A Scientific Investigation into why Firms Fail: A Model of corporate health trajectory

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Abstract

When has an organization failed? When legal bankruptcy occurs followed by liquidation of the firm's assets. Why do organizations fail? This question has remained a riddle for the last two decades. Organizations that started very well and had exponential growth with added value to the economy suddenly disappears into oblivion! Several efforts have been made by scientists to identify the causes of this catastrophe. It is a disaster because once a firm fails; jobs are lost with its concomitant effects on dependants of employees who will lose their jobs. John Argenti, one of the Management Scientists, has attempted to construct the trajectory of corporate collapse. Others are Fitzpatrick (1932), Smith (1935), Horrigal (1965). Early statistical studies such as Beaver, (1968), Osuagwu (1995). In this article which is a product of PhD research in computer science, attempt has been made to scientifically identify the route causes of why companies fail. The research used modelling tools such as Gambler's Ruin Score, BCG, Wilcox's Probability of Ultimate Failure, Cash Flow Reinvestment Ratio, Z-Score to investigate 20 failed and successful banks. This study is significant because a proper scientific foundation on the critical success and failure factors responsible for this phenomenon will assist top management to asses early enough the likelihood of corporate collapse before this happens. The indices from the mathematical analysis were used as input to program a computer model which was tested for functionality with verifiable results. The outcome of this investigation suggests that One -man autocratic management. overtrading – doing more business than the company's gearing can carry,inability of corporate strategist to monitor crutial stimuli in their operating environment, no sustenance of organizational culture, Demographic variables of owners is inclined to people with intent to benefit from the depositors fund without interest of the depositors in mind, insider trading and tacit fraud behaviour. The findings are in agreement with the findings of earlier research. However this study is different because advanced mathematical and statistical tools which can be verified to analyse the data of 20 banks, 10 which failed and 10 that is successful.

Key words: Corporate collapse, trajectories of failure, bank failure, bank distress, Z-score, hypothesis

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1.0 Introduction – Conceptual framework

The geometrical rate at which small and medium scale firms are collapsing is becoming very worrisome not only to Nigerian government but also to governments in the developed west. When firms fail, it breeds lots of ugly repercussions such as loss of jobs, reduction of

government revenue from tax and excise duties. This will further have negative snowballing effect such as further reduction of employees and its concomitant effect on impoverishing the population.

Over the last ten years many banks have collapsed due to mismanagement, inadequate capital, manipulation of accounting statements, deliberate fraud by management by internal coalition leading to crises of cash flow and the loss of depositors' fund. Many depositors died when the last bank industry shakeup happened because Nigerian Deposit Insurance Corporation (NDIC) refunded only N50, 000 to depositors no matter the amount of fund deposited in the banks. There is therefore, urgent need to research into the problems and causes of corporate collapse to avert future repeat of the past misfortune. In Nigeria, modern banking started in 1892 when South African based African Banking Corporation (ABC), now First Bank of Nigeria PLC opened an office in Lagos. The free banking era ended when the Banking Ordinance of 1952 was promulgated. The period from 1952 to 1958 saw the first round of bank failures while another round of bank failures occurred between 1994 and 2003. The recapitalization policy of 2004/2005 ended up with 14 out of the 89 deposit money banks disappearing from the scene as a result of their inability to meet up with the minimum capital base requirement. Although there appears to be many factors attributed to the incidence of bank failure in Nigeria, a good number of authors have not really established the key ones. While Ogundina (1999) sees ownership structure as a factor accountable for bank failure, Ogubunka (2003) identifies weak/ineffective internal control system, poor management among others as causes of bank distress/failure. However, his work is an attempt to narrow the scope of the causes of bank failure in Nigeria to the key ones such as capital inadequacy, lack of transparency and nonperforming loans and sharpen the potency of each of these key causes. The authors also have attempted to establish whether the other factors may also be accountable for bank and related corporate failure in Nigeria. As it is with banks so also many companies (firms) in Nigeria are also disappearing as a result of discontinuity of operation and multitudes of Nigerian citizens are loosing their jobs due to this corporate collapses.

1.1 Goals of the Study

The key goal of this study is to develop a functional software that will be used to track and diagnonize the overall health condition of a firm so that tactical and long term strategies may be put in place to avert possible collapse.

1.2 Objectives of study

The objectives of this study are:

i. To study 20 performing and non-performing corporations to identify factors responsible for why some firms succeed and others fail. Nine hypotheses on this issue of corporate survivability will be tested to prove *a priori* thinking by several schools of thought that most failures are caused by management and internal coalition.

ii. Design Corporate Financial Health Tracking Model/Software which will provide management with the desired ***metrics*** to assess if the firm has already died, is dying and the projected time for total collapse so that management action can be initiated to avert it.

1.3 Significance of Study

The increasing failure of a large proportion of Nigerian small and medium scale industries including financial institutions is ominous to the development and growth of the Nigeria economy and its concomitant effect of creating unemployment instead of increasing or

creating employment. If nothing is done now to avert this entropy, the Nigeria economy will totally collapse with far-reaching consequences for the population**.**

1.4 Scope of Study

The study covered the corporate behaviour of 20 selected firms operating in Nigeria including financial institutions. This research work provides a baseline study for further research on a larger scale.

1.5 Limitations of Study

A large sample size would have been ideal for this research but for huge cost of expanding the scope of the study beyond this level. Perhaps, it would have been possible to circulate questionnaires via the internet, paid responses to get a global feel of reasons for most corporate failures not only in Nigeria but around the world. This larger coverage is now left for another Doctoral scholar**.** Another limitation experienced was the difficulty encountered in the process of collecting secondary data from most of these firms selected for the study. Therefore, the authors had to rely to some extent on published secondary data.

1.6 Research method adopted for this component of the study

For the whole study several methodologies were adopted. For instance, the Structured Systems Analysis and Design Methodology (SSADM) were used to study the information flow, weaknesses of the corporate information system to identify the weaknesses aiding failure so that automated solutions may be proposed. Other software engineering methods deployed include Object Oriented Analysis and Design and Prototyping Methodologies For this paper, hypothetic-deductive methodology was deployed. Questionnaires were distributed to the 20 selected bank senior personnel, the responses which were later subjected to computer analytics using SPSS. The SPSS results and related interpretations were valided by a Professor of Statistics. The statistical models applied include Discriminant Analysis, Chi-Square, Multiple Regression etc. Outputs from the statistical indices were used as input to the Corporate Health Tracking software which will be discussed in the subsequent articles.

1.7 Statement of NULL Hypothesis

The **Internet dictionary** has defined hypothesis as**:** *a proposition, or set of propositions, set forth as an explanation for the occurrence of some specified group of phenomena, either asserted merely as a provisional conjecture to guide investigation (working hypothesis) or accepted as highly probable in the light of established facts.* The thinking of must management experts and researchers for many years are that several factors responsible for corporate failure need to be investigated and verified. It was on the basis of this apriori thinking that the following nine null hypothesis are tested [2].

H_{01}: Overtrading and lack of innovation has no relationship with corporate collapse.
H_{02}: Poor Value System and not "sticking to the knitting" does not negatively affect corporate health.
H_{03}: Bad Accounting Information system does not contribute to corporate collapse.
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H_{04}: Huge Non-performing Loans does not contribute to Corporate collapse.
H_{05}: No or Bad corporate planning does not contribute to corporate collapse.
H_{06}: Poor citing of the firm does not affects corporate collapse.

H_{07}: Employment of close relatives has no negative effect on corporate on corporate performance..

H_{08}: One man show administration does not contribute to corporate collapse.

H_{09}: Introduction of Financial health tracking software will not reduce the incidence of corporate collapse.

2.0 Theoretical framework

In Nigeria, modern banking started in 1892 when South Africa had founded the African Banking Corporation (ABC), now First Bank of Nigeria PLC with an office in Lagos. The free banking era ended when the Banking Ordinance of 1952 was promulgated. In spite of the 1952 Banking Ordinance, Nigeria experienced series of bank failures between the period of 1952-1958.(Uzoaga 1981) observes that only four(4) out of twenty (25) indigenous banks established during this period survived while twenty (21) others went under. The Pre-CBN bank failures were attributed to absence of regulation and control while the post- CBN bank failure was caused by the factors to be discussed here under. With the promulgation of the Central Bank Act of 1958, the banking business came under the regulation and control of the CBN. Symptoms of distress in Nigeria financial system was first officially pointed out by the World Bank team that examined the financial sector shortly before the NDIC (Nigeria Deposit Insurance Corporation) Decree #22 of 1988 took off in February 1989. (Ndiulor 2000) thinks that the transfer of parasatals and Government agencies accounts to the CBN, investment mismatches, paper profits, round tripping in foreign exchange and other rent seeking activities are true signals of unfair wind in the industry. The period of 1994-2003 saw another round of bank failure culminating in a good number of banks having their licenses withdrawn by the Central Bank of Nigeria (CBN) and liquidated by the NDIC. The 2004 Banking Sector Reforms swept away 14 additional banks. The tenacity of bank failure in the country therefore became a matter of grave and utmost concern not only to the entire nation in general but to the practitioners and the academia.

Recently, several financial institutions in Nigeria became distressed, thus highlighting the precarious position of the financial sector. Between 1989 and 1996, the financial conditions of many banks and non-bank financial institutions worsened significantly, which compelled the authorities to take decisive steps to restore public confidence in the financial system. During this period, the number of banks classified as distressed increased from 8 to 52. Since then, another round of banking crisis started at the wake of the political instability occasioned by the annulment of the 1993 Presidential Election. Consequently, the CBN revoked the licenses of 5 banks (4 in 1994 and 1 in 1995). Also, the CBN took over the management of 17 distressed banks in 1995 and one additional bank in 1996. The bank, in exercising it's powers under Banks and Other Financial Institutions Act, 1991 (as amended), announced the revocation of the banking licenses of 26 banks with effect from January 16, 1998, which was necessitated by their grave financial conditions. This has been the terrible situation of the sector up till July 2004 when the Central Bank governor came up with the N25billion recapitalization policy for banks in Nigeria. A cursory look at this development would suggest that the banking sector in Nigeria had been operating in an unsafe and unhealthy manner, thus, exposing the fragility of the system and further erosion of public confidence. The belief that the sweeping reforms of 2004-2005 would usher in a new era of banking in Nigeria, especially in the area of enhanced capital base/shareholders funds has turned out to be a mirage. The revelations from the sector in late 2009 have confirmed the fear that this endemic crisis that has been ravaging this sector over the years has not been decisively dealt with. The ugly situation of a huge sum of non-performing loans culminating in the capital erosion of 9 out of the 24 banks in the country portends great danger to the system and

requires drastic approach to be embarked upon by the current CBN governor. According to the Central Bank of Nigeria Annual Report (1995), financial distress is defined as that which occurs in financial institutions which among other things: (i) fail to meet capitalization requirements; (ii) have weak deposit base; and (iii) are afflicted by mismanagement.

Therefore, there is distress in a situation, in which the bank is having operational, managerial and financial difficulties. The term 'distressed banks' entered into the lexicon of banking in Nigeria in the period from 1990 to 1995, though it has been in existence since early 20th century. The term to the general public connotes an unmanageable, unviable and insolvent bank that is tending towards liquidation. In ordinary parlance, distress means 'being in danger or difficulty and in need of help'. Umoh (1999) asserts that "a bank is distressed when it is technically insolvent implying that the bank's liabilities exceed the assets". The CBN/NDIC (1995: 4) describes a distressed financial institution as "one with severe financial, operational and managerial weaknesses which have rendered it difficult for the institution to meet its obligations to its customers, owners and the economy as and when due. Without necessarily implying the degree or nature of the problem, a bank is said to be distressed when it is either illiquid and/or insolvent to the extent that its ability to discharge its obligations as at when is impaired. In more precise terms, illiquidity is a state of inability to meet payments obligations to customers as at when due, while insolvency is a situation in which the value of the firm's liabilities is in excess of its assets' value, i.e., negative net worth.

The CBN/NDIC (1995: 5) describes banking system distress as "a situation in which a sizeable proportion of financial institutions have liabilities exceeding the market value of their assets which may lead to runs and other portfolio shifts and eventual collapse of some financial firms". Furthermore, depending on whether public confidence in the system has been eroded or not, financial system distress is classified into two, namely, generalized or systemic. If public confidence has not been adversely affected by the incidence of distress, though widespread among the institutions, it is regarded as a generalized distress otherwise, it is systemic distress. The CBN (2002) provides a working definition of systemic bank distress as "those situations where the solvency and/or liquidity of many or most banks have suffered shocks that have shaken public confidence. Ogubunka (2003) opines that bank distress has become a common lexicon in Nigeria given the many bank failures in the period of 1994 through 2003. Many people erroneously interchange bank distress with bank failure, which are technically distinct. Bank distress is the forerunner of bank failure. Whereas a bank in distress could have chances of regaining health, a failed bank loses every chance of life. Its final destination is the mortuary of Nigeria Deposit Insurance Corporation (NDIC) from where it will proceed to its final destination – liquidation. Imala (2004) stated that financial sector crises have occurred in many countries in recent decades, both in developed as well as emerging market economies. These crises have resulted in substantial macroeconomics and fiscal costs. Bank failures are widely perceived to have greater adverse effects on the economy than the failure of other types of businesses. They are viewed to be more damaging than other failures because of the fear that they may spread in domino fashion throughout the banking system, felling solvent as well as insolvent banks.

Thus, the failure of an individual bank introduces the possibility of system wide failure or systematic risk. Bank failures have been and will continue to be major public policy concern in all countries and that explains the fact that banks are regulated more rigorously than other industries.

The work carried out by Adeyemi (2011), captioned "Bank failure in Nigeria, a consequence of capital inadequacy, lack of transparency and non-performing loans", opines that there are three major factors accountable for bank distress which consequently ends up in Bank failures. Each of the factors he enumerated were:

- **Inadequacy of capital;** he quoted CBN (1995) claims that banks are expected to maintain adequate capital to meet their financial obligations, operate profitably and contribute to promoting a sound financial system. It is for these reasons that the CBN prescribes minimum capital requirements. This minimum ratio of capital adequacy has been increased from 6 percent in 1992 to 8 per cent in 1996. It is further stipulated that at least 50 per cent of the component of a bank's capital shall comprise paid-up capital and reserves, while every bank shall maintain a ratio of not less than one to ten (1:10) between its adjusted capital funds and its total credit. When a bank's capital falls below the prescribed ratio, it is an indication that the bank may be heading for distress. Bank examination reports showed that a good number of banks operating in Nigeria were grossly undercapitalized. This situation has been attributed to the low level of initial capital, the effect of inflation, the adverse operating results mainly due to their inability to make appreciable recoveries from their non-performing assets and the large portfolio of non-performing loans maintained by some banks. These factors have combined to erode the capital base of many banks. With the introduction of Prudential Guidelines, banks were required to suspend interest due, but unpaid, on classified assets and to make provisions for non-performing credit facilities, a good proportion of which was subject to losses. Inability to meet stipulated higher minimum capital requirements was one of the criteria used for classifying banks into either "healthy" or "unhealthy" and the latter category was barred from the foreign exchange market.

In describing capital inadequacy, Ogundina (1999) argues that capital in any business whether bank or company serves as a means by which losses may be absorbed. It provides a cushion to withstand abnormal losses not covered by current earnings pattern. Unfortunately, a good number of banks are grossly undercapitalized. This situation could partly be attributed to the fact that many of the banks were established with very little capital. This problem of inadequate capital has been further worsened by the huge amount of non-performing loans which have eroded the capital base of some of these banks. Available statistics on banks' capitalization reveal that as at the end of 1992, 120 operating banks in the country required the aggregate additional capital to the tune of N5.6 billion to meet the statutory minimum capital funds set by bank regulators for 1992. Ogubunka (2003) contends that when a bank is undercapitalized, it ought not to continue with its magnitude of operations prior to the depletion of capital. If it does without the introduction of increased capital, distress could ensue. Many banks that became distressed were affected by inadequacy of capital. Consequently, they could not sustain their operations, first, as a result of overtrading and second, due to their inability to absorb losses arising from costs of operations. A function of capital in a bank is to serve as a means by which losses can be absolved. Capital provides a cushion to withstand abnormal losses not covered by current earnings, enabling banks to regain equilibrium and to re-establish a normal earnings pattern. The need for adequate capital largely informed the decision of the regulatory authorities to raise the minimum equity share capital of banks over the years. As at 2002, the minimum paid-up equity share capital is 2 billion for a new bank to be licensed and the existing universal banks had the deadline of December 31, 2002 to beef up their paid-up equity share capital to 1 billion. This problem of inadequate capital has been further accentuated by the huge amount of nonperforming loans which has eroded some banks' capital base. It has even been discovered that many of the closed banks in Nigeria started with fictitious capital through the use of commercial paper. Such debt instruments were paid back soon after commencement of business with deposits. Many of such so-called bank owners contributed nothing to own a bank, yet they use the means to amass wealth and ruin the bank at the end of the day. Imala (2004) opines that banks are expected to maintain adequate capital to absorb operational shocks or unexpected losses, support their level of operation, operate profitably and consequently contribute towards promoting a sound financial system. It is for these reasons that the CBN periodically

prescribes minimum capital requirements in the form of minimum paid-up and the capital to risk weighted asset ratio.

The minimum capital adequacy ratio requirement has remained at the international standard of 8% and this was expected to become 10% from January 2004. Inability to meet the minimum capital requirement was one of the criteria used for classifying banks as unhealthy one.

- **Disclosure and Transparency;** Sanusi (2002) posits that disclosure and transparency are key pillars of a corporate governance framework, because they provide all the stakeholders with the information necessary to judge whether or not their interest are being served. He sees transparency and disclosure as an important adjunct to the supervisory process as they facilitate banking sector market discipline. For transparency to be meaningful, information should be accessible, timely, relevant and qualitative. According to Anameje (2007), transparency and disclosure of information are key attributes of good corporate governance which banks must cultivate with new zeal so as to provide stakeholders with the necessary information to judge whether their interest are being taken care of. Sanusi (2002) opines that lack of transparency undermines the ethics of good corporate governance and the prospect for effective contingency plan for managing systemic distress. Anya (2003) observes that lack of transparency has obscured the way many financial and economic activities are conducted and has contributed to the alarming proportion of economic/financial crimes in the financial industry. 'Trust' and the fiduciary principle, which was the cornerstone of banking, has been completely jettisoned as banks now engage in all forms of sharp practices. Some of these sharp practices involve the deliberate manipulation or distortion of records to conceal the correct and true state of affairs. These records which form the bedrock of supervisory oversight by the regulatory authorities in monitoring the soundness of the system has thus been undermined. Such distortions therefore, would necessarily result in wrong information being sent to the regulatory authorities, which should have been in a position to take adequate measures to prevent further deterioration of the bank's position. The regulatory authorities are thus handicapped by such concealment until the bank hit the irreversible point of total collapse. Thus lack of transparency has been identified as one of the most catastrophic modern societal problems plaguing banks today. Imala (2004) contends that the issue of transparency has to be taken seriously in the new dispensation. Transparency has been a recurring problem in the financial industry in Nigeria, and, unless improved upon, has the potential of making nonsense of the efforts of the supervisors in implementing the New Accord. It is hoped that the Bankers Committee's efforts, through its ethics and professionalism subcommittee and the new code of corporate governance, would greatly assist in laying a solid foundation for transparency in the industry, being one of the pillars of the New Capital Accord. The evolutionary nature of the New Accord increasingly cedes more responsibilities in the measurement of capital adequacy to the operations. Consequently, a bank has to convince the supervisor of improvement techniques in order to rise to a higher level in the evolutionary ladder. With the present situation in the banking industry, many banks may remain at the lowest rung of the ladder of sophistication in the capital measurement approach.
- **Huge non-performing loans,** A major revelation showed that many owners and directors abused or misused their privileged positions or breached their fiduciary duties by engaging in self-serving activities. The abuses included granting of unsecured credit facilities to owners, directors and related companies which in some cases were in excess of their banks' statutory lending limits, in violation of the provisions of the law (Oluyemi, 2005). A critical review of the nation's banking system over the years has shown that one of the problems confronting the sector had been that of poor corporate governance. From the closing reports of banks liquidated between 1994 and 2002, there were evidences that clearly

established that poor corporate governance led to their failures. Ogundina (1999) observes that the Nigerian financial system over the years has been under severe stress as a result of large amounts of nonperforming loans. The classified loans and advances of the whole banking industry in 1990 amounted to N11.9 billion, representing 44.1 percent of the total loans and advances. The problem of bad debts is usually exacerbated by the negligence on the part of the lending officers. Some of these loans were not granted without regard to the basic tenets of lending, nor do they comply with any rational lending criteria. This makes it extremely difficult or impossible to recover a substantial part of the loans.

A CBN/NDIC collaborative study of distress in Nigerian financial institution in 1995 revealed that factors such as bad loans and advances, fraudulent practices, under capitalization, rapid changes in government policies, bad management, lack of adequate supervision, undue reliance on foreign exchange, economic depression, political crisis, bad credit policy, and undue interference from board members are factors responsible for bank and other financial institutions distress. Ogunleye (2003) grouped these factors into institutional, economic; and political factors; including supervisory measures. The institutional factors are endogenous factors which are largely within the control of the owners and management of the banks. The collaborative study of the CBN/NDIC submitted that most of the financial institutions surveyed attributed the distressed conditions to institutional factors. The result of their study on the major institutional factors and the extent to which they contributed to distress in the banking industry are presented in table 2.1 and 2.2 as follows:

Table 2. 1: Financial Institution Assessment of the causes of Distress in the Industry (Percentage)

Causes	All financial Institution	Commercia l Banks	Merchant Banks	Community Banks	Finance houses
Bad Loans and advances	19.5	30.1	12.9	17.2	20.3
Fraudulent practices	16.7	16.4	18.8	18.5	18.9
Under Capitalization	11.8	7.6	9.6	12.7	9.0
Rapid changes in Govt. policies	10.8	9.8	5.5	16.9	13.5
Bad management	17.9	13.1	21.7	14.0	16.4
Lack of adequate supervision	16.9	20.1	29.4	17.5	17.5
Undue reliance in Forex	6.4	2.9	2.1	3.2	4.4
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: CBN/NDIC collaborative study of Distress in Nigerian Financial Services- Industry. (2000)

Table2. 2: Analysis of Financial Assessment of Factors Responsible for their being Severely Distressed (Percentage)
Source: CBN/NDIC collaborative study of Distress in Nigerian

Causes	All financial Institution	Commercial Banks	Merchant Banks	Community Banks	Finance houses
Economic depression	25.0	23.5	-	-	33.3
Political crisis	17.9	17.6	33.4	50.0	-
Bad credit	25.0	29.4	33.3	-	40.4
Undue interference from board members	32.1	29.5	33.3	50.0	26.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Financial Services Industry (2000)

The general institutional factors that led to the identified factors on the banking system can be discussed as insiders' abuse, weak corporate governance, weak risk asset management

and inadequacy of capital. Economic and political factors as well as regulatory and supervisory measures will also be discussed in brief.

Insiders Abuse

The government owned bank suffered from incessant/frequent changes in board membership and many appointments were made based on political affiliation rather than expertise consideration. Consequent upon this, board members saw themselves as representative of political parties in sharing the national cake emanating thereof and thus ascribed their loyalty to the party members rather than the proper running of the bank itself. On the side of the privately-owned banks, shareholders constituted a problem. According to Olufon (1992), the owner-managers regarded banking as an extension of their operations by appointing their relatives or friends to key positions instead of relying solely on professional managers. Thus, their appointees were mere loyalists who cared for the interest of their masters rather than the business itself. Shareholders quarrels and boardroom squabbles were common among the banks that management attention deviated in favor of unnecessary squabbles. In some banks where harmony seemed to exist, another type of insider abuse took the form of the owners and directors misusing their privileged positions to obtain unsecured loans which in some cases were in excess of their banks statutory lending limits in violation of the provisions of the Banks and other Financial Institutions Act (BOFIA) of 1991 as amended. In addition, some of these owners and directors granted interest waivers on non performing insider-credits without obtaining the CBNs prior approval as required by BOFIA. Their conversion of bank resources to service their other business interest such as allocation of foreign exchange without naira cover to insiders, later crystallized as hard core debts. They also indulge in compelling their banks to directly finance trading activities either through the banks or other proxy companies, the benefits of which did not accrue to the banks (Ogunleye, 2003). The highlight of the insiders abuse in lending, given the fact that credit had gone bad for some banks in liquidation is shown in table 2.3 as follows:

Table 2. 3: Facilities Granted to owners and directors of some Banks

S/No	Bank (In Liquidation)	No of Directors involved	Amount as at closure (₦)	% of total risk assets
1	Alpha Merchant Bank Plc	11	1,314,418,700.43	33%
2	United commercial bank ltd	5	741,755,808.86	30%
3	Financial merchant bank ltd	1	383,061,096.00	100%
4	Highland bank of Nig. Plc	12	33,197,157.58	38%
5	Commercial trust bank ltd	1	247,749,719.10	38%
6	ABC merchant bank ltd	8	272,981,634.00	49%
7	Royal merchant bank ltd	7	646,940,182.23	69%
8	North-South bank of Nig. Plc	13	240,668,637.62	32%
9	Abacus merchant bank ltd	14	568,888,254.11	47%
10	Credit bank Nig. Ltd	6	379,634,611.47	76%
11	Prime merchant Bank ltd	1	539,292.310.00	64%
12	Amicable bank of Nig. Ltd	7	149,854,896.00	56%
13	Century merchant Bank ltd	5	272,072,261.00	32%
14	Group merchant bank ltd	13	595,836,077.20	80%
15	Commerce bank plc	4	1,294,851,665.64	52%
16	Pinnacle commercial bank ltd	10	298,766,751.76	20%
17	Republic bank ltd	1	161,375,466.00	38%

Source: Ogunleye (2003)

The table shows that in financial merchant bank limited, all the loans (100%) in the bank were granted to the directors while 80 percent, 76 percent and 69 percent of the loans were

granted to the directors in Group Merchant Bank, Credit Bank Nigeria Ltd and Royal Merchant Bank Ltd respectively.

Also, the devaluation of the naira in the wake of Structural Adjustment Programme has its toll on the ability of borrowers to repay. A devaluation by more than 600 percent since the introduction of SAP shore up foreign manufacturing input prices, leading to greater domestic capacity underutilization and reduced inability of business borrowers to repay their bank loans and advances. According to CBN (1997), several of the distressed banks suffer from poor asset and liability management. The portfolios of assets of the majority of these banks were concentrated on loans and advances that became non-performing. Other assets such as treasury securities, investments and cash accounted for a small proportion of their asset portfolio. Furthermore, merchant banks that were expected to source medium to long-term funds relied mainly on short-term deposits whose tenor ranged between call/overnight funds to 3 months. These funds were obtained at excessively high rates of interest. In some cases, some banks and finance houses borrowed short and lent long, resulting in mismatch of assets and liabilities. The deterioration in asset quality was not provided for through adequate loan-loss provisions. This situation increased the vulnerability of the banks to external shocks. The profile of poor asset and liability management exposed the banks to liquidity risk which weakened the confidence that the public had in the banking sector.

With government's resolve to address the political, economic as well as distress problem in the industry, the banking system showed some positive responses in the late 1998 till the year 2000 (NDIC 1998, table 1). However, in 2001 the CBN tightened monetary policy to stem the liquidity surge arising from expansionary fiscal operations of the 3 tiers of government due to renewed emphasis of fiscal federalism. The CBN progressively raised its minimum rediscount rate (MRR) by 650 basis points from 14.0 percent to 20.5 percent, yet inflation rate still rose sharply from 6.9% in 2000 to 18.9% in 2001. (See NDIC 2001; ix, 7). This singular measure has negative spillover effect on the banking system whose total loans and advances increased from N519 billion in 2000 to N803 billion in 2001. The distressed bank's loans and advances increased from N26.4 billion in 2000 to N123.1 billion in 2001 and by 2004 rose to N191.24billion. While the non performing loans of the distressed banks rose increasingly from N29 billion in 2000 to N149.6 billion in 2004 (see table 2.4and 2.5). The reason for not extending the data to the recent yeas is for the sake of capturing the severe bank distress periods that stopped in the year 2004.

Table 2.4: Loans and Non-performing Loans Indices in the Banking Industry (1989-2004)

	Loans and Advances (N' billion)		Non-performing Loans and Advances (N' billion)		Proportion of Non-performing Loans and Advances to Total Loans (N' billion)	
Year	Industry	Distressed	Industry	Distressed	Industry	Distressed
1989	23.1	4.3	9.4	2.9	40.8	76.1
1990	27.0	6.4	11.9	4.7	44.1	72.8
1991	32.9	5.4	12.8	4.1	39.0	76.5
1992	41.4	15.7	18.8	6.8	45.5	43.0
1993	80.4	25.3	32.9	14.7	41.0	58.0
1994	109.0	54.6	46.9	29.5	43.0	64.6
1995	175.9	48.9	57.8	29.5	32.9	68.9
1996	213.6	51.7	72.4	33.9	33.9	75.5
1997	290.4	49.6	74.9	40.7	25.81	81.92
1998	327.2	24.2	63.3	18.7	19.3	77.3
1999	370.2	29.1	24.8	21.0	25.6	72.2
2000	519.0	26.4	111.6	29.0	21.5	75.8
2001	803.0	123.1	135.7	35.5	16.9	28.9
2002	938.63	102.4	199.6	40.0	21.27	39.06
2003	1205.03	129.9	260.19	98.4	21.59	76.7
2004	1519.76	191.76	350.82	149.6	23.08	79.2

Source: NDIC Annual Report and Bank Returns (2004)

Table 2.5: Performance indices in the Banking Sub sector (1990-2004)

Year	Total Number of Banks	Number of banks in distress	Deposit of Distressed banks to total deposits in banking industry (%)	Assets of Distressed banks to total assets in banking industry (%)	Amount required for recapitalization of Distressed banks (N' billion)
1990	107	9	14.6	23.7	2.0
1991	119	8	4.4	16.4	2.4
1992	120	16	18.1	20.9	2.4
1993	120	33	19.2	18.6	23.6
1994	116	55	29.4	18.6	23.4
1995	115	60	14.1	19.8	30.5
1996	115	50	14.7	11.0	43.9
1997	115	47	9.0	7.6	42.8
1998	89	15	3.5	3.9	15.5
1999	90	13	1.6	1.5	15.3
2000	89	12	2.5	20.0	10.3
2001	90	9	2.0	3.0	12.1
2002	94	NA	7.2	5.74	20.6
2003	89	NA	4.9	4.7	79.7
2004	89	NA	6.0	5.4	98.1

Source: NDIC Annual Report and Bank Returns (2004)

3.0 Performance indicators

These are indices used as metrics to assess how well the company is standing. Is the firm doing well, gradually dying or about to collapse. Example of such models includes:

- *Ratio Analysis*
- *The Z-Score Method*
- *Boston Consulting Group Model*
- *Wilcox's Probability Of Ultimate Failure*
- *Linear Gambler's Ruin Score*
- *Cash* **Flow Reinvestment Ratio**

Other non-mathematical representations which are in form of signals that also help researchers to predict the probability of corporate collapse such are:

Adverse Trend Signals
Example:
Declining Margins
Declining Market Share S
Rapidly Increasing Debt

Adverse Behavioral Signal such as:
Communication Gap

Ratio Analysis

A ratio is a simple mathematical expression of the relationship of one item to another. Ratios may be stated in several ways. Financial ratios are traditionally grouped into the following categories:

- Short-term solvency measure or liquidity ratios

- Long-term solvency or financial leverage ratios
- Asset management or turnover ratios
- Profitability ratios
- Market value ratios
- Short-term solvency

In order to compute a meaningful ratio, there must: be a significant relationship between two figures. A ratio focuses attention on a relationship which is significant, but full interpretation of the ratio usually requires further investigation of the underlying data. They are an aid to analysis and interpretation; they are not substitute for sound thinking.
To make decisions based on ratio analysis these must be considered;

Standards of Comparisons

In using Naira and percentage changes, trend percentages, component percentages, and ratios, financial analysts constantly search for some standard of comparison against which to judge whether the relationships that they have found are favorable or unfavorable. Two such standards are:

- The Past Performance of The Company
- The Performance of Other Companies in the Same Industry.

Past Performance of the Company

Company analytic data for a current period with similar computation for years affords some basis for judging whether the position of the business is improving or worsening. This comparison of data over time is sometimes called horizontal or trend analysis, to express the idea of reviewing data for a number of consecutive periods. It is distinguished from vertical or static analysis, which refers to the review of the financial information for only one accounting period.

In addition to determining whether the situation is improving or becoming worse, horizontal analysis may aid in making estimates of future prospects. Since changes may reverse their direction at any time, however, projecting past trends into the future is always a somewhat risking statistical pastime.

A weakness of horizontal analysis is that comparison with the past does not afford any basis for e valuation in absolute terms. The fact that net income was 2.5% of sales last year and is 3% of sales this year indicates improvement, but if there is evidence that net income should be 7% of sales, the record for both years is unfavorable.

4.0 Description of key Mathematical Models deployed in this research;

The Z-Score Method

The Z-score or bankruptcy rating was developed by Edward I. Altman of the Graduate school of Business of New York University. The Z-score is designed to forecast failure in the short-term.

Altman study indicates that companies with a Z-score lower than 1.81 have a high probability of failure within two years. Any company with a Z-score higher than 3.00, on the other hand, has a low probability of bankruptcy. Once derived, Altman's formula is relatively easy to work with.

To work with this model, five ratios turned out to be really important for bankruptcy prediction. The equation is:

$Z = 1.2X_1 + 1.4X_2 + 3.3\ X_3 + 0.6X_4 + 1.0X_5$

Note that this equation is mainly used in manufacturing industries. The five ratios are as follows:
X_1 = working capital/total assets
X_2 = Retained earnings/total assets
X_3 = Earning before interest and taxes/total assets
X_4 = Market value of equity/book value of total debt
X_5 = Sales/total assets

Boston Consulting Group Model

Boston consulting group model serves as .an acid test in determining maximum sustainable growth which enables a firm to assess the feasibility of strategic moves. The model is given by:

$$G = \frac{D}{E}(R-I)p + Rp$$

Where

G = the firm's maximum, long-term, sustainable growth,
D/E = the firm's debt to equity ratio,
R = The firm's after tax return on assets,
I = the firm's interest rate, and
P = the firm's percentage of its earning that are retained (% retained earnings).

Wilcox's Probability of Ultimate Failure

This is also used for a powerful calculation in determining maximum sustainable growth of a firm, though the formula makes several assumptions, such as constant after tax return on assets, a constant debt to equity ratio, and a constant cost of capital. It nonetheless does provide a useful first approximation of the firm's maximum sustainable long-term assets growth rate.

The model is given by:
P (ultimate failure) = (1-X/1 +X) y = 1.2xy
Where X = average adjusted cash flow/size of bet
Y= net liquidation value/size of bet

The approach uses using five year trends of this model – Wilcox's probability of Ultimate failure (1971, 1973) and Linear Gambler's ruin score (1976) (which is to be considered below) is calculated with the cutoff points. Wilcox has been found to be an effective predictor of actual bankruptcy. (Osuagwu et al 1995:107)

Linear Gambler's Ruin Score

This formula is defined to predict five years in advance of possible failure for both manufacturing and retailing companies. It was advanced by management consultant Jerrod Wilcox of Boston Consulting Group when he was an Assistant Professor at MIT's Sloam School of Business. With this method, investors compute the probability of bankruptcy by using calculation of a corporation's estimated "liquidation" value and the rate of change in this liquidation value.

The result depends on the company's previous ability to find dividends and capital expenditures and hold on to or increase its financial resources. The formula produces a percentage result similar to a weather forecast probability percentage. It estimates the

company's chance to stay afloat, provided its present management policies and the nature of its business stay the same. As any blackjack gambler could tell you, in a high stake game the underlying principle is that the odds are against a player with a small pile of chips.
You compute it, the investors first calculates a company's liquidation value (net worth). All current liabilities and long-term debt are subtracted from its assets. Then the investors determines how much the liquidation value changed from the previous year by subtracting from earnings, after special items, all dividends and 50 percent of the year's capital expenditures and depreciation, then subtract 30 percent of the increase in inventories and accounts receivable since last year. The model is represented thus;
Linear Gamber's Ruin Score = 10 X + Y
where X = average adjusted cash flow/size of bet

$=\mu/\sqrt{\mu 2^{+\sigma 2}} = n \Sigma \mu/\sqrt{\mu 2^{+\sigma 2}}$

i=1
Y= net liquidation value/size of bet
$= L1/\sqrt{\mu_2 + \sigma_2}$
and
μ = adjusted cash flow for $year_1$ = $(\text{net income})_1$ + 0.5 $(\text{depreciation} - \text{capital expenditure})_1$ – 0.7 $(\text{increase in other current assets})_1$
σ_2=variance of μ
L_i = current wealth = net liquidation value (net worth)
= $(\text{cash equivalent})_1$ + 0.7 $(\text{other current assets})_1$ = 0.5$(\text{long-term assets})_1$

Cash Flow Reinvestment Ratio (RcF)

This formula enables planners to calculate the amount of resources that will have to be reinvested in the business over its planning horizon in order to maintain its current growth rate. This can be done using the following;

$$\text{RcF} = \frac{\text{after tax flow}}{\text{new investment needed to support additional sales}}$$

$$= \frac{\text{after tax cash flow}}{(\$\text{sales})(\text{annual growth}).\{(\text{working capital}/\ \$\ \text{sales})+(\text{fixed- assets}/\$\ \text{sales})\}}$$

Five years average is usually used for this figure

5.0 Trajectories of corporate failure

Osuagwu (1995) had supported the trajectories of failure propounded by John Argenti. Osuagwu had posited that a trajectory is a line on a graph which is intended to represent the general health of a firm. The line does not represent any one indicator of corporate health such as profits or turnover. Profit and turnover would however follow the trajectory line quite faithfully since both are quite good indicators of health. Profit or turnover is both however subject to marked fluctuations from year to year, while corporate health does fluctuate over such period. We also know that failing companies usually employ creative accounting techniques to "improve" profits and other key indicators. These are also a number of indicators of health which are just as useful as profits, namely stock market share values, return on capital, employee morale, reputation with customers and suppliers and so on. It will be useful to measure the indicators accurately and then amalgamate them mathematically into a composite indicator of corporate health. We do not however know how to do this and the

trajectory line is therefore a somewhat subjective construction from all these individual indicators. Accordingly, we can regard a trajectory as an indicator of the general health of a company as it collapses towards axis that hold the time scale while the vertical axis portrays the five states of health – failure, poor, excellent, and fantastic. A full description of the three types of failure is presented below:

Type 1: Description

Type 1 failures occur only to companies newly formed and, affect mainly small firms. The general health of the company probably never rises above "poor" and it probably fails within five years. (see Fig.2.2), at point 1 on the Type 1 trajectory, that is at the launch of the company, a number of defects in the management structure will be seen. There will be one-man rule for the simple reason that, in most cases the company may only have one manager at the early stage and consequently there will also be a lack of management depth, an unbalanced top team – and all the other six defects under "management", the presence of an autocrat in a company is an important indicator of possible failure. But in the case of a one-man band we have to interpret with care for the boss of a small company is bound to dominate it without it necessarily failing. At point 2 there will be no budget, no cash flow plans, and no costing system. The proprietor will almost certainly not have included loan interest, depreciation, and so on, in the flow calculations that he has mad, he will not have allowed for losses in the early years. He will not know the marginal cost of his product. He may never hear of 'contribution' margin.

At point 3, he must have obtained a bank loan of bought equipment on hire purchase at the early days. So the gearing will be high right from the start. Perhaps he will have retained some assets in his own name thus further increasing the effective gearing. At point 4, still in the early days, the company launches a big project that its present resources cannot carry and this project becomes a massive burden on the company's resources which was never intended. At this point Type 1 companies begin life with serious defects. Right from start four out of the seven casual agents of failure, are present at birth. At point 5 it becomes apparent that the proprietor has in fact seriously underestimated the cost and overestimated the revenues of the project the company was formed to launch. Point 5 may well occur within months of the start of the company. This is regarded as a monumental error of immense magnitude.

At point 5, all cash flows are negative and so are profits including all financial ratios. At point 7 the proprietor may begin creative accounting because he expects to have to ask the bank for further loan. At point 8, even the most insensitive person will recognize the failure. At point 9, a normal business hazard occurs, such as strike or an economic turndown. At point 10, the proprietor takes some form of crises action such as cutting the selling prices to over trading. At point 11, he seeks further loans, although his net assets are already negative and does through the usual, but very painful, last few months. He either obtains more capital, in which case, at point 12, he finds he cannot make enough profit to maintain the interest payments or he does not, in either case, the Receiver is called in at point 13, to liquidate his company.

It may not be true of all Type 1 failures that they must follow exactly the trajectory described above. The main failure of Type 1 is that they never got off the ground.

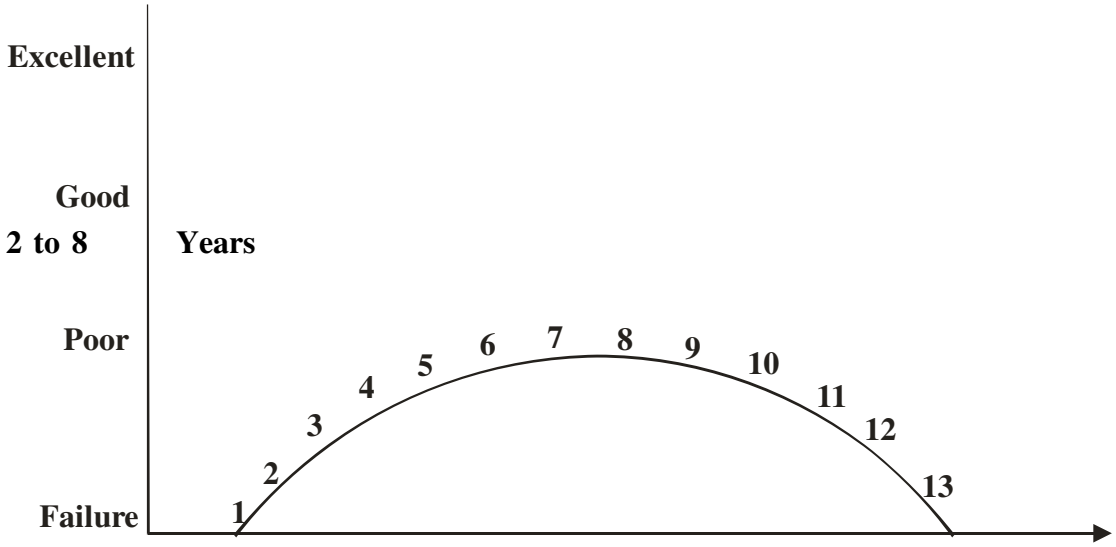

Fig 5.2 The Type 1 trajectory

Type 2: Description

At point 1 where the firm is formed, it will have the same management defects as in Type 1. There however, one very prominent and identifiable difference, namely that while the proprietor of a Type 1 company is not notable for his outstanding personality, the proprietor of a Type 2 is. So remarkably is the failure, which Barmesh particularly noticed, that we shall record it as point 2. At point 3, it becomes clear that the energy and ability of the proprietor, together with what is often a brilliant product, has ensured a swift take-off. At this early point, then Type 2 trajectories diverge from a Type 1. Sales continue to expand rapidly (point 4) necessitating new capital resources and since margins do not fall and since the proprietor's powers of persuasion are considerable, these resources are rapidly made available (point 5). No over-gearing or over-trading occurs. On the contrary, by now a number of financiers and institutions are becoming interested in the remarkable performance of the company and offers of capital are recovered in some profusion (point 6).

Sales and profits continue to rise (point 7). This stage, the unscrupulous company pusher' occasionally appears. He offers his own capital to the entrepreneurs, trumpets the company's brilliant future, and then, just before the company collapses, sells out. At point 8, a promising company's trajectory, having reached `good' would begin to curve over and subtle down to doing, sober, stale period between `good' and `excellent', but Type 2 companies do not do this. Instead, the volume of sales, the level of profits, the availability of capital and other resources all continue to expand. At point 9, the company is noticed by the press and a vicious circle is completed. By point 10 the company is now so large and important that any normal company would long ago have introduced all the trappings of formal management. Type 2 companies continue being run by the proprietor who perpetuate all or most of the six management defects. At point 11, whether it has `gone public' or not the proprietor himself is now extremely wealthy and his name is known throughout the land. At point 12 turnover grows – but this time profits do not. No one knows that this inevitable turning point has been reached because creative accounting begin immediately at point 13, in a frantic attempt to keep turnover and profits rising at the rate that the proprietor, his backers, his employees have come to expect he now reaches into the absurd. At point 14, then we find the most entertainment non-financial symptom, namely that the company and its proprietor have become ridiculous. Technically, they are overtrading, for turnover has now risen so long and so fast that the distributors begin not to believe their luck and at point 16 they refuse further advances. At point 17 the company could not manage it normal business hazard and it then

collapses, at point 18, the receiver is called for liquidation. The major cause are management defect, overtrading and creative accounting.

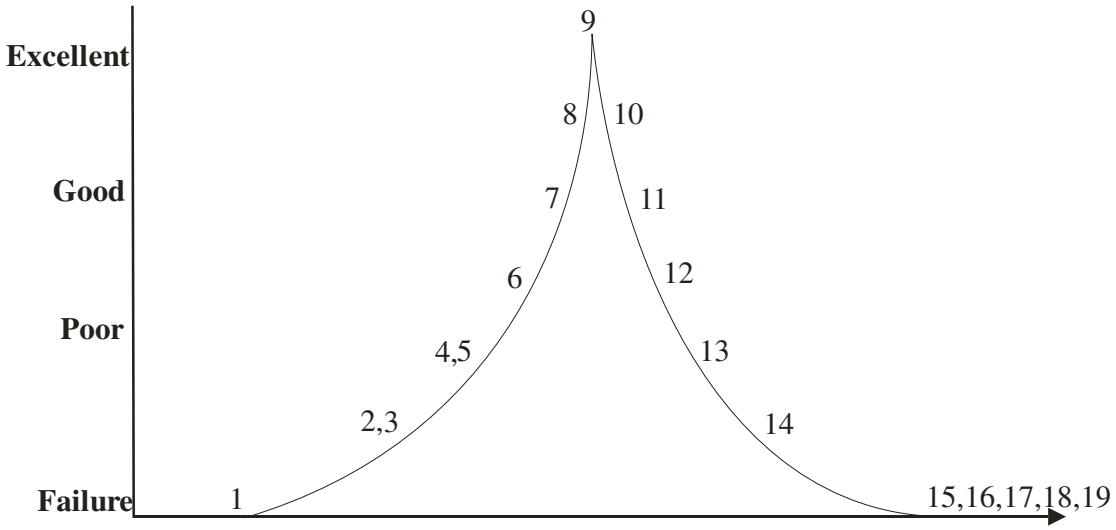

Fig 5.3: The Type 2 trajectory

Type 3: Description

Major firms are those usually affected by Type 3 failure. These companies have been trading successfully for a number of years or decades. They are of social and economic importance nationality. Such that their failure is a national tragedy. From point 1 through 3 we will notice that the company is thriving, may still have some management defects and accounting defects too. The defects at point 2,3 and 4 are visible for months or years before the initial collapse occurs at point 5, which might be as a result of normal business hazard. At point 6 profits fall dramatically.

At point 7 the financial ratios deteriorate. At point 8 morale falls and other non – financial symptoms appear. At point 9 profits have still not been recovered even though it may now be one or two years after point 5.

At point 11, they obtain a loan which sends the gearing to a dangerous height. The high gearing makes the firm pay a large chunk of its profit to financial houses as interest and nothing is remaining to be ploughed back to investment. At point 12, profit level out at last but a volume that does little more than cover the interest payments. The general health of the company is `poor'. Sales and profit are not to bounce back on a path growth as a normal health company would after a bad fall. At point 13, in an attempt to boost itself off the plateau the managers will either launch a new ambitious project or launch a campaign to expand sales from existing facilities but they will `fall'. At point 14, sales and profit will rise due to these efforts and the apparent that either the project is running into trouble or those sales are running ahead of the capital available to finance them, or a pressure group applies a constraint or a new formal business hazard appears. At point 16, profit fails to cover interest payments, a cash flow crises occurs and all the drama of the last few begin months again. At point 17, the receiver is called in for liquidation.

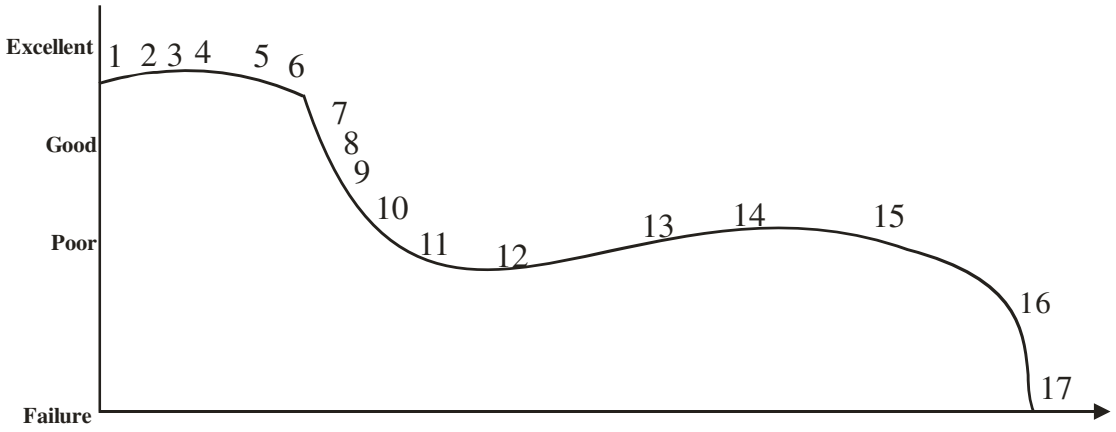

Fig 5.4: The Type 3 Trajectory

Osuagwu concluded that the use of this signals considered here are the easiest ways of accessing the sustainability of a firm.

Explanatory variables in prior literature

A comprehensive survey of the financial ratios employed in 47 journal articles on corporate failure is provided by Dimitris. (1996). If attention is restricted to ratios drawn from the financial statements of companies, five groupings are usually given prominence in the literature namely, liquidity, debt, profitability, activity, and size (Altman, 2000). Liquidity refers to the availability of cash resources to meet short-term cash requirements. Debt measures focus on the relative mix of funding provided by shareholders and lenders. Profitability considers the rate of return generated by a firm in relation to its size, as measured by sales revenue and/or asset base. Activity measures consider the operational efficiency of the firm in collecting cash, managing stocks and controlling its production or service process. Firm size provides information on both the sales revenue and asset scale of the firm and acts as a proxy metric on firm history (Levinthal, 1991).A range of individual financial ratios can represent the groupings of potential explanatory variables, each with slightly differing information content. The groupings are interconnected, as weak (or strong) financial performance in one area will impact on another. For example, a firm with a high level of debt may have lower profitability due to high interest costs. Whatever modeling methodology is applied in order to predict corporate distress, the initial problem is to select a quality set of model inputs from a wide array of possible financial ratios, and then to combine these ratios using suitable weightings in order to construct a high quality classifier.

Altman (2000), in his research "predicting financial Distress of companies" revisiting the Z score and Zeta models and gave five groupings of explanatory variables, drawn from financial statements, are given prominence in prior literature

i. Liquidity
ii. Debt
iii. Profitability
iv. Activity / Efficiency
v. Size

Zmijikwski (1984) reports that this rate is less than 0.75% in the US and Morris (1997) suggests that the rate is below 2% in the UK. Moutal (1993) report that out of a sample of 73 firms entering between 1980 and 1986, only 44 were successfully reorganized with only 15 of these firms emerging with more than 50% of their pre bankruptcy assets. Liquidity refers to the availability of cash resources to meet short- term cash requirements. Debt measures focus on the relative mix of funding provided by shareholders and lenders.

Profitability considers the rate of return generated by a firm, in relation to its size, as measured by sales revenue and/or asset base. Activity measures consider the operational efficiency of the firm in collecting cash, managing stocks and controlling its production or service process. Firm size provides information on both the sales revenue and asset scale of the firm and also provides a proxy metric on firm history. The groupings of potential explanatory variables can be represented by a wide range of individual financial ratios, each with slightly differing information content. The groupings themselves are interconnected, as weak (or strong) financial performance in one area will impact on another. For example, a firm with a high level of debt, may have lower profitability due to high interest costs.

Whatever modeling methodology is applied, the initial problem is to select a quality set of model inputs from a wide array of possible financial ratios, and then to combine these ratios using suitable weightings in order to construct a high quality classifier. Given the large search space, an evolutionary automatic programming methodology has promise.

Formal research into the prediction of corporate failure has a long history. Fitzpatrick (1932), Smith (1935), Horrigal (1965). Early statistical studies such as Beaver, (1968), adopted a univariate methodology, identifying which accounting ratios had greatest classification accuracy when identifying failing and non-failing firms. Although this approach did demonstrate classification power, it suffers from the shortcoming that a single weak financial ratio may be offset (or exacerbated) by the strength (or weakness) of other financial ratios.

Altman. (1968) addressed this issue by employing a linear discriminant analysis (LDA) model, which utilised both financial and market data concerning a firm, and this was found to improve the classification accuracy of the developed models. The discriminant function which produced the best classification performance in Altman's 1968 study was:

$Z=.012x_1 + .014X_2 + .33X_3 + .006X_4 + .999X_5$

where:

X_1 = working capital to total assets
X_2 = retained earnings to total assets
X_3 = earnings before interest and taxes to total assets
X_4 = market value of equity to book value of total debt
X_5 = sales to total assets

LDA assumes both multi-variate normality and the equality of the covariance matrices of each classification group. Generally, these assumptions do not hold for financial ratio data.

Other statistical methodologies which have been applied include logit and probit regression models Gentry, (1985), Zmijekwski, (1984), Ohlson. (1980). In recent times, methodologies applied to this problem domain have included neural networks Serrano-Cina, . (1996),Shah, (2000), Wilson, (1995) genetic algorithms Varetto, (1998) Dambolena, (1980), and hybrid neural network genetic algorithm models, Black, (1996).

Discussion of Results and Findings

The totality of this research effort has revealed reasons why seemingly successful companies suddenly fail. Table 2.1-2.5 provide empirical evidence of why most banks crashed out of the industry between 19…20.. Evidence gathered in this study has been corroborated by earlier researchers. The identified factors that lead the road to corporate collapse are listed below**:**

1. One-man autocratic management. This means one man know it all. He does not believe any other staff can support the survival of the firm. He does not delegate and go it all alone. Every other staff will desert him and he is bound to fail.

2. overtrading – doing more business than the company's gearing can carry. This is the most dangerous index that can collapse a firm unexpectedly. Firms must watch their cash flow and do not need to delve into huge projects which will require huge loans from banks which it cannot carry.
3. inability of corporate strategists to monitor crucial stimuli in their operating environments. Corporate Management must always be on the lookout on events unfolding in their operating environments and assess how these events affect her corporate portfolio and adjust according. Events such as inflation, global interest rate, changing foreign exchange levels, technology developments that may make present facilities obsolete and so on.
4. no sustenance of organizational culture. Members of the internal coalition are beginning to forget the culture which made the organization great in the past.
5. Demographic variables of owners is inclined towards people with intent to benefit from the depositors fund without interest of the depositors in mind, or made up of fraudsters. There instances where top executives of the banks stole depositors fund and disappeared overseas allowing the bank to collapse in their absence.
6. Insider trading and tacit fraud behaviour. There have been instances where bank staff have collaborated with fraudsters to swindle individuals and corporations of their hard earned income. This is not good for a firm. Such behaviours will lead to mistrust and weaken the public legitimacy of the organization

The findings are in agreement with the findings of earlier research and results of the hypothesis tested in this study.

Hypotheses Tested and Results

H_{01}: Overtrading and lack of innovation has no relationship with corporate collapse.
H_1: Overtrading and lack of Innovation has a relationship with corporate collapse

Chi-square value calculated is 25.308 and 21.654 with p-values 0.000 and 0.000 respectively (column QA and QC of Table 1). This gives a very highly significant values implying rejection of H_0 indicating that overtrading and Lack of Innovation has a significant relationship with corporate failure. This conclusion is valid at both 5% and 1% levels of significant since the p-values are all less than 0.05(5%) and 0.01(1%).

H_{02}: Poor Value System and not "sticking to the knitting" does not negatively affect corporate health.
H_2: Poor Value System and not "sticking to the Knitting" negatively affects corporate health.
The Chi-square value calculated is 29.731 and 10.885 with p-values 0.000 and 0.028 respectively (columns QD and QE of table 1). This is also a significant value resulting to the rejection of H_0 thus indicating that poor value system and not "sticking to the knitting" negatively affects corporate health. This conclusion is valid at 5% level of significant for both factors but at 1% level of significant, not sticking to the knitting is not significant since its p-value, 0.028 is not less than 0.01(1%).

H_{03}: Bad Accounting Information system does not contribute to corporate collapse.

H_3: Bad Accounting Information system contributes to corporate collapse.
The Chi-square value calculated is 18.962 with a p-value of 0.001. The value is significant amounting to the rejection of H_0 thus indicating that Bad Accounting Information system contributes to corporate collapse. This conclusion is valid at both 5% and 1% levels of significant since the p-value, 0.001 is less than both 0.05(5%) and 0.01(1%).

H_{04}: Huge Non-performing Loans does not contribute to Corporate collapse
H_4: Huge Non-performing Loans contributes to corporate collapse
The Chi-square value calculated is 29.731 with a p-value of 0.000. The value is significant amounting to the rejection of H_0 thus indicating that Huge Non-performing Loans contributes to corporate collapse. This conclusion is valid at both 5% and 1% levels of significant since the p-value, 0.001 is less than both 0.05(5%) and 0.01(1%).

H_{05}: No or Bad corporate planning does not contribute to corporate collapse
H_5: No or Bad corporate planning contributes to corporate collapse
The Chi-square value calculated is 8.000 with a p-value of 0.005. The value is significant amounting to the rejection of H_0 thus indicating that No or bad corporate planning contributes to corporate collapse. This conclusion is valid at both 5% and 1% levels of significant since the p-value, 0.001 is less than both 0.05(5%) and 0.01(1%).

H_{06}: Poor citing of the firm does not affects corporate collapse
H_6: Poor citing of the firm affects corporate collapse
The Chi-square value calculated is 12.500 with a p-value of 0.00. The value is significant amounting to the rejection of H_0 thus indicating that Poor citing of the firm affects corporate collapse. This conclusion is valid at both 5% and 1% levels of significant since the p-value, 0.001 is less than both 0.05(5%) and 0.01(1%).

H_{07}: Employment of close relatives has no negative effect on corporate health.
H_7: Employment of close relatives has negative effect on corporate health.
The Chi-square value calculated is 42.320 with a p-value of 0.000. The value is significant amounting to the rejection of H_0 thus indicating that employment of close relatives has a negative effect on corporate health. This conclusion is valid at both 5% and 1% levels of significant since the p-value, 0.001 is less than both 0.05(5%) and 0.01(1%).
H_{09}: One man show administration does not contribute to corporate collapse.
H_{09}: One man show administration contributes to corporate collapse
The Chi-square value calculated is 121.39 with a p-value of 0.000. The value is significant amounting to the rejection of H_0 thus indicating that One man show administration contributes to corporate collapse. This conclusion is valid at both 5% and 1% levels of significant since the p-value, 0.001 is less than both 0.05(5%) and 0.01(1%).

H_{010}: Introduction of Financial health tracking software will not reduce the incidence of corporate collapse.
H_{10}: Introduction of Financial health tracking software will reduce the incidence of corporate collapse. The Chi-square value calculated is 53.468 with a p-value of 0.000. The value is significant amounting to the rejection of H_0 thus indicating that financial health tracking software will reduce the incidence of corporate collapse. This conclusion is valid at both 5% and 1% levels of significant since the p-value, 0.000 is less than both 0.05(5%) and 0.01(1%).
The estimates of the extent, each factor impacts on the performance of the financial system of firms using the weighted scores (percentages and generated by the researcher as listed earlier) that are analyzed based on maximum likelihood extraction analysis are presented as follo

Summary, Conclusion and Recommendations

This research covered 20 banks and it sought to identify factors responsible for why banks in Nigeria are distressed and eventually collapse. Through questionnaires, participant observation and anlysis of secondary data, six major factors have been identified as presented in 3.x above. This study has concluded that members of the internal coalition contribute to the failure of firms. It is therefore recommended that organizations must be on the watch for autocratic leadership, fraud behaviour of staff members, trading according to the capacity of the firm to carry, moderate insider dealings, control the negative tendency of top management to cheat, constantly monitor the operating, industrial and global environments and adjust her plans in line with the stimuli observed. By so doing, most corporate failures will be averted.

References

[1] Adeyemi, K.S. (2007) *Banking Sector Consolidation in Nigeria Issues and* Challenges. Union Digest, Union Bank Publication.

[2] Adeyemi B (2011)"*Bank Failure In Nigeria: a Consequence of Capital Inadequacy, Lack of Transparency and Non-performing Loans*? Banks and Bank Systems;Vol.6,Issue 1,2011

[3] Altman, E. (1968). '*Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy'*, *Journal of Finance*, Vol. 23 pp 589-609.

[4] Altman, E., Haldeman, R. and Narayanan, P. (1977). '*ZETA Analysis: A new model to identify bankruptcy risk of corporations',* Journal of Banking and Finance, Vol. 12 pp 29-54.

[5] Altman, E. (1993). *Corporate Financial Distress and Bankruptcy*, New York: JohnWiley and Sons Inc.

[6] Altman, E. (2000). '*Predicting Financial Distress of Companies:* Revisiting the Z-score and Zeta models', *http://www.stern.nyu.edu/ealtman/Zscores.pdf, October 2001*.

[7] Anameje A.C (2007). *Banking and finance Professionalism in the 21st century and beyond*. *The Nigerian Banker*. Journal of the Chartered Institute of Bankers of Nigeria, October-December Edition, pp,14-17.

[8] Anya O. Anya (2003) *Corporate Governance as an Effective Tool for combating financial and Economic Crimes. The Nigerian banker* Journal of the Chartered Institution of bankers of Nigeria. October- December Edition pp. 32-36.

[9] Argenti, J. (1976*). Corporate Collapse: The Causes and Symptoms,* London: McGraw-Hill.

[10] Association for payment Clearing services(APACS) (1994). *Annual report*. London, Uk

[11] Back, B., Laitinen, T., Sere, K. and van Wezel, M. (1996). *'Choosing Bankruptcy Predictors using Discriminant Analysis, Logit Analysis and Genetic Algorithms', Technical Report no. 40, Turku Centre for Computer Science, Turku School of Economics and Business Administration.*

[12] Baker B.M, Ayechew MA.A (2003*)* A GENETIC Algorithm for the Vehicle Routing Problem. *Computers & Operations Research 30 (5): 787-800.Turk*

[13] Beaver, W. (1966). '*Financial Ratios as Predictors of Failure'*, *Journal of Accounting Research - Supplement: Empirical Research in Accounting*, 71-102. [7]
[14] Beaver, W. (1968). '*Financial Ratios as Predictors of Failure'*, *Journal of Accounting Research - Supplement: Empirical Research in Accounting*, 71-102.
[15] Brabazon A (2002) *Neutral networks*. *Design using an evolutionary Algorithm*. Irish Accounting Review Vol.9(1): 1-18
[16] Brabazon A, O' Neil M (2004) *Hybrid Genetic model for the prediction of Corporate Failure*. Journal of computational Management and Science,293-310.
[17] Bibeault (1982), Rose, P, Andrewa, W. and Giroux, G. (1982). '*Predicting Business Failure*: A macroeconomic Perspective Journal of Accounting, Auditing and Finance, Fall:20
[18] Bigus JP (1996), *Data Mining with Neutral Networks*. Newyork. McGraw-Hill.
[19] Boritz .B. Zopounidis .C, Slowinski R, Doumpos M, Dimistras A, Susmaga R (1991) *Business failure prediction using rough sets*: A comparison with Multivariate analysis techniFuzzy
[20] Economic Review Vol.4 (1): 3-33.
[21] Brown S. Goetzmann W. Kumar A. (1998) *The dow theory*: William peter Hamilton's track record reconsidered Journal of finance 53 (4): 1311-1333.
[22] CBN/NDIC (1995) *Distress in the Nigerian Financial service industry*: A CBN/NDIC Collaborative study. Page publishers services Ltd, Lagos Nigeria.
[23] Central of Bank of *Nigeria Annual Report and statement of Account*s (1995)
[24] Central Bank of Nigeria (1997). *Financial sector distress in CBN Briefs, series Nos. 97/01-97/12, Research Department.*
[25] Central Bank of *Nigeria Annual Report (1997).*
[26] Central Bank of Nigeria *Annual Report and statement of Accounts (2002*
[27 Charalabious .C. Zhang G. Hu M, Patuwo B, Indro D (2000) ` *Artificial Neutral Networks simulation and the prediction of cooperate outcomes*: some empirical findings. International Journal of the Economics of Business 2 (1): 31-50.
[28] Cinca C (1996) *Self Organizing Neutral Networks For Financial Diagnosis*. Decision Support Systems 17 (3): 227-238.
[29] Compustat Database. http://www.compustat.com
G. (1989), Approximation by superposition of a sigmoidal function
Math control signal systems 2(4): 303-314.
[30] Cybenko G. (1989) *Math, control signal systems 2 (4): 303-314.*
[31] Dambolena, I. and Khoury, S. (1980). '*Ratio Stability and Corporate Failure'*, *Journal of Finance*, 35(4):1017- 1026.
[32] Deboeck G (1994) Trading on the Edge *: Neural, genetic, and Fuzzy Systems for Chaotic financial markets. New York; Wiley.*
[33] Dimitras A, Zanakis S, Zopounidis C (1996) *A survey of business failures with an emphasis on prediction methods and industrial applications, European* Journal of Operational Research (90 93): 487-513 Easterbrook (1990) is corporate bankruptcy efficient? Journal of economics 27 (2):411-417
[34] DRM Assocaites (2002*)``New Product Dev. Glossary*" retrieved 2006-10-29
[35] Easterbrook, F. (1990). '*Is Corporate Bankruptcy Efficient?*', *Journal of Financial Economics*, 27:411-417.
[36] Ezamel and Mar Molinero . (1987). Corporate Collapse*: An early warning system for lenders, investors and suppliers*, Roseville:NSW, McGraw-Hill (Australia).
[37] Fan A., Palaniswami M (2000) *A New approach to corporate Loan default prediction from Financial Statements*. In: proceedings of computational Finance/ Forecasting Financial Markets Conference (CF/FFM-2000) May 2000, London.

Federal Reserve bulletin (1994) , Vol 80 No.4, U.S.A

[38] Ferris, S., Jayaraman, N. and Makhija, A. (1996). '*The Impact of Chapter 11 filings on the Risk and Return of Security Holders, 1979-1989'*, *Advances in Financial Economics*, 2:93-118.

[39] Financial Times (1994a,October 13). "World Trade News: *Taking the paper out of trade – The quest for more efficient commerce"*. London, Uk

[40] Financial Times (1994b, October 9). *"what to do when chaps can't cope:Reform of Uk Bank settlements procedures aims to reduce risk to the financial system"*. London, UK.

[41] Financial Times (1994c, September 13). *"International Capital markets:Europe faces Ecu225m bank charge"*. London, Uk.

[42] Financial Times (1994d, November 29). *"Survey of Global Custody: uncertainty over expansion plans – A look at the cross-border financial message network"*. London, UK.

[43] Financial Times (1994e, June 28). *"Survey of Computer Networking:new dimensions in messagin*g – Electonic data interchange and electronic mail". London, UK.

[44] Financial Times (1994f,October 26). *Survey of Tecnology in the Office:WDI traffic increases – The electronic marketplace is on its way"*. London,UK.

[45] Financial Times (1995, November 15). *"Survey of Computers in Financial:still room for enhancement – wholesale banking systems*". London, Uk.

[46] Fitzpatrick, P. (1932*). A Comparism of the Ratios of Successful Industrial Enterprises with Those of Failed Companies*, Washington: The Accountants' Publishing Company.

[47] Gentry, J., Newbold, P. and Whitford, D. (1985). *'Classifying Bankrupt Firms with Funds Flow Components*', *Journal of Accounting Research*, 23(1):146-160.

[48] Goldberg D (1989) *Genetic Algorithms in search, optimization and Machine learning*. Boston, USA: Addison Wesley Longman.

[49] Gurney K (1997) An introduction to Neural networks . London : University College London press

[50] Hair J, Anderson R, Tatham R, Black W (1998) *Mutivariate Data Analysis:* Upper Saddle River, NJ: Prentice Hall.

[51] Hambrick, D. and D'Aveni, R. (1988). '*Large Corporate Failures As Downward Spirals',* Administrative Science Quarterly, 33:1-23.

[52] Holland J (1975) *Adaptation in Natural and Artificial Systems*. Ann Arbor, USA : University of Michigan press.

[53] Imala O.I (2004). *The Experience of Banking supervision in Financial sector Surveillance Bullion*. A publication of the central bank of Nigeria, 28 (1), pp.49-53.

[54] Jones .G. Peel. M, Peel D and Pope, P. (1987). ' *predicting Corporate Failure*: *some Results for the UK Coroperate sector*, Omega International Journal of Management Science, 14:5-12.

[55] Kahya, E. and Theodossiou, P. (1996), "*predicting corporate Financial Distress*: *A Time-serie support with hybrid genetic and neural based modeling tools'*, *European Journal of Operational Research*, 103:339-349.

[56] Kumar, N., Krovi, R. and Rajagopalan, B. (1997). '*Financial Distress*: *A Time- series CUSUM Methodology'* Review of Quantitative finance and Accounting 13:71-93.

[57] Laitneu and Kankaany (1999) '*Financial Distress, Reorganization and Organizational Efficiency'*, *Journal of Financial Economics*, 27(2):419-444.

[58] Levinthal D (1991) *Random walks and organizational mortality* Administrative science Quarterly 36 (3) 397-420.

[59] Lindsey, I.(1994). *"Credit cards–the authoritative guide to credit and payment cards"*. London, Uk.

[60] Mitchell M (1996) *An Introduction to Genetic Algorithms. Cambridge* , A, USA: MIT press.

[61] Moody's (2000) *Risk Calc. for private Companies*: Moody's Default Model. http://riskcalc. Moodysrms. Com/us/research/crm/56402. pdf, july 2001.
[62] Morris, R. (1997). *Early Warning Indicators of Corporate Failure: A critical review of previous research and further empirical evidence* London: Ashgate Publishing Limited.
[63] Moulton, W. and Thomas, H. (1993). '*Bankruptcy As a Deliberate Strategy*: *Theoretical Considerations and Empirical Evidence', Strategic Management Journal*, 14:125-135.
[64] Nigeria Deposit Insurance Corporation (1997*) Bank Deposit insurance in Nigerian* edited. By Umoh P.N NDIC, Abuja Nigeria.
[65] Ogunleye G.A (2003) *The causes of Bank Failures and Persistent Distress in the Banking industry*. NDIC Quarterly, vol 13 (4): 21-41.
[66] Ogubunka, U. M (2003). *Walking ahead of Bank Distress. The secrets of .safeguarding your money in Banks*, Lagos: Rhema Enterprises, pp. 19-26.
[67] Ogundina, A. (1999). *The Nigerian banking and financial Environment,* Ibadan, Immaculate press, pp.138-151.
[68] Ohlson, J. (1980). *'Financial Ratios and the Probabilistic Prediction Of Bankruptcy'*, *Journal of Accounting Research*, 18:109-131.
[69] Okpara G.C (2009) *A synthesis of the critical factors Affecting performance of the Nigerian Banking System.* European Journal of Economics, Finance and Administrative Sciences, Issue 17:34-44
[70] Oluyemi, S.A (2005). *Banking sector Reforms and the imperative of Good Cooperate Governance in the Nigeria Banking system.* NDIC quarterly, 16 (1), PP. 72-101.
[71] Olufon G.K. (1992)" *problems of Boardroom Imbroglio Afflicting the banking Industry in ` Nigeria. The leadership role of Board Chairman in bank management* " Edited by Wole Adewumi, published by CIBN, Lagos.
[72] Osuagwu O. E, Ugwu A and Onuma J (1995) *Corporate Collapse and Bank Failures*. *What the ordinary man must know* . Olliverson Industrial Publishing House, Owerri. Pp.1-12, 70-106.
[73] Osuagwu O. E, and Maaki P (2006) *Computer assisted Linear programming algorithm for optimizing bank portfolio in a period deregulation and competition* , Published in the proceedings of the international Conference on Mathematics and computer science held at Covenant University, Sango Ottah. Oranginsed by COAN
[74] Rees , Koza, J.(1995). *Genetic Programming*. MIT press.
[75] Russel, P., Branch, B. and Torbey, V. (1999). '*Market Valuation of Bankrupt Firms: is there an anomaly?'*, *Quarterly Journal of Business and Economics*, 38:55- 76.
[76] Sanusi , J.O (2002). *Enhancing Good Corporate Governance: a strategy for Financial sector soundness.* A key- note Address Delivered at the Annual Dinner of the Chattered Institute of Bankers of Nigeria at Abuja, November 8.
[77] Sarker R, Newton C (2002) *A genetic algorithm for solving economic lot Size schedule problem.* Computers & Industrial Engineering Journal 42 (2-4): 189-198.
[78] Schumpeter, J. (1934). *The Theory of Economic Development,* Cambridge, MA: Harvard Business Press.
[79] Serrano-Cina, C. (1996). *'Self organizing neural networks for financial Diagnosis'*, *Decision Support Systems*, 17:227-238.
[80] Shah, J. and Murtaza, M. (2000). '*A Neural Network Based Clustering Procedure for Bankruptcy Prediction', American Business Review*, 18(2):80-86.
[81] Smith, R. and Winakor, A. (1935). '*Changes in the Financial Structure of Unsuccessful Corporations'*, *University of Illinois, Bureau of Business Research, Bulletin No. 51.*
[82] Soludo C.C (2004) *consolidating the Nigerian banking industry to meet the Development*

Challenges of the 21st century. An address by the CBN Governor at the special meeting of the Bankers Committee on July 6th, 2004, CBN Headquarters Abjua

[83] Steven P. Reiss (2001) *Consistent Software Evolution Mandatory*. Dept of Computer Science, Brown University .

[84] Sung, T, Chang, N, and Lee, G (1999). "*Dynamics of modeling in data mining: Interpretative Approach to bankruptcy Prediction*, Journal of Management information systems, 16 (1): 63-85.

[85] The Economist (1991, june 29). *"plastic community:European payment cards"*. London,Uk. *The Economist* (1992a, October 17). *"Hand over the money*: *Central bankers want to bring payment systems closer together, especially in Europe"*. London, Uk

[86] The Economist (1992b, November 7). *"European payment systems: Tangled transfer"*. London, Uk.

[87] The Economist (1993, September 11) *"The future surveyed: the challenge of global money"*. London, Uk.

[88] Trigueiros, D. and Taffler R. J. (1996). '*Neural Networks and Empirical Research in Accounting'*, *Accounting and Business Research*, 26(4):347 - 355.

[89] Ukwandu E.A. (1999) '*Electronic Corporate Sustainability Assessment', Unpublished* Bsc Project, Imo State University , Owerri,.

[90] Umoh P.N (1999). *A Decade of Deposit Insurance in Nigeria*: *Issues and Challenges,* Lagos, NDIC.

[91] Varetto, F. (1998). '*Genetic Algorithms in the analysis of insolvency risk'*, *Journal of Banking and Finance*, 22(10):1421 - 1439.

[91] Warner .J. Pendharkar, P. (1977). *An empirical study of design and testing of hybrid involuntary- neutral approach for classification*, Omega, 29:361-374.

[92] Wilson, N., Chong, K. and Peel, M. (1995). '*Neural Network Simulation and the Prediction of Corporate Outcomes*: *Some Empirical Findings', International Journal of the Economics of Business*, 2(1):31-50.

[93] Wong B, Lai V, Lam J (2000) A Biography of Neural Networks Business applications research: 1994-1998. *Computers and operations research* 27 (11-12): 1045 -1076.

[94] Yao C. (1999) *Evolving artificial Neutral Networks* . Proceedings of the IEEE 87 (9): 1423-1447 avgren schumpter J. (1983) *The theory of Economic Development,* Cambridge, *MA*: Harvard Business Press Serrano-

[95] Zmijewski, M. (1984). *'Methodological Issues Related to the Estimation of Financial Distress Prediction Models'*, *Journal of Accounting Research – Supplement*.

[96] http://www.dictionary.com/browse/hypothesis