

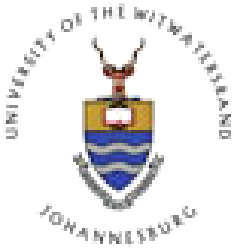
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THE EFFECT OF DOLLARIZATION ON THE PERFORMANCE OF THE ZIMBABWE STOCK EXCHANGE

by

MABEL BEN

Thesis submitted in fulfillment of the requirements for the degree of
Master of Management in Finance & Investment

in the

FACULTY OF COMMERCE LAW AND MANAGEMENT
WITS BUSINESS SCHOOL

at the

UNIVERSITY OF THE WITWATERSRAND

SUPERVISOR: PROFESSOR KALU OJAH

DECLARATION

I, ***Mabel Ben***, declare that the research work reported in this dissertation is my own, except where otherwise indicated and acknowledged. It is submitted for the degree of Master of Management in Finance and Investment in the University of the Witwatersrand, Johannesburg. This thesis has not, either in whole or in part, been submitted for a degree or diploma to any other universities.

Mabel Ben

Signed at----------

On the---------- Day of----------2016

ABSTRACT

Zimbabwe as a country went through severe economic crisis between the years 2000 and 2008. Hyperinflation, ill conception of policies by a desperate government that was in panic because of the shock that the crisis had on the economy, a declining exchange rate were among the serious challenges that were facing the economy. As investors and ordinary citizens scrambled for ways to store the value of their wealth, they all trooped to the Zimbabwe Stock Exchange (ZSE) to buy shares. As the demand of shares increased, so did share prices. Share prices had stopped to reflect economic fundamentals as the stock exchange became a mere market place of raising money.

Stock markets have several functions which are crucial to an economy among them giving support to and facilitation of the growth of key sectors as well as provide accurate signals for resource allocation (Aurangzeb, 2012). Darskuviene (2010) says stock markets act as barometers of economies; in particular stock market movements tend to be leading indicators which means that they provide indications of likely future changes in the level of activity in the economy as a whole. Contrary to these crucial functions, the Zimbabwe Sock Exchange had become a repository of trapped local savings as Zimbabwean citizens scrambled for shares. The scrambling for shares was either for speculative purposes, store of wealth or just a place of raising fast cash as hyperinflation became a daily phenomenon. The prices of shares are supposed to reflect economic fundamentals, all things being equal but for the case of Zimbabwe, the stock prices were now reflecting activities of the 'black market".

Money has several characteristics that it carries among them durability, hard to counterfeit, and stability in value and one of its major function is to act as a store of value. The Zimbabwean dollar had seized to serve any of the above mentioned functions as hyperinflation corroded the value of the currency.

In 2009 Zimbabwean government adopted full dollarization as the Zimbabwean dollar had become useless as a medium of exchange. This saw the Zimbabwe Stock Exchange start to quote prices of shares in the United States Dollar (USD). This research examined the effect of dollarization on the performance of the Zimbabwe Stock Exchange. It attempts to measure and

assess using empirical models the extent to which the adoption of dollarization enhanced the performance of the bourse. The study uses two sample periods namely the pre-dollarization era and the post dollarization era representing the years 2003 to 2008 and 2009 to 2014 respectively. The sample is made up of sixty two listed companies that make up the Zimbabwe stock Exchange industrial index, which is used as the benchmark index. Two soft wares have been used in carry out this research namely Eviews 8 and SPSS. These were used to in trend analysis, mean difference analysis and regression or correlation analysis. The analysis was carried out using these three techniques in order to assess the effect of dollarization on the performance of the ZSE.

The results gathered from this research shows that dollarization has enhanced the performance of the ZSE. Shares prices have stabilized as compared to the pre-dollarization era where they would change a number of times in one day. This stability in share prices was brought about by the use of the US dollar to quote shares because the dollar is a more stable currency. It was found that market capitalization has significantly improved in the dollarization era. There is also strong evidence showing that Price Earnings ratio has decreased significantly which is a good for the Zimbabwean stock market. Turnover ratio did not show any statistical significance in terms of performance. Its correlation with dollarization was negative. This is due to the liquidity challenges that the country is experiencing as well as political uncertainty which is making the stock market unattractive to foreign investors. Therefore, I recommend further research on alternative ways of solving the problems that the country is facing for example de-dollarization and strategies that bring about monetary policy freedom.

DEDICATIONS

This research report is dedicated to

Dr Musavengana W. T Chibwana, my one and only…Tapedza Masters honey!!

My babies: Mummy is ready to play with all of you

The Ben family: Nhasi ndezveduwo!!

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I would like to thank God for his Faithfulness to me. It can only be God when I look back from where I am coming from. Thank you Lord Jesus, we have done it again!! Particularly, I would like to thank the following people

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CHAPTER 1

INTRODUCTION

1. CONTEXT OF STUDY

Stock markets as well as securities exchanges have been regarded by many as the support system for the majority of modern economies as they provide the crucial means by which firms get sizeable capital for investment purposes.

The Zimbabwean economy operated virtually under uncertain, highly volatile and harsh environment in the last quarter of 2008. Prices of goods and services would increase in a blink of an eye. In fact, prices became extremely elastic in the hyperinflationary environment. Thus there were a lot of pricing disparities and inefficiencies on the country's stock exchange, the Zimbabwean Stock Exchange (ZSE)[1], which rendered the pricing mechanism ineffective, useless and of no purpose, including the pricing of stocks.

The country's exchange became a place full of stored savings. The scramble after all forms of securities, including stocks, led to the continuous rising of share prices by quiet huge percentages daily (Games, 2010). Hyperinflation amongst other economic and political challenges saw the formation of the Government of National Unity and official dollarization[2] of the Zimbabwean economy early 2009. In the month of February, the same year the local bourse became fully dollarized; it meant that trading could be done in United Sates dollars (USD).

Therefore, this research report is designed to find out the extent to which the adoption of dollarization affected the ZSE performance. This research report begins by giving a snapshot of the circumstances that took place before the policy took place, the area of focus that needs to be explored, the goals of the study, research questions, an overview of the methodology, the significance of the study, list of definition of terms, and a round-up with an outline of what chapters follow this introduction chapter.

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[1] ZSE is the country's local bourse.

[2] Official dollarization takes place when the citizens of a country get to use another country's legal tender together with their local money (Rafferty, 2003).

1.1 BACKGROUND TO THE STUDY

According to the ZSE's website, around 1998, the Zimbabwe equities market which was once a market that was doing very well in Southern Africa, recorded a sharp decrease in the amount of funds it normally receives from trades, and stock sells rose significantly. This was caused by the rise in yields in the primary market which had become more attractive to investors than the secondary market yields and rumours that the government of the country was planning to implement a fast track land reform programme.

Between the years 2000 and 2008, the Zimbabwean economy went through a period of economic chaos and declining performance as well as deep and fundamental changes. Regardless of the non-performance of the economy, equities responded spectacularly towards the chaos that was negatively affecting Zimbabwe as a country. Speculation became a major driving force behind the local bourse's performance as investors desperately looked for ways to hedge (protect) their wealth against hyperinflation. Inflation was 231 million percent around 2008 mid-year as demand for shares rose as citizens and the corporates looked for ways to preserve their wealth (Njanike, Katsuro & Mudzura, 2009).

Games (2010) reported that on one particular day in the year 2007, the exchange rate between the Zimbabwean dollar and the United State dollar plummeted and there was panic in the business fraternity and the country as whole. The sudden depreciation of the exchange rate was caused by the government's huge payout to freedom fighters who were striking demanding more money. These strikes came at a time when several other challenges were facing the country. Since that time, the economic situation of Zimbabwe has been downward.

Former Finance Minister, Mr. T. Biti, alluded that the rise in prices of goods and service was being caused by an increase in money supply. The increase in money supply left citizens with more disposable income and ultimately demand for more of these goods and services while there was no increase in the production capacity of the country. The macro-economic policies that were in place before the inflationary period lead to the severe strain that was now on the economy (Biti, 2009).

As noted by Chengu (2009), the government of Zimbabwe undertook the Fast-track Land Reform Programme (FLRP) in the year 2000. Immediately the seizing of land from white farmers was implemented and followed by the country being placed under sanctions by the west, this chain of events left Zimbabwe isolated and vulnerable.

Economically the country faced a number of serious challenges during this period, among them, the lack of planning, ill-conceived government policies, and lack of commitment on the part of new farmers, drought and increased international isolation of the economy. This led to many sectors of the economy struggling and the Zimbabwe Stock Exchange was among the victims. As the prices of goods and services rose persistently, people and companies looked for appropriate securities that would provide them with a hedge on the local currency denominated assets. There weren't a lot of hedging alternatives and everyone was demanding and buying shares.

Although pricing regulation and policies were in place, they were rendered ineffective by a hive of fraudulent activities within the stock exchange. A lot of indiscipline was taking place on the stock exchange where the shares were being fraudulently purchased as well as other speculative assets. The stock market is a great place to raise fresh money for development and innovative production. Unfortunately the money that was going into the local bourse was not really creating new capacity but chasing after the few assets that had been created by yester years' efforts. For example, a number of companies were then reporting earnings from reprising their ZSE portfolios and not from production (Kwesu, 2009).

The ineffectiveness of pricing regulation and policies worsened the confusion in the capital market and also contributed a lot to the failure of the stock exchange to efficiently price its shares. The Reserve Bank of Zimbabwe (RBZ)[3] Governor publicly stated in November 2008 that without doubt, the trading mechanisms of the ZSE that were reflecting in the market demonstrated significant deterioration in the pricing systems in the capital markets (Games, 2010).

[3] RBZ is the Reserve Bank of Zimbabwe, which is Zimbabwe's Central Bank

Hyperinflation became the order of the day in Zimbabwe. It masked a lot of mistakes and investors were able to paper over inefficiencies and poor performance, until it led to the total breakdown of the local currency. A thriving parallel market became the main driver of pricing mechanisms in the economy including share prices. Share prices instead of reflecting the economic fundamentals underlying the listed firms and the economy, specific industries and companies were now reflecting the activities on the parallel market. The economy also faced a spate of company closures and many companies were now operating below their full capacity.

The Reserve Bank of Zimbabwe likened the activities on the capital market in Zimbabwe to an economic suicide. The activities on the bourse disabled the government form raising money for economic growth which would counter the rise of inflation. The ZSE was not an exception among those affected by the harsh conditions prevailing in the country at the time. Ndlela (2015) said that towards the end of the year 2008, the bourse was shut down and it seized operating for a number of months.

In February 2009, the ZSE re-opened and resumed trading but not in Zimbabwean dollars but in United States dollars. Thus, the Zimbabwe Stock Exchange became fully dollarized and shares were now quoted in US Dollars and all the transactions on the bourse could trade in the newly adopted currency, which saw the exchange get back, at least, on one foot. Full dollarization was adopted by the government in a bid to turn around the economy from a decade of instability. The adoption of dollarization in Zimbabwe brought about some degree of sanity to the economy and the bourse. Inflation dropped to single digit figures and retail shops became fully stocked once more. The manufacturing sector as well experienced an improvement in capacity utilization.

According to the Zimbabwe Stock Exchange website, an exchange that has obtained both operational and pricing efficiency improves the welfare of people in the society. For investors on the stock exchange, it had been a long winding road. Thus, there is the need to examine the effect of dollarization on the performance of the ZSE.

1.2 PROBLEM STATEMENT

The ZSE, ranked as the second largest sophisticated stock market in Southern Africa, had become a place of mere growing of cash rather than for long term investment purposes. The public statement presented by the RBZ Governor blamed the ZSE for fuelling inflation to unprecedented levels. The function of the stock exchange during the year 2008 gave birth to a number of unscrupulous behaviors which can be traced to the poor pricing regulations put in place by the Central Bank.

In fact, there was a time when share prices were being manipulated by major players on the exchange. For example, Old Mutual implied rates were being used as the benchmark for all the stocks on the exchange and stock price volatility was unprecedented. The multiple changes in the prices of stocks were no longer reflecting economic fundamentals. Speculation drove the prices of stocks and ultimately, the performance of the exchange as investors hedged against hyperinflation and this left the ZSE virtually with both no operational and pricing effectiveness.

The year 2009 saw the adoption of full dollarization of the bourse in an effort by the government to bring sanity to the stock exchange. The scenario that unfolded in the ZSE during the hyperinflationary period, was one of those that makes one unclear about how the change of currency helped to bring stability to the Zimbabwean economy and to what extent did the adoption dollarization bring about some stability (sanity) to the activities of the bourse. Karas (2002), Cohen (2000) and Agnoli (2002) are among writers who have found that the adoption of dollarization yielded both good news and bad news. Therefore, it cannot be overemphasized that there is a need to carry out this research in order to assess if dollarization of the stock exchange yielded the intended results or otherwise. In the absence of such a study, policy makers and students of stock exchange would not be clear on how and when to use dollarization in the future should things go wrong. Therefore, this research report intends to examine the effect of dollarization on the performance of the Zimbabwean Stock Exchange.

1.3 RESEARCH OBJECTIVES

The major goal of this research report is to assess whether efficiency was enhanced on this particular bourse due to this dollarization policy. The research carried out in this study should provide a more comprehensive evaluation of the functions of stock markets, dollarization, its pros and cons and its impact on the Zimbabwe stock exchange and the Zimbabwean financial system.

The research report will assist all interested stakeholders of stock exchanges understand the key forces that drive the performance of the ZSE and particularly undertake a clear assessment of the extent to which dollarization enhanced the performance of the bourse. If investors should have a clear understanding, assessment and evaluation of the performance of the bourse in the dollarization era, they would be in a position to make sound and informed investment decisions that will enhance their profitability, bring about a productive use of the equities market and the country. Therefore the study seeks to:

- Assess the change in stock market performance indicators and economic factors before and after dollarization.
- Establish whether dollarization enhanced the performance of the ZSE as compared to the Zimbabwean dollar era.
- Identify the sources of efficiency on the ZSE in the dollarization era.
- Determine whether the necessary preconditions required for market efficiency do exist in the ZSE.
- Identify the advantages of a healthy stock market.

1.4 RESEARCH QUESTIONS

The study seeks answers to the following specific research questions which reflect the research objectives:

- What is a stock and what are its major functions?

- What are the benefits of a well function stock market?
- What is dollarization and why did the ZSE adopt dollarization?
- What are the performance drivers of the ZSE?
- Did dollarization enhance the performance of the ZSE?
- What anomalies of market efficiency are evident in the ZSE in the dollarization era?

1.5 DEFINITION OF TERMS AND ABBREVIATIONS

- ZSE : Zimbabwe Stock Exchange
- Performance: The act of fulfilling a measurable task that can be compared to other already existing set standard of efficiency.
- Institutional Investor : An organization that fulfills the role of investment intermediation for its clients.
- Portfolio: A collection of two or more shares.
- Pricing Efficiency: A characteristic of a stock market where the trading prices are a reflection of all that clients need to know about the security being traded
- Stock Exchange: A structured market platform that provide trading of shares.
- Dollarization: When the residents of a country hold assets and liabilities in the form of United States dollars and/or a currency other than their country's currency.
- Listed company: A company whose shares have been admitted to the ZSE official trading list.
- RBZ: The Reserve Bank of Zimbabwe, which is the country's Central Bank.

1.6 LIMITATIONS

The main aim of the research is to assess whether dollarization enhanced the activities of the bourse. The sample for the research is sixty two listed firms on the Zimbabwe stock exchange industrial index which depends largely on the availability of firm-specific performance data. The

result from the analysis will be considered as a reflection of the effects of the adoption of full dollarization on the performance of the ZSE.

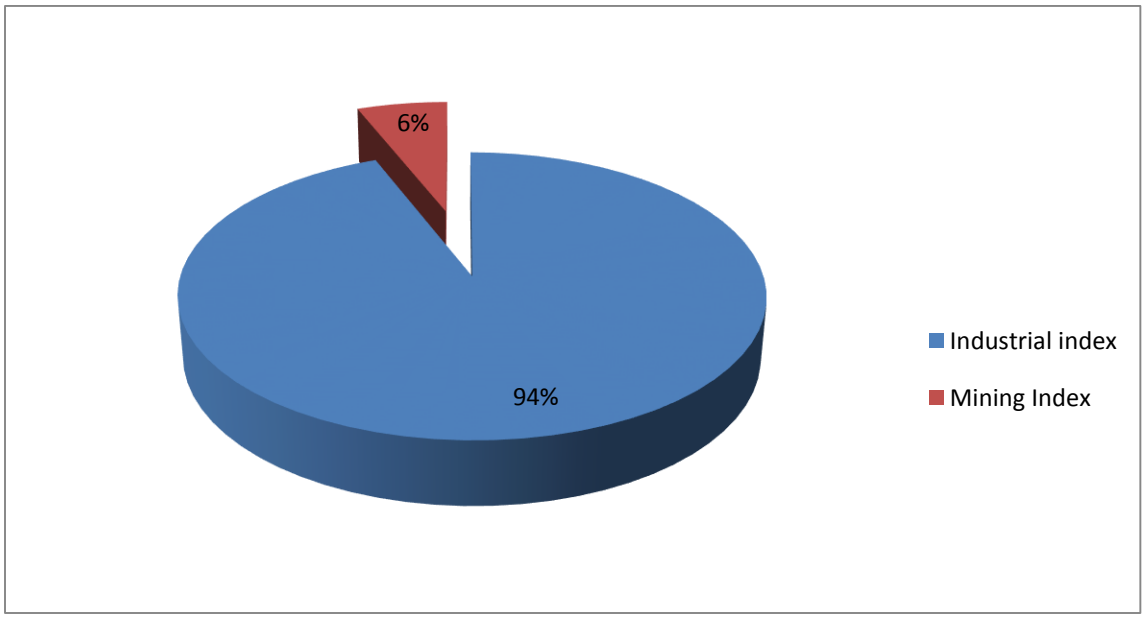
1.6.1 ASSUMPTIONS

- This research uses time series data and assumes data points are made over a continuous time interval.
- Given that the sampled sixty two industrial firms compose 94% of the ZSE listed firms, it is a good sample to represent the stock exchange and the stock market as a whole.
- The data collected from the various sources is reliable and accurate.

1.7 OVERVIEW OF METHODOLOGY

The research methodology lends itself to a quantitative analysis where I will use secondary data obtained from mainly the Zimbabwean Stock Exchange (ZSE) website, Reserve bank of Zimbabwe reports, Central Statistical Office (CSO), Zimbabwe Statistics website, World Development Indicators database (2006) and published financial statements in Zimbabwe. The ZSE has two indices, the mining and the industrial indices. For the purposes of this research, the industrial index monthly data will be used for the period of 2003 to 2008 and 2009 to 2014 as the sample periods representing the period before and after dollarization, respectively. The Zimbabwean industrial index will be used for this research because it is regarded as the benchmark index.

Figure 1.1: Composition of the Zimbabwe stock exchange indices according to the number of listed firms



Firstly, a trend analysis of important market and economic factors like inflation that affect the performance of the stock exchange will be carried out. Trend graphs of stock market performance indicators which are market capitalization, turnover ratio and price earnings ratio will be plotted and the trend behavior analyzed as well. The research will focus on two sample periods that is the pre-dollarization and the post dollarization periods.

Secondly, Market capitalization, share turnover velocity and price earnings ratio are the measures that will be used as important indicators together with inflation to assess the performance of the bourse using mean difference test. A paired samples test will be carried out on each performance indicator for the pre-dollarization and the dollarization eras. The mean difference test will be employed to assess if there is a significant difference in each variable over the two specified sample periods. A two tailed t-test will be carried out to see if the means obtained before and after dollarization are different from zero. This will help in determining whether the performance of the bourse has changed significantly in the dollarization era or not.

Thirdly, I will run three regressions to investigate the degree of association between performance indicators of a stock market and dollarization (which is the target variable) as well inflation as our independent variable.

1.8 SIGNIFICANCE OF THE RESEARCH

i) To our knowledge, there is scarce literature on dollarization in Africa and yet several countries in the region at some point or another have dollarized. This is the reason why I have chosen to study on the effect of dollarization on the performance of the ZSE. The study seeks to add knowledge to value to several researches on Zimbabwe and the country's exchange performance especially after the adoption of dollarization. Hence this research will be invaluable to academics in the country and Southern African region as most African countries have challenges of high inflation and might be considering dollarization.

ii) The research will also be of great use to investors, more so in dealing with complex issues in a developing economy like Zimbabwe, where the economics are linked to politics and global influences.

iii) Finally the government as the regulator of the ZSE will find this study valuable in respect of coming up with regulations that can ensure that the ZSE enhances its level of market efficiency and improve the performance of the bourse itself and the whole country at large. An assessment on the performance of the stock market through the stock exchange will also enable policy makers to evaluate the effectiveness of the transmission of policy through the stock exchange market.

1.9 RESEARCH OUTLINE

This was the introductory chapter, which clearly highlighted the subject matter in this research, as well a point out the major focus of this study. This section of the paper shows the background checks that led to the writer to engage the research. The statement of the problem defines the problem to be tackled and this is followed by research objectives that will provide solutions to the problem when they are realized. Thereafter, the chapter points out the overview of the methodology to be used in the research and importance of carrying out the research.

The second chapter contextualizes the study in line with main areas of focus of this study. This chapter reviews literature designed to put the current study into context. Chapter three will

explain the methodology to be used in writing of the research report. It entails the research design, the sample population and the techniques employed in the research analysis.

The forth chapter is an important section of the report, which deals with the critical analysis of data in line with the subject matter, research goals as well as research questions. Finally, the research project is concluded in chapter five, by summarizing all the findings, and flagging conclusions and recommendations for further research.

CHAPTER 2

LITERATURE REVIEW

2.1 REVIEW OF THE DEVELOPMENTS OF THE ZIMBABWE STOCK EXCHANGE

The ZSE website records that trading of stocks in Zimbabwe started in the 19th century around the year 1891, which was the year in which the first brokerage firm was established. After a few years, the Rhodesian Stock Exchange (RSE) [4]was formed; the first stock exchanges were established in Harare, Bulawayo (the second largest city) in 1894, Gweru and Mutare with the latter two exchanges being the last two to be formed in the year 1898.

By the year 1980, then the Rhodesian Stock Exchange had become a sophisticated stock market which had become of great use to the economy of Rhodesia then. Trading was being done in the local currency, the Zimbabwean dollar. Upon the attainment of independence in 1980, RSE was renamed to the Zimbabwe Stock Exchange. In the twentieth century the bourse regarded as the second biggest stock exchange in the Southern African region, after the South African bourse registered high levels of growth from the years 1994 to 1996, with high average market capitalization figures soaring close to thirty six percent annually.

In the year 1998 the Zimbabwean stock market, which was recorded as the one of the best African market which exhibited a lot of potential started to decline in performance. Turnover plummeted compared to the yester years and a huge chunk of shares getting sold. The decline was traced to the high yields in the money market which was attracting investors to higher yields. Investors were starting to lose confidence in the stock market due to political and social unrest that had started ravishing the economy for example the government's stated intension to embark on a Fast Track Land Reform Programme in which land was to be seized by force from white farmers and redistributed to black farmers.

As the Zimbabwean economies continued to decline and face a number of serious challenges like hyperinflation, the Zimbabwean dollar was replaced by the US dollar officially in February 2009 and the ZSE became officially fully dollarized. In the first quarter of 2009, little trade was taking

[4] RSE was the name given to the Zimbabwe Stock exchange when the country was under the British government.

place on the bourse with a small number of foreign investors who seemed to be risk lovers, take upon the risk of trading on the market.

According to the ZSE website as of the last quarter of the year 2014, there were sixty six firms on the trading list of the bourse with a market capitalization of close to 4 billion United States dollars participating in more than fifteen economic sectors. Trade on the ZSE is conducted using the open cry method which is carried out on a daily basis starting from mid-morning to mid-day. Settlement is executed on a T+7 day basis. The Zimbabwe's capital market is made up local, regional and international investors supported by thirteen registered stock brokers and five custodians.

The main goal of this research report is to analyze the extent of influence that dollarization has on the deliverables of the exchange. This particular research intends to analyze and understand whether the adoption of dollarization enhanced the performance of the bourse. This section of the research summarizes the key features and performance indicators of a stock market. The subject matter is explained and sets the context for a more detailed description of the research.

2.2 FINANCIAL SYSTEM STRUCTURE AND FUNCTIONS

According to Darskuviene (2010), the financial systems are responsible for a crucial part in any economy by influencing economic growth and the performance of economic factors as well as affecting economic welfare. Financial infrastructure is the vehicle that is used to achieve the above mentioned roles, in which firms with excess funds avail their funds to the firms in deficit who have potential to use the funds in more productive ways. A financial arm of any government facilitates the feasibility of a smooth allocation and transfer of funds among the different economic sectors. There are instances where one side of a deal holds more information than another which leads to information not being effectively disseminated which lead to inefficiencies in the allocation of financial resources which may deter the growth of an economy.

Darskuviene (2010) highlighted the structural approach which gives a more detailed role of the financial system which consists of three specified components:

i. Financial Intermediaries.

ii. Financial Regulators.

iii. Financial Markets (of which stock market are a part).

2.2.1 WHAT IS A STOCK MARKET?

Jordan and Miller (2009) defined a stock market as a place where the trade of listed companies stocks and long term debt securities takes place at an agreed price and that the financial securities must be listed on a stock exchange. According to Darskuviene (2010), a stock market is among the most important sectors of financial markets with instruments with a long life are transacted with the goal of raising funds for firms. The investor from excess savings unit is given a payment from the income that the firm raises and is made a part owner of the business and the wealth that they own is regarded as a compensation for the risk they would have assumed. This market is important for the mobilization of both local and international savings and the enhancement of the investment process in a free economy. Stock markets organize national and international trading in several financial instruments including stocks.

Aurangzeb (2012) acknowledged that when we refer to stock markets, we notably think of an integral arm an economy which performs an essential part of growing other key arms that builds a nation as a whole. Stock markets play the important role in supporting productive industries that result in growth economically.

Ross, Westfield and Jaffe (2003), writes that equities market essentially is made up of the primary as well as the secondary market. It is through the primary market that securities are first brought to the market, it is also known as the market for initial public offerings (IPOs)[5] and through the secondary market, shares that are not being issued for the first time are traded amongst stakeholders, as investors constantly seeks to increase the values of their firms through seasoned offerings. When the shares of a company are already owned by the public, it can raise equity with a seasoned equity offering (SEO) which is also called a follow-on offering. The bid

[5] An IPO refers to the sale of a company shares to the public for the first time, typically, the company will be small and growing, and needs to raise capital for further expansion (Jaffe, 2003). This process takes place in the primary market.

and ask prices of security transactions are determined by demand and supply of the each particular stock (Jordan and Miller, 2009).

Beechey, Gruen and Vickery (2000*)*, reports that the paramount role of the stock market includes rationing of capital resources of a country. An efficient market is one where there are no friction costs and no information asymmetry and one which execute its mandate of allocating resources with precision. This type of a financial system allows companies to make high yielding investment decisions and investors are free to select financial commodities that stand for their ownership in the business. The presumption that underlies this concept is that securities prices at any time 'fully reflect' all available information.

2.2.2 WHAT IS A STOCK EXCHANGE

A stock exchange is a place where the buying and selling of financial instruments is done. These financial instruments are of a debt or equity in nature as well instruments that derive their value from other underlying securities. Short term instruments which are highly liquid in nature are also traded as long as they are officially listed. The official trading list is composed of securities that meet the essentials of the bourse, including capital specifications that listed companies are required to meet. Different stock exchanges have different sets of rules and regulations that each player is to adhere to (Darskuviene, 2010). Bourses guarantee the elimination of imperfect information and ensure efficiency.

According to Brealey, Myers and Marcus (2001), majority of financial tradable instruments are traded on a bourse which is a place of convergence of willing buyers and willing sellers who then deliberate on each security's final price. There are different types of exchanges bourses where trade can take place: physical places on which deals are executed through open cry system. Another category of an exchange is called over –the –counter (OTC)[6]. The financial instruments that are tradable on an exchange include stocks, low risk instruments like unit trust,

[6] OTC is the virtual kind for example NASDAQ which is composed of a network of security dealers who uses computers where trades are made electronically via traders at computer terminals.

high risk –high return type of instruments and long term securities like mortgage bonds. Thus, an exchange is a crucial part of a financial system of an economy and the determining factors of the stock prices are the supply and demand of the stocks.

2.3 KEY FEATURES THAT MAKE UP A STOCK MARKET

Markets for stocks have some special features that facilitate smooth functioning of the market and most investors use these as a basis on investment decisions. Thus, the market for stocks is regarded as the initial indicator of an economy's economic wealth being. Listed below are some of the features:-

2.3.1 Stock indicators

Stock prices changes are a major influence in the trading that takes place in the secondary market and investors look for these prices quotes on exchanges and use them for making investment related decisions. Some of the information provided on bourses include:-

Market capitalization is a profitability measure of the size of a stock market. The bigger the size means that market capitalization could be higher which a good sign is for interested stakeholders'.

Annual dividend is a part of retained earnings that is distributable to shareholders over the last year on a per share basis.

Dividend yield measures how much shareholders are realizing form each dollar investment in stocks.

Price/earnings ratio (P/E ratio) is the ratio measure the share price of a company to its earnings per share. A high P/E ratio reflects that the security market price is overvalued. The common presupposition underlying this is a good new case and vice versa.

Volume of shares refers to the number traded at the close of each previous trading day.

2.3.2 Stock market indexes

According to Aurangzeb (2010), these are regarded as the efficiency of the price discovery process on different positions taken on the market, which are established as a representation of the whole financial system. There are variations on the portfolio makeup, ranging from little but high liquidity securities to numerous illiquid securities being traded on one market. The indices that are founded upon little numbers in terms of stocks are simple calculate but they barely are a representation of the whole stock market.

Stock markets' one of the many responsibilities is that of supporting industries to grow and ultimately enhances the growth of the economy. It is commonly regarded as the tool of measuring a sense of the direction of the economy and they stabilize the economy with their performances. The consistent growth of an index is a good indicator of the growth of an economy and if the index and stock prices are on the downside or their fluctuations are on the rising side it portrays a picture of non-stability in the economy (Aurangzeb, 2012).

2.4 PERFORMANCE INDICATORS OF A STOCK MARKET

2.4.1 Market Capitalization

The market capitalization's size is a sign of the importance of each country to international investors. Market capitalizations are the basis for the attractiveness of an exchange to national, regional and international investors, the bigger the size, the more preferred the market. When the market capitalization is big, there is the assumption that in the long run investors will be rewarded with a consistent increase in share value and dividend payments (Darskuviene, 2010).

2.4.2 Turnover ratio

Turnover ratio is a liquidity measure. Pryymancheko (2003) established that the efficiency of a bourse can be measured in terms of its liquidity and price discovery. Liquidity is the environment that is created by the bourse where trading can be done with little or no friction which normally

results in an increase in trading volumes as well as boost interest by traders to take part in the market. Investors can take part and come up with hedging strategies when there is high liquidity in the market. Investors who trade in markets with high levels of illiquidity face higher transaction costs than in liquid markets. Thus investors, who measure performance on the basis of global benchmarks, seem to be resistant in investing in markets with liquidity problems. Highly illiquid stock markets are measured by the number of times a share changes hand also known as share turnover velocity. The high the turnover ratio, the more attractive the market is.

Prompt price discovery process is a common phenomenon in efficient markets, stock price in these markets always reflect all new information released in order to reflect the change that would have occurred to the intrinsic value of the stock (Fama, 1991).

2.4.3 Price volatility

Stability in share shares prices is crucial to investors, sharp rises and falls are considered a sign of instability of a stock market. Extreme rise and falling exposes the market to risk either by losing money or socks can become too cheap that no one will be interested in investing on the bourse. Depth and breadth have effect on the volatility of stocks of a market. Aurangzeb (2012) identifies the effect of volatility in Korean foreign exchange market on Korean stock market and he found out that the Korean foreign currency market impact depreciation volatility positively and stock market return volatility responds to exchange rate depreciation volatility.

2.4.4 Price- Earnings (P/E) Ratio

This ratio measures of the average share prices of shares for a firm in an index to the average earnings per share of these firms. The ratio is important to stock analysts and investors who use the ratio to assess if individual stocks are correctly quoted. A long run fastest growth in prices of stocks normally happens after a low value of this ratio and the reverse is true (Shen, 2000).

2.5 IMPORTANCE OF STOCK MARKETS

It is of extreme importance that an economy has an efficient network among its sectors for example the way payments are executed; savings harnessed and directed towards profitable investments schemes. Stock market performance indicators are regarded as measurement instruments used when analysts need to have an informed idea about the industrial growth and the stability of the economy. The continuous and steady growth of an index is a good sign which shows that the economy is growing and if the index and stock prices are plummeting or their fluctuations are on the higher side it gives the impression of instability in the economy (Aurangzeb, 2012).

2.5.1 A means of availing funds for businesses

A bourse allows firms with the ability to get funds for growth through the trade of its shares in exchange for funds from the investing public. Brealey et al (2001) found that as firms grow, so does their capital requirements and there comes a stage when the firm will have the need to raise funds directly from investors. By selling financial securities such as shares of stock to the public these firms in deficit get funds without having to engage external borrowing. The selling of stocks is one way which is of crucial to firms that need to raise long term capital. The shares that are publicly held are known to be liquid and can be converted to cash with ease.

Shubiri (2010) acknowledged that the shares of a firm represent long term borrowings that do not demand repayments. He also noted that where there are no bourses to facilitate the trade of financial securities, these securities will be highly illiquid and it will be a hard task to locate buyers willing to purchase them. Thus, he reinforces the extreme value of stock markets. Sigh (2010) shows evidence of a huge contribution of stock markets to investment expenditures of the corporate sector in developing economies. The efficiency of service allocation is ensured through correct share pricing.

2.5.2 Mobilizing Savings for Investment

Shubiri (2010) said that stock markets accelerate economic growth by enhancing domestic savings, thereby increasing investment quality. Stock markets in particular increase economic growth by ensuring a way for growth for entities to generate capital at low cost compared to other sources of funds like debt. Pryymancheko (2003) also supported this finding in his paper when he agreed that a stock market allows investors to use a number of financial securities to provide their liquidity and risk needs, thereby encouraging savings and providing the non-financial corporations with equity finance possibilities.

When people put to use their savings by investing in stocks, it results in a more reasonable allocation of financial resources because savings are the put to good use to provide the much needed funds to the deficit savings unit. When these funds are pooled together and channeled towards more productive sectors of the economy, they yield good economic results for example, industry growth.

2.5.3 Facilitation of company growth

Ross, Whitfield and Jaffe (2003) acknowledged that it is with ease for enterprises to dispose of their stocks on an exchange in order to finance potential business ventures. Mergers and acquisitions are perceived by firms as an alternative business avenue for expansion and a form of wealth preservation strategy. They also testified that these forms of business expansion have a minimum tax base which increases the yields realized from them. The main issue is for the organization to decide on whether to dispose of the shares or make an exchange for them.

Savings mobilization tends to enhance the savings base of an economy. Well-functioning markets allow savings to be channeled to investment programmes that have high yields and the high yields attract more savings and there is a development of a savings culture in a country which is commendable *(*Shubiri, 2010).

2.5.4. Promotes small Entrepreneurs

Contrary to other forms of investments that require huge capital injections, stock markets do not need huge capital to start trading. Stock markets level the playing field for both small and large corporations according to their capacity. Therefore, bourses provide small saver with an opportunity to also access funding.

2.5.5 Allows governments body the opportunity to get funds for smaller programmes.

The government bodies like municipalities can trade on an exchange in order to raise funds for social welfare and the betterment of the community and enhance the lives of its citizens. For example a municipality can raise funds for water treatment and provide clean water to its people. This can only take place on an exchange where these governments departments can sell bonds to the public to raise funds for such noble purposes. This in turn will reduce the taxes that have to be paid by citizens for the provision of these municipal services.

2.5.6 Composite economic indicator.

Stable companies that are listed on bourses tend to bring stability on the market and across the whole economy amid economic challenges. Darskuviene (2010), purports that indexes have a number of uses, among them is to represent a composite indicator. Therefore, share prices are used to track economic trends and to forecast the direction of the economy. Shrestha and Subedi (2014), reports that indexes are of great importance as macro- economic indicators of many economies. The expansion of these indexes is used as an indicator of the confidence that investors have about the future of the economy.

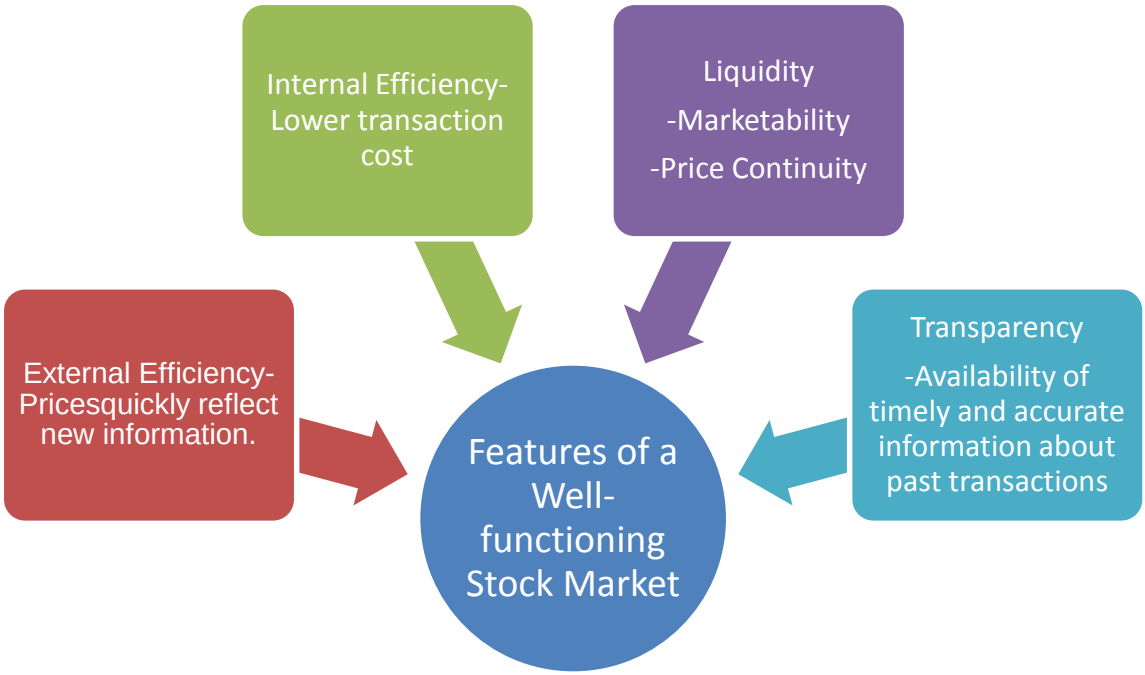
2.6 KEY FEATURES AND ADVANTAGES OF A HEALTHY STOCK MARKET

The primary benefits of a well-functioning stock market are:

- Pooling together of funds from surplus savings units of an economy.
- Provide an opportunity for the matching of willing seller, willing buyer to engage in development programmes that enhance the lives of people.
- Enhances and stimulates economic growth.

According to Pryymancheko (2003) provide a list of some of the major advantages of an efficient market.

Figure 2.1: Benefits of a well-functioning Stock Market



Levine and Zervos (1998) found that there is a positive relationship between the growth of an economy and the development of its capital market. The close link eliminates business failures of capital nature which then enhances the proactive sectors of the economy and the risk that is associated with liquidity problems is done away with.

2.7 MARKET AND ECONOMIC FACTORS THAT AFFECT THE PERFOMAMNCE OF A STOCK MARKET

The performance of a stock market can be affected by influence. Influence can be defined as the power that affect persons or events based on prestige thus causing something without any direct or apparent effort (Ibrahim and Aziz, 2003). Influence is basically a causative factor that exerts pressure on a person or events to drive them to perform in a certain way (Seyhun, 1998).

The development of any economy is closed linked to the factors that foster economic development. Factors like Gross Domestic Product (GDP), consumer price index, repo rate and the growth rate of broad money are considered highly indicative of growth prospects of an economy. Changes in any of these fundamentals have high impact on the prices of stocks which clearly shows their severe influence on the economic performance of a country.

Indexes measure equities market through a time factor. They are benchmarks that investors use for comparison purposes when choosing between markets. Several researches have been carried out in a number of countries including the United States of America to establish the degree of association that exists between the changes in economic fundamentals and their influence on stock prices. The intension of the researches was to know if the results would help investors to better predict and carry out forecasting of these fundamentals changes and take precautionary measures before crises break out. The results gathered showed shares prices are highly elastic to slight changes in economic fundamentals.

2.7.1 Inflation

Consumer price index is a reflection of inflation in the economy and its high level may threaten the macroeconomic stability of a country and stock market becomes more volatile during periods of high inflation. According to White (2007), inflation is a situation where the prices of goods and services tend to rise consistently. Inflation corrodes the purchasing power of money and consumers end up purchasing fewer and fewer goods with the same value. This occurs due to the circulation of too much money in an economy. As inflation rises, purchasing power decreases, fixed asset values are affected, companies adjust their pricing of goods and services, financial markets react and there is an impact on the composition of investment portfolios.

All forms of investment need to increase at par to inflation increases, if not the value of the investments are depleted. Consumers, businesses and investors of stock markets are affected by an upward trend in prices. Changes in prices of stocks due to inflation can affect market environments as well as investment returns. Hyperinflation most directly affects fixed income

securities because the fixed payments become worthless and it depletes yields and hence this affects the activities of a stock market negatively.

The Consumer Price Index (CPI), which is the principle gauge of the prices of goods and services. CPI reported figures tend to move stock markets in two different directions because it plays a role in many key financial decisions. Persistent low to moderate inflation figures tend not to cause much reaction with investors but investors get worried when there is a persistent acceleration of inflation. When prices of stocks changes too much and too quickly, the effects can shock a stock market as well as the economy as a whole. Companies end up paying more for the purchase of inputs, at the same time government policies will not permit them to increases the price of its finished goods sufficiently to cover for the loss in value of the finished product. This result in a reduction of players on the stock market or no new players will enter the stock market and performance of the whole market is affected.

Lee (1992) established that inflation is not the decrease in the purchasing power of a currency but a persistent rise in broad money which then leaves people with more disposable income and the demand for goods and services is increased and ultimately the prices of goods do as well. Several authors documented the association between the increase in money supply which causes the prices of good to rise and yields on stock markets. When there is a rise in the yields on stock markets, stocks become a lucrative form of investment and there comes with it a rise in demand for the stocks. This scenario becomes a problem when there is not a corresponding increase in the supply of the same stocks. This causes a mismatch between demand and supply of stocks which destabilizes the efficiency of a stock market.

Choudhry (2001) wrote a paper where he was studying the causal relationship of recent inflation and recent yields on stocks in developing countries and he found out that it is positive but only short periods of hyperinflation. This supports the theory that hyperinflation breeds a lot of uncertainty which negatively affects investors' confidence and thus stock prices falls (Fama, 1981).

Caporale and Jung (1997) are some of the great economist's that state that equity markets provide a safe haven against inflation. When there is hyperinflation the value of investments is

corroded. Fisher and Statman (1997) supported this theory by suggesting that macro- economic variables that influence yields from equities are indicative of alternative hedging strategies for investors. Taylor and Allen (1992) refutes that the perpetual rise in inflation can cause permanent damage to the market for stocks.

Factors that caused hyperinflation in Zimbabwe includes continuous money printing and supply into the economy, a depleted foreign currency reserve, and the closing down of numerous production companies which resulted in reduced supply of goods and services and their demand rising profusely (Makochekanwa, 2009). The demand for stocks outpaced the supply for them and this caused a major challenge in the pricing of the stocks and this affected the performance of the ZSE.

2.7.2 Money supply

Money supply represented by broad money supply measure (M3) in any economy has considerable effect on the other macroeconomic variables depending on the strength of money multiplier. Serletis (1993) identified two hypotheses on the influence of an increase in broad money supply the prices of stocks;

Monetary approach which deals with changes in money supply and the efficient market hypothesis which states according to the quantity theory of money, that a rise in disposable income excessively increases the demand for shares and according to the law of demand and supply, the prices of shares increases. A scenario where the rise in the demand for shares is not matched by an increase in the supply of shares, there will be share mispricing which then affects the activities of the stock market. Dhakal, Kandil and Sharma, (1993) and Reisman (1999) also agree that the rise in stock demands mostly is influenced by investor having more money in their hands. Fama (1981) also agreed and said that the increase in money balances in the hands of investors leads to changes in the prices of shares when there is the absence of information asymmetry.

2.7.3 Efficiency

Fama (1981) the famous economist who developed the efficient market hypothesis in which he highlights that there are three levels of stock market efficiency namely the weak, the semi-strong and the strong level. All these forms explain the degree of information asymmetry with the weak being highly asymmetrical, and the strong form represents the perfect information level. Seyhun (1998) found significant results to support information asymmetry in the weak and semi- strong level of efficiency that results in arbitrage opportunities.

Speculators and noise traders are the two main investors who participate on an exchange. The first one manipulates information in order to attain supernormal profits and the later looks for information asymmetry opportunities where they hold superior information than anyone else in the market (Shleifer and Summers, 1990). One of the causes of information asymmetry is the presence of insider trading dealings which results in the abuse of information resources which affect the efficiency of pricing of stocks in the stock market. This negatively affects the performance of any stock market. Edwards (1993) in his research report writes that behavior finance is a reality where investors trade due to speculation purposes and not fundamentals.

2.7.4 Supply and Demand

Technical factors are a combination of circumstances that change the determination of stock prices by market forces (Coperale and Jung, 1997). These play an important part in determining the effectiveness of stock markets. Titman and Warga (1989) state that interest rate variations affect company earnings. They argued that if interest rates are on the high side it leads to a reduction in borrowings and thus consumer spending is reduced. A reduction in consumer spending by firms leads to reduced prices and demand will plummet. The reductions in spending by firms affect the stock market activities negatively as players are reduced. Carter and Van Auken (1990) in their research found that there is a decrease in interest rates when stock returns become more charming.

Wong and Cheung (1999) reported that investors are essentially worried about long term forecasting, looking at historical data and how their investment yields will be affected in the long run. Many researchers demonstrated that the influences of economic fundamentals are of crucial importance when investigating the performances stock markets.

2.7.5 Interest Rate and Exchange Rate

Many factors, such exchange rates and interest rates, their information have an impact on daily stock prices because they both play important roles in influencing the development of a country's economy (Kurihara, 2006). In addition, the relationship between stock returns and foreign exchange rates has frequently been utilized in predicting the future trends for each other by investors. Several researchers for example, Aggarwal (2003) have investigated the causal association between markets for stocks and macroeconomic elements for example repo rate and exchange rate. They found that these two elements seriously influence the activities of stock markets. In trading economies, exchange rates have great influence on the stock market behavior.

According to Moya, Lapena and Sotos (2013), interest rate rises increase the interest expense of highly leveraged companies, thus reducing cash flows available for future dividends which results in a negative impact on share prices. Movements in interest rates affect the opportunity cost of equity investments. Higher interest rates make bonds more attractive given their risk-return characteristics, which motivates investors to adjust their portfolios by buying bonds and selling stocks, thus depressing stock prices. Changes in interest rates may impact upon the level of real activity in the economy in the short to medium term, and this affects equity prices by altering the expectations of future cash flows.

2.8 WHAT IS DOLLARISATION?

Dollarization is a range of investment that a company holds in another country's currency instead of its own home currency, to satisfy the major purposes of money. Normally the adoption of dollarization is as a result of the instability of prevailing macro-economic state including high currency risk (Bogetic, 2000). Dollarization of the Zimbabwean economy is not phenomenal;

several Latin American countries have already adopted the US dollar as their legal tender for example Panama dollarized in 1904, Argentina in 1991, Ecuador September 2000 and El Salvador followed and dollarized in the year 2001 (Agnoli, 2002).

2.8.1 Measurement of Dollarization

The currency that normally gets adopted will be of a major super power economy with incredible and predictable monetary policies. Agnoli and Whistler (2006) distinguish three types of dollarization:

Official dollarization is an ultimate substitution of the domestic currency of a country by a foreign currency. In this case one country takes the currency of another country as legal tender to satisfy all the major functions of money. In general terms, under such an agreement, there will be a total doing away with local currency risk (Bogetic, 2000). The utmost characteristic of full dollarization is that, once it is legally assumed, it will be equivocal (Borensztein and Berg, 2000).

Partial dollarization refers to a condition where the local currency of the adoptee country will still be recognized and accepted as money but undertakings can also be carried out in another country's legal tender. Explicitly, this gives the country an advantage of the use of two currencies in their economy. In this system the local and adopted legal tenders are freely used in the domestic economy. Lesotho and Swaziland as well as Zimbabwe in the last quarter of 2008 used the rand officially together with their home currencies (Borensztein & Berg, 2000).

Most of the countries that take on full dollarization are either small economies that by enlarge depend on other countries for the majority of their income or on trade for example Lesotho relies on South Africa. In some cases the adoptee economy will be going through economic distress leading to extremely high levels if inflation; the case of Zimbabwe. There is unison among writers of the subject of dollarization that adoption triumphs in reversing the consequences of high levels of inflation and usher in economic stability.

A study on hyperinflation in Zimbabwe by Hanke & Kwok (2009) showed that inflation had adverse effects on the country as well as its exchange rate and they also found that dollarization tamed the excessively rising inflation. In the case of Zimbabwe, month on month rates of inflation from the official inception of dollarization to date have been averagely ranging between zero percent and one percent (Makochekanwa, 2009).

2.8.2 Characteristics of Money

Brooks (2010) outlines special characteristics of money, for it to be accepted as a legal tender. The Zimbabwean dollar prior to its exclusion from the country's monetary system had some of the major features of money; however it failed to fulfill all of the features. Upon realizing that the country's currency did not have the major characteristics of money the citizens of Zimbabwe were forced to reject the use of the currency. Its value had been reduced to a mere paper with no purchasing power in it by viciously rising inflation.

2.8.3 Why did Zimbabwe Dollarize the Stock Exchange?

For Zimbabwe, the local currency had seized to fulfill any of the above mentioned functions of money due to effects of hyperinflation. The table below shows the estimated inflation figures from March 2007 to November 2008.

Table 2.1: Hyperinflation estimated figures in Zimbabwe, 2007-2008

Date	Monthly Inflation Rate (%)	Annual Inflation Rate (%)
March 2007	50.54	2,200.20
June 2007	86.20	7,251.10
September 2007	38.70	7,982.10

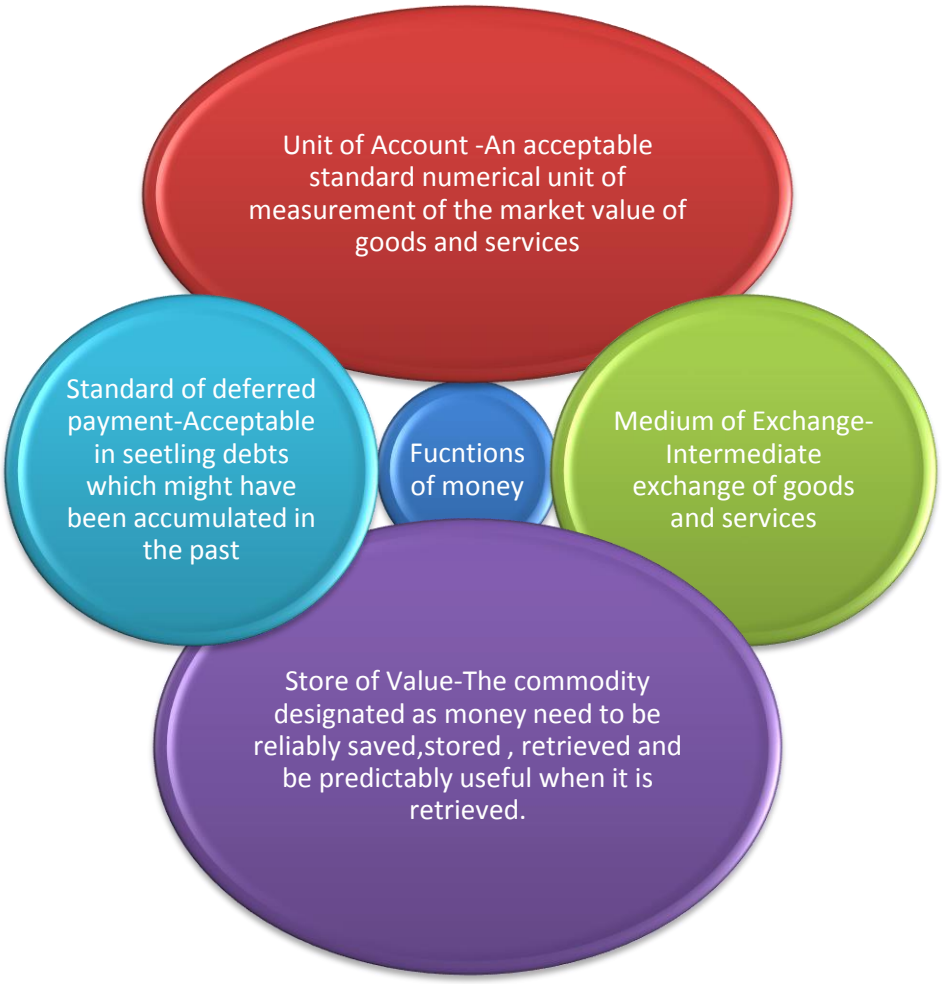
December 2007	240.06	66,212.30
March 2008	281.29	417,823.13
June 2008	839.30	11,268,758.90
September 2008	12,400.00	471,000,000,000.00
October 2008	690,000,000.00	3,840,000,000,000,000,000.00
November 2008	79,600,000,000.00	89,700,000,000,000,000,000,000.00

Holding assets in form of cash (the Zimbabwean dollar) during that period had become a financial suicide stance and there was a huge risk of losing it all in a matter of minutes. In the case of Zimbabwe the official adoption of the US dollar was assumed and it effectively served as a replacement of the Zimbabwean dollar.

When we take a look at Figure 2.2 below which is showing the general functions of money and mirror them to the Zimbabwean dollar from the year 2000 to the time the US dollar was adopted in February 2009, it shows beyond the shadow of doubt that the Zimbabwean dollar had failed to effectively fulfill these functions. Hyperinflation characterized the country's monetary system and it led to the majority abandoning the use of local currency in any transactions; instead opted to the use of more stable currencies such as the US Dollar

The functions of money as illustrated by Makochekanwa (2009) are shown by the figure below:

Figure 2.2: Functions of Money



Goods and services began to be quoted in the foreign currency, the US dollar, thus robbing the Zimbabwean currency as a medium of exchange as well as its service as a unit of account. Zimbabweans looked for alternative ways of preserving their wealth in stocks, jewelry and foreign currency rather than in Zimbabwean dollars. For this and other reasons the Zimbabwean dollar lost its privilege of being used as a sovereign currency (Makochekanwa, 2009).

Thus even the pricing of shares on the bourse to reflect the fundamentals of the economy became close to impossible. At the same time there were reports of unscrupulous behavior by the ZSE staff taking advantage of the situation and the whole process of buying and selling of shares

spiraled out of control. There was reportedly a lot of insider trading deals taking place at the bourse. Hence the RBZ governor ordered the bourse to be closed down for several months and reopened trading on the 19th of February, trading in US dollar in an effort to bring sanity back on the local stock exchange.

2.8.4 Benefits of Dollarization

Makochekanwa (2009) identifies a reduction in inflation as one of the immediate benefits of dollarization. He purported that in the case of Zimbabwe, dollarization had the ability to ensure low inflation. Evidence has shown that since the beginning of February 2009 after the adoption inflation severely dropped to single digit figures. Agnoli (2002) also agrees when he said that dollarization reduces inflation and inflation expectations which alienate currency risks. This was Zimbabwe's most important advantage since hyperinflation had brought about unbearable consequences to the financial system of the country and the economy at large. This is a result that monetary policies will be governed by the anchor country. The elimination of currency risk restores investors' confidence which hence enhances the performance of the stock market as more investors are attracted to the market.

According to Cohen (2000), official dollarization which is the substitution of the domestic currency with a foreign currency has three major benefits to an economy besides the reduction in transaction costs.

i. *Administration cost*, since there won't be any need for the government to maintain infrastructure for the manufacture and administration of the local currency. For a country like Zimbabwe, this will be a major advantage since during the hyperinflation the country was using a lot of resources in printing domestic currency to purchase foreign currency o the parallel market to repay its International Monetary Fund debt.

ii. *A sounder financial sector*, Cohen (2000) and Makochekanwa (2009) also acknowledged that dollarization does not mean the adoption of a foreign currency; it also means financial unification with the anchor country, which will make demand on

domestic firms to deliver service effectively. This expectation is of great value to Zimbabwe considering the fact its name has been seriously injured by the failure to harness economic policies for the betterment of the country.

iii. *Interest rate reduction*, adoption of a major power currency like the US dollar builds a sound association with a reputable currency. Thus a government that has dollarized can afford to shift its focus from building market confidence in its own currency, thus ride on the reputation already built by the adopted currency, since the Federal Reserve becomes the country's policy. Reduced interest rates lead to higher levels of investments, which ultimately results in economic growth (Levine & Zervos (1998).

2.8.5 Costs of dollarization

Counter balancing the benefits listed above; however there are several costs of dollarization. The costs are categorized by Makochekanwa (2009) into two distinct classes; economic and political. Cohen (2000) disagrees and says that from a political stand point, economists focus on economic costs but it reality; dollarization is more detrimental to the politics of a country.

2.8.6 Economic costs of dollarization

i. Confiscation monetary policy

Agnoli (200), Schuler (2005), Mendoza (2001) and Makochekanwa (2009), all these authors agree on the cost of forfeiting of independent and autonomous monetary policy by dollarizing an economy, since the adoptee country relinquishes its control and power over money supply. This process comes with no guarantee that the dollarizing economic specific requirement would be considered by the host country. Though in most a number of situations, a country deems dollarization as an option to resolve its economic problems its own currency would have totally failed and this was the case with Zimbabwe. The economy was already un-officially dollarized close to ninety percent by the last quarter of 2008.

ii. Loss of the privilege of printing money

The consequential cost of dollarization is the loss of the power to print money as need arises (Burdekin, 2008). In the case of Zimbabwe, seigniorage was a means of source of raising money for government use and this has been a challenge for the government because it lost one of its major sources of income.

iii. Loss of lender of last resort

Dollarization renounces the power of a country's central bank as the source of finance for financial emergency needs. In the case of Zimbabwe it has led to the government to find shady ways of raising money including the raising of tax base in an economy that is having liquidity challenges already.

2.9 CONCLUSION OF LITERATURE REVIEW

This section introduces the historical development of the ZSE, the stock market and its functions as well as characteristics of money and its use. All the described features and characteristics of the market and functions of money in the period prior to dollarization were not holding in the case of Zimbabwe. Several factors led to the Zimbabwean economy to dollarize. Hyperinflation was identified as one of the major factor that led to dollarization, is discussed in context of other researches that have been carried out. In 2009 in the month of February saw the full dollarization of the bourse. Thus, it follows that it is of great interest and relevance to understand the effect of dollarization specifically to the performance of the ZSE. Indicators that are employed to assess the performance of a stock market are used to test the effect of dollarization on the ZSE in the research methodology and the results interpreted.

CHAPTER 3

DATA AND METHODOLOGY

3.1 OBJECTIVES OF THE RESEARCH

Objectively the research is meant to analyze the extent to which the adoption of dollarization enhanced the activities of Zimbabwe Stock Exchange (ZSE). The research focuses on two sample periods, the pre-dollarization and the dollarization eras. Dollarization (target variable) along with inflation will be the economic factors that affect the performance of the bourse. Market capitalization, price earnings ratio and turnover ratio will be the stock market performance indicators which will help in assessing the effect of dollarization on the performance of the ZSE. *Firstly,* I will carry out a trend analysis of important stock market indicators as well as macroeconomic factors that affect the performance of the Zimbabwe Stock Exchange. *Secondly,* a mean difference test of the same variables will be conducted on the two sample periods in line with the research main objective. *Thirdly,* I will run three regressions to investigate the degree of association between the performance indicators, in this case which are share turnover ratio, market capitalization and PE ratio, and dollarization which is the target variable, along with inflation as independent variables. This specific chapter deals with the research design, population and sampling methods used to carry out this study. The method of data collection used for the study is detailed, followed by the tools and methods used in the analysis of data.

3.2 RESEARCH DESIGN

3.2.1 Event Study

Saidane & Lavergne (2008) defined an event as publicly available information which has a bearing on the market value of firms or economic units in general. This information comes as

general or periodic. Mushidzi & Ward (2004) asserts that the methodology of event studies is often engaged when a researcher wants to establish if there is a statistical difference before and after the occurrence of a major policy shift on economic variables. For the purposes of this research we endeavor to analyze statistical differences between stock market indicators as well as economic factors that foster effectiveness and efficiency on the ZSE between the pre and post dollarization eras.

In chapter two, it was discussed in detail that dollarization has significant benefits to an economy but it has several drawbacks as well. So it is important to carry out this research in order to establish if the Zimbabwe Stock Exchange has more pros than there are cons, in terms of its performance. The research methodology lends itself to a quantitative analysis where I will use monthly secondary data obtained from the Zimbabwean stock exchange website, Central Statistical Office (CSO), RBZ Reports, Banks and Banking Survey Supplements, Economic Survey of Zimbabwe (2009), World Development Indicators database (2006) and published financial statements. The bourse is composed of 66 listed firms which make up its two indices, the mining index which constitutes 4 listed firms and the industrial index which constitutes 62 listed firms. The Zimbabwean industrial index will be used for the purposes of this research because it is regarded as the benchmark index as it constitutes 94% of the total number of listed firms.

I have chosen the industrial index, following Darskuviene (2010), who recommended the use of a large number of stocks. He said that indexes that are made up of small number of stocks have the edge of straight forward calculation but tend not to be a good representative for the whole market. If an index is made up of numerous stocks, it is regarded as potent. Indices that provide a very broad coverage reliably reflect the whole market. A good capitalized index is marked by wholeness and is more attractive to investors and this makes it possible for fund managers to buy all the shares in the index. Investment attractiveness is also good for stock exchange traders who can easily track funds, but it demands some sacrifice of wholesomeness in order to eliminate illiquid stocks.

In this research I have defined two periods on which the study is hinged and for which the industrial index monthly data will be used:

i. Pre-dollarization era (PDE). This is defined as the window period from the year 2003 to 2008.

ii. Dollarization era (DE). This is defined as the window period from the year 2009 to 2014)

3.2.2 Trend Analysis

Firstly, I will carry out a time trend analysis of the most important market and economic factor which affected the performance of the ZSE, inflation. Market capitalization, share turnover ratio and price earnings ratio are the stock market performance indicators that I will also carry out trend analysis upon, over the period of twelve years. In this research the time trend analysis will focus on comparing the two defined sample intervals. This type of trend assessment is executed in this research to assess the degree of influence dollarization has on different economic elements before and during/after the event of focus was officially adopted in the year 2009. The purpose of carrying out trend analysis is for evaluation of the impact of programs and policy changes and shifts in the case of Zimbabwe, dollarization. A trend graph plotted using time series monthly data will be used to examine the trend behavior. I will plot trend graph that will help us to see if the trend has been an upward one or otherwise after the historic policy change of full dollarization.

The table below shows the theoretical intuitions and attendant expected signs after dollarization. The adoption of dollarization is expected to yield more pros than cons to the country implementing it, otherwise countries would not dollarize.

Table 3.1: Theoretical intuitions and their expected sign in reaction to Dollarization.

Factor	Theory Intuition	Expected Sign
Inflation	Consumer price index is a reflection of	Negative

	inflation in the economy and its high level may threaten macroeconomic stability and thus the stock market becomes volatile. Thus, inflation is expected to decrease significantly in reaction to dollarization.	
Market capitalization	The size of a stock market is a major highlight for international investors. The bigger the better. Market capitalization is expected to increase in reaction to dollarization.	Positive
Share Turnover ratio	It is an efficiency measure in terms of stock liquidity and price discovery. The higher the share turnover ratio the more liquid the exchange. Thus, share turnover is expected to increase in reaction to dollarization	Positive
Price Earnings ratio	It is a profitability measure of a bourse. This ratio is used to predict the outlook of the bourse upon which investors make decisions.	Positive

Source: Author, for illustration purposes only.

3.2.3 Mean Difference Test Analysis

Secondly, market capitalization, share turnover ratio and PE ratio are the variables that will be used to measure the performance of the bourse using mean difference test. This test will also be carried out on inflation as well. In accordance with the research objectives, I will carry out a paired sample t-test which I will use to compare the two population means under the two periods of study. A mean difference test will be employed to assess if there is a significant difference in each performance indicator over the two specified sample periods. A paired sample t-test allots half of the alpha, to test the statistical significance in one direction and another half to testing levels of significance in the other direction. When using a paired sample t-test, notwithstanding the direction of the relationship, I will be testing for the level bi-directional association. This test will be carried out to see if the mean obtained from each variable before dollarization is different from each mean obtained after dollarization. This will help in determining whether the performance of the bourse has changed significantly or not in the dollarization era.

Assuming that the two sampled populations from which the paired samples are selected are distributed with μ_1 (the average mean before dollarization) and μ_2 (the monthly mean during/after dollarization). Then difference between paired samples will be distributed with mean $\mu_1 - \mu_2 = \mu_d$.

With $\mu_1 - \mu_2 = \mu_d$, the hypothesis will be;

H_0: $\mu_d = 0$

H_1: $\mu_d \neq 0$

3.2.4 Regression Analysis

Third and lastly, three regressions will be run to investigate the level of association between performance indicators of a stock market, with dollarization (being the target variable), along with inflation as the major economic factor that affect the performance of a stock exchange.

Regression analysis is a statistical tool that is useful when one is describing and evaluating the relationship between variables; it is an important statistical tool that has been used by a lot of financial researchers. Delis & Kouretas (2011), Hanweck & Kilcollin (1984) and Demirguc-Kunt & Harry (1999) are some of the several researchers who have used regression analysis for their research. The use of regression tool often involves the development of models mathematically, which shows the previous or expected association between the variables. For this study, the performance indicators of a stock market will be regressed against our target variable, dollarization, and inflation. The research uses time series data and assumes that economic factors and stock market indicators vary across the observation period and over time thus the use of time series regression technique is a good choice. The model will also employ the use of dummy variables which are artificial variables that are created to represent an attribute with two different classes (Skrivanek, 2009). Regression looks at all independent variables under analysis (mainly numerical numbers). In this research the target variable's categories are Pre Dollarization Era (PDE) and Dollarization Era (DE), D=0 will be the dummy variable that will represent PDE on the ZSE and D =1 will represent DE.

Dependent Variable

In this research the dependent variable is defined as: stock market performance indicator which is a liquidity measure of the success of the ZSE upon the adoption of dollarization. My dependent variables will be share turnover ratio (TOR), market capitalization and price earnings ratio (PE ratio) for the time period of 2003 to 2014. The higher the turnover and market capitalization the more liquid the bourse and the lower it is the more illiquid the market is. The higher the PE ratio, the greater the anticipation by stakeholders for high growth of the share value in the future.

Independent Variables

I have two independent variables due to the non-availability of monthly data on several economic factors on Zimbabwe that could be used in assessing their effect along with dollarization on the performance of the ZSE. The main objective is to describe what each variable measures, how it was collected and what exactly it indicates. The independent variables are:

i) Dollarization (D), which is my target variable and the research report intend to entail the effect of this target variable on the performance of the ZSE. D=0 will represent the pre-dollarization era and D=1 will represent the post-dollarization era.

ii) Inflation rate (INF)

The general form of the tested empirical relationship between the study variables is summed up in the following formulae:

1. TOR = f (D, INF)
2. MC = f (D, INF)
3. PE ratio = f (D, INF)

Where;

TOR is the turnover ratio, MC is the market capitalization, PE ratio is the price earnings ratio, f represents the function of and D, INF respectively represents dollarization and inflation respectively. A regression will be run on this model with TOR, MC and PE ratio as the dependent variables, and dollarization along with inflation as the independent variables.

3.3 SAMPLE AND POPULATION

3.3.1 Population

The research population is all sixty two listed companies that constitute the Zimbabwe Stock Exchange industrial index.

3.3.2 Sample Size and Selection

My population size is 62 of the 66 listed industrial companies that trade on the Zimbabwean bourse. The industrial index is made up of 62 listed companies in 17 sectors of the economy. My sample size is made up of all population firms which make up the industrial index. The table below summarizes the sampled size and economic sector which makes up the industrial index as well as their market capitalization as at the year 2014.

Table 3.2: Sampled Industrial index sectors of listed firms, number of firms in each sector, market capitalization and ranking according to market capitalization.

SECTOR	NUMBER OF COMPANIES	MARKET CAPITALIZATION (USD)	RANK (MARKET CAPITALIZATION)
Beverage	2	698 813 528.00	1
Agriculture	7	548 802 713.00	2
Banking	6	250 728 681.00	3
Technology	2	201 144 574.00	4
Agricultural-Industrial	2	184 233 634.00	5
Industrial Holding	7	177 565 416.00	6
Insurance	5	145 810 226.00	7
Food	4	132 277 808.00	8
Property	4	123 924 178.00	9
Retail	4	61 483 380.00	10
Building & Associates	8	48 234 865.00	11
Tourism	2	37 096 067.00	12
Engineering	4	16 216 965.00	13
Paper & Packaging	2	15 649 496.00	14
Printing & Publishing	1	3 456 000.00	15
Transport	1	1 064 742.00	16
Pharmaceuticals	1	559 927.00	17
Total	**62**	**2 643 951 800.00**	**17**

3.4 DATA COLLECTION

The data I used in this research largely came from the Zimbabwe Stock Exchange website, (www.zse.co.za). Twelve-year data from the years 2003 to 2014 was gathered from the bourse annual reports as well other previously indicated sources. I also used sampled listed companies financial statements to gather the necessary data. It is from these reports that I calculated the data for the dependent variables, market capitalization, price earnings ratio and turnover ratio. The inflation rate was obtained from the Reserve Bank of Zimbabwe (RBZ) database and annual reports as well as data from the CSO and other sources.

The following financial data was obtained for the research variables:

- The monthly share turnover ratios of the sampled companies from 2003 to 2014.
- Market capitalization on a monthly basis of the sampled companies from 2003-2014.
- Inflation rates on a monthly basis from 2003-2014.
- Monthly price earnings ratios of the sampled companies from 2003 to 2014.

I used excel to create a dataset of the sampled listed firms and the variables for the study, and a time series data set became available. The dataset include 62 listed firms as shown in Table 3.2 above. The whole data was downloaded for the sample period for all the listed firms. I analyzed the data for precision before fitting it to the research tools.

3.5 RESEARCH INSTRUMENT

The data set created was transferred to Eviews 8 and SPSS to assess the effect of dollarization on the performance of the Zimbabwe Stock Exchange. The economic and market factor that affect the stock market performance as well major stock market performance indicators were assessed, to determine the impact of dollarization. The number of samples which are the sixty two listed firms and time period of twelve years are well defined.

- I will use Excel for plotting the time trend analysis graph.
- SPSS is the financial package I will use in carrying out the mean difference test analysis.
- Eviews 8 will be used for running the regression analysis.

In order to ensure the credibility and exactness of the results from the survey, the following preliminary tests were carried out.

3.5.1 Stationarity Test

According to Brooks (2008), all the variables in time series need to be tested for non-stationarity, using unit root test. The stationarity or non-stationarity of a series can heavily influence its behavior and properties. If the testing of non-stationarity is ignored, this could lead to spurious regressions. All the variables were tested for non-stationarity and I found them to be stationary at their levels. For time series data Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) tests will be employed. These tests will be run at three different levels: with an intercept, with a trend and intercept and finally with no trend and no intercept.

3.5.2 Correlation Analysis

Correlation measures the degree of linear association between two variables within a time series. Correlation tests for the evidence that movements in the two variables are on average related to an extent (given by the correlation coefficient). Correlation was tested in the entire model through correlation analysis and identified multi-collinearity problems were corrected.

3.6 DATA ANALYSIS

Hypothesis testing, trend, mean difference testing and correlation analyses are carried out using SPSS, Excel and Eviews 8 in line with research main objective.

3.6.1 Hypothesis Testing

To determine if the coefficient on any variable is statistically significant, a hypothesis test is needed for each variable. The hypothesis will be stated as follows:

Hypothesis 1

H_0: Dollarization has no effect on turnover ratio on the ZSE; hence there is no effect on the ZSE performance.
H_1: Dollarization does affect the turnover ratio of the ZSE; hence it has an effect on the ZSE performance.

Hypothesis 2

H_0: Inflation changes have no effect on turnover ratio; hence it has no effect on the performance of the bourse.
H_1: Inflation changes do have an effect on turnover ratio; hence it has effect on the performance of the bourse.

Hypothesis 3

H_0: Market capitalization has no effect on turnover ratio and ultimately no effect on the performance of the ZSE.
H_1: Market capitalization does have effect on ZSE turnover ratio; hence it has effect on its performance.

Hypothesis 4

H_0: Price earnings ratio has no effect on turnover ratio and ultimately the performance of the ZSE.

H_1: Price earnings ratio does have effect on ZSE turnover ratio; hence it has effect on the performance of the ZSE.

3.6.2 Analysis of Tend

A graph drawn using time series data can be used to examine trend behavior over the twelve year period. In this research report the plotted graphs are;

Market capitalization: Monthly industrial index market capitalization will be plotted over the period under study and conclusions will be drawn upon observing the trend behavior before and after the adoption of dollarization. The bigger the market capitalization of a bourse, the more attractive it is.

Inflation rate: The different monthly inflation rates will be plotted over the sampled period. This is done to see the effect of dollarization on inflation which ultimately affects the prices of shares on the ZSE.

Share turnover ratio: This is a stock market liquidity measure, the higher it is the more attractive the bourse is because liquidity of a stock market is a huge factor that investors critically consider in their investment decision. The plotted graph will help in showing whether there has been an increase or a decrease in share turnover after the adoption of dollarization.

Price earnings ratio: This is a profitability measure and is very important for investors. The monthly ratio will be plotted from 2003 to 2014 and conclusions will be drawn from the trend behavior. An upward trend is healthy for a stock market because it raises the future prospects of the stock market.

3.6.3 Mean Difference Test Analysis

I will carry out the test on the major indicators of stock market performance which are share turnover ratio, market capitalization, price earnings ratio as well as on inflation which is a major factor that affect stock market performance. The monthly population mean before dollarization will be differenced from the monthly means after dollarization with the year 2009 being our year

zero. I will then compare the results to see how different they are from year zero using hypothesis testing. This test will help to see if these stock market indicators have been enhanced by dollarization or not. This will ultimately make it clear if dollarization had a positive or negative influence on the activities of the ZSE.

3.6.4 Regression Analysis

Regression is an excellent tool to be used if an analysis contains more than two variables. I will run the regressions on the dependent variables with the independent variables including dollarization which is our target variable. Dummy variables to represent the pre-dollarization and post-dollarization period will be employed. This is done to establish the relation between the research variables. A correlation analysis will be conducted on the test variables as well and establish if there are any multi-collinearity problems.

CHAPTER 4

RESULTS AND DISCUSION

4.1 PRESENTATION OF RESULT

The goal of this paper is to assess the effect of dollarization on the performance of the Zimbabwe Stock Exchange. The analysis and results are based on full financial data from the population sample and other secondary sources like the Zimbabwe stock exchange website and the Reserve Bank of Zimbabwe publications. Nonstationarity, correlation and multi-collinearity have been tested and corrected on the data before fitting it into the model.

4.1.1 Descriptive Analysis

I) Summary of Statistics

The tables below makes it easy to interpret the coefficient estimates in the empirical analysis. It is important to take note that the statistics represent the Zimbabwe stock exchange industrial index, over the period of 2003 to 2008 and 2009 to 2014 respectively.

The table below summarizes the descriptive statistics for the whole twelve year period under study. The minimum turnover ratio is a negative 100 in the year 2003 in the month of March. This is the time when the government had implemented the Fast Track Land Reform Programme. During this period, there was a lot of political unrest in the country as well as bad publicity as black Zimbabweans kicked out white farmers off their farms and stripped them of their possessions. The activity on the stock exchange was extremely reduced as investors were skeptical of investing in the country and the stock exchange. There was a lot of uncertainty in the country and the future economic outlook was looking bleak.

The minimum value for market capitalization was in May 2006 that was the month when there was the first revaluation of assets on the stock exchange as the Reserve bank of Zimbabwe

slushed multiple zeros and revaluating the value of assets. The lowest inflation rate was recorded in February 2009, the same month when dollarization was adopted. PE ratio was at its lowest in June 2008 as hyperinflation corroded the value of shares on a daily basis.

Then maximum values for turnover ratio and inflation were recorded in the last quarter of 2008 as people and investors scrambled to buy shares. Investors bought shares to store the value of their wealth while ordinary citizens perceived the stock market as place of raising cash to either buy properties and other durable assets as shares prices would change three times a day due to hyperinflation.

Table 4.1: Summary of Descriptive Statistics.

Test Variable	**Minimum**	**Maximum**	**Mean**	**Standard Dev.**
Turnover ratio	-100.00	89687.15	985.28	7 632.28
Market capitalization (US$)	7658.08	5 524 524 680.52	1 956 242 096.56	1 950 893 606.46
Inflation rate (%)	-3.10	79 600 000 000	561 468 866	6 656 330 126
Price Earnings ratio	0.02	23.97	6.23	3.70

Table4.2: Descriptive Statistics (Pre-dollarization era).

Test variable in the Pre-dollarization era	**Minimum**	**Maximum**	**Mean**	**Standard Dev.**
Turnover ratio	-100.00	89687.15	1 398.14	1 0950.36
Market capitalization (US$)	7 658.08	3 543 940 003.53	55 995 608.49	432 608 692.79
Inflation Rate (%)	4.90	79 600 000 000.00	1 130 845 381	9 445 967 015
Price Earnings ratio	0.02	23.97	6.77	4.987

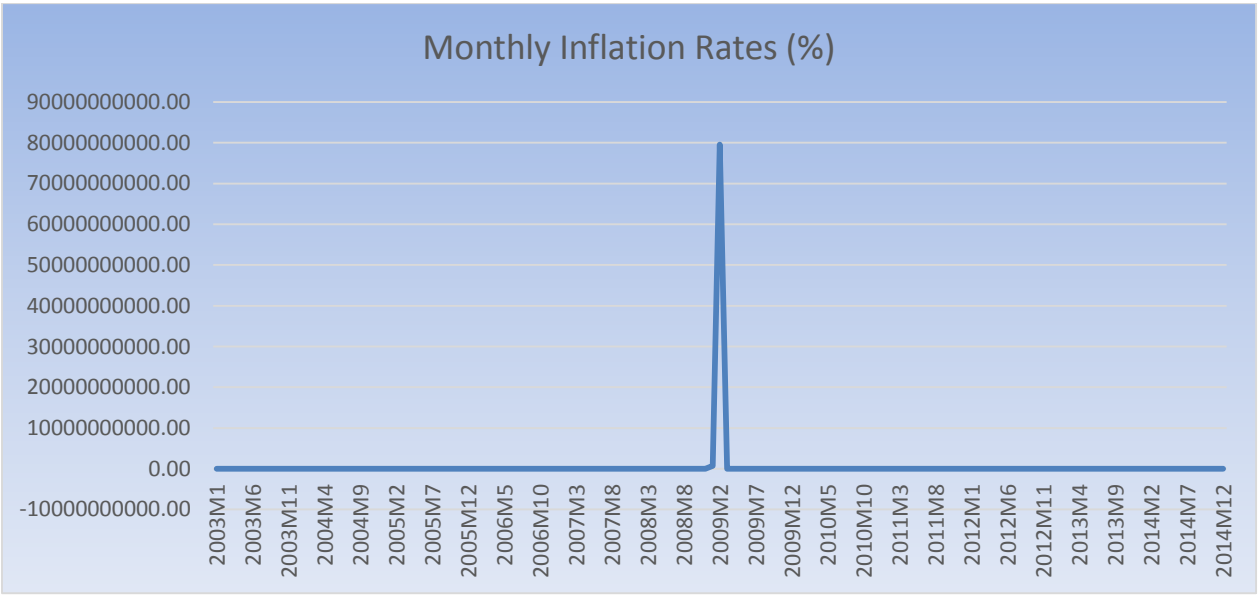
Table 4.3: Descriptive Statistics (Dollarization Era).

Test variable in the dollarization era	**Minimum**	**Maximum**	**Mean**	**Standard Dev.**
Turnover Ratio	-59.65	285.62	12.58	53.90
Market Capitalization (US$)	1261540787.12	5524524680.52	3749432444.46	744816751.74
Inflation (%)	-3.10	1.10	0.04	0.74
Price Earnings Ratio	3.38	9.08	5.71	1.663

By observing the tales above, market capitalization has increased while inflation significantly declined in the dollarization era down to a maximum of 1.1% from 79 600 00 000% in the pre dollarization era. Turnover ratio has reduced as sanity has been restored on the bourse and dollarization has dealt away with speculative purchases of shares and price earnings ratio has reduced as there is a lot of uncertainty in the economy politically.

4.2 TREND ANALYSIS

Figure 4.1 Monthly Inflation Trend from 2003 to 2014.

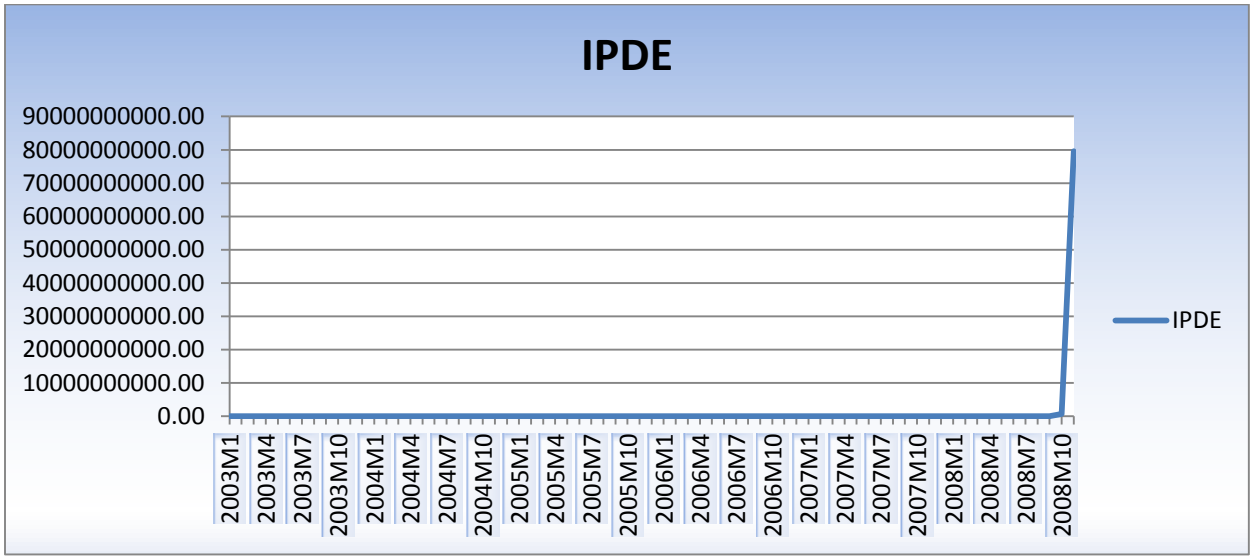


The figure above shows the trend pattern of monthly inflation figures in Zimbabwe over the period under study. The figure clearly shows that inflation become extremely high in the last quarter of 2008 shown by the sharp rise in that year. The depreciation of the Zimbabwean hit a record low, the stock market became a place a market for raising money only and the value of shares had stopped reflecting economic fundamentals. A combination of hyperinflation becoming the order of the day and a thriving parallel market, it became apparent that things had gotten out of control in the economy. Both political and economic instability led to the government to adopt a more stable currency, the dollar in an effort to stabilize the cost of goods and services including shares. In the first quarter of 2009 saw the adoption of the dollar as a form of currency in Zimbabwe and monthly inflation dropped from as high as 796 billion percent to as low as -3.0% as shown by the sharp decrease in the first quarter of 2009.

Figure 4.2: Monthly inflation trend in the Pre-dollarization era (IPDE).

Figure 4.2 below shows the monthly inflation trend between the years 2003 and 2008 which is the pre dollarization era. As shown by the graph inflation hit its record high in the year 2008 and it is at that point that trading on the Zimbabwean stock exchange were suspended due to allegations by the central bank that ZSE staff were engaging in unscrupulous behavior and that the bourse had become a hive for insider trading**.**

Figure 4.2: Inflation trend in the Pre- dollarization era (IPDE.



The figure below reflects a huge contrast as shown by the one digit rates of inflation after the adoption of dollarization. When the ZSE re-opened trading in February 2009, it was officially trading in the United States dollar. The adoption of dollarization drastically and significantly reduced inflation and the fact that shares could trade in US dollar sanity was restored on the bourse as traders could no longer manipulate the valuation of the shares. The figure below is a clear indication of the stability of inflation in Zimbabwe after the adoption of dollarization.

Figure 4.3: Inflation trend in the Dollarization Era.

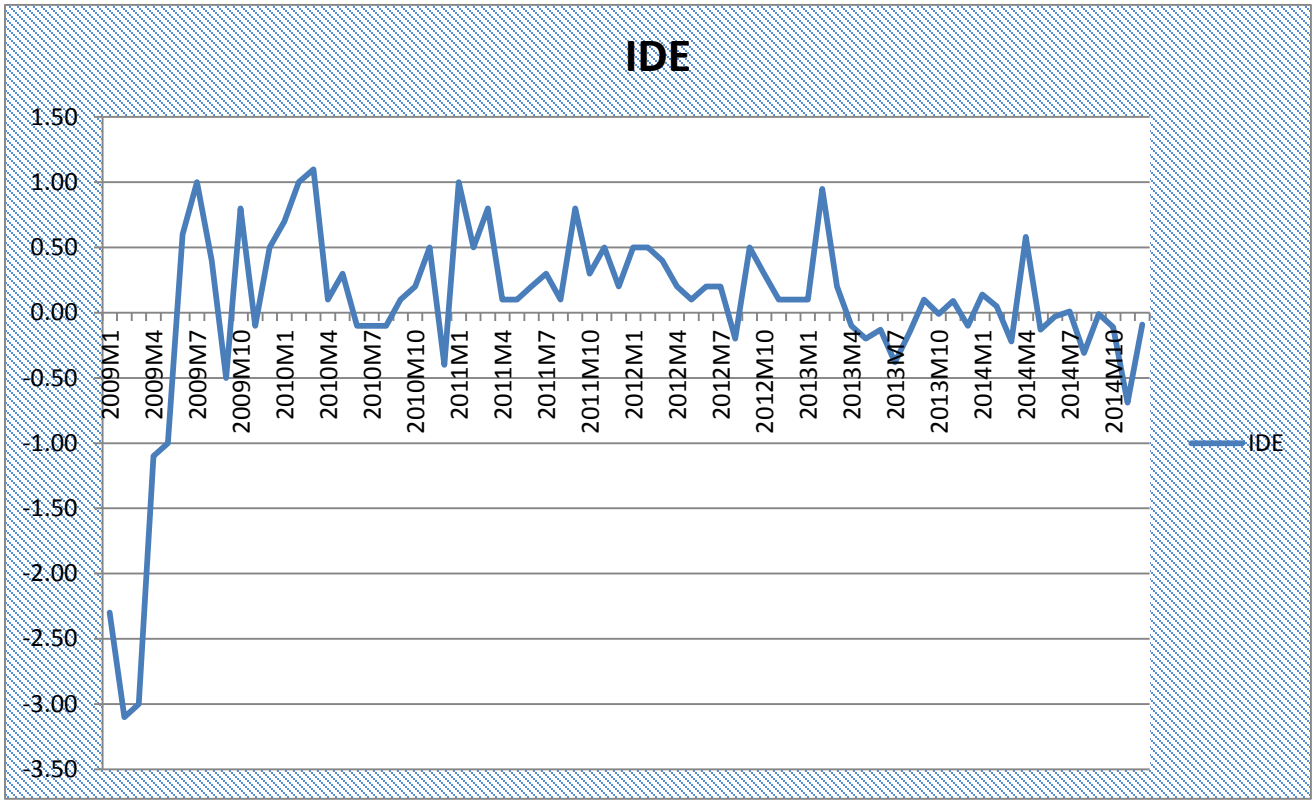
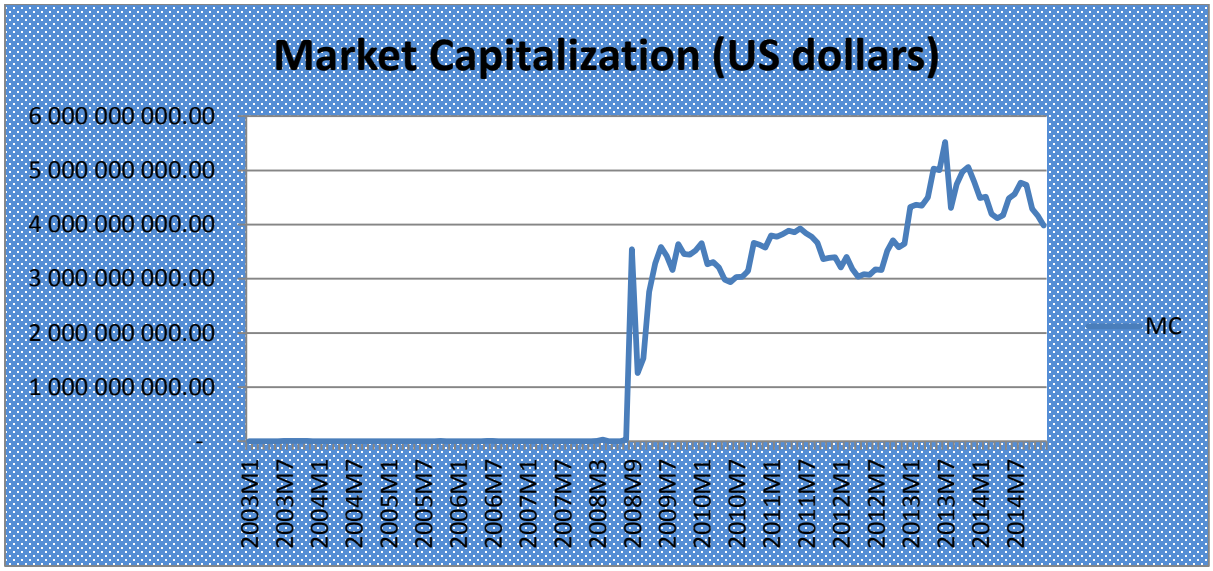


Figure 4.4: Monthly Market capitalization between 2003 and 2014.



Market capitalization speaks to the size and the riskiness of a stock market. It is used to measure what a stock market is worth and this is used by investors to gauge the growth versus the risk of a stock market. The bigger the market capitalization the more risk can be diversified among the listed companies and that is the best preferred status quoi. The figure above also shows that market capitalization of the ZSE hit its record high in the last quarter of the year 2013 as demand grew as investors demanded and bought shares as more confidence in the stock market was restored by the dollarization of the stock exchange. Market capitalization after the adoption of dollarization has been steadily ranging between US$ 2 billion and USD$4 billion for the period under study as shown by an almost stationary trend line. The sharp rise in market capitalization in 2008 was due to speculative purchases of shares on the bourse.

Figure 4.5 below shows the share turnover ratios trend behavior over the twelve year period under study. Share turnover ratio is an indicator of the depth and liquidity of a market for stocks. Higher turnover velocity implies a lower impact cost for investors buying and selling shares. This is true for what was happening on the ZSE as even vendors would go and buy shares without any understanding of the fundamentals of stock market trading.

Figure 4.5: Monthly Turnover Ratios from 2003 and 2014.

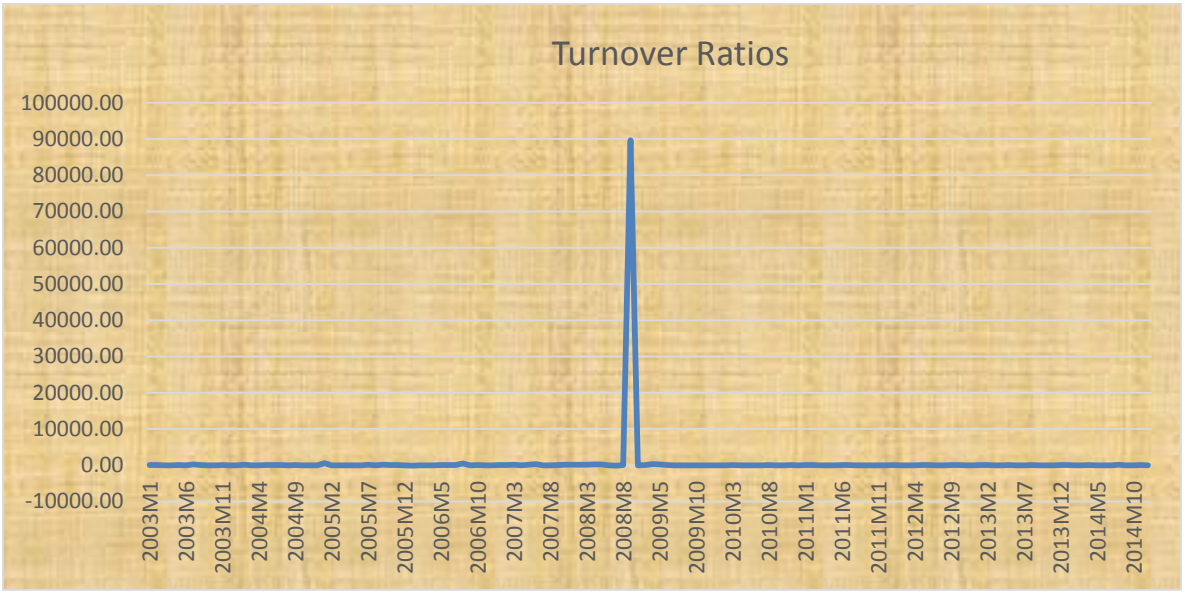


Figure 4.6: Monthly price earnings ratio from 2003 to 2014.



The figure above illustrates the behavior of price earnings ratios, which are ratios that show how much an investor is willing to pay per dollar of expected earnings over the period under study. During the pre-dollarization era for example in the year 2003 PE ratios were high as earnings were high and inflation was not very high. From the year 2006 to 2008 PE ratios dropped to

ratios close to zero, this was as a result of high inflation which was corroding the values of earnings. Looking at the same figure, it shows how PE rations steadily peaking from the year 2009 which is the same year which saw the adoption of dollarization. The PE ratios in the dollarization era are not as high due to the liquidity challenges that the economy is experiencing.

4.3 MEAN DIFFERENCE TEST ANALYSIS

***Table 4.4: Paired Samples Test Descriptive Statistics*.**

Pair	Test Variable	Standard Dev.	Significance (2-tailed)	Mean
1	TOR- Pre-dollarization era TOR- Dollarization era	10 931.97	0.3040	1383.95
2	MC- Pre dollarization MC- Dollarization era	799 205 793	0.0000	3 661 194 717
3	INF- Pre-dollarization era INF- Dollarization era	1580.20	0.0980	323.61
4	PE ratio- Pre-dollarization era PE ratio- Dollarization era	4.78	0.097	0.98

In order to test for the difference in means between the pre-dollarization period and the dollarization period, we need to identify the null hypothesis and the alternative hypothesis. The hypothesis is as follows:

HYPOTHESIS 1

H_0: There is no difference in the inflation means between the pre-dollarization era and the dollarization era.

H_1: There is a difference in the inflation means between the pre-dollarization era and the dollarization era.

HYPOTHESIS 2

H_0: There is no difference in the market capitalization means between the pre-dollarization era and the dollarization era.

H_1: There is a difference in the market capitalization means between the pre-dollarization and the dollarization era.

HYPOTHESIS 3

H_0: There is no difference in the share turnover ratio means between the pre- dollarization era and the dollarization era.

H_1: There is a difference in the share turnover ratio means between the pre-dollarization era and the dollarization era.

HYPOTHESI 4

H_0: There is no difference in the PE ratio means between the pre-dollarization era and the dollarization era.

H_1: There is a difference in the PE ratio means between the pre-dollarization era and the dollarization era.

For the Paired sample test analysis:

- I will use a 5 % level of significance for turnover ratio and market capitalization.
- I will use a 10% level of significance for inflation and price earnings ratio.

Table 4.5: Summary Results for the Paired Sample Test.

Hypothesis	P-value	Decision	Findings
Hypothesis 1 **Turnover Ratio**	0.304	Accept H_0: 0.304> 0.05	Thus, there no difference in the turnover ratio means between pre-dollarization era and post dollarization era statistically.
Hypothesis 2 **Market capitalization**	0.000	Accept H_1: 0.000 > 0.05	Thus, there is a difference in the market capitalization means between the pre-dollarization era and the dollarization era statistically.
Hypothesis 3 **Inflation**	0.098	Accept H_1: 0.098>0.1	Thus, there is a difference in the share turnover velocity means between the pre-dollarization era

			and the post dollarization era.
Hypothesis 4 **PE Ratio**	0.097	Accept H_1:0.097>0.1	Thus there is a difference in PE ratio means between the pre-dollarization era and the post dollarization era.

4.4 CORRELATION MATRIX ANALYSIS

The correlation between the variables being tested is displayed by table 4.6 below. Inflation, dollarization, market capitalization and share turnover correlation figures are small. The less correlated the variables are the more it is easy to run a regression on them because it eliminates multicollinearity problems. Thus making it easy for the correlation examination to clearly tell which of the independent variables affects the dependent variable.

Table 4.6: Correlation Matrix amongst the test variables.

	TOR	MCGR	INF	PE ratio	D
TOR	1.0000				
MCGR	0.4370	1.0000			
INF	0.0000**	0.9490**	1.0000		
PE ratio	0.5890	0.0450*	0.1910	1.0000	
D	0.2880	0.0000**	0.087	0.094	1.0000

NB. **. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Observing the above table, using significance levels the correlation among the variables is very little and mostly insignificant except for market capitalization and inflation. These two variables

correlation is 0.949 and for the other variables it is ranging between 0.000 and 0.589 which is good for the model.

As shown by the same table above, it displays that the correlation between turnover ratios which is our dependent is positively correlated with the independent variables. Inflation is positively related to stock market performance, this implies that hyperinflation pushes investors to invest in stocks for hedging purposes and as demand increases share prices rise as well. Inflation is positively correlated with turnover ratio. Market capitalization is positively correlated with PE ratio and dollarization. In Zimbabwe it was a case of demand pull inflation as the central bank continually printed more money at regular intervals without increasing production capacity of the economy. Therefore, consumers had more money in their hands and the demand for goods and services skyrocketed, and so did their prices according to the law of demand and supply. Market capitalization is positively correlation with turnover ratio, inflation and dollarization and as well as price earnings ratio. Thus the prices of shares increased as well as the volumes demanded. Share turnover velocity increased as well as shares were in high demand, share prices would change on extreme cases close to ten times a week.

Dollarization is positively correlated to market capitalization, inflation, turnover ratio and PE ratio because in cases of extremely high inflation like it were for the case of Zimbabwe, the more the domestic currency becomes unattractive and hence the likelihood of the adoption of dollarization in an economy. Dollarization in Zimbabwe resulted in high liquidity challenges which are shown by the negative correlation between these variables. The US dollar is in short supply in the economy and the Reserve bank of Zimbabwe cannot control the supply of this adopted currency.

4.5 REGRESSION ANALYSIS

In this model our R squared is 91% which shows that my model is a good fit and the Prob (F-statistic) is zero which is good because it shows that in most the results we will be rejecting the null hypothesis.

4.5.1 Results of Hypothesis Testing

The hypothesis for this study is limited to the Zimbabwean economy and all the companies that are listed on the Zimbabwe Industrial index.

Table 4.7: Summary of Hypothesis testing with Market Capitalization as the Dependent Variable.

Hypothesis	Null Hypothesis	Alternative Hypothesis
Hypothesis 1	Inflation has no effect on market capitalization, hence the performance of the ZSE from 2003 to 2014.	Inflation has effect on market capitalization, hence the performance of the ZSE from 2003 to 2014.
Hypothesis 2	Dollarization has no effect on market capitalization, hence the performance of the ZSE for the period of 2003 to 2014.	Dollarization has effect on market capitalization, hence the performance of the ZSE for the period of 2003 to 2014.

Table 4.8: Summary of Hypothesis testing with Turnover Ratio as the Dependent Variable.

Hypothesis	Null Hypothesis	Alternative Hypothesis
Hypothesis 1	Inflation has no effect on turnover ratio, hence the performance of the ZSE from 2003 to 2014.	Inflation has effect on turnover ratio, hence the performance of the ZSE from 2003 to 2014.
Hypothesis 2	Dollarization has no effect on turnover ratio, hence the performance of the ZSE for the period of 2003 to 2014.	Dollarization has effect on turnover ratio, hence the performance of the ZSE for the period of 2003 to 2014.

Table 4.9: Summary of Hypothesis Testing with Price earnings as the Dependent Variable.

Hypothesis	Null Hypothesis	Alternative Hypothesis
Hypothesis 1	Inflation has no effect on price earnings ratio, hence the performance of the ZSE from 2003 to 2014.	Inflation has effect on price earnings ratio, hence the performance of the ZSE from 2003 to 2014.
Hypothesis 2	Dollarization has no effect on price earnings ratio, hence the performance of the ZSE for the period of 2003 to 2014.	Dollarization has effect on price earnings ratio, hence the performance of the ZSE for the period of 2003 to 2014.

4.5.2 Summary of Result

The three models used for the regression analysis under this research report were good with the tested variables' performance being steady and stable throughout the regressions under test. R-squared is high for all the models which means the tested models are good fit for explaining the models. The p-values for market capitalization are highly significant at the 1%, 5% and 10% level for both dollarization and inflation. For turnover ratio the p-value for inflation is significant at the 1%, 5% and 10% level and for dollarization is at the 10% level. For PE ratio dollarization is significant at the 1% level while inflation is not significant at any significant level.

Augmented Dickey fuller and Phillip-Perron tests were used to determine the appropriateness of each model for the hypothesis since the analysis uses is time series data.

Table 4.10: Summary of results of Hypothesis testing with Market Capitalization as the Dependent variable.

Hypothesis	**Coefficient**	**P- value**	**Decision**	**Findings**
Hypothesis 1 Dollarization	3 780 000 000	0.0000	Accept H1	The effect of the adoption of dollarization on market capitalization is stastically significant. This means that dollarization had a significant effect on the performance of the ZSE.
Hypothesis 2 Inflation	259996.4	0.0000	Accept H1	There is significant evidence that inflation changes affect market capitalization statistically and hence the performance of the ZSE.

Table 4.11: Summary of results of Hypothesis testing with Turnover ratio as the Dependent variable.

Variable	Coefficient	P- value	Decision	Findings
Hypothesis 1 Dollarization	739.3111	0.0819	Accept H1	The effect of the adoption of dollarization on turnover ratio is statistically significant. This means that dollarization had no significant effect on the performance of the ZSE.
Hypothesis 2 Inflation	6.565813	0.0000	Accept H1	There is significant evidence that inflation changes affect turnover ratio statistically and hence the performance of the ZSE.

Table 4.12: Summary of results of Hypothesis testing with Price Earnings as the Dependent variable.

Variable	Coefficient	P- value	Decision	Findings
Hypothesis 1 Dollarization	-1.203393	0.0578	Accept H1	The effect of the adoption of dollarization on price earnings ratio is stastically significant. This means that dollarization had a significant effect on the performance of the ZSE.
Hypothesis 2 Inflation	-0.000453	0.1134	Accept H0	There is no significant evidence that inflation changes affect price earnings ratio statistically and hence the performance of the ZSE.

4.5.3 Changes in Market Capitalization with Macroeconomic Factors

In the regression analysis between market capitalization and dollarization along with inflation, the coefficient for the variables illustrated the approximate change in market capitalization by the percentage change in dollarization and inflation, *ceteris paribus*.

Market capitalization and Dollarization

The adoption of dollarization which is our target variable affected the performance of the Zimbabwe Stock Exchange positively. The coefficient means that the adoption of dollarization lead to an average increase of USD 3 780 000 000 from the year 2009 to 2014 which is the dollarization era, which is statistically significant with a p- value of 0.0000 which is less than 0.05 at 95% confidence interval.

Market capitalization and Inflation

Inflation affected the performance of the bourse positively as well as shown by it's a high coefficient of USD 259 996.40 increase in market capitalization as a result of the every percentage decrease in inflation. The p-value of 0.0000 for inflation is also statistically significant as it is less than0.05 at 95% interval of confidence.

High market capitalization is good for attracting investing because it shows that the stock market is liquid which is an attractive attribute if the investability of any stock market.

4.5.4 Changes in Turnover Ratio with Macroeconomic Factors

In the regression analysis between turnover ratio and dollarization along with inflation, the coefficient for the variables illustrated the approximate change in the turnover ratio by the percentage change in dollarization and inflation, holding all else constant.

Turnover ratio and Dollarization

The adoption of dollarization enhanced the performance of the Zimbabwe Stock exchange positively as shown by a stastically significant p-value of 0.0819 at the 90% interval of confidence. The coefficient of 739 shows that turnover increased by 739 times after the adoption of dollarization which means that liquidity has increased and price discovery has improved.

Turnover ratio and Inflation

Changes in inflation affected the performance of the ZSE in a good way as a percentage decrease in inflation led to an increase in turnover ratio of 6.6. This effect is also shown by a statistically significant p-value of 0.0000 which is significant at 90%, 95% and 99% confidence intervals.

4.5.5 Changes in Price Earnings Ratio with Macroeconomic Factors

In the analysis of price earnings ratio with dollarization along with inflation, the coefficient for the variables illustrated the estimated change in the Price Earnings ratio by the percentage change in dollarization and inflation, holding all else constant.

Price Earnings ratio and Dollarization

The adoption of dollarization resulted in a decrease in the price earnings ratio on the ZSE, this means that dollarization in terms of performance level measurement using price earnings as an indicator, affected the bourse negatively. This is shown by the negative coefficient of -1.2. Statistically it is significant at the 99% confidence interval shown by the p-value 0.0578.

Price earnings ratio and Inflation

Changes in inflation negatively affected the performance of the bourse through a decrease in price earnings ratio. A percentage change in inflation caused a decrease in price earnings ratio of -0.000453.The p-value of 0.1134 is not significant at any of the confidence intervals.

4.6 DISCUSSION OF RESULT

The findings on the effect of dollarization on the performance of the Zimbabwe Stock Exchange over the 12 year period are discussed. After carrying out the data analysis, the presentation of the results showed which indicators were enhanced by the adoption of dollarization.

4.6.1 Market Capitalization with Dollarization and Inflation

The results from this research showed that the adoption of dollarization and the significant decreases in inflation enhanced the performance of the ZSE by the increase in market capitalization in the dollarization era. The p-values and coefficients are both statistically

significant which confirms the results shown by the trend analysis carried out earlier as well as the mean difference test which showed significantly that the means between the two sample period is different from zero. Market capitalization has significantly increased in the dollarization era. This means that more investors are confident to invest their monies on the |ZSE in the dollarization era. This is so because in the hyperinflationary period inflation was very high which was corroding the value of all the investments that were in the Zimbabwean dollar. Contrary to that, is that in the dollarization era, inflation has significantly decreased and transactions are now conducted in US dollar which is a more a stable currency hence the increased confidence for investor to place their money with the bourse.

4.6.2 Turnover with Dollarization and Inflation

Dollarization did not enhance the performance of the ZSE as shown by the results from all the other tests carried out in this research except for the regression analysis. The regression results show that both dollarization and inflation enhanced the performance of the bourse. This is true because both coefficients for dollarization are positive of 739 for dollarization and 6.56 for inflation. The p-values of 0.0819 and 0.0000 are statistically significant at 90 % significance interval for dollarization and at 99%, 95% and 90% levels of significance intervals. Turnover sky rocked in the month of August 2008 as shown by the trend graph, figure 4.5. During this time people were buying share only to sell them moments later merely as a means of raising money and not for investing in stocks for long term consumption. The increased in the buying and selling of shares was that people would raise money to do other things other than investing on the stock exchange. The results from the mean difference test show the same result as well. It shows that the difference in the means between PDE and DE is 0.304 which is not statistically significant there for we rejected the null hypothesis.

4.6.3 Price Earnings Ratio with Dollarization and inflation

The overall effect of dollarization on the performance of the ZSE was inverse; dollarization did not enhance the performance of the stock exchange as shown by the negative coefficients of both dollarization and inflation under the regression analysis. The coefficient of dollarization is -1.2 and for inflation is -0.000453.The p-values are 0.0578 for dollarization which only significant at 90% confidence interval and 0.1134 for inflation. In the mean difference test the p-value is 0.097

which is significant at 90% significance interval. As shown by the trend graph price earnings ratio dropped between 2009 and 2008 as it did not make sense to invest in investments that one would hold in the local currency due to hyperinflation and it shows PE ratios peaked in the dollarization era which is form the year 2009 to 2014 and the ratios have not changed significantly due to the challenges of liquidity that the economy is facing in the dollarization era.

NB// **UNAVAILABILITY OF DATA CHALLENGES**

Due to the unavailability of monthly data on Zimbabwe some of the recommended revisions could not be effected for example;

i. The scaling of variables for regression.
ii. The data used on trend graphs.

Therefore the researcher had to make use of the scarcely available data.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 RESULTS AND DISCUSSION

The purpose for carrying out this research was to assess the effect of dollarization on the performance of the Zimbabwe Stock exchange. Two sample periods were selected for this research; the pre-dollarization and the dollarization era. The underlying hypothesis was that the adoption of dollarization has pros and cons on the country that adopts it. So it was imperative to carry out this research in order weigh the pros and cons and make a sound conclusion on whether dollarization was a good policy strategy by the government of Zimbabwe as stock markets tend to be hypersensitive and volatile.

It has been found from carrying out a trend analysis on the variables that inflation has significantly reduced after the adoption of dollarization. This was shown by the sharp decrease form 79.6 billion percent in October 2008 to -3.1 percent in March 2009. Therefore dollarization helped in stabilizing inflation as the average rate between 2009 and 2014 is 0.04 percent and the highest in the same period is 1.4 percent. Hyperinflation was the major driving force that led to the adoption of dollarization in Zimbabwe, it had become uncontrollable and economic policies were failing to tame it. Lower levels of inflation are crucial for any economy as they stabilize prices of goods and services as well as prices in the stock market, hence share prices can reflect economic fundamentals. This is important as it becomes easy to measure economic activity using fundamentals and adopt relevant strategies for economic growth.

This is consistent with the results obtained from the mean difference test analysis. There was evidence of significance between the inflation means between the pre–dollarization era and the post dollarization era at the 90% significance interval. After running the regression model, it was found that dollarization and inflation has a significance effect on turnover ratio which is our stock market performance indicator. Thus, we can conclude that dollarization has reduced inflation which is good for the stock exchange and the stock market as well. Therefore,

dollarization has enhanced the performance of the bourse by bringing about a reduction in inflation making sure that share prices reflect economic fundamentals. This is consistent with the findings that Makochekanwa (2009) and Agnoli (2002) points out in their research on dollarization that the immediate benefit is the reduction of inflation and elimination of the depreciation of the local currency.

Market capitalization has improved when we look at the trend which has been steadily rising. The average market capitalization has been US$ 3 billion between 2009 and 2014. This is a good sign as a huge market capitalization is useful as a basis for global investment strategies and attracting international investors. In mean difference test results as well as regression results, market capitalization was found to have significantly improved after the adoption of dollarization. The probability values in the mean difference test and regression were 0.007 and 0.000 at 95% significance interval which is shows evidence of significance. The result is also the same form the regression analysis which showed that market capitalization has increased due to dollarization. Dollarization brought about sanity on the burse and investors' confidence on the activities of the bourse has been restored to some extent. The use of the US dollar for transacting on the bourse makes investors feel that their investments are safe because the currency is stable.

Turnover ratio is a liquidity measure and trend analysis found that the trend sharply nose-dived after the adoption of dollarization. The paired sampled tests also show that there is no significant evidence of a difference in the pre-dollarization and post dollarization means. At 5% level of significance the p-value was 0.304 which is highly insignificant. Correlation results between turnover ratio and dollarization along with inflation showed a positive correlation between the variables. Therefore I can conclude that dollarization did bring about enhancement in share turnover velocity. Though there are high liquidity problems on the stock exchange as well as the economy as a whole which makes the costs of trading to be very high. When the cost of joining and trading are high, most ordinary investors cannot afford to buy shares and thus turnover ratio will significantly reduce if these hindrances are not addressed. Chowa et al (2014) also came up with the same results when they carried out a research on the efficiency of the ZSE in the post dollarization era. Pryymancheko (2003) identified liquidity and internal efficiency as benefits for a well- functioning stock market. The evidence found in his research shows that there is need for

deliberations on the government of Zimbabwe to put in place polices that addresses liquidity problems and facilitate lower transaction costs.

PE ratio results from the trend analysis show that PE ratio has decreased in the dollarization era than it was in the pre-dollarization era. The average PE ratio in the dollarization has been 5.71 compared to the pre-dollarization era where it was close to 8. Shen (2000) is of the notion that a small PE number tend to be associated by fast long run share price growth. If this could be the case, then ZSE and the Zimbabwean economy will have to correct liquidity issues which are a major hindrance to the investors and bring about political stability to improve the investability of the stock market. Mean difference test analysis also shows that there has been a remarkable difference in the means of the tested variables over the two specified sample periods which is commendable.

Therefore I can safely conclude that dollarization enhanced the performance of the Zimbabwe Stock Exchange. Speculative trading has been done away with. Prices of stock have stabilized, market capitalization has significantly improved, and PE ratio is low which means the stakes are high in terms of the future prospects of the stock exchange. There is strong evidence from the tests carried out that there has been a significant improvement in the variables under review in this research.

5.2 CONCLUSION OF THE STUDY

Although looking at the broader scheme of things there are several, political and economic cons that dollarization brought about in the Zimbabwean economy which then hinder efficiency and the attractiveness of the stock market as w a whole. One of the major opportunity cost identified by Burdekin (2008) of adopting dollarization on the country that implements is loss of seigniorage. For Zimbabwe seigniorage was an alternative way of sourcing revenue for the state and it has resulted in numerous problems that are associated with liquidity in the economy. Liquidity problems being experienced makes it difficult for investors to trade timely because it might be difficult to match buyers and sellers times and this results in value losses.

Dollarization has relinquished the power of the Reserve Bank of Zimbabwe as an ultimate lender and this has exposed domestic banks to liquidity risk.

The forfeiture of autonomous monetary authority of a country could cause lot problems for a country. The relationship between Zimbabwean the United States of America is still bad, therefore Zimbabwe is left without control over money supply or exchange rate determination. Truth be said, the going has been tough for several companies and a number of them have been delisting form the stock exchange. The US dollar is in short supply and prices of goods are fairly high compared to other African countries.

The political unrest and indigenization policy the government has been slowly implementing has also suppressed foreign investor confidence and this has affected the performance of the bourse. According to Chowa et al (2014), there are still allegations of insider trading; poor corporate governance and price manipulations at the ZSE which makes the detection of abnormalities by event study a gruesome task.

Apparently for Zimbabwe, most investors' decision is by enlarge based on the prevailing political and economic environment and the risks that are associated with them.

Therefore there is need for the government of Zimbabwe and policy makers to make efforts to correct liquidity and political issues that are seriously affecting economic activity. When these are corrected, investors can make rational investment decisions about investing on the bourse based on fundamentals and not to base their decisions on the prevailing political environment which is not favorable for business. There is also need for policy makers to come up with effective regulations and policies that enhance efficiency and transparency on the bourse.

5.3 RECOMMENDATIONS FOR FURTHER RESEARCH

Dollarization has brought about some level of sanity on the ZSE as shown by the results gathered from this research but there is more work to be done to achieve efficiency and deal with liquidity problems that that are affecting the ZSE to operate at full capacity. Dollarization seemed like a quick exit for the crisis that had infected the economy but the current problems among them high illiquidity that the economy is facing will not be solved by dollarization only. So I recommend further research on alternative ways of solving the problems that the country is facing for example dedollarization and strategies that bring monetary policy freedom to the Zimbabwean economy.

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