

**THE EFFECT OF BANK DISTRESS ON THE KENYAN
ECONOMY**

BY

LYDIAH WANGECHI KARENJU

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DECLARATION

This research paper is my original work and has not been presented to any other university for the award of a degree.

Sign.....Date.....

Lydia Wangechi Karenju

X50/79611/2015

The research paper has been submitted for the award of the Degree of Masters of Arts in Economics with my approval as University supervisor.

Sign.....Date.....

Dr. Joy Kiiru.

DEDICATION

Dedicated to my awesome parents Peterson Karenju and Lucy Karenju. Special dedications to all my siblings; Stephen Wachira, Joseph Mwangi and my lovely sister Maryanne Wambui. Thank you, a lot, for your prayers, immense support and love.

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May the Almighty God who sees in the secret and hears when we call bless you all.
AMEN.

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ABBREVIATIONS

CBK:	Central Bank of Kenya
CBN:	Central Bank of Nigeria
CRBs:	Credit Reference Bureau
DF:	Dickey Fuller
ECT:	Error Correction Term
FDI:	Foreign Domestic Investment
GDP:	Gross Domestic Product
KBRR:	Kenya Banks Reference Rate
M&M:	Modgiliani and Miller
NPLs:	Non-Performing Loans
NBFIs:	Non-Banking Financial Institutions
WACC:	Weighted Average Cost of Capital
VAR:	Variance Autoregressive
VECM:	Variance Error Correction Model
VIF:	Value inflation Factor

ABSTRACT

The study aimed at establishing the various factors that affect the real GDP of the Kenyan economy, however great emphasis is on the effect of bank distress on the performance of the economy. The study used a time series data for the period from 1985 to 2015. The study applied a Vector Error correction model as determined by the presence of cointegration through the use of the Johansen test of cointegration. The period of consideration was crucial since it shows the critical dynamics the banking industry has evolved from, especially from the narrow traditional money depositing and borrowing obligations to the diversification of such roles to the provision of loan facilities to various stakeholders namely households, small savers, industries or even the government. Despite the major objective of the study being to assess the effect of bank distress on the Kenyan economic performance, the study incorporated a number of factors which seem to have either a direct or indirect impact on the loan performance but a direct influence on the Kenyan economic performance. The variables of analysis were; foreign direct investment, real effective exchange, remittances, government revenue, total investments and Bank distress. The study found out that existence of bank distress had a significant and retrogressive effect on the Kenyan real GDP performance, on the other hand the other factors namely Foreign Direct investment(FDI), Government revenue and proportion of GDP spent on investment had positive and significant effect on real GDP growth except the latter two which were insignificant. The appreciation of the Kenyan currency also did reveal an improvement in the real GDP contrary to expectation however this could be due to cheaper importation of efficient inputs. Finally, the study was able to establish that when all the other factors are held constant there will be (significant/insignificant) decline in the Kenyan economic growth, therefore we do conclude that despite the various regressors having varying effects on the real GDP, other factors not captured in the econometric equation have a negative effect on GDP growth.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Distress in the financial sector is a situation where financial institution has more liabilities than the value of their assets in the market. This can result to portfolio shifts which eventually cause the collapse of the financial system. Bank distress is many times confused with bank failure. In theory, these two terms are different. Bank distress comes before a bank failure. A distressed bank can recover whereas a failed bank has no chance of recovery.

Bank distresses have various unfavorable consequences which among them are on stakeholders and failure of banks. Sometimes the effects are felt by other sectors in the whole economy. A bank failure results to too much damage in the economy. This is because it affects the employment, earnings, financial development and other associated public interest.

Brownbridge (1989) states that in the 1980's, there was closure of two local banks as well as taking over ten non-banking financial institutions by central bank of Kenya. Mamo (2001) also holds that after the financial regulation in 2000, Kenya suffered 39 bank failures which cost 10% of its GDP in terms of loans and grants.

Aburime (2009) stresses that bank distress means detrimental condition, immense pain in the banking activities which could be as a result of various factors. Some of these factors include discontinuity, policies and forgeries which are not consistent, mismanagement of poor loans and advances, board members interference and internal control which is poor. Bank distress is caused by bank conditions which may either be extrinsic or intrinsic. Ultimately, bank failure and unpleasant changes in the economic conditions of banks could be observed.

According to Mishra and Aspal (1991), the development of a country's economy depends more on real factors such as the growth of industries growth and their development, upgrading of agricultural expansion of both internal and foreign trade. In the development of a nation, we cannot under estimate the important role of the banking sector and its financial way of doing things. In economic planning, banks and

financial institutions play a very significant role which is crucial. They set specific goals and allocate the exact amount of money to the government to ensure implementation of economic policies. A performance of any economy can be measured by the performance of the banking sector. The role played by a healthy banking system to the socio-economic and industrial growth of an economy is very important. It is the banking system that has been allocated the role of financing the planned economic growth.

According to CBK (2008), the Kenyan banking sector was weighed down by a huge portfolio of Non-Performing Loans (NPLs) in the 1980's and 1990's. This led to the collapse of some banks. Borrowers who borrowed consecutively from various banks with an aim to default the loans were the major reason of this. This was possible due to lack of information between the creditors and the borrowers.

The Banking (Credit Reference Bureau) Regulations of 2008 oversee operation, licensing, and supervision of banks through CBK. CRBs offer help to the lenders; they enable them make faster decisions which are accurate. They collect, manage and make the lenders know the customer information within a provided regulatory framework. Since banks play a central role in improving financial services in an economy, credit bureaus help lenders to accurately make decisions within the shortest time possible.

According to CBK, Kenya's financial system has improved significantly over the last few years and has become the largest in East Africa. Kenyan banking sector is credited for its size and diversification. Kenya has a variety of financial institutions and markets unlike other regions in East Africa. However, according to Beck et al (2010), there have been constraints in the growth of the sector especially in 1980's and 1990's due to factors such as non-performing loans and weakness in corporate governance leading to a number of commercial banks failing. Banks in Kenya are said to continue facing challenges, among them being financial distress.

According to Cheserek (2007), one of the important requirements for a stable economy which is growing is a healthy financial sector in the banking industry. Due to this, the primary goal of many stakeholders is to assess the banks' financial conditions. Quick action by the supervisory authority is required to ailing banks so as

to salvage them before they collapse because the cost of bank failure is too much in an economy.

Table1.The performance rating of Kenyan banks in 2014 and 2015.

	2014			2015		
Rating	No. Of institutions	Total net assets	Market shares	No. of institutions	Total net assets	Market shares
Strong	22	2154740	67.30%	11	1223466	35.57%
Satisfactory	16	985345	30.80%	19	1961554	55.97%
Fair	5	59311	1.90%	8	277985	7.67%
Marginal	0	–	0.00%	2	29638	0.79%
Unsatisfactory	0	–	0.00%	0	–	0.00%
Total	43	3199396	100%	40	3635092	100%
Overall rating		Strong			Satisfactory	

Source: Banking supervision annual report 2015

As shown in Table 1.1, the rating of banks in Kenya in 2014 was stronger than that of 2015. This clearly shows that there was deterioration in bank performance in 2015.

According to the Central Bank of Kenya, there was a great deterioration of banks due to increase in Non-Performing Loans. Table 1.2 shows a summary of loans under KBRR for both commercial and micro-finance banks in 2014. As indicated in the table, there were numerous loans issued by the banks, which had high values; this undoubtedly affects the performance of the banks in the country.

Table 1.2. Summary of loans under KBRR as at 31st Dec 2014

A. Commercial Banks	No. of loans a/cs	Value Ksh '000'
New loans issued under KBRR	393,442	33,186,044
Existing loans converted to KBRR	422,794	367,438,677
Total loans	816,236	699,299,721
B. Micro-finance banks	No. of loans a/cs	Value Ksh '000'
New loans issued under KBRR	6,112	3,780,523
Existing loans converted to KBRR	68,753	15,642,543
Total loans on KBRR	74,865	19,423,066

Source: Bank supervision Annual report 2014

1.2 Purpose of the Study

This study focused attention on the effect of bank distress in Kenya which threatens growth and development of the Kenyan economy. Specifically, the study sought to:

- i) Investigate the effect of bank distress on Kenyan economy.
- ii) Offer policy recommendations that can be used to reduce bank distress.

1.3 Statement of the Problem

One of the key roles of banks in the economy is financial intermediation. This is the process of accepting deposits and giving out loans. Banks earn profits from the difference in interest rates paid and charged to depositors and borrowers who either get loans or make deposits. This greatly contributes to the growth and development of

any economy. Therefore, to ensure a smooth running of the economy, the study of banks and any interference is very crucial.

A healthy financial system is very important in the economic growth and development of any country. As a result, every country attempts to maintain such. The performance of any economy is determined by the performance of the banking sector. Financial distress has been a great problem all over the world which cannot be ignored. Amongst other impacts, bank distress leads to bankruptcy which eventually leads to bank failure. Kenya is not an exception and many banks have collapsed due to financial distress. Brownbridge (1998) states that between 1984 and 1996 nine local banks and 20 non-banking financial institutions were closed down or taken over in Kenya. 10.2 billion Was lost by the CBK, which was equivalent to 3.8% of the GDP for the year 1993, due to banks that collapsed within that short period. This therefore shows how crucial the topic of bank distress is. In addition, prediction of the banks if they are in financial distress is very important. This is because they are able to salvage themselves before it is too late and avoid failure.

1.4 Research Hypothesis

H₀: Banking distress does not significantly affect the Kenyan economy.

H_a: Banking distress significantly affects Kenyan economy.

1.5 Significance of the Study

The stability of the entire economic system is threatened by bank distress; this is in the form of mobilization of savings, financial intermediation process and the self-assurance of depositors. Under this circumstance, the public confidence of the banking system is completely eroded by bank distress. Hence there is need to empirically investigate how the Kenyan economy is affected by bank distress.

This study will enlighten the public about the policies of the Central Bank of Kenya and the reform programs to ensure the banking industry is safe. The work will also unveil the quality of loans given by banks in Kenya as well as give insight of how to manage credit in the Kenyan banking industry.

The results of the study will be used by economic policy makers; they will ensure the banking system remain safe and sound. In addition, the study will minimize the far-reaching negative effects on the national economic well being caused by bank distress, which include job losses and strangulation of sources of finance for security/protection.

The study immensely benefits all Kenyan banks; it is of great help to researchers conducting studies either on the same or related topic. Bank executives as well as board members also know the causes of bank failures and distress, and take the necessary steps to avoid further mistakes of the same nature in future.

1.6 Organization of the Study

The rest of the study is organized as follows: the relevant literature is reviewed in the second chapter, methodology and the specification of various equations in chapter three, discussion of the estimation techniques chapter four and conclusion remarks in chapter five.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a summary of some literature that is relevant to this study. Theoretical literature as well as the empirical literature is reviewed.

2.2 Theoretical Literature Review

In the section of theoretical review, the researcher will review the literature related on the theories of capital structure. The explanation of capital structure is how a company finances its assets. It refers to that as an organized way of financing business activities through a combination of equities and liabilities. In other words, the theory explains how a company gets to finance itself by debts and selling out shares.

2.2.1 Traditional Theory

This theory states that a company's aim should be to maximize its weighted average cost of capital (WACC) and the value of its marketable Assets. This is to mean that the average rate of return to compensate all its investors is maximized as well as its marketable assets. The theory therefore suggests that the use of debt financing has clear and identifiable limits. Capital devaluation and unnecessary debt is created by any capital beyond this point. It also says that as accompany decides to take on more debts, its weighted average cost of capital (WACC) increases.

According to Sanderson Abel (2016) banks derive profits from the difference in the interest rates they charge when they accept deposits and give loans to depositors and borrowers. Therefore, the bank finances itself through these activities of deposits and lending. Through the activity of lending, according to the gamblers theory, there is either the possibility to gain interest or to lose. The bank gains interest when the borrower returns the borrowed money as well as the interest. On the other hand, it loses when the borrower fails to repay back the loan and most of it is classified as the non-performing debts or the bad debts which are eventually written off. If the latter happens continuously, then we say that a bank is in distress and it can eventually lead to a bank failure.

2.2.2 Trade off Theory of Leverage

The trade-off theory says that there are many ways into which a firm can finance itself. The theory however emphasizes on financing a firm by debt. It therefore suggests that many firms have less debt than what is said to be optimal. Moreover, it puts it forward clearly that there are the benefits for a capital structure to be involved in debts up to a certain point which is referred to as the optimal capital structure. It elaborates the good of a firm being involved in debts as evasion of tax from the interest payment. This is because the interest payable on debt is not taxed. The theory therefore allows bankruptcy cost to exist so as to benefit the company by using debt as a tax shield. Despite all this, it has laid it clearly that there are advantages as well as disadvantages of financing a firm with debt. One of the disadvantages it has laid down is the financial distress cost of debt. According to Kraus and Litzernberger (1972), examples of these financial distress costs are the debt weight cost of bankruptcy and non-bankruptcy costs.

Banks lend with an intention to earn profit from the interest rate they get after the return of the loans. But this one puts them into a risk of uncertainty. This is because; there is the possibility of earning much interest or losing it at the end of the day. Therefore, there are both advantages and disadvantages of the bank lending. For example, one of the advantages is that it will earn more interest. The disadvantage is that, when it lends, it reduces the capital on hold and therefore is left with less capital to cater for its customers. Again, when it lends there is also the probability of some loans being non-performing or even bad debts. This will therefore force the banks to weigh the advantages as well as the disadvantages so as to trade off the two. This is where the concept of trade off theory gets in.

2.2.3 The Modigliani and Miller Theorem

The M and M theory is also known as the capital structure irrelevance proposition. It suggests while doing the valuation of a firm, its capital structure is not relevant. It therefore argues that whether a firm finance itself with debt or equity, there is no difference. It states that the earning power and a firm's risks assets can be used to calculate the market value of a company. It also says that the value of a company is independent of the way investments are financed or dividends are distributed. In other

words Modigliani and Miller acknowledges that there are many ways of financing a firm but irrespective of any way a firm uses, it is all the same. By doing this, it encourages debts.

Banks finance themselves by gaining interest from the deposits and the loans they give; so the M and M theorem encourages this. But the problem comes when the banks do not get that interest as they expected; this is because there is also the probability of losing. This occurs when some customers are incapable of paying back their loans. This could put the banks at a risk of getting distressed or even failing. According to Tigran Poghosyan (2011), banks are insolvent when loan losses surpass both their required and voluntary reserves as well as their equity cushion. He also explains that a systematic crisis occurs when a major portion of the banking system experiences loan losses which are more than its capital.

2.2.4 The Pecking Order Theory

The pecking order theory was first suggested by Donaldson in 1961, then modified by Stewart C. Myers and Nicholas Majluf in 1984. This theory says there is an order unto which a firm should follow to finance itself. It therefore says that a firm should not go to the next option of financing unless it is not able to use the first option. It organizes the options from internal financing, debt and then external equity financing. This means that a firm should aim at financing itself by internal financing and unless it is not able to do this it's the only time it should go to the second option of debt. The theory therefore emphasizes that equity financing should be the very last option of the financing a firm. It therefore assumes that based on the path of its least resistance, companies prioritize their financing strategy. The issue of debt over equity is favored by the asymmetric/lack of clear information.

As illustrated earlier, banks are firms that finance themselves from the interests they gain from both the deposits and the loans they lend. This theory also encourages this, mostly when it favors the issue of debt over equity. This comes with the risk of uncertainty because it is not guaranteed that the loans lent will be returned so that the banks gain interest. If the expected does not happen, there is a tragedy of losing both the principal as well as the interest. This will reduce the cash on hold by the banks

which can make them not to fulfill their obligations. If this continues, the banks may end up experiencing distress which could eventually lead to a failure.

2.2.5 Agency Cost Theory

This theory utilizes the concept of the agent and the principal. This theory states that in the case of a contract one or more persons are engaged to perform a task or a service on behalf of the other person. The person who is engaged is called an agent while as the one who engages is the principal. The cost theory suggests that the agent and the principal may have different interests. The theory also says that if both parties to the relationship maximize utility, the acting of the agent may not be of the best interest of the principal. This means that the decision of the principal may differ from that of the agent. This is because, the two may have different interests and every party is out to ensure that its interest is fulfilled.

In the banking sector, as the bank and/or the management lends, it becomes the principal, while the customer who in this case is the borrower, becomes the agent. These two may be having different interests, and every party will be determined to ensure its interest is reached. For example, the bank may raise the interest rate so as to get more profit, while the borrower on the other hand may borrow for his/her own interest. Due to asymmetric information, where the bank is not able to know exactly what the agent is going to do with the borrowed money, the funds may end up being used for purposes different from the agreed ones. According to Evelyn Richard (2011) non-performing loans are caused by use of funds for purposes different from the agreed ones. When this happens, the borrower is eventually unable to repay the loan. This will deprive the bank its principal as well as its interest. Continuation of this process causes bank distress, and eventually may lead to bank failure.

2.3 Empirical Literature Review

In this section, relevant literature on bank distress by relevant authors will be discussed. This literature will be guided by the objectives under study.

2.3.1 Conceptual definition of bank distress

Akpala (1995) says that distress in the banking context can also be referred to as financial distress. He defines this as a situation of financial difficulty in a bank. He observes a financially distressed bank as any bank which is generally in a poor financial condition and one which has a serious implication of rendering debt payment.

The Central Bank of Nigeria (1990) has postulated that failure of a bank to meet its capitalization requirement can be defined as bank distress. A bank in distress has a weak deposit base and is affected by mismanagement. According to CBN (1990), capital requirement is a necessity by financial regulators of the amount of capital held by a bank or other financial institution. Based on their long experience, regulators assert that for the long term success of banks, capital is essential.

Ademu (1967) states that a bank's inability to honor current customer obligations means that a bank is not liquid. Such a bank would typically be forced to suspend payments to its depositors for short term period. This default on maturity claims could further lead to inter-bank placement.

The Central Bank of Nigeria (1990) considers a healthy bank as one which meets the following six criteria: a minimum cash reserve of 6%, a minimum liquidity of 30%, a capital adequacy of at least 8%, at least 10% of liquid assets to be in treasury bills and certificates, a statutory minimum paid-up capital and a sound management.

Ademu (1997) states that any bank can be declared distressed if it defaults all the six criteria mentioned above, for more than one month; a bank may default in one or more of the criteria but it should be in a position to rectify its default within one month. Failure to this, a bank is then termed as distressed.

According to Nwankwo (1991), a bank which is unable to pay its entire depositor fully and on time is deemed distressed. He adds that there are two types of distress: marginal and terminal distress. Marginal distress occurs when a bank is unable to pay all its depositors; the liabilities' market value is outweighed by the assets' market value. Terminal distress, on the other hand, occurs when banks' assets market value is

lower than its liabilities' market value. When this happens, then such a bank is said to have failed. This bank may be distressed but this does not mean bank failure.

2.3.2 Causes of Bank Distress

According to Ademu (1997), bank distress is normally as a consequence of either internal or external environmental factors. Internal factors include the following:

2.3.2.1 Poor management

According to Yahays (1995), the quality of management is established as an important factor in shaping a bank's health. The difference between sound and unsafe banking is the quality of management. Management plays a decisive role in influencing the bank's life or death.

Okogi (1996) cites deliberate financial indiscipline by bank managers, accountants, cashiers and clerks as a major contributory factor to bank distress. This is when they collude to deliberately cheat the bank, and they possess more than 50% of equity share capital in form of loans.

Oladejo (1995) notes that frequent board changes in banks affect their stability. He adds that some of the banks under liquidation are as a result of them granting loans far excess of their ability, especially to those in management. He therefore states that the real cause of bank distress is bad corporate governance as other causes of distress result from mismanagement.

Brownbridge (1998) argues that the biggest reason to the bad loans is as a result of insider lending. He adds that the intensity of this threat of insider lending to banks' soundness was intensified by the speculative projects where the investor loans were invested. These included real estate development as well as projects which were unable to create short-term returns. The result of this was the mismatch of the maturities of the liabilities and assets of the bank. Politicians are mainly the beneficiaries of insider lending; since limits on the volume of insider loans which can be extended by banks is imposed by banking legislation, then this process becomes fraudulent.

According to Stiglitz and Weiss, (1981), when there is inept management in banks, the management may increase rate of interest. Consequently, investments with higher returns if successful but with low success probabilities were chosen by borrowers. This leads to adoption of more risky investment strategies due to rise in deposit rates.

2.3.2.2 Non-performing loans and advances

Edward and Tara (2001) say that in Africa and most developing regions, non-performing loans is the leading cause of bank distress. They classify a loan as non-performing when six or more months elapse in arrears after the agreed contract. They also say that individual bank distress is experienced when there are insufficient cash flows generated to repay either the deposits or other debts by their earning assets. They add that a banking system experiences stress when one of its largest banks or many small banks become troubled at the same time.

Nelson and Victor (2006) found out that many financial institutions in Kenya failed and collapsed as a result of non-performing loans since 1986. They explored what causes non-performing loans, as well as actions taken by the management of the banks lessen that crisis and the success of such actions. They found out that the most important external factor was national decline. A major cause of non-performing loans was considered to be failure by customers to disclose essential information while applying for loans. In addition, absence of an aggressive policy on debt collection was discovered to be major bank specific factor leading to non-performing loan problem in the country.

Kinoti (2015) sought to establish how non-performing loans affect the size of the loan portfolio within various commercial banks by using a census study with the population consisting of all the commercial banks in Kenya. Based on the research findings, she concluded that a rise in the non-performing loans levels will lead to statistically insignificant increase in the loan portfolio size in commercial banks in Kenya. With the increase of loan portfolio in commercial banks there is much probability of bank distress.

Martin Brownbridge (1998) found out in solvency and illiquidity caused by non-performing loans has led to the closure of many local banks, or taking over by their central banks, in the four countries he studied, namely Kenya, Uganda, Zambia and

Nigeria. He found out that the harshness of problems of bad debt was attributed to problems of moral hazard and poor selection. He adds that many of the failed banks were as a result of moral hazard which highly contributed to the highly irresponsible as well as deceitful strategies of lending. He also found out that local banks failed as a result of poor borrower selection, which was caused by the high lending rates by the local banks to recompense for funds which are highly costed.

2.3.2.3 Fraud and Corruption

Heffernan (1996) states that fraud is one of the major factor causing distress to banks. In many cases, fraud and corruption has led to the liquidation of the affected bank. He adds that numerous failures by banks have been as a result of fraud and corruption.

Akintunde (1994) in his survey shows that bank frauds were more common among the new generation banks and most often involving their top managers. Insiders such as members of the board management and staff collaborate to defraud the bank or use the facilities of the bank to defraud. He adds that nepotism and inefficiency arise when unqualified people are employed to sensitive places; this ultimately causes the banks to incur huge losses through frauds. He therefore concludes that the problems in the banks are mostly self-inflicted.

2.3.2.4 Capital inadequacy

Friedman (1960), cited by Hooks, (1994) refers to the portion of cash to total deposits which banks are supposed to maintain as a reserve requirement. This ensures the fiscal and prudential control of the bank's activities. He states that bank failure arises as a result of failure by banks to maintain all their deposits in statutory reserve funds.

Macullock (1963) cites that one of the sure sign that a bank is doing well is the steady growth in shareholder funds. He also continues to say that when the capital base of a bank is strong, the bank is strong. He suggests that the capital of a bank should be a reality not a fiction. Banks started with very little capital and owned by men who don't have money to lend out to borrowers leads to erosion of the paid-up capital. This includes reserves which results to them being unable to attain the required capital ratio of 1.10 and capital risk weighted assets ratio of 8%.

2.3.2.5 Poor Risk Management Procedures such as Lending Practices of Banks

Hempel and Simonson (1999) have argued that deposit mobilization and giving credit is not the main activity of the bank management. The risk of customer default is reduced by effective credit administration. A bank's competitive advantage depends on its potential to valuably manage credit risk. They therefore conclude that bank failure is caused by bad loans.

Palubinskas and Stough (1999) note that when there is no financial information which is dependable from the borrowers to assess credit worthiness, a bank failure is caused. Principals and agents are aware that most of the time; faults in the banking regulation brought about by internal changes allow them to exploit bank's funds. Sometimes, by acquiring high risk in the bank, there is an attempt by these two stakeholders to complete their short-term earnings objectives.

Spollen (1997) states that bank failure is contributed by unbalanced loans' committee meetings, huge treasury losses, and unrecorded deposits of large sums, false loans and the laundering of huge amounts of money. He argues that the status of the loan recipient can dictate the lending decision involving high amounts of money.

2.3.3 External causes of Bank Distress

External causes of bank distress are those macro-economic factors which are beyond the control of a bank's management. They include political environment, government policies, deteriorating economic factors and government interference.

2.3.3.1 Political environment

Ademu (1997) states that political instability in a country causes bank distress. For instance, politics in Nigeria in 1993 brought about by June 12 presidential elections caused a crisis which resulted in the long closure of banks. Depositors withdrew their money from the banking system; there was capital flight whereby foreigners converted Naira into foreign currencies due to insecurity, and transferred them abroad. There were unaffected liquidity problems within the system with the banks withdrawals as most of these funds were used to create immature assets.

Many loans that were previously obtained by many companies from the banks based on project appraisals which seemed sound were not honored when due; this resulted to huge debts which consequently led to financial distress of these banks.

2.3.3.2 Government Policies and intervention

Driscoll (1988) cited by Hooks (1994) argue that distress in banks can be caused by government intervention. Hempel and Simonson (1999) add that there is government reliance by creditors and customers to safeguard their interest once there is government intervention in saving banks from failing. The intervention however is deceptive for other institutions, because it is an independent way for customers and creditors and customers to effectively observe their bank interest.

Liewellyn (1996), cited by Goodhart, (1999) notes that bank failure could be caused by various situations. These include tight rules which would result to banks disregarding the measures as unnecessary. Also, there is exposure of banks to some dangers which may be difficult to be addressed by general laws. In addition, banks could be prevented from choosing the best means of achieving their set goals by a system of rules that is rigid. Spollen (1997) concludes that bank failure is caused by ineffective regulatory system.

Akintunde (1994) argues that prudential guidelines designed to enable banks operate in manner that is safe and sound could impact negatively on the banks, exposing their weaknesses. These guidelines which established standards for treating loans in the account books of the banks to stop the fictitious profits marked the beginning of the era of losses in banks.

Edogahe (1996) emphasizes that bank failure is caused by free banking which encourages banks to engage in over-expansion and operations which are deceptive. Kareken (1981 &1983) has pointed that the reduction of government power in banking industry is unsafe for banks. He explains that there is higher risk-taking when banks have liberty of investment and diversification. Edogahe (1996) adds that there would be an increase of deposit interest rates if strict maximum deposit interest rates imposed on banks is applied. This will cause banks to engage in high risk investments. He therefore concludes that removal of barriers and restrictions by the government results into more risky investments.

2.3.3.3 Deteriorating Economic Factors

Hooks (1994), points out bank failure or distress is caused by deteriorating local economic conditions such as exchange rates, inflation and interest rates. Eisenbeis (1986), cited by Hooks (1994) added that bank failure could be as a result of macroeconomic factors which include sudden unfavorable shifts in the terms of trade of a country, abrupt fluctuations in interest rates in the world and rates for real exchange. Goodhart (1998) emphasized that interest rate fluctuations contribute to the crisis in the banking industry.

Von Peter (2004) argues that when a country experiences a shock in the economy, the prices of the assets of non-bank corporation sector can go down; this can lead to loss of bank's capital in extreme cases. This further reduces the lending ability of banks which can eventually bring the assets prices down.

2.3.4 Effects of bank distress on the economy

Oren (2009) scrutinized how bank profits, bank capital and bank reserves affects the growth of the economy. He concentrated on how shocks on short term banking affect the growth of the economy. His results showed that bank profits shocks have a considerable impact on the growth of GDP. He established how this was linked to the whole economic activities; activities greatly affected by shocks in banking were more sensitive to interest rate and stock market shocks.

Victor and Simba (2016) acknowledge that failures by banks are one of the cost which burden the economy, as shown by empirical evidence. An IMF study noted that bank failures had fiscal costs ranging from 3%-50% of GDP (IMF, 2003). Brownbridge (1998) says that numerous local banks have been afflicted by financial distress. Some have faced closure by regulatory authorities while others have under their supervision been reorganized. He gives an example of Kenya where a couple of local banks and ten non-banking financial institutions faced closure or were taken over by CBK in 1993/4. Two other local banks faced the same in 1996.

Tim and Sheridan (1994) found out that firms which financed themselves using debt lost substantial market value as compared to the more conservative ones. To be specific, firms that had more debts experienced output contractions and their sales

declined by 26% more than those with less debt. This applies even to their market value of equity. They therefore concluded that financial distress is significant and positive.

Adeyefa (2015) found out that the non-performing loans to total loans that of total loans and advances, total bank deposits and cash reserve ratio have significant effect on economic growth. He says that with the increase of non-performing loans, an economy experiences a down turn, but it thrives when there is an increase in total bank deposit and cash reserve ratio. He adds that a there was failure to positively impact the economy. His empirical results confirmed that the bank distress have significant effect on Nigeria's economic growth.

Keynes (1931) and Fisher (1933) have argued that the extent of the economic decline is magnified by bank distress mostly during depression. Since money and credit are controlled by banks which act as intermediaries, they can transmit distress to other sectors.

Friedman and Schwartz (1963) state that the primary way through which banking distress affects the real economy is the contraction of the money multiplier. In their view, this is driven by panicked deposits and withdrawals of depositors. Bank distress reduces the money supply available to the public either through the closure of bank deposits, the consequent freezing of bank depositors or the withdrawals by depositors who fear bank failure.

2.4 Overview of the literature

The literature reviewed is diverse and different approaches have been used to study the conceptual definition of bank distress, the cause and even its effect on the economy.

Though there have been different studies that have been done on the effect of bank distress, there has failed to be a consensus. Some researchers say that bank distress will affect the economy while as others say that bank distress has no effect on the economy. Therefore, this study is a contribution to what has been done and it adds knowledge to the topic.

In the banking industry, few studies have been done concerning the effect of bank distress in Kenya. This study was therefore different from other studies in that it provided the effect of bank distress in the Kenyan economy. The study is more comprehensive on the effect of bank distress on the economy.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter discusses the conceptual framework and model specification for this study. It elaborates the sources of the data to be used for the study, as well as the methods of data analysis used.

3.1 Conceptual Framework

3.1.1 Gamblers ruin theory

Gamblers ruin theory is a theory that elaborates the occurrence of events in probability form. It explains how a gambler has the probability either to win or lose. It therefore assumes that a player will continue playing to a point where he either gets the highest targeted value or gets broke.

Gamblers ruin theory is used to solve probability of bankruptcy. To adopt this theory, the researcher will assume the bank to be an entity that lends money to its customers with an intention to earn profit in return. Despite this aim to earn interest, the bank has a probability of two outcomes: one is that it can get back the money it had lent out, while on the other hand it can lose it together with the interest. When the latter continues to happen repeatedly, then it is said that a bank has faced distress which can eventually lead to a failure.

Suppose the current holding of a bank is h Kenya shillings. When the bank lends, it will have the probability of either gaining interest or losing. We can therefore take the probability of gaining as $\Pr(N/h)$

The bank will either have $h+1$ or $h-1$ when it earns interest or when it loses respectively. We can therefore assign these two outcomes some proportions like a to gain interest and $1-a$ to lose.

The weighted average of the probabilities of a bank gaining or losing can therefore be expressed as:-

$$\Pr(N/h) = a\Pr(N/H + 1) + (1 - a)\Pr(N/h - 1)$$

We can express the continuity of bank lending as polynomial equation as shown below-:

$$X^2 - \frac{1}{a}X + 1 - \frac{a}{a} = 0$$

To ensure that the ratio of gaining to that of losing is not equal to one, we make an assumption that the probability to gain interest is not equal to a half.

With this assumption in mind, the general solution of the bank repeatedly lending will be-;

$$\Pr(N/h) = A(1)^h + B(r)^h$$

Where A and B are the constants that represent the two outcomes that the bank could get. That is; it could either gain so much where $\Pr(N/N) = 1$ or it could lose where $\Pr(N/0) = 0$. The latter is what is referred to as bank distress.

Therefore, if the bank is holding h Kenya shillings, the probability of reaching to hold very minimal money which cannot enable it to carry its normal obligations can be expressed as:

$$\Pr(N/h) = \frac{1 - r^h}{1 - r^N}$$

This is what is referred to as a bank distress.

3.2 Model Specification

For empirical analysis the researcher used time series data where all the pre-estimation diagnostic tests were carried and due to the presence of co integration the vector error correction model was used.

This study aimed at investigating how bank distress affected the Kenyan economy. Therefore the researcher used the real gross domestic product as the independent variable. This was used to illustrate the economic growth in a country. It was a function of foreign domestic investment(FDI),Remittances(R) ,Government revenue (GR) ,Real effective exchange rate(REER), total investments(TI) and the bank

distress which was illustrated by the ratio of non-performing loans to total loans(RNPLL).

$$\text{Real GDP} = f(\text{FDI}, R, \text{GR}, \text{REER}, (\text{TI}), \text{Bank distress}) \dots \text{Eqn 1}$$

The model is then specified as-:

$$\text{Real GDP}_t = \beta_0 + \beta_1 \text{FDI}_t + \beta_2 R_t + \beta_3 \text{REER}_t + \beta_4 \text{TI} + \beta_5 \text{GR} + \beta_6 \text{BANKDIST} + \mu_t \dots \text{Eqn 2}$$

So as to operationalize the data for easy empirical analysis we will change equation two into a log log equation.

This will give us:

$$\ln \text{GDP}_t = \beta_0 + \ln \beta_1 \text{FDI}_t + \ln \beta_2 R_t + \ln \beta_3 \text{REER}_t + \ln \beta_4 \text{TI} + \ln \beta_5 \text{GR} + \ln \beta_6 \text{Bank dist} + u_t \dots \text{Eqn 3}$$

Where:

B_0 =intercept

B_1 - β_6 =parameters to be estimated

u_t =error term

By the estimation of the parameters the researcher will know which effect the independent variables have on the dependent variable.

3.3. Description of Variables.

The definitions of the variables in consideration for the analysis are discussed as follows:

Real GDP-This is the inflation adjusted measure of the value of economic output. It reflects all the goods and services which are produced in an economy in a given year.

The FDI-This is the amount of foreign investment that flow in the country. The expectation is that FDI will have a positive impact on the GDP. Thus the expected sign is positive.

Real Effective Exchange Rate-This refers to the computation of the trade weighted average exchange rate of a currency against currencies of many countries. When the REER appreciates there is a positive impact on the GDP.

Government Revenue –This is money received by the government, they are received from sources such as taxes, non-taxable sources, central bank revenue and capital receipts.. When there is an increase in government revenue the GDP increases. Thus the expected sign is positive.

Remittances-This refers to a transfer of money done to an individual by a foreign worker in his or her home. This money increase the country's GDP, thus the expected sign is positive.

Total investment-Investments in the form of a group of assets in securities that are intended for financial gain only and do not create a lasting interest.

Bank distress-This is a situation where the bank institution has more liabilities than their assets market value. One of the causes of this is the non-performing loans. In this case we will use the ratio of non-performing loans to total loans. When this ratio is high there is said to be bank distress and the real GDP is expected to decrease. Thus the expected sign is negative.

3.4. Sources of the Data

This study used secondary data collected from the year 1985 to 2015. From the World Development Indicators we *get* the data of real GDP, FDI, total investment and Remittances. The government revenue data *will be* from World Economic outlook (WEO) data, IMF and the data of the real effective exchange rate will be adopted from Darvas, Z Solt (2012) Real effective rates for 178 countries.

3.5. Estimation procedure

We shall carry out the following pre-estimation diagnostics;

3.5.1. Unit Root Test

This test assumes that meaningful interpretation of time series data results will only occur when the series is stationary otherwise it leads into spurious regression problems. A stationary time series occurs when there is Constance over time of both

its mean and variance. Unit root was tested by applying the dickey Fuller τ (tau) test as pioneered by Dickey and Fuller (1979).

This test aims to the test null hypothesis, $\rho=0$ and the alternative hypothesis, $\rho<0$. This test includes a lag length so as to reduce the problems caused by auto correlation. The test states that in computation the τ value is greater than the DF critical value in absolute values then the H_0 hypothesis is rejected hence the series is stationary and vice versa is true.

3.5.2. Testing for co integration

This concept was introduced by Granger (1981) and extended by Engel and Granger (1987). All non-stationary time series usually encompass this concept. A series is said to be co integrated if a combination of two non-stationary series result in a stationary series. There are two main tests of co integration namely; Engel-Granger 2 step procedure and the Johansen test for co integration. For this model the Johansen test for co integration was used.

3.6. Post Estimation Diagnostics

3.6.1. Normality Test

For specification of the model Ramsey (RESET) tests was used which also tested for normality of the residuals, the Jarque-bera test was used to determine the accuracy of the model.

3.6.2. Autocorrelation Test

It occurs when the error term is correlated overtime. It may result to unbiased coefficients and may lead to rejection of the existence of homoscedasticity since the standard errors are too small. The major tests for autocorrelation are the Durbin Watson (d) and Breush Godfrey test. The Breush Godfrey test was used because it avoids the restrictive futures of the d-test.

3.6.3. Test for Heteroscedasticity

This occurs when the variance is different across observations. It results to biased estimators. The various tests of Heteroscedasticity include White General test, Breush Pagan test and Szoreter's test. The Breush Pagan test was used to predict the constancy of the variance across observations.

3.6.4. Test of multicollinearity

It occurs when there is correlated error term overtime. To test for multicollinearity the value inflation factor and the Klein rule of thumb was used. Both yielded the same results.

CHAPTER FOUR

EMPIRICAL FINDINGS AND DISCUSSION

4.0 Introduction

This chapter presents the empirical results of the study. Various tests are done and their results discussed here. The researcher commences with the descriptive analysis followed by both the pre estimation tests as well as the post estimation tests.

4.1: Descriptive Statistics

The mean, standard deviation, skewness kurtosis as well as the minimum and maximum values were determined. The mean is the average value of the particular variables over the period under consideration. The standard deviation measures the dispersion from the mean. It captures the degree of variability. Skewness is the tilt in the distribution and it measures the degree of asymmetry of variable observations. Conventionally, the value should range within -2 and +2 for normally distributed series. Kurtosis measures the peak of a distribution. In other words it is the peakedness of a distribution. It should be within -3 and +3 range for a normally distributed data. The minimum and maximum shows the minimum values and the maximum values of various variables over a given period under which observations under consideration are spread.

Table4.1.Summary descriptive

Variables	Obs	Mean	Std. dev.	min	max	skewness	kurtosis
LnGDP	31	23.51	0.75	22.47	24.87	0.49	1.89
LNFDI	31	17.86	1.61	12.89	21.09	-0.61	4.69
LN R	31	19.17	1.59	12.97	21.17	-1.81	8.34
LN_REER	31	4.48	0.20	4.07	4.90	0.28	2.58
LNGOVTRE	31	3.03	0.19	2.53	3.26	-1.08	3.59
LNTOTALIN	31	2.90	0.26	2.38	3.27	-0.22	1.77
LNBANKDIS	31	2.75	0.91	0.00	3.78	-0.99	3.63

In this study the table indicated the mean of all the variables. This is the average of these variables across the whole period under study. The table also indicated the standard deviation of every variable which shows the dispersion of the variable from

the mean. The standard deviation of most of the variables was minimal. The minimum values and the maximum values are also shown clearly.

The skewness of most of the variables was within -2 and +2 which mean that they are normally distributed. The values of kurtosis of the variables were also within the desired range of -3 and +3, suggesting that they are normally distributed although there are exceptional cases of the same variables lnR and lnFDI which suggested possibility of outliers.

4.2: Unit Root Test

The non-stationarity of time series data has often been regarded as a problem in empirical analysis. Working with non-stationary variables leads to statistical inference problems which further give meaningless results. This test therefore assumes that meaningful interpretation of time series data results will only occur when the series is stationary otherwise it leads into spurious regression problems. The first step in the analysis of the time series data is to test for the stationarity of the variables.

The Augmented Dickey Fuller (ADF) test is used in this study to test for the stationarity of the series. This test aims at testing the null hypothesis, $p=0$ and the alternative hypothesis, $p<0$. This test states that in computation if the t value is greater than the DF critical value in absolute values then the H_0 hypothesis is rejected hence the series is stationary and the vice versa is true.

The ADF has three models; the intercept only model, the intercept and trend model and the suppressed intercept and trend model. For the variable to be termed as stationary, the t value has to be greater than the critical values consistently in the three models. The L value has also to be negative consistently in the three models.

Table 3.2. Unit root results

MODELS					
VARIABLE	NO. LAG	NO. DIF F	INTERCEPT ONLY	INTERCEPT AND TREND	SUPPRESSED INTERCEPT AND TREND
lnGDP	0	2	-7.684	-7.530	-7.828
lnFDI	0	1	-8.767	-8.721	-8.850
lnR	0	1	-10.578	-10.392	-10.676
lnREE R	0	1	-6.291	-6.774	-6.126
lnGOV TREV	0	2	-5.739	-5.627	-5.848
lnTOT ALINV	0	1	-6.599	-7.164	-6.723
lnBAN KDIST	0	1	-7.178	-6.919	-7.356

When the ADF test was done on all the variables, their t statistical values in all the models were less than the t critical values in all the significant levels. Therefore we could not reject the null hypothesis which states that there is unit root or the variables are non-stationary. To rectify this, the researcher differenced the variables up to the level where all the variables were stationary in the whole model.

Nevertheless the stationarity of various variables occurred at different levels of differencing. For instance, we had to difference the LN GDP and LN GOVT REV twice while as all the other variables were differenced once. From table 3.2 it is evident that all our variables are stationary. This is because the t values in all the models are greater than the t critical values at 1%, 5%, and 10%. Due to the presence of unit roots as indicated, a co-integration test was considered necessary.

4.3 Co integration Test

Guajarati (2004) states that two or more variables are said to be co-integrated if they have a long run equilibrium or relationship between them. Differencing of variables to achieve stationarity leads to loss of long run properties.

To establish this, the Engel-Granger 2 step procedure was used. This was done by generating residuals from the long-run equation of the non-stationarity variables. These were then tested using the DF test; the results are shown in table 5.

Table 4.3. Cointegration results.

MAXIMUM RANK	TRACE STATISTICS	5%CRITICAL VALUE
	287.79	124.24
0	205.63	94.15
1	131.33	68.52
2	75.74	47.21
3	36.23	29.68
4	14.61	15.41
5	2.00	3.76

The absolute test statistic value was greater than the absolute critical values in 5% level of insignificance. This therefore led to the rejection of the null hypothesis which states that there is no co integration. The conclusion is therefore made that our variables under study are co- integrated. This implied the use of Vector Error Correction Model (VECM). Before running the VECM model some post estimation tests were conducted such as the normality test, autocorrelation test, test for Heteroscedasticity as well as the test for multicollinearity.

4.4. Post Estimation Tests

4.4.1. Normality Test

In this, we test if the residuals are normally distributed. The null hypothesis is that residuals are normally distributed while the alternative hypothesis is that the residuals are not normally distributed. When the probability z statistic is greater than the 5% you do not reject the null hypothesis meaning that the residuals are normally distributed. The test showed the following results;

Table 4.4. Normality test results.

EQUATIONS	CHI2	DF	PROB
log_rgdp	8.45	2	0.01463
log_fdi	3.394	2	0.1832
log_rmt	6.314	2	0.04255
LN_reer	0.091	2	0.95571
log_PORTFOLIOINVESTMENT	0.649	2	0.72304
LN_NPLTOT	2.464	2	0.29176
LN_TRGDP	5.423	2	0.06642
ALL	26.785	14	0.02053

From the results, it was concluded that some variables were normally distributed while others were not. The FDI, Real Effective Exchange Rate, Portfolio Investment, Non-performing loans to total loans and the tax revenue as the percentage of GDP proved normality while the real GDP and the remittances proved otherwise.

4.4.2. Auto-Correlation Test

Auto-correlation occurs when the error term is correlated over time. It refers to the correlation of a time series with its own past and future values. There is either positive or negative auto-correlation, a positive autocorrelation as a form of persistence where the variables have a tendency of remaining in the same state from one observation to another. Auto-correlation complicates the application of statistical tests by reducing the number of independent variables. In time series data, autocorrelation is defined as the delayed correlation of a given series; it generally occurs due to sluggishness or inaction within the data.

The major tests that were carried out for this test is the Durbin Watson and the Breush Godfrey test.; the results proved the presence of serial correlation.

4.4.3 Test for Heteroscedasticity

Heteroscedasticity occurs when the variance is different across observations; it can result to biased estimators. Breush Pagan was the test used to predict the constancy of the variance across observations. The null hypothesis states that there is constant variance which means there is no Heteroscedasticity. The test on the variables had a P value of less than 5% which was 0.01 which led rejection of the null hypothesis; illustrating the presence of heteroscedasticity.

4.4.4. Test of multicollinearity

To test for multicollinearity, the Klein rule of thumb was used. This rule states that for multicollinearity to be present the VIF has to be more than 10. the results were as follows.

Table 4.5. Multicollinearity test results

Variables	VIF	1/VIF
LN_reer	6.95	0.1438
LN_bankdist	3.97	0.2517
LN_govtrev	3.96	0.2527
LN_totalinv	2.23	0.4480
LN_remit	1.76	0.5676
LN_FDI	1.66	0.6028
Mean VIF	3.42	

According to the results there is no multicollinearity. This was mostly because the variables had been differenced to do away with the problem of unit root.

4.5 Vector Error Correction Model.

From the co integration results, existent of co integration vector is evident. Therefore, the Vector Error Correction Model (VECM) was used. VECM implemented the Johansen approach for estimation of the parameters of the VECM. The VECM results were as presented in the table 4.6;

BETA	COEF	STDERR	Z	P>/Z/	95% CONFIDENT LEVEL
Diff2lnRealGDP	1				
DifflnFDI	0.393	0.027	14.57	0.000	0.341
DifflnR	-0.052	0.031	-1.70	0.089	-0.111
DifflnREER	-1.325	0.407	-3.25	0.001	-2.125
DifflnGovtRev	0.107	0.253	0.42	0.673	-0.389
DifflnTotalInv	0.038	0.368	-0.10	0.918	-0.758
DifflnBankDist	-0.216	0.094	-2.30	0.021	0.400
CONSTANT		-0.0556			

From table 4.5, most of the variables are statistically significant with an exception of the Government Revenue and the Total investment. However, the independent variables had different effects on the dependent variable. Some affected the dependent variable positively while as others affected it negatively. The overall equation will therefore be;

$$\begin{aligned} \ln REALGDP = & -0.056 + 0.393\ln FDI - 0.052\ln R - 1.325\ln REER + 0.107\ln GREV \\ & + 0.038\ln TINV - 0.216\ln BANKDIST + E \end{aligned}$$

The results revealed that the FDI, remittances, real effective exchange rate, portfolio investments, non-performing loans to total loans and the tax revenue as the percentage of GDP were statistically significant at the 99% level of confidence. An increase of 1% of the FDI, could lead to an increase of 39.3% of the GDP. This was consistent with Abbas et.al 2011 that studied the impact of foreign direct investment on gross domestic product and found the variable to be significant with a positive relationship. The remittances also were statistically significant at 90% confidential level. An increase of 1% of the remittances will also have a negative effect on the real GDP of 5.2%. The reason could be because; the remittances discussed in the study are personal remittances, thus end up depriving the real GDP negatively rather than positively as expected.

The real effective exchange rate also was statistically significant in this study at all confidential levels and had a positive relationship with the real GDP. An appreciation of 1% of the real effective exchange rate would lead to 13.25% increase of the real GDP. These results are consistent with the findings of Hua (2011) who stated that the real exchange rate exerts different economic and social effects. He adds that a real appreciation exerts positive effects on economic growth by exerting pressure on efficiency improvement and technological progress. The government revenue in our study was not statistically significant but had a positive effect on the real GDP. An increase of 1% in the tax revenue resulted to 10.7% increase of the GDP. This was consistent with Gale and Samwick (2016) whose results indicated that not all tax changes will have the same impact on growth; in this case, an increase in government revenue leads to a subsequent increase in economic growth.

Total investment was found not to be statistically significant with a positive effect on the real GDP. It showed that a 1% increase of total investment would lead to 3.8% increase of the real GDP. The ratio of non-performing loans to that of total loans termed as the bank distress in this study was also statistically significant at all confidential levels and had a negative effect on the real GDP. It showed that a 1% increase of the bank distress would lead to 2.1% decrease of the real GDP. These findings are consistent with various findings of different researchers such as Adeyefa (2015) who found the relationship between the ratios of non-performing loans to that of total loans to be negative. Oren (2009) also found out that bank shocks have a considerable impact on economic growth. Victor and Simba also (2016) found out that bank failures and shocks are costs that burden the economy.

CHAPTER FIVE

SUMMARY CONCLUSIONS AND RECOMMEDATIONS

5.0. Introduction

In this chapter, the summary of the whole research is given, the conclusions, policy recommendations as well as the areas of further study.

5.1. Summary of the Study

The performance of the banking sector determines the performance of any economy, due to its key role of financial intermediation. Financial distress has been a great problem all over the world which cannot be ignored. Amongst other impacts, bank distress leads to bankruptcy which eventually leads to bank failure. Kenya is not an exception.

The study sought to investigate the effect of bank distress on the Kenyan economy. Time series data was collected from year 1985 to 2015. Bank distress was measured as the ratio of non-performing loans to that of total loans. All the pre diagnostic tests involving time series were done. Due to the presence of co integration, the vector error correction model was picked for the analysis of the data.

The results proved statistical significance of the bank distress in the economy which had a negative effect on the real GDP. Other variables that were used in the study were; the foreign direct investment, remittances, real effective exchange rate, total investment as well as the government revenue. Most of the variables showed the statistical significance in the GDP with an exception of government revenue and total investment but some had a positive effect while others had a negative effect.

5.2. Conclusion

The overall conclusion that is made from the results obtained in this study is that; bank distress is statistically significant in an economy and has a negative effect on the real GDP. Therefore, it should be put under consideration and taken care of, if economic growth is desired..

5.3. Policy Implications

This research paper presents some interesting results which can be utilized by the policy makers to ensure a better economy. First and foremost, there is need of

stringent measures in the banking industry so as to minimize the non-performing loans which could eventually lead to bank distress. For instance, banks should carefully evaluate loan applicants to ascertain their ability to repaying before advancing loans. In addition, banks should discourage insider borrowing because it is one of the causes of non-performing loans

5.4. Study Limitations

The study had some limitations which could have in one way or another affected the results. One of the limitations was lack of some required data that was essential in the study; for instance the data available on the ratio of non-performing loans to that of total loans was from 1998 the data before that period was not available. Other variables had missing data of various years where you would get the data available skips a year or two. The other issue was on which data to include in some variables; for instance in the foreign direct investment and the remittances there is a quagmire of whether to get the inflows or the outflows. This maybe could yield different results depending on which one is considered.

5.5. Areas of Further Study

The study on the bank distress is so limited in the third world countries such as Kenya; therefore very little is known in this sector. This study sought to investigate the effect of bank distress in the Kenyan economy and the data which was used was time series and it combined all the banks in the same pool. There is therefore need of one to investigate what happens when banks are treated differently and independently. That is; the data is collected for each bank and evaluated .In this case, there would be panel data of all the banks and the effect on the economy investigated.

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APPENDICES

UNIT ROOT TESTS

dfuller D.D.D.D.D.log_rgdp, regress lags(0)

Dickey-Fuller test for unit root Number of obs = 25

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value
Z(t)	-6.658	-3.750	-2.630

MacKinnon approximate p-value for Z(t) = 0.0000

-----+-----
D6.log_rgdp | Coef. Std. Err. t P>|t| [95% Conf. Interval]

log_rgdp |

LD5. | -2.115761 .3177778 -6.66 0.000 -2.773134 -1.458388

|

_cons | -.2844425 .3025329 -0.94 0.357 -.9102795 .3413945

dfuller D.D.D.D.D.log_rgdp, trend regress lags(0)

Dickey-Fuller test for unit root Number of obs = 25

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value
Z(t)	-6.830	-4.380	-3.240

Mackinnon approximate p-value for Z(t) = 0.0000

D6.log_rgdg | Coef. Std. Err. t P>|t| [95% Conf. Interval]

-----+-----
D5.log_rgdg |

L1.	-2.104163	.3080843	-6.83	0.000	-2.743091	-1.465236
_trend	-.064098	.0406689	-1.58	0.129	-.1484402	.0202441
_cons	.5486577	.6044675	0.91	0.374	-.7049311	1.802246

. dfuller D.D.D.D.log_rgdg, noconstant regress lags(0)

Dickey-Fuller test for unit root Number of obs = 25

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value

Z(t) -6.690 -2.660 -1.950 -1.600

D6.log_rgdp | Coef. Std. Err. t P>|t| [95% Conf. Interval]

-----+-----
log_rgdp |

LD5. | -2.120481 .3169692 -6.69 0.000 -2.774674 -1.466289

. dfuller D.D.log_fdi, regress lags(0)

Dickey-Fuller test for unit root Number of obs = 28

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value

Z(t) -5.658 -3.730 -2.992 -2.626

Mackinnon approximate p-value for Z(t) = 0.0000

D3.log_fdi | Coef. Std. Err. t P>|t| [95% Conf. Interval]

-----+-----
log_fdi |

LD2. | -1.616739 .2857274 -5.66 0.000 -2.20406 -1.029417

|

_cons | -.7269337 .9353625 -0.78 0.444 -2.649599 1.195731

. dfuller D.D.log_fdi, trend regress lags(0)

Dickey-Fuller test for unit root Number of obs = 28

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value
Z(t)	-5.713	-4.352	-3.233

Mackinnon approximate p-value for Z(t) = 0.0000

D3.log_fdi | Coef. Std. Err. t P>|t| [95% Conf. Interval]

-----+-----
D2.log_fdi |

L1.	-1.610847	.2819787	-5.71	0.000	-2.191593	-1.030101
_trend	-.1491117	.1142714	-1.30	0.204	-.3844579	.0862346
_cons	1.435016	1.896544	0.76	0.456	-2.47099	5.341022

. dfuller D.D.log_fdi, noconstant regress lags(0)

Dickey-Fuller test for unit root Number of obs = 28

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical	
Statistic	Value	Value	Value	
Z(t)	-5.707	-2.655	-1.950	-1.601

D3.log_fdi | Coef. Std. Err. t P>|t| [95% Conf. Interval]

log_fdi |

LD2. | -1.618691 .2836133 -5.71 0.000 -2.200617 -1.036764

dfuller D.log_rmt, regress lags(0)

Dickey-Fuller test for unit root Number of obs = 29

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical	
Statistic	Value	Value	Value	
Z(t)	-6.392	-3.723	-2.989	-2.625

MacKinnon approximate p-value for Z(t) = 0.0000

```

D2.log_rmt |   Coef. Std. Err.   t   P>|t|   [95% Conf. Interval]
-----+-----
log_rmt |
LD. | -1.159204 .1813431  -6.39  0.000  -1.531289  -.7871187
|
_cons | .1336908 .0438438   3.05  0.005   .0437307  .2236509
-----+-----

```

. dfuller D.log_rmt, trend regress lags(0)

Dickey-Fuller test for unit root Number of obs = 29

```

----- Interpolated Dickey-Fuller -----
Test      1% Critical    5% Critical    10% Critical
Statistic    Value        Value        Value
-----+-----
Z(t)      -6.335       -4.343       -3.584       -3.230
-----+-----

```

Mackinnon approximate p-value for Z(t) = 0.0000

```

D2.log_rmt |   Coef. Std. Err.   t   P>|t|   [95% Conf. Interval]
-----+-----
D.log_rmt |
L1. | -1.160794 .1832363  -6.33  0.000  -1.537442  -.7841467
_trend | -.0031879 .0047556  -0.67  0.509  -.0129631  .0065873
_cons | .181679 .0841832   2.16  0.040   .0086379  .35472
-----+-----

```

. dfuller D.log_rmt, noconstant regress lags(0)

Dickey-Fuller test for unit root Number of obs = 29

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value
Z(t)	-4.940	-2.654	-1.950

D2.log_rmt | Coef. Std. Err. t P>|t| [95% Conf. Interval]

-----+-----
log_rmt |

LD. | -0.9160345 .1854365 -4.94 0.000 -1.295884 -0.536185

dfuller D.LN_reer, regress lags(0)

Dickey-Fuller test for unit root Number of obs = 29

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value
Z(t)	-6.303	-3.723	-2.989

MacKinnon approximate p-value for Z(t) = 0.0000

D2.LN_reer | Coef. Std. Err. t P>|t| [95% Conf. Interval]

-----+-----
LN_reer |

LD. | -1.139642 .1808075 -6.30 0.000 -1.510628 -.7686551

|

_cons | .0188681 .0154223 1.22 0.232 -.0127759 .050512

. dfuller D.LN_reer, trend regress lags(0)

Dickey-Fuller test for unit root Number of obs = 29

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value

Z(t) -6.775 -4.343 -3.584 -3.230

MacKinnon approximate p-value for Z(t) = 0.0000

D2.LN_reer | Coef. Std. Err. t P>|t| [95% Conf. Interval]

-----+-----

```

D.LN_reer |
      L1. | -1.246138 .1839285 -6.78 0.000 -1.624208 -.8680671
      _trend | .0033128 .0018596 1.78 0.087 -.0005098 .0071353
      _cons | -.0296575 .0310184 -0.96 0.348 -.0934167 .0341017

```

```

-----
. dfuller D.LN_reer, noconstant regress lags(0)

```

```

Dickey-Fuller test for unit root          Number of obs =    29

```

```

----- Interpolated Dickey-Fuller -----
      Test      1% Critical   5% Critical   10% Critical
      Statistic   Value       Value       Value
-----
Z(t)      -6.143      -2.654      -1.950      -1.602

```

```

-----
D2.LN_reer |   Coef. Std. Err.   t   P>|t|   [95% Conf. Interval]
-----+-----

```

```

LN_reer |
      LD. | -1.111251 .1808958 -6.14 0.000 -1.481799 -.7407025

```

```

-----
dfuller D.log_PORTFOLIOINVESTMENT, regress lags(0)

```

```

Dickey-Fuller test for unit root          Number of obs =    29

```

```

----- Interpolated Dickey-Fuller -----
      Test      1% Critical   5% Critical   10% Critical

```

Statistic	Value	Value	Value
Z(t)	-5.111	-3.723	-2.625

Mackinnon approximate p-value for Z(t) = 0.0000

D2. |
log_PORTFOLIOINVESTMENT | Coef. Std. Err. t P>|t| [95% Conf. Interval]

log_PORTFOLIOINVESTMENT						
LD.	-.9836425	.1924663	-5.11	0.000	-1.378551	-.5887343
_cons	-.558545	.9822643	-0.57	0.574	-2.573985	1.456895

. dfuller D.log_PORTFOLIOINVESTMENT, trend regress lags(0)

Dickey-Fuller test for unit root Number of obs = 29

----- Interpolated Dickey-Fuller -----			
Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value
Z(t)	-5.074	-4.343	-3.230

Mackinnon approximate p-value for Z(t) = 0.0002

```

-----
D2.log_PORT~T |   Coef. Std. Err.   t  P>|t|   [95% Conf. Interval]
-----+-----
D.log_PORT~T |
    L1. | -0.9961783  .1963322  -5.07  0.000  -1.399745  -.5926116
    _trend | -0.0653919  .1189717  -0.55  0.587  -0.3099418  .1791581
    _cons |  .4149993  2.031677   0.20  0.840  -3.761173  4.591171
-----

```

. dfuller D.log_PORTFOLIOINVESTMENT, noconstant regress lags(0)

Dickey-Fuller test for unit root Number of obs = 29

```

----- Interpolated Dickey-Fuller -----
    Test      1% Critical      5% Critical      10% Critical
    Statistic      Value      Value      Value
-----
Z(t)      -5.142      -2.654      -1.950      -1.602
-----

```

```

-----
D2.            |
log_PORTFOLIOINVESTMENT |   Coef. Std. Err.   t  P>|t|   [95% Conf. Interval]
-----+-----
log_PORTFOLIOINVESTMENT |
    LD. | -0.9710969  .1888732  -5.14  0.000  -1.357986  -.5842078
-----

```

. dfuller D.LN_NPLTOT, regress lags(0)

Dickey-Fuller test for unit root Number of obs = 29

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value
Z(t)	-5.005	-3.723	-2.989

MacKinnon approximate p-value for Z(t) = 0.0000

D2.LN_NPLTOT | Coef. Std. Err. t P>|t| [95% Conf. Interval]

-----+-----
LN_NPLTOT |

LD. | -0.9480688 .1894428 -5.00 0.000 -1.336773 -0.5593643

|

_cons | -0.0564505 .0615854 -0.92 0.367 -0.1828134 0.0699124

. dfuller D.LN_NPLTOT, trend regress lags(0)

Dickey-Fuller test for unit root Number of obs = 29

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical
------	-------------	-------------	--------------

Statistic	Value	Value	Value
Z(t)	-5.040	-4.343	-3.230

Mackinnon approximate p-value for Z(t) = 0.0002

D2.LN_NPLTOT | Coef. Std. Err. t P>|t| [95% Conf. Interval]

D.LN_NPLTOT |

L1.	-.9872853	.1959072	-5.04	0.000	-1.389978	-.5845924
_trend	-.0064014	.0075186	-0.85	0.402	-.0218562	.0090534
_cons	.0375796	.1266058	0.30	0.769	-.2226623	.2978214

. dfuller D.LN_NPLTOT, noconstant regress lags(0)

Dickey-Fuller test for unit root Number of obs = 29

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value
Z(t)	-4.936	-2.654	-1.602

D2.LN_NPLTOT | Coef. Std. Err. t P>|t| [95% Conf. Interval]

LN_NPLTOT |

LD. | -.9209491 .1865834 -4.94 0.000 -1.303148 -.5387503

.. dfuller D.LN_TRGDP, trend regress lags(0)

Dickey-Fuller test for unit root Number of obs = 29

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value
Z(t)	-7.143	-4.343	-3.230

Mackinnon approximate p-value for Z(t) = 0.0000

D2.LN_TRGDP | Coef. Std. Err. t P>|t| [95% Conf. Interval]

-----+-----
D.LN_TRGDP |

L1.	-1.325179	.1855142	-7.14	0.000	-1.706508	-.9438487
_trend	-.0013763	.0023866	-0.58	0.569	-.006282	.0035294
_cons	.0278111	.0410482	0.68	0.504	-.0565647	.1121869

. dfuller D.LN_TRGDP, regress lags(0)

Dickey-Fuller test for unit root Number of obs = 29

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value
Z(t)	-7.210	-3.723	-2.625

MacKinnon approximate p-value for Z(t) = 0.0000

-----+-----
D2.LN_TRGDP | Coef. Std. Err. t P>|t| [95% Conf. Interval]

LN_TRGDP |

LD. | -1.316116 .1825483 -7.21 0.000 -1.690674 -.9415576

|

_cons | .007115 .0196761 0.36 0.720 -.033257 .0474869

. dfuller D.LN_TRGDP, noconstant regress lags(0)

Dickey-Fuller test for unit root Number of obs = 29

----- Interpolated Dickey-Fuller -----

Test	1% Critical	5% Critical	10% Critical
Statistic	Value	Value	Value
Z(t)	-7.315	-2.654	-1.602

-----+-----
D2.LN_TRGDP | Coef. Std. Err. t P>|t| [95% Conf. Interval]

-----+-----
LN_TRGDP |

LD. | -1.31262 .1794403 -7.32 0.000 -1.680187 -.9450533

REGRESSION RESULTS

. reg diff5log_rgdpl diff2log_fdi diff1log_rmt diff1LN_reer diff1log_PORTFOLIOINVESTMENT
diff1LN_NPLTOT diff1LN_TRGDP

Source | SS df MS Number of obs = 26
-----+----- F(6, 19) = 3.53
Model | 42.6836185 6 7.11393641 Prob > F = 0.0162
Residual | 38.3128816 19 2.01646745 R-squared = 0.5270
-----+----- Adj R-squared = 0.3776
Total | 80.9965001 25 3.23986 Root MSE = 1.42

_ce1 |
diff5log_rgdpl | 1
diff2log_fdi | -.251434 .0329647 -7.63 0.000 -.3160437 -.1868243
diff1log_rmt | -.6394096 .2099582 -3.05 0.002 -1.05092 -.2278992
diff1LN_reer | 7.640905 .7972673 9.58 0.000 6.07829 9.20352
diff1log_PORTFOLIOINVESTMENT | -.0503837 .0100051 -5.04 0.000 -.0699933 -
.0307741
diff1LN_NPLTOT | 1.08551 .1322244 8.21 0.000 .8263548 1.344665
diff1LN_TRGDP | 8.921742 .5469792 16.31 0.000 7.849682 9.993801
_cons | -.0619766