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COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

SCHOOL OF BUSINESS

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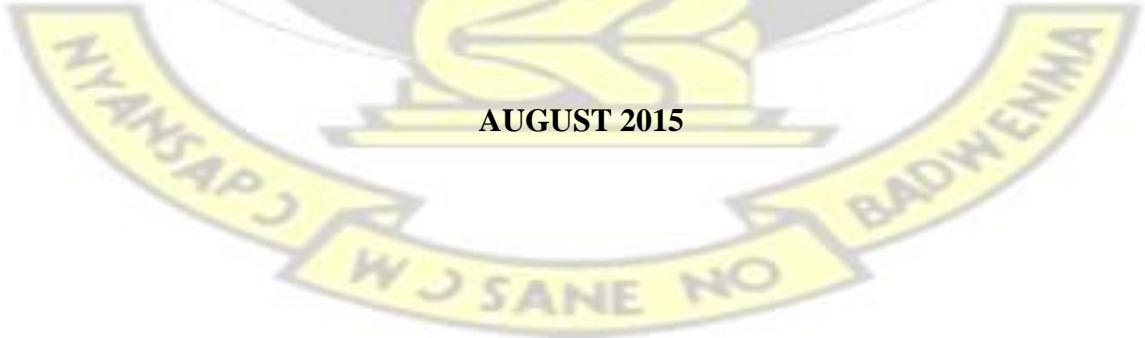
**DETERMINANTS OF INVESTMENT DECISIONS OF SELECTED LISTED FIRMS
IN GHANA**

**A DISSERTATION PRESENTED TO THE DEPARTMENT OF ACCOUNTING AND
FINANCE IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE
AWARD OF MASTERS IN BUSINESS ADMINISTRATION**

BY

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AUGUST 2015



DECLARATION

I, hereby declare that this submission is my own work towards the degree of Master of Business Administration and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for an award for another degree of the University, except where due acknowledgement has been made in the text.

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DEDICATION
TO GOD, COUNTRY AND FAMILY

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May God richly bless you all.



ABSTRACT

Businesses revolve around the factor of investing. Firms and humans have ridden from caves to skyscrapers on the back of investment. This study identifies the determinants of investment decisions of firms listed on the Ghana Stock Exchange during 2006 to 2013. The data for the study were extracted from annual reports and accounts of 9 companies over the aforementioned period. These data were subjected to regression analysis, using STATA software. Investment decision was measured by changes in non-current assets. The independent variables considered were firm size, cash-flow, profit, indebtedness, prior period's fixed assets, interest rates and exchange rates. At first, the descriptive statistics for entire variables were ascertained and then correlation matrix was calculated to identify the preliminary relationship among all the variables, followed by regression analysis on panel data to examine the significance and magnitude through fixed effect model. Theoretical assertions were justified that the level of cash, existing resources with respect to fixed assets and exchange rates significantly affect the investment decisions of listed Ghanaian firms. This study also revealed that firm size, debt, profit and interest rates have no significant relationship with investments. It is recommended that firms support governments efforts aimed at strengthening the local currency and also ensure that they have a robust cash flow.

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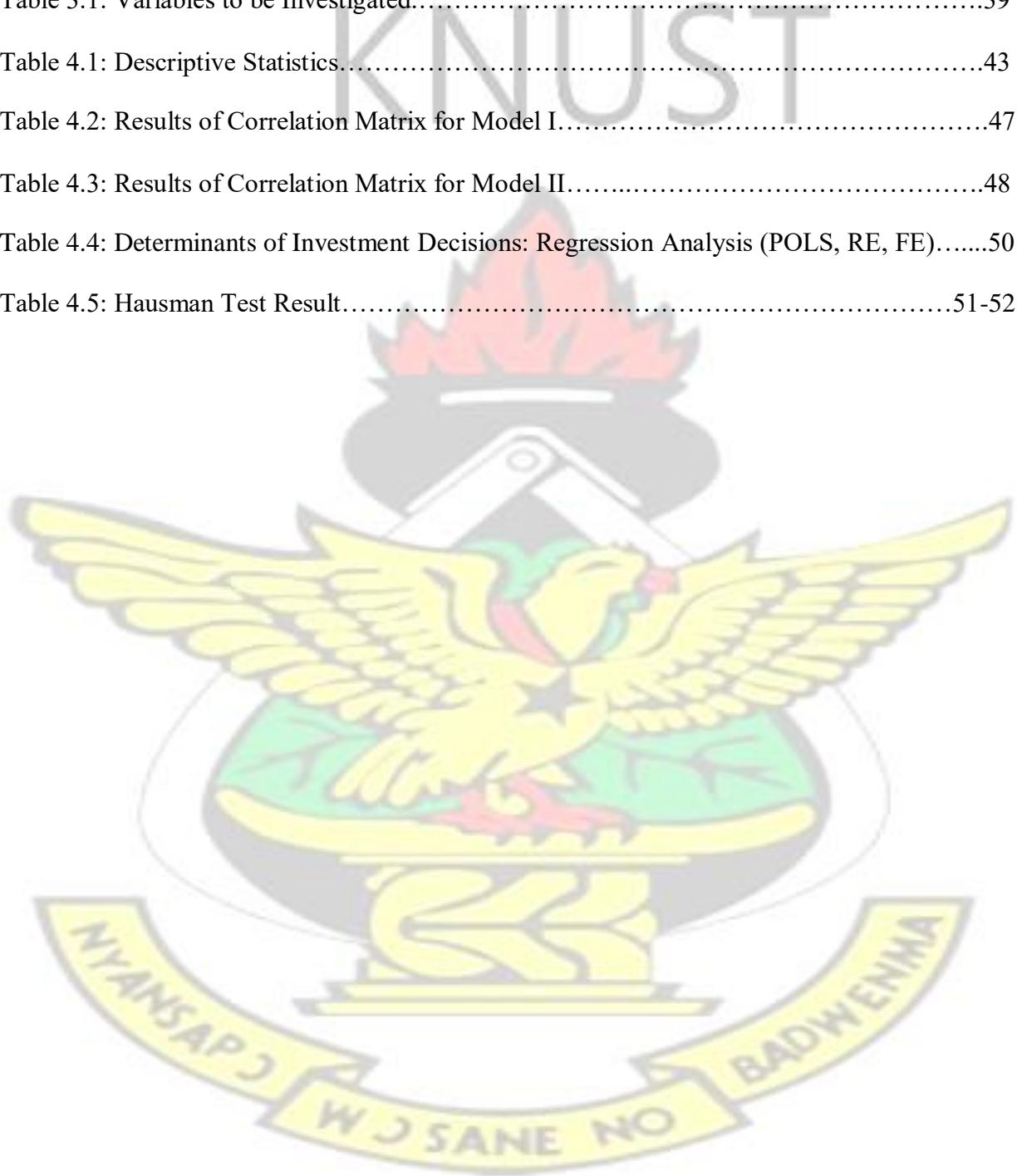
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CHAPTER ONE

INTRODUCTION

This is the introductory chapter of the study. It includes the background of the study, problem statement, objectives of the study, research questions, significance of the study, scope of the study and organization of the thesis.

1.0 Background of the Study

Businesses must make rational decisions in their daily operations in order to be relevant and competitive. Professionals use their knowledge in different fields to make informed decisions.

According to the rational choice theory, individuals must endeavor to make consistent choices which must lead to improvement in their well-being. These decisions must be made whilst taking into consideration all available and material data including costs and gains. Portfolio theory emphasizes that rational investors should hold diversified portfolios that consist of the most efficient combinations of assets to optimize risk and return, and which reflect investor utility preferences and time horizons (Gallery and Gallery, 2005).

Business revolves around the factor of investments. Investment is one of the most essential variables in economics. On the back of investment, humans have ridden from caves to skyscrapers. Its rise and fall are still a principal cause of economic downturns. Investment refers to the acquisition of a resource or a commodity with the intentions that it would accrue revenue or increase in value later, then be traded at a greater price in an arm's length transaction.

As a matter of fact, not all investments will be profitable because you will not always make correct investment decisions. Investing, of course, is not a game, but a serious subject that can have a major impact on an entity's survival, growth and shareholder wealth maximization.

Virtually everyone makes investments (Mayo, 2013). One of the most important drivers of the corporate financial system is the decision to invest funds. Healthy investment portfolios that use novel strategies are essential to maximizing shareholders' wealth. As such, they should be examined both in proper context and with sound analytical techniques. Whether the decision involves advancing huge funds to new properties, a research and development venture, a sales and marketing activity, the need for more working capital, a takeover or investing in a financial instrument, an economic tradeoff should be made between the assets expended presently as well as anticipation of future gains to be made.

The investment decision of a company is usually referred to as capital budgeting, or capital expenditure decisions. According to Pandey (2009), a capital budgeting decision could be described as the firm's decision to invest its present funds most economically and efficiently in the long-term assets in expectation of future flow of gains over the life of the investment. The company's investment decisions should usually encompass expansion, merger and acquisitions, modernization and replacement of the long-term assets. Sale of a branch/function or a strategic business unit is equally considered as investment decision .

Capital budgeting or investment decisions are of utmost relevance to the firm insofar as they tend to decide the firm's worth by influencing its growth, profitability and riskiness. The firm's capital budgeting most often than not includes; expansions, acquisition, modernization and replacement of the non-current assets, sale of a division of the business and others.

This question of what factors determined an investment decision is one that has been discussed in academia for well over two scores now. Studies in relation to the area included; Jorgenson (1963); Hall and Jorgenson (1967). Nguyen and Dong (2013)

According to the corporate finance theory, market inefficiencies could end up suppressing the capacity of the companies to finance investments and this would eternally impact the capital budgeting of firms (Akerlof, 1970).

Decisions related to investments are taken by investors and investment managers. Investment managers usually present investment analysis by employing technical scrutiny and sound judgment. Investment decisions most frequently are backed by decision tools. It is anticipated that data construction and the variables in the marketplace systematically impact individuals' and companies' investment decisions in addition to marketplace results. Jagongo and Mutswenje, (2014)

Analyzing every single tiny decision made by investors like the decision to invest a specific amount of money to buy stock of a specific firm on a specific date is nearly impossible. Tiny decisions nearly always depend on the context: the financier could have perceived in the news that this particular firm had a little main breakthrough or maybe he just discovered that he will not be able to go on a celebration and selected to invest this money instead and this particular stock was suggested to him by the agent (Salimov, 2012).

In orthodox commercial theory, financiers are assumed to be rational wealth-maximisers, who are guided by fundamental commercial laws and concentrating their investment strategies exclusively on the risk-return thought as the factors projected to impact investment decisions (Baker et al, 1977, cited in Jagongo and Mutswenje, 2014). Jagongo and Mutswenje, (2014) stated that, under traditional commercial theory, it is assumed that individuals are 'sensible' managers who sort to make decisions objectively to seize supremacy of the prospects obtainable to them. In application, nonetheless, the level of risk financiers are prepared to accept is not the

same, and is subject generally to their confidential attitudes to risk. According to Hussein (2007), the earnings generated by a company, desire to become affluent swiftly, stock marketability, past performance of the firm's equity, the interest of government, and the conception of the coordinated commercial marketplaces are the investor's concerns.

It has been proven by Ninh et al. (2007) as well as others that company size of a firm is a negatively significant element in making investment decisions. The reason attributed to this is that the competences of firms' leadership or human resource cannot control each and everything or necessities in bigger firms cannot be met; therefore, they incline to have less investment.

Nguyen and Dong, (2013)

Research by Adele and Ariyo (2008), Jangili and Kumar (2010), Ruiz-Porras and Lopez-Mateo (2011) on the other hand, have made contradictory findings. Their reason is bothers on the fact that relatively bigger businesses can easily obtain funds or capital from varied external sources, they have a far extra stable cash flows and are extra diversified than tiny firms. Accordingly, this leads to incentive investment plans. Nguyen and Dong, (2013)

Market players are privy to a continuous flow of data and information, which range from quantitative commercial data to commercial news in the mass media, exchanged views as well as endorsements. The ability to process all these information or data is a tough task. Variables that are loaded profoundly on this factor comprise of bulletins in the press (financial or general), present earnings or returns to equity holders, data acquired from some financial websites, present commercial/economic indicators and endorsements by experts and analysts who render advice on investment (Francis and Soffer, 1997). Every single one of these variables represent an external information source supposed to be unbiased.

1.1 Statement of the Problem.

It is the cognitive mindset of investors that they are very smart and rational in their decisions. However, they are quick to allow their emotional predispositions lead when it comes to investing. Their deep-rooted beliefs and psychological prejudices colour the way and manner they discern the global issues and how they go about their decision making processes. Previous studies on determinants of investment decisions have had varied outcomes in this research area. In Ghana, there has not been a study on the determinants of investment decisions by listed firms thus the need for this study. Few related studies looked at investment, uncertainty and irreversibility in Ghana, Pattilo (1997); determinants of private investment behaviour, Ashanti (2000) and what determines debt policy of listed manufacturing firms, Akoto and AwunyoVitor (2013).

In making investment decisions at the corporate level, there is the need to consider certain variables or factors which might inhibit the firm's ability to undertake that course of action. The variables that sought to determine investment decisions could relate to firm's capacity and performance and/or macroeconomic performance. Due to the irreversibility and volume of risk associated with capital budgeting decision, it is essential that investors adequately exhaust all scrutiny and considerations. Adequate scrutiny of company investments require both the analyst and the decision-maker to be extremely cognizant of and particular concerning the countless dimensions involved. They must set a sequence of fundamental guiding principles in order to be sure that results would be methodical, consistent, and significant. This study is aimed at determining factors that influence investment decisions of firms by analyzing firm specific and macroeconomic factors, with a special focus on listed firms in Ghana.

1.2 Research Objectives.

The general objective of the research is to identify the determinants of investment decisions of firms in Ghana. The research is also guided by the following specific research objectives;

1. To identify the main firm-level drivers of investment decisions in Ghana.
2. To examine the contribution of macro-economic factors on investment decisions.
3. To determine the level of correlation between the internal and external factors and investments of firms in Ghana.

1.3 Research Questions.

This research seeks to answer the following questions:

1. What firm-level variables determine the investment decisions of firms?
2. What macroeconomic variables affect investment decisions of firms?
3. What is the correlation between the variables; firm size, cash, fixed assets, debt, interest rates and exchange rates?

1.4 Significance of the Study

The research is vital given the fact that it would increase knowledge. The study provides researchers a better perspective in understanding the concept of investment decisions whilst giving researchers an opportunity to assess the issue in an applied environment. Also, the study will be adding more information to existing research, since there is a dearth of research in this area. Substantial information in this respect is very much needed.

Last but not least, this study will improve and sharpen the research gathering and analytical skills of the researcher, a skill that is not taught in the lecture halls.

1.5 The Scope of Research

Although as at the time of conducting this study, there were 36 companies listed on the Ghana Stock Exchange (GSE) of which 8 were banks, this research primarily focused on nine (9) of these listed firms, namely; GCB Bank, CAL bank, Total Ghana, Fan Milk, GOIL, PZ Cussons, ALUWORKS, AGLOGOLD and Unilever Ghana.

1.6 Research Methodology

This study investigated the determinants of investments decisions of listed firms in Ghana.

Determinants of firms' investment decisions were identified with the panel-based linear regression model. This technique was employed because it is a suitable tool used in getting useful findings. It involves regressing the dependent variable and predictive variables.

The secondary data was collected from published financials (from 2005 to 2013), articles and news items. The data collected was analysed using STATA 13.0

1.7 Limitation of Research

Time and data availability were great challenge to this research. Nonetheless, efforts were made to mitigate the impact of these constraints in order to limit their impact on the outcome of study.

1.8 Organization of Research.

Chapter 1 deals with the background to the study, the problem statement, the research objectives and questions, the significance, scope of the study and an overview of the work. Chapter 2 presents the literature review which seeks to perform both theoretical and empirical review of determinants of investment decisions. Chapter 3 focuses on the research methodology (which involves data collection and data analysis) that will be adopted in the study. Chapter 4 is on data

presentation and analysis, which involves presenting and analysing the results of the data collected. Chapter 5 is the summary and the conclusion of this research work: the summary of the findings; recommendations and policy implications, limitations of the study plus proposal for further research.



CHAPTER TWO

LITERATURE REVIEW

Knowledge is not the exclusive preserve of an individual but the accumulation of ideas from so many people. Therefore, this chapter seeks to provide an overview, as well as summarize and evaluate current state of knowledge about existing literature by researchers and accredited scholars relating to the topic under study. The chapter reviews the concept of investment decisions. It also looks at works on determinants of investment decisions.

2.0 The Concept of Decision Making and Investment

Business revolves around the factor of logical decision-making and investing. Decision-making is a practice of making a choice from a number of options to achieve a preferred result (Eisenfuhr, 2011). Simon (1997), identified that most decision-making, whether by individuals or a corporate body, is concerned with the unearthing and selection of logical substitutes; only in exceptional cases is it concerned with the discovery and selection of ideal alternatives.

The combined effects of age, educational status, practice, source of investment funds, annual revenue, and household entrepreneurial background, insufficient start-up capital, business location, favorable government policy on entrepreneurship, know-how in self-employment, high inflation rate and market size have been identified as the major factors affecting investment decision among agribusiness investors in Southeast Nigeria (Nwibo et al. 2013). Macro and Paolo (2010) inferred that the approach followed by investors in allocating their money accordingly depend on their ability to remember and learn from past experiences. Before choosing how to allocate resources, investors consider many financial data, trying to transform

them into useful information. An intriguing approach to describe and, possibly, explain investment decisions may be the explicit consideration of psychological factors (Hawkins and Hastie, 1990).

Equity shareholders' wealth is represented in the market price of the company's ordinary shares, which, in turn, is the function of the company's decisions with respect to investment, financing and dividend. Among the most fundamental decisions to be taken for efficient performance and achievement of objectives in any business are the decisions relating to investment. Investment refers to the present sacrifice for future gains. Individuals, firms, and governments are all regularly in position to decide whether or not to invest, and how to diversify among the options available. An investor who purchases common stock anticipates returns in the form of dividend inflows and capital gains (resulting from rise in the values of shares). An investor who purchases corporate bonds anticipates regular returns in the form of interest payments (Watson and Head, 2010).

An investor might have to decide whether to purchase shares, plant seeds, undertake a course of training; a firm may decide to buy equipment or construct building; and government may decide whether or not to build market. Under the heading of investment decision, economists have addressed the problem of how to logically choose in such situations involving a trade-off between now and future (Nwibo et al. 2013).

Capital budgeting refers to the procedure through which companies ascertain the way and manner to invest resources. The process of capital budgeting includes the decision(s) to invest in new undertakings, reassessment of volumes of resources hitherto committed to available projects/programmes, apportion and allot capital among functions, and buy supplementary

companies. Essentially, the capital expenditure procedure defines the set and magnitude of an organization's physical assets, that also produce the cash flows that eventually ascertain the firm's profitability and worth.

It is a matter of principle that a company's decisions to invest in a new undertaking ought to frequently be made according to whether the undertaking increases the fortunes of the firm's stockholders. For instance, according to (Martin, 2010), the net present worth (NPV) rule lays down an unbiased procedure by that companies could compute the gains that new capital investments are anticipated to make. The rule has steadily attained popularity, but its comprehensive use has not excluded the human agent in the investment decision process. For the reason that the appraisal of a project's upcoming cash-flows and the level at that they ought to be discounted is yet a comparatively subjective procedure, managers' traits and perceptions continue to impact these procedures. (Graham and Harvey, 2001 cited in Martin, 2010)

In the view of Gervais (2010), researches conducted on the calibration of subjective probabilities identify that people are bullish, in the sense that they oftentimes try to overestimate the accuracy of their knowledge as well as information (Alpert & Raiffa, 1982). As a matter of fact, studies show that experts of many fields of study and walks of life display overconfidence in their decisions.

2.1 Theories of Investors' Behaviour

Literature reviewed which relate to theories of investment identifies some elements of opinions, in respect of investors' behaviour. Some theories that share light on the subject include, neoclassical theory of investment behaviour, accelerator theory of investment behaviour,

liquidity theory and signaling theory. The theories of investment behaviour considered herein in a nut shell, has been discussed.

2.1.1 The accelerator theory

This theory postulates that companies have an anticipated capital stock level. As a result, a firm would only tolerate and accept investment which would accomplish or meet their projections.

The accelerator theory emphasizes the need for businesses regulate their capital stock according to demand so that the association between investments and result/output would be direct or proportional. The concept postulated here is to make investment and output proportionately related in order that changes in estimated output becomes the single very essential element in influencing the investment behaviour of the model. MPRA (2012)

2.1.2 The Neoclassical Theory

The fundamental ideas behind this investment behaviour theory has associations with the cost function. The cost function determines the manner costs impacts on the capital stock and in what way the rental price of capital impacts on investments in the private sector. MPRA (2012)

2.1.3 The Q-Theory of Investment Behaviour

This of investment behaviour theory establishes that the stock market performs an important function when it comes to ascertaining the behaviour of businesses in the private sector. The marketplace valuation is the realizable value for trading available resources (assets) in an arm's length transaction. The book value of an asset refers to how much it cost to replace or reproduce the asset signifying the price the market places on a similar asset newly manufactured. The excess of marketplace valuation above the cost of replacement inspires investment, people embark on investments when marketplace worth of an asset rises above that of the book value.

2.1.4 Liquidity Theory

This theory on the other hand is crafted on the assumption that the capital marketplace is imperfect emerging generally due to unbalanced data amid firms and suppliers of funds. This establishes a block amid price of outside and internal financing so that external financing is an impediment on the companies' investment. Companies as a result limit themselves to internal financing sources like retained earnings and others in order to cancel the effect. To this end, a company or companies restrict their investments to existing stock of internally generated funds. The consequence as forecasted by the ideal is that, given the imperfection in the capital marketplace, the company's investment actions become delicate or reliant to internally generated liquidity. (Fazzari et al. 1988, quoted in Kumar and Jangili, 2010)

2.1.5 Signaling Theory

The signaling theory pinpoints that despite the bias of the company's investment decisions to capital gains, the firm might pay dividends to signal their future prospects (Amidu, 2007). The hunch underlying this argument is based on the information asymmetry between management of the firm and outside investors, where management have private information about the current and future fortunes of the firm that is not available in the public domain. The theory argued that the market would construe a dividend payment (or a stock repurchase) as an indication of quality, which will entice the firm to under invest, so that more funds are available to signal quality (Miller and Rock, 1985, cited in Servaes and Tufano, 2006). The astounding outcome of their analysis is that blue chip companies would under invest further. This is because these companies can cushion such expenditures, and consequently have the greatest motivation to signal (Servaes and Tufano, 2006).

2.2 Investment Decisions of Firms

The MPRA (2012) paper refer to corporate investment as the volume of funds expended in order to increase a firm's total assets.

The mode of financing corporate investments could be by reliance on internally generated funds such as retained earnings or bootstrapped revenues. Alternatively, investment could be financed from external sources through issues of shares, debt certificates and others. At micro level, private corporate behaviour is determined by three main decisions, that is; investment, financing and profit allocation. Firms have manipulated resources that have to be allocated amid contesting uses. As a result, companies in the private business area have to choose the method and manner they ought to apportion funds as well as the wisest investing approach. Accordingly, a company's capital budgeting decisions are fashioned to contain not merely those investments that result in incomes and profits, but next additionally those that help the firm to protect liquidity by dropping outflow.

Although the scrutiny of investment decisions has been being discussed in previous studies for a sometime now, attention to the subject was renewed when the work of Fazzari, Hubbard and Petersen (1988) surfaced. Investment decisions are convoluted and not as frequent as other company decisions, precluding the formation of rules-of-thumb. Previous works stress the role of information asymmetry in the credit market (Stiglitz and Weiss, 1981), for lending institutions have difficulties in differentiating among borrowers. Company management of have better and further information on their company than bank bureaucrats, a factor that can result in an under evaluation of the company's worth, and hence on access to external capital. In this regard, employing internally generated sources capital or debentures, commercial papers and

others is a better option. In general, investment is regressed on cash-flow, indebtedness, profitability, and specific variables pertaining to different situations (Azzoni et al. 2006). In their study, Azzoni et al. (2006) stated that some researches accept the existence of a recognized investment function, in which the heterogeneity of companies could be considered by including a specific effect for each firm, as well as a time effect. Cash flow reflects the influence of possible liquidity restrictions, although it can also represent a potential for future profitability. Investment decisions can comprise making a major facelift to the existing business or increasing the companies branches or divisions. It could also encompass the creation of a new business and replacement and moderations. Expansion takes the form of additions to a company's capacity in respect of its properties and branches. Again, a firm could go into producing a new product or expand existing operation.

Capital investment decision-making is important to a business because these expenditures have the following characteristics:

1. They usually involve large sums of money relative to the size of the business or operation.
2. The expenditures are usually for the long term.
3. The decision cannot be easily reversed.
4. They have a high risk attached to them.

2.3 Evaluating Investments

Businesses must direct funds into wealth creating assets in order to renew, prolong or replace the means by which they carry on their business. Capital investment projects require careful evaluation because they need very large amounts of cash to be raised and invested, and because they will determine whether the company is profitable in future. Watson and Head, (2010).

In ascertaining the viability of an investment portfolio, the following evaluation criteria are used:

2.3.1 Future Costs and Benefits

A fundamental principle that must be considered when the need to make decisions that relate to investment arise is that the kind of calculations that would be adopted to justify each of the firm's investments must be established on estimates and forecasts of upcoming incomes as well as expenditures. It's plainly not sufficient to accept that the historical circumstances and knowledge, in respect of cost of operations or commodity prices will remain the same and would apply to a new undertaking. Inasmuch as the situation might appear apparent, decision-makers might be persuaded to draw conclusions from previous situations and circumstances rather than making a prudent forecast of probable changes. Previous happenings is reliable only to the extent that it gives a husky guidelines.

That an investment may be valuable or not depends solely on upcoming events and the uncertainty encircling them. As a matter of fact, it behooves the analyst to notice as far as probable the probable adjustments from present conditions in the key variables related to the analysis. In the event that the possible deviations in countless spans are outsized, it could be necessary to scrutinize the investigation under varied assumptions , thereby assessing the sensitivity of the quantitative outcome to adjustments in particular variables, such as product quantities, prices and others.

2.3.2 Payback

This method enjoys extensive custom, chiefly in tiny cash-constrained firms (Megginson et al.,

2008). The payback era is the number of years it is anticipated to seize to recoup the early investment from the net cash flows emerging from a capital investment project. The decision law after employing this method is to accord a undertaking if it's payback era is equal or less than a predetermined target worth (Watson and Head, 2010). This crude law of thumb undeviatingly relates consented level annual cash inflows from a undertaking to the net investment required.

2.4 Determinants of Investment Decisions

The relative importance of various traditional determinants of investment (demand, profit, financial and technological constraints) remains insufficiently understood. Although over a long period of time demand appears to be the most important determinant, empirical analyses have shown that, in France, business profitability, and financial constraints, have over the last 20 years significantly influenced the level of investment. An approach focusing on individual investment decisions and drawing directly on business perceptions provides another perspective on the determinant hierarchy.

Conditions prevailing in the labour market (wage rates, conflicts and others) may influence firms' decisions to invest either by rendering capital relatively more convenient than labour, or by directly affecting profits. It is more likely that firms will find themselves in the former condition when profits are low and their financial conditions are not optimal.

According to Baker and Haslem, (1973), dividends, estimated returns and the company's financial strength are serious investment considerations for individual investors. Potter (1971) in his study identified six(6) variables which influence individual investment decisions. These are; dividends, rapid growth, investment for saving purposes, quick profits through trading,

professional investment management and long-term growth as the variables that affect individual investors' attitudes towards their investment decisions. Again, it was established by Merikas et al, (2003) that people in making share purchase decision rely on the following; fluctuation in the price index, recent price movement in a firm's stock, current economic indicators.

2.4.1 Firm-level Determinants of Investment Decisions

2.4.1.1 Dividend

Organizations can identify with varied openings. However, these opportunities are not perfectly recognized by all investors/financiers - or statistics concerning the investments can possibly be acquired at a cost. The implication is that companies that pay little dividends because they invest in portfolios with positive net present values are likely to encounter risks of being joined alongside firms that pay similar level of dividends lacking or possessing comparable development opportunities (Stacescu, 2006). The interactions of investment policy and dividend policy have been concerned by Spies (1974), Fama (1974), Dhrymes and Kurz (1967), Miller and Modigliani (1961) and others.

Two theories exist in the literature regarding the relationships between investment and dividend decisions. The first, based on the perfect capital market theorem, suggests that investment decisions and dividend decisions of firms are not related since, in a perfect capital market, optimal investment decisions by a firm are independent of how such decisions are financed. The second, which is established the hypothesis of imperfect capital markets, proposes that they are negatively related since dividends and investment are competing uses of limited internal funds.

For a normal signaling model, dividend payment is an exact sign of the upcoming prospects of a firm. Managers are expected to make decisions and conduct affairs in the best interest of equity holders. Managers are indeed normally considered as representatives of the average stockholder. It is recognized, though, that managerial deeds do not always in pursuance of best interest of shareholders - and that managers have substantial flexibility in selecting the actual amount of dividends to pay. This could most probably lead to vital distortions. Eighty-eight(88) per cent of the managers studies by Brav et al. (2004) indicated that there exists a negative impact when dividends are reduced. A good number of them additionally make mention of reports of vending assets, retrenching many human resources, taking on too much debt, or bypassing investments with positive net present values, before unfortunately reducing dividends. Ignoring priceless investments could be the vital price of signaling. Stacescu, (2006)

2.4.1.2 Net Profit

Investment is often financed by borrowed funds. But a great deal of investment is also financed by firms' own money. In this case, current profits are retained – that is, not paid out to the firms' owners - but instead are reinvested by the firms. Thus an important determinant of investment expenditure is current profits. If these are large, there is a large flow of funds that can be reinvested by the firms who made them. If profits are low or non-existent, there are few funds available from within the firm to finance new investment expenditures. Lipsey and Harbury, (2004).

2.4.1.3 Firm Size

Bialowolski and Weziak-Bialowolska, (2013) identified that as a result of the significance of the rational investment behaviour for the firm's performance and development opportunities, countless efforts have been made in previous works to explain and assess it. The researches

have basically shown that commercial factors are very significant in reference to investment decision making procedure for relatively small companies. Due to the fact that small firms are disadvantaged at accessing capital marketplaces, they are compelled to depend more on internally generated funds, like companies own savings or capital accessed from relatives or friends.

Additionally, for firms to be able to meet their needs and also to evaluate the chance of investments, these firms use varied bootstrapping approaches. For the relatively large firms, they have superior advantage in accessing financing from external sources to undertake their investment evaluations, they are able to employ much suitable techniques. Bialowolski and Weziak-Bialowolska, (2013). Previous studies have identified three(3) ways of measuring a company's size thus: log worth of finished assets, finished revenue and finished number of human capital.

2.4.1.4 Earnings per Share

Earnings per share is the portion of a company's profit allocated to each outstanding share of common stock. It serves as an indicator of a company's profitability. Anon, (n.d). Joel Stern is emphatic; "earnings per share don't count". This is, of course, a minority view and investors around the world still rely heavily on EPS as a basis for investment decisions. Floquet, (n.a). Sharma (2011) in his study concluded that earning per share is the strongest determinant of the market value in a constructive track. So investors take care of earnings per shares variable in to account before investing in any company.

2.4.1.5 Cash

Two explanations are found for the effect of free cash flow on investment. First, because of the financing hierarchy that is described in the pecking –order theory of Myers (1984), firms will prefer internal funds over debt and equity financing, due to a cost disadvantage of external funding. This makes cash flow a significant variable in determining of investment decisions. The second reason is given by Jensen (1986), who suggests that managers rather spend the free cash flows in investments to increase the scale of the company than paying out this money to shareholders.

2.4.2 Industry-level Determinants of Investment Decisions

2.4.2.1 Competition

A survey conducted on merchants in the foreign exchange market is close to confirming that trading decisions basically rely on the historical trend of prices. Not less than ninety(90) per cent of the respondents emphasize analysis of historical behaviour of prices in the event of making undertaking transactions, especially in the short term. (Taylor and Allen, 1992, quoted in OECD, 1993).

There could be some semblance between innovation and investment that thence result in development of two contradictory impacts of competition on investment. First, acute industry competition results in declining margins/return, thus resulting in low desire to innovate. Secondly, contest for clients and available resource could be the source of motivation for companies to innovate. What is known as escape competition effect takes over after the ex-post marketplace manipulation is moderately elevated as the opposite holds after the marketplace is extra competitive. These dual impacts are rooted in the inverse U-shaped arc which establishes the relationship between innovation and competition that was developed by Aghion et al.

(2005). Accordingly, the optimum degree of contest is intermediate. Competition from the perspective of infrastructure portrays a diverse view on the gains to be derived from competition. Mathis and Sand-Zantman, (2014).

The research of Alesina et al. (2005) identified the function of regulations, barriers to entry and ownership of firms by the public play in investment. The companies sampled were in the nonmanufacturing industry like energy, transports, communication. It was identified that competition-enhancing regulations and policies do support/encourage investments. Mathis and Sand-Zantman, (2014).

2.4.3 Macroeconomic Determinants of Investment Decisions

From a macroeconomic perspective, different elements affect firm's investments. Local and worldwide economic cycles have the chance of affecting corporate investments decisions, as gains/returns from corporate investment have the possibility of flowing in cycles. Variability and volatility in inflations increases doubt about returns from corporate investment, which may also make corporate hesitant to undertake investment. Finally, real interest rates have a direct impact on corporate investment as they determine financing costs. Tokuoka (2012)

To quantify the impact of macroeconomic variables on corporate investment, Tokuoka (2012) estimated the following equation:

$$(CL)_t = \alpha_1(X)_{t-1} + \alpha_2(VIX)_t + \alpha_3(CL)_{t-1} + \varepsilon_{jt}$$

Where CI is corporate investment (in percent of GDP), and X is a vector of macroeconomic variables including the volatility of the inflation rate (CPI), the inflation rate (CPI), real GDP

growth, the real interest rate, and the world's real GDP growth. The VIX global stock volatility is used to control for global uncertainty, which may affect the level and volatility of profit.

Tokuoka (2012)



2.4.3.1 Exchange rate

Nucci and Pozzolo (n.a) investigated the association that exists between transactions rate variations and the investment decisions of some Italian firms that operate in the manufacturing sector. The outcome they had is in support of the view that a drop in the rate of currency transactions has a direct and positive impact on investment across the revenue channel, and a negative impact across the cost channel. Furthermore, they found that the decisions of firms regarding investments vary with respect to market share or control; businesses with a relatively low monopoly control are extra sensitive to variations in exchange rates. This finding buttresses the findings of Campa and Goldberg (1999) who researched the connection between investments and exchange rates.

According to Nucci and Pozzolo (n.a), companies with a relatively low price-cost margins are extra sensitive to variations in exchange rates than those companies that make higher margins. Investment outlays by the small-sized organizations are extra sensitive. Additionally, the disparate degree of import penetration in the local marketplace and the degree of substitutability between locally manufactured inputs and imported inputs have been identified to cause contrasts in businesses' reply to transactions rate shocks.

2.4.3.2 Interest Rate

In general, the lower the rate of interests, the greater the number of investment opportunities that will be profitable and, therefore, the greater the investment expenditures that firms will wish to make. There is an important exception to this rule though. During very depressed times, investment opportunities are few or non-existent. At such times, changes in the rate of interest have little effect on investment decisions. In more normal times, however, a wide range of potentially profitable investment opportunities does exist. At such times, a change in the rate of interest shifts the line between what does and does not look profitable and hence affects the volume of desired investment expenditure. Thus, the volume of desired investment expenditure is negatively related to the interest rate, rising as the interest rate falls and vice versa. Lipsey and Harbury, (2004).

iMFdirect, (2011) researched on Interest Rates and Investor Decisions. Their study employed detailed data on cash inflow and outflows on bond and equity mutual funds to identify the fundamental determinants of investment decisions made by institutional investors. The result of the research indicated that investors usually have a long investment horizon, with obligations that often stretch out over decades. They are concentrated on long-run returns, and—importantly—they invest their own cash, rather than investing with borrowed money.

Interest rates just do not matter considerably for these investors. They looked at short-term interest rates, long-term interest rates, real interest rates, and nominal interest rates. Institutional investors generally did not respond to any of them, for investments in equities or bonds. Interest rates matter for investors on borrowed time. iMFdirect, (2011)

2.4.3.3 Inflation

Inflation is frequently identified as a universal measure of macroeconomic state and, consequently, the volatility of its unpredictable component can be seen as an indicator of macroeconomic flux (Sama, 2010). A high level of inflation and its volatility could indicate the inability of the government to control the economy (Fischer, 1993), hence, the macroeconomic policies will be perceived by the investors as risky and the level of investment may diminish: inflation and investment will be negatively correlated. Also, a higher inflation levels are related to an increased marginal profitability of capital and volatile relative prices, therefore, the inflation-investment relationship could be positive.

2.5 Study Area Literature - Stock Exchange (GSE)

The Ghana Stock Exchange (GSE) is the principal stock exchange of Ghana. The exchange was incorporated in July 1989 with trading commencing in 1990. It currently lists 38 equities (from 36 companies) and 2 corporate bonds. All types of securities can be listed. Criteria for listing include capital adequacy, profitability, spread of shares, years of existence and management efficiency. The GSE is located in Accra.

2.5.1 Sectors of Ghana's Economy

A PWC (n.d) report established that the Consumer & Industrial Products and Services sector is dominated by subsidiaries of multinational companies and medium sized local companies including Unilever, Coca Cola, Toyota and Accra Brewery.

The Services Sector, which is the largest sector of Ghana's economy accounted for 49.3 per cent of Gross Domestic Product in 2012, recording the highest growth rate that year. Financial

Intermediation contributed 11.4 per cent with Information and Communication registering 12.1 per cent, and Business Services listing 13.5 per cent GDP. GNA, (2013)

Industry deals with the transformation of raw materials into a more processed form. Industry in Ghana accounts for about 25.3% of total GDP. However, Ghana's industrial production is rising at a 7.8% rate. Major industries include mining, light manufacturing, aluminium smelting, food processing, cement and small commercial ship building. Other industries include food and beverages production, textiles, chemicals and pharmaceuticals, and the processing of metals and wood products; a relatively small glass-making industry has also developed. The World Economic Forum's Global Competitiveness Report (2012-13) reflects the relatively unsophisticated production process in Ghana. The country was given an overall rating of 107 out of 144 countries, with a value of 3.2 out of 7.0 for product process sophistication, with 7.0 representing a country in which the world's best and most efficient process technology prevails. This score places Ghana below the world mean of 3.9 out of 7.0.

The Fast Moving Consumer Goods Sector (FMCG industry), alternatively referred to as CPG, are those consumables which are normally consumed by the consumers at a regular interval. Fast Moving Consumer Goods (FMCGS) are products that are sold quickly and at relatively low cost. Examples of such products are milk, Milo, soft drinks, and toiletries. Profits on these products are very small but they do sell in large quantities. Fast Moving Consumer Goods over the years have been an integral part of Ghana's economy. It forms part of the indicators in the economy of Ghana. The sector has been one of the major sources of employment in the country.

2.6 Conceptual Framework

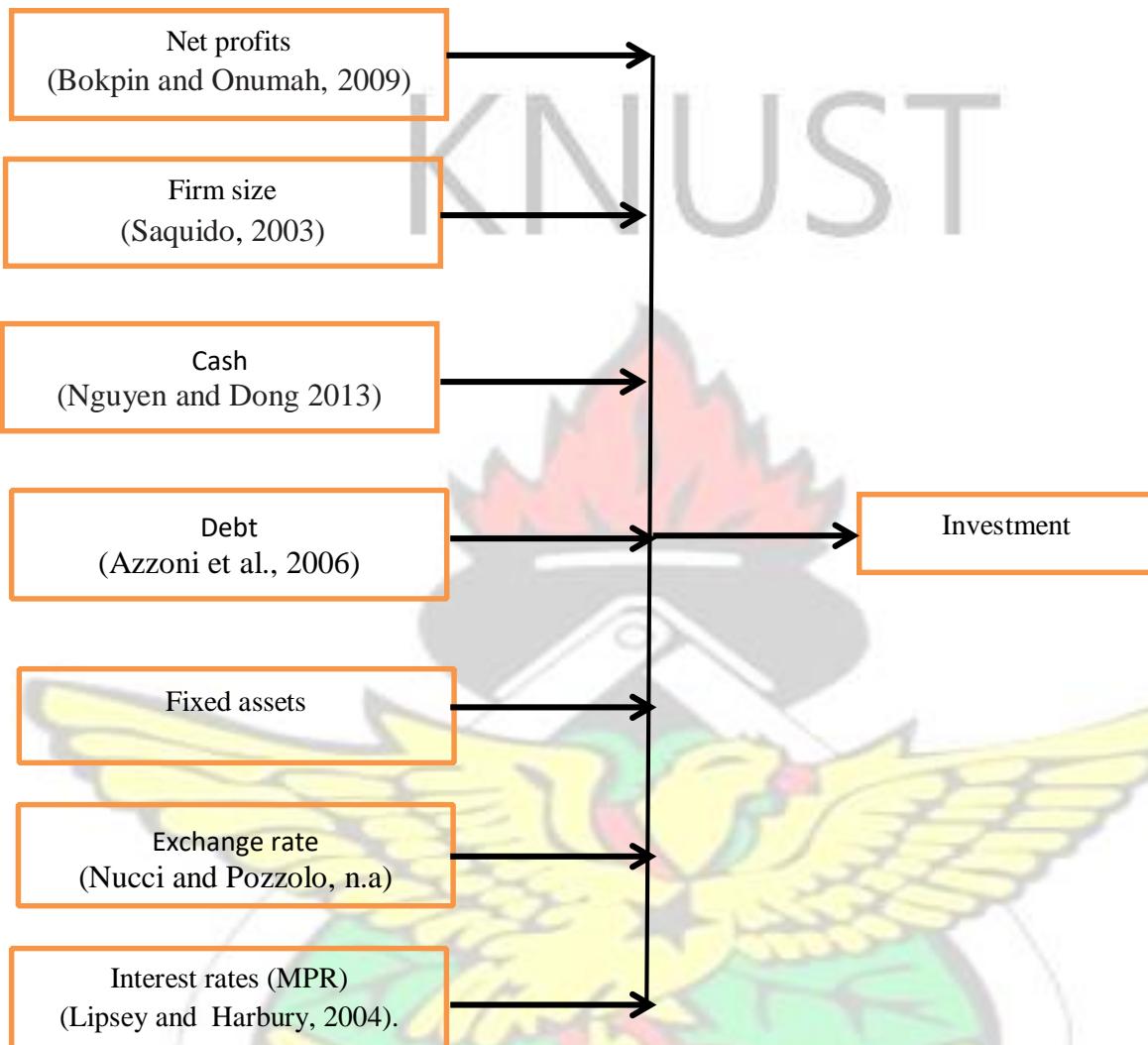
Conceptual frameworks are building blocks of models used to simplify reality by selecting certain phenomena/variables and suggesting certain relationships between them to make it easier to discuss, analyze or research (Fisher, 2007). Even though the fundamental investment rules and principles remain the same, investment climate keeps changing.

The research of Aviazian et al. (2005) indicated that the connection between leverage and investment is inverse, and that the weight is significantly stronger for firms with low growth prospects than those firms with high growth prospects. The findings of Li et al. (2010) mixed significantly the relationship between debt financing and corporate investment decisions, by using the technique of the multiple linear regression on the data from the years 2006-2008 of 60 Chinese real estate listed firms.



Independent Variables

dependent variable



Source: developed for the study (2015)

CHAPTER THREE

METHODOLOGY

This chapter describes the research methodology employed in the work. It entails the various approaches. It covered the research design, the data collection and processing as well as the data presentation and analysis.

3.0 Introduction

In this section, an ephemeral overview of several dimensions of the research, tools, techniques and methods used to accomplish the various research objectives has been conferred. It outlines the scope as well as the sources of data employed. It identifies the population of the study, the factors that determine investment decisions of firms and the way these factors are measured. This chapter further specifies and justifies the econometric model adopted by the study and finally the conclusion.

3.1 Research Design

The core objective of this study is to identify the variables that determine investment decisions of listed firms in Ghana. The study adopted the panel research design to accomplish its set objectives. The panel data has the advantage of providing more informative facts as it involves both the cross sectional data and the time series data. It as such prevents individual heterogeneity, lessens collinearity variables and tracks trends in the data. This is something that the simple time-series and cross- sectional data cannot offer (Baltagi, 2005). In short, the panel modeling identifies a common group of features and at the same time, takes into account the heterogeneity which is current among the specific units.

The population of the study consists of all the listed companies on the Ghana Stock Exchange from 2006 to 2013. This study considers all companies in three sectors of the economy, thus; manufacturing, consumer goods and service sectors. At the period of this study, thirty-six companies were listed on GSE.

A sample of nine firms from three sectors that have been listed on the Ghana Stock Exchange (GSE) over the recent seven year period (2007-2013) were considered.

3.2 The Data

This study adopts the use of secondary data as it focuses on nine companies on the Ghana Stock Exchange. These companies publish annual reports of their financial statements which contain the needed information on the internal factors needed for this research to cover the 8-year period from 2006 - 2013. The annual reports consist of Statement of Financial Position, Income Statements, Financial ratios and other applicable information for the public quoted companies. The researcher extracted the sales/revenue and net profit from the income statement and cash balance, debt and fixed asset balance from the statement of financial position.

The external factors such as interest rates and exchange rates figures were secured from the Ghana Statistical Service website and index mundi website. Data were also obtained from the World Bank website, who publish major economic and financial indicators in the economy. This data can be used to run a multiple regression analysis.

STATA software version 13.0 was used to calculate a descriptive statistics (mean, standard deviation, minimum and maximum) of the study variables and a panel data regression analysis was also used in determining the impact of the independent variables on investment decisions.

3.3 Model Specification

The study adopts the panel data. Panel data has the benefit of coming out with more informative data as it is a cross-sectional time series. The cross sectional information captures the individual variability or dissimilarities amongst subjects whereas the time series information captures dynamic adjustment or changes within the subject over time. Briefly, panel modeling aids in the identity of a mutual group of characteristics and at the same time, takes into the consideration the heterogeneity that is existing amongst individual units. Also, this technique permits for the study of the factors that determine investment decision of firms, after regulatory for industry-specific characteristics, with less collinearity amongst variables, more gradation of autonomy and greater efficiency (Gujarati and Sangeetha, 2007).

3.3.1 Types of Panel Data

A Panel data is made up of entities represented by n which are observed through a time frame also represented the T . thus, the sum of the number of observations in the panel data is the number of entities or subject under studied multiplied by the time interval. The time frame can be measured by year, quarter or month but the most important issue is that, it must be consistent throughout the entire subjects. Otherwise, the researcher must tread cautiously to get the correct results. A Panel data may be broken down into long or short, balance or unbalance and fixed or rotating.

3.3.1.1 Long or Short Panel Data

A Short Panel Data (S.P.D.) is where large number of entities or subjects is observed within a few time periods. Thus the S.P.D. is wide in terms of cross-sectional but short in time frame.

On the other hand, Long Panel Data (L.P.D.) has few entities being observed in a longer time frame. Here the two extremes (small n, and large N) can be problematic and therefore require a careful examination when dealing with Short and Long Panel Data.

3.3.1.2 Balance or Unbalance Panel Data

In analyzing a Balance Panel Data (B.P.D.), all subjects must have measurement throughout the timeframe. Thus in a cross-table of cross –sectional and time-series variable, each cell should have only one frequency. This means the number of observation is equal to number of entities by time period. The data is said to be unbalanced when the entities have different number of observations. Unbalance Panel Data has unequal observations, some cells in the cross –table has no frequency. This calls for special computations however numerous software programs have been designed to deal with both balance and unbalance data.

3.3.1.3 Fixed or Rotating Data

According to Greene (2008), a Fixed Panel Data is where the same entities are analyzed with in each period whilst Rotating Panel Data is where the entities change from one period to another.

3.3.2 Panel Data Estimation Techniques

Panel data uses two main techniques in its analysis and they include; Fixed and Random Effect Model. The Fixed Effect Model discovers the relationship among predictor and outcome variables within an entity (company, person etc.). Each entity has its own peculiar features that may or may not have an impact on the predictor variable (Reyna, 2007). This model assumes that the unique element with an individual may impact or bias the predictor or outcome variables and therefore there is the need to control for this. This is the motive behind the hypothesis of the association between entity's error term and predictor variables (Reyna, 2007). This model

eradicates the effect of time-variant features so that the net result of analysts on the outcome variable can be ascertained. FE is not suitable when the error terms are correlated because the implications may not be accurate. The equation used in the FE model is given as:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + U_{it}$$

Where α_i ($i = 1 \dots n$) is the unidentified intercept for each entity, Y_{it} is the dependent variable (DV), i represents entity and t is time, X_{it} is the independent variable (IV), β_1 represents the coefficient for the IV and U_{it} is the error term.

The Random effect model on the other hand is a distinctive case of the fixed effects model. It is employed in analysis of hierarchical or panel data when one assumes no fixed effect. Thus it allows for individual effects. The brain behind this model is that the variance across entities is assumed to be random and uncorrelated with the predictor or independent variables. RM assumes that the error term of the entity concerned is not correlated with the predictors that allow for time-invariant variables to function as explanatory variables. Therefore individual characteristics which may or may not have impact on the predictor variables must be specified. The down side is that, some variables may not be available therefore bias can occur in the model.

The random effect model is:

$$(Y)_{it} = \beta(X)_{it} + \alpha + U_{it} + \varepsilon_{jt}$$

According to Green (2008), the decision to choose either of these models can be done by running the Hausman test. It basically tests whether the unique errors (U_i) are correlated with the regressors.

The equation for pooled OLS is written as:

$$Y_{it} = \alpha + x_{it}\beta + \varepsilon_{it} (u_i = 0)$$

3.4 Empirical Model

To analyse the factors that determine investment decision of the listed companies in Ghana, the basic estimation strategy is to pool the observations through selected companies and smear the regression analysis on the joint sample. The Pooled Odd Linear Squares (POLS) estimator will be adopted. The advantage of pooling is that more dependable estimates of the parameters in the model can be gotten especially where the relationship between the variables is stable across cross-section units. It was also used because it is the computation used to identify the relationship between a dependent variable with more than one independent variable (Zikmund et al., 2010).

The POLS regression equation used is as follows:

Model I

$$(I)_{jt} = \alpha + \beta_1(P)_{jt-1} + \beta_2(C)_{jt-1} + \beta_3(S)_{jt-1} + \beta_5(DT)_{jt} + \varepsilon_{jt}$$

Model II

$$(I)_{jt} = \alpha + \beta_1(P)_{jt-1} + \beta_2(C)_{jt-1} + \beta_3(S)_{jt-1} + \beta_4(F)_{jt-1} + \beta_5(DT)_{jt} + \beta_6(IT)_{jt} + \beta_7(X)_{jt} + \varepsilon_{jt}$$

The subscript j shows the cross-sectional dimension and t indicates the time-series dimension.

The left-hand side variable is the investment in year t , for firm j ($t=1\dots T$ and $j = 1\dots N$); I is investment. On the right-hand side, all the possible factors influencing investments are expressed. P is net profit, C is cash on hand; S size of the firm represented by volume of sales; F represents fixed assets, DT is debt of the firm, IT is the average interest rate, X represents the

Cedi/Dollar exchange rate and ϵ is the error term. The explanatory variables are typical of the literature on investment decisions. Interest rate and exchange rates are contemporaneous to investment. Firm size, net profit, Cash-flow, fixed asset and company debt are lagged one year, meaning that the investment decisions in year t is influenced by, firm size, profit, debt, and fixed assets in the previous year and on the volume of cash the firm had at the beginning of the period.

Table 3.1. Variables to Be Investigated

Proxy(s)	Expected relationship	Literature
Dependent variable: Investment (I)	N/A	Calcagnini and Saltari, (2000)
Independent (firm level) variable:		
Profit (P):	+/-	Lipsey and Harbury (2004)
Cash (C):	+	Nguyen and Dong (2013)
Debt (DT):	-	Jiming et al. (2010)
Fixed assets (F):	-	
Firm size (S):	+	Saquido (2003)
Independent External Variables:		
Interest (IT):	+/-	Toni Uhomoibhi, (2008)
Exchange rate (X):	+/-	Nucci and Pozzolo,(n.a)

This study does not include all the internal and external factors that affect firm investment decisions, but limited to the following variables:

Firm's size (S): other studies identify three(3) ways of measuring a firm's size. For instance the log value of total assets, total revenue, and total number of employees are some means of measuring the size of a firm. In conducting this study adequate information could not be secured because the annual financial reports of some companies comprise of information about the number of employees, while others do not. This study employed the total revenue measurements to analyze firm size. The amount of sales in terms of total assets is a good estimate of the size of the firms. The obvious conclusion is that sales and investment will show a positive relationship with investment.

Net profit (P): this is gotten by taking total revenues and altering for the cost of doing business, depreciation, interest, taxes and other expenses. This number is originated on a company's income statement and is a vital measure of how lucrative the company is over a period of time. According to Lipsey and Harbury (2004), if profits are low or non-existent, there are few funds available from within the firm to finance new investment expenditures.

Cash (C): Jensen (1986) suggests that managers rather spend the free cash flows in investments to increase the scale of the company than paying out this money to shareholders. This variable is represented in this study by the opening balance of cash and cash equivalents in the firm's statement of financial position.

Debt (DT): company debt is measured by the volume of long-term liabilities of firms. Aivazian et al. (2005), and Ahn et al. (2006) identified an inverse relation between investment and debt financing although in their studies, the correlation was much stronger for firms with low growth. This evidence is consistent with the overinvestment story (Stulz, 1990) where leverage inhibits managers of low-growth firms from investing in non-profitable capital expenditures. For low

growth firms, the higher level of debt will force them to give up investment. Meanwhile, debt can restrict the excessive investment in non-profit programs. Hence, it protects the interest of shareholders, which strengthen the negative correlation between debt financing and investment behavior. Jiming et al, (2010)

Exchange rates (X): the exchange rate used herein is the Ghana Cedi per USD rate.

Interest rates (IT): the volume of required investment expenditure is inversely related to the interest rate, increasing as the interest rate decreases and vice versa (Lipsey and Harbury, 2004). According to (Mankiw, 2000), interest rate is the market price upon which resources are moved between the present and the future; the return to saving and the cost of borrowing. It is well known that, inside the traditional neoclassical framework, a higher interest rate level will reduce investment demand (Calcagnini and Saltari, 2000). Real interest rates have a direct influence on corporate investment as they regulate financing costs. Interest rate is in percentage.

CHAPTER FOUR

ANALYSIS AND DISCUSSION OF THE EMPIRICAL RESULT

4.0 Introduction

This section presents the results of the study on the factors that affect investment decisions of listed companies in Ghana. It includes the descriptive statistics of the econometric results, the level of correlation among the variables, its analysis as well as the conclusions drawn from the results.

In this study, the probability to make investment is estimated using the fixed effects specification on panel data. The Hausman Test which basically tests whether the unique errors are correlated with the regressors was employed in order to decide on the model. A low value of Hausman statistics ($\text{Prob}>\text{chi2} = 0.0207$) induced the use of the fixed effect model.

4.1 Descriptive Statistics

The researcher provided a comprehensible image of firms' investment decisions and its determinants by employing the descriptive statistics. The main statistics are mean, standard deviation, maximum and minimum values of the variables over the selected number of years.

This study considered changes in non-current assets as a measure of investment decisions.

Table 4.1 below shows the number of observations, the mean, standard deviation as well as the minimum and maximum values of the various factors considered in this study from the period of 2006 to 2013. The dependent variable in this table is investment whereas the others are independent variables.

Table 4.1 Descriptive Statistics on the Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
investment	72	8416.019	15175.29	-8807.8	84059
sales	72	184920.8	246161.5	322.24	1243945
	72	35092.67	81456.44	0	433430
72	587728.4	1247034	41.5	5271000	exchange rates
1.405	.3687665	.94	2.02	interest rates	72
1.71271		12.83	18.3	fixed asset	72
33987.63		1633.69	215822	profit	72
269181.7		-1155000	1598000		

Investment, which in finance refers to buying or creating an asset with the expectation of capital appreciation, dividends (profit), interest earnings, rents, or some combination of these returns, had a mean of 8,416.019 and a standard deviation of 15,175.29. The mean shows how much listed companies commit towards investments on average. Sales or total revenue (which measures firm size) averaged 184,920.0 with a standard deviation of 246,161.5. It recorded a minimum of 322.21 and a maximum 1243945.

On average, a listed company could contain a debt/non-current liability to the volume of 587,728.4. This however could grow to as high as 5,271,000 and get to a minimum of 41.5. Again, the minimum cash balance that could be reported is 0 and the maximum being 433,430.

Exchange rates and interest rates had an average of 1.405 and 14.6787 respectively. Their respective standard deviations were 0.3687 and 1.7127. Exchange rates had a minimum of 0.94 and a maximum of 2.02. Interest rates on the other hand chalked a low of 12.83 and could go as high as 18.3 over the period under consideration.

During the period 2006 to 2013, firms' fixed asset base averaged 35,329.23 with a corresponding profit of 15,870.54.

4.2: Correlation Matrix

The level of correlation between variables is measured by the correlation coefficient. The negative sign depicts an inverse relationship whereas a positive sign shows a direct relationship and the magnitude of the relationship is based on the absolute value of the co-efficient. Based on the magnitude, one can determine whether there is multicollinearity or not. According to Schindler and Cooper (2009), a correlation above 0.8 between explanatory variables should be corrected for multicollinearity. When a variable has a co-efficient equal to or greater than 0.8, it is near perfect or highly correlated. From the correlation matrix, none of the variables is highly correlated with another.

Table 4.2 shows correlation matrix that is composed of Pearson correlation coefficients (r) between any two of the variables. The computed Pearson correlation coefficients which ranges from -1 inclusive to + 1 inclusive ($-1 \leq r \leq 1$), explains or establishes the strength or the magnitude of linear relationship between any two variables. The variables considered in the study include: *investment, interest rate, exchange rate, profit, cash, debt, firm size and fixed assets*. The foremost mission of this study was to find the major determinants of investment decisions in some selected nine companies in Ghana from 2006 to 2013. From Table 4.2, the

Pearson correlation coefficient showed a weak positive relationship between investment vis-à-vis firm size, cash, exchange rates and fixed assets. However, there is a weak negative relationship between investment vis-à-vis existing company debt, interest rates and net profit. Results of the two-tail p-values test shows that size of the company, firm debt, profit and Interest rates nonetheless are not significant determinants of investment decisions of firms.

Pearson correlation between Investment and firm size as well as cash were 0.2402 and 0.4697 respectively. This indicates that, there is an average or mild positive relationship between the aforementioned independent variable and the dependent variable. The implication is that as firms grow in size, they tend to invest more. Similarly, higher volumes of cash would definitely increase a firm's propensity to undertake investments. The reason apportioned to this relationship is that big companies have a means of easily securing external capital, have much more unwavering cash flows and be better diversified than smaller firms. This as a result leads to incentive investment activities. The findings herein sort of corroborates the results of Adele and Ariyo (2008), Jangili and Kumar (2010), Ruiz-Porras and Lopez-Mateo (2011). That notwithstanding Ninh L.K. et al. (2007), Bokpin and Onumah (2009) proved that firm size is a negatively significant determinant of investment decisions.

Large companies have better access to external sources of funding and for their investment appraisal adopt more formal approaches like capital budgeting (Laux 2008; Sandahl and Sjogren 2003; Verbeeten 2006). Again this result confirms the liquidity theory and reiterates assertion by Fazzari et al. (1988) that corporate investment behaviour becomes sensitive to internal liquidity. Hall et al. (1998) also found that there were tighter relations between investments on the one hand, and cash flow.

The balance of corporate debt exhibited an inverse relation with investment. Meaning as debt, for the previous year decreases, investment increases; the case is true for Aivazian, Ge and Qiu (2005), who in their study identified that higher percentage of long-term debt reduces investment for firms with high growth opportunities. As expounded by the trade-off theory, firms would trade off the benefits of employing more debt (favourable tax treatment) against higher interest rates and bankruptcy costs (Frimpong, 2013). This is because beyond a threshold, bankruptcy-related costs exceed the tax benefits so from that point on, increasing debt ratio lowers the value of the firm's stock. Therefore, rather than directing funds towards investment activities, firms would rather prefer to reduce debt.

Contrary to expectations, companies that record higher profits tend to disinvest marginally in the subsequent year. This result is in conflict with that realized by Lipsey and Harbury (2004). It must however be emphasized that the degree of relationship between investment and profit is a weak negative one. The possible reason for this trend is that firms do not finance their investment activities from net profit or retained earnings. It suffice to say that firms considered herein secure funds by floating additional equity stock and/or debt.

From the same table, the computed Pearson correlation matrix between investment of the companies from 2006 to 2013 and exchange rate, interest rates and fixed assets of the previous year was found to be 0.2486, -0.0225, and 0.3027 respectively. The positive relationship between investment and the exchange rate means; as the cedi depreciates against foreign currencies, firms tend to invest more. This is contrary to expected results but it is in consonance with findings of Goldberg and Campa in their 1995 study. Similarly, as interest rates rise, firms invest less. Firms considered for the study mainly invest fixed assets and business expansion.

Higher interest rates increases the cost of borrowing and makes firms and consumers less willing to take out risky investments and purchases. The relationship between interest rates and investment decisions in this study is in consonance with the results of Lipsey and Harbury, (2004) who identified that the volume of desired investment expenditure is negatively related to the interest rate, rising as the interest rate falls and vice versa.

In relation to investment, the factors have a magnitude hovering between 0.0032 and 0.46. The level of correlation between and among the independent variables has the lowest magnitude of 0.0010 and the highest as 0.7606. It can thus be asserted that there is no multicollinearity. The correlation matrix proves that none of the explanatory variables were highly correlated. After all, one advantage of panel data models is the ability to control for multicollinearity.

Table 4.2 Results of Correlation Matrix For Model I

	investment	sales	cash	debt	profit
investment	1.0000				
sales	0.2402	1.0000	cash	0.4697	0.1177
1.0000		debt	-0.0563	-0.2078	0.2329
		profit	-0.0032	0.0114	0.0436
				0.2833	1.0000

Table 4.3: Results of Correlation Matrix For Model II

investment	size	cash	debt	exchange rate	interest rate	fixed asset	profit	-----
investment 1.0000								
	size 0.2402	1.0000						
			cash 0.4697	0.1177	1.0000			
				debt -0.0563	-0.2078	0.2329	1.0000	
					exchange rates 0.2486	0.3673	0.2062	0.1313
						1.0000	interest rates -0.0225	
							0.0658	0.0010
								-0.0313
								0.1893
								1.0000
								fixed asset
								0.3027
								0.5158
								0.7606
								0.0409
								0.4449
								.0836
								1.0000
								profit -0.0032
								0.0114
								0.0436
								0.2833
								0.2286
								-0.1467
								0.0518
								1.0000

Cash has a positive relationship with business size. The reason for this is that bigger firms are able to raise funds easily due to the fact that they can offer quality collaterals for security and in most cases too, they have better a better reputation. They can also make much more sales because all other things being equal, they can afford expensive promotions and advertisements which generally results in more sales, thus increasing cash flow (*ceteris paribus*). Volume of fixed assets correlate positively with all other variables.

On the macroeconomic front, exchange rates have a positive relationship with all the other seven variables. Interest rates on the other hand only has a positive link with firm size, cash and exchange rates but relates inversely with debt and investments.

4.3: Regression Results For The Investment Decision Model

The results of the regression analysis on investment decisions using both the fixed and the random effects are presented in Table 4.3 below. The correlation analysis as already discussed above with reference from the correlation matrix table (Table 4.2) was able to establish the strength of the relationship that exist between investment and the other variables (debt, interest rate, exchange rate, firm size, cash, profit and fixed assets) as well as correlation among the predictors/independent variables (debt, interest rate, exchange rate, sales, profit, cash, and fixed assets). Regression analysis seeks to explain the already established degree or extent of the relationship between the dependent variable (investment) and seven independent/predictor variables. From Table 4.3, the regression coefficients (Coef.), the standard Error (Std. Err.) of the estimates as well as the t-test statistics (t), the P-value ($P>|t|$) and the 95% confident interval of the regression coefficients estimates were computed for each of the seven predictors or independent variables. The pooled OLS model fits the data well at the 0.05 significance level ($F=3.56$ and $\text{Prob } > F = 0.0021$). R^2 of 0.528 indicates that this model accounts for 52.8 percent of total variance in the investment decisions of listed companies in Ghana.

Table 4.4: Determinants of Investment Decisions: Regression Analysis (POLS, RE and FE)

MODEL II												MODEL I													
	Fixed Effect			Random Effect			Pooled OLS			Fixed Effect			Random Effect			Pooled OLS									
		Coef.	t-test	Prob	Coef.	z-test	Prob	Coef.	t-test	Prob	Coef.	t-test	Prob	Coef.	z-test	Prob	Coef.	t-test	Prob						
<hr/>																									
Size	.0171441	1.45	0.154		.0225591	2.79	0.005	.0225591	2.79	0.007	.0050199	0.46	0.650	.0094809	1.42	0.157	.0094809	1.42	0.161	cash					
.2873819	6.33	0.000		.1847205	5.56	0.000		.1847205	5.56	0.000	.2102513	4.19	0.000	.0901329	4.44	0.000	.0901329	4.44	0.000	debt			-.0015955 -		
0.28	0.780		-.002589	-1.96	0.050	-.002589	-1.96	0.054	-.0129768	-2.02	0.048	-.0017147	-1.22	0.223	-.0017147	-1.22	0.227	exchangerates	18718.39	3.45	0.001				
11860.58	2.45	0.014		11860.58	2.45	0.017	interestrates	-276.676	-0.36	0.722		-437.0868	-0.49	0.622	-437.0868	-0.49	0.623	fixedasset	-.590992 -			fixedasset	-.590992 -		
5.51	0.000		-.33678	-3.59	0.000		-.33678	-3.59	0.001	profit	-.0035608	-0.44	0.659	-.0013746	-0.23	0.815	-.0013746	-0.23	0.816	.0130291	1.44	0.156			
.0007804	0.13	0.899		.0007804	0.13	0.899																			
_cons	-5203.848	-0.44	0.661		955.4579	0.07	0.942	955.4579	0.07	0.942	7529.506	2.06	0.044	4495.164	2.00	0.045	4495.164	2.00	0.049						
<hr/>																									
R-sq: within	= 0.5281			R-sq: within	= 0.4801			R-squared	= 0.4101			R-sq: within	= 0.2559			R-sq: within	= 0.2125			R-squared	= 0.2721				
between	= 0.0868			between	= 0.4045			Adj R-squared	= 0.3456			between	= 0.5605			between	= 0.7528			Adj R-squared	= 0.2286				
overall	= 0.3236			overall	= 0.4101			F(7, 64)	= 6.36			overall	= 0.2002			overall	= 0.2721			F(4, 67)	= 6.26				
F(7,56)	= 8.95			Wald chi2(7)=	44.49			Prob > F	= 0.0000			F(4,59)	= 5.07			Wald chi2(4)	= 25.04			Prob > F	= 0.0002				
Prob > F	= 0.0000			Prob > chi2	= 0.0000							Prob > F	= 0.0014			Prob > chi2	= 0.0000								
Number of obs	= 72			Number of obs	= 72			Number of obs	= 72			Number of obs	= 72			Number of obs	= 72			Number of obs	= 72				

4.5 The Hausman Test

This test confirmed that the unobserved heterogeneity or individuality is uncorrelated with the regressors. The stochastic error term in this regression thus comprises the traditional error component and a portion arising because of the individual heterogeneity of the nine companies considered for the study. This test was used to decide between the fixed and random effects.

The results of the Hausman test is displayed below:

Table 4.5 Hausman Test Results

Model I

	---- Coefficients ----					cash .2102513 -.0017147 - .0122487	b
	(b) fixed	(B) random	(b-B) Difference	S.E.	sqrt(diag(V_b-V_B))		
<hr/>							
sales .0050199	.0094809	-.0044611	.008744	cash .2102513 -.0017147 - .0122487			b
.0901329	.1201183	.0459494	debt -.0129768				
.0112621	.0062812	profit .0130291	.0007804				
.006676							
<hr/>							

= consistent under H_0 and H_a ; obtained from xtreg

B = inconsistent under H_a , efficient under H_0 ; obtained from xtreg

Test: H_0 : difference in coefficients not systematic

$$\begin{aligned} \text{chi2}(4) &= (b-B)'[(V_b-V_B)^{-1}](b-B) \\ &= 6.83 \end{aligned}$$

$$\text{Prob}>\text{chi2} = 0.1452$$

(V_b-V_B is not positive definite)

Model II

--- Coefficients ---

		(b)	(B)	(b-B)	S.E.	sqrt(diag(V_b-V_B))
	fixed	random	Difference			
+						
Size	.0171441	.0225591	-.005415	.0086851	cash	.2873819
.1847205		.1026614	.0308837	debt	-.0015955	-.002589
.0009936		.0055384	exchanger~s	18718.39	11860.58	6857.804
2455.502	interestra~s	-276.676	-437.0868	160.4108	.	
fixedasset		-.590992	-.33678	-.2542119	.0520567	
profit		-.0035608	-.0013746	-.0021862	.0054426	

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(2) = (b-B)'[(V_b-V_B)^{-1}](b-B) \\ = 7.76$$

Prob>chi2 = 0.0207

(V_b-V_B is not positive definite)

4.5 Discussion of Regression Results

4.5.1 The Determinants of Investment Decisions (Model I)

The results of the model I regression identified cash and debt as the only variables which have significant influence on investment decisions. This is the case using the fixed effect. The random effect and Pooled OLS identified cash as the only significant determinants of

investment decisions. The Hausman test result ($\text{Prob}>\text{chi}2 = 0.1452$) favoured the adoption of the random effect. With a co-efficient of .0901329, the implication is that when investment rises by 100%, cash rises by 9% and vice versa.

4.5.2 The Determinants of Investment Decisions (Model II)

The results of the fixed effect, random effect and pooled OLS assert that cash, exchange rates and fixed assets already in existence are significant determinants of investment decisions. Whilst these three variables are significant only in the case of the fixed effect model, the random effect and Pooled OLS identify firm size and debt as additional significant determinants of investment decisions. Using the Hausman test, the study settled on the fixed effect model give that $\text{Prob}>\text{chi}2 = 0.0207$

Based on the regression results, the regression model is stated thus:

$$I_t = 5203.84 + 0.5909F + 0.01714S + 0.0035P + 0.2873C - 0.0015DT \\ + 18718.39X + 276.67IN$$

Where I_t is the Investment.

From equation (1) above, the relationship between investment of the selected companies and the predictors are well explained. The study identified cash, exchange rates and available fixed assets to be the significant determinants of a firms investment decisions.

The significance of all the seven variables plus the constant were tested to find out those variables that contribute significantly to the prediction of the model. By rule if $P>|t|$

is less than the significance level of 0.05, the said variable can be termed as making significant contribution to the prediction of investment/model. From Table 4.3, only the variables cash, exchange rate and Fixed asset with t-test statistics of 6.33, 3.45, -5.51 and p-value of 0.000, 0.001, 0.000 respectively were found to be significant, whilst the remaining variables were tested insignificant. Hence the reduced model becomes:

$$I_t = 5203.848 - 0.5909F + 0.2873C + 18718.39X$$

The most important variables in explaining a firm's propensity to make investments or the major determinants that derive increase in investment among the eleven selected companies from 2006 to 2013 was basically their cash, fixed asset and exchange rate existent within the said years.

From the model, in the case of zero fixed asset index, zero cash and zero currency exchange rate, a firm would disinvest to the tune of 5203.848 units. Obviously, even if the firm has no fixed assets at all, and does not also engage international trade which would demand translating local currencies in foreign ones, without cash, the firm cannot undertake any investment activity.

If the firm increases fixed asset by one unit, the investment in the next financial year would reduce by 0.5909 units, holding other variables constant ($P < 0.000$). Aforementioned, before a corporate entity would make further investments in respect of expansions or acquisition of property, plant and equipment among others, it would first and foremost consider its existing asset base. When it has already established adequate divisions or branches and amassed quite substantial assets, it's likely that the said firm would reduce or disinvest.

Whenever the company's cash balance increases by one unit, it would result in a 0.2873 increase in investment in the subsequent year, holding all other variables constant. ($P<0.000$). Anecdotally, cash is the life-blood of every business organization. Firms with healthy cash balances are quick to seek further investment opportunities which would maximize their wealth.

Again, whenever the Cedi per Dollar rate rises by one unit, a firm's investment would also rise by 18718.31 units, holding all other variables constant. ($p<0.001$). The results depicted by the regression equation suggests that the depreciation of the local currency rather motivates firms to invest. This is akin to the U.S situation in the 1970's as indicated by Goldberg and Campa, (1993). The reason attributable to this relationship is that like the US firms in the 1970's, Ghanaian listed firms today rely more on imported inputs. All other things being equal, high input costs trickle into high prices of goods and services. At higher prices, given demand, firms would record higher revenues and cash. Cash is a significant factor for investments, hence improved liquidity resulting from depreciation of the local currency increases investments.

The significance of the overall model was tested and F-test was employed. Based on the F-test statistics value of 8.95 with degrees of freedom 7, 56, the p-value was recorded as 0.0000 which is far less than 0.05 significance level, hence the overall model is adequate for establishing relationship between investment as well as other variables.

4.6 The Predictive Power Of The Model

In econometric sense, when the overall probability (p) value (Prob>F) less than 0.05 then the model is strong and has high predictive power and that significant results will be achieved when used in other studies (Reyna 2007). The model as used in this study had a probability value of 0.0021. This means the models used for the research have a high predictive power.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.0 Introduction

This last chapter recapitulates the findings of the study, draws conclusions on the research objectives and provides recommendations based on the findings obtained.

5.1 Summary Of Findings

This research was undertaken using nine companies extracted from manufacturing, consumable and service sectors of the Ghanaian economy. This study employed five internal determinants (sales, cash, fixed asset, profit and debt) and two external determinants (interest rates and exchange rates in the economy). These variables were incorporated because previous studies conducted across the world adopted them and they helped paint a clear picture of the reality.

This study investigated the determinants of firm's investment decisions from 2006-2013. The econometric analysis revealed that the most important variables that form the basis of firm's investments are cash, non-current assets/fixed assets already in existence and the strength of the local currency against the foreign ones specifically the US dollar. Firms with healthy liquidity tend to undertake much more investments than firms with weak cash balance. Again, firms with heavy property base with respect to divisions/branches and other assets tend to invest less. Firm size, company leverage and profit are not significantly associated with investments. In this study, Investment is proxied by changes in a firm's non-current assets, as presented in company financial reports.

Taking the results of the macro-economic factors into account, exchange rates and interest rates did not turn out as expected. Exchange rates had a positive relationship with investments.

Contrary to expectations, firms invest more when the Ghana cedi depreciates against the US dollar, the converse is true. The reason for this drift trickle from the fact that all of the firms considered for this study engage in international trade to some degree. These firms use inputs which they secure mostly from foreign countries. Weak cedi to dollar exchange rate increases the cost of purchasing the foreign inputs. Consequently, cost of production rises resulting in rise in prices of commodities. Given demand, revenue base is increased and cash is amassed. Robust cash balance is a motivation to invest, cet par.

Interest rates – measured by Monetary Policy Rate – is not significant in determining a firm's investment decisions. This could be due to the fact that almost all of the firms' investments were in property, plant and equipment, but not financial assets which derive their value extensively from changes in interest rates.

The findings of this study are robust in terms of various estimating techniques and using different proxies. Notwithstanding, there are several limitations that should be kept in mind when presenting the results. During the sample period the world experienced a global economic recession, change in accounting standards and local currency redenomination. Again there was immense variability and volatility in interest rates and exchange rates. Moreover, no adjustment is done for the variables to smooth out the accounting rule changes. This may also impose limitation to the results.

5.2 Conclusion

In finance, investment refers to buying or creating an asset with the expectation of capital appreciation, dividends (profit), interest earnings, rents, or some combination of these returns.

Investment is the purchase of an asset or item with the hope that it will generate income or appreciate in the future and be sold at the higher price.

The firm's investment decision herein is measured by changes in a firms fixed assets, thus a rise in fixed assets volume for a firm is an indication that that firm is investing more. The converse is true. Several factors, both internal and external, account for investment decisions of firms and the listed companies in Ghana are no exception. This study sought to identify the main drivers of investment of these firms, examine their individual impact and finally, to determine the level of correlation between the various independent factors as well as the investment of companies on the Ghana Stock Exchange.

After analyzing the data of nine listed firms for an 8-year period from 2006 to 2013, using the panel data multiple regression, the major drivers of firms decision to invest, which had significant impact included; level of liquidity, existing assets and exchange rate. The identification of these key factors were one of the objective of this study.

Another objective of this research was to determine whether firm specific and/or macroeconomic variables were the main contributors of firms' investment patterns. The findings proved that of the macroeconomic factors considered, only exchange rates contribute noticeably to investments. The bank-specific factors that contribute more are cash and fixed asset available.

Finally, with the help of the correlation, the study was able to deduce that, there was no strong correlation among the determinants and no sign of multicollinearity.

5.3 Recommendation

Based on the study, it can be inferred that much focus should be placed on management efficiency at improving liquidity for the firm and emphasizing on exports. Higher exports would accrue enormous benefits for the firm as much as the nation.

The bank's operational expenses must be efficiently controlled as it decreases a firm's liquidity – which is a significant determinant of investments. By aiming at optimal utilization of resources through cost decisions, operational expenses can be reduced.

On the macroeconomic scale, the government must adopt working measures that would ultimately strengthen the local currency against its foreign counterparts. The current situation (depreciation of the cedi) although has positive on investments, has inflationary consequences.

High inflation is a threat to economic stability in general.

Future research should focus on increasing sample size and analyze the relationships by grouping firms according to their size, and operational sector (that is manufacturing, service or trade) with larger sample sizes. Besides, it will be a good future research topic to analyze the relationship between industry factors like competition macroeconomic factors like GDP for different sectors and present any similarities or differences across sectors. Future research could also look effects of ownership structure on investment decisions.

APPENDIX ONE

References:

- Aghion, et al., 2005. Competition and Innovation: An Inverted-U Relationship. *Quarterly Journal of Economics*, 120.
- Alesina, A., Ardagna, S., Nicoletti, G., & Schiantarelli, F., 2005. Regulation and investment. *Journal of the European Economic Association*, 3(4), 791–825.
- Amidu, M., 2007. How Does Dividend Policy Affect Performance of the Firm on Ghana Stock Exchange. *Investment Management and Financial Innovations*. Vol 4, no. 2, p 103-111
- Azzoni, C.R. and Kalatzis, A., 2006. Regional Differences in the Determinants of Investment Decisions of Private Firms in Brazil. *ERSA conference papers, European Regional Science Association*.
- Benartzi, S. and Thaler, R., 2001. *How much is investor autonomy worth?* University of California-Los Angeles Working Paper.
- Bunt, K., Adams, L., Koroglu, Z. and O'Donnell, E., 2006. Pensions and pension reform. *DWP Research Report 357*.
- Byrne, A., 2007. Employee saving and investment decisions in defined contribution pension plans: survey evidence from the UK. *Financial Services Review*, 16, 19-40.
- Baker, H.K., Hargrove, M.B., and Haslem, J.A., 1977. An Empirical Analysis of the Risk Return Preferences of individual investors. *Journal of Financial and Quantitative Analysis*, Vol. 12, No. 3.
- Baker, H.K and Haslem, J.A., 1973. Information needs of individual investors. *Journal of Accountancy*, Vol. 136.
- Calcagnini, G. and Saltari, E., 2000. Real and Financial Uncertainty and Investment Decisions . *Journal of Macroeconomics*, Summer 2000, Vol. 22, No. 3, pp. 491–514
- Cooper, A.C., Carolyn Y.W, and William C. D., 1988. Entrepreneurs' Perceived Chances for Success. *Journal of Business Venturing* 3:2, 97-108
- Dean, J., 1951. Capital Budgeting. New York: *Columbia University Press*.
- Dimitrios,I. M., 2007. Investors' behaviour in the Athens Stock Exchange. *ASE Journal of Accountancy*, Vol. 120

Eisenfuhr, F. (2011). Decision making. New York, NY: *Springer*.

Fazzari, S., Hubbard, R.G. and Petersen, B., 1988. Financing Constraints and Corporate Investment. *Brookings Papers on Economic Activity*, pp.141- 195.

Fisher, C., 2007. *Researching and Writing a Dissertation: A guide book for Business Students*. 2nd Edition, Ashford Colour Press, Gosport

Floquet, W. T. (n.a). *Investment basics – III*. Cape town

Francis, J. and Soffer, L., 1997. The Relative Informativeness of Analysts' Stock Recommendations and Earnings Forecast Revisions. *Journal of Accounting Research*, 35 Autumn: 193-212

Graham, J. R., & Harvey, C. R., 2001. The theory and practice of corporate finance. *Journal of Financial Economic*, 2001, vol. 61

Gallery, G. and Gallery, N., 2005. *Paradox of choice in a mandatory pension savings system: challenges for Australian income policy*, *Policy and Politics*, 33

Goldberg, L.S. and Campa J., 1993. *Investment in manufacturing, Exchange rates and external exposure*. Working paper no. 4378.

Hawkins, S. A. and Hastie, R., 1990. Hindsight: Biased judgments of past events after the outcomes are known. *Psychological Bulletin*. 107

Hall, S., Pettigrew, N. and Harvey, P., 2006. Public attitudes to personal accounts: report of a qualitative study. *DWP Research Report*, 370.

Hall, et al., 1998. *Does Cash Flow Cause Investment and R&D: An Exploration Using Panel Data for French, Japanese and US Scientific Firms*. Mimeo, Nuffield College, Oxford.

Hirshleifer, J., 1995. *Investment decision criteria*. Prentice Hall, Englewood, Ciffs, N. J. Pp. 97-102.

Hussein, A.H., 2007. Factors influencing individual investor behaviour in the UAE financial markets. *Journal of Business*, Vol.92

Jiming et al., 2010. The impact of debt financing on firm investment behaviour: evidence from China. doi:10.4156/jdcta.vol4. issue 9.3

Kahneman, D. and Amos, T., 1979. Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47.

Kidd, John B., 1970. The Utilization of Subjective Probabilities in Production Planning. *Acta*

Psychologica 34, 338-347

LeBaron, D., Farrelly, G. and Gula, S., 1989. Facilitating a Dialogue on Risk: A Questionnaire Approach. *Financial Analysts Journal*, Vol. 45, No. 3.

Lipsey, R. G. and Harbury, C., 2004. *First Principles of Economics*. Published by Weidenfeld and Nicolson. Oxford University Press.

Marco, M. and Paolo, L., 2010. Investment Decision-Making and Hindsight Bias. *Journal of Finance*. New York. 53(5).

Merilkas, A. and Prasad, D., 2003. Factors influencing Greek investor behavior on the Athens stock exchange. *Journal of Business*, Vol.66

Miller, M.H., and Kevin R., 1985. Dividend Policy Under Asymmetric Information. *Journal of Finance* 40, 1031-1051.

Mayo, H. B. (2013). *Investments: An Introduction*. Eleventh Edition. The College of New Jersey.

Marco, M. and Paolo, L., 2010. Investment Decision-Making and Hindsight Bias. *Journal of Finance*. New York. 53(5): 1775-1798.

Megginston, W. L., Scot B. S., Brian M. L., 2008. *Introduction to corporate finance*. P. 257. Patrick Bond.

Mugenda, M. O. And Mugenda, A.G., 2003. Research Methods: Quantitative and Qualitative Approaches. *Nairobi.Acts Press*.

Nwibo, S. U. and Alimba, J. O., 2013. Determinants of Investment Decisions among Agribusiness Investors in South-East, Nigeria. *Journal of Business and Management* .Volume 8, Issue 6

Nofsinger and Richard, 2002. *Individual investments behaviour*. New york, McGraw-Hill

Pandey, I. M., 2004. *Essentials of financial management*. Third edition. Vikas Publishing House.

Potter, R.E., 1971. An empirical study of motivations of common stock investors. *Southern Journal of Business*, Vol. 6 No.1

Porter, M., 1998. Competitive Strategy. *New York: Free Press*, pp. 3-5.

PWC (2013). *2013 Ghana Banking Survey: Harnessing the SME potential.*
Saunders, M., Thornhill, A. & Lewis P., 2007. *Research Methods for Business Students.*
Pearson Education Limited-Prentice Hall

Servaes, H and Tufano, P., 2006. Corporate Dividend Policy: the theory and practice of corporate dividend and share repurchase policy. *Deutsche Bank.*

Simon, H. A., 1997. *Models of bounded rationality: Empirically grounded economic reason.* Cambridge. MA: MIT Press

Stacescu B., 2006. *Dividend and Investment Decisions under Managerial Discretion.* University of Zurich

Stiglitz, J., Weiss, A., 1981. Credit rationing in markets with imperfect information. *American Economic Review*, v.71, p.393-410, n.3.

Tapia, W and Yermo J., 2007. *Implications of behavioural economics for mandatory individual account pension systems (OCED).* Working papers on insurance and private pensions No 11.

Thaler, R., 2001. Theory of mental accounting. *New York: Academic Press.*

Tokuoka, K., 2012. *Does the Business Environment Affect Corporate Investment in India?* International Monetary Fund - Business & Economics

Wagenaar, W. A. and Gideon B. K., 1986. Does the Expert Know? The Reliability of Predictions and Confidence Ratings of Experts. In Erik Hollnagel, Giuseppe Mancini, and David D. Woods (eds.), *Intelligent Decision Support in Process Environments*, 87107. Berlin: Springer.

Watson, D. & Head, A., 2010. *Corporate Finance; principles and practice.* Prentice Hall.

Yin R. K., 2003. *Case Study Research: Design and Methods (Applied Social Research Methods).* Sage Publications



APPENDIX TWO

Company Data

company name	years	Id	investment	sales	cash	debt	fixed asset	profit	Exchange rates	Interest rates
GOIL	2006	1	229.5	203944	6583	5358	14992	2214	0.96	13.5
	2007	1	4073.4	256486	1907	5435	15222	3482	0.94	13
	2008	1	4336.7	306492	7153	13662	19295	4021	1.1	15.83
	2009	1	3654.29	438864	7124	12612	23632	4257	1.41	18.3
	2010	1	2968.45	421542	12200	1490	27286	5268	1.43	14.3
	2011	1	7583.49	514364	6759	763	30254	6319	1.58	12.83
	2012	1	15383.8	671672	6466	2881	37838	7889	1.8	14.17
	2013	1	29402.6	859912	3996	10944	53222	9402	2.02	15.5
TOTAL GHANA	2006	2	47684.8	122282	597	42	9644	1367	0.96	13.5
	2007	2	-727.7	177833	7750	58	57329	3833	0.94	13
	2008	2	982	404390	11630	6759	56601	8797	1.1	15.83
	2009	2	1028	566514	12927	5500	57583	6220	1.41	18.3
	2010	2	11150	542439	10786	4025	58611	13166	1.43	14.3
	2011	2	10073	738910	6960	3691	69761	21046	1.58	12.83
	2012	2	11633	971683	12497	4325	79834	22564	1.8	14.17
	2013	2	27439	1.20E+06	17005	3642	91467	30526	2.02	15.5
FAN MILK	2006	3	1214.2	31246.4	821	501	9602	3522	0.96	13.5

	2007	3	665.2	32374.7	2585	910	10816	3275	0.94	13
	2008	3	3603	41068	5111	683	11481	4354	1.1	15.83
	2009	3	8185	55041	8834	808	15084	7054	1.41	18.3
	2010	3	6261	82471	15871	1330	23269	15156	1.43	14.3
	2011	3	14241	103775	26151	1735	29530	19370	1.58	12.83
	2012	3	8133	109280	24416	2824	43771	18819	1.8	14.17
	2013	3	10400	147212	24929	3664	51904	27198	2.02	15.5
PZ CUSSONS	2006	4	-235.98	322.24	2	201	1870	172	0.96	13.5
	2007	4	8899.82	1023.58	0	353	1634	540	0.94	13
	2008	4	781.59	29129.7	830	1459	10534	3369	1.1	15.83
	2009	4	443.3	42775	717	1531	11315	3508	1.41	18.3
	2010	4	-146.16	44634	2563	1599	11758	837	1.43	14.3
	2011	4	296.17	54806.8	4601	1668	11612	3819	1.58	12.83
	2012	4	567.95	66184.3	3654	1873	11908	6314	1.8	14.17
	2013	4	-431.98	82322.5	4578	660	12476	764	2.02	15.5

GCB	2006	5	224.2	94177.4	73666	472994	38739	12662	0.96	13.5
	2007	5	21354.7	120653	181152	634573	38964	25541	0.94	13
	2008	5	12010.5	146007	115338	839383	60318	32267	1.1	15.83
	2009	5	29970	185320	202812	1000000	72329	37005	1.41	18.3
	2010	5	-8333.46	201014	147103	1300000	102299	18117	1.43	14.3
	2011	5	37797.7	329200	325566	1600000	93965	55432	1.58	12.83
	2012	5	84059	289272	433430	2100000	131763	16683	1.8	14.17
	2013	5	-6495	420239	360023	2700000	215822	138645	2.02	15.5
CAL BANK	2006	6	1704.7	12701.1	8358	61093	10130	2803	0.96	13.5
	2007	6	5907.9	18041	4742	85310	11835	4550	0.94	13
	2008	6	4871	22493	18565	117847	17743	6022	1.1	15.83
	2009	6	-828	33224	30357	161361	22614	7976	1.41	18.3

	2010	6	15047	38960	33563	267554	21786	8878	1.43	14.3
	2011	6	3054	51853	37786	275543	36833	8810	1.58	12.83
	2012	6	11968	69711	67659	564396	39887	18338	1.8	14.17
	2013	6	11509	129240	86976	707648	51855	49452	2.02	15.5
UNILEVER	2006	8	-8807.8	101987	3285	1722	30205	9699	0.96	13.5
	2007	8	12847.5	116418	7385	1614	21398	8686	0.94	13
	2008	8	2486	138203	11380	4452	34245	10432	1.1	15.83
	2009	8	-1200	160859	18086	4789	36731	18996	1.41	18.3
	2010	8	6513	160496	18230	2988	35531	-268	1.43	14.3
	2011	8	-3070	179257	21437	5296	42044	17947	1.58	12.83
	2012	8	16888	239005	21298	6582	38974	30416	1.8	14.17
	2013	8	14815	282138	19666	6614	55862	16082	2.02	15.5
ALUWORKS	2006	9	1666	51922.6	287	702	6367	2258	0.96	13.5
	2007	9	11097.1	53308.8	2234	2375	8033	1640	0.94	13
	2008	9	25914	52018	786	12377	19130	-4450	1.1	15.83
	2009	9	-305	57127	893	12953	45044	-2958	1.41	18.3
	2010	9	-2712	34271	4125	10214	44739	-8005	1.43	14.3
	2011	9	-2029	25167	688	7031	42027	-7350	1.58	12.83
	2012	9	4966	49716	500	13453	39998	-3477	1.8	14.17
	2013	9	62636	49681	5862	28833	44964	-2590	2.02	15.5
ANGLOGOLD	2006	10	347	2730	209	3800000	6748	-159000	0.96	13.5
	2007	10	796	3106	495	3400000	7095	-14000	0.94	13
	2008	10	-2632	3113	477	3400000	7891	-636000	1.1	15.83
	2009	10	2122	3743	575	2100000	5259	1200000	1.41	18.3
	2010	10	411	3916	1100	2200000	7381	-268000	1.43	14.3
	2011	10	428	5514	575	4400000	7792	129000	1.58	12.83
	2012	10	1791	6925	1112	4700000	8220	1600000	1.8	14.17
	2013	10	-2607	6632	892	5300000	10011	849000	2.02	15.5