Figure9) and then forecast the forward rate using the formula bellow:

$$F_{t,t+n} * \left(1 + \frac{i'_{t,t+n} * j}{36000}\right) = S_t * \left(1 + \frac{i_{t,t+n} * j}{36000}\right)$$

Where:

- S_t

spot rate of a currency unit in domestic currency (GHS) at time t.
- $F_{t,t+n}$

forward rate of a currency unit in domestic currency (GHS) at time t for maturity t+n.
- j

the number of value days from t to t+n.
- $i_{t,t+n}$

the interest rate on the domestic currency over t - t+n period (in % per annum).
- $i'_{t,t+n}$

the interest rate on the foreign currency (USD) over t - t+n period (in % per annum).

Table 6: Evolution of interest rate

Maturity	1M	2M	3M	4M	5M	6M	7M	8M	9M	10M	11M	1Y	2Y	3Y	4Y	5Y
Interest rate USD (%)	0,345	0,335	0,44	0,43	0,41	0,59	0,62	0,66	0,65	0,81	0,77	0,9	0,95	1,5	1,99	2,41

Source: www.boursorama.com

Figure 9 : Yield curve



Source: Data from Table 5

Explanation:

The result of the investment in domestic currency is as follows:

$$R = S_t \left(1 + \frac{i_{t,t+n} \times j}{36\,000} \right)$$

The result of the second investment in foreign currency is as follows:

$$R' = F_{t,t+n} \times 1 \left(1 + \frac{i'_{t,t+n} \times j}{36\,000} \right)$$

If $R' > R$: it is more interesting to :

- borrow the domestic currency (GHS);
- sell the domestic currency (GHS) and acquire the foreign currency (USD) on a spot basis;
- invest the foreign currency (USD);
- sell simultaneously on an outright forward basis the proceeds of the investment.

If $R' < R$: the hedged arbitragers will:

- borrow the foreign currency;
- sell the foreign currency on a spot basis against the domestic currency;
- invest the domestic currency;
- simultaneously buy the foreign currency on a forward basis.

In both cases, this is an arbitrage of forex-hedged interest rate. In the first case, this is an incoming arbitrage related to the foreign currency, and in the second case, an outgoing arbitrage related to the foreign currency.

At the equilibrium point, $R' = R$, i.e.:

$$F_{t,t+n} \times 1 \left(1 + \frac{i'_{t,t+n} \times j}{36\,000} \right) = S_t \left(1 + \frac{i_{t,t+n} \times j}{36\,000} \right)$$

It must be indifferent for the investor to invest amount S_t in domestic currency at interest rate $i_{t,t+n}$ over j days or to convert the same amount into one foreign currency unit, invest it at rate $i'_{t,t+n}$ over j days, and resell it simultaneously on a forward basis at a rate of $F_{t,t+n}$.

4.4. Recommendations

From observations, interviews and researches, we advise the following recommendations:

-To overcome these challenges, a strong data control system should be put in place, revise business plans of the Port and train all employees on risks they are facing in their regular works.

-The Authority needs to establish explicit and prudent Foreign Exchange Management Policy, and ensure that the level of its foreign exchange risk exposure does not exceed the limits.

Where applicable, these limits need to cover, at a minimum:

- The currencies in which the institution is permitted to incur exposure; and
- The level of foreign currency exposure that the institution is prepared to assume.

-Clearly defined levels of delegated authority help to ensure that the Port's foreign exchange positions do not exceed the limits established under its foreign exchange risk management policies. Authorities may be absolute, incremental or a combination thereof, and may also be individual, pooled, or shared within a committee. The delegation of authority needs to be clearly documented, and must include at a minimum,

- The absolute and/or incremental authority being delegated;
- The units, individuals, positions or committees to whom authority is being delegated;
- The ability of recipients to further delegate authority; and
- The restrictions, if any, placed on the use of delegated authority.

The extent to which authority is delegated will vary among institutions according to a number of factors including:

- The institution's foreign exchange risk philosophy;
- The size and nature of an institution's foreign exchange operations; and
- The experience and ability of the individuals for carrying out the foreign exchange risk management activities.

-The management of each institution is responsible for managing and controlling the institution's exposure to foreign exchange risk in accordance with the foreign exchange risk management programme.

Although specific foreign exchange risk management responsibilities will vary from one institution to another, management of Tema Port is responsible for:

- Developing and recommending foreign exchange risk management policies for approval by the Board of Directors;
- Implementing the foreign exchange risk management policies;
- Ensuring that foreign exchange risk is managed and controlled within the foreign exchange risk management programme;
- Ensuring the development and implementing of an appropriate management reporting system with respect to the content, format and frequency of information concerning the institution's foreign exchange risk position, in order to permit the effective analysis and sound and prudent management and control of existing and potential foreign exchange exposure;
- Establishing and utilizing a method for accurately measuring the institution's foreign exchange risk;
- Establishing procedures for accurately measuring realised and unrealised foreign exchange trading gains and losses;
- Ensuring that an independent inspection/audit function reviews and assesses the foreign exchange risk management programme;
- Establishing and implementing procedures governing the conduct and practices of foreign exchange traders;
- Developing lines of communication to ensure the timely dissemination of the foreign exchange policies and procedures to all individuals involved in foreign exchange activities and the foreign exchange risk management process;

-Independent inspections/audits are a key element in managing and controlling an institution's foreign exchange risk management programme. Each institution should use them to ensure compliance with, and the integrity of, the foreign exchange policies and procedures. Independent inspections/audits should, at a minimum, and over a reasonable period of time, test the institution's foreign exchange risk management activities in order to:

- Ensure foreign exchange management policies and procedures are being adhered to;
- Ensure effective management controls over foreign exchange positions;
- Verify the adequacy and accuracy of management information reports regarding the institution's foreign exchange risk management activities;

- Ensure that foreign exchange hedging activities are consistent with the institution's foreign exchange risk management policies, strategies and procedures; and
- Ensure that personnel involved in foreign exchange risk management are provided with accurate and complete information about the institution's foreign exchange risk policies and risk limits and positions and have the expertise required to make effective decisions consistent with the foreign exchange risk management policies.

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CONCLUSION

During our study, we presented some of the main issues in the foreign exchange risk management faced by firms. Theoretical framework was established to illustrate the main hedging instruments and best practices in currency risk management.

After the presentation and the challenges face by the Port of Tema, the quantitative and qualitative analysis of data, it was discovered that foreign exchange risk could have a strong impact on the profitability of institutions and its customers.

The essence of foreign exchange risk management is not avoiding or eliminating risk but deciding which risks to exploit, which ones to let pass on to investors and which ones to avoid or hedge. And theory recommends companies first to use internal hedging techniques and then, if there is need to do so, pass to external hedging techniques, which are more expensive by definition. So deciding to hedge is one thing, and getting it right is quite another. Hedging should also be done without speculation.

The financial statements of the Port would no doubt allow us to make calculations which will point the exposure and specific proposals.

There are some persons who would attribute the success of companies to luck. Successful companies are able to go back to the well again and again, replicating their success on new products and in new markets. To do so, they must have a template for dealing with risk that gives them an advantage over the competition. In the process, we will have to weave through many different functional areas of business, from corporate strategy to finance to operations management, that have traditionally not been on talking terms.

To exploit risk, you need an edge over your competitors who are also exposed to that same risk, and there are five possible sources : one is having more timely and information, a second is the speed of the response to the risk , a third advantage may arise from experience weather similar crises in the past, a fourth advantage is grounded in resources, since firms with access to capital markets or large cash balances, superior technology and better trained and finally, firms that have more operating, production or financial.

Some degree of foreign exchange risk management exists in every country, although the nature and importance of these risks vary. In political risks assessment, as in most business decisions, it is a matter of balancing risks rewards.

West African is confronted with many political, but the market potential is still high. International marketing is one of the pillar of world peace, as international relations are. So invest in a risky country could yield peace that will increase profits.

What and how much information a firm needs to assess political risk will depend on the type of business. Given that the more they stay and the more they may get into political trouble.

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APPENDICES

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APPENDICE A: TREASURY BILLS & NOTES (BANK OF GHANA)

BANK OF GHANA

NOTICE TO BANKS AND PUBLIC NO BG/TD/2011/32
GOVERNMENT OF GHANA AND BANK OF GHANA SECURITIES

**1. RESULTS OF TENDER 1233 HELD ON 22ND JULY, 2011 FOR
GOVERNMENT OF GHANA SECURITIES TO BE ISSUED ON 25TH
JULY, 2011.**

1.1 TREASURY BILLS & NOTES.

ISIN	SECURITIES	BIDS (AMT) TENDERED GHS M	BIDS (AMT) ACCEPTED GHS M	RANGE OF BID RATES (% P.A.)	BID RATES ALLOTTED IN FULL (%P.A.)		WEIGHTED AVG. RATES FOR THE WEEK 25 TH - 29 TH JULY 2011 (% P.A)	
					Discount Rate	Interest Rate	Discount Rate	Interest Rate
GHGGOG025388	91 Day Bill	GHS174.76	GHS95.18	9.50 - 10.50	9.50 - 10.05	9.73 - 10.31	9.95	10.20
GHGGOG025396	182 Day Bill	GHS55.10	GHS51.94	10.20 - 11.00	10.20 - 10.60	10.75 - 11.19	10.49	11.07
GHGGOG025404	1 Year Note	GHS54.76	GHS43.60	11.00 - 12.05		11.00 - 11.80		11.80
GHGGOG025412	2 Year FXR Note	GHS3.11	GHS0.08	11.65 - 12.10		11.65 - 11.95		11.95

TOTAL AMOUNT OFFERED FOR T-BILLS & NOTES:

GH¢190.00 Million

**2. SUMMARY OF TENDER 1232 HELD ON 15TH JULY, 2011 FOR
TREASURY BILLS AND NOTES**

SECURITIES	TOTAL AMOUNT TENDERED	TOTAL AMOUNT SOLD
Short Term T/Bill & Notes	GH¢265.17Million	GH¢164.43Million
2 Year Fixed Rate Note	GH¢15.18Million	GH¢14.18Million

3. TARGET FOR TENDER 1234

TARGET	AMOUNT
SHORT AND MEDIUM TERM SECURITIES	GH¢134.00MILLION
GOVERNMENT OF GHANA 5-YEAR BOND	GH¢300.00MILLION

- Members of the general public may apply to any Primary Distributor for purchases of the said securities.
- Detailed bids for both short-term and medium-term securities must be electronically delivered to the Central Securities Depository Auction Module **not later than 1.00 p.m. on FRIDAY 29TH JULY, 2011.**
- Detailed bids for GOG 5-YEAR BOND must be electronically delivered to the Central Securities Depository Auction Module **not later than 2.30 p.m. on THURSDAY 28TH JULY, 2011**

(Sgd.)
ALEX BERNASKO
THE SECRETARY

22ND JULY, 2011

APPENDICE B:

PORT FINES - 2011

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PORTS OF TEMA AND TAKORADI



PORT FINES - 2011

PORTS OF TEMA AND TAKORADI

PORT FINES - 2011

C. OFFENCES AND FINES			
#	OFFENCE	GH¢	REMARKS
1	Unauthorised Parking	55.00	
2	Loitering	55.00	
3	Unlawful Entry	110.00	
4	Falsification of Documents/Records	1,100.00	
5	Hawking	55.00	
6	Hooking/Casting of Fishing Nets within breakwaters	220.00	
7	Over-speeding / Careless Driving	55.00	
8	Unauthorised Driving on Quay Apron / Pavement	110.00	
9	Taking Pictures in the Port without authority	110.00	In addition to seizure of film/camera
10	Stealing / Pilfering	220.00	
11	Buying and Selling within the Port	110.00	
12	Agents / Companies working without GPHA valid License	550.00	
13	Hiring Cars Operating in the Port without authority	330.00	
14	Entry without Pass / Permit (Personal)	110.00	Loss of pay to GPHA Staff
15	Entry without Pass / Permit (Vehicle)	110.00	Loss of pay to GPHA Staff
16	Excess Cargo (Agent)	110.00	Per Package including seizure
17	Drivers of Vehicle carrying Excess Cargo	110.00	Per Package including seizure
18	Loss / Transfer of Security Disc	110.00	
19	Drivers found with concealed items on vehicle	220.00	Per item, including seizure

20	Employment of Labour without authorisation	55.00	Per Man - To be paid by Employer
21	Persons working in the Port without authority		
	- Individual/Worker	55.00	i.e. the unauthorised worker
	- Employer of individual	550.00	i.e. the employer of the unauthorised worker
22	Transfer / Alteration of Pass / Permit	110.00	
23	Using GPHA Car label for commercial purposes	330.00	
24	Obstructing Security Guard from performing his/her duties	330.00	
25	Smoking within the Port	55.00	
26	Swimming within the Port	55.00	
27	Non renewal of Permit (Personnel)	55.00	In addition to applicable fees in arrears
28	Driving without Headlights/tail lights inside the Port in the night	55.00	
29	Refueling of Vehicles inside the Port	55.00	
30	Delivery of Cargo at unauthorised place	220.00	To be paid by the Clearing Agent
31	Unauthorised cancellation of DTS/Waybills	110.00	
32	Drivers Loading Trucks above standard height of 4.8m	220.00	To be paid by the Truck Driver
33	Illegal overnight parking	110.00	To be paid by the Driver/Clearing Agent
34	Obstruction at exit gates / quays / Container Depots	110.00	To be paid by the Truck Driver/Owner
35	Robbery at Anchorage	1,100.00	Per Person
36	Conducting Customs inspection/sighting at unauthorised area in the Port	220.00	To be paid by the Clearing Agent.
			Custom Officer to be reported to
37	Vehicles loaded with Containers without functioning twistlocks	110.00	Per Box loaded unto Truck
38	Indecent Behaviour	55.00	e.g. Urinating openly in the Port/Bathing in the Port, Defecating at unauthorised places, Washing Clothes, in the Port, Polluting the Port environment. Indecent exposure

APPENDICE C:

GENERAL INFORMATION GHANA PORTS AND HARBOURS AUTHORITY

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Foreign exchange risk management: the challenges of Tema Port – Ghana

GENERAL INFORMATION

PORT INFO: (SEE ALSO WWW.GHANAPORTS.GOV.ORG)

- 1 GPHA = Ghana Ports & Harbours Authority. PFDA issued subject to GPHA final bill & supplementary invoices.
- 2 Rainy Season occurs May through November
- 3 Pilotage & Towage Compulsory
- 4 24 Hour Pilotage / Berthing is practiced.
- 5 Tidal Range : MHWS 1.5m, MHWN, 1.2m, MLWS 0.2m, MLWN 0.6m
- 6 Floods 2 hours, ebbs 4 hours appa
- 7 Salt water in harbours 1024
- 8 Vessels tend to berth at High Water
- 9 Port maintains a radio watch on VHF Ch. 16 & 14.
- 10 If vessels have to anchor all recognised precautions should be taken against possible pirate attack.
- 11 Alternatively vessels can drift appx 20' offshore while awaiting berthing instructions
- 12 Stevedoring consists of two shifts, 07.30hrs - 19.30hrs & 19.30hrs - 07.30hrs
- 13 Eight Hours per shift at normal rate with four hours at overtime rate.
- 14 Weekend & Public Holidays are worked at overtime rates
- 15 Port is open 363 days WEPHInc.except Christmas Day and Good Friday
- 16 Loading manganese in Takoradi is by belt a/s then shift to deeper buoys to top off.(Grabs)
- 17 Loading bauxite is via barges a/s & at the buoys.
- 18 Clinker is discharged a/s in Tema into lorry hoppers and at buoys in Takoradi into barges.
- 19 Ships gear is used for loading and discharging.
- 20 Max. load / discharge rate is 6000mt / day, by grab. & 25 / tph.ph. for bagged cargo & 15 tph.ph for general & steel carg
- 21 Max disch rate for product vsI / pipe line size (Chicoan)=

LPG	90 mt.hr	1 x 6" (LPG)
Mogas	500 / 600 mt.hr	1 x 10" & 1 x 14" (White products)
Gas Oil	600 / 700 mt.hr	1 x 18" (Fuel Oil)
Fuel Oil	1000 / 1200 mt.hr	1 x 24" (Crude Oil)
Crude Oil	1300 / 1500 mt.hr	
- Max Back Pressure 2.0bar. Distance from Jetty to tanks = 5.7 km
- 22 Managanesc load rate by belt is appx 5,000 - 7,000mt/day
- 23 Experienced crane drivers are available for hire \$5,500/vessel in Ghana & \$7,500 per vsI in Lome & Cotonu
- 24 Launch service available at Takoradi buoys @ \$35/hr or \$160/hr (min 2 hours) @ Tema anchorage
- 25 4 Electro hydraulic grabs (5mt load) are availabe for hire. POA

TEMA BERTHS LAT: 05.38.00N - 000:01.00E TIME : GMT

Berth No.	Max Draft	LOA	Beam	Remarks
1	11.50m	252.00m	32.00m	Containers,
2	11.50m	252.00m	32.00m	Containers,
3	10.50m	183.00m	32.00m	RoRo. & Bulk Cargoes
4	9.00m	183.00m	32.00m	Containers, Bagged Bulk, GC
5	9.00m	183.00m	32.00m	Containers, Bagged Bulk, GC, Reefer
6	8.00m	183.00m	32.00m	Containers, Bagged Bulk, GC, Reefer
7	8.00m	183.00m	32.00m	Containers, Bagged Bulk, GC, Reefer
8	8.00m	183.00m	32.00m	Containers, Bagged Bulk, GC, Reefer, Palm Oil, Ethanoil
9	8.00m	183.00m	32.00m	Containers, Bagged Bulk, GC, Reefer
10	8.00m	183.00m	32.00m	Containers, Bagged Bulk, GC, Reefer
11	8.00m	183.00m	32.00m	Containers, Bagged Bulk, GC, Reefer
12	8.00m	190.00m	32.00m	Clinker, Bagged Bulk, GC
Oil Berth	9.60m	244.00m	N/A	AGO / PMS / Jet A-1 etc / Kero / HFO
Valco	9.60m	175.00m	32.00m	Bauxite Import / Aluminium Ingots export

TAKORADI BERTHS LAT: 04.53.00N - 001:45.00E TIME : GMT

1	8.60m	159.00m	N/A	Managanesc
2	9.00m	168.00m	N/A	RoRo
3	9.00m	153.00m	N/A	General Purpose
4	9.00m	182.00m	N/A	General Purpose
5	10.00m	83.00m	N/A	General Purpose
6	10.00m	152.00m	N/A	Container

Oil Berth	8.84m	183.00m	N/A	AGO / PMS / Jet / Bitumen
8	9.14m	154.00m	N/A	Bauxite
9	7.42m	137.00m	N/A	
Buoys 1 & 3	10.97m	195.00m	N/A	10.5m Fwd. Clinker, Manganese & Bauxite (Buoys 3 = 11.0m f/a)

Note: **Takoradi - Tema = 116 Nautical Miles**

TEMA OFFSHORE MOORING:

SPM: Max DWT + 155000mt. No draft restriction. No LOA restriction. Daylight berthing only, sailing 24hrs.

Floating hose. **16" connection PORT SIDE. CRUDE OIL IMPORTS ONLY.**

CONVENTIONAL BOUY MOORING: DWT 20,000 - 50,000mt. Max draft 12.2m LOA 155m - 203m Daylight berthing only

Daylight sailing only. Submarine Hose. **12" connection. STARBOARD SIDE. PRODUCT IMPORTS AND EXPORTS ONLY.**

NOTE: CRW CHANGES, BUNKERING AND STORES ARE NOT PERMITTED AT THIS FACILITY.

GENERAL PORT FACILITIES:

ALL SERVICES PROVIDED ARE BILLED AT COST + HANDLING COMMISSION

RATE

27	Bunkers Available By Road Tanker	Cost + 3%
28	Pot. water available at quay side in Tema and by barge or at quay side in Takoradi.	\$3.95 / mt + 5%
29	By barge	\$5.90 / mt + 5%
30	Stores & fresh provisions available	Cost + 8%
31	Ship repair yard available in Tema with graving dock.	Cost + 8%
32	Cash to Master	Cost + 3%
33	Medical Attendance	Cost + 8%
34	Garbage & sludge collection (compulsory rate): For the first 5 mt of garbage and 25mt of sludge	
	<3,000 grt	\$1,000 per year
	3,001 - 6,000 grt	\$1,000 per call
	6,001 - 12,000 grt	\$1,500 per call
	12,001 - 25,000 grt	\$1,700 per call
	>25,000 grt	\$1,850 per call
	For garbage in excess of 5mt	\$10 per mt
	For sludge in excess of 25mt	\$75 per mt
35	Independent bagged cargo tally over rail & onto truck	\$0.35 / mt
36	Draft Survey (per attendance)	\$550
37	Off hire bunker survey	\$850
38	Off hire bunker survey + hatch condition	\$1150
39	Ganway security (if required)	\$100 per day
40	Personnel launch hire per hour (minimum 2 hours) Tema	

MEET & GREET SERVICES:

40	Hotel Expenses	Rooms range from \$70 pppn for 2* and \$210 for 4*	Cost + 8%
41	PTA Collection No.	pp	\$50
42	Extra Baggage Handling Cost Y/N	pp	\$35
43	Transit Visa	PP	\$50
44	Emergency Visa / Business Visa	PP	\$165

Note: Visa should be obtained prior to travelling to Ghana from country of origin however visas on arrival are obtainable. Usually five working days are required to process this however in cases of emergencies they can be obtained within two days

45 Meet Greet & Transport Rates. Accra to Takoradi / Tema (pp)

Location	1 - 2	3 - 4	4 +
Tema	\$115.00	\$70.00	\$45.00
Takoradi	\$300.00	\$150.00	\$110.00

AIRFREIGHT & DELIVERY (FROM ACCRA INTERNATIONAL AIRPORT TO TEMA / TAKORADI):

46	Airport handling charges	\$0.22/kg (Min \$30)
47	Clearing charges	\$20 / AWB
48	Import declaration	\$20 / AWB
49	Plus per kilogram rate of:	\$0.70 per kg (- 100k \$0.60 per kg (+ 100k \$0.55 per kg (+ 300

		\$0.50 per kg (+ 500k
		\$0.40 per kg (+ 750
		\$0.35 per kg (+ 1000
	Delivery charges:	
50	Accra local	\$55 plus 0.13 per
51	Tema	\$75 plus 0.18 per
52	Takoradi	\$250 plus 0.30 p

INBOUND VESSEL DOCUMENTATION REQUIREMENTS:

1 CREW LIST	: 6 COPIES
2 PORTS OF CALL LIST	: 6 COPIES
3 PASSENGER LIST	: 6 COPIES
4 ARMS & AMMUNITION LIST	: 6 COPIES
5 PARCEL LIST	: 6 COPIES
6 MAIL LIST	: 6 COPIES
7 STOWAWA	: 2 COPIES
8 BONDED STORE LIST	: 3 COPIES
9 ANIMAL LIST	: 6 COPIES
10 CREW DECLARATION LIST	: 3 COPIES
11 MARITIME DECLARATION OF HEALTH	: 1 COPY
12 NARCOTICS LIST	: 1 COPY
13 CLEARANCE FROM LAST	: 1 COPY

PLS NOTE, IMMIGRATION REQUIRE A PASSPORT SIZE PICTURE OF EACH CREW MEMBER FOR ISSUANCE OF SHORE PASS.

FULL STYLE ADDRESS:

Tema / Takoradi:
Hull Blyth Ghana
Seatec House,
Akosombo Road, Tema, Ghana.
General Manager: Capt. Duncan MacNicol
D/L: +233 (0)22 300893
Fax: +233 (0)22 300896
Mobile: +233 (0)244 327635
Email: duncan.macnicol@hull-blyth.com
Website: www.hull-blyth.com
SWB: +233 (0)22 300894/5
Tlx: (UK) 261449 VAPOR G (Use routing code OPSGHA)

Tema Operations:
PIC: Alex Quansah
Email: alex.quansah@hb-gh.com
D/L: +233 (0)22 210971
Mobile: +233 (0)244 324167
SWB: +233 (0)22 210973
Fax: +233 (0)22 202989
Email: temops1@hb-gh.com

Takoradi Operations:
PIC: Samuel Armah
Email: samuel.armah@hb-gh.com
D/L: +233 (0)31 24971
Mobile: +233 (0)24 4325686
SWB: +233 (0)31 22981 / 22000
Fax: +233 (0)31 23167
Email: agent.takoradi@hb-gh.com

Banking Details:
The Bank of America NT & SA, 1 Alie Street, London E1 8DE.
For the account of:- No.2 Account, Hull Blyth & Co.
Account Number:- 17400053, Sort Code:- 16-50-50
IBAN No: GB04BOFA16505017400053 SWIFT CODE: BOFAGB22

ISPS PORT INFORMATION:

Tema Port is Operating at Security Level 1 (one).

The Statement of Compliance was issued on the 7th June 2004.

The following Officials constitute the Boarding Party.

1. Immigration	2 persons
2. Customs	2 persons
3. Port Health	2 persons
4. Veterinary	2 persons
5. Plant Quarantine	2 persons
6. Fisheries (if a fishing vessel)	2 persons
7. Tilbury Environmental Group(TEG)	2 persons

No Official should be allowed on board to conduct Port State Control inspection without permission from the Harbour Master (PFSO). Anybody claiming to be a representative from the Harbour Master's office should be denied access. Please do not hesitate to

Ghana Ports & Harbours Authority wishes to assure you that the Port is putting measures in place to help reduce the incidence of Stowaways from this port.

It is expected that your vessels also implement their functions under the ISPS Code (Control of Access to ships), seriously to minimize Stowaways incidents.

Vessels have arrived here with Stowaways hiding in the Rudder trunks. The stowaways board while the rudder trunk is easily accessible from the waterline, using small craft.

Masters are hereby being advised not to declare their true Next Port of Call on their Sailing Board (e.g. your next Port of call should always read "Lome" or "Lagos")

Your true destination should only be known to Customs when the Agent goes in for Clearance and the Pilot when he boards your vessel.

The Master must conduct a thorough search for Stowaways, prior to leaving Tema Roads.

In consonance with the tenets of the provisions enshrined in the MARPOL 73/78 Convention, the Ghana Ports & Harbours Authority has awarded a concession to Messrs Tilbury Environmental Group (TEG) for the establishment, operation and management of Waste Re

The Boarding clerks of Tilbury Environmental Group must be allowed entry to your vessel. Please give them all the necessary cooperation to make our Ports MARPOL 73/78 compliant.

Ship's personnel should keep a sharp lookout for Thieves/Armed Robbers/Pirates, at night at the anchorage with lots of cluster lights. Otherwise go drift 10/20 miles South of the main breakwater.

PORT AUTHORITIES: GHANA PORTS & HARBOURS AUTHORITY	
DIRECTOR OF PORT	
Name	MR. GORDON ANIM
Address	P.O.BOX 488, TEMA
Phone/Fax	233 (0) 22 – 206174; Fax : 233 (0) 22 – 204136
Email	recipient@ghanaports.net

PORT FACILITY SECURITY OFFICER – HARBOUR MASTER	
Name	CAPTAIN VICTOR C. JONAH
Address	P.O.BOX 488, TEMA
Phone	233 – 22 – 202631 – 9 EXT. 3500 : VHF. Ch. 14.; 13. 233- 22- 202815; 233-22- 307456; 233 – 24 – 4329589; 233 – 24 – 4646810
Email	vjonah@ghanaports.net

DEPUTY PORT FACILITY SECURITY OFFICER – CHIEF PILOT	
Name	Mr. Godwill Y Tufuor
Address	P.O.BOX 488, TEMA
Phone	233 – 22 – 202631 – 9 EXT. 3508; 233 -22 – 202815; 233 - 22 – 200278 233 – 24 – 4583247; 233 – 20 – 8136604 : VHF. Ch. 14; 13
Email	ytufuor@ghanaports.net

DEPUTY PORT FACILITY SECURITY OFFICER (CONTAINER OPS.) STEVEDORING MANAGER	
Name	JACOB ADORKOR
Address	P.O.BOX 488, TEMA
Phone/Fax	233 – 22 – 202631 – 9 EXT. 3520; 233–22 – 202717; 233- 22 – 202595 – 024 – 4321204 233 – 20 - 8127031
Email	jadorkor@ghanaports.net

PORT EMERGENCY RESPONSE AND SUPPORT – FIRE/SAFETY MANAGER	
Name	THEOPHILUS E. OFORI
Address	P.O.BOX 488, TEMA
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Email	tofori@ghanaport.net

PORT MEDICAL EMERGENCY SUPPORT – HEAD OF THE MEDICAL SERVICE	
Name	REV. DR. DANIEL ARYEE-ANUM
Address	P.O.BOX 488, TEMA
Phone/Fax	233 – 22 – 204416; 233 – 22 – 202653; 233 – 22 – 202715; 233 – 24 – 4309044
Email	danum@ghanaport.net

PORT SECURITY SUPPORT; PORT SECURITY MANAGER	
Name	MAJOR YAW ASAMOAH-DUODU
Address	GPHA, P O BOX 488 TEMA GHANA
Phone/Fax	233 – 22 – 202685; 233 – 24 - 4329589; 233 – 22 – 204136 - Fax
Email	yasamoah-duodu@ghanaports.net

OTHER LOCAL EMERGENCY RESPONSE AND SUPPORT CONTACTS	
GHANA CUSTOMS EXCISE AND	233 - (0) 22 – 202667
GHANA IMMIGRATION SERVICE	233 - (0) 22 – 202552
EASTERN NAVAL COMMAND	233 – (0) 22 – 202434
GHANA POLICE SERVICE	233 – (0) 22 - 203850

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ABSTRACT

FOREIGN EXCHANGE RISK MANAGEMENT: THE CHALLENGES OF TEMA PORT – GHANA

The exchange rate risk has become one of the most important risks faced by companies since the cancelling of parities of exchange in 1971 by Bretton Woods Institutions. Generally, few institutions will need to use the full range of hedging techniques or instruments. This document sets out the instruments and strategies each institution, needs to have in place and apply within its foreign exchange risk management, and the criteria it should use to prudently manage and control its exposure to foreign exchange risk. This paper demonstrates that the extent of hedging in an industry has real effects on the product markets in which firms operate. This risk is linked to interest rate currency variations; it constitutes a major threat for enterprises which are involved in international trade and international operations. According to its activities the Port of Tema does not escape this logic and this paper also presents the challenges of the Port.

Key words: foreign exchange risk management - hedging instruments – TEMA Port

RÉSUMÉ

GESTION DU RISQUE DE CHANGE : UN CHALLENGE POUR LE PORT DE TEMA (GHANA)

Le risque de change est devenu l'un des risques les plus importants rencontrés par les entreprises depuis l'annulation des parités de change en 1971 par les institutions de Bretton Woods. Ce document énonce les instruments et les stratégies de chaque établissement doit avoir mis en place et d'appliquer dans sa gestion du risque de change, et les critères qu'il devrait utiliser pour gérer prudemment et de contrôler son exposition au risque de change. En règle générale, peu d'établissements auront besoin d'utiliser la gamme complète des techniques de couverture ou des instruments. Ce document démontre que l'étendue de la couverture dans un secteur a des effets réels sur les marchés de produits dans lequel les entreprises opèrent. Ce risque est lié aux variations de taux d'intérêt des devises; elle constitue une menace majeure pour les entreprises qui sont impliquées dans le commerce international et les opérations internationales. Selon ses activités, le port de Tema n'échappe pas à cette logique et ce document présente également les défis que doit relever le dit Port.

Mots clés : gestion des risques de change - les instruments de couverture – Port de TEMA
