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*Editors in Chief*

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Testing the Pecking Order Theory of Capital Structure in FTSE 350 Food Producers Firms in United Kingdom between 2001 and 2005

*Louie DACOSTA, Charles ADUSEI*

# Editor's Introduction to Volume 4 of Expert Journal of Finance

Special Volume:  
**Oriental and African Studies**

Simona VINEREAN \*

Sprint Investify

Volume 4 of *Expert Journal of Finance* takes the form of a special volume, titled '*Oriental and African Studies*'. This special issue comprises of original research that introduce an extraordinary range of issues, such as CSR's effect on financial indicators, impact of staff cost on bank profitability, competitive benchmarking of financial position in UK's food industry, bank portfolio rigidity and identified the causes of economic absorption, financial distress and corporate failures, and capital structure as it relates to pecking order theory and trade-off theory. We are appreciative of the opportunity to publish such meaningful contributions to finance knowledge. Further, I present a short description of each article that is published in *Expert Journal of Finance*, volume 4.

In '*Impact of Corporate Social Responsibility on Financial Performance: Evidence from Listed Banks in Nigeria*', authors Joseph Ugochukwu Madugba and Michah C. Okafor analyze CSR's effect on various financial indicators, such as Earnings Per Share, Return on Capital Employed, Dividend Per Share, to offer a guidance on the practices that Nigerian listed banks should implement as they relate to their social outreach. The Authors also make recommendations for the government, regarding the imposing of taxes to stimulate companies to engage in CSR practices, in exchange for tax advantages.

Another Nigeria-focused article written by Andrew A. Agbiogwu, John U. Ihendinihu and Joseph U.B. Azubike, explores the impact of staff cost on Nigerian banks' profitability. Their article titled '*Effects of Human Resource Cost on Profitability of Banks in Nigeria*' approaches an empirical study based on hypotheses that examine if staff costs impact the banks' Earnings per share, Net Profit Margin, Return on Capital Employed. Their research has shown that banks should ensure proper accounting for investments in human resources, and they should be capitalized instead of written off to income statement/profit and loss account.

Louie Dacosta and Charles Adusei published their retrospective research, titled '*Five Year Retrospective Study of the Financial Situation of Northern Foods Plc., United Kingdom*' which explored a comparison of the financial position of two major players from United Kingdom's food industry. Using many trend analyses, the authors develop an interesting benchmarking analysis that incorporated a review of the group's profitability, liquidity, long term investment and capital management, by calculating selected key

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ratios aided by charting trends observed. Their study also raised number of propositions for other organisations' prescription on financial health.

In *'Accounts Receivable Risk Management Practices and Growth of SMEs in Kakamega County, Kenya'*, authors Mary Nelima Lyani, Gregory S. Namusonge and Maurice Sakwa based their empirical study in Kenya, by studying the main hypothesis captured in the title of the article. The study showed that proper accounts receivable risk assessment can lead to an enhancement of Small and Medium Enterprises' growth, and with the right practices taken by financial officers SMEs would reach be on a comfortable self-sustaining path and employ many people, that would then add to the expansion of the economy.

Authors Uduak B. Ubom, Emmanuel I. Michael, and Joseph Michael Essien, in their theoretical paper *'Bank Portfolio Structure and Absorption Theory of Economic Development: A Theoretical Proposition'*, established the basis of bank portfolio rigidity and identified the causes of economic absorption problems and their implications on economic development. Using secondary data analysis techniques, the authors found that bank portfolio rigidity stems from regulatory policy defects using inconsistent monetary policy tools and compelling the banks to adhere to regulatory requirements, as well as lack of adequate and quality stock of infrastructure and technology, as the main causes of economic absorption problems.

In *'Financial Distress and Bankruptcy Prediction: Evidence from Ghana'*, Solomon Samanhyia, Kofi Mintah Oware and Frederick Anisom-Yaansah raise the issue of frequent cases of corporate failures within the financial sector that are not predicted by models of financial distress. Based on this premise, the authors employed an empirical study on listed banks from Ghana and using multiple analysis techniques, they found that poor corporate governance contributes to financial distress of the banks included in the model. Also, a smaller number of the banks' board members had a negative impact on corporate performance. Moreover, the Authors propose practical suggestions and implications in order for banks to mitigate the effect of bankruptcy.

Louie Dacosta and Charles Adusei's second article published in this volume of Expert Journal of Finance, titled *'Testing the Pecking Order Theory of Capital Structure in FTSE 350 Food Producers Firms in United Kingdom between 2001 and 2005'*, encompasses a multiple case study design to test the hypothesis exhibited in the title of the article, namely if a firm's financing deficit is covered by debt and that equity is only issued as a last resort or in exceptional cases (as proposed by the Pecking Order Theory). Basing their empirical analysis on Pecking Order Theory and Trade-Off Theory, the research used data from seven food manufacturing companies from UK, the outcomes show that even if there is some form of Pecking order behaviour among the firms included in the study, their financing behaviour is best explained by the trade-off theory of capital structure.

### **A Final Thought**

Finally, I want to extend my appreciation and thanks to our Authors for publishing and sharing their valuable contributions and knowledge in our journal. Also, I would like to thank our Reviewers for their essential role in promoting high quality research through their input. Nonetheless, many thanks to our Readers who help advance and disseminate the work we publish!





# Impact of Corporate Social Responsibility on Financial Performance: Evidence from Listed Banks in Nigeria

Joseph UGOCHUKWU MADUGBA\* and Michah C. OKAFOR

Michael Okpara University of Agriculture Umudike, Nigeria

*The major purpose of the study is to examine the Impact of CSR on Earning Per Share (EPS), Return On Capital Employed (ROCE) and Dividend Per Share (DPS) of listed banks in Nigeria. It is believed by the researchers that this study will be of immense use to the government, financial institutions and the general public. The study covered the period 2010-2014. The Impact of EPS, ROCE and DPS was tested on CSR. Simple regression analysis was employed by the researchers in testing the data collected from the annual published financial statement of the selected banks. The regression result showed that EPS and DPS have negative significant relationship with CSR while ROCE has a positive significant relationship with CSR. The research recommends that the government should by way of legislation and through regulatory authorities, compel financial institutions to embark actively in CSR, also CSR should be seen as an investment and reported as such in the financial statements of financial institutions.*

**Keywords:** Corporate Social Responsibility, Earnings Per Share, Return on Capital Employed, Dividend Per Share

**JEL Classification:** G20, M14

## 1. Introduction

As the world continues to experience global economic recovery, financial institutions work with policy makers and others in the private sector to restore growth and build public goodwill going forward. The issue of corporate social responsibility (CSR) and its impact on financial performance is crucially relevant now, more than ever.

According to Cornett, Erhemjamts and Tehramian (2014) the “after effects of the financial crisis and the slow economic recovery have resulted in generated skepticism and constant scrutiny of commercial banks’ motives and actions”. They further stated that consumers want tangible actions that demonstrate that banks have their best interest at heart.

Banks and other financial institutions are at the frontline of curbing financial crisis in any economy and one of the things that strengthen the financial performance of banks is corporate social responsibility. As

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evidenced in developed economies, particularly in August 2012, Bank of America released its second annual corporate social responsibility report as it highlights a number of initiatives including \$1.5trillion community development lending and investing goal, \$2billion philanthropic investment goal, \$50billion environmental business goal each for a ten year period.

Banks belong to the publicly owned financial institutions established solely for profit making. In Nigeria, even though banks are controlled by the government regulatory authorities, they engage in a lot of activities, and offer a range of products aimed at profit making. But there is a lack of commitment in corporate social responsibility.

According to Business for Social Responsibility (BSR), Corporate Social Responsibility is defined as achieving commercial success in ways that honor ethical values and respect of the people, communities and the natural environment. McWilliams and Siegal (2001) describe corporate social responsibility “as actions that appear to further some social good, beyond the interest of the firm and that which is required by law”.

Various empirical studies exist in literature on corporate social responsibility in developed economies and are mixed such as Griffin and Mahon (2007), Margolis and Walsh (2003), Gracia-Castro, Arino and Canel (2010).

Cornett et al.'s (2014) study on corporate social responsibility and its impact on financial performance focused on the investigation of U. S commercial banks. The authors found that the largest banks consistently have higher corporate social responsibility strength and this appears rewarding as it has a positive and significant impact on their Return on Asset and Return on Equity.

In a similar study, Muryaza, Akhtar, Ijaz and Sadiga (2014) carried out a study on the impact of corporate social responsibility on firm financial performance in Pakistan and found that a positive relationship exists between corporate social responsibility and financial performance (Van de Velde et al., 2005). The study further suggests that if firms expand its using on the social exercises it can enhance picture in the clients' brain and assist them to attain high benefits.

In Nigeria, the gap is yet to be filled on the impact of corporate social responsibility on financial performance of listed banks such need necessitate this study (Van de Velde, et al., 2005).

### **1.1. Statement of the Problem**

Over the decades, corporate firms have ignored and disregarded corporate social responsibility, arguing that there are no laid down principles for allocating its cost whether as an investment or welfare to the society (Kanwal, Khanam, Nasreen and Hameed, 2013). The involvement of any corporation in corporate social responsibility is a function of the culture of the organization, size or the stakeholders demand (Kanwal et al, 2013)

In a developing nation like ours, there are no organized pressure group and consumer awareness to influence corporate behavior (Ebere, Madugba and Okpe, 2014). Most corporate organizations including banks demonstrate biased attitude on corporate social responsibility and the society also especially in rural areas, as a lack of awareness of corporate responsibilities. Most managers of financial institutions in Nigeria lack favorable attitude of corporate social responsibility. According to Turban and Greening (1997) as cited in Tsoutsoura (2004) companies perceived to have a strong corporate social responsibility commitment often exhibit a heightened ability to attract and keep employees, which leads to a lower turnover, recruitment and training costs. Employees often use involvement in corporate social responsibility practices to examine and determine whether their personal values conflict with those of the business they work for (Tsoutsoura, 2004). A lot of corporate financial institutions exist without much impact on the society on the ground that it does not have a positive impact on their financial performance. This has become a worrisome aspect and needs urgent attention; hence this study aims to find out whether corporate social responsibility has an impact on the financial performance of listed banks in Nigeria.

### **1.2. Purpose of the Study**

The purpose of this study is to find out the impact (if any) of corporate social responsibility on the financial performance of listed banks in Nigeria with the following specific objectives:

- To determine the impact of corporate social responsibility on return on capital employed of listed banks in Nigeria.
- To investigate the impact of corporate social responsibility on earning per share of listed banks in Nigeria.
- To determine the impact of corporate social responsibility on dividend per share of listed banks in Nigeria.

### 1.3. Research Questions

Q1. To what extent does corporate social responsibility impact the Return on Capital Employed of listed banks in Nigeria?

Q2. What is the impact of corporate social responsibility on earning per share of listed banks in Nigeria?

Q3. Is there any relationship between corporate social responsibility and dividend per share of listed banks in Nigeria?

### 1.4. Research Hypotheses

H<sub>01</sub>. There is no significant relationship between corporate social responsibility and Return on Capital employed of listed banks in Nigeria.

H<sub>02</sub>. There is no significant relationship between corporate social responsibility and earnings per share of listed banks in Nigeria.

H<sub>03</sub>. There is no significant relationship between corporate social responsibility and dividend per share of listed banks in Nigeria.

## 2. Review of Related Literature

### 2.1. Concept of Corporate Social Responsibility

Studies on corporate social responsibility commenced with Boroen, who in 1953 issued a paper on “social responsibility of businessmen”. Other researchers that followed suit were Davis (1960), Cochran and Wood (1984), Carroll (1979), since then, many studies have been conducted on corporate social responsibility.

According to Freeman (1997) corporate social responsibility “is an action which the firm chooses to take, that substantially affects an identifiable social stakeholder’s welfare”. Tsoutsoura (2004) opined that a socially responsible corporation should take a step forward and adopt policies and business practices that go beyond the minimum legal requirement and contribute to the welfare of its key stakeholders. Corporate social responsibility is an entire set of policies, practices and programs that are integrated into business operations supply chain and decision making processes throughout the company and usually include issues related to business ethics, community investment, environmental concerns, government, human rights, the market place as well as the workplace.

Corporations employ different means in committing to corporate social responsibility depending on the policies, company size and of course the particular industry involved, the firms’ culture, stakeholders demand, and how historical progressive the company is in engaging corporate social responsibility is always put into consideration. Some of the means in which corporations get involved in corporate responsibility included and not limited to:

a. *Donations and gifts*: This implies transferring the usufructs of someone to any other person or institution. It is a gift offered by a physical or a legal person for charitable purpose and for the benefit of the society. This may of course come in form of cash offering, services, clothing, toys, food, vehicle etc. Donations also include emergency relief and development support or medical needs like donation of blood and transplant. The goods offered as charity is called gift in kind. The institution that provide gift called donor and the individual or any institution who accepts the gift called done (Igbal et al, 2013 as cited by Malik and Nadeem, 2014).

b. *Health care services*: The financial institutions can bear the cost of their employee health treatments as well as that of other people in the community where they operate. They can also build and maintain Hospitals within the community where they exist.

c. *Education*: Financial institutions can give scholarships both for families of their employees and other people who cannot afford to pay their tuition fees. In addition, they can also grant their employees room for in-service training, which is a way of not only empowering their workers but also increase their mental ability.

d. *Road construction/maintenance*: In addition, financial institutions can embark on road construction and maintenance in the community in which it exist, this goes a long way to create sense of belonging to the community and of course create a positive impact on the community.

e. *Youth empowerment programs*: This is simply any program designed by the banks to empower the youth of the host community. This helps to boast and portrays image of the bank.

### Benefits of corporate social responsibility

a. *Enhanced brand image and reputation*: Tsoutsoural (2004) posit that customers are often drawn to brands and companies with good reputation in corporate social responsibility issues. Good reputation also

increases the firms' ability to attract capital and trading partners. However, according to him, reputation is hard to measure and quantify.

b. *Less risk of negative rare events*: Negative rare events which could determine the activities or productive activities of the company may be control and taken care off through involvement in corporate social responsibility. Such as erosion, earthquake etc.

c. *Increased ability to attract and retain employees*: Companies perceived to have strong corporate social responsibility usually have an increased strength to attract and retain employee and this leads to reduction in labor turnover, recruitment and training costs (Turban and Greening, 1997 as cited by Tsoutsoura, 2004).

### **Classification of corporate social responsibility risk**

According to Tsoutsoura (2004) risk associated with corporate social responsibility may be grouped as follows:

a. *Corporate governance*: Companies engaged in corporate social responsibility principles are more transparent and have less risk of bribery and corruption. This is because they protect not only the shareholders interest but also that of stakeholders.

b. *Environmental aspect*: To control these risks, they implement stricter and more costly quality and environmental control measures, as it helps them to run less risk of having to recall defective productions and pay heavy fines for excessive polluting.

c. *Socially aspect*: This arises from waste that could cause damage to the reputation of the firm.

d. *Financial Performance*: The goal of financial management is to maximized investors economic welfare as reflected by management performance. Organizations aim at maximizing shareholders' wealth and generate enough profit to continue the business and to grow higher in future. Suffice to say that performance of firms is affected by multiple external and internal factors.

The external factors include market preferences and perceptions, country rules and regulations, and economy of the country. The market and laws are same for similar businesses but different across industries, while internal factors are fundamental variables which are specific to firms such as Return On equity (ROE), Earning per Share (EPS) Return on Capital Employed, (ROCE), Market value per share (MVPS), Net Assets Value per share (NAVPS) Liquidity Ratio (LR) etc.

The financial performance variables that will be considered in this study are: Return on capital employed, Earnings per share and Dividend per share. Also Bank age as a control variable will be considered.

#### **• Return on Capital Employed (ROCE)**

Weetman (2003) opines that "ROCE measures the performance of a company as a whole in using all sources of long term finance". It is an improvement over EPS as it links the returns generated to the capital (Irala, 2005) since company's aim is to increase profits, maximum ROCE shows that the company has been able to improve efficiency in the use of funds and capital. ROCE seeks to ascertain the level of profit made by a firm as a going concern (Emekaekwue, 2002). According to him, ROCE is calculated thus:

$$\text{ROCE} = (\text{Profit before interest and taxes} - \text{Income from external investment}) / (\text{Share capital} + \text{debt} + \text{reserve} - \text{External Investment})$$

#### **• Earnings Per Share (EPS)**

This is the portion of a company's profit allocated to each outstanding share of common stock. Irala (2005) opined that it is a measure of company's per share performance. Earnings per share measures that amount of earnings that is attributed to one share (Emekewe, 2002). Suffice to say that EPS is a carefully scrutinizing metric that is often used as a barometer to gauge a company's profitability per unit of shareholder ownership hence; it is a key driver of share price. Sawir (2001) stated that "EPS is a ratio used to determine how much net income per share". EPS does not include the cost of capital (debt) for the use of debt will lead to a change in earning per share (EPS) and also changes in the risk as these two factors will affect the company's stock price (Brigham and Houston, 2006). EPS can be calculated as:

$$\text{EPS} = (\text{Profit after tax} - \text{preference dividend}) / \text{No of ordinary share capital in issue}$$

#### **• Dividend Per Share (DPS)**

This is the sum of declared dividend for every ordinary share issued. Dividend per share is the total dividend paid out over an entire year (including interim dividend but not including special dividends) divided by the number of outstanding ordinary shares Issued. It is the sum of declared dividend for every ordinary share issued. It is an accounting ratio used to evaluate the total number of dividend declared for every share of issued stock. The issued stock taken into account is common stock. Declared dividends are the portion of the

company's profit that is paid out to shareholders. However, declared dividends are not equivalent of paid dividends. The amount that is not paid to shareholders is considered retain earnings. In a nutshell, dividend per share is important because it shows returns to the shareholders. It can be calculated thus:

$$DPS = (D - SD) / S$$

where D = sum of dividend over a period (usually one year)

SD = special, one time dividends

S = shares outstanding for the period

## 2.2. Theoretical Framework

The positive accounting theory identifies firm (organization and company) as means of codifying contracts which are essential in order to get self-seeking individuals to agree and co-operate. Walts and Zimmerman (1986) as cited in Ebere et al (2014) holds the opinion that the focus of positive accounting theory is to describe, explain and predict accounting practice of managers. In order to identify which firm publishes certain information like corporate disclosure.

This theory will be adopted in this study because it mandates firm to disclose corporate responsibilities even though it never stated how or the manner in which it should be disclosed.

## 2.3. Empirical Review

Tsoutsoura (2004) carried out a study on corporate social responsibility and financial performance an 500 S&P firms covering a period of five years between 1996 –2000 in California. The relationship was tested using empirical methods, the results indicated that the sign of the relationship is positive and statistically significant; supporting the view (Waddock and Graes, 1997, McGuire, Sundgreen and Scheweis, 1998, Auperle, Carroll and Hatfield, 1985) that socially responsible corporate performance can be associated with a series of bottom-line benefits.

Kanwal, Khanam, Nasreem and Hameed (2013), Malik and Nadeem (2004) investigated the impact of corporate social responsibility on the firm's financial performance in Pakistan. The study covered a period of five years 2008 – 2012 on 15 companies listed in Karachi stock exchange using correlation analysis, the result showed that there is a considerable positive relationship between corporate social responsibility and financial performance of the selected firms. The authors, therefore, recommend that companies should embark on corporate social responsibility.

Cornett, Erhemjants and Fehranian (2014) investigate corporate social responsibility and its impact on financial performance: Investigation of U. S commercial banks. Their study covered a 7 years period 2003 – 2009, and ordinary least square was used to analyze the data collected from published materials and the result showed a positive relation between corporate social responsibility and financial performance.

Igbal, Ahmad, Hamad, Bashir and Sattar (2014) investigated corporate social responsibility and its possible impact on firms' financial performance in banking sector of Pakistan, the challenge was to identify the impact of disclosure of CSR on firms' profit margin and EPS. The study covered a 7 years period from 2005 – 2011. The study utilized secondary data extracted from the annual published account of banks in Pakistan. The study employed simple regression in analyzing the data. The study used donation as component of CSR as Independent variable and Net profit margin and EPS are dependent variables. The result of the study showed that there is a positive significant relationship between CSR and financial performance of the firms, and it was recommended that firms should have ISR policy that should reviews periodically and implementation policy and such should be approved by the Board of Governors.

Malik and Nadeem (2014) carried out an investigation on impact of corporate social responsibility on financial performance of banks in Pakistan; the purpose of the study was to find out if CSR impacts on financial performance. The study covered a period of five years which spanned from 2008 – 2012. Regression analysis was utilized in analyzing the data gotten from published financial statements of the banks. The study used CSR as Independent variable while EPS, ROA, ROE where use as dependent variables. The study find out that there is lack of CSR in Pakistan and the regression model showed a positive between profitability and Net profit and CSR practices. The study recommended that banks in Pakistan should embark on CSR as it impacts on their financial performance.

## 3. Methodology

This study will utilize the ex-post facto research design. Secondary data used for analysis covered five years period (2010 – 2014) and comprises of corporate responsibility, return on capital employed, earning per share and dividend per share as contained in the published financial statements of the selected banks in Nigeria.

The data was analyzed with SPSS 20.0. Simple regression was used to determine the impact of corporate social responsibility on financial performance (Van de Velde, et al., 2005) of listed banks in Nigeria. Corporate donations and charitable served as proxies for corporate social responsibility, while Return on capital employed, Earnings per share and Dividend per share served as proxies for financial performance.

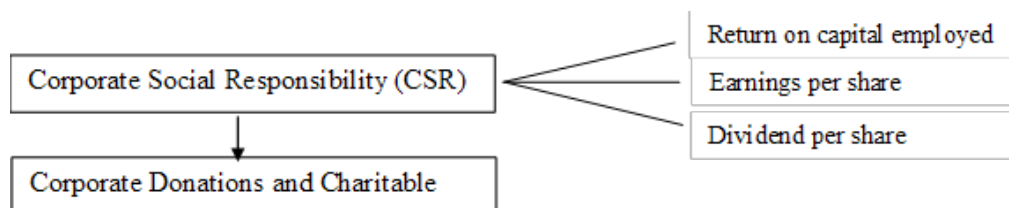


Figure 1. Conceptual model

### Model specification

To attain the objective of this study, the following functional models were formulated:

Model 1:

$$ROCE = f(CSR)$$

$$ROCE = \beta_0 + \beta_1 CSR + \mu_1$$

Model 2:

$$EPS = f(CSR)$$

$$EPS = \beta_2 + \beta_3 CSR + \mu_2$$

Model 3:

$$DPS = f(CSR)$$

$$DPS = \beta_4 + \beta_5 CSR + \mu_3$$

where ROCE = Return on Capital Employed

EPS = Earnings per Share

DPS = Dividend per Share

$\beta_0, \beta_2, \beta_4$  = Constant

$\beta_1, \beta_3, \beta_5$  = Coefficients

$\mu_1, \mu_2, \mu_3$  = Error/Stochastic term

## 4. Discussion of Findings

$H_{01}$ : Earning Per Share has no significant relationship on corporate social responsibility.

Table 1. Model Summary for  $H_{01}$

| Model | R                  | R Square | Adjusted R-Square | Std Error of the Estimate |
|-------|--------------------|----------|-------------------|---------------------------|
| 1     | 0.245 <sup>a</sup> | 0.060    | 0.012             | 104.58894                 |

a. Predictors (Constant) CSR

Table 2. Coefficients for  $H_{01}$

| Model |            | Unstandardized Coefficients |           | Standardized Coefficients | t     | Sig.  |
|-------|------------|-----------------------------|-----------|---------------------------|-------|-------|
|       |            | B                           | Std Error | Beta                      |       |       |
| 1     | (Constant) | 87.345                      | 30.745    |                           | 2.841 | 0.014 |
|       | CSR        | -3.214                      | 0         | -0.245                    | -0.91 | 0.379 |

a. Dependent Variable EPS.

The result of data analyses above shows that the strength of the relationship between EPS and CSR is very weak at 24.5%. While the value of the coefficient of determination of 0.060 indicate that only about 6% of the variations in EPS can be explained by variations in CSR.

Furthermore, the coefficient of regression (B) of -3.214 indicates that the relationship between the variables of the study is negative implying that the implementation of CSR has a negative effect on EPS and vice versa.

Finally, the regression result show the computed t-statistic for the coefficient of CSR is 0.910 which is lower than the critical t-statistic of 1.76 at 0.05 level of significance. This means that the null hypothesis is not rejected thus we conclude that Earning per Share has no significant relationship with corporate social responsibility.

*H<sub>02</sub>: Return on capital employed has no significant relationship on corporate social responsibility and bank age.*

**Table 3. Model Summary for H<sub>02</sub>**

| Model | R                  | R Square | Adjusted R-Square | Std. Error of the Estimate |
|-------|--------------------|----------|-------------------|----------------------------|
| 1     | 0.575 <sup>a</sup> | 0.331    | 0.279             | 1.74419                    |

a. Predictors (Constant) CSR

**Table 4. Coefficients for H<sub>02</sub>**

| Model |            | Unstandardized Coefficients |           | Standardized Coefficients | t      | Sig.  |
|-------|------------|-----------------------------|-----------|---------------------------|--------|-------|
|       |            | B                           | Std Error | Beta                      |        |       |
| 1     | (Constant) | 3.371                       | 5.13      |                           | 6.575  | 0.000 |
|       | CSR        | -1.493                      | 0.000     | -0.245                    | -2.535 | 0.250 |

a. Dependent Variable ROCE.

The result of data analyses above shows that the strength of the relationship between ROCE and CSR is 57.5%. While the value of the coefficient of determination of 0.331 indicate that about 33.1% of the variations in ROCE can be explained by variations in CSR.

Furthermore, the coefficient of regression (B) of -1.493 indicates that the relationship between the variables of the study is negative implying that the implementation of CSR has a negative effect on ROCE and vice versa.

Finally, the regression result show the computed t-statistic for the coefficient of CSR is -2.35 which is higher than the critical t-statistic of 1.76 at 0.05 level of significance. This means that the null hypothesis is rejected. Thus, we conclude that Return on capital employed has a significant relationship with corporate social responsibility.

*Ho3: Dividend Per Share has no significant relationship on corporate social responsibility.*

**Table 5. Model Summary for H<sub>03</sub>**

| Model | R                  | R Square | Adjusted R-Square | Std Error of the Estimate |
|-------|--------------------|----------|-------------------|---------------------------|
| 1     | 0.366 <sup>a</sup> | 0.134    | 0.068             | 68.52437                  |

a. Predictors (Constant) CSR

**Table 6. Coefficients for H<sub>03</sub>**

| Model |            | Unstandardized Coefficients |           | Standardized Coefficients | t      | Sig.   |
|-------|------------|-----------------------------|-----------|---------------------------|--------|--------|
|       |            | B                           | Std Error | Beta                      |        |        |
| 1     | (Constant) | 60.295                      | 20.144    |                           | 2.993  | 0.010  |
|       | CSR        | -3.286                      | 0.000     | -0.366                    | -1.420 | -0.179 |

a. Dependent Variable DPS.

The result of data analyses above shows that the strength of the relationship between DPS and CSR is weak at 36.6%. While the value of the coefficient of determination of 0.134 indicate that only about 13.4% of the variations in DPS can be explained by variations in CSR.

Furthermore, the coefficient of regression (B) of -3.286 indicates that the relationship between the variables of the study is negative implying that the implementation of CSR has a negative effect on DPS and vice versa.

Finally, the regression result show the computed t-statistic for the coefficient of CSR is -1.420 which is lower than the critical t-statistic of 1.76 at 0.05 level of significance. This means that the null hypothesis is

not rejected thus we conclude that Dividend Per Share has no significant relationship with corporate social responsibility.

## 5. Conclusion and Recommendations

In this study, an indefatigable effort has been made to analyze the impact of corporate social responsibility on financial performance of listed banks in Nigeria. This study considers accounting and market based Indices Earnings per Share, Return on Capital Employed and Dividend per Share, in determining the impact of CSR on financial performance. The result of the simple regression for hypothesis one showed that Earnings per share have a negative significant relationship with corporate social responsibility. This result does not invalidate Earnings per share as financial performance indices but implies that financial institutions have not been embarking on CSR positively. The result of hypothesis two showed that Return on capital employed has a positive significant relationship with CSR. This is in line with Tsoutsoura (2004), Kanwal et al (2013). This study shows that CSR impacts positively on the financial performance of the financial institutions. The result of hypothesis three revealed that dividend per share has no significant relationship with CSR, and it implies that the amount of dividend paid out is highly affected by the operating profit which is often reduced by CSR. This study established that financial institution in Nigeria do not actively engage in corporate social responsibility as it does not impact much on their financial statements.

### 5.1. Recommendations

Based on the findings of this study, the researchers makes the following recommendations:

1. The government should through the regulatory authorities compel financial institutions to embark on corporate social responsibility.
2. Banks should be made to consider CSR as an investment and thus report it as such in their financial statement
3. CSR helps a company's reputation by creating a positive image in the mind of customers, suppliers etc., hence, it should become a part of the culture of financial institutions in Nigeria
4. Government may by way of tax incentive motivate bank to actively embark on corporate socially responsibility as it will impact on their successes and reduce the burden on government in terms of provision of amenities for the society, communities and nation at large
5. Research studies should be encouraged in the field of corporate social responsibility as this will help to create awareness for corporate institutions on CSR.

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# Effects of Human Resource Cost on Profitability of Banks in Nigeria

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*This study aims to investigate the effects of human resources cost on the profitability of banks in Nigeria from 2010 – 2014 using First Bank Nigeria, Plc and Zenith bank Nig. Plc. The study adopted content method of analysis and linear regression model to test the stated hypotheses. Findings revealed that staff cost significantly affects Earnings per share, Net profit margin, and Return on capital employed of banks. The researchers recommend, among other things, that there should be a uniformed standard for identification and measurement of human capital assets.*

**Keywords:** Profitability, Staff Cost, Net Profit, Earnings Per Share, Return On Capital Employed (ROCE)

**JEL Classification:** G21, O15

## 1. Introduction

### 1.1. Background to the Study

Human resource is one of the intellectual assets of an organization. Following the recent rapid development in the business environment around the globe, organizations are now increasingly looking at intellectual capital and by extension human resource as a unique asset to reckon with. An examination of financial accounting information sees wages and salaries as the only direct evidence of people in the accounting process (Glautier and Underdown, 1978). They further state that accounting process begins to be aware of people coupled with the development of management accounting and the need to ensure the efficient use of all resources, hence the development of standard costs and the application of such costs to the measurement of labour used in the calculation of unit costs of production.

The discovery that human behaviour is a significant factor affecting business efficiency is an important land-mark. It is noteworthy, however, that this discovery only occurred after the second World War and coincided with the expansion of the social sciences and an emphasis on human welfare in an organization (Glautier, 1976).

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It is regrettable that information with respect to human assets has not been included in the financial statements of companies and thus it adds to the difficulty of measuring or evaluating the real profit of a specific company. In the words of Kpefami, Kazeem and Taiwo (2015) “The issues of who are responsible for the effective use of all other resources in the business have been on the fore front burner”. They further reiterate that human resources being the traditional name for human skills used in the organization over the years have remained less valued and recognized in the literature of accounting information. The success of any company depends largely on the calibre of personnel in that organization. It is in the light of the above that this paper will address the effect of human resources on the profitability of banks in Nigeria.

### **1.2. Statement of the Problem**

The idea of HR accounting has been a popular one for many years now, however the concept still lacks general acceptability. Many studies focus on the possibilities to evaluate and report human resources in the financial statements of companies, and these studies, and their subsequent Authors, discovered that corporations and enterprises in developing countries such as Nigeria are still in the first stages of implementation.

Amongst the banks that invested heavily on human resources are the 1<sup>st</sup> Bank Nigeria Plc and Zenith Bank Nigeria Plc. These banks’ investment is not reflected in the balance sheet but it is charged against revenue for the current period to reduce income and invariably the business’s value. In the words of Onyam, Usang and Eyisi (2015) “the major challenges encountered in the reorganization of human resources as an asset rest largely on its characteristics, quantification in monetary terms and the method of reporting”.

The problem of the research lies in the above statement on how an organization especially banks quantifies, classifies and presents sound financial report on the investments on human resources employed in the organization.

### **1.3. Objective of the Study**

The main purpose of this research is to examine the effects of human resource cost on the profitability of banks in Nigeria. Specifically, the objective intends to achieve the following:

- i. To determine the effect of expenditure on Staff cost on Earnings per share (EPS) of banks.
- ii. To assess how staff cost can significantly affect Net profit margin (NPM) of banks.
- iii. To determine the extent Staff cost can significantly affect Return on capital employed (ROCE) of banks.

### **1.4. Research Questions**

The following research questions will guide this study:

- i. To what extent does staff cost affect Earnings per share of banks?
- ii. How can Staff cost significantly affect Net profit margin of banks?
- iii. To what extent Staff cost significantly affect Return on capital employed of banks?

### **1.5. Research Hypotheses**

The study will be guided by the following hypotheses:

H<sub>0</sub>: (Null) Staff cost does not significantly affect Earnings per share of Banks in Nigeria.

H<sub>0</sub>: (Null) Staff cost does not significantly affect Net profit margin of banks

H<sub>0</sub>: (Null) Staff cost does not significantly affect Return on capital employed of banks.

## **2. Review of Related Literature**

### **2.1. Conceptual Framework**

The resources of a business otherwise called the 4-ms including men. Men in this context refer to human asset employed in the production of goods and services. The success or failure of every enterprise is based on the effective utilization of the entity’s resources (Obara and Gabriel, 2013). To Micah, Ofurum and Ihendinihu (2013), Human Resources (HR) “are the energies, skills, talents and knowledge of people which are or which potentially can be applied to the production of goods or rendering useful service”. They further see human resources accounting “as the process of identifying and measuring data about human resources and communicating this information to the interested parties” (Micah, Ofurum and Ihendinihu, 2013). To Oyewo (2013), “the human asset is the total knowledge, skills, creative abilities, talents and belief of an organization workforce as well as values, attitude and belief of the individuals involved”. Syed (2009) sees human resource accounting as “the system of recording of transaction relating to the value of human resource, i.e. the cost of

acquisition of their knowledge and utilization of the energy for production of goods and services in the most profitable manner and thereby achieving the organization goal”.

From the above definitions of human resources, it implies that human resource accounting represents the measurement or quantification of human organization inputs, particularly in terms of recruitment, training, experience and commitment. Otherwise, this term can be used to encompass the accounting methods, system and techniques which coupled with special knowledge and ability, can assess the valuation of personnel in financial terms.

Seth (2009) is not left out in a bid to explain human resources accounting and sees Human Resource Accounting (HRA) as “accounting for people as original resources and it is the measurement of cost and value of people for an organization. He reiterates that knowledge of workers are important resources for the survival of any modern business, firm and especially with the growing complexities of business organization”. Parameswaran and Jothi (2005) in contributing their quota, describe “human resource accounting as the process of measuring data of human resources and communicating the information to the interested parties”.

### **2.1.1. Concept of Profitability**

Profitability in the words of Onyam, Usang and Enyisi (2015) means “the ability to make profit from all the business activities of an organization, company, firm or an enterprise”. They further emphasize that profitability presents how a company’s management structure can efficiently produce profit by using all the resources available in the company and in the market. Harward and Upton (2012) propose profitability encompasses the “ability of a given investment to earn a return from its use”. By further developing this concept of profitability, Onyam, Usang and Enyisi (2015) present it as “an index of efficiency and can be regarded as a measure of efficiency of management guide to greater efficiency”, by positioning it as an important “yardstick for measuring efficiency of management”.

Profitability is measured in terms of Net profit margin, Earnings per share and Return on capital employed (Pandey, 1991).

From the foregoing analysis, it implies that the profitability of a company should be evaluated in terms of a company’s investments in different assets categories, including human capital, and if the company is not able to gain a satisfactory return on investment, then its survival in a competitive market is highly threatened.

### **2.1.2. Measurement of Human Resource Cost**

Gebauer (2002) listed the following approaches as measures of human resources costs:

- A. Cost based approaches
  - i. Historical cost
  - ii. Replacement cost
  - iii. Opportunity cost
  - iv. Standard cost
- B. Monetary Value Based Approaches
  - i. The Lev and Schwartz Model
  - ii. Eric Flamholtz Model
  - iii. Morse Model
- C. Non-Monetary Value-Based Approaches
  - i. Likert Model
  - ii. Flamholtz Model
  - iii. Ogan Model

Flamholtz (1999), Schwarz and Murphy (2008) suggested the following methods of valuing human resource accounting, thus: replacement course model, scholastic reward valuation model, historical cost model, competitive bidding method, and capitalization of future benefits.

## **2.2. Theoretical Framework**

There are different theoretical frameworks used as a motivation to explain the influences of human resource accounting on banks’ profitability level. This research will therefore base its theoretical framework on the following theories as it reflects on human resource accounting.

### **2.2.1. Human Capital Theory (HCT)**

This theory according to Akindehinde, Enyi and Olutokunbo (2015) was originally proposed by Schultz (1961) and later developed by Becker (1964). The theorist saw that education and training raises the level of productivity of workers by granting useful knowledge and skills, thus raising workers future income

through increase in their lifetime earnings. It proposes that expenditure on education or training and development is too expensive and should be considered as an investment since it is undertaken with a view to increasing personal incomes. Human capital approach is used to explain or support occupational wage differential. The importance of this human capital theory to this research is that it considered cost of education, training and development of workers as investments towards improving the productivity of individual workers thus resulting to high profitability of banks in particular and other sectors of the economy in general.

### 2.2.2. Resources Based Theory

This theory of resource is highly connected with Barney (1991) and implies the blending of approaches from organizational, economics and strategic management. The fundamental assumption of this theory is that companies can be successful if they can develop and preserve a competitive advantage on the market. Competitive advantage is earned by focusing on value, i.e. developing a strategy that competitors cannot easily duplicate and sustain and for which there are no immediate substitutes. Barney (1991) further explains that for a competitive advantage to be earned two conditions are needed: firstly, “the resources available for competing firm must be variable among competitors; and secondly, these resources must be immobile not easily obtained”.

Barney (1991) also categorized the resources into three categories:

- i. Physical resources (plant, technology and equipment, geographical location)
- ii. Human resources (employees’ experience and know-how)
- iii. Organizational resources (structure, system for planning, monitoring and evaluating activities, valuable relations within the organizations and external constituencies).

To Schuler and Macmillian (1984), human resource management greatly impacts the company, its human and organizational resources, and HRM can be used to earn a notable competitive advantage. It is clear that the extent to which human resource management can be utilized to gain competitive advantage and the means of obtaining it are influenced by the business environment of the company in question.

### 2.2.3. General System Theory

The General System theory was is propounded by Von- Bertalamffy (1950), more than 60 years ago, according to Onyam, Usang and Eyisi (2015). The system theory unit of analysis is understood by complex interdependent parts. In this regard, an open versus closed system is dependent on the environment for inputs which are further transformed to develop outputs that are subject of exchange in the business environment.

In this framework, skills and abilities represent inputs, and the behaviours and actions of employees represent outputs. In this model, the HRM subsystem performs to acquire, utilize, retain and displace competencies. Snell (1992) describes human resource management as “a control system based on open system theory”.

## 3. Empirical Review

This paper is based on related empirical review. The following reviews are made with respect to human resource accounting. For clarity, the reviews will be summarized in table 1 below:

*Table 1. Relevant Empirical Review*

| <b>Authors</b>                          | <b>Methodology</b>                                                                                                                                                                                          | <b>Findings</b>                                                                                                                                                     |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Akindehinde, Enyi and Olutokumbo (2015) | The study adopted 18 sampled publicly quoted banks in Nigeria. The instrument for data collection was questionnaire with a six steps Likert scale. The hypothesis was tested using simple regression model. | It confirmed that human asset accounting significantly affect the bank’s performance.                                                                               |
| Onyam, Usang and Enyisi (2015)          | A case study of Access Bank that used secondary data to analyse and test the hypotheses using ordinary least square analytical technique.                                                                   | There is a positive relationship between human resources, cost and the profit of the organization.                                                                  |
| Micah, Offurum and Ihendinihu (2012)    | The study examined fifty two (52) companies across all sectors using simple (2005 – 2009) random sampling technique, descriptive, correlation and regression statistical techniques in analysis.            | It discovered that the combined effect of firm financial performance account for ZF-9% of the variation in Human Resources Accounting disclosure with F ratio 3.581 |

|                                  |                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OyeOyewo (2013)                  | The study used a total of 12 firms consisting of commercial and manufacturing companies. It adopted content analysis of the financial data with the use of ANOVA, T-test and correlation, the hypotheses were tested      | It was discovered that human resources accounting disclosure practice index of banks are higher in comparison to manufacturing companies. And there is a strong positive relationship between human resource accounting disclosure and company size.                                                                                                       |
| Ikpefan, Kazeem and Taiwo (2015) | The study consists of sixteen (16) micro-finance banks in Nigeria. Random sampling techniques was adopted for collection of data which was of primary – the data were analyzed using appropriate simple regression model. | It found that a majority agreed that human resources be capitalized and treated as asset rather than writing it off via profit and loss account. And also that human resources accounting has a significant effect on micro-finance banks in Nigeria.                                                                                                      |
| Akinloye (2012)                  | It is a case study of Oceanic Bank Nig. Plc for a period covering 2002 – 2006. It adopted simple linear regression model in testing the hypotheses.                                                                       | It was discovered that human resources has a positive effect on the profit and capital employed by the bank.                                                                                                                                                                                                                                               |
| Rehma et al (2011).              | The study is on intellectual capital performance and its implication on corporate performance: An empirical evidence from Modaraba sector of Pakistan.                                                                    | It reveals that there is a relationship between human capital efficiency and financial performance- Return on capital and Earnings per share. It specifically revealed that one of the important components to strengthen the intellectual capital performance is human capital efficiency. This performance of organization depends on its human capital. |
| Sharma (2012)                    | Impact of human resource accounting on organizational performance.                                                                                                                                                        | It shows that organization performance depends on the quality of human resources and that the success of an organization depends on the quality of its human resources whether in the manufacturing, service or retail outlet.                                                                                                                             |

From the above empirical reviews and related literature, shows that primary data was the main instrument used. This study therefore considered it imperative to adopt secondary data (content analysis) as appropriate instrument for determining the influence of human resource costs on banks' profitability.

#### 4. Methodology

The research designed adopted is a non-experimental design ideographic method (archival and content analysis method). To Avoweken (2006) archival record involves the research of existing records for data and content analysis involves content analyzing the records in the source to answer specific research questions.

The population of this study therefore consists of 21 quoted banks in the Nigerian Stock Exchange (NSE). The research adopted judgmental sampling technique where two (2) active banks (First Bank of Nig Plc and Zenith bank Nig Plc) were used as sample size. This is because of the changes brought about by the Apex bank to sanitize the sector from 2005 to the present day 2015 (NSE, 2015).

The researcher made use of linear regression analysis to analyze the secondary data and to test the hypothesis.

##### 4.1. Measurement of Variables

The hypotheses and variables for the study is operationalized using regression model.

$$P = f(\text{HRC}) \quad (\text{i})$$

Where, P = Profitability of banks

f = Function

HRC = Human Resources cost

The profitability values (dependent variables) are measured by Net Profit Margin (NPM), Return on capital employed (ROCE) and Earnings Per Share (EPS). On the other hand, the independent variables are measured by expenditure on Staff cost - (SC).

The above model is expanded to produce the following models:

$$\text{LogEPS} = a + \text{logSC} \quad (\text{ii})$$

Where a is constant

logEPS and logSC are standardized values for Earnings per share and staff cost.

$$\text{LogNPM} = a + \text{logSC} \quad (\text{iii})$$

Where logNPM standardized value for Net profit margin(NPM).

$$\text{logROCE} = a + \text{logSC} \quad (\text{iv}).$$

Where logROCE = standardized value for Return on capital employed.

## 5. Data Analysis and Results

### 5.1. Testing of Hypotheses

#### Hypothesis 1:

H<sub>0</sub>: Staff Cost does not significantly affect Earnings per share of Banks

H<sub>a</sub>: Staff Cost significantly affect Earnings per share of Banks

*Table 2. Model Summary for Hypothesis 1*

| Model                                   | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |               |
|-----------------------------------------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
|                                         |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 | Sig. F Change |
| 1                                       | .890 <sup>a</sup> | .792     | .723              | .11882                     | .792              | 11.432   | 1   | 3   | .043          |
| a. Predictors: (Constant), LogStaffCost |                   |          |                   |                            |                   |          |     |     |               |
| b. Dependent Variable: LogEPS           |                   |          |                   |                            |                   |          |     |     |               |

The table above depicts a very strong relationship between Earnings per share and staff cost. It shows that 89% level of coefficient exist between Earnings per share (EPS) and the Staff Cost. The coefficient of multiple determination highlighted by R-Square is therefore strong thus indicating that the data does fit well in the statistical model (79.2%)since it is very near to 100%, therefore a reasonable amount of the profitability index (EPS) is been determined by the Staff Cost, this therefore appears to be useful for making predictions since the value of *R-Square* is close to 1.

Also when the R-Square was adjusted for possible error in fitness an Adjusted error of 72.3 was observed, this means that the adjusted R-Square is significantly lower than R-Square, this normally do serve as an indication that some other explanatory variable(s) such as Training and development etc by which without them the dependent variable (EPS) cannot be fully measured. Therefore other predictor variables are needed to be sourced out in order to fully measure the dependent variable (EPS).

An F-test was also performed to determine if the model is useful for prediction at 5% level of significance.

The F-ratio was calculated of the predictor variable to be 11.432 with an alpha value of 0.043 which was found to be higher than f-tabulated value at 0.05 and df= 1 and 3 is 10.13. This therefore shows that the model is useful for predicting EPS based on Staff Cost.

On these bases we therefore reject the null hypotheses that say “Staff Cost does not significantly affect Earnings per share of Banks.” and accept the Alternate Hypothesis.

#### Hypothesis 2:

H<sub>0</sub>: Staff Cost does not significantly affect Net Profit Margin of Banks

H<sub>a</sub>: Staff Cost significantly affect Net Profit Margin of Banks

*Table 3. Model Summary for Hypothesis 2*

| Model                                   | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |               |
|-----------------------------------------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
|                                         |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 | Sig. F Change |
| 1                                       | .984 <sup>a</sup> | .967     | .957              | .01788                     | .967              | 89.214   | 1   | 3   | .003          |
| a. Predictors: (Constant), LogStaffCost |                   |          |                   |                            |                   |          |     |     |               |
| b. Dependent Variable: LogNP            |                   |          |                   |                            |                   |          |     |     |               |

The table above depicts a very strong relationship between Net Profit Margin and staff cost. It shows that 98.4% level of coefficient exist between Net Profit Margin (NPM) and the Staff Cost, The coefficient of multiple determination noted by R-Square is therefore strong thus indicating that the data does fit well in the

statistical model (96.7%) since it is very near to 100%, therefore a reasonable amount of the profitability index (NPM) is been determined by the Staff Cost, this therefore appears to be useful for making predictions since the value of *R-Square* is close to 1.

Also when the R-Square was adjusted for possible error in fitness an Adjusted error of 95.7 was observed, this means that the adjusted R-Square is significantly lower than R-Square, this normally do serve as an indication that some other explanatory variable(s) by which without them the dependent variable (NPM) cannot be fully measured. Therefore other predictor variables are needed to be sourced out in order to fully measure the dependent variable (NPM).

An F-test was also performed to determine if the model is useful for prediction at 5% level of significance.

The F-ratio was calculated of the predictor variable to be 89.214 with an alpha value of 0.03 which was found to be higher than f-tabulated value at 0.05 and df= 1 and 3 is 10.13. This therefore shows that the model is useful for predicting NPM based on Staff Cost.

On these bases we therefore reject the null hypotheses that say “Staff Cost does not significantly affect Net Profit Margin of Banks.” and accept the Alternate Hypothesis.

### Hypothesis 3:

H<sub>0</sub>: Staff Cost does not significantly affect Return on Capital Employed of Banks

H<sub>a</sub>: Staff Cost significantly affect Return on Capital Employed of Banks

*Table 4. Model Summary for Hypothesis 3*

| Model                                   | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |               |
|-----------------------------------------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
|                                         |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 | Sig. F Change |
| 1                                       | .975 <sup>a</sup> | .950     | .934              | .04024                     | .950              | 57.440   | 1   | 3   | .005          |
| a. Predictors: (Constant), LogStaffCost |                   |          |                   |                            |                   |          |     |     |               |
| b. Dependent Variable : ROCE            |                   |          |                   |                            |                   |          |     |     |               |

The table above depicts a very strong relationship between Return on Capital Employed and staff cost. It shows that 97.5% level of coefficient exist between Return on Capital Employed (ROCE) and the Staff Cost, The coefficient of multiple determination denoted by R-Square is therefore strong thus indicating that the data does fit well in the statistical model (95%) since it is very near to 100%, therefore a reasonable amount of the profitability index (ROCE) is been determined by the Staff Cost, this therefore appears to be useful for making predictions since the value of *R-Square* is close to 1.

Also when the R-Square was adjusted for possible error in fitness an Adjusted error of 93.4 was observed, this normally do serve as an indication that some other explanatory variable(s) by which without them the dependent variable (ROCE) cannot be fully measured. Therefore other predictor variables are needed to be sourced out in order to fully measure the dependent variable (ROCE).

An F-test was also performed to determine if the model is useful for prediction at 5% level of significance.

The F-ratio was calculated of the predictor variable to be 57.440 with an alpha value of 0.005 which was found to be higher than f-tabulated value at 0.05 and df= 1 and 3 is 10.13. This therefore shows that the model is useful for predicting ROCE based on Staff Cost.

On these bases we therefore reject the null hypotheses that say “Staff Cost does not significantly affect Return on Capital Employed of Banks.” and accept the Alternate Hypothesis.

### 5.2. Summary of Findings

Based on the empirical reviews and the regression results, the study reveals the following:

- i. Staff cost significantly affects Earnings per share of banks and there is existence of positive relationship. This agrees with Onyam, Usang and Enyisi (2015) and hypothesis I – Table 2.
- ii. Staff cost also affects Net profit margin and Return on capital employed. This is in agreement with Akinloye (2012), and also confirmed by hypothesis ii and iii – Tables 3 and 4.

### 6. Conclusion

The study has shown that banks should ensure proper accounting for investments in human resources while they should be capitalized instead of written off to income statement/profit and loss account.



The failure of professional accounting to recognize and treat human resources as assets like physical and financial assets led to the emergence of human resources accounting Kepefan, Kazeem and Taiwo (2015).

The global demands of financial information makes it imperative for banks and other corporate bodies to include the human asset as part of the assets of the organization.

### 6.1. Recommendations

The following recommendations are made:

- i. The relevant accounting bodies should ensure that there is a regulation guiding the process for human resource reporting in banks and other sectors.
- ii. There should be a uniformed standard for identification and measurements of human capital assets.
- iii. It is the researcher's opinion that if the above recommendations are put into practice, it will go along way in ensuring that the different stakeholders will be satisfied with respect to information on human resource reporting.

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## Appendices

**Table 5.** Data from Annual Report and Accounts of Banks (2010-2014)

| Year | Staff cost (# million) | EPS (Kobo) | NP (%) | ROCE (%) |
|------|------------------------|------------|--------|----------|
| 2010 | 393705                 | 93k        | 17%    | 4.0%     |
| 2011 | 48,838.5               | 101k       | 20%    | 7.05%    |
| 2012 | 56686.5                | 243k       | 22.5%  | 8.4%     |
| 2013 | 72495                  | 261k       | 28.6%  | 11.6%    |
| 2014 | 59927.5                | 250k       | 26%    | 10.2%    |

**Table 6.** Computed variables from the annual reports and Account of banks (2010-2014)

| LogSC | LogESP | LogNP | LogROCE |
|-------|--------|-------|---------|
| 4.06  | 1.97   | 1.26  | 0.70    |
| 4.69  | 2.01   | 1.18  | 0.91    |
| 4.75  | 2.42   | 1.47  | 0.97    |
| 4.86  | 2.39   | 1.49  | 1.10    |
| 4.78  | 2.41   | 1.38  | 1.05    |



# Five Year Retrospective Study of the Financial Situation of Northern Foods Plc., United Kingdom

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*This study was conducted as a retrospective analysis of Northern Foods Plc., once a major player in FTSE 350 Food Sector, to evaluate its financial situation over a five year period. The ex post factor research design was used for this study. Annual reports and databases on Northern Foods Plc., and Associated British Foods Plc., were used to perform a series of ratio analyses. The results revealed that Northern Foods Plc.'s performance has been declining as evidenced in the profitability ratios calculated. Also, financial strength was weak and working capital has not been effectively managed, hence affecting its cash and profit generation potentials. The company was limited in its ability to grow and expand as it needed to regularly fund its pension deficit, and finance its high levels of debt. The study concludes that Northern Foods was not in a very strong financial position, yet it was not making the required investments to improve, hence its takeover though this paper will not rule out non-financial issues. Furthermore, the study prescribed five generic points to improve the financial health of any organisation.*

**Keywords:** financial situation, retrospective study, 2003 -2007, Northern Foods Plc.

**JEL Classification:** B27, F23, G23

## 1. Introduction

This study analyses the financial situation of Northern Foods Plc through key financial ratios. (NDF), once one of the largest food manufacturers in the United Kingdom having made its name and fortune through practically inventing the supermarket ready meal.

### 1.1. United Kingdom Food Industry

The UK food industry is dominated by very large (often multinational) companies (E.g. Associated British Foods Plc., Unilever Plc. etc.), which operate across a range of food markets and are often vertically integrated. Consolidation is being driven by the intensely competitive nature of grocery retailing in the UK.

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Bargaining power in the food market is now firmly in the hands of major supermarkets chains such as Tesco and ASDA, thus placing further pressure on the suppliers to reduce cost (Key Note, Dec. 2007). According to Hill (2006) failure to pass on price increases and allowing profit margins to slip was the reason for sacking Northern Foods chief executive. Merger and acquisition (M&A) activity is continuing rapidly as companies in the food industry seek to cut costs, move out of areas in which growth is slowing and expand into sectors that are considered to have better potential. The UK food manufacturing is part of the global food industry, embracing global sourcing and supply of ingredients. For some companies exporting their products to the world market is vital to the success of their operations. Unlike other competitors within the UK food manufacturing industry Northern Foods Plc. operates primarily in the UK and Republic of Ireland. The company has two distinct lines of business: private label products and own brands, with a broad product portfolio.

### **1.2. Why Northern Foods Plc?**

The choice of Northern Foods Plc. was prompted by a combination of factors. Amongst which as pointed by Chris Hughes in the financial times (Hughes, 2006, p.20) was the series of profit warnings issued by the CEO within two years of her appointment. The continuous decline in the company's share price from about 175p in the beginning of the company financial year ending 31 March 2003 to about 125p in March 2007 (Annual Report, 2007). Also the company as can be seen in the annual report and accounts (2007, p.93) five year record was highly debt finance. Another reason is the restructuring programme initiated as a result of the May 2006 strategic review that attracted negative comments. For example, Clay Harris pointed out in the Financial Times (June 2006, p.22) that "whether this will help obtain a firm valuation and restore solidarity to Northern Foods' melting share price is another matter." These factors led the study to inquire retrospectively why Northern Foods Plc. a key major player of FTSE 350 Food Producers Firms is no more in operation having been in business since 1937.

Through archival study it was reported in their annual report that it was one of UK's leading food producers, employs around 10,700 people in the UK and Republic of Ireland. It was aiming to be the "supplier of choice to UK and Irish retailers in added-value convenience foods" producing a wide range of own-label and branded products.

Northern Foods Plc. focused on five markets: pizza, biscuits, ready meals, sandwiches and salads, and puddings supplying innovative own-label ranges to UK's leading retailers. About 60% of its annual turnover was from branded goods and 76% from its top five customers – ASDA, Marks & Spencer, Morrison's, Sainsbury's and Tesco. There were more questions that are begging for answers and the study was also motivated by this. The primary aim of this study is to retrospectively thoroughly analyse the financial situation of Northern Foods Plc. over the period 2003 to 2007.

## **2. Research Methodology**

### **2.1. Design of Study**

Retrospective study investigates a phenomenon or issue that has occurred in the past. Such studies most often involve secondary data collection, based upon data available from previous studies or databases. The retrospective study was considered as the outcome of interest has already occurred at the time of initiated this study. A retrospective study design allows the authors to formulate ideas about the possible associations and causes of the issues. The research design used for this study is the ex post factor research design. This design is used where the phenomenon under study has already taken place according to Simon and Goes (2013). The data obtained from the annual reports and accounts of Northern Foods Plc. which are historical in nature, thereby rendering this research an ex post factor. The retrospective study was performed on the financial situation of Northern Foods Plc., in the period of 2003 and 2007.

### **2.2. Data Description**

The data used for the analysis of this study was extracted from the interim and annual reports from Northern Foods Plc. within the period of 2003 and 2007. The timeframe of 2003-2007 was chosen as it was during this period where a lot of mergers and acquisition were taken place in the FTSE 350 Food Sector. This was the period where five year high debt financing were recorded by some of the companies coupled with intense pressure from the grocery retailing giants like Tesco and ASDA demanded that suppliers to reduce its operational cost to reduce its selling prices to better off their margins. This indeed forced some of the companies within the FTSE 350 Food Sector to initiated restructuring programs. The data extracted from the annual reports and accounts were particularly in relation to profitability, liquidity, working capital, finance and

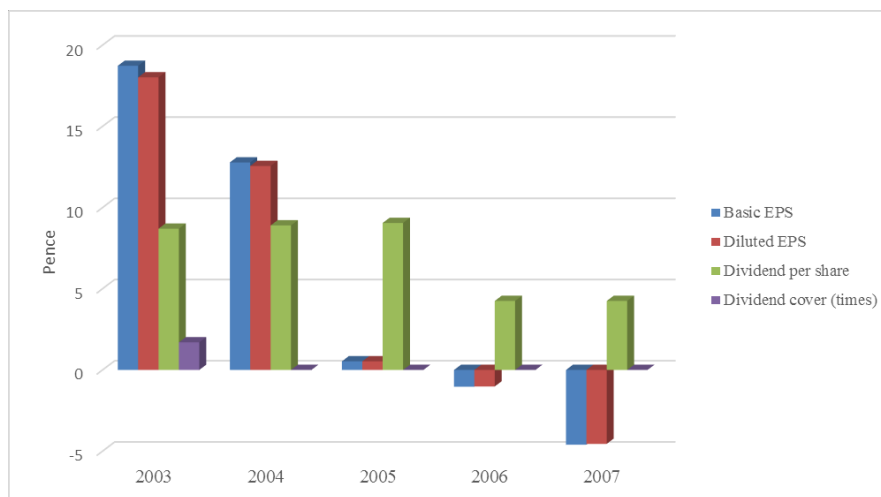
capital investment and cash generation potentials. For the purposes of comparison the interim and annual reports of Associated British Foods from 2003 and 2007 were also extracted, the choice of Associated British Foods was critical as it was a key competitor during the period and still in operation in 2016. The study also made use of databases such FAME (Financial Analysis Made Easy), Key Note, Data Monitor and Perfect Analysis to complement the annual reports. Financial information relevant for financial ratios was derived from the annual reports and the databases. These were then summarized and processed to come up with comparative financial ratios were used for the analysis.

### 3. Results and Discussion

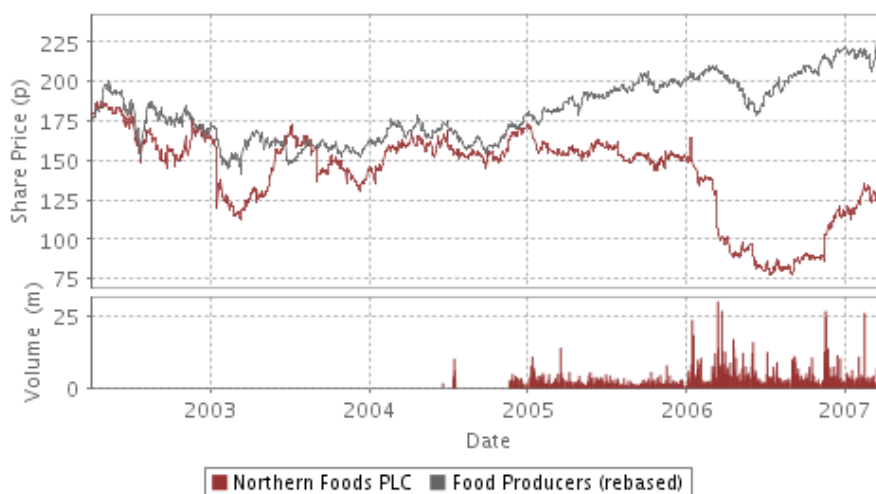
#### 3.1. Shareholders Performance Measures

As can be seen from Table 1, under the Appendix, Northern Foods earnings per share (basic and diluted) have been declining sharply over the five year period to March 2007. Basic EPS decline 124.6% from 18.73p in 2003 to – 4.60p in 2007. Diluted EPS also decline at about the same rate (125.2%) from 18.02p in 2003 to – 4.55p in 2007.

Although there was small fluctuation in Northern Foods’ main rival’s basic and diluted EPS, it grew by approximately 10.9% from 2003 to 2007. NDF’s DPS also follow the same trend dipping from 18.02p in 2003 to 4.25p in 2007. This declining shareholders performance measures is reflected in the group’s share price which has dropped from 175p in 2003 to 125p in 2007 (see fig 1A).



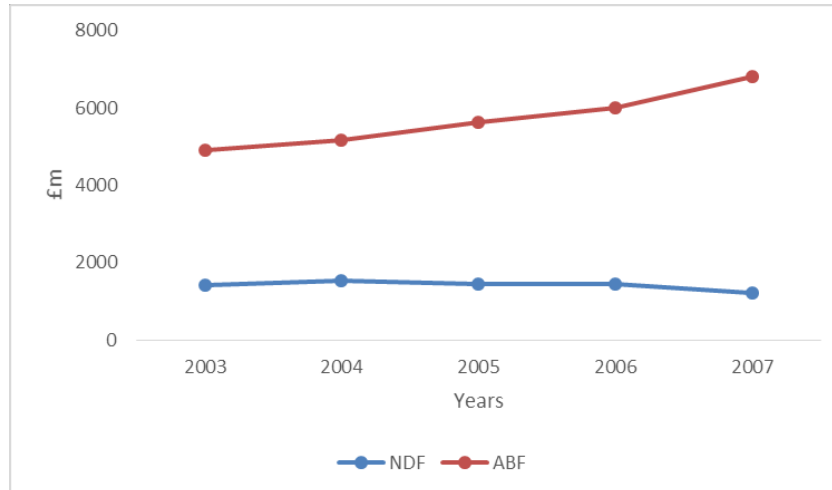
**Figure 1A.** NDF's yearly changes in shareholder performance measures  
 Source: Northern Foods Annual Reports 2003-2007  
 Note: Dividend cover measured in number of times



**Figure 1B.** Northern Foods share price chart 2003 - 2007  
 Source: Northern Foods Annual Reports 2003-2007

### 3.2. Profitability

Group turnover drop from £1438.2m in 2006 to £1205.9m in 2007 representing a decline of approximately -16.2%. This could be attributed to the restructuring process the company was undertaken during the financial year following its strategic review of May 2006 although the group turnover has been fluctuating over the five year period declining by -2.6% to £1421.2m in 2003 then rising 8.5% to £1542.1 in 2004 before continuing in steady decline of -6.1% to £1448.8m in 2005, -0.7% to 1438.2m in 2006. On the other hand, whilst NDF group turnover was on the decline that of its competitor ABF was rising at about 8.42% on average from 2003 to 2007 as shown in Fig: 2 below. Also see Appendix, Table 2 for year-on year percentage change in selected key performance indicators.



**Figure 2.** Yearly trend in NDF's sales turnover comparative to its competitor's (ABF)

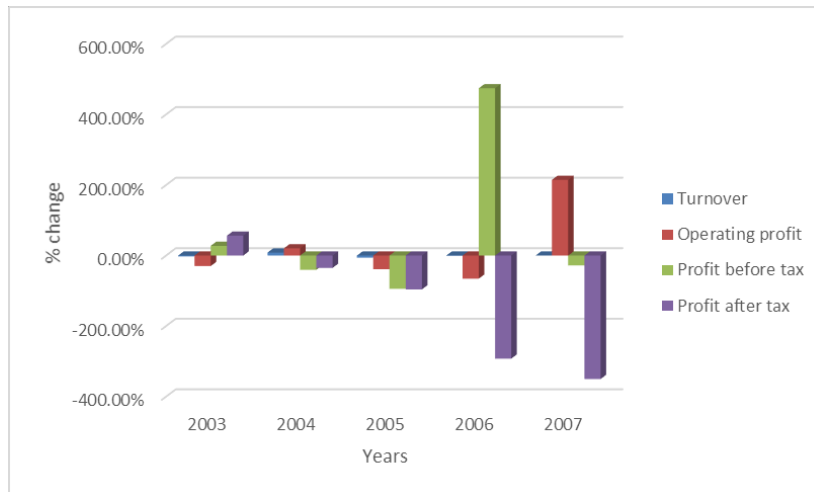
Note: NDF = Northern Foods Plc., ABF = Associated British foods Plc.

Both profit before tax and profit after tax followed similar trends with a year-on-year percentage decrease of -28% and -350% respectively in 2007. This kind of performance had prompted three profit warnings within the past two years. A careful analysis shows that the primary cause of the huge decline in profit before tax and profit after tax was the cost of restructuring. In his review, the chairman pointed out that the total cost of restructuring was £55.4m resulting in a loss for the year of £22.5m.

The primary cause of NDF's poor performance was a failure by the company to pass on price increases to help offset sharply higher energy cost and the substantial level of costs (most especially staff cost). For example whilst NDF spent 30.6% of its turnover on staff cost in 2007, its competitor spent less than half of that (14.7%) in the same period as staff costs. See Appendix, Table 3 for analysis of key costs categories as percentage of turnover.

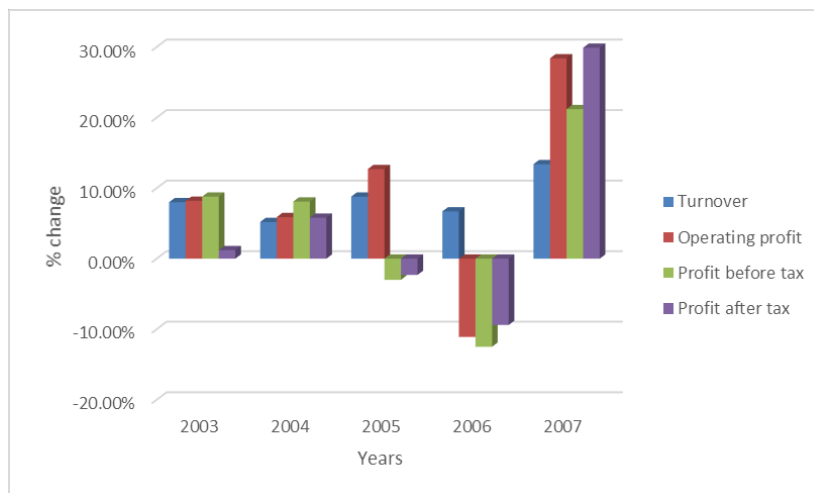
As pointed out by Hill (March, 2006), failure to pass on price increase, mounting debt level and huge pension deficits means Northern Foods cannot fund capital investments it needs to keep ahead in the cut-throat food industry. This coupled with high level of costs has resulted in significant drop in return on total assets, return on capital employed and return on equity of Northern Foods. Tumbling from 11.7% in 2003 to -0.4% in 2007, average ROTA of Northern Foods was 4.9%. Over the same period ABF's average ROTA was almost twice that of NDF at 8.62%. ROCE and ROE followed the same trend dropping significantly from 16.7% in 2003 to -0.7% in 2007 and from 27.5% in 2003 to -18.6% in 2007 respectively. During the same period ROCE and ROE for ABF dropped slightly from 12.7% in 2003 to 9.3% in 2007 and from 10% in 2003 to 9.0% in 2007. (See Appendix Table 4).

Percentage wise, year-on-year changes in operating profit has increased by 214.5% in 2007 (-65.6% in 2006; -38.8% in 2005; 20.4% in 2004 and -29.8% in 2003). This huge rise in yearly percentage changes in operating profit in 2007 is as a result of a 15.1% drop in cost of sales (from £1095.5m in 2006 to £930.1m in 2007) and a 32.4% reduction in net operating expenses (from £324.8m in 2006 to £219.5m in 2007). The decline in operating profit levels over the five years under consideration has resulted in a fall in return on invested capital (ROI) from 12% in 2003 to 7.8% in 2007 (Annual reports, 2007, p93).



**Figure 3A.** Operating trends: Year-on-year % increase/decrease in selected KPI's of NDF  
 Source: Annual Reports

Note: NDF = Northern Foods Plc., KPI's = Key performance indicators



**Figure 3B.** Operating trends: Year-on-year % increase/decrease in selected KPI's of ABF

Note: ABF= Associated British Foods Plc., KPI's = Key performance indicators

Net profit margin declined from 8.8% in 2003 to -0.2% in 2007 averaging 3.58% over the five year period. Over the same period, ABF's Net profit margin average 8.62% showing a slight decline from 9.9% in 2003 to 7.6% in 2007.

A critical analysis reveals that Northern Foods utilises its assets better than ABF's in that whilst Northern Foods asset turnover increased from 1.9 times in 2003 to 3.3times in 2007, Associated British Food's declined from 1.3 times in 2003 to 1.2 times in 2007.

Despite its better asset utilisation, NDF's gross profits margin although steady at 25.8% for 2003 and 2004 slightly drop to 24.5% in 2005, 23.8% in 2006 before taking a sharper drop to 22.9% in 2007(averaging 24.56% over the period). ABF's gross profit margin average 25.84% over the same period for.

### 3.3. Liquidity

Over the five years under review, both companies short term financial strength have been on the decline. Whilst NDFs' current and quick ratio decline from 1.06:1 and 0.79:1 in 2003 to 0.95:1 and 0.74:1 in 2007 respectively, that of ABF decline from 3.11:1 and 2.53:1 from 2003 to 1.57:1 and 1.04:1 in 2007 respectively (see Appendix Table 5 . With current and quick ratios having fallen below the traditional 2:1 standard generally favoured for a solvent company in most industries, the management of Northern Foods should have been concern with the company's short term financial strength.

In order to survive, it is important that a company is able to meet its outstanding short-term obligations after paying off the servicing of debt and tax. Over the five year period under review, the groups cash current liability coverage average 31.14%, whilst that of ABF average 47.74% (See Table 6, Appendix).

### 3.4. Working Capital (Management Efficiency)

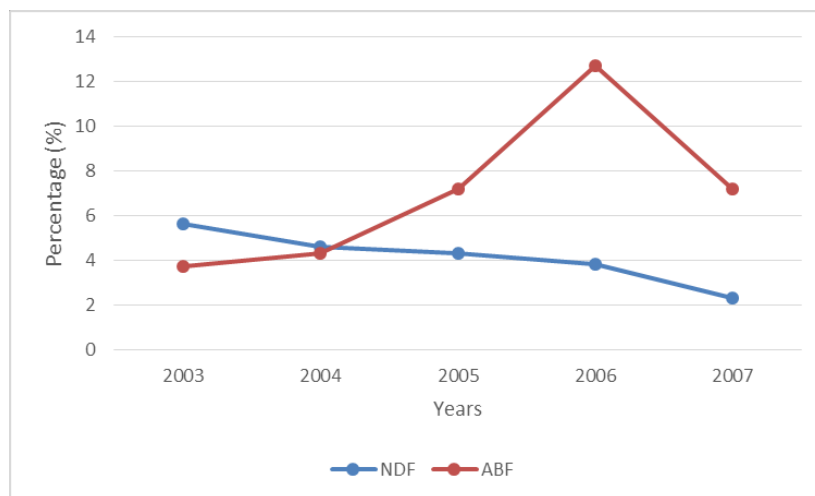
Working capital appears to be pretty relaxed. In 2003, the group allowed 37 days to collect debts and took approximately 43 days to settle its creditors. Debtor collection period improved slightly to 34 days in 2004 before increasing to 38 days and 39 days in 2005 and 2006 respectively. 2007 saw a marked improvement, the group allowing less than a month (27 days) to collect its debts. From 42 days credit in 2004, the group settled its debts 6 days earlier in 2005 before increasing to 43 days and 41 days credit in 2006 and 2007 respectively.

Between 2003 and 2007, the group allowed on average five (5) weeks to collect its debt and took an average six (6) weeks to settle its creditors. Although this serves as a good source of funding, there are interest, and liquidity implications. ABF Plc. allowed a little over a month (33 days) to collect its debt and five (5) weeks to settle its creditors. NDF's stock turnover rate improves significantly from 12.4 times in 2003 to 20.3 times in 2007. Over the same period ABF's stock turnover rate dipped from 7 times in 2003 to 6.5 times in 2007.

### 3.5. Finance and Capital Investments

An in depth analysis reveals that the group was highly debt finance. Gearing level has increase from 46.9% in 2003 to 77.3% in 2006 before dipping to 66.9% in 2007. This reduces the group's ability (financial strength) to meet other short-term liabilities after servicing of loans. Interest cover has weakened to approximately -0.1 times in 2007 from 6.4 times in 2003. Despite declining liquidity ratios, the group's dividend cover remains almost constant between 1.5 times and 1.8 times except for 2005 when it was lowest at 1.1 times.

In trying to deliver strong cash performance, the group adopted a tight policy for capital expenditure investment. In 2007 net capital expenditure was almost half that of 2006 at £28.1m (£55.3m in 2006). Overall capital expenditure as a percentage of the group's turnover dropped from 5.6% in 2003 to 2.3% in 2007. Whilst NDF's capital expenditure was on the decline, ABF continues to increase its capital expenditure levels except for 2007 when it dipped slightly. (See Fig: 4 below). The CEO was aware of the low level of investment as he pointed out in his performance review in the annual report that the group is capacity constrained in some areas but investment will be limited to ensure adequate returns are achieved.



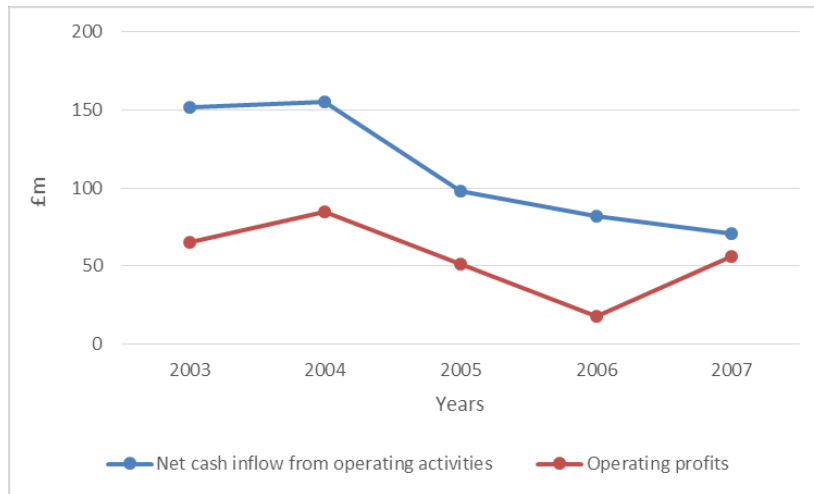
**Figure 4.** Capital expenditure as a % of turnover

Note: NDF= Northern Foods Plc., ABF= Associated British Foods Plc.

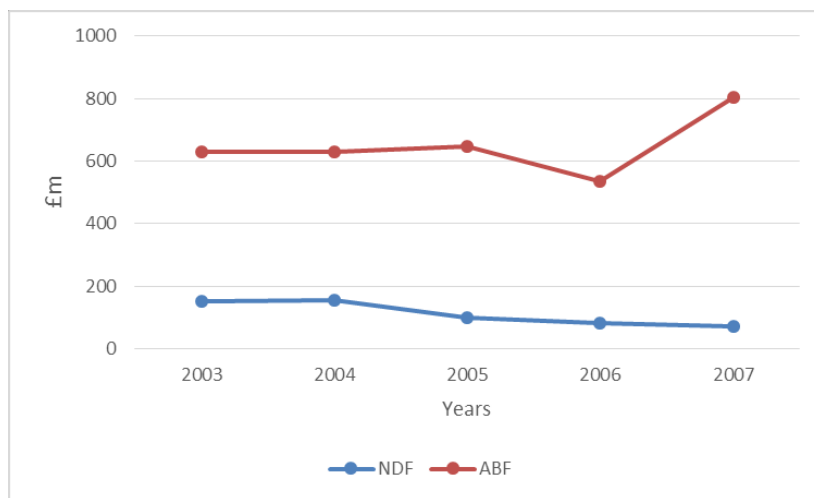
### 3.6. Cash Generation Potentials

An analysis of cash and profit generation potentials of NDF reveals that despite the decline in net cash inflow from operating activities (from £151.6m in 2003 to £70.5m) cash flow appears stronger than profit generation capacity (see Fig. 5a below).





**Figure 5A.** NDF's trend in cash and profit generation



**Figure 5B.** NDF and ABF cash generation potential compared

Note: NDF = Northern Foods Plc., ABF = Associated British Foods Plc.

Whilst net cash inflow from operating activities drop from £81.9m in 2006 to £70.5m in 2007, operating profits rose steeply from £17.9m in 2006 to £56.3m in 2007. Following the strategic review of May 2006, the company aimed to reduce its corporate central costs. This could be responsible for the sudden increase in operating profits as net operating expense declined 32.4% from £324.8m in 2006 to £219.5 in 2007.

Following its renewed focus on cash generation and management, the group has delivered strong cash performance. Free cash flow grew by approximately 171%; from £30.6m in 2006 to £83m in 2007 and, together with disposal proceeds, net debt more than halved to £174.2m in 2007 from £363.1m in 2006 (annual report, 2007).

Over the period under consideration, the group's pension deficit grew to £8.6m as at 31 March 2007. However, with focus shifting to cash generation, a special pension contribution of £57m was made. With plans of a further £22m special contribution in June 2007 so as to eliminate completely the pension deficit. A careful analysis reveals that the group appear to be funding its pension deficits using disposal proceeds.

#### 4. Conclusion, Lessons Learned and Prescription for Organisations

The primary aim of this study was to conduct a retrospective study on the financial situation of Northern Foods Plc. comparing it with Associated British Foods Plc. one of its competitors. The financial analyses looked at trends in the group turnover reported over the period under review. A review of the group's profitability, liquidity, long term investment and capital management was carried out by calculating selected key ratios aided by charting trends observed. The group's operating trend was reviewed and year-on-year increase/decrease in selected key performance indicators assessed. Generally over the five year period reviewed under this study, the group performance has not been particularly impressive. The group sales revenues continued to decline and so was its profitability despite a great improvement in asset turnover during

the period under review. Working capital management over the five year period seems to be a bit relaxed, in that the group took on average over one month to collect debt and at times have to pay creditors before collecting its debts. It is fair to say that because of fear of losing the few customers it was highly dependent for a major part of its revenue, the group had to relax its working capital policy. As a result of this working capital management policy, the group's cash generation potential has been greatly reduced as seen from the declining net cash inflows from operating activities.

Over the five year period, the group do not seem to have control over its operating costs which appears to further dent its profitability (net profit margin, ROCE and ROE). The CEO seemed to be aware of the high cost structure of the company when she announced in the strategic review that the group should aimed to reduce corporate central cost by adopting a much flatter organisational structure. The group was not in a strong financial position both in the short term and long term. Liquidity ratios (current and quick) have been declining over the five year period. In the long term the group was highly dependent on debt finance as shown by the increasing levels of gearing over the five year period. The long term survival of the group was in danger if liquidity ratios are allowed to deteriorate further and gearing continuous to increase.

Despite poor performance over the five year period, the group has not made the necessary investment required to improve its performance as shown by the declining trend in capital expenditure investments. The CEO was aware of this as she indicated in her review that the group was capacity constrained in some areas but investments will be limited to ensure adequate returns are achieved. Whether the restructuring initiative taking place as a result of the strategic review will turn around the group's fortunes has been a subject of debate by many commentators. To quote the Financial Times of June 2006, "The feasibility of Northern Foods' latest turnaround plan is open to question. Different customers may not warm to its plans to consolidate manufacturing products. The best time to make disposals may already have passed."

The study raised number of propositions in terms of giving generic prescription on financial health for any organisations based on the lessons learned from this study. Though large companies are complex in their business, markets, stakeholders, and layers of management; unfortunately this tends to bias decision toward short-term profits because they are the most visible measure of performance. This study believes that it is insufficient as avoidance of bankruptcy should not be the standard and prescribed the following to aid organisations to sustain its financial and organisational health performance:

- The Board's must make sure that resources available are utilised efficiently and effectively to achieved the stated outcomes of that organisations.
- Management must ensure the continuity of the flow of funds to all of its strategically important programs.
- The organisation must factor in its strategy whether it has the people, the skill and right culture to sustain and improve its performance.
- The organisation must get the right balance between delivering near term profits and return on capital, and continuing to invest for long-term value creation.
- The organisation must construct a comprehensive performance assessment that measures the value it has created and estimates its ability to create more.

The limitation of the study was not getting the opportunity to interview the Financial Directors of the companies. This study offers future research suggestion which subsequent could further improve this study by investigating into the financing decisions of the sampled companies to better more understand the current financial situation of the study.

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## Appendices

**Table 1. Key investment measures**

| Yearly changes investment performance measures |        |        |       |        |        |
|------------------------------------------------|--------|--------|-------|--------|--------|
| Northern Foods Plc.                            |        |        |       |        |        |
|                                                | 2003   | 2004   | 2005  | 2006   | 2007   |
| Basic EPS                                      | 18.73p | 12.78p | 0.53p | -1.03p | -4.60p |
| Diluted EPS                                    | 18.02  | 12.56p | 0.53p | -1.02p | -4.55p |
| Dividend per share                             | 8.70p  | 8.90p  | 9.05p | 4.25p  | 4.25p  |
| Dividend cover (times)                         | 1.7X   | 1.5X   | 1.1X  | 1.8X   | 1.6X   |
| Associated British Foods Plc.                  |        |        |       |        |        |
|                                                | 2003   | 2004   | 2005  | 2006   | 2007   |
| Basic EPS                                      | 42.1p  | 43.3p  | 42.2p | 38.1p  | 46.7p  |
| Diluted EPS                                    | 42.1p  | 43.3p  | 42.2p | 38.1p  | 46.7p  |
| Dividend per share                             | 14.6p  | 16.4p  | 18.0p | 18.25p | 19.5p  |
| Dividend cover (times)                         | 2.9X   | 2.7X   | 2.3X  | 2.6X   | 2.7X   |

**Table 2. Year-on-year % change in Key performance indicators**

| Year-on-year percentage change in selected 'key performance indicators |        |        |        |         |        |
|------------------------------------------------------------------------|--------|--------|--------|---------|--------|
| Northern Foods Plc.                                                    |        |        |        |         |        |
|                                                                        | 2003   | 2004   | 2005   | 2006    | 2007   |
| Turnover                                                               | -2.6%  | 8.5%   | -6.1%  | -0.7%   | -16.2% |
| Operating profit                                                       | -29.8% | 20.4%  | -38.8% | -65.6%  | 214.5% |
| Profit before tax                                                      | 27.5%  | -40.3% | -94.3% | 474.4%  | -28%   |
| Profit after tax                                                       | 56.4%  | -35.1% | -96.0% | -292.3% | -350%  |
| Associated British Foods Plc.                                          |        |        |        |         |        |
|                                                                        | 2003   | 2004   | 2005   | 2006    | 2007   |
| Turnover                                                               | 8.0%   | 5.2%   | 8.8%   | 6.7%    | 13.4%  |
| Operating profit                                                       | 8.2%   | 5.9%   | 12.7%  | -11.1%  | 28.4%  |
| Profit before tax                                                      | 8.8%   | 8.1%   | -3.0%  | -12.5%  | 21.2%  |
| Profit after tax                                                       | 1.2%   | 5.8%   | -2.3%  | -9.4%   | 29.9%  |

**Table 3. Key Cost Categories as a percentage of Turnover**

| Analysis of key costs categories |       |       |       |       |       |       |       |       |       |       |
|----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Significant costs category (£m)  |       |       |       |       |       |       |       |       |       |       |
| Northern Foods Plc.              |       |       |       |       |       |       |       |       |       |       |
|                                  | 2003  |       | 2004  |       | 2005  |       | 2006  |       | 2007  |       |
| Staff costs                      | 419.3 | 29.5% | 409.8 | 26.6% | 449.5 | 31%   | 436   | 30.3% | 368.6 | 30.6% |
| Net interest cost                | 19.5  | 1.4%  | 21.4  | 1.4%  | 22.2  | 1.5%  | 34    | 2.4%  | 18.2  | 1.5%  |
| Other operating charges          | 296.9 | 20.9% | 315.6 | 20.5% | 304.6 | 21%   | 152.8 | 10.6% | 133.7 | 11.1% |
| Associated British Foods Plc.    |       |       |       |       |       |       |       |       |       |       |
|                                  | 2003  |       | 2004  |       | 2005  |       | 2006  |       | 2007  |       |
| Staff costs                      | 630   | 12.8% | 660   | 12.8% | 778   | 13.8% | 848   | 14.1% | 1002  | 14.7% |
| Net interest cost                | 30    | 0.6%  | 12    | 0.2%  | 24    | 0.4%  | 2     | 0.03% | 9     | 0.1%  |
| Other operating charges          | 836   | 17%   | 887   | 17.2% | 1046  | 18.6% | 1148  | 19.1% | 1204  | 17.7% |

Note: 1. Staff costs = Wages and Salaries + Social security costs + other pension costs

2. Other operating charges = Distribution costs + Administration costs

**Table 4. Profitability analyses**

| Northern Foods Plc.           |                     |       |                         |                     |                      |       |                           |        |                 |                   |                          |                 |
|-------------------------------|---------------------|-------|-------------------------|---------------------|----------------------|-------|---------------------------|--------|-----------------|-------------------|--------------------------|-----------------|
|                               | PBIT / Total Assets | ROTA  | Gross profit / Turnover | Gross profit margin | PBIT / Cap. employed | ROCE  | PAT / Shareholders' funds | ROE    | PBIT / Turnover | Net profit margin | Turnover / Cap. employed | Assets turnover |
|                               | £m                  | %     | £m                      | %                   | £m                   | %     | £m                        | %      | £m              | %                 | £m                       |                 |
| 2007                          | -1 / 592.2          | -0.2% | 275.8 / 1205.9          | 22.9%               | -2.4 / 366.5         | -0.7% | -22.5 / 121.2             | -18.6% | -2.4 / 1205.9   | -0.2%             | 1205.9 / 366.5           | 3.3X            |
| 2006                          | 17.9 / 928.2        | 1.93% | 342.7 / 1438.2          | 23.8%               | 17.9 / 670.8         | 2.7%  | -5 / 152.1                | -3.3%  | 17.9 / 1438.2   | 1.2%              | 1438.2 / 670.8           | 2.1X            |
| 2005                          | 26.5 / 1046.1       | 2.5%  | 355 / 1448.8            | 24.5%               | 26.5 / 768.2         | 3.4%  | 2.6 / 326.1               | 0.8%   | 26.5 / 1448.8   | 1.8%              | 1448.8 / 768.2           | 1.9X            |
| 2004                          | 96.8 / 1094.8       | 8.8%  | 398.4 / 1542.1          | 25.8%               | 96.8 / 797.9         | 12.1% | 65.4 / 356.3              | 18.4%  | 96.8 / 1542.1   | 6.3%              | 1542.1 / 802.3           | 1.9X            |
| 2003                          | 125.3 / 1074.3      | 11.7% | 366 / 1421.2            | 25.8%               | 125.3 / 752.2        | 16.7% | 100.7 / 366.1             | 27.5%  | 125.3 / 1421.2  | 8.8%              | 1421.2 / 752.2           | 1.9X            |
| Associated British Foods Plc. |                     |       |                         |                     |                      |       |                           |        |                 |                   |                          |                 |
|                               | PBIT / Total Assets | ROTA  | Gross profit / Turnover | Gross profit margin | PBIT / Cap. employed | ROCE  | PAT / Shareholders' funds | ROE    | PBIT / Turnover | Net profit margin | Turnover / Cap. employed | Assets turnover |
|                               | £m                  | %     | £m                      | %                   | £m                   | %     | £m                        | %      | £m              | %                 | £m                       |                 |
| 2007                          | 517 / 6980          | 7.4%  | 1742 / 6800             | 25.6%               | 517 / 5537           | 9.3%  | 400 / 4464                | 9.0%   | 517 / 6800      | 7.6%              | 6800 / 5537              | 1.2X            |
| 2006                          | 421 / 6492          | 6.5%  | 1561 / 5996             | 26%                 | 421 / 4819           | 8.7%  | 308 / 4182                | 7.4%   | 421 / 5996      | 7%                | 5996 / 4819              | 1.2X            |
| 2005                          | 503 / 5813          | 8.7%  | 1523 / 5622             | 27.1%               | 503 / 4408           | 11.4% | 340 / 3725                | 9.1%   | 503 / 5622      | 8.9%              | 5622 / 4408              | 1.3X            |
| 2004                          | 506 / 4913          | 10.3% | 1308 / 5165             | 25.3%               | 506 / 4016           | 12.6% | 348 / 3469                | 10.0%  | 506 / 5165      | 9.8%              | 5165 / 4016              | 1.3X            |
| 2003                          | 487 / 4719          | 10.3% | 1237 / 4909             | 25.2%               | 487 / 3828           | 12.7% | 329 / 3296                | 10.0%  | 487 / 4909      | 9.9%              | 4909 / 3828              | 1.3X            |

Note: PBIT = Profit before interest and tax, ROCE = Return on capital employed (measured as the sum of fixed and current assets less current liabilities), ROTA = Return on total assets, ROE = Return on equity, PAT = Profit after tax

**Table 5. Liquidity, Working capital and Investment ratios**

| Northern Foods Plc. |                |               |                |             |               |                           |                 |                        |                  |       |                        |           |             |
|---------------------|----------------|---------------|----------------|-------------|---------------|---------------------------|-----------------|------------------------|------------------|-------|------------------------|-----------|-------------|
|                     | Current assets | Current ratio | C.assets-stock | Quick ratio | Trade debtors | Average collection period | Trade creditors | Average payment period | Cost of sales    | Stock | Stock Turnover (Times) | L.T. Debt | Gearing (%) |
|                     | C. liability   |               | C. liabilities |             | Credit sales  |                           | Cost of sales   |                        | Equity +L.T debt |       |                        |           |             |
|                     | £m             |               | £m             |             | £m            |                           | £m              |                        | £m               |       |                        |           |             |
| 2007                | 213.3          | 0.95:1        | 167.5          | 0.74:1      | 88.7          | 27days                    | 103.6           | 41 days                | 930.1            | 20.3x | 245.3                  | 66.90%    |             |
|                     | 225.7          |               | 225.7          |             | 1205.9        |                           | 930.1           |                        | 366.5            |       |                        |           |             |

| Year | Current assets | Current ratio | C.assets-stock | Quick ratio | Trade debtors | Average collection period | Trade creditors | Average payment period | Cost of sales    | Stock Turnover (Times) | L.T. Debt | Gearing (%) |
|------|----------------|---------------|----------------|-------------|---------------|---------------------------|-----------------|------------------------|------------------|------------------------|-----------|-------------|
|      | C. liability   |               | C. liabilities |             | Credit sales  |                           | Cost of sales   |                        | Equity +L.T debt |                        |           |             |
|      | £m             |               | £m             |             | £m            |                           | £m              |                        | £m               |                        | £m        |             |
| 2006 | 295.3          | 1.15:1        | 225.6          | 0.88:1      | 154.2         | 39 days                   | 128             | 43 days                | 1095.5           | 15.7x                  | 518.7     | 77.30%      |
|      | 257.4          |               | 257.4          |             | 1438.2        |                           | 1095.5          |                        | 69.7             |                        | 670.8     |             |
| 2005 | 366.9          | 1.32:1        | 301.8          | 1.09:1      | 152.2         | 38 days                   | 108.1           | 36 days                | 1093.8           | 16.8x                  | 369.6     | 53.10%      |
|      | 277.9          |               | 277.9          |             | 1448.8        |                           | 1093.8          |                        | 65.1             |                        | 695.7     |             |
| 2004 | 358.1          | 1.21:1        | 279.9          | 0.94:1      | 145.4         | 34 days                   | 130.8           | 42 days                | 1143.7           | 14.6x                  | 372.1     | 51.10%      |
|      | 296.9          |               | 296.9          |             | 1542.1        |                           | 1143.7          |                        | 78.2             |                        | 728.4     |             |
| 2003 | 340.8          | 1.06:1        | 255.7          | 0.79:1      | 144.8         | 37 days                   | 123.3           | 43 days                | 1055.2           | 12.4x                  | 323       | 46.90%      |
|      | 322.1          |               | 322.1          |             | 1421.2        |                           | 1055.2          |                        | 85.1             |                        | 368.5     |             |

**Associated British Foods Plc.**

| Year | Current assets | Current ratio | C.assets-stock | Quick ratio | Trade debtors | Average collection period | Trade creditors | Average payment period | Cost of sales    | Stock Turnover (Times) | L.T. Debt | Gearing (%) |
|------|----------------|---------------|----------------|-------------|---------------|---------------------------|-----------------|------------------------|------------------|------------------------|-----------|-------------|
|      | C. liability   |               | C. liabilities |             | Credit sales  |                           | Cost of sales   |                        | Equity +L.T debt |                        |           |             |
|      | £m             |               | £m             |             | £m            |                           | £m              |                        | £m               |                        | £m        |             |
| 2007 | 2261           | 1.57:1        | 1496           | 1.04:1      | 616           | 33 days                   | 503             | 37 days                | 4979             | 6.5x                   | 1073      | 19.40%      |
|      | 1443           |               | 1443           |             | 6800          |                           | 4979            |                        | 765              |                        | 5537      |             |
| 2006 | 2100           | 1.26:1        | 1419           | 0.85:1      | 565           | 34 days                   | 445             | 38 days                | 4394             | 6.5x                   | 637       | 13.20%      |
|      | 1673           |               | 1673           |             | 5996          |                           | 4297            |                        | 681              |                        | 4819      |             |
| 2005 | 2475           | 1.76:1        | 1917           | 1.36:1      | 513           | 33 days                   | 365             | 36 days                | 4021             | 7.2x                   | 531       | 12.50%      |
|      | 1405           |               | 1405           |             | 5622          |                           | 3720            |                        | 558              |                        | 4256      |             |
| 2004 | 2779           | 3.12:1        | 2283           | 2.55:1      | 477           | 34 days                   | 349             | 33 days                | 3811             | 7.7x                   | 365       | 9.50%       |
|      | 897            |               | 897            |             | 5165          |                           | 3811            |                        | 496              |                        | 3861      |             |
| 2003 | 2772           | 3.11:1        | 2256           | 2.53:1      | 430           | 32 days                   | 319             | 32 days                | 3630             | 7.0x                   | 389       | 10.60%      |
|      | 891            |               | 891            |             | 4909          |                           | 3630            |                        | 516              |                        | 3685      |             |

**Table 6. Other Key ratios**

| Northern Foods Plc.                              |                                    |                                  |                                   |                                 |                                   |
|--------------------------------------------------|------------------------------------|----------------------------------|-----------------------------------|---------------------------------|-----------------------------------|
|                                                  | 2003                               | 2004                             | 2005                              | 2006                            | 2007                              |
| <b>Interest Cover (Times)</b>                    | 125.3 / 19.5<br>=6.4x              | 96.8 / 21.4<br>=4.5x             | 26.5 / 22.2<br>=1.2x              | 17.9 / 34 =0.5x                 | -2.4 / 18.2<br>=-0.1x             |
| <b>Capital expenditure to turnover ratio (%)</b> | 79.4 / 1421.2<br>=5.6%             | 71.3 / 1542.1<br>=4.6%           | 62.2 / 1448.8<br>=4.3%            | 55.3 / 1438.2<br>=3.8%          | 28.1 / 1205.9<br>=2.3%            |
| <b>Cash current liability Cover (%)</b>          | (151.6-18.6-9.4) / 322.1<br>=38.4% | (154.9-20.3+2.1) / 296.9<br>=46% | (98.3-22.3-1.4) / 277.9<br>=26.8% | (81.9-23-1.9) / 257.4<br>=22.1% | (70.5-19.5-0.4) / 225.7<br>=22.4% |

| Associated British Foods Plc.                 |                               |                                |                                 |                                |                                 |
|-----------------------------------------------|-------------------------------|--------------------------------|---------------------------------|--------------------------------|---------------------------------|
|                                               | 2003                          | 2004                           | 2005                            | 2006                           | 2007                            |
| <b>Interest Cover (Times)</b>                 | 487 / 30<br>=16.2x            | 506 / 12<br>=42.2x             | 503 / 24 =21x                   | 421 / 2 =210.5x                | 517 / 9 =57.4x                  |
| <b>Capital expenditure to sales ratio (%)</b> | 180 / 4909<br>=3.7%           | 223 / 5165<br>=4.3%            | 403 / 5622<br>=7.2%             | 760 / 5996<br>=12.7%           | 489 / 6800<br>=7.2%             |
| <b>Cash current liability cover (%)</b>       | (630+6+9-120) / 891<br>=58.9% | (631+6+31-128) / 897<br>=60.2% | (647+4+21-132) / 1405<br>=38.4% | (536+4+163-117) / 1673<br>=35% | (802+3-32-106) / 1443<br>=46.2% |

Note: Interest cover = Profit before interest and tax / net interest payable; Capital expenditure to turnover ratio = Capital expenditure / Turnover; Cash current liability coverage = [Net cash inflow from operations + dividends from joint ventures and associates – Returns on investments and servicing of finance – tax] / Current liability

**Table 7. Common size Vertical analysis of consolidated profit and loss a/c for NDF and ABF**

| Northern Foods Plc.:             |       |       |       |       |       |
|----------------------------------|-------|-------|-------|-------|-------|
|                                  | 2003  | 2004  | 2005  | 2006  | 2007  |
| Turnover                         | 100   | 100   | 100   | 100   | 100   |
| Cost of sales                    | -74.2 | -74.2 | -75.4 | -76.2 | -76.9 |
| Dist. Costs                      | -14.4 | -12.8 | -12.8 | -13.2 | -10.3 |
| Admin Costs                      | -6.5  | -7.7  | -8.2  | -9.4  | -8.4  |
| Other operating income/(expense) | 0.1   | 0.1   | 0.1   | 0.1   | 0.6   |
| Operating profit                 | 5     | 5.5   | 3.5   | 1.2   | 4.7   |
| Share of Associated undertakings | 0.04  | 0.01  | 0     | 0     | 0     |

|                                       |             |             |             |             |             |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|
| Profit/(loss) on disposal             | 3.8         | 0.7         | -1.7        | 0           | -4.8        |
| PBIT                                  | 8.8         | 6.2         | 1.8         | 1.2         | -0.1        |
| Interest                              | -1.3        | -1.4        | -1.5        | -2.4        | -1.5        |
| Tax                                   | -0.4        | -0.6        | -0.1        | 0.8         | -0.2        |
| Dividends                             | -3.2        | -2.8        | -3          |             |             |
| Retained profits/(loss)               | 3.9         | 1.3         | -2.8        | -0.3        | -1.9        |
| <b>Associated British Foods Plc.:</b> |             |             |             |             |             |
|                                       | <b>2003</b> | <b>2004</b> | <b>2005</b> | <b>2006</b> | <b>2007</b> |
| Turnover                              | 100         | 100         | 100         | 100         | 100         |
| Cost of sales                         | -73.9       | -73.8       | -71.5       | -73.3       | -73.2       |
| Dist. Costs                           | -12.6       | -12.1       | -12.8       | -12.8       | -11.9       |
| Admin. Costs                          | -4.4        | -5.1        | -5.8        | -6.3        | -5.8        |
| other operating income/expense        | 0.1         | 0.2         | 0.2         | 0.2         | 0.1         |
| Operating profit/(loss)               | 8.3         | 8.3         | 8.7         | 7.2         | 8.2         |
| Profit/(loss)on disposal              | 0.5         | 0.2         | -0.6        | -0.2        | -0.6        |
| Investment income                     | 1.1         | 1.1         | 0.8         | 0           | 0           |
| PBIT                                  | 9.9         | 9.6         | 8.9         | 7           | 7.6         |
| Interest                              | -0.6        | -0.2        | -0.4        | -0.03       | -0.1        |
| Tax                                   | -2.6        | -2.8        | -2.5        | -1.9        | -1.6        |
| Dividends                             | -2.3        | -2.5        | -2.5        | -2.4        | -2.2        |
| Retained profits/(loss)               | 4.4         | 4.1         | 3.5         | 2.7         | 3.7         |



# Accounts Receivable Risk Management Practices and Growth of SMEs in Kakamega County, Kenya

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*Accounts receivable risk management is a structured approach to managing uncertainties through risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources (Gakure et al., 2012) Although there has been a considerable interest by government to promote SMEs by encouraging owners to take up government tenders, in Kenya the number of SMEs capable of sustaining themselves is still low. Studies show credit risk as an important variable affecting firms. Nonetheless, these risks' influence on SMEs has not received as much attention as it should. This study's main objective was to examine the influence of credit risk assessment practices on growth of SMEs. The objective of the study was to evaluate the effect of credit risk assessment practices on growth of SMEs in Kakamega County, in Kenya. Causal research design was applied to show the influence of credit risk assessment practice on growth. Using the sampling technique of purposive stratified random, a sample size of 359 out of 5401 SMEs was used from Kakamega Central Sub-County that had been in operation between 2013 and 2015. Secondary data was acquired from the Kakamega County Revenue Department, for the period under study. The hypotheses that form the premises for a regression model using analysis techniques like homoscedasticity and autocorrelation. Ordinary Least Square method was utilized to establish the relationship of cause-effect between variables while hypothesis was tested at 5% significance level. The overall model was discovered to be significant considering the  $F=14.918$  and  $p\text{-value} (0.00 < 0.05)$ . The findings revealed that good credit risk assessment practices when adopted by SMEs lead to growth. The study recommended that owners and managers should be trained and made to understand the various techniques risk management to well manage them so as to increase growth. The findings would form a basis for government and policy makers to formulate credit risk assessment strategies that would help minimize risk of bad and delinquent debt. The study also forms a basis for further research and adds to the existing body of knowledge.*

**Keywords:** Credit risk assessment, SME Growth, Accounts Receivable Management

**JEL Classification:** G23, G31

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## 1. Introduction

Growth is considered as the second most important objective of an organization, as the most important aim is survival (Bunyasi et al., 2014). Small and medium enterprise growth has been studied by many researchers for several years, different authors using different to define the stages of an enterprise growth, but the events through which each enterprise passes remain more or less the same (Mian and Smith, 1992). Most of the researchers suggest that each enterprise has to start, and then grow while facing various challenges and crises. Namusonge (2010) identified several strategies used by businesses during the growth process, and further recognized barriers and incidents which facilitate or hinder the growth of Small and Micro Enterprises during the growth process.

Credit risk is one of the challenges SMEs face. Small enterprise baseline survey (Statistics Central Bureau of Statistics, 2004) indicated that there was a high rate of failure and stagnation among many SMEs businesses. This research sought to find out the reasons for such failure. The failure of most firms whether small, medium or large is as a result of limited finances and management of the available scarce resources. Pandey, (2010) postulates that Accounts receivable management is the management of credit sales (debtors) and is a very important aspect of corporate finance since it directly affects the liquidity and profitability of the firms and ultimately their growth. Accounts receivables are amounts owed to a firm by its customers, they are normally recorded on a firm's statement of financial position when sale of goods or services are on credit. A firm accrues accounts receivables when it sells its goods on credit. Depending on the payment terms, the company might receive cash in weeks or even months (Too et al., 2016). Today, accounts receivables play a very crucial role in the overall health of a firm, however one of the most common cash-traps is uncollected cash from sales, i.e. accounts receivables. A firm cannot invest its money tied in accounts receivables elsewhere until and unless it collects its receivables (Too et al., 2016). Investment in receivables clasps a big portion of a company's assets. These assets are highly vulnerable to bad debts and losses. Thus, it is imperative to control accounts receivables in an appropriate manner (Kungu et al., 2014).

Accounts receivable management is the process of controlling and collecting payments from customers (Fujo and Ali, 2016). It refers to all activities that an organization is engaged in, when dealing with issuance of service, recording of the transaction, analyzing and collecting payments for services rendered to debtors or customers Mukherjee (2014). Omondi (2014) further explains that Accounts Receivables Management means planning, organizing, directing and controlling of receivables. It deals with a shortened collection period, low levels of bad debts and a sound credit policy; that often improves the businesses financial growth. Wawire and Nafukho (2013), posits that, Accounts receivable management is a dynamic financial management process and its effectiveness is directly correlated with a firm's ability to realize its mission, goals and objectives and hence grow. Mukherjee, (2014) further stated that a good accounts receivable management practice will assist a firm reduce the amount of funds tied up in accounts receivables and decrease a firm's percentage of bad debts. Hence, it is imperative to ensure proper practices are instituted to achieve this.

The competitive nature and pressure of the global market place, has necessitated the practice of selling products on credit. However, it can only benefit a firm if the rate of return of the added accounts receivables exceeds its associated direct and indirect costs (Mutwiri, 2007). This was what motivated this study to look at various practices that can be adopted to reduce the costs. The key practices of accounts receivable management that a firm should try to implement are: credit analysis practices, extension practices, and collection practices, credit risk assessment practices, financing practices on receivables. Salek (2005), demonstrates evidence that a well-managed portfolio of accounts receivable can boast cash flow and improve working capital.

Accounts receivable risk assessment involves identification of problem customers, monitoring and control of accounts receivable in order to maintain optimal cash flow. Most widely used Accounts receivable risk management practices are, setting up risk management teams, credit scoring, expert systems by third party and internal rating. When dealing with difficult customers' accounts are put on hold and future sales are stopped until the account is settled (Kungu, et al., 2014).

SMEs in Kakamega Central Sub County include Financial services, General trade (wholesale, retail), Accommodation and Catering, Agriculture, infrastructure and construction, Professional and Technical Services: Private Education, Health, Entertainment, Manufacturing (including pharmaceuticals), Transport usually known as bodaboda. Storage and Communication SMEs cut across all the demographics in Kakamega Central Sub County.

Several studies have analyzed the effect of credit risk management practices on profitability. Kithinji (2010) and Musyoki and Kadubo (2011) analyzed the impact of credit risk management on the financial performance of Banks in Kenya for the period 2000 – 2006, however, those that have studied credit risk management Karugu and Ntoiti (2015) looked at corporate firms and those listed on the stock exchange



markets, and thus did not address the effect of Accounts receivable risk management practices on growth in SMEs and it is for these reasons that this study sought to establish the effect of Accounts receivable risk management practices on growth.

SMEs still experience the impact of increased interest rates in the Market; their inability to shield themselves against high cost of credit is as result of their lack of strong bargaining power to negotiate for lower interest rates from financial institutions. The alternative still remains internal financing. Millions of SMEs go bankrupt every year; due to poor cash flow indeed one of the most common cash-traps is uncollected amount on cash sales, which are accounts receivables (Richard, 2008). Even large profitable firms can collapse if they fail to manage accounts receivables effectively (Njeru et al., 2015). Salek (2005) argues that management AR which is one of the largest tangible assets on a firm's balance sheet receives little or no attention, except when there is a serious problem. Despite their significance, statistics however show that in Kenya, three out of five of the youth run small enterprises fail within the first three years of operations, and those that continue 80 percent fail before the fifth year (Linguli and Namusonge, 2015). The failure of an individual SME will never attract the media attention that may be associated with the collapse of bigger firms like Enron in USA, or Kicomi or Pan paper sugar millers in Kenya however the consequences of the failure of smaller firms are certainly a serious matter for those stakeholders who are directly involved.

Poor management of accounts receivable is disastrous for a firm and more often leads to liquidity problems to many firms (Njeru et al., 2015). This does not only affect the individual firms but their failure affects the entire nation. The literature survey strongly proved need for growth, development and contribution of SMEs for economic development. However present literature relating to SMEs in Kenya has not related receivables management to the net profit and hence growth, while the focus in previous researches was on financial management broadly, this research narrows on receivable management practices. It was evident no research had not been conducted on the effects of ARM practices on the growth of SMEs in Kakamega Central Sub County. This study fills this gap. This study sought answers to the question: do receivable management practices affect growth of SMEs? The general objective of this study was to determine the relationship between Accounts receivable management practices and growth of Small and Medium Enterprises (SMEs) with a special focus on SMEs in Kakamega County (Kakamega Central Sub County).

The specific objective was:

- To find out the effect of credit risk assessment practices on growth of SMEs.

The hypothesis tested was:

-  $H_{01}$ : There is no significant relationship between Accounts receivable risk assessment practices and growth of SMEs.

## **2. Literature Review**

### **2.1. Theoretical Framework**

This study was premised on the following three theories: Life Cycle Theory, Growth Theories, and Portfolio Theory.

#### **2.1.1. The Life Cycle Theory**

The life cycle theory has been found meaningful by SME owner managers (Massey et al., 2006). Several authors (McMahon, 2001) make a case for the existence of life cycle stages that showcase SMEs expansion. Small and Medium Enterprises gravitate to growth in organic ways, whereas larger companies tend to expand through acquisition (Davidsson et al., 2006). The theory that is implemented in this study is stochastic which means that an organization's expansion is influenced by many factors and there is no primary theory to explain growth.

#### **2.1.2. The Growth Theories**

Greiner (1998) proposed a growth model that explained the growth in business firms as a predetermined series of evolution and revolution. In order to grow a firm is supposed to pass through a series of identifiable phases or stages of development and crisis. These stages are; growth through creativity, growth through direction, growth through delegation, growth through collaboration and growth through coordination. This model suggests how organizations grow, however the processes and means by which firms achieve growth varied. Shimke (2011) suggests that this growth and the increase in resource acquisition capabilities provide a positive feedback loop, which continues until the organization matures. A firm will enjoy good profits thus giving positive feedback until limiting factors (e.g. an increase in competition, poor cash flow or the depletion of resources within the firm) take effect (Ansoff and McDonald, 2003).

Namusonge (2010) identified several strategies used by businesses during the growth process, and further recognized barriers and incidents which facilitate or hinder the growth of Small and Micro Enterprises during the growth process.

### 2.1.3. Portfolio Theory

A portfolio is a set of assets, for example accounts receivable (Jajuga, 2002). Michalski, (2008) suggests that a portfolio strategy is the act of categorizing debtors according to their behavior. A portfolio is Portfolio theory by Jajuja (1994) can be used in making decisions about selecting which customers should be given trade credit. Credit risk assessment is conducted through models that are generally based on a portfolio approach, in order to differentiate potential defaulters from non-defaulters. Overall, portfolio model is based on the assignment of a pre-established set of objects into predefined classes, according to Altman, Avery, Eisenbeis and Stinkey (1981) and Doumpous and Zopounidis (2002). Some customers, who were previously rejected as a results of a high operational risk, would be accepted back provided they show a possibility of a positive outcome that increases the creation of a higher firm value (Michalski, (2008). Extension of trade credit is achievable only if the organization categorizes customers from various sectors, branches, regions, status and classes, since various categories of customers may have different levels of default risk. The only way a firm reduces this risk and enhances its success is by performing a portfolio analysis with the outcome of a diversified portfolio of customers with a range of managed levels of operating risk, according to Michalski (2008). The portfolio approach to accounts receivable management can be used by manipulating the rate of profit (rate of advantage from assets) as one of the basic criterion that a organization that it is providing the trade credit should stimulate to extend credit.

## 2.2. Conceptual Framework

Njeru et al. (2015) defines conceptual framework as a group of concepts which are systematically organized to provide a focus, a tool and rational for interpretation and integration of information and is usually achieved in pictorial illustrations. Others authors suggest that the conceptual framework sums up behaviors and offers explanations and forecasts for a majority of the empirical observations (Mugenda, 2008). The accounts receivable risk assessment practices acquired are the independent factors that influence the expansion of small and medium enterprises and growth is the dependent variable as measured in terms of profitability and sales turnover obtained from the SMEs.

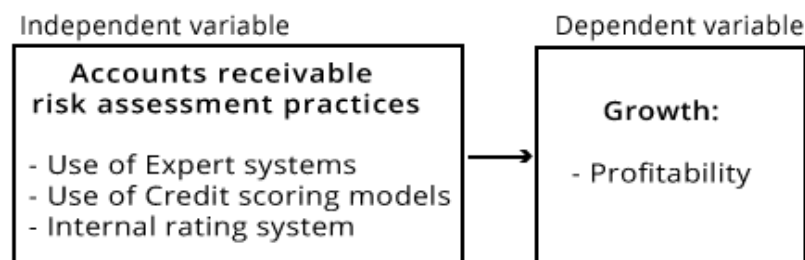
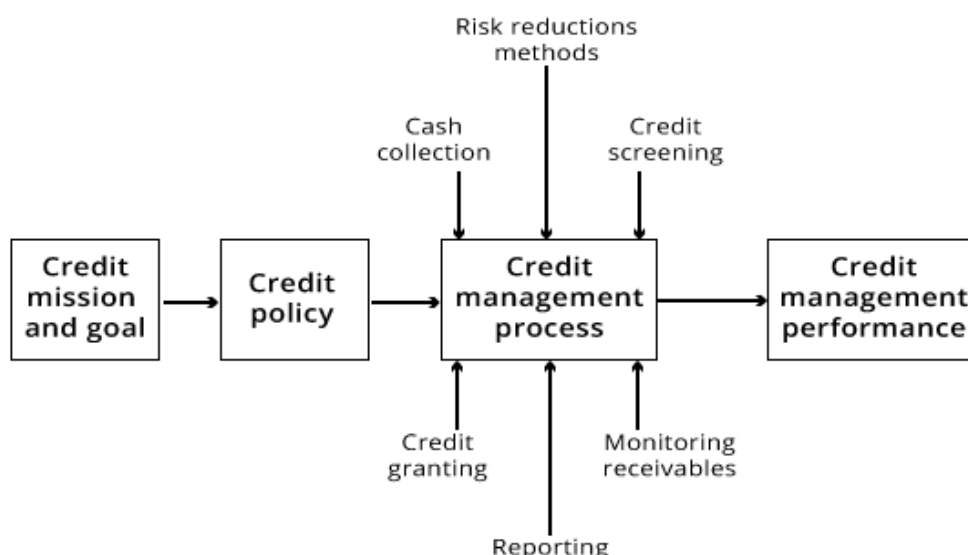


Figure 1. Conceptual framework

## 2.3. Accounts Receivable Management Practices

Njeru et al (2015) state that accounts receivable is an element of cash flow and has a direct effect on the growth of a business. Cash flow management refers to the management of movement of funds into and out of business and involves the management of accounts payable, accounts receivables, inventory as well as the cash flow planning (Joshi, 2007). Wildavsky and Caiden (2004) argue that organizations may experience cash flow problems as a direct result of inadequate accounts receivable management practices. Peel and Wilson (1996), argue that a good receivable management practice is essential to the health and performance of both small and large firms there are key practices involved: Credit analysis, credit collection, credit extension, and credit risk assessment.

From Figure 2, the diagrammatical illustration of credit management process, it is evident that Accounts receivable risk assessment practices are important and involve monitoring and risk reduction methods.



**Figure 2.** Credit Management process  
 Source: Pike and Neale (1999)

#### 2.4. Accounts Receivable Risk Assessment Practices

Risk is the possibility of suffering economic and financial losses or physical material damages, as a result of an inherent uncertainty associated with the action taken (Cooper and Schindler, 2008). Credit (accounts receivable) risk is the oldest of all default risks. Accounts receivable risk management is a structured approach to managing uncertainties through risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources (Gakure et al., 2012). The strategies include transferring to another party, avoiding the risk, reducing the negative effects of the risk, and accepting some or all of the consequences of a particular risk. Mwirigi (2006) stated that credit risk is the probability that the other party will fail to meet his/her obligations in accordance to agreed terms. The objective of Accounts receivable risk management is to maximize a firms' risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters (Pandey, 2010).

Fabozzi et al. (2002), argue that, accounts receivable risk assessment involves consideration three factors which are default probability, credit exposure and recovery rate. Many organizations give a great deal more attention to keeping and retaining existing customers and attracting new ones than they do tracking who is paying, who is lagging behind and who might default. However, as the current economic depression persists on and bankruptcy rates climb, effective Accounts receivable management becomes an increasingly critical factor in achieving success (Beranek, and Scherer, 1991). When the debtor does not pay on due date, the supplier is exposed to credit risk which may in turn lead to default and bad debts (Nyunja, 2011). Assessment of Accounts receivable risk, involves trying to find a way of accepting and controlling all businesses including high risk clients. There are three basic approaches to Accounts receivable risk measurement practices. They are: Expert Systems, Credit Rating, and Credit Scoring (Altman and Saunders, 1998). Mwirigi (2006) carried out a study to determine the credit risk management techniques applied by microfinance institutions. He established that despite having no stringent regulatory framework in relation to credit aspects for microfinance institutions in relative comparison to commercial banks, they all engage in credit management process. Mutwiri, (2007) ascertained that both agree that credit management policies form a basic objective for credit risk appraisal.

Credit risk management extends outside the organization through a process whereby credit control professionals carry out credit risk assessment for their trade partners (Mutwiri, 2007). It ensures firms remain on track. This is achieved through sourcing organizations' credit history and credit data through for example credit referencing and other data sources like financial statements (Moti et al., 2012). The Wikipedia describes credit referencing as a method whereby organizations obtain independent credit information from third party sources other than the customers themselves. This is mainly from credit reference agencies who are the custodian of credit information. In Kenya this is mainly done by the Credit Reference Bureau (CRB). Credit bureau collect and collate credit data for organizations which they have a relationship with, they then consolidate and aggregate this data to make it available on request to organizations for purposes of credit assessment and credit scoring (Mutwiri, 2007). Credit ratings are scores available from credit reporting agencies. Internationally recognized credit rating agencies are for example Dun and Bradstreet (DandB) or Standard and Poor (SandP) (Mutwiri, 2007). This sector is not well developed in Kenya and as such,

information is limited. Credit ratings give credit analysts an estimated net worth of a firm. Myers (2003) identifies factors which influence an organization's credit rating as ability to pay debt (capacity), outstanding amount of credit at any time, savings patterns and spending patterns. As credit scores are designed to indicate the likelihood that a debtor will default, a low credit score raises a red flag for an organization to adjust its lending decisions in regard to potential credit risk exposures (Mtwiri, 2007).

According to Horne and Wachowicz (1998), a credit scoring system is a quantitative approach to decide whether to grant credit by assigning numerical scores to various firm's characteristics related to creditworthiness. Horne and Wachowicz stress that the credit decision judgement during credit scoring lies with the credit analyst's ability and capability to evaluate available credit information. Rising interest rates and inflation presents a very big burden to organizations towards their financial obligations irrespective of the industry. According to the CBK Monetary Policy Statement (June, 2006), in the 90s the Kenyan economy was characterized by high inflation and interest rates well above 20% and borrowing was considered a last resort. Credit management was therefore very critical for timely cash collections to meet organizations' obligations. Internal rating can be done through portfolio strategy where customers are categorized on the their behavior and history of paying. Techniques such as Average-collection period (Days Sales Outstanding), Aging of accounts receivables and payment pattern monitoring.

Credit score is a number that reflects how likely an organization is to repay its debts. It is based on an organization's credit report which lists all its debts and their repayment history. The most efficient way to achieve a good score is keeping debts to minimal levels and ensuring their satisfaction to contractual obligations on debt servicing. Horne and Wachowicz (1998), states that a credit scoring system is a quantitative approach to decide whether to grant credit by assigning numerical scores to various firm's characteristics related to creditworthiness. Horne and Wachowicz stress that the credit decision judgement during credit scoring lies with the credit analyst's ability and capability to evaluate available credit information.

### **3. Research Methodology**

The study adopted the mixed research design. Descriptive study was undertaken in order to ascertain reliability of data collected which made it possible to describe the characteristics of the study's variables and answer the research questions in chapter one. Best and Khan (2009) posit that descriptive research is aimed at describing the characteristics of variables in a situation and is concerned with conditions or relationships that exist, opinion that are held, processes that are going on, effects that are evident or trends that are developing. Cooper and Schindler (2008) further recommend descriptive survey design for its ability to produce statistical information about aspects of education that interest policy makers and researchers. A sample survey method was used to collect data from SME operators in Kakamega Central Sub County. The Population of this study was 5401 SMEs in (Kakamega Central Sub- County, which had been in operation as at 22<sup>nd</sup> April 2015 as per the Kakamega County Revenue Department Register. The finance officers in the SMEs were interviewed. This study used the geographical location (ward) as the key unit for sampling to categorize firms into twelve strata. Firms in other sub Counties were not included in the study. Mugenda and Mugenda (2003) and Kothari (2004) define the term sampling frame as a list that contains the names of all the elements in a universe. Sampling frame comprised 5401 small and medium enterprise which operated in Kakamega Central Sub- County.

The SMEs were first of all stratified according to the geographical location (Ward), and then samples were selected from each stratum using proportionate random sampling to ensure equal representation from every stratum. A sample of 359 SMEs was selected. Krijcie and Morgan (1970) prescribes a model for a sample size determination of 359 subjects for a population of 5401. Purposive sampling for data collection was used to target financial officer from every SME dealing with accounts receivables. Wards were used as the unit of sampling. Both primary and secondary data was used. Questionnaires (both open and close ended) were administered to 359 respondents. Questionnaire with 5 point. Likert scale showed the respondents' level of agreement towards the statement in the questionnaire. The study employed both descriptive as well as inferential statistics for data analysis. Descriptive statistics technique is utilized to examine the normality of the data. Homoskedascity was implemented to initiate whether the error term's variance is constant and that it is similar for all the observations. The assumption was examined at a significance level of 5% using t-test and F-test.

The OLS technique was utilized to determine the relationship between cause and effect among the variables involved in the model. A linear regression model was conducted to determine the degree and magnitude of the existent relationship among variables. The assumption was examined at a significance

level of 5% using inferential statistics. Regression analysis is a statistical tool that examines the relationship between the variables by analyzing coefficients for the equation in a straight line (Faraway, 2002). Regression consists of R Square, which was used to test the overall significance of the model (Malhotra, 2007).

### 3.1. Model Specification

Linear regressions was used to establish and explain the relationship between Accounts receivable risk management practices and growth. Based on Aiken and West (1991), the relationship between ARMP and SMEs growth was developed into linear regression model as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$$

Where:

Y=The dependent variable. Referring to SMEs growth (proxy by sales growth and profitability)

$\beta_0$  Regression constant. It is the value of Y when  $X_1 = X_2 = \dots = X_n = 0$

$\beta_1$  Change in Y with respect to a unit change in  $X_1$

$X_1$ - Accounts Receivable risk assessment Practice (measured by internal rating system, Expert system, credit scoring model, and internal rating)

$\beta_i$  ( $i = 0, 1$ ) are the coefficients

$\varepsilon$  is the error term.

The inclusion of a random error,  $\varepsilon$ , is necessary because other unidentified variables may also affect SMEs growth. The multiple regression is based on the assumption that for any specific value of the independent variable, the value of the Y variable are normally distributed (normality assumption) and that the variances for the Y variables are the same for each of the independent variable (equal –variance assumption). Based on the model above the researcher hypothesizes that;

$H_0: \beta_1 = 0$  ( $X_i$  is not significantly related to Y)

$H_1: \beta_1 \neq 0$  ( $X_i$  is significantly related to Y)

The study applied one hypothesis generated from the model as follows;

$H_0$ : Accounts Receivable risk assessment Practice has no significant effect on growth of Small and Medium Enterprises in Kakamega Central Sub-County in Kenya. Growth of SMEs =  $f$  (Accounts receivable analysis practices, random error).

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

## 4. Research Findings and Discussions

### 4.1. Response Rate

The number of questionnaires that were administered was 359. A total of 276 questionnaires were properly filled and returned. This represented an overall successful response rate of 77% as shown on Table 4.1. According to Gall et al. (1996) response rate of 80 % is considered excellent in quantitative research in social sciences, and according to Fincham (2008), a response rate of 60% is considered appropriate in research, while according to Mangione (1995) a response rate of over 85% is considered excellent for self-filled questionnaires. The response rate was considered appropriate for further analysis since it was 77%.

*Table 1. Response Rate*

| Response   | Frequency | Percent |
|------------|-----------|---------|
| Returned   | 276       | 77      |
| Unreturned | 83        | 33      |
| Total      | 359       | 100     |

### 4.2. Entrepreneurs Background Information

This section analyzes the entrepreneurs' background information of the respondents. This section presents the descriptions of the respondents in terms of their gender, level of education, number of years in current firm and the job title. Results are as presented in Table 2.

*Table 2. Showing respondents' Gender*

| Sex    | Frequency | Percentage |
|--------|-----------|------------|
| Female | 117       | 57.6       |
| Male   | 159       | 42.4       |
| Total  | 276       | 100        |

Results reveal that 57.6% of the respondents were male while 42.4% of the respondents were female. This is an indicator that most of the people who operate SMEs are male. This can be explained by culture of the residents of Kakamega whereby men are viewed as providers and while women stay at home to take care of the children. However, small margin can be seen as a good representation of the study population

### 4.3. Descriptive Analysis

Descriptive statistics were used to check for normality of the data. Normality test was used to establish the normal distribution of the sampled data for the purpose of accurately and reliably making conclusions; the mean is a measure of central tendencies and in this study it was used to generalize the findings. While the standard deviation was used to measure dispersion from the mean. Below is a summary of the descriptive statistics shown in table 3.

*Table 3. Descriptive analysis*

| Variable                | Mean   | Standard Deviation |
|-------------------------|--------|--------------------|
| Growth                  | 43.762 | 39.90              |
| Use of Credit scoring   | 3.05   | 1.232              |
| Use of Expert system    | 2.92   | 1.165              |
| Internal rating systems | 3.33   | 1.153              |

The standard deviation is a summary measure of the differences of each observation from the mean, while the mean is the average for all the variables, growth had a mean of was 43.762 which represents the mean amount of growth originated by all SMEs in Kakamega Kenya. Use of Expert systems had a mean of 2.92 which showcases the average modifications in the use of expert systems in the timeframe of the study. Use of Credit scoring models had a mean of 3.05 which indicates the mean changes in use of credit score model for the period under study for all lenders. Internal rating systems had a mean of 3.33 which indicates the average changes in the use of scoring model for the period under study. The standard deviation for Expert systems was 1.165, Credit scoring models had 1.232 and Internal rating systems had 1.153. The standard deviations for the variables are closer to zero which implies that the values are concentrated around the mean. Internal rating systems had the highest deviation from its mean this could imply that it would have a higher effect on the dependent variable.

### 4.4. Homoscedasticity

The assumption of homoscedasticity is essential to linear regression models. Homoscedasticity explains a situation where the error term is the same across all of the independent variables' values. On the other hand, heteroscedasticity appears when the size of the error term is different across all of the independent variables' values. The effect of violating the assumption of homoscedasticity is a matter of degree, increasing as heteroscedasticity increases (Andrean, 2007). In regression analysis, heteroscedasticity means a condition in which the variance of dependent variable varies across the data. On the other hand homoscedasticity means a situation which the variance of the dependent variable is the same for all the data. According to Deloof (2009), homoscedasticity describes the consistency of variance of the error term (e, residual) at different levels of the predictor variable. Smith (2010) explains homoscedasticity in terms of the standard error estimate (of the regression line). The standard error of estimate is an index of the variance of measured values around each predicted value. The homoscedasticity assumption more formally stated as  $VAR(e_j) = c$  that, is, the variance of the error of residual term of each point  $j$  is equal to the variance for all residuals. The Gauss-Markov theorem states that when all the methodological assumptions are met, the least squares estimator regression parameters are unbiased and efficient, that is, the least square estimators said to be BUE: Best linear Unbiased Estimators (Horne and Wachowicz, 2010).

### 4.5. Multicollinearity

Multicollinearity was applied to examine the correlation between the independent variables used in this study. The presence of multicollinearity encumbers the opportunity to isolate the effect of each independent variable on the dependent variable and also the standard errors for each independent variable become magnified (Landau and Everitt, 2004). Multicollinearity can be adjusted by eliminating one or more of the correlated independent variables from the regression model (Lind, Marchal and Wathen, 2008). To check for multicollinearity Variance inflation Factor and Tolerance level were used. A VIF of less than 10 or a tolerance level of greater than 0.1 is acceptable. A summary of multicollinearity statistics is shown in Table 4.

**Table 4. Collinearity Diagnostics**

| Independent variable | Tolerance | VIF   |
|----------------------|-----------|-------|
| Credit Scoring Model | 0.517     | 1.933 |
| Expert system        | 0.527     | 1.896 |
| Internal rating      | 0.487     | 2.048 |

In Table 4, internal rating had the most reduced tolerance level of 0.487 and Expert system had the highest tolerance level of 0.527. The tolerance level for all the independent variables was higher than 0.1 which reflects the absence of problem of multicollinearity. Internal rating had the greatest VIF value of 2.048 and Expert system had the lowest VIF value of 1.896. The VIF for all the variables was less than 10, therefore this implies there does not exist any multicollinearity among the independent variables.

Multicollinearity was also examined using eigenvalues and the condition index. The condition index is calculated as a square root of the ratio of the highest eigenvalue to each subsequent eigenvalue. A condition index is less than 10 which suggests that there is no multicollinearity for this range of variables and data. A summary of eigenvalues, condition index, and variance proportions is provided in Table 5

**Table 5. Collinearity Diagnostics**

| Dimension | Eigenvalue | Condition index | Constant | Credit Scoring | Expert system | Internal rating |
|-----------|------------|-----------------|----------|----------------|---------------|-----------------|
| 1         | 3.829      | 1.000           | 0.00     | 0.00           | 0.00          | 0.00            |
| 2         | 0.077      | 7.044           | 0.48     | 0.43           | 0.04          | 0.03            |
| 3         | 0.054      | 8.339           | 0.45     | 0.45           | 0.27          | 0.38            |
| 4         | 0.039      | 9.736           | 0.06     | 0.11           | 0.69          | 0.58            |

In Table 5 of the three practices, the one that was found to have a highest condition index was Internal rating, which had an index of 9.736 while the lowest index was associated with Expert system which was 7.044. There was the absence of multicollinearity as all the independent variables had an index of less than 10. Expert system had highest variation in the independent variables that can be explained by other independent variable at 69%, while credit scoring exhibited the lowest variation at 11% however all of them were at less than 70%. This was enough proof that there was absence of multicollinearity among the independent, which means that it was possible to separate the effect of each independent variable on the dependent variable.

#### 4.6. Test of Significance of Regression Coefficients

In determining the cause effect relationship between the dependent variable and the explanatory variables the regression coefficients were tested at the 5% level of significance using t-test. The regression is presented in Table 6.

**Table 6. Regression analysis results**

| Model           | Unstandardized coefficients |            | Standardized coefficients |        |       |
|-----------------|-----------------------------|------------|---------------------------|--------|-------|
|                 | B                           | Std. error | Beta                      | t      | Sig   |
| Constant        | 34.530                      | 1.446      |                           | 23.881 | 0.000 |
| Credit scoring  | -0.111                      | 0.465      | 0.018                     | -0.239 | 0.811 |
| Expert system   | 1.306                       | 0.478      | 0.214                     | 2.733  | 0.007 |
| Internal rating | 1.479                       | 0.458      | 0.230                     | 3.229  | 0.001 |

##### 4.6.1. The Effect of Credit Scoring on Growth

The study aimed to discover the influence of credit scoring on growth of SMEs. In Table 6, the coefficient obtained from the regression analysis was -0.111 with p-value  $0.018 < 0.05$ , which leads us to affirm that the null hypothesis, according to which the use of credit scoring has no significant effect on growth, was rejected which leads to the conclusion that there exists a statistically significant relationship between use of credit scoring and growth. In this case credit scoring has a negative effect on growth such that a unit increase in use of expert system will lead to a significant decrease in profits by 1.306 units. This may be attributed to the boost in the cost of engaging in an external source of information which may result to owners selling on credit to only creditworthy customers. This finding is consistent with finding of a study by Mutwiri (2007) who noted that credit scoring is not a very common practice in Kenya and that could explain why it has a p value higher than 0.05.

##### 4.6.2. The Effect of Expert systems on growth

The study sought to find out the effect of Expert on growth of SMEs. In Table 6, the coefficient obtained from regression was 1.306 with p-value  $0.007 < 0.05$ , thus the null hypothesis, according to which

the use of expert system has no significant effect on growth, was rejected which means that the alternative hypothesis is accepted and there is a statistically significant relationship between use of expert systems and profits. In this case use Expert system has an effect on growth such that a unit gain in use of credit scoring model will result to an increase in profits by 1.479 units. This may be attributed to the increase in. The finding are consistent with Ojeka (2012) who studied on firms in Nigeria and agreed that monitoring customers is important.

#### 4.6.3. The Effect of Internal Rating on Growth

The study sought to find out the effect of internal rating on growth of SMEs. In Table 6, the coefficient obtained from regression was 1.479 with p-value  $0.001 < 0.05$ , thus the null hypothesis that use of internal rating has no significant effect on growth was rejected which leads to the conclusion that there is a statistically significant relationship between use of use of internal rating and growth. In this case use internal rating systems have an effect on growth such that a unit increase in use of internal rating system will result to an increase in profits by 1.479 units. This may be attributed to the increase in the tracking methods to owners selling on credit to only creditworthy customers. This finding is consistent with finding of Mutwiri (2007) who agrees on the importance of categorizing and analyzing debtors. This study also agrees with Mutungi (2010) who established that there was a significant positive relationship between monitoring and control of accounts receivables and performance of a firm.

#### 4.7. Relationship between Credit Risk Assessment Practices and SME Growth

Regression analysis was used to find out if there is a relationship between credit risk assessment practices and SMEs growth by evaluating the contribution of the credit risk assessment practices in explaining SMEs growth, when the other variables are controlled; the R Square value was obtained in this case. From the results in Table 7.

Credit risk assessment practices were found to have an R Square value of 0.725 or to contribute to 38.6% of SME growth. The R square value is an important indicator of the predictive accuracy of the equation. The remaining 61.4% can be explained by other factors. The implication of these finding is that credit risk assessment practices plays a significant role enhancing a SME growth. Ojeka (2011) studied four manufacturing companies in Nigeria. He used annual reports and accounts of selected companies as well as questionnaire. His findings revealed that when a company's credit policy is favorable, liquidity is at a desirable level. He further found that the companies that monitor and regularly review their credit policy and reduce cash discount allowances perform quite well in terms liquidity position and profitability. This study agrees with Mutungi (2010) who established that there was a significant positive relationship between monitoring and control of accounts receivables and performance of a firm.

*Table 7. Model Fitness*

| Model | R     | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------|----------|-------------------|----------------------------|
| 1     | 0.726 | 0.528    | 0.526             | 0.4122                     |

Table 8 provides the results on the analysis of the variance (ANOVA). The results indicate that the overall model was statistically significant. Further, the results imply that Accounts receivable risk assessment practices are good predictors of SMEs growth. This was supported by an F statistic of 14.918 and the reported p value (0.000) which was less than the conventional probability of 0.05 significance level.

*Table 8. Analysis of Variance*

| Indicator  | Sum of Squares | df  | Mean Square | F      | Sig.  |
|------------|----------------|-----|-------------|--------|-------|
| Regression | 1917.013       | 3   | 639.004     | 14.918 | 0.000 |
| Residual   | 1135.787       | 284 | 42.833      |        |       |
| Total      | 13257.799      | 285 |             |        |       |

Regression of coefficients results in Table 9 shows that there is a positive and significant relationship between credit risk assessment practices and SMEs growth as supported by a P value of 0.000 and a beta coefficient of 0.277. This was also supported by the t values whereby  $t_{cal} = 49.249 > t_{critical} = 12.706$  at a 95 percent confidence level which depicts that we reject the null hypothesis and accept the alternative. This implies that an increase in credit risk assessment practices by 1 unit would results to increase in SMEs growth by 0.277 units.



**Table 9. Regression of Coefficients**

| Variable                        | B     | Std. Error | t      | Sig.  |
|---------------------------------|-------|------------|--------|-------|
| (Constant)                      | 2.736 | 0.056      | 49.249 | 0.000 |
| Credit Risk Assessment Practice | 0.277 | 0.016      | 17.492 | 0.000 |

#### 4.4. Discussion of the Findings

The objective of the study was to assess the influence of credit risk assessment practices on growth of SMEs in Kakamega County (Central Sub County), Kenya. Results revealed that the SME owners practice various credit risk assessment practices. These practices include; using internal rating systems, monitoring the volume of bad debts, ensuring high profit margin, identifying incorrectly priced invoices and putting on hold difficult customers' accounts. Results also revealed that the SME owners did not use expert systems as well as credit scoring models.

### 5. Summary of Findings, Conclusions and Recommendations

#### 5.1. Summary

This section summarizes the findings obtained in chapter four in line with the study objectives.

The main objective of this study was to find out the role of Accounts receivable management practices on growth of Small and Medium enterprises in Kakamega County. The objective of the study was to examine the influence of Accounts receivable risks assessment practices on growth of SMEs in Kakamega County (Central Sub County), Kenya. Results revealed that the SME owners practice various accounts receivables practices. These practices include; defining the scoring models, expert systems and internal rating. The owners did not often use Credit scoring models. The bivariate regression results revealed that there is a positive and significant relationship between Accounts receivable risk practices and SMEs growth as supported by a p value of 0.000 and a beta coefficient of 0.277. This was also supported by the t values whereby  $t_{cal}=49.249 > t_{critical}=12.706$  at a 95 percent confidence level which depicts that we reject the null hypothesis and accept the alternative. This implies that an increase in credit collection practices by 1 unit would results to increase in SMEs growth by 0.277 units.

#### 5.2. Conclusion

The study showed that proper Accounts receivable risk assessment practice enhances growth of SMEs, and that if finance officers and owners are encouraged to go for workshops in this area then the SMEs would be self-sustaining and able to grow and employ many people.

#### 5.3. Recommendations

The study findings reveal that Accounts receivable assessment practices play a key role in the growth of SMEs in Kakamega County, Kenya. The study therefore recommends that SMEs owners should continue in the practice of credit risk assessment practice for consistent growth. Additionally, the SMEs owners should endeavor to use other credit risk assessment practices that are not outlined in this study. The Government should increase funding to facilitate workshops and training of SMEs owners and employees. A good firm policy on accounts receivable risk assessment and management should be formulated and applied all the time and not only when circumstances dictates, otherwise bad clients would be approved while good wants are turned away without notice. Communication is very key to identifying key issues that require urgent attention before they get out of hand; these can be done through proper documentation.

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# Bank Portfolio Structure and Absorption Theory of Economic Development: A Theoretical Proposition

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*The focus of this article was on theoretical proposition of Bank Portfolio Structure and Economic Absorption Theory of economic development. Specifically, this work sought to establish the basis of bank portfolio rigidity and to identify the causes of economic absorption problems and their implications on economic development. The theoretical and conceptual research designs were used. Existing literatures were reviewed using archival retrieval approach, library search and internet exploration. The information obtained was judgmentally, logically and qualitatively analyzed. It was discovered among other aspects, that, bank portfolio rigidity stems from regulatory policy defects using inconsistent monetary policy tools such as high liquidity ratio and cash ratio, etc. and compelling the banks to adhere to the regulatory requirement, as well as lack of adequate and quality stock of infrastructure and technology as the basic causes of economic absorption problems. Above all, low level of economic absorption has been discovered to hinder effective contributions of banks to economic development. Following from above, it was therefore recommended that regulatory tools used by Central Banks should be aligned with the development needs of the economy and the direction of governments. The monetary policy tools such as liquidity and cash ratios should also be moderated and stabilized for stable bank portfolio performance as well as aggressive improvement in the stock and quality of infrastructure and technology within an economy. With the new theory, it is expected that policy formulations and adjustments concerning bank portfolio structure and management would be designed with adequate flexibility and focus on long term loans and investments coupled with improved stock and quality of infrastructure to enhance economic development. This theory therefore provides another frontier of research on bank portfolio structure and contributions to economic development.*

**Keywords:** Bank portfolio structure, Structural rigidity, Economic absorption, Economic development

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## **1. Introduction**

In his work on “The Impact of Bank Portfolio Structure on Economic Development in Nigeria”, Ubom (2006 p.191) identified structural rigidity in bank portfolios and low level of economic absorption as the major causes of low impact of bank portfolios on economic development in Nigeria. This was based on the observations that from 1970-2000 (i.e. 31 years) banks in the country had channeled increasing volume of credits into the economy through loans and investments but without any remarkable level of economic development.

The above observation was a marked departure from the assertion of many researchers including Mbat (1995 p.56) and Jhingan (2004 p.136) who see banks as economic development agents. For instance, Mbat (1995 p.56) expressed that as economic development agents, the financial institutions carry out important economic functions. Their lending activities stimulate and sustain domestic economic growth and development. This was in consonance with the views of Jhingan (2004 p.136) who noted that: “Besides performing the usual commercial banking functions, banks in developing countries play effective role in stimulating economic development. The majorities of people in such countries are poor, unemployed and engage in traditional agriculture. These economies are characterized by lack of initiatives and enterprise by potential entrepreneurs. Means of transport are undeveloped and industry is depressed. This scenario provides commercial banks with many opportunities to help in overcoming these obstacles and promoting economic development.”

It is quite expedient to note that most developed countries of the world achieved their level of development as a result of effective and efficient financial system in which banks play predominant role. For instance, Japan and Germany witnessed high level of industrialization and economic development through the contributions of banks. This should raise the concern of curious researchers on how to address the problem militating against effective role of banks and their portfolio structures in contributing to economic development in developing countries of the world and Nigeria in particular. It is evident that the study of economic development and the validity of research findings in this direction are based on theories.

Although there are series of theories of economic development such as the Todaro migration theory, Harris-Todaro model and Harrod-Domar growth model (Todaro and Smith, 2006 pp.105-108 and 360-362), among others, none seeks to establish the link between bank portfolio structure, economic absorption and economic development in developing countries such as Nigeria. This article is therefore an attempt to make a theoretical proposition of Bank Portfolio Structure and Economic Absorption theory which seeks to establish the relationship between the level of economic absorption and the impact of bank portfolio structure on economic development and growth.

Specifically, the work seeks to establish the basis of bank portfolio rigidity, causes of low level of economic absorption, and their implications on economic development. It also aimed at making some presumptions and theoretical constructs, to highlight the anchors of Bank portfolio structure and economic absorption theory and to develop models of Bank Portfolio Structure and Economic Absorption Theory.

In order to facilitate effective discussion, this paper is structured into five sections. Section one is the introduction followed by the conceptual and theoretical review which form the second section. In section three, the research methodology is presented while some analytical constructs are made in section four. The work is summarized, recommendations made and conclusion drawn in section five.

## **2. Conceptual and Theoretical Reviews**

### **2.1. The Concept and Effect of Bank Portfolio Structure**

Banks as financial intermediaries mobilize savings (or deposits) and channel them into the economy for consumption and investments. This is done through lending. Banks give out loans of short term, medium and long-term durations to different categories of customers for personal consumption, business operations, industrial and agricultural activities. These various types of loans granted by the banks to their customers for different purposes form their loan portfolios.

In the same vein, banks invest in both short and long term marketable securities issued by the government and industrial organizations. This category of assets held by banks is another form of bank portfolios known as investment portfolio. Thus, two portfolios; namely, the loan and investment portfolios dominate the assets portfolios of commercial banks (Ubom, 2006, p.25).

As pointed out above, the asset components of loan and investment portfolios are the short term, medium and long term loans and securities, respectively. In terms of the loans, the beneficiaries include

individuals, corporate organizations and the government. On the other hand, the securities held by the banks are issued by industrial entities and governments.

The components of the loan and investments portfolios held by the financial institutions as highlighted above constitute the portfolio structure. The extent to which banks may impact on economic development of a country depends mainly on the compositions of the portfolios they hold. For example, when the assets components of investment portfolio of the banks are predominantly short term, economic development is not likely to be promoted. Similarly, when the medium and long term loans and investments are channeled into the public sector at the detriment of the industrial and agricultural sectors, economic development will not be enhanced especially when the government is not using the facilities to provide the basic infrastructures to support investment, business and economic activities. Therefore, the extent to which banks contribute to economic development depends on the portfolio structure of the banks. In the section that follows, economic development is discussed.

## **2.2. Nature and Focus of Economic Development**

Economic development and growth remain one of the major macroeconomic objectives of every country in the world. According to Byrns and Stones (1992, p.398), most people expect higher standard of living than their parents enjoyed and hope for even greater prosperity for their children.

Economic development therefore used to describe the process of improvement in the various aspects of the economy and the society it supports (Akpakpan, 1999, p.208). Such improvement is usually in the kinds of desirable changes; including: reduction in the level of unemployment, degree of personal and regional inequalities, absolute poverty and increase in real output of goods and services, literacy level, housing, health as well as production capacity.

Investment is one of the major factors affecting economic development. This is because it affects the economy's ability to produce goods by changing both the quantity and quality of capital stock available (Lipsev and Steiner, 1983, p.802). Investment increases the economy's potential.

Banks are the agents of investments and economic development. They invest directly by themselves and indirectly through lending and securities holding. As observed by Steiner, et al (1963, p.134), bank loans and investment are important to the economy because they affect the level of economic activities which it supports in two ways; namely:

- i. Expansions and contraction of loans and investments alter the nation's money supply and
- ii. The type of economic activities supported by the extension of loans and purchase of securities influences what is purchased, how much of each product is produced as well as where the products are turned out.

Even when the loan and investment portfolios are expanded, it may not contribute positively to economic development because of lapses in the structure of such portfolios. For instance, a loan portfolio that is predominantly of short term with the medium and long term skewed mainly in favor of the government produces very little or no positive impact on economic development. Bank loans and investment portfolios need to be structured in such a way that there exists a reasonable blend of the short term, medium and long term facilitates with emphasis on the productive sectors of the economy. These sectors include manufacturing and agriculture, among others.

The productive sectors of the economy as pointed out above can only respond to improved bank portfolio structure leading to economic development and growth depending on absorption capability of the economy. The level of economic absorption in an economy depends to large extent on the stock and quality of infrastructure. In other words, infrastructure deficits make it difficult for the economy to absorb the funds made available through bank lending activities. When such funds are not easily absorbed and transformed into physical outputs of goods and services, the level of inflation in the system increases and the economy in terms of development and growth is in shamble.

## **2.3. The Theory of Economic Absorption**

Traditionally, the state of development of an economy affects the level of technology and the stock and quality of infrastructure. Infrastructure as used here includes roads, electricity, and communication and transportation facilities. Others are water, education and health care facilities. With adequate stock and high quality of infrastructure mainly electricity, communication and transportation facilities as well as good road network, the economy is strengthened to absorb credit facilities extended by financial institutions to it. For instance, with good supply of electricity, entrepreneurs and business firms can make use of the credit facilities to produce various kinds of products at reduced cost and minimum delay.

The products produced need to be made available to consumers. This is facilitated by good road networks and communication systems. By implication, road and communication infrastructures are needed for effective distribution and marketing activities. The stock of these infrastructures makes possible for the economy to be fertile, open and more absorptive.

To a large extent, the level of economic absorption in any given society defines the level of economic development. This is because economic absorption tends to influence the structure of business, market and their performances. High business and market performances lead to business expansions, increased in real output of goods/services, reduced product prices, creation of more employment opportunities, improved welfare and reduction of poverty within the society. Economic development and growth anchor on increased real output of goods and services, stable prices, employment creation (or generation) and poverty reduction among others. These are the desirable changes theorized by Development Economists including Akpakpan (1999, p.208).

### **3. Research Methodology**

#### **3.1. Research Design**

This work is based on the conceptual and theoretical approaches. It became obvious to use these approaches considering the need to conceptualize and develop theoretical models to establish the link between economic absorption and the contributions of bank portfolios to economic development.

#### **3.2. Research Questions**

The following research questions were put forward in this article:

- i. What are the bases of bank portfolio rigidity?
- ii. What are the causes of low level of economic absorption in an economy?
- iii. What are the implications of poor absorptive capacity of an economy on the contributions of banks to economic development?
- iv. How useful is the theory in explaining the relationship between bank portfolio structure, economic absorption and the contributions of banks to economic development?

#### **3.3. Types and Sources of Data**

The data used in this work were in the forms of conceptual and theoretical details extracted from secondary sources. These sources include journals, articles, and publications of the Central Bank of Nigeria (CBN) (including bullion, bulletin and annual reports) and internet based sources, among others. The archival retrieval method was used in collecting the data.

#### **3.4. Method of Data Analysis**

The methods adopted in analyzing the data in this work were qualitative and judgmental approaches. A sequential process was used in the arrangement of facts and materials noting the problem and the main object of the work with focus on the development of Economic Absorption Theory of Economic development.

### **4. Analytical Perspective and Construct**

#### **4.1. Theoretical Bases and Empirical Facts**

Theoretically and empirically, from the early works of Walter Bagehot (1873), John Hicks (1969), Schumpeter (1912) and even to the contrasting views of Joan Robinson (1952, p.86) reported by Levine (1997, p.688) there is no contradictions in the role of finance, financial institutions, markets and financial system as a whole in industrialization, economic development and growth. In aggregating the various views on the role finance and financial system (in which banks and their portfolios play significant parts) Levine observed that: "There is even evidence that the level of financial development is a good prediction of future rate of economic growth, capital accumulation and technology change. Moreover, cross country, case study, industry-and-firm-level analyses document extensive periods when financial development—or the lack thereof—crucially affects the speed and pattern of economic development."

Financial developments as expressed here include portfolio structure formation and adjustments in banks, among other financial institutions.

Even the mathematical models developed by John Gurley and Edward Shaw (1955), James Tobin (1965) and Ronald McKinnon (1973) in their study of finance and economic growth, the development function of credit facilities and money were highlighted. However, these experts never considered the fact that poor

stock and quality of infrastructure hinder the receptive or absorptive capacity of the economy. In this case, the facilities injected into the economy could not be put into productive uses. It can only be recycled nominally, creating distortions and inflations as it multiplies without supportive increases in real output of goods and services.

Although, Okafor (2010, p.70) was not explicit in his assertion in terms of the connection between economic absorption and economic development, by implication however, he established this when he noted that: “Infrastructure and firm performance interact in several ways. Established firms already connected to utilities are affected by the quality of the service while new firms or those hoping to expand are concerned with the difficulties in connecting to utilities. In Nigeria, infrastructure provision has been the preserve of the government until very recently. The government provides water, electricity, roads, petroleum products, telecommunications, etc.”

With infrastructure as stated here, business operations become much easier and credit facilities are easily transformed into physical products. The economy is therefore adjudged to have high absorptive capacity. High absorptive capacity is required for economic development and growth of a nation.

In the light of the above, bank portfolios fail to contribute to economic development when the economy lacks the capability to absorb the funds injected into it through lending. Lack of absorptive capacity therefore stems from inadequate stock and poor quality of infrastructure. This makes it difficult for the money channeled into the economy to be transformed into physical output of goods and services (i.e. real outputs) but rather recycled nominally. This creates inflationary effects and excess liquidity making inflation and interest rates to rise. These are counter economic development features.

#### 4.2. Theoretical Postulates and Presumptions

Bank Portfolio Structure and Economic Absorption Theory of Economic Development states that: “structurally lopsided portfolios of banks operating in an environment with poor state of infrastructure would not make any serious impact on economic development of that economy”.

The theory recognizes portfolio rigidity of banks to stem from the regulatory requirements of agencies (such as the Central bank) supervising and regulating banks using cash liquidity ratios (i.e. the reserve ratio) to ensure stiff liquidity position of the financial intermediaries. To this end, the banks form portfolios predominantly with short term assets in order to satisfy the requirements of the regulatory agencies at the detriment of profitability and development aspirations of the economy. In an economy with poor state of infrastructure, low absorption capacity ensures and the credits extended to the economy cannot be converted into finished products but rather rebound and recycled normally. The rebounding effect of the credits in the face of low absorptive capacity create distortions and high inflation in the economy instead of supporting increased output of goods and services, business expansion, employment generation and price stability, among others. These are the needed ingredients of economic development.

On aggregate, the Bank Portfolio Structure and Economic Absorption Theory of Economic Development anchors primarily on the analysis of the relationships that exist between bank portfolio structure, quantity and quality of infrastructure and the contributions of bank portfolios to economic development. In this sense, economic development is identified as a development variable while bank portfolio structure and absorptive capacity are independent variables. Hence, models of economic development shown below are developed:

$$E_{cd} = f(B_{ps}, E_{ap}, Ab_{cp}) \quad (i)$$

$$B_{ps} = f(C_r, L_r, M_{pr}) \quad (ii)$$

$$Ab_{cp} = f(Q_{inf}, q_{inf}, L_{tech}) \quad (iii)$$

$$E_{ap} = f(R_p, F_{pc}, R_{gi}) \quad (iv)$$

where:

- $E_{cd}$  = Economic development (measured by GDP, unemployment rate, capacity utilization and inflation rates, etc.)
- $B_{ps}$  = Bank portfolio structure
- $E_{ap}$  = Economic adjustment potentials
- $Ab_{cp}$  = Absorptive capacity
- $C_r$  = Cash ratio
- $L_r$  = Liquidity ratio
- $M_{pr}$  = Monetary policy rate
- $Q_{inf}$  = Quantity of Infrastructure
- $q_{inf}$  = Quality of infrastructure
- $L_{tech}$  = Level of technology in an economy



- $R_p$  = Regulatory policy  
 $F_{pc}$  = Frequency of policy changes  
 $R_{rgl}$  = Regulatory rigidity level

From the above, it is possible to establish economic development equation based on Bank portfolio structure and Absorption theory of Economic development as follows:

$$E_{cd} = VF (MP) + EAP + ABCP - PRM$$

where:

VF = Volume of funds injected into the economy by banks which is the sum of the loan and investment portfolios of banks.

MP = Money Multiplier (i.e.  $1/MR$ )

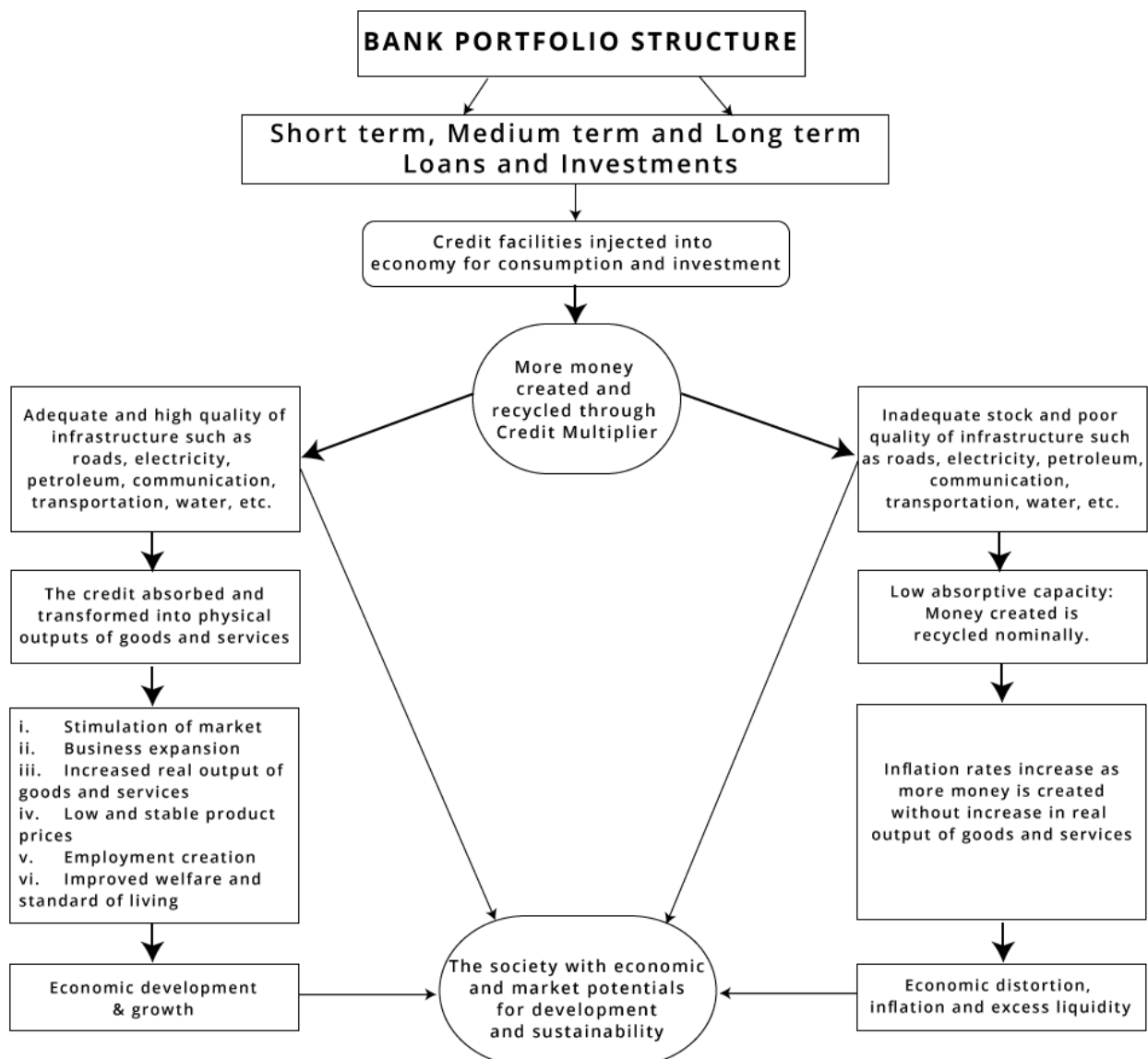
MR = Reserve Margin (i.e.  $C_r + L_r$ )

EAP = Economic Adjustment Potentials

PRM = Portfolio Rigidity Margin

ABCP = Absorptive capacity

Schematically, the bank portfolio structure and economic absorptive theory can be explained in a flowchart or model as in figure 1 below:



**Figure 1.** Flowchart of Bank Portfolio Structure and Absorption Theory of Economic Development

In figure 1 above, it is indicated that bank portfolios are made up of short term, medium and long term loans and investments. This loans and investments are the channels through which credits are extended to the

economy. By the nature of the sources of the loans and investment funds (i.e. deposits), the portfolios of these financial institutions are dominated by short term assets. As the facilities are injected into the economy, they are easily absorbed and converted into physical output of goods and services in an economy with high absorptive capacity. In contrast, the funds when injected into an economy with low absorptive capacity will only be recycled nominally. The level of absorption is influenced by the stock and quality of infrastructure and technology.

The low absorptive capacity exerts negative influences on the economy as it creates hardship making it difficult for bank lending to create serious impact on socioeconomic development and growth. The absorption problem alongside structural rigidity of bank portfolios caused by regulatory requirement and directives hinder business expansion, increased output of goods and services, employment generation, improved welfare and standard of living.

## **5. Discussion, Recommendations and Conclusions**

### **5.1. Discussion**

Economic development is one of the major macroeconomic issues. Series of researches and other efforts initiated to achieve it are targeted at the realization of three key objectives of development. These objectives according to Todaro and Smith (2006: 22) include:

- i. "To rise the availability and widen the distribution of basic life sustaining goods such as food, shelter, health and protection.
- ii. To raise the levels of standard of living including, in addition to higher incomes, the provision of more jobs, better education and greater attention to cultural and human values, all of which will serve not only to enhance material well-being but also to generate greater individual and national self-esteem.
- iii. To expand the range of social and economic choices available to individuals and nations by freeing them from servitude and dependence not only in relation to other people and nation-states but also to the forces of ignorance and human misery."

Indeed, as noted in this work, a number of research findings have established strong and positive correlation between bank portfolio structure and economic development. However, there exists a missing link in their assertions. Bank credits extended to the economy alone cannot make any significant impact on economic development and growth without the economy being soft and open to assimilate or absorb the facilities provided by the financial intermediaries and transform them into real output of goods and services. This depends on the stock, quality and distribution of infrastructure within the economy. This is in line with the reasoning of Ekpo (2013) when he observed that: "The countries in the BRICS (Brazil, Russia, India and China Concert) developed over time robust infrastructure, both hard and soft. In BRICS, there is regular power supply, a necessary ingredient for growth. South Africa has first (developed) country infrastructure built during years of apartheid. The infrastructure is still well maintained. China invested huge sums in infrastructural development. Its establishment of specialized banks, like the bank of infrastructure, played a crucial role in the development of infrastructure in the country."

The implication of the above exposition is that bank portfolios with structural defects coupled lack of adequate stock and quality of infrastructure fail to promote economic development. The structural defects in bank portfolios identified here are caused by inconsistent regulatory policies and high inclination to liquidity maximization. Hence, there is a strong link between the portfolio structure of banks, economic absorption capabilities and economic development.

Available theories of banking and economic development have not incorporated portfolio structure into the study of economic development. Therefore, the Bank Portfolio Structure and Economic Absorption Theory of Economic Development put forward here have the potentials of providing a new focus of research on economic development and sustainability.

### **5.2. Recommendations**

In this work, it was discovered among others, that, bank portfolio rigidity stems from regulatory policy defects using inconsistent monetary policy tools such as high liquidity ratio and cash ratio, etc. and compelling the banks to adhere to the regulatory requirement, as well as lack of adequate and quality stock of infrastructure and technology as the basic causes of economic absorption problems. Above all, low level of economic absorption has been discovered to hinder effective contributions of banks to economic development.

Following from above, it was therefore recommended that regulatory tools used by Central Banks should be aligned with the development needs of the economy and the direction of governments. The monetary policy tools such as liquidity and cash ratios should also be moderated and stabilized for stable bank portfolio

performance as well as aggressive improvement in the stock and quality of infrastructure and technology within an economy.

### 5.3. Conclusion

With the new theory, it is expected that policy formulations and adjustments concerning bank portfolio structure and management would be designed with adequate flexibility and focus on long term loans and investments coupled with improved stock and quality of infrastructure to enhance economic development. This theory therefore provides another frontier of research on bank portfolio structure and contributions to economic development.

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# Financial Distress and Bankruptcy Prediction: Evidence from Ghana

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*The frequent cases of corporate failures within the financial sector raises the need to employ models to predict beforehand the financial distressed or bankruptcy state of the financial sector. This study aims at predicting financial distress and bankruptcy on selected listed banks on the stock exchange of a developing West African country, Ghana. Data used for the study spanned from 2008 to 2014. The Altman Z-Score and Boone Indicator were the main techniques of analysis. The study concluded that poor corporate governance contributes to financial distress and that smaller board size negatively affects corporate performance. The study also concludes that, in a highly competitive industry, firms become more efficient and their performance enhance and thus are less likely to be financially distressed. Merging the listed banks indicates financial stability of listed banks albeit one distressed bank. Adoption of best corporate governance standards, enhancing competition through effective corporate strategies and the assurance from the Central Bank that banks have enough deposit insurance funds in stock to mitigate the effect of bankruptcy are some of the policy suggestions derived from this study.*

**Keywords:** Financial Distress, Bankruptcy, Z-Score, Boone Indicator, Financial Sector

**JEL Classification:** G2, G3, G33.

## 1. Introduction

In recent past years, there have been many cases of corporate failures, companies becoming financially distressed or labeled totally bankrupt. The phenomenon is increasingly becoming worrisome in the banking industry. Many researchers have tried to predict possible financial distress/bankruptcy of many corporate entities, most of which are in the manufacturing industry.

Notably among these giants are American International Group Inc., Philipp Holzmann, Enron, WorldCom, Swissair, Parmalat, Bank of Credit and Commerce International (BCCI). These cases have sent intriguing message across the globe and helped to create awareness that, the “too big to fall” analogy is no more an excuse and that larger corporations have the same tendencies to be labelled as financially distressed

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just as smaller and medium enterprises (Outecheva, 2007). In the United States alone, from the year 2009 to 2015 about 486 banks are said to have collapsed and these has cost the country close to \$74,777.8 billion in asset worth (Federal Deposit Insurance Corporation, 2015). Before the recent 2008 financial crisis, most African countries have also had their share of bank failures. In 1960, Nigeria saw Muslim Bank, the Lagos Bank and Berini Bank go bankrupt. In Zimbabwe, The African Report (2014) reported that, the countries Deposit Protection Corporation (DPC) has closed down six failed banks namely Sagit finance house, Genesis and Royal, the Century discount house, Rapid discount house and Trust bank with a total cost to depositors of \$ 52.3 million and 11 more banks labeled as financially distressed.

Ghana is not an exception to this phenomenon, as it has also witnessed many corporate failures over the years. From 2004 to 2005 alone Ghana Airways Limited, Juapong Textiles Ltd and Divine Gold Mines all failed with assets worth \$38.2 million (Addo and Nipah, 2006). Specifically, in the banking sector, Bank for housing and construction, Meridian BIAO bank, Bank for Credit and Commerce International, Tana Rural Bank, Ghana Co-operative Bank, Tano Agya Rural Bank, the National Savings and Credit Bank, City Savings and Loans have all collapsed. Other financial institutions like Multi Credit Microfinance, Unity Trust Microfinance, Equip Susu Microfinance, Mfa Microfinance, Busy Fingers, Devine Microfinance and Emends Microfinance and recently DKM Microfinance have been shut down due to inadequate capital, fraud and regulatory laxity. The effects of these failures have dire consequences on the institutions and the general public as a whole as depositors undeservedly sometimes lose their money.

Most literatures attribute the cause of failures in corporate entities to many different reasons. Generally, poor corporate governance measures, competition within the industry, technological changes and government regulations are ranked high among the causes of failures in corporate entities.

This study therefore aimed at predicting financial distress/bankruptcy of selected listed banks on the Ghana Stock Exchange. The study also sought to find out whether poor corporate governance and competition within the banking industry have a relationship with financial distress/ bankruptcy.

A sample of listed banks on the Ghana Stock Exchange were selected and their corporate governance practices appraised and evaluated, competition within the listed banks were also measured using the Boone indicator and the stability of the banks examine using Altman's Z-score for non-manufacturing companies. The study used data from 2008 to 2014 and concluded that poor corporate governance contributes to financial distress and that smaller board size affects corporate performance negatively.

The study also concludes that, in a highly competitive industry, firms become more efficient and their performance enhanced and thus less likely to be financially distressed. Finally, only one bank out of the five banks is distressed and the remaining four banks were neither distressed nor safe.

This research adds to the talk related to Ghana's financial sector stability, particularly of the listed banks and looks to help the overall population and investors on the financial health and wellbeing of the banks listed on the Ghana stock exchange. This study is also different in many regards as there is no comprehensive study on financial stability of listed banks on the Ghana Stock Exchange (GSE). Survey of literature showed that this study is the first to use a theoretical approach such as the Boone Indicator to measure competition on the Ghana Stock Exchange.

The rest of the paper is organized as follows. Section two presents literature on the relationship between financial distress/bankruptcy on one side and corporate governance and competition on the other hand. Section three of the paper presents the method used to analyzed data. The results and discussions are presented in section four whilst section six concludes the paper with summary of findings and some policy recommendations.

## 2. Literature Review

Eminent failure or bankruptcy of businesses and its prediction is of great importance to various stakeholders including investors, suppliers, creditors and shareholders. A business could fail as a result of economic reasons, where a firm's revenue cannot cover its cost, financial where the firm is unable to meet its current obligations even though its asset is more than its total liabilities or bankruptcy if a firm's total liability exceeds its total assets. Whitaker (1999) found that firms become bankrupt as a result of economic distress stemming from a fall in industry operating income and poor management, arising out of incessant losses over a period of five years. Whitaker's explanations of business failure seem to agree with the economic and financial reasons given above, but differ from the fact that, the fall in operating income is as a result of poor management.

Altman (2006) assigned managerial incompetence as the most pervasive reason for corporate failures. This assertion seems to agree with the view of Whitaker that management incompetence is a main reason for

company failure. In recent times many business failures have been attributed to poor corporate governance. Corporate governance according to OECD (2008) is a set of dependable relationship between the directors, owners and other stakeholders of an entity.

Corporate governance also underpins the structural arrangements put in place to enable the entity achieve its objectives and be able to monitor and measure performance. Poor corporate governance results in inappropriate decisions, lack of supervision and oversight responsibility over company activities, poor internal controls and abuse of power by both the board of directors and management. Competition is another facet that when not properly managed would result in business failure.

### **2.1. Corporate Governance and Financial Distress**

Corporate governance is the system by which organizations are directed and controlled (Cadbury report, n.d). Corporate governance is a set of dependable relationship between the directors, owners and other stakeholders of an entity. Corporate governance also underpins the structural arrangements put in place to enable the entity achieve its objectives and be able to monitor and measure performance (OECD, 2008).

Studies have shown and organizational theory has confirmed that the performance of corporate entities depend on the collaboration of management at the top level. It is therefore an undoubted fact that corporate governance and company leadership play an important role in company strategy formulation in order to drive towards company profitability and sustainability. Researchers such as (Gilson, 1989; Gilson, 1990; Datta and Iskandar-Datta, 1995) argued that financial distress can be associated or attributed to corporate governance. Daily and Dalton (1994) accords the fact that, there is a relationship between corporate failure and corporate governance characteristics, however, the distinction in consensus is about the different attributes that support the markers.

Huang and Zhao (2008) identified eight independent variables for measuring the cost of financial distress based on corporate governance indicators. According to Huang and Zhao, shareholder structure, board structure, agency problems and control mechanisms are the key variables that can be used to measure financial distress based on corporate governance indicators. Their work suggested that board structure and composition for instance, the chief executive officer (CEO) and board chairman duality is a symbol of bad corporate governance and not recommended as this creates conflict of interest and lack of effective leadership since the CEO is now accountable to himself. Such structures do not create the right ambiance and promote strategic thinking during periods of financial distress.

Colley *et al* (2005) also identified among many key corporate issues that tend to impact on corporate performance and as such erode the confidence of stakeholders. Her view is however different from the ones suggested by Huang and Zhao and reiterates that the most significant in the indicators is board entrenchment where majority of board members remain on the board for too long and have measurable influence and therefore are no longer interested in pursuing relevant corporate strategic goals. The result of such attitudes of the board is ineffectiveness, lack of focus on corporate objectives, insufficient inertia and subsequently collapse of corporations.

The view of board entrenchment espoused by Colley *et al* (2005) appears not to be a strong indicators of corporate governance principles. The reason being that, directors of a company cannot entrench themselves longer than the term required for directors to serve on boards and it is by shareholders vote that makes them board members and as such can vote them out.

However, their view of long serving members pursuing self-interest rather than corporate goals could be possible. Pozen (2010) in his article "The Case of Professional Boards" reiterated that, board structure, size and expertise of the members are key determinants of the success of the board to implement a company's corporate strategy and make it profitable and sustainable. He suggests that, larger board sizes stifle consensus-decision making and its time consuming and suggest that, it is suicidal to have all board members as generalist. There's the need for experts for example an accountant to head the audit committee and the rest of the members, experts in the company's main line of business. His suggestion of larger board results in consensus-decision making difficult is acknowledgeable, however, on the issue of board size, his view contradicts that of Dalton *et al* (1999) who conducted a meta-analysis of 27 studies that featured a board size variable and found having that more directors was associated with higher levels of a firm's financial performance. This result held true for firms of all sizes, but the effect of board size on performance was greater for smaller firms.

In contrast, De Andres, Azofra and Lopez (2005) analyzed ten developed markets, including the United States, and found a negative relationship between board size and firm performance as measured by 12-month equity 17 market-to-book value, although the convex patterns of results suggested negative impact decreased as board sizes were larger. Huther (1997) undertook an empirical test and his results confirm that of De Andres, Azofra and Lopez (2005) that, there are actually efficiency gains to be made by reducing the size

of boards. There is therefore a mixed stance on the issue of board size in corporate governance and performance of a company. Ultimately however, board size and expediency should not be sacrificed for the benefit of different perspectives that would be brought to the board if larger members are involved and so an appreciable number should be ideal.

## **2.2. Competition and Financial Distress**

It is a known convention that competition induces risk in corporate entities. This risk is due to the fact that entities want to reduce the penalty of failure and thus the incentive for prudence. This phenomenon is more evident in the manufacturing and banking sector.

Studies have provided the most relevant findings on the relationship between bank competition and financial distress or failure and can be put into two categories:

1. Micro-based analysis that investigates the influence of bank competition on risk-taking and for that matter financial stability.
2. Macro-based analysis that analyses the impact of bank competition on company survival and stability.

### **2.2.1. Micro-based Analysis View**

Risk in financial terms is the degree of uncertainty on the return of an asset. In the banking industry, risk-taking is measured by the ratio of non-performing loans to total loans in the bank's portfolio. Competition is the act of competing, rivaling for supremacy or to outwit ones competitor in order to claim maximum benefits. It could be measured by concentration and Lerner indices. One group of researchers, namely Jimenez *et al* (2008), examined the relationship between competition and bank failures based on the micro-based category. They investigated the effect of bank competition on the bank's risk-taking in a study of 107 Spanish banks. Their study found no significant impact of bank concentration, however, it did find a negative relationship between the Lerner index and risk-taking.

Alternatively, Berger *et al* (2009) used Herfindahl- Hirschman index and the Lerner index to examine the effect of bank competition on three indicators of bank risk-taking, namely non-performing loans ratio, Z-score and capitalization ratio. Berger *et al* (2009) broadened the measurement base and increased the sample size to 9,000 banks from both developing and developed countries unlike Jimenex *et al* (2008). They found that, competition has a positive impact on risk-taking banks in the developed countries but obtained ambiguous results for the developing countries. Besanko and Thakor (1993) in a prior research demonstrated that, incremented rivalry lessens the informational benefits from banking relationship and along these lines reinforces the motivating forces for risk-taking - in this manner rivalry advances bank failure.

Fungacova and Weill (2013) examined the part of bank rivalry on the event of bank failures in Russian banks from 2001-2007 and inferred that, stiffer bank rivalry enhances the event of bank failures and subsequently increased rivalry could undermine financial stability. Caminal and Matudes (2002) additionally contended that, market power ambiguously affected bank failures in which rivalry impacts bank solvency through the incentives to put invest in technologies that lessen data asymmetries and thus moral risks issues.

Turk-Ariss (2010) examines the effect of market power, measured by the Lerner index, on a marker of financial stability, the Z-score, for 821 banks from 60 nations. She found a positive impact of market power on financial stability.

Despite the fact that the above reviews affirmed a huge impact of bank rivalry on bank stability, Boyd *et al.* (2006) and De Nicolo and Loukoianova (2007) proposed contrary ideas. They examined the connection between the Herfindahl-Hirschman index and the Z-score on two distinct samples, the first from 2,500 banks from USA and the other sample from 2,700 banks from developing countries. Their results affirmed a positive effect of bank focus on bank risk, and in this way they propose that rivalry diminishes the risk of bank failures. Boyd and De Nicole view is grounded on the idea that, competition induces loan rates to be reduced and this therefore decreases the probability of defaults. They propose that loan defaults are in a perfect correlation with the probability of bank failure.

### **2.2.2. Macro-based Analysis View**

Considering the studies done based on the macro-analysis category, two main literature investigations relates to the relationship between competition and financial distress. Beck *et al* (2006) undertook an investigation into the impact of bank concentration on the likelihood of a systemic banking crisis. Their analysis was based on a sample of 69 countries for the period 1980 to 1997, which captured 47 credit crunch episodes. Their conclusion is that, crisis are less likely in more concentrated banking systems and therefore accords to the competition fragility view espoused by Boyd *et al* (2006), De Nicolo and Loukoianova (2007).

Schaeck *et al* (2009) build on the research done by Beck *et al* (2006) and extended their work by using another option to measure bank rivalry, namely the non-basic H-measurement, and they examined the effect of bank rivalry on the event of a banking crisis and on time up to the crisis. The examination implied a sample of 45 nations, followed up in the 1980-2005 timeframe, which incorporates 31 banking crises. The primary results is that competition decreases the probability of a banking crisis and increases the run-up time to a crisis. Consequently, this research supports the 'competition stability' view.

Boone (2008) has extended the existing set of competition measures by suggesting a new measure based on the idea that efficient organizations are more highly rewarded in more competitive markets. The indicator starts from the notion that in a more competitive market, firms are punished more harshly in terms of profits for being inefficient. This analogy is in line with the efficient hypothesis which explains banks performance by difference in efficiency. Under this hypothesis, it is believed that, more efficient firms perform creditably well and achieve superior results in terms of profits and eventually market share. This therefore suggest that, efficiency is underpinned by tougher competition and this results in compelling the competing firms to produce their best in terms of performance hence the incidence of financial distress is distant from such a firm all things being equal.

### 2.3. Predictability of Altman's Z- score

Basically, corporate failure prediction models can be grouped or classified into three broad categories. The Statistical models, Artificial Intelligence and Expert Systems (AIES) and Theoretic Models Altman (2006) and Aziz (2006). The Altman z-score model is a model classified under the Multiple Discriminant Analysis (MDA) models as shown in Table 1 below.

**Table 1.** Classification of Financial Distress/Bankruptcy predictive models

| Category                                      | Models                                                                                                                                                                           |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Statistical Models                         | Univariate Analysis<br>Multiple Discriminant Analysis (MDA)<br>Linear Probability Models (LPM)<br>Probit Models<br>Cumulative Sums (CUSUMS) procedure                            |
| 2. Artificial Intelligence and Expert Systems | Recursively Partitioned Decision Trees (Inductive Learning) Model<br>Case Based Reasoning (CBR) Model<br>Neural Networks (NN)<br>Genetic Algorithm (GA)<br>Rough Set (RS) Models |
| 3. Theoretical Models                         | Balance Sheet Decomposition Measure<br>Gambler's Ruin Theory<br>Cash Management Theory<br>Credit Risk Theories                                                                   |

Source: Compiled by Researchers from Altman (2006) and Aziz (2006)

The use of the Z-score as a model to predict corporate health of companies has received recognition both in the developed and developing countries across the world. Wang and Campbell (2010) studied data from Chinese publicly listed companies for the period 2000 to 2008 to test the accuracy of Altman's Z-score model in predicting failure of Chinese companies. All Altman's models were found to have significant predictive ability. A review done by Yim and Mitchel (2005) on a study of 99 failed and 274 non-failed Brazilian firms by Elizabetsky (1976) revealed that the model correctly classified 74% of the non-failed firms and 63% of the failed firms. Gerantonis *et al* (2009) examined whether Altman Z-score model can accurately anticipate organization failures. They observed that the Altman model can demonstrate well enough in anticipating failure.

Also, Arrawi *et al* (2008) utilized Altman Z-score and ratio analysis to examine the reason behind firm bankruptcy. They reasoned that Altman's model might be utilized as an indicator and maybe may provide evidence in determining a firm's potential future bankruptcy.

Contrary to the positive conclusions on the predictability of the Z-score, Jeffry (2005) is of the view that, the model is of academic purposes and is useless in its practical application. His criticism stems from the arbitrary choice of ratios based on prevalence and popularity. The criticism by Jeffry (2005) appears sound since this model is limited in its predictability. The model does not predict actual bankruptcy neither do they estimate survival probabilities or the time to corporate failure as espoused by Jeffry (2005) in his article. Gombola *et al* (1983) argued that the omission of cash flow ratios in bankruptcy studies is inappropriate. The



empirical evidences provided above with the exception of Jeffry and Gombola *et al* points to the fact that the Z-score is helpful in predicting failure of publicly listed firms in the developed countries.

Narrowing down to the developing countries, a study by Appiah (2011) on corporate failure prediction on listed firms in Ghana revealed that, Altman's Z-score is able to predict corporate health of listed firms in Ghana dependent on company size and nature. Appiah's study focused on a sample of 15 non-failed and failed companies listed on the Ghana Stock Exchange, he tested the model through a cross-section of different firms in the manufacturing industry with dataset from 2004 to 2005.

Titshabona (2013) investigated using Altman's Z-score for non-manufacturing firms, on financial institutions listed on the Zimbabwe Stock Exchange. The dataset for the period 2011 to 2013 were used and the findings showed that 83.33% of the financial institutions were in the distress zone while 16.67% were at the grey zone and non in the safe zone. The above studies indicate that, Altman's Z-score despite its drawbacks can and is used to predict corporate failure both in the public and private sector in both manufacturing and non-manufacturing industries.

### 2.3.1. Altman's Z-score revisited

The core ingredients of MDA are financial ratios, these ratios coupled with their analysis still remains valuable tools for determining a company's financial health. In the MDA model, the ratios are put together into a solitary discriminate score, designated as a 'Z-score', with a range from 1.81 to 2.67. Below the low score usually specifying a distress zone and above the high score indicating a safe zone. Altman's original Z-score equation was:

$$Z = 0.012X1 + 0.014X2 + 0.33X3 + 0.006X4 + 0.999X5 \quad (\text{Equation 1})$$

Where: X1= working capital/total assets

X2= retained earnings/total assets

X3= profit before interest and tax/total assets

X4= market value of equity/book value of total liabilities

X5= sales/total assets

With the following precincts of discrimination:

$Z > 2.67$  'safe' zone

$1.81 < Z < 2.67$  'grey' area

$Z < 1.81$  'distress' zone

This equation was used only to measure corporate health of manufacturing companies. The equation was later transmuted to accommodate for private and non-manufacturing companies as follows;

For private companies:

$$Z = 1.2X1 + 1.4X2 + 3.3X3 + 0.6X4 + 1.0X5 \quad (\text{Equation 2})$$

The version of the Z-score for non-manufacturing companies can be estimated for as follows:

$$Z = 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4 \quad (\text{Equation 3})$$

With the following areas of discrimination:  $Z > 2.6$  'safe' zone;  $1.1 < Z < 2.6$  'grey area';  $Z < 1.1$  'distress' zone.

*X1: Working capital/ Total assets (WC/TA)*

Working capital is the difference between current assets and current liability. This ratio is a measure of net liquidity and therefore a low WC/TA indicates liquidity problems. This implies that, a company with negative working capital usually has difficulties meeting its short term obligations as there are not adequate current assets to cover its liabilities due. This highlights a symptom of financial distress. However, a positive working capital indicates that the firm is liquid and can meet its obligation as they fall due.

*X2: Retain Earnings/ Total Assets (RE/TA)*

This ratio indicates the earnings power of a company. It also is considered as a leverage ratio and companies with high retained earnings more often than not is financed from accumulated profits. Meaning that, this ratio captures the age of a firms since well-established companies tend to grow higher earnings over the life of the company as compared to younger companies. It therefore suggest that older companies are unlikely to enter into bankruptcy as compared to younger ones. Altman (2006) however noted that this ratio does not discriminate between old and younger companies and that either companies might be affected equally.

It is however a general believe that companies with a high RE/TA ratio indicates good profitability and hence less pruned to financial distress or bankruptcy.

*X3: Earnings before Interest and Tax/ Total Assets (EBIT/TA)*

EBIT measures a company's profitability excluding statutory obligations in the form of tax and interest charges. The ratio measures ability of management to derive profits out of the company's assets. Significantly, it measures earnings on each dollar of investment made in a company's assets.

*X4: Market Value of Equity/ Book Value of Total Liability (MVE/TL)*

This ratio depicts a company's worth. As expressed with Total liability indicates whether a company is financially distressed or not. The market value of equity is obtain by multiplying the total number of preferred and common stock of a company by its share price. The total liability incorporates both short term and long term liability. The ratio is an indication of how the total assets of a company can cover its liabilities. A company with high debt to equity ratio tends to move closely to insolvency if enough profits are not available to support the payment of interest expense.

*X5: Sales/Total Assets (Sales/TA)*

This ratio measures management efficiency in generating sales from available assets. It also measures the firm's competitive ability, as it relates to sales of products. The higher this ratio the better it is for the firm.

### 3. Methodology

The study environment under which this research is carried out is the Ghana Stock Exchange. Currently, there are 38 equities from 35 companies and 3 corporate bonds listed on the GSE. Among these 35 companies are only 7 companies from the banking industry, namely, Cal bank, Eco bank, Standard chartered bank, SG bank Ghana, GCB bank, HFC bank and UT bank. The research was based on five (5) out of the seven (7) listed banks due to the availability of adequate and appropriate data. Below is a table of the focused listed banks information.

*Table 2. Focused Listed Banks Information*

| Current Bank Name              | Previous Bank Name                               | Symbol | Date incorporated | Date listed    | Type of traded securities      | Stated capital | Issued shares                            |
|--------------------------------|--------------------------------------------------|--------|-------------------|----------------|--------------------------------|----------------|------------------------------------------|
| Cal Bank Gh. Limited           | Continental Acceptance Ltd and CAL Merchant Bank | CAL    | 24 April, 2004    | 5 Nov, 2004    | Ordinary shares                | Gh¢100,000,000 | 584,261,549                              |
| Eco Bank Gh. Limited           | nil                                              | EBG    | 9 Jan, 1989       | July, 2006     | Ordinary shares                | Gh¢226,640,000 | 293,228,372                              |
| Standard Chartered Gh. Limited | Nil                                              | SCB    | 1970              | 12 Nov, 1990   | Ordinary and Preference shares | Gh¢61,631,000  | 115,507,284 (ord.)<br>17,486,083 (pref.) |
| UT Bank Gh. Limited            | UT Financial Services                            | UTB    | 18 April, 1996    | 25 Nov, 2008   | Ordinary shares                | Gh¢85,275,000  | 456,310,181                              |
| HFC Bank Gh. Limited           | nil                                              | HFC    | 7 May, 1990       | 17 March, 1995 | Ordinary shares and Bonds      | Gh¢95,000,624  | 296,640,918                              |

Source: Researchers Compilation from the Ghana Stock Exchange

The design used for this research is largely descriptive with focus on the nature of the research aims of the study. Each objective has an approach deemed appropriate to achieve the goals of the study.

Corporate governance rules and procedures are precise. Many researchers have agreed on several common good corporate governance indicators. These are compared to the various target companies corporate governance structures and weighted. The standard on corporate governance diagnosis was adopted and

modified from the method used by Salmon (1993) 22 questions for diagnosing your board cited in (Lorsch, 2000, p.22) and OECD principles of good corporate governance.

Similarly, the measure of competition has been extensively discussed in the literature. As competition represents a non-observable variable, the most rational procedure is to estimate it. Among many other methods available the study adopted the method known as the Boone indicator.

The model used to estimate the indicator is as follows;

$$\ln(\pi_i) = \alpha + \beta_i \ln(mc) + Dt$$

where  $\pi$  = Market share in operating profit terms,

MC = Cost to income ratio, a measure of efficiency.

$\beta$  and  $\alpha, Dt$  = Boone indicator and dummies, respectively.

The model considers that, competition enhances performance (market share) of efficient banks (namely, the banks with reduced operating expenses). The more  $\beta < 0$  the more competitive there is in a specific market or industry, the more stable the firm is due to lower operational cost.

Lastly, the Z-Score for non-manufacturing companies is employed to measure the financial stability of the target companies. This method involves collection of data from publicized accounts of the various target companies and has unique rules and procedures.

The equation used for calculating the Z-score for the banks is as follows;

$$Z = 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4 \quad (\text{Equation 3})$$

where all the variables were previously defined.

#### 4. Results and Discussion

This section presents the findings of the study. It includes the effect of corporate governance on financial distress or bankruptcy, and also the relationship between financial distress/bankruptcy and competition in the selected banks. The result also includes the distressed or bankruptcy state of the selected listed banks on Ghana Stock Exchange.

##### 4.1. The Effect of Corporate Governance on Financial Distress or Bankruptcy

In order to measure the level of adherence or non-adherence to corporate governance standards, among many indicators, three key indicators were adopted and used as a yardstick to measure corporate governance practices in the case study companies.

A total of eight (8) questions under the three main indicators as shown in table 3 were used to diagnose each case company and a corresponding response of YES or NO answer was obtained. A weighting of 1 or 0 was given to a yes or no answer respectively. The weighting method was adopted from San-Woo and Il Chong (2004) and Klapper and Love (2002) though their number of questions were 22 and their information was from primary sources, this was scaled to correspond to the number of questions used in this study. According to Salmon (1993) cited in Lorsch (2000), a score of 7.2 (90%) is recommended as good governance score.

**Table 3. Weighted score of each case company on the three key indicators**

| Diagnosing the Board                                                                           |                    |          |          |          |          |
|------------------------------------------------------------------------------------------------|--------------------|----------|----------|----------|----------|
| Standard Indicator                                                                             | Case Company Score |          |          |          |          |
|                                                                                                | CAL                | EBG      | SCB      | UTB      | HFC      |
| <b>1. Board structure and composition</b>                                                      |                    |          |          |          |          |
| a. Are there three (3) or more external Directors for every inside Director?                   | 1                  | 1        | 1        | 1        | 1        |
| b. Are the inside Directors limited to the CEO, COO and CFO?                                   | 1                  | 1        | 1        | 1        | 1        |
| c. Is the position of Board chairman separate from the CEO?                                    | 1                  | 1        | 1        | 1        | 1        |
| d. Does the Board have audit, compensation and risk management committee?                      | 1                  | 1        | 1        | 1        | 1        |
| e. Does the various committee members include one or more independent non-executive member(s)? | 1                  | 1        | 1        | 1        | 1        |
| <b>2. Board Size</b>                                                                           |                    |          |          |          |          |
| f. Is your board the right size (8 to 15) members?                                             | 1                  | 1        | 1        | 0        | 1        |
| <b>3. Disclosure</b>                                                                           |                    |          |          |          |          |
| g. Disclosure of semi annual and annual reports                                                | 1                  | 1        | 1        | 1        | 1        |
| h. Follows international standards for Accounting and audits.                                  | 1                  | 1        | 1        | 1        | 1        |
| <b>Total Score</b>                                                                             | <b>8</b>           | <b>8</b> | <b>8</b> | <b>7</b> | <b>8</b> |

Source: Researchers compilation from annual reports.

From the table above, with the exception of UTB which obtained 4 out of 5 representing 80% with respect to board size category, all the other case companies score a 100% in each of the indicator categories. The board size of UTB fell below the range suggested by (Salmond, 1993 cited in Lorsch, 2000).

All the banks with the exception of UTB scored above 90% and seems to be more financially stable as shown in the Z- Score which is a measure of stability computed in Table 4 below.

This therefore implies that financial stability may be linked to good corporate governance adherence and poor or inadequate adherence to corporate governance practices results to poor performance and in this respect smaller board size affects company's financial stability.

This result however, conflicts with studies by Yermack (1996), Eisenberg et al. (1998) and Conyon and Peck (1998) who suggested that, board size has an inverse relationship with performance. Meaning, smaller boards should appear to be more efficient than larger boards.

However, one must be careful when concluding on board size and its direct implication on company performance. Company size, nature of its business and length of time of existence may inform a company's reasons for its board size.

#### 4.2. The Relationship between Financial Distress/Bankruptcy and Competition

It is normally stated that in industries or companies with increasing competition, inefficient operating companies are pushed more harshly than those that are efficient. It therefore implies that, comparing the relative profits between companies of arbitrarily efficient and those with greater efficiency contains some level of information about competition.

It is against this background that the results below are underpinned. Competition is estimated using the Boone indicator as shown in the figure below (Figure 1).

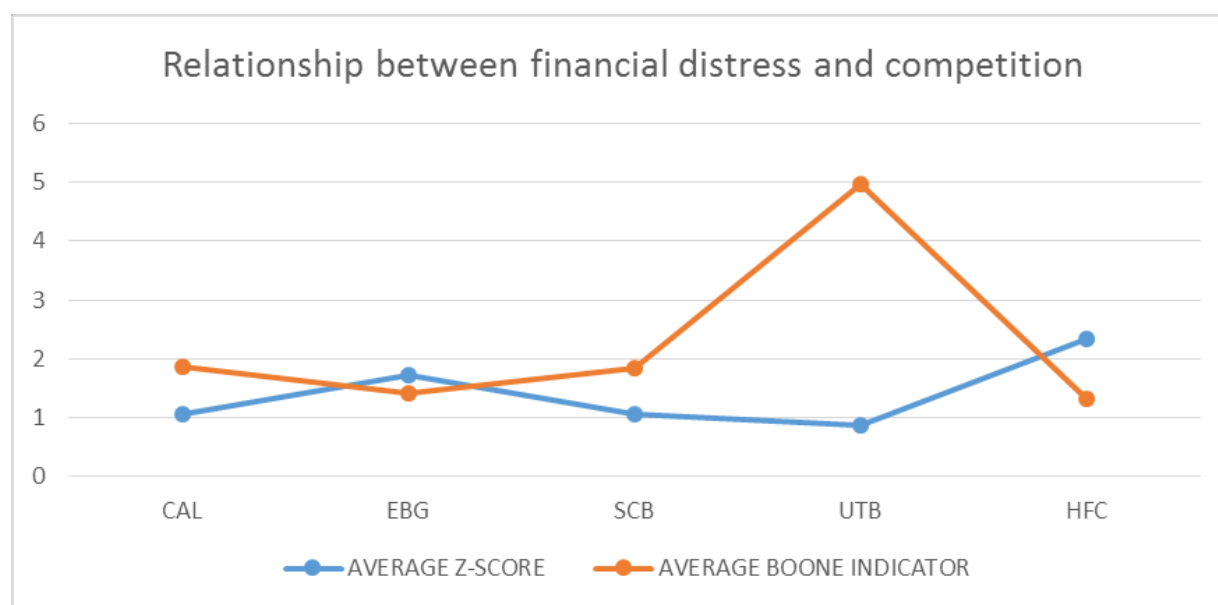


Figure 1. Graph of the relationship between financial distress and competition

According to Boone (2008), competition rewards efficiency. The higher the competition within an industry, the more companies tend to be efficient by reducing their operational cost and increasing operating income. This therefore implies that, the more the Boone indicator approaches zero or negative, the higher the competition and the more rewarding it is to efficient firms to become more stable in financial terms.

From the graph above, HFC had the least average Boone indicator of 1.31 with a corresponding highest Z-score of 2.35 followed by EBG with a Boone indicator of 1.42 and a Z-score of 1.72. SCB, CAL and UTB had Boone indicators of 1.84, 1.87 and 4.97 respectively with a corresponding Z-scores of 1.07 for both SCB and CAL and 0.87 for UTB respectively. It therefore implies that, the most efficient bank that was able to adequately reduce its operational cost is HFC with a Boone indicator of 1.31 and the least was UTB with a Boone indicator of 4.97.

Similarly, the case company with the least Boone indicator (HFC) score the highest Z-score indicating financial stability and the company that had the highest Boone indicator (UTB) score the least Z-score mark and thus confirming the Boone indicator theory that, competition enhances the performance of a highly efficient firm and thus promotes financial stability and less likely to be distressed.

The high competition was triggered by the deadline for meeting the Bank of Ghana directive on the minimum capital adequacy requirement for commercial banks in 2010 and 2013. Therefore, all the banks were seen striving towards meeting that directive.

Generally, the economic environment within these period was faced with stiff cost rises from inflationary pressures, exchange rate fluctuations, and increased prices of petroleum products that are used to fuel powered generators. It is therefore expected that competition would be stiff and banks will therefore employ the best of strategies to contain these pressures.

The most efficient banks were those that were able to implement cost cutting strategies to reduce their cost to income ratio drastically. These strategies to a large extent did have a positive impact on the banks efficiency and making them more stable since the industry operating cost was of a lower magnitude than growth in industry income resulting in more profitability (Ghana Banking Survey, 2014 p.49).

### 4.3. Financial or Bankruptcy State of the Selected Banks

*Table 4. Z-Score of selected case study companies*

| Year | CAL  | EBG  | SCB  | UTB   | HFC  |
|------|------|------|------|-------|------|
| 2008 | 0.67 | 1.38 | 1.43 | 2.27  | 2.00 |
| 2009 | 1.46 | 1.33 | 0.54 | 2.18  | 3.42 |
| 2010 | 0.66 | 1.93 | 1.29 | 1.27  | 1.53 |
| 2011 | 0.41 | 0.51 | 0.82 | 0.20  | 1.61 |
| 2012 | 0.74 | 0.27 | 0.56 | 0.73  | 2.86 |
| 2013 | 1.58 | 3.32 | 1.68 | 1.21  | 2.54 |
| 2014 | 1.97 | 3.26 | 1.14 | -1.80 | 2.49 |

Source: Computed by researcher from annual reports of the banks

From the table above (Table 4), CAL and SCB recorded an average Z-score of 1.07. This means that, CAL and SCB according to Altman (2008) are considered to be in the “grey” zone. This zone means that, the company has the likelihood of moving or falling into the safety zone or distressed zone if management do not take measures to prevent it.

Furthermore, these two banks had a range within the grey zone in the individual years Z-Score. CAL began at a distressed position in 2008 and moved out of the distressed zone in 2009 only to return in 2010, 2011 and 2012 and emerged back to the grey zone at a Z-Score of 1.97 in 2014. Likewise, SCB in 2008 was in the grey zone and in 2009 fell to the distressed zone since its Z-Score was below 1.1.

The bank survived the following year but fell victim to a distressed state in 2011 and 2012 and since has managed to remain out of the distressed zone. The bank recorded a Z-Score of 1.68 and 1.14 in 2013 and 2014, respectively.

ECB had in its later years had a Z-Score of 3.32 and 3.26 in year 2013 and 2014 respectively. This places the bank in the safe zone. However, on the average of the seven-year period, the bank recorded an average Z-Score of 1.72. Meaning that, it is in the range of the grey zone. Also, HFC is another bank that saw its Z-Score in 2009 and 2012 within the safe zone.

The other years within the period all fall within the grey zone. The bank recorded an average Z-Score of 2.35, the highest average Z-Score recorded within the five banks measured during the period. UTB recorded an average Z-Score of 0.87 meaning that, UTB falls below 1.1 and therefore is financially distressed according to Altman’s measure.

Taking a deeper look at the individual year on year Z-Score, it can be deduced that, the banks stability has been on the decline from the year 2008 with a Z-score of 2.27 to 2014 with a Z-score of -1.80. Below is a graphical presentation of the Z-scores (Figure 2).

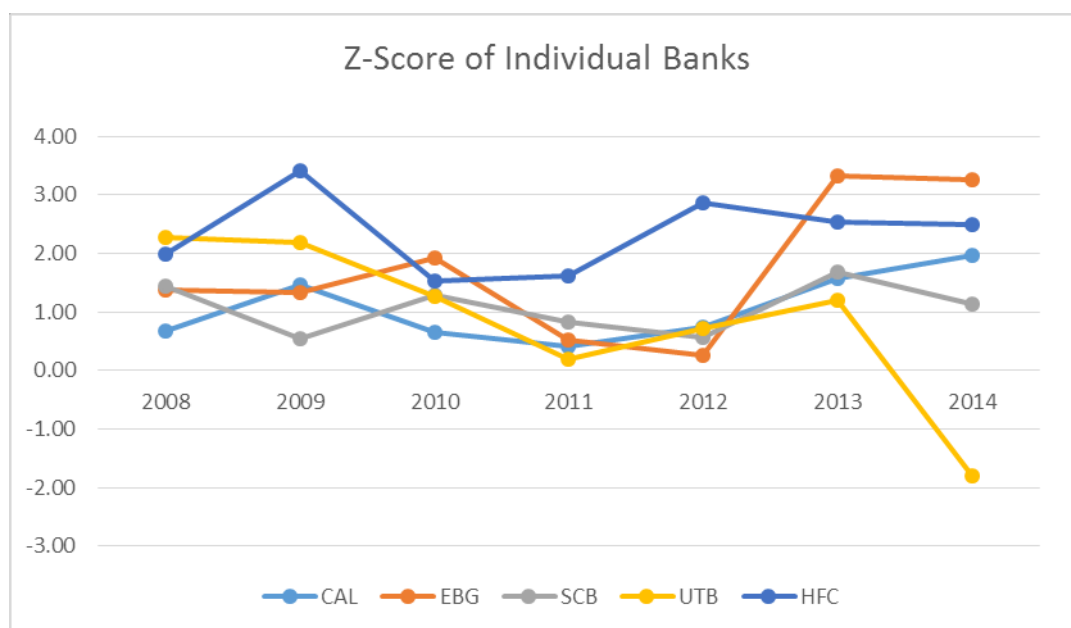


Figure 2. Graphical presentation of Individual banks Z-Score

Table 5. Summary table of total Z-Score of the five (5) Banks

| Year | X1      | X2     | X3     | X4     | Total Z-Score |
|------|---------|--------|--------|--------|---------------|
| 2008 | 0.0058  | 0.0107 | 0.0696 | 9.0173 | 10.01         |
| 2009 | -0.0197 | 0.0192 | 0.101  | 8.8472 | 9.90          |
| 2010 | 0.0176  | 0.0132 | 0.0912 | 12.398 | 13.79         |
| 2011 | -0.0689 | 0.0154 | 0.0772 | 9.358  | 9.94          |
| 2012 | -0.0706 | 0.0273 | 0.0895 | 3.7293 | 4.14          |
| 2013 | 0.1613  | 0.0315 | 0.1051 | 3.9368 | 6.00          |
| 2014 | 0.0921  | 0.0285 | 0.1068 | 4.0858 | 5.70          |

Source: Computed from annual reports of case companies.

From table 5 presented above, the ratio of working capital to total assets (X1) of the banking sector in 2009, 2011 and 2012 showed approximately -2%, -7% and -7% respectively. This implies that, the industry had liquidity problems and was unable to meet their current obligations as they fall due. The situation improved at the later end of 2013 and 2014 with an increase in the ratio to 16% and 9% respectively. An average of approximately 2% is obtained for this ratio over the seven years' period. The ratio of retained earnings to total assets (X2) progressively increases over the period.

An average ratio of 2.1% is recorded for the sector. This is a sign of profitability though the increase is not significant. The sector had a good profit before interest and tax over total assets ratio (X3) over the period with the peak being the last three years of the period recording a ratio of 8.9%, 10.5% and 10.7% respectively. Averagely the sector recorded a ratio of 9% implying that for every one Ghana cedi invested in assets, a return of 9% is derived from managing those assets. This ratio is significant for the industry because it tells how much profits are available to meet statutory obligations such as taxation and interest.

The sectors performance in market value of equity to book value of total liabilities ratio (X4) is impressive with the early years of 2008 to 2010 showing 9, 8.8 and 12 times of market value of equity to book value of total liability. Averagely the sector recorded a 7:1 times the sectors market value to its total liabilities. The Z-Score of the whole sample banks under study reveals that, for the period 2008 to 2014, the banks as a whole are beyond the safe zone as suggested by Altman (2008). None of the year on year Z-Score is below the 3 indicator. This implies that, the sectors banks put together is in a stable position and far from financial distress/bankruptcy. However, as seen earlier, the assessment of each bank individually revealed otherwise.

## 5. Conclusions and Recommendations

The aim of this paper was to assess the financial distress or bankruptcy state of listed banks on the Ghana Stock Exchange. The analysis was based on five listed banks based on data availability from 2008 to

2014. The paper also assessed the effects of competition and corporate governance on financial distress position of the banks. The measurement of each of the objectives of the study was explicitly defined to suit each parameter especially the Boone indicator (competition) and the Z-Score (non-manufacturing) companies.

### 5.1. Conclusions

The study shows that companies that practices good governance principles is seen to be financially stable and thus distances itself from being financially distressed. Furthermore, found that smaller board size has negative effect on corporate performance. Thus, a poor corporate governance practice does contribute to poor financial performance of a company and especially, smaller board size affects corporate performance negatively.

Again, the study concludes that post 2010 of the banking industry was generally highly competitive. This pushed inefficient banks to perform poorly and motivated the efficient banks to become more efficient, controlling and reducing operational cost and increasing operating income and thus becoming more profitable and stable. The study therefore asserts that competition within the banking industry enables efficient banks to be more financially stable and less likely to be distressed and thus confirms the Boone indicator theory.

Finally, study was undertaken to measure the distress/bankruptcy state of the selected listed banks and found out that, individually, four (4) of the selected banks have their average Z-Score between 1.1 to 2.6 and therefore classified in the grey zone and only one (1) bank has its average Z-score below 1.1 and therefore was classified as distressed. The four (4) out of the five (5) banks representing 80% of the selected banks are neither distressed nor classified as safe.

### 5.2. Policy Recommendations

The boards of the banks should adopt all best and recommended corporate governance standards such as those suggested by the Organization for Economic Co-operation and Development (OECD) on the constitution of audit, risk, and compensation committees with more independent non-executive members and ensure that they are implemented thoroughly. Shareholders should endeavor to advocate for and elect experienced, well diversified, experts on boards with appropriate sizes (at least 8 to 15 members) to represent their interest and safe guard their investments

It is also recommended that, management of the various banks should accept competition and see it as an opportunity rather than a treat to enable them strategies more effectively to become market leaders. Management should also implement policies that help in ensuring operational cost control and increasing income. An example, is adopting automation of some manual transactions. This would reduce staff cost and pension contributions and increase income generation.

The Central bank should ensure that, the banks classified under the grey zone have enough deposit insurance funds in stock. This would help reduce the impact if any of the banks become financially distressed. There is also a need for the supervisory bodies to shift focus on liquidity levels of banks. Many banks have become rapidly distressed for lack of liquidity resulting in limited investment opportunities which ultimately affected their financial stability. More consciousness on risk management techniques and managerial competence towards liquidity management need to be considered in further policy development.

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# Testing the Pecking Order Theory of Capital Structure in FTSE 350 Food Producers Firms in United Kingdom between 2001 and 2005

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*This paper tests the Pecking Order Theory to see if it best explains the financing behaviour of FTSE 350 UK Food producer firms from the time period of 2001 to 2005. A multiple case study design was used. However, the study approach was retrospective in nature. The Pecking order model as proposed by Shyam-Sunder and Myers, Frank and Goyal; and Rajan and Zingales, was followed in this research. The empirical analysis of firm-year data was compared to a generalised view of the literature to enable an assessment of the commonalities and differences observed. The results suggest that although there is some form of Pecking order behaviour amongst FTSE 350 UK food producer firms, especially when it comes to managers' preference for the different sources of finance, their financing behaviour is best explained by the trade-off theory of capital structure.*

**Keywords:** Pecking Order Theory, Trade-Off Theory, FSTE 350 Food Sector, Capital Structure, United Kingdom

**JEL Classification:** C13, C35, G32, L66

## 1. Introduction

How do firms finance their operations? How should firms finance their operations? What factors influence these choices? How do these choices affect the rest of the economy? These are important long standing questions. At one time, the complexity of the problem was thought by many to be so great as to defy the development of reasonable theories according to Frank and Goyal (2009). Attempts to find solutions to these questions have led to two prominent and competing theories of capital structure known as the Trade-off theory and the Pecking Order theory (hereafter POT), in which the method of financing matters.

The trade-off theory is based on tax, bankruptcy and agency models. According to the trade-off theory each firm has a well-defined optimal capital structure, which balances the cost and benefits of debt financing. As pointed out by MM (1963), debt financing is more advantageous than equity because it reduces the expected tax liability thus increasing the after tax cash flow. And in the event of financial distress, a firm's optimal

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capital structure should equate bankruptcy and debt-tax shield. The trade-off theory suggests that debt equity ratio is mean-reverting as the firm seeks to achieve the target ratio. There is a lot of support for the trade-off theory both from earlier and recent empirical research [see Taggart (1977), Jalilvand and Harris (1984), Miguel and Pindado (2001), Ozkan (2001), Bhaduri (2002), Loof (2004), Flannery and Rangan (2006), Marsh (1982) and Hovakimian *et al* (2001)].

On the other hand, the pecking order theory (POT), states that firms follow a financing hierarchy preferring internal funds first, followed by external debt next and equity as a last resort. Contrary to the trade-off theory, it is a conventional wisdom that companies choose the least expensive method to finance their companies as this is in line with the pecking order theory. When it comes to new investments financing most companies will prefer using retained earnings, followed by debt and equity. On the other hand the trade-off model expects that there is the need to consider several costs and benefits in the decision of trade-off between dividend and leverage. According to Fama and French (2002) some of the predictors of trade-off model are taxes, free cash flow agency problems and bankruptcy costs.

Based on asymmetric information, a firm's choice of financing uses a pecking order where internal finance is preferred to external finance, in which debt is liked to equity. According to Lumby and Jones (2011), the company should finance as much as possible through the use of retained earnings and where external finance is used because managers have identified positive NPV investments that cannot be financed with retained earnings, issue debt until debt capacity is reached and only then, if positive NPV projects still remain to be financed, issue equity. The pecking order theory forecasts that high-growth firms with large financing necessities end up with high debt ratios because of managers' reluctance to issue equity. However, the findings of Smith and Watts (1992) and Barclay, *et al* (2001) contradict this prediction as they found out that high growth firms use less debt in their capital structure.

Corporate financing policy is central to the survival of any business, more especially those in the manufacturing industry. For example, in the food producer business, it is crucial for firms to use a proper mix of the financing sources available as most of the goods produce are easily perishable. Thus too much debt financing might not be good news in the event of slow sales. The primary aim of this study is to test the pecking order theory of FTSE 350 Food Producers Sector on their financing behaviour.

## **2. Literature Review**

### **2.1. Capital Structure Theories**

Firms' financing policy requires managers to identify ways of funding new investments. The managers may exercise three main choices: use retained earnings, borrow through debt instruments, or issue new shares. Hence, the standard capital structure of a firm includes those three choices, which can also reflect firm ownership structure. The key purpose of the capital structure policy is to ensure that an appropriate mixture of debt and equity is used in financing the business. The mixture of debt and equity used to finance the assets of a firm is referred to as its capital structure.

Several theories have been put forward on the subject of capital structure. These theories include the trade-off theory, pecking order theory, free cash flow/Agency theory and Market timing theory. However, for the purpose of this study, focus is on the two competing theories (trade-off and pecking order theories).

#### **2.1.1. Trade-off Theory**

The trade-off theory contends that each firm has a well- characterized optimal capital structure, which adjusts the advantages and costs of debt financing and that the firm moves towards it through time. The trade-off theory focuses on (a) the trade-off between taxes and bankruptcy, (b) agency conflicts and (c) stakeholders' co-investments (Frank and Goyal 2003). The first branch (taxes x bankruptcy) compares the debt benefit of reduced tax burden with a higher vulnerability of the firm due to its higher financial leverage. That is firms should issue debt until the value of the tax shield on debt equals the expected cost of bankruptcy.

The agency theory states that debt financing helps solve problems deriving from the firm excess cash flow as it commits the firm to debt interest payments. With the stakeholders' co-investments, trade-off theory has it that financing with stock options is the best way to induce all stake holders to fight for the survival of the firm

The Trade-off theory of capital structure indicates that the decision of a company to choose how much debt and equity financing that is required is based on the balancing of the costs and benefits of each form of funding (Gurcharan 2010). According to Gurcharan (2010), there is an advantage to finance through debt (interest tax shield benefit) but this needs to include consideration of the costs of financial distress, including the bankruptcy costs of debt and non-bankruptcy costs. Therefore, the empirical relevance of the trade-off

theory is still being questioned (Frank and Goyal, 2003). On the other hand, Miller (1977) and Graham (2003) argue that the tax savings obtained do appear large enough and certain, while the deadweight bankruptcy costs seem minor.

Myers (1984) recognizes that as firms' borrowing increases, the cost of financial distress (example, bankruptcy costs, agency costs, transaction costs, etc.) also increases. He argues that at a certain point the costs of financial distress will exactly offset the interest tax shield generated by borrowing and at that point the value of the firm is maximized or the overall cost of capital is minimized. Thus, the existence of financial distress costs such as bankruptcy costs implies that an optimal capital structure exists and this occurs at the point where tax advantage is traded off against the likelihood of incurring those financial distress costs.

The trade-off theory has some support because there are wide variations of gearing levels among firms that predict that "target debt ratio will vary from firm to firm" (Bradley *et al.*, 1984). It also rationalises moderate borrowings. The pitfall to this theory however, is that it fails to explain the strong indirect correlation between profitability and financial leverage. Following from the analysis of this theory, one would expect that profitable firms would have a higher debt ratio. This is because higher profits mean more pounds for debt service and more taxable income to shield. Bradley *et al.* (1984) indicated that the most profitable firms borrow less, and the least profitable ones borrow more.

Early studies by Taggart (1977), Jalilvand and Harris (1984) provide evidence of mean reversion of leverage, which is consistent with the trade-off theory. While Miguel and Pindado (2001) and Fama and French (2002) reported mixed results, Ozkan (2001), Bhaduri (2002), Loof (2004) and Flannery and Rangan (2006) observed that leverage adjusts partially to target leverage, hence supporting the trade-off theory prediction. Findings by Marsh (1982) and Hovakimian *et al.*, (2001), show that a firm's decision to issue new securities is determined by target capital structure.

### **2.1.2. Pecking Order Theory**

Pecking order theory is one of the leading theories in corporate finance, as it predicts the structure of debt. It indicates that securities with lowest information costs must be issued first and higher information cost securities should be issued later. Frank and Fama (2003) suggested that it is better for companies to take advantage of short-term debt before thinking about long-term debt. In line with the pecking order theory is a fact that financing behaviour most of the time is driven by adverse selection costs. It can be inferred that the theory performs best with firms with severe adverse selection problems.

Myers (1984) indicated that firms follow a financing hierarchy determined by agency whiles information asymmetry and the signalling considerations were reported by (Myers and Majluf, 1984). That is, supposing there are three main funding sources available to firms: retained earnings, debt and equity. Retained earnings have no issue with adverse selection. Equity has serious adverse selection issues while debt has only a minor adverse selection issue.

From an outside investor's point of view, although both equity and debt have adverse selection premium, equity is riskier and has a larger premium. Outside investors demand higher rate of return on equity. From the insiders' (managers) point of view retained earnings are a better source of funds than debt and debt is a better source than equity financing. Thus, firms prefer internal funds above external funds and if retained earnings are inadequate, then debt is used. Only in extreme cases will firms use new equity financing.

Frank and Goyal (2003) tested the Pecking Order theory in the period 1971 - 1998. They found that, on average income within the business is not adequate to finance any investment, that external sources of funding are highly regarded, and, therefore, debt and equity are important sources of funding.

On the issue of determinants of capital structure, Bancel and Mittoo (2004) mentioned that large firms do not take bankruptcy costs into much consideration, whilst high-growth firms consider common stock to be the lowest source of funds and use windows of opportunity to issue common stock.

Chen (2004) found that in the Chinese economy short-term finance is more considered and, therefore, less attention is paid to long term debt. A study by Hovakimian *et al.* (2004) also found that studies of corporate financing choices showed that the importance of stock returns was unrelated to target leverage, and was likely to be due to the Pecking Order theory.

According to Rao *et al.*, (2007), unrewarding firms issue equity to counterbalance the excess leverage because of the accumulated losses. Along these lines, their review upheld the thought that organizations have an objective capital structure. However, preference for internal financing and the enticement to time the market by selling new equity when the share price is relatively high interfere with the tendency to maintain the firm's debt ratio close to its target.

Since the purpose of this study is to test the pecking order theory of capital structure, the study examines the following empirical predictions of the pecking order theory:

*Proposition 1: Investment is mostly internally financed. External finance is financed mainly through debt.*

*Proposition 2: New equity issues are only observed at high levels of debt.*

*Proposition 3: Leverage fluctuates over time with little tendency to revert back to target levels.*

### **3. Methodology**

Case study research designs or approaches can be founded on their capacity, attributes, or disciplinary point of view. One's determination of a research design is determined by how well it permits full examination of a specific research question as indicated by Hancock and Algozzine (2006). Case studies concentrate on one (or only a couple) examples of a particular phenomenon with a view to providing an in-depth record of occasions, connections, encounters or procedures happening in that specific case as proposed by Denscombe (2007).

This study adopted the case study method but used a multiple case study approach but its focus was discovery led where the study described what was happening in FSTE 350 Food Sector and explored the key issues affecting the financing decisions and its pattern under the sector.

Importantly this study was able to compare the similarities and differences between the individual constituent under the sector. A multiple case study approach focusing on a particular sector (Food Producer sector) is adopted for this study. The way in which companies finance their operations varies from industry to industry. Thus, by focusing attention on a particular sector within an industry, it enables the study to cover lots of ground on the subject.

The study was done retrospectively as ex post facto. Retrospective study investigates a phenomenon or issue that has occurred in the past. Such studies most often involve secondary data collection, based upon data available from previous studies or databases.

The retrospective study was considered as the outcome of interest has already occurred at the time of this study's initiation. Mitchell and Jolley (2013) explained ex post facto study as a research design in which the investigation starts after the facts have occurred without the interference of the researcher. Despite studying the facts that have already occurred, ex post facto research shares with experimental research design some of the basic logic of inquiry.

This study addressed one of the major limitations of case study research method which is credibility of generalisations made from findings due to its representativeness. Also, validity and completeness is enhanced with this approach as a more representative sample was drawn from a small population. Six out of the seven companies under FSTE 350 Food Producers Sector was included in this study and credibility of the source of data for this study is not in doubt.

#### **3.1. Sample**

The sampling process adopted a discriminatory approach from the FTSE 350 UK Food Producer Sector since the focus of the study was on testing the pecking order theory of capital structure in a particular sector/industry. All the seven manufacturing companies under the sector were part of the population for the study.

The sampling criteria consideration was that the company must be non-financial listed UK Domicile company as most financial companies are highly liquid. Also for ease of access to annual reports and accounts, all sampled companies have to be UK domiciled. It must be a FTSE 350 company since companies under this category in the food producer sector are the key players in the Food Producers Sector. Moreover, the company must have been actively trading throughout the period 2001 to 2005 so as to enable the study establish an accurate pattern of financing as well as how the relationship between net debt, financing deficit and net equity issue.

Finally the company must not be involved in a takeover or merger during the period 2001 to 2005. Based on the above selection criteria and for the period considered in this study, seven companies qualified to be included in the population.

Thus, the population consists of the following firms: Associated British Foods, Premier Foods, Cadbury Schweppes, Dairy Crest, Tate & Lyle, Northern Foods and Unilever (UK). For the study to be statistically significant the sample size includes all firms in the population except for Premier Foods Plc as it was involved in the takeover of RHM during the period, which means all the companies in that FTSE 350 UK Food Producers Sector except one have been captured.

### 3.2. Data

The data for this study has been gathered from secondary sources. Secondary data required for this study is derived from the profit and loss accounts, balance sheet and cash flow statements of the various constituents of the UK FTSE 350 Food Producers Sector annual reports for the period 2001 to 2005 from the Financial Times All-share Index and Industry statistics, Fame database, Perfect analysis and DataStream.

The timeframe of 2001-2005 was chosen as it was during this period where a lot of mergers and acquisition were taken place in the FTSE 350 Food Sector. This was the period where five year high debt financing were recorded by some of the companies coupled with intense pressure from the grocery retailing giants like Tesco and ASDA demanded that suppliers to reduce its operational cost to reduce its selling prices to better off their margins. This indeed forced some of the companies within the FTSE 350 Food Sector to initiated restructuring programmes.

Moreover a five year retrospective study of the financial situation of Northern Foods Plc. was conducted, one of the constituent of the FTSE 350 Food Producer Sector and there was the need to investigate its financing strategy as further study as an extension to the paper, so this particular study decided to take it up and investigate not only Northern Foods Plc but the whole of FTSE 350 Food Sector as a study using the same period, hence the ex post facto as a research design influenced the timeframe of the study.

### 3.3. Variables Description and Measurement

The first part of the regression analysis on the FTSE 350 Food producer sector companies focuses on the change in debt ( $\Delta D$ ) and its relationship with financing deficit (DEF). Also, change in debt and Equity dividend (DIV), investments (INV), change in working capital ( $\Delta W$ ) and internal cash flows (C).

**( $\Delta D_{it}$ ):** is the change in debt/net debt issued for firm (i) at time t given as long term debt issuance minus long term debt reduction.

**( $DIV_{it}$ ):** Equity dividend paid in time t by firm (i)

**( $INV_{it}$ ):** net investments for firm (i) at time t (i.e.  $INV =$  capital expenditure + acquisitions and disposals)

**( $\Delta W_{it}$ ):** change in working capital for firm (i) at time t [i.e.  $\Delta W =$  change in operating working capital + changes in cash and cash equivalent + change in current debt]

**( $C_{it}$ ):** cash inflows of firm (i) at time t (i.e. cash inflow from operating activities - investments returns and servicing of finance – taxation)

**( $DEF_{it}$ ):** is the financing deficit for firm (i) at time t [i.e.  $DEF_{it} = DIV_{it} + INV_{it} + \Delta W_{it} - C_{it}$ ]

The second part of the regression analysis focuses on gearing ( $D_{it}$ ) and its relationship with the variables is explained below. The analysis on this part focuses on the impact of firm-specific factors on total gearing. Thus, the following aggregate measure of gearing is adopted;

$$\text{Total gearing } (D_{it}) = \text{total debt} / \text{total asset} = TD/TA$$

**Asset Tangibility ( $TAN_{it}$ ):** the ratio of tangible depreciated fixed assets (FA) to total assets (TA) According to Rajan and Zingales (1995), collateral value of assets or tangibility of assets held by a firm can have an influence on its capital structure. Tangible assets are likely to have an impact on the borrowing decisions of a firm because they are less subjected to information asymmetry.

$$\text{Asset Tangibility} = FA / TA$$

**Profitability ( $PRF_{it}$ ):** a firm's profitability is given as the ratio of its earnings before interest, tax and depreciation (EBITDA) to the book value of its total assets (TA). According to the pecking order theory (Myers, 1984), it is expected that investments would be internal finance if a firm is profitable. Thus more profitable firms are expected to hold less debt.

$$\text{Profitability} = EBITDA / TA$$

**Market-to-book value ratio ( $MBV_{it}$ ):** it is normally used as proxy for company's growth opportunities. In calculating the market-to-book ratio with the numerator as total assets (TA) minus the addition of the book value of equity (ECR) and the market value of equity (MV) divided by the total assets (TA) as the denominator. Companies with higher market-to-book ratios are indication that there must exist more growth opportunities in those companies. Myers (1997) indicated that a company's ability to take advantage of growth opportunities when arise can be limited by the huge debt of the company. Therefore firms with high market-to-book ratios are expected to have good future growth opportunities and hence low leverage (Fama and French, 2002).

$$\text{Market-to-book ratio} = (TA - ECR + MV) / TA$$

**Firm size (LS<sub>it</sub>):** there has been considerable consensus amongst past research regarding the measurement of size, which is either (i) the natural logarithm of total assets (e.g. Michaelas *et al.*, 1999) or (ii) the natural logarithm of total sales (Ozkan, 2001). For the purpose of this study, the natural logarithm of total sales is used as a proxy for firm size.

$$\text{Firm size} = Ln(\text{sales})$$

### 3.4. Empirical Models

The models used for the regression analysis are based on Frank and Goyal (2003) and Shyam-Sunder and Myers (1999) work on testing the pecking order theory of capital structure as well as the model of Rajan and Zingales (1995) work on determinants of capital structure.

The general regression models are:

$$Y_{it} = \alpha + \beta X_{it} + \varepsilon_{it}$$

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \beta_n X_{nit} + \varepsilon_{it}$$

Thus, for the purpose of this study, the following regression equations were used.

$$\Delta D_{it} = \alpha + \beta DEF_{it} + \varepsilon_{it} \quad \text{Equation 1}$$

$$\Delta D_{it} = \alpha + \beta_1 DIV_{it} + \beta_2 INV_{it} + \beta_3 \Delta W_{it} - \beta_4 C_{it} + \varepsilon_{it} \quad \text{Equation 2}$$

In testing the relationship between total gearing and determinants of capital structure, the equation below is used.

$$D_{it} = \alpha + \beta_{TAN} TAN_{it} + \beta_{MBV} MBV_{it} + \beta_{LS} LS_{it} + \beta_{PRF} PRF_{it} + \varepsilon_{it} \quad \text{Equation 3}$$

## 4. Results and Discussion

### 4.1. Pattern of Financing Decision

Following previous studies, the average of the firm-year data was found for each of the variables considered for this study. Whilst Table 1a shows the corporate cash flows for FTSE 350 UK Food Producer sector sampled companies, Table 1b shows corporate cash flows with investment lagged by one year (See Appendix A for individual company corporate cash flows and trend in financing pattern).

**Table 1a.** Aggregate Corporate cash flow of FTSE 350 UK Food Producer firms

| Year                          | 2001     | 2002     | 2003    | 2004     | 2005     |
|-------------------------------|----------|----------|---------|----------|----------|
|                               | £m       | £m       | £m      | £m       | £m       |
| Cash Dividends (a)            | 218.13   | 248.05   | 282.95  | 286.4    | 92.12    |
| Investments (b)               | 54.47    | 220.93   | 604.63  | 229.3    | 335.3    |
| Δ Working Capital (C)         | 36.53    | (156.05) | 42.08   | (81.98)  | (279.08) |
| Internal Cash Flows (d)       | 589.93   | 819.92   | 756.57  | 821.13   | 765.38   |
| Financing Deficit [a+b+c+d]   | (280.80) | (506.99) | 173.09  | (387.41) | (617.04) |
| Net Debt Issues (e)           | 219.43   | (276.68) | 172.9   | (223.17) | 390.55   |
| Net Equity Issues (f)         | 14       | 7.03     | 0.17    | (1.68)   | (11.73)  |
| Net external financing [e+ f] | 233.43   | (269.65) | 173.07  | (224.85) | 378.82   |
| Total assets (Book value)     | 8156.52  | 7624.2   | 7704.38 | 7055.62  | 7897.15  |

**Table 1b.** Aggregate Corporate cash flow of FTSE UK 350 Food Producer firms when investments lagged by 1 year

| Year                            | 2001     | 2002     | 2003     | 2004     | 2005     |
|---------------------------------|----------|----------|----------|----------|----------|
|                                 | £m       | £m       | £m       | £m       | £m       |
| Cash Dividend (a)               | 218.13   | 248.05   | 282.95   | 286.40   | 92.12    |
| Investments* (b)                | 220.93   | 604.63   | 229.30   | 335.3    | 103.65   |
| Δ Working Capital (c)           | 36.53    | (156.05) | 42.08    | (81.98)  | (279.08) |
| Internal Cash Flow (d)          | 589.93   | 819.92   | 756.57   | 821.13   | 765.38   |
| Financing deficit [a+ b+ c - d] | (114.34) | (123.29) | (202.24) | (281.41) | (848.69) |
| Net debt issues (e)             | 219.43   | (276.68) | 172.90   | (223.17) | 390.55   |
| Net Equity Issues (f)           | 14       | 7.03     | 0.17     | (1.68)   | (11.73)  |
| Net External Financing [e + f]  | 233.43   | (269.65) | 173.07   | (224.85) | 378.82   |
| Total Assets (Book value)       | 8156.52  | 7624.2   | 7704.38  | 7055.62  | 7897.15  |

Notes: \*Investments are lagged by one year [i.e. investment reported in 2002 annual reports are entered under 2001 in Table 1b above; See Appendix B for computation of aggregate corporate cash flows and sources of data]

Tables 1a and 1b show corporate funds flow of the FTSE 350 UK Food producer sector companies for the period 2001 to 2005 with Table 1b showing cash flows with investments lagged by one year. The main reason for lagging investments by one year is that in practice companies raise funds for future investments presumably starting the following year.

On average, the sector has increased its cash dividend payout year on year (from £218.13m in 2001 to £286.4m in 2004) except for 2005 when it saw a drop in average cash dividend payout of approximately 68% to £92.12m comparative to the previous year. On the other hand, average investments increased sharply from £54.47m in 2001 to £604.63m in 2003.

Although there was almost a 50% drop in investments expenditure in 2004 and 2005 compared to 2003, an investment expenditure of £229.3m and £335.3m was still recorded (see Table 1a). Generally the sectors working capital has improved significantly. Only in 2001 and 2003 did the companies on average increase their working capital by £36.53m and £42.08m respectively. The years 2002, 2004 and 2005 saw the sector make huge savings in working capital of £156.04m, £81.9m and £279.08m respectively.

Tables 1a and 1b show that despite the reduction in working capital expenditure, the companies on average performed better than in 2001 and 2003 when there was an increase in working capital expenditure. Performance wise the sample companies have been doing well as the tables have shown that the aggregate internal cash flows have increased year on year from £589.93m in 2001 to £765.38 in 2005. This result supports the research of Myers (1984) who prescribed that it is expected that investments would be internal finance if a firm is profitable. Thus, more profitable firms are expected to hold less debt.

The average corporate cash flows shown in the above tables match the Shyam-Sunder and Myers (1999) identity of financing deficit. From Table 1a, it is observed that on average the FTSE 350 UK Food producer sectors firms only recorded a shortage of funds of £173.09m in 2003 and a surplus of funds of £389.74m, £506.99m, £387.41m and £617.04m in 2001, 2002, 2004 and 2005, respectively. However, when aggregate investments lagged by one year, the FTSE 350 UK Food producer sector companies recorded a financial surplus for each of the years 2001 to 2005 (see Table 1b).

A very important message conveyed in Tables 1a and 1b is that on average the FTSE UK 350 Food Producer sector firms uses both internal and external (debt and equity) sources of finance. However, it can be seen from the tables that financing deficit is not matched pound-for-pound by a change in corporate debt. As a result corporate debt in the FTSE 350 UK Food Producer Sector is not determine by financing deficit as the sector also uses equity as a source of external financing. POT has it that companies should only issue equity when and only when they reach their debt capacity thus the hypothesis new equity issues are only observed at high levels of debt.

The information reported in the tables conveys a mixed message. For example, when aggregate net debt issues were highest (at £390.55m) in 2005, there was on average a net repurchase of equity worth £11.73m. However, when there was a net debt reduction in 2002, there were still net equity issues of £7.03m comparative to only £0.17m in 2003 when average net debt issued were lowest at £172.9m.

The finding is in line with Lumby and Jones (2011), who indicated that a company should finance as much as possible through the use of retained earnings and where external finance is used it must be on positive NPV investments, a company must issue debt until debt capacity is reached and only then, if positive NPV projects still remain to be financed, issue equity. Barclay *et al* (2001) suggest that it is not always true as they found out in their research that some high growth firms use less debt in their capital structure

On average the FTSE 350 UK Food producer sector firms made a substantial reduction in net debt issues of £276.68m and £223.17m in 2002 and 2004 respectively compared to the net debt issues of £219.43m in 2001, £172.9m in 2003 and £390.55m in 2005. The reduction in average net debt issues for 2002 and 2004 may be due to the corresponding improvement in internal cash flow and the reduction in working capital expenditure.

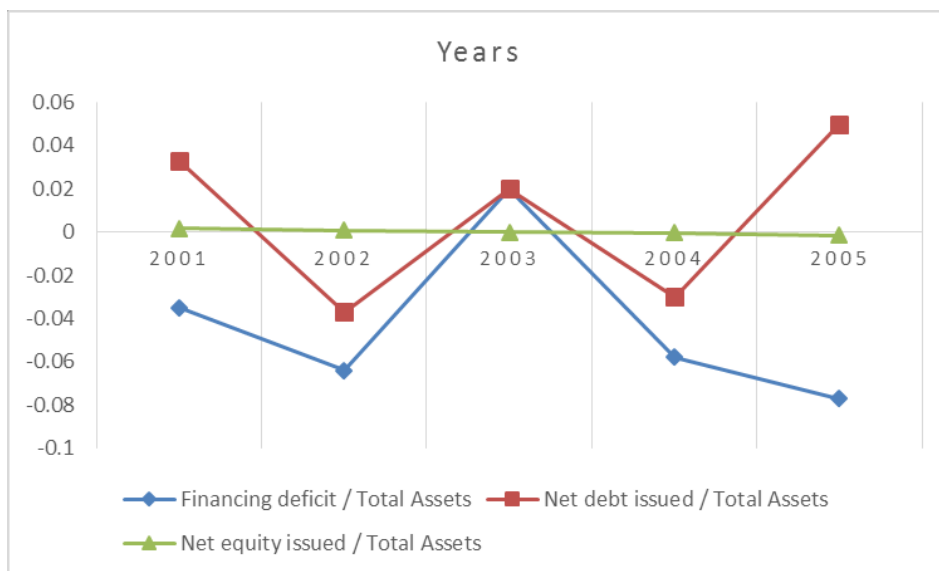
It is expected that recording a financial surplus will stop companies raising external funds from the debt or equity markets. The tables 1a and 1b show that despite the financial surplus recorded in 2001, 2002, 2004 and 2005, the FTSE 350 UK food producer companies still seek funding from the debt and equity market. Particularly striking is the fact that whilst there was a huge financial surplus of £617.04m in 2005, average net debt issues were a staggering £390.55m.

From the tables, this could be attributed to the 12% increase in average total assets (from £7055.62m in 2004 to £7897.15m in 2005). Also whilst the sector manage to reduce its average net debt issues by £276.68m in 2002, it still had an average net equity issued of £7.03m On the other hand net equity issues have been declining over time during the period; that is from £14m in 2001 to an average repurchase of own shares of £11.73m in 2005.

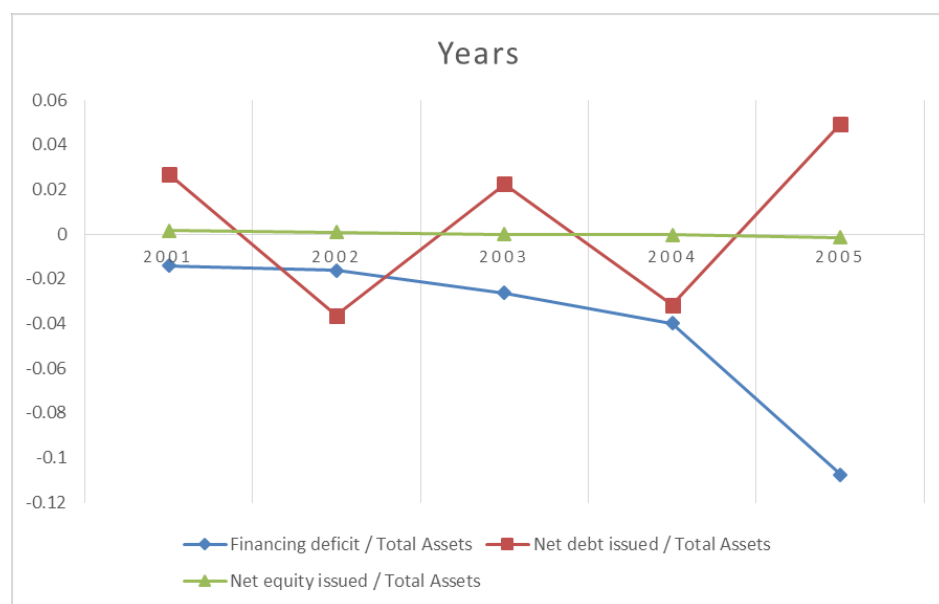


A major aspect of the POT is the importance of retained earnings relative to external financing. According to Myers (1984) most investments are finance by internal cash flow. During the period 2001 to 2005, FTSE 350 UK Food Producer Sector companies financed most of its investments using internal cash flows (see Table 1a & 1b). The POT argues that due to signalling, timing effect and adverse selection premium of debt and equity, debt should dominate as a source of external finance.

Thus consistent with the report by Myers (1984), it is observed from Tables 1a & 1b that except for 2002 when there was average reduction of £276.68m in net debt issued and still an average net equity issued of £7.03m, the bulk of FTSE 350 UK Food Producer Sector firms' external financing takes the form of debt.



**Figure 1a.** Year-on-year trend in financing pattern



**Figure 1b.** Year-on-year trend in financing pattern

Whilst Tables 1a and 1b only provide a snapshot of average corporate cash flows of the FTSE 350 UK Food Producer Sector firms in selected years, it is useful to consider the year-by-year trends in the relative use of debt and equity. Figures 1a and 1b show the changing roles of aggregate net debt and net equity relative to financing deficit scaled down by average total assets for the period 2001 to 2005.

As a result of the accounting cash flow identity, it is expected that net debt and net equity should track financing deficit. However, because of the signalling and adverse selection premium of equity, POT predicts that net debt issued should tracks financing deficit more closely than net equity issued. Over the period 2001 to 2005, it is observed from Figure 1a that on average net debt tracks financing deficit more closely than net equity only from 2002 to 2004.

Bearing in mind that firms raise funds for future investments (presumably starting the following year) and lagging investments by one year, the year-by-year trends as can be seen in Figure 1b shows that net debt issued tracked financing deficit more closely than net equity issued only in 2002 and 2004. This result is in alignment with Gurcharan (2010), who indicated that there is an advantage to financing through debt (interest tax shield benefit), and this assertion was supported by Flannery and Rangan (2006) and MM (1963).

#### 4.2. Results of the Empirical Analysis

The models adopted for the regression analyses are based on the model developed by Shyam-Sunder and Myers (1999) and modified by Frank and Goyal (2003). This model is represented by equation (1) and (2) in the methodology section and restated below. The association of financing deficit (DEF) and changes in debt/net debt issued ( $\Delta D$ ) described in the previous chapter is tested using data from FTSE 350 UK Food producer sector firms as follows:

$$\Delta D_{it} = \alpha + \beta DEF_{it} + \varepsilon_{it} \quad \text{Equation (1)}$$

[Aggregate Model-Testing for relation between changes in net debt and financing deficit of FTSE 350 UK Food producer firms]

$$\Delta D_{it} = \alpha + \beta_1 DIV_{it} + \beta_2 INV_{it} + \beta_3 \Delta W_{it} - \beta_4 C_{it} + \varepsilon_{it} \quad \text{Equation (2)}$$

[Disaggregate Model-Testing the relationship between change in debt and components of financing deficit]

In both the aggregate and disaggregate model, the dependent variable is net debt issued ( $\Delta D_{it}$ ) as proxy for change in debt by firm  $i$  at time  $t$ . Whilst the independent variable in the aggregate model is financing deficit ( $DEF_{it}$ ); dividend paid ( $DIV_{it}$ ), net investments ( $INV_{it}$ ), change in working capital ( $\Delta W_{it}$ ) and Internal cash flow ( $C_{it}$ ) are the independent variables in the disaggregate model.

##### 4.2.1. Regression Analysis: Change in Debt ( $\Delta D$ ) and Financing Deficit (DEF)

The aggregate model (Equation 1) tests the claim of the pecking order theory that corporate debt is determined by financing deficit. The model is estimated using Ordinary Least Squares method. According to the POT where corporate debt matches financing deficit pound sterling-for-pound sterling (strong form POT) then the coefficient of DEF ( $\beta$ ) should be equal to 1 when the intercept ( $\alpha$ ) is 0.

However, debt capacity and other factors may force firms to issue some amount of equity. In such cases it is expected that  $\beta$  be less than, but close to, 1 (semi-strong form) and  $\alpha$  not equal to zero.

When the explanatory variables are analysed in the aggregate form as shown in Table 2a, it is expected that the coefficient ( $\beta$ ) of DEF is 1 for the strong form of POT and very close to 1 for the semi strong form. On the basis of the aggregate model, the regression results obtained for  $H_0: \alpha = 0$  shows that ( $\beta$ ) is -0.031 and the  $R^2$  is 0.003 implying that when  $\alpha$  is fixed at 0, the coefficient of DEF is not 1 as predicted by POT.

The results obtained for  $H_0: \alpha \neq 0$  shows that  $\beta$  is 0.143 with an  $R^2$  of 0.022, when  $\alpha$  is 0.013. The semi strong form of POT has it that as a result of some form of equity issue, when the intercept of Equation (1) (i.e.  $\alpha$ ) is not equal to zero, the coefficient of financing deficit ( $\beta$ ) should be less than but close to 1.

The regression results prove otherwise. The  $R^2$  of 0.003 when  $\alpha$  is fixed at 0 and 0.022 obtained when  $\alpha$  is allowed to randomly determine its value as a result of the regression Eqn (1) indicates that 0.3% and 2.2% of corporate debt of the FTSE 350 UK food producer sector firms considered in this study are determine by financing deficit.

Table 2b shows the results of the regression based on the aggregate model with average investments lagged by one year based on the assumption that firms raise funds for future investments (presumably starting the following year). A  $\beta$  of -0.310 and an  $R^2$  of 0.230 was obtained for the fixed  $H_0: \alpha = 0$ . On the other hand, a  $\beta$  of -0.531 and an  $R^2$  is 0.291 was obtained for the random  $H_0: \alpha \neq 0$ . Therefore, one can state that for fixed  $\alpha = 0$  and random  $\alpha \neq 0$  only 23% and 29% of corporate debt of FTSE 350 companies is determined by financing deficit when investments are lagged by one year.

For both  $H_0: \alpha = 0$  and  $H_0: \alpha \neq 0$ , even when investments are lagged by one year (see Table 2b), the coefficient ( $\beta$ ) of the financing deficit and the R square are very low, suggesting that on the basis of the aggregate Frank and Goyal model (Equation 1), the regression result does not support the POT prediction that corporate debt is determined by the financing deficit.

**Table 2a. Regression results for the aggregate FG Model**

|                                                                                                              | <b>Explanatory Variable</b> | <b>Coefficients</b> |
|--------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------|
| H <sub>0</sub> : $\alpha$ =0<br>[Evaluating coefficient of DEF when $\alpha$ is equal to 0]                  | DEF                         | -0.031*<br>(0.303)  |
|                                                                                                              | R <sup>2</sup>              | 0.003               |
|                                                                                                              | N                           | 5                   |
|                                                                                                              | DEF                         | 0.143*<br>(0.551)   |
| H <sub>0</sub> : $\alpha$ $\neq$ 0<br>[Evaluating the coefficient of DEF when $\alpha$ is not equal to zero] | Constant                    | 0.013*<br>(0.032)   |
|                                                                                                              | R <sup>2</sup>              | 0.022               |
|                                                                                                              | N                           | 5                   |

**Table 2b. Regression result for the aggregate FG Model when investments are lagged by 1 year**

|                                                                                                  | <b>Explanatory Variable</b> | <b>Coefficients</b> |
|--------------------------------------------------------------------------------------------------|-----------------------------|---------------------|
| H <sub>0</sub> : $\alpha$ =0<br>[Evaluating the coefficient of DEF when $\alpha$ = 0]            | DEF                         | -0.310*<br>(0.284)  |
|                                                                                                  | R <sup>2</sup>              | 0.230               |
|                                                                                                  | N                           | 5                   |
|                                                                                                  | DEF                         | -0.531*<br>(0.479)  |
| H <sub>0</sub> : $\alpha$ $\neq$ 0<br>[Evaluating the coefficient of DEF when $\alpha$ $\neq$ 0] | Constant                    | -0.015*<br>(0.026)  |
|                                                                                                  | R <sup>2</sup>              | 0.291               |
|                                                                                                  | N                           | 5                   |

Notes: The dependent variable Net debt issued as a proxy for Change in debt ( $\Delta D$ ); DEF = Financing deficit; N = number of observations; Standard errors are in brackets; \* = coefficients of explanatory variables

#### 4.2.2. Regression Analysis: Change in Debt ( $\Delta D$ ) and Components of Financing Deficit

Prior research on tests of POT stressed the importance of studying separately the impact that each of the components of financing deficit has on debt. This provides a much deeper analysis of the individual roles of the component parts of the financing deficit even though Frank and Goyal (2003) made it clear that disaggregating is not required to validate the POT. Equation 2 tests the relationship between change in debt ( $\Delta D$ ) and each of the explanatory variables; dividend paid, investments, change in working capital and internal cash flows. Table 3a show the result of the Ordinary least squares regression between change in debt and components of the financing deficit, the result of which is summarised in Table 3b.

**Table 3a. Regression results for the disaggregate FG Model**

|                                                                                                                                           | <b>Variable</b>                                                                                                                                     | <b>Coefficients</b> |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| H <sub>0</sub> : $\alpha$ = 0<br>[Relationship between change in debt and components of financing deficit when $\alpha$ is equal to zero] | DIV                                                                                                                                                 | -6.493*<br>(0.737)  |
|                                                                                                                                           | INV                                                                                                                                                 | 0.536*<br>(0.143)   |
|                                                                                                                                           | $\Delta W$                                                                                                                                          | 2.833*<br>(0.420)   |
|                                                                                                                                           | C                                                                                                                                                   | 2.077*<br>(0.253)   |
|                                                                                                                                           | R <sup>2</sup>                                                                                                                                      | 0.988               |
|                                                                                                                                           | N                                                                                                                                                   | 5                   |
|                                                                                                                                           | H <sub>0</sub> : $\alpha$ $\neq$ 0<br>[Relationship between change in debt and components of financing deficit when $\alpha$ is not equal to zero ] | DIV                 |
| INV                                                                                                                                       |                                                                                                                                                     | 0.629*<br>(0)       |
| $\Delta W$                                                                                                                                |                                                                                                                                                     | 3.975*<br>(0)       |
| C                                                                                                                                         |                                                                                                                                                     | 4.220*<br>(0)       |
| Constant                                                                                                                                  |                                                                                                                                                     | -0.144*<br>(0)      |

|  |                |   |
|--|----------------|---|
|  | R <sup>2</sup> | 1 |
|  | N              | 5 |

**Table 3b. Summary: Expected vs. Actual Signs obtained**

| Explanatory Variables | Expected Signs   |                      | Actual signs obtained         |                                  |
|-----------------------|------------------|----------------------|-------------------------------|----------------------------------|
|                       | Trade-off Theory | Pecking order Theory | H <sub>0</sub> : $\alpha = 0$ | H <sub>0</sub> : $\alpha \neq 0$ |
| DIV                   | -                | +                    | -                             | -                                |
| I                     | +                | +                    | +                             | +                                |
| $\Delta W$            | +                | +                    | +                             | +                                |
| C                     | +                | -                    | +                             | +                                |

Based on the POT predictions, a positive relationship is expected between dividend payments (DIV) and change in debt ( $\Delta D$ ). The negative signal obtained does not confirm such prediction, instead it supports the findings of Frank and Goyal (2003) which confirms STT claim that dividend is negatively related to debt.

Amongst the other variables that make up financing deficit, internal cash flow (C) is of significant importance. This variable is the major cause of conflicts between managers and other stakeholders in the firm (Jensen *et al.*, 1992). However, POT argues that it is the best source of financing option implying that a negative relationship is expected between debt and internal cash flow. That is as a firms internal cash flow increase, it issues less debt. On the basis of the disaggregate model, the regression result does not support the pecking order theory prediction that increase in internal cash flows results in lower debt levels.

The pecking order theory has it that after controlling for internal cash flows, investments in fixed assets and working capital should be matched pound sterling-for-pound sterling by increase in debt issues. Therefore, a positive relationship is expected between investments (INV), change in working capital ( $\Delta W$ ) and change in debt ( $\Delta D$ ). The results obtained as per summary Table 3b confirms the POT predictions of a positive relationship on investments in both fixed assets and working capital, and change in debt.

Assuming that firms raise funds for future investments (presumably starting the following year) and lagging investments by one year and performing a regression run between change in debt ( $\Delta D$ ) and the components of financing deficit. The regression result based on the disaggregate model are shown in Table 4a. The results as summarise in Table 4b is somewhat mixed. Whilst the result for H<sub>0</sub>:  $\alpha = 0$  shows a negative relationship between change in debt and dividend paid, the signal obtained for H<sub>0</sub>:  $\alpha \neq 0$  is positive supporting the POT prediction that dividend payments are positively related to change in debt. On the other hand, whilst a positive signal is obtained for internal cash flows when  $\alpha$  is equal to zero, a negative signal is reported when  $\alpha \neq 0$  (see Table 4b), thereby supporting the claim by POT that internal cash flows are negatively related to net debt issued (i.e. the more internal funds generated, the less debt required).

A positive relationship is expected between investments, change in working capital and net debt issued. On the basis of the disaggregate model, except for change in working capital (when  $\alpha = 0$ ), the regression results do not support the fact that change in debt is positively related to investments in fixed assets and change in working capital. Thus, it can be stated that when investments are lagged by one year, the pecking order theory and the static trade-off theory do not best explain the financing behaviour of FTSE 350 UK Food producer sector firms. Under both circumstances the R<sup>2</sup> obtained indicates that over 90% of change in debt of the sample companies could be explained using components of financing deficit as explanatory variables in a linear mode.

**Table 4a. Regression results for the disaggregate FG Model when investments are lagged by 1 year**

| Model                                                                                                                               | Explanatory Variables | Coefficients       |
|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------|
| H <sub>0</sub> : $\alpha = 0$<br>[Relationship between change in debt and components of financing deficit when $\alpha = 0$ ]       | DIV                   | -3.825*<br>(2.711) |
|                                                                                                                                     | INV                   | -0.734*<br>(0.688) |
|                                                                                                                                     | $\Delta W$            | 1.619*<br>(1.402)  |
|                                                                                                                                     | C                     | 1.631*<br>(0.777)  |
| H <sub>0</sub> : $\alpha = 0$                                                                                                       | R <sup>2</sup>        | 0.916              |
|                                                                                                                                     | N                     | 5                  |
| H <sub>0</sub> : $\alpha \neq 0$<br>[Relationship between change in debt and components of financing deficit when $\alpha \neq 0$ ] | DIV                   | 2.225*<br>(0)      |
|                                                                                                                                     | INV                   | -1.057*<br>(0)     |

|  |                |         |
|--|----------------|---------|
|  | $\Delta W$     | -1.474* |
|  |                | (0)     |
|  | C              | -3.800* |
|  |                | (0)     |
|  | Constant       | 0.354*  |
|  |                | (0)     |
|  | R <sup>2</sup> | 1       |
|  | N              | 5       |

**Table 4b. Summary: Expected vs. Actual Signs obtained**

| Explanatory Variables | Expected Signs   |                      | Actual signs obtained         |                                  |
|-----------------------|------------------|----------------------|-------------------------------|----------------------------------|
|                       | Trade-off Theory | Pecking order Theory | H <sub>0</sub> : $\alpha = 0$ | H <sub>0</sub> : $\alpha \neq 0$ |
| DIV                   | -                | +                    | -                             | +                                |
| I                     | +                | +                    | +                             | +                                |
| $\Delta W$            | +                | +                    | +                             | +                                |
| C                     | +                | -                    | +                             | -                                |

Notes: The dependent variable is  $\Delta D$  = change in debt/net debt issued; DIV= dividend payments; INV = investments;  $\Delta W$  = change in working capital; C = internal cash flow; \* = coefficients of explanatory variables; Standard errors are in brackets; N= number of observations

#### 4.2.3. Regression Analysis: Determinants of Capital Structure against Total Gearing

The primary purpose of this subsection is to determine whether or not asset tangibility, market-to-book value ratio, firm size and profitability are key determinants of total gearing for the FTSE 350 UK Food producer sector firms.

The average total gearing ( $D_{it}$ ) for each of the years considered in this study has been between 32.18% and 33.78% (See Appendix C) implying that average total gearing for FTSE 350 UK Food produce firms has not change significantly over the period 2001 to 2005.

With regards to the determinants of capital structure of the sample firms, average asset tangibility for the period 2001 to 2005 is between 36.22% and 38.32%. As can be seen in Appendix D1, Summary table, asset tangibility has drop from 38.32% in 2001 to 36.22% in 2005. On the other hand, aggregate market-to-book value ratio (MBV) has somewhat been fluctuating from 1.3411 in 2001 up to 1.4958 in 2002 and down in 2003 to 1.3179. 2004 recorded the highest market-to-book ratio of 1.6050 followed by a market-to-book value of 1.5138 in 2005.

Over the period 2001 to 2005 there has not been any significant change in the year-on-year average firm size. The lowest average firm size of 15.2018 was recorded in 2002 and the highest 15.2549 in 2005. Yearly average profitability ratio for the sample firms has not been very impressive. However, one can state from the summary table that it has been rising year on year from 12.45% in 2001 to 15.41% in 2004, after which it drop significantly to 13.46% in 2005.

The estimated Ordinary Least Square (OLS) regression model used is:

$$D_{it} = \alpha + \beta_{TAN}TAN_{it} + \beta_{MBV}MBV_{it} + \beta_{LS}LS_{it} + \beta_{PRF}PRF_{it} + \epsilon_{it} \quad \text{Equation 3}$$

(Testing for relation between total gearing and firm specific factors)

Table 5a shows the result of the regression analysis between determinants of capital structure and total gearing as per the regression equation (3) when  $\alpha$  is taken to be equal to zero and when  $\alpha$  is not equal to zero. The dependent variable for the regression as shown in the OLS equation above is total gearing ( $D_{it}$ ).

**Table 5a. OLS regression results for relation between total gearing and determinants of capital structure**

| Model                                                                                                                                 | Independent Variables | Coefficients |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------|
| H <sub>0</sub> : $\alpha = 0$<br>[Evaluating the coefficient ( $\beta$ ) of the firm specific factors when $\alpha$ is equal to zero] | TAN                   | 0.141*       |
|                                                                                                                                       |                       | (0.136)      |
|                                                                                                                                       | MBV                   | -0.734*      |
|                                                                                                                                       |                       | -0.032*      |
|                                                                                                                                       | LS                    | 0.014*       |
|                                                                                                                                       |                       | (0.004)      |
|                                                                                                                                       | PRF.                  | 0.726*       |
|                                                                                                                                       | (0.118)               |              |
|                                                                                                                                       | R <sup>2</sup>        | 0.999        |
|                                                                                                                                       | N                     | 5            |

|                                                                                                                                  |         |         |
|----------------------------------------------------------------------------------------------------------------------------------|---------|---------|
| $H_0: \alpha \neq 0$<br>[Evaluation the coefficient ( $\beta$ ) of the firm specific factors when $\alpha$ is not equal to zero] | TAN     | 2.254*  |
|                                                                                                                                  |         | (0)     |
|                                                                                                                                  | MBV     | -0.041* |
|                                                                                                                                  |         | (0)     |
|                                                                                                                                  | LS      | 0.094*  |
|                                                                                                                                  |         | (0)     |
|                                                                                                                                  | PRF.    | 0.826*  |
|                                                                                                                                  |         | (0)     |
| Constant                                                                                                                         | -1.259* |         |
|                                                                                                                                  | (0)     |         |
| R <sup>2</sup>                                                                                                                   | 1       |         |
| N                                                                                                                                | 5       |         |

Notes: See Appendix C and D for data used in the regression; All figures are rounded to three decimal places; TAN = asset tangibility; MBV= Market to book ratio; LS = firm size; PRF. = profitability, standard errors are in brackets; N = number of observations; \* coefficient of independent variables

Table 5a shows the result of the relationship between total gearing and firm specific factors both for when the intercept ( $\alpha$ ) of the regression equation (3) is zero and when it is not equal to zero. The regression results obtain for both instances are similar. A positive sign for the coefficient of asset tangibility was obtain thus favouring static trade-off theory (STT) and the argument by Nor *et al* (2011), Titman and Wessels (1988), Harris and Raviv (1991). The regression run suggest that FTSE 350 UK Food producer companies to some extend use their assets as collateral to secure their debts.

In line with the POT, a positive relation is expected between market-to-book value ratio (MBV) and gearing. However, on the basis of the OLS regression model, MBV is negatively related to gearing as shown by the negative coefficient obtained. Although the result obtained for MBV does not support the prediction of POT, it is in line with prior studies (i.e. Titman and Wessels, (1988); Chung, (1993); Barclay and Smith (1996)), thus supporting the STT prediction that growth is negatively related to leverage (gearing).

In accordance with the prediction of the POT, a negative relationship between firm size and gearing is expected. On the basis of the regression analysis, the coefficient of the natural logarithm of sales is positive, thus favouring the STT. The results obtained agree with Michaelas *et al* (1999) who pointed out that large firms are expected to have more debt than smaller firms as they are less likely to go bankrupt.

According to the POT, retained earnings are a firm's best choice of source of finance. It is therefore expected that profitable firms would use less debt in financing their investments. The regression results obtain shows that average profitability of FTSE 350 UK Food producer sector firms are positively related to their average total gearing. This implies that as a result of taxes, bankruptcy and agency costs, the FTSE 350 UK Food producer sector companies on average take on more debt, which is in line with the STT.

A summary of the expected signs of the coefficients of the determinants of capital structure considered in this study as predicted by POT and STT, and the signs of the coefficients actually obtained as a result of the regression run for the Rajan and Zingales (1995) model is shown in the table below.

**Table 5b. RZ Model; Expected vs. obtained signs of coefficients of explanatory variables**

| Explanatory Variables | Expected |     | Obtained          |                      |
|-----------------------|----------|-----|-------------------|----------------------|
|                       | STT      | POT | $H_0: \alpha = 0$ | $H_0: \alpha \neq 0$ |
| TAN                   | +        | -   | +                 | +                    |
| MBV                   | -        | +   | -                 | -                    |
| LS                    | +        | -   | +                 | +                    |
| PROF                  | +        | -   | +                 | +                    |

As can be seen from the summary table 5b, none of the coefficients of the four explanatory variables considered has the expected signs according to the pecking order theory both for when the intercept ( $\alpha$ ) of equation (3) is zero and when it is not equal to zero. All the explanatory variable coefficients have signs that are consistent with the STT. The R<sup>2</sup> of 99.99% and 100% obtained for when  $\alpha$  is zero and when  $\alpha$  is not zero indicates that the variation in total gearing of FTSE 350 UK food producer sector firms can almost 100% be explained using tangibility, market-to-book ratio, firm size and profitability as explanatory variables in a linear model.

In summary, although there is some form of pecking order in the managers of FTSE 350 UK food producer sector firms' choice of financing, their choices do not fully follow the pecking order theory of capital structure. The result of the empirical analysis also shows that FTSE 350 UK food producer sector firms do not

follow POT. In the basic regression of financing deficit, POT was rejected in both the strong and semi strong form. The evidence obtained as a result of the regression of tangibility, growth opportunities, firm size and profitability against total gearing prove that POT does not best explain the financing behaviour of FTSE 350 Food producer sector firms.

## 5. Conclusion, Implications, Limitations and Further Study

The traditional view of the pecking order is that when external sources of finance are considered in funding investments, debt is preferred to equity. Hence, the prediction by the pecking order theory of capital structure that net debt tracks financing deficit more closely than net equity is not a common/normal trend. The pecking order theory of capital structure argues that a firm's financing deficit is covered by debt and that equity is only issued as a last resort or in exceptional cases. Evidence shows that corporate debt of FTSE 350 UK food producer firms is not determined by their financing deficit.

Considering the components of financing deficit, the ones that are viewed differently by POT and trade-off theory are dividend and internal cash flow. The result obtained for both dividend and internal cash flow are not in line with POT instead they were totally favouring trade-off theory. The negative signal found for dividend payments supports the idea that dividend could replace debt in reducing agency conflicts. The signal obtained for internal cash flow is positive thus further discrediting the POT and strengthening the support for Static Trade-off Theory (STT). Hence, it can be concluded that corporate debt does not match financing deficit pound sterling-to-pound sterling implying that corporate debt is not determined by the financing deficit.

Asset tangibility and profitability are crucial when deciding between POT and trade-off theory of capital structure (Frank and Goyal, 2003; Fama and French 2002). The study tested the variables in the Rajan and Zingales model and obtained results that does not favour the POT but instead strongly supports the trade-off theory. The study found that the natural log of sales and the market to book value ratio did not behave as foreseen by POT instead the result strongly supports the trade-off theory.

As for asset tangibility which is viewed as a fundamental factor in validating either the POT or the STT by Frank and Goyal (2003), a positive signal was obtained. Also, a positive signal was obtained for profitability, a factor whose behaviour Fama and French (2002) argued should be seen as a cause for unconditionally discarding the STT.

The signals for these two variables obtained in the study are congruent with the predictions of the STT and not that of the POT. The positive signal obtained for profitability clearly mirrors the UK economic environment in which these firms operate. It is because of low inflation rate; low borrowing rate and high corporation tax that these companies are liable to pay annually, thus forcing firms to borrow more so as to reduce their tax burdens.

The main purpose of this study was to evaluate if the pecking order theory of capital structure best explains the financing behaviour of FTSE 350 UK food producer firms. Evidence obtained as a result of this study shows that the financing behaviour of FTSE 350 UK food producer firms is best explained by the trade-off theory and not the pecking order theory of capital structure.

The findings from this study have implications on financing decisions in the area of capital structure for managers, firms and governments:

- Managerial self-interest can affect the financing decision. For example, managers may invest in projects that increases firm size if they will derive some private utility from running a large business which might have a negative impact on shareholder value.
- It is well noted that debt financing can prevent managerial self-serving behaviour since cash flows generated by the assets of the firm cannot all be reinvested. Instead they need to be employed to service the debt. Debt can serve as a bonding device on the part of managers where they commit themselves not to overinvest.
- Firms have been provided with the factors that they must consider relevant in the capital structure decisions. Hence managers will understand the relationship between Trade-Off and Pecking Order Theory to manage their firms operations.
- Managers are recommended to profit from the suggestions of the Pecking Order Theory in decision making on their capital structure based on firms own preference. The firms would in the first place use the internally generated funds (and dividend) to finance their projects in order to avoid the problems caused by risky debts in investments and the information asymmetry between managers and securities markets.

- Governments must understand that firms can achieve much more when there is good governance and strengthening of the institutions which will invariably will have positive effects on business and industry.

The limitation to this study is that the sample size is small compared to prior studies in terms of the number of firms in the sample and time period for firm level data. Moreover, the study discriminates between companies and/or industry sector in that the data is restricted to FTSE 350 UK Food producer sector firms. However, focusing on a particular sector of an industry allows the research to conduct a complete and in-depth study.

Although this study follows the footsteps of many prior studies in the field of capital structure (i.e. testing the pecking order theory of capital structure), it has laid some ground works to explore the determinants of capital structure of FTSE 350 UK Food producer sector. One possible extension for future research is to extend the sample size to include FTSE 350 all share index firms and consider a much longer period for firm level data. Furthermore, a qualitative study can be conducted to explore what influences managers in their financing decisions and choices, whether in fact they have optimal capital structure in mind.

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## Appendix A. Individual firm's corporate cash flows and trends in financing pattern

### TATE & LYLE PLC

*Table 1A. Corporate cash flows-Tate & Lyle plc*

|                                  | 2001 | 2002  | 2003  | 2004 | 2005 |
|----------------------------------|------|-------|-------|------|------|
|                                  | £m   | £m    | £m    | £m   | £m   |
| Cash Dividends (a)               | 68   | 85    | 84    | 87   | 89   |
| Investments (b)                  | 132  | (48)  | 30    | 81   | 182  |
| Δ Working Capital (c)            | 69   | (143) | 6     | 31   | 35   |
| Internal cash flow (d)           | 117  | 348   | 293   | 179  | 168  |
| Financing Deficit [a+ b + c - d] | 152  | (454) | (173) | 20   | 138  |
| Net debt issued (e)              | 22   | (31)  | (80)  | (31) | 271  |
| Net equity issued (f)            | 69   | 0     | 1     | 2    | 10   |
| Net external Financing [e + f]   | 91   | (31)  | (79)  | (29) | 281  |
| Total Assets                     | 3021 | 2701  | 2445  | 2216 | 2665 |

*Table 1B. Corporate Cash Flows of Tate & Lyle with Investment lagged by 1 year*

|                                    | 2001 | 2002  | 2003  | 2004 | 2005 |
|------------------------------------|------|-------|-------|------|------|
|                                    | £m   | £m    | £m    | £m   | £m   |
| Cash Dividend (a)                  | 68   | 85    | 84    | 87   | 89   |
| Investments * (b)                  | (48) | 30    | 81    | 182  | 340  |
| Δ Working Capital ( c )            | 69   | (143) | 6     | 31   | 35   |
| Internal Cash Flow (d)             | 117  | 348   | 293   | 179  | 168  |
| Financing deficit [a + b + c - d ] | (28) | (376) | (122) | 121  | 296  |
| Net Debt issued (e)                | 22   | (31)  | (80)  | (31) | 271  |
| Net Equity Issued (f)              | 69   | 0     | 1     | 2    | 10   |
| Net External Financing [e + f ]    | 91   | (31)  | (79)  | (29) | 281  |
| Total Assets                       | 3021 | 2701  | 2445  | 2216 | 2665 |

Sources: Annual reports and accounts, Fame database, Perfect analysis & Data stream; \*Investments is lagged by one year

### ASSOCIATE BRITISH FOODS PLC

*Table 1A. Corporate Cash Flow- Associate British Foods Plc*

|                                   | 2001  | 2002 | 2003 | 2004 | 2005 |
|-----------------------------------|-------|------|------|------|------|
|                                   | £m    | £m   | £m   | £m   | £m   |
| Cash Dividends (a)                | 88    | 93   | 108  | 119  | 135  |
| Investments (b)                   | 146   | 376  | 231  | 398  | 1453 |
| Δ Working Capital (c)             | (81)  | 16   | (26) | (3)  | 82   |
| Internal Cash flow (d)            | 268   | 501  | 392  | 472  | 495  |
| Financing Deficit [a + b + c - d] | (115) | (16) | (79) | 42   | 1175 |
| Net debt Issued (e)               | 6     | 216  | 13   | (26) | 544  |
| Net Equity Issued (f)             | 0     | 0    | 0    | 0    | 0    |
| Net External Financing [e + f ]   | 6     | 218  | 13   | (26) | 544  |
| Total Assets                      | 3916  | 4387 | 4719 | 4855 | 5813 |

*Table 1B. Associated British Foods Corporate cash flow with Investments lagged by 1 year*

|                                  | 2001 | 2002  | 2003 | 2004 | 2005 |
|----------------------------------|------|-------|------|------|------|
|                                  | £m   | £m    | £m   | £m   | £m   |
| Cash Dividend (a)                | 88   | 93    | 108  | 119  | 135  |
| Investments* (b)                 | 376  | 231   | 398  | 1453 | 760  |
| Δ Working Capital (c )           | (81) | 16    | (26) | (3)  | 82   |
| Internal Cash Flow (d)           | 268  | 501   | 392  | 472  | 495  |
| Financing Deficit [a + b + c- d] | 115  | (161) | 88   | 1097 | 482  |
| Net Debt Issued (e)              | 6    | 216   | 13   | (26) | 544  |
| Net Equity Issued (f)            | 0    | 0     | 0    | 0    | 0    |
| Net External Financing [e + f ]  | 6    | 216   | 13   | (26) | 544  |
| Total Assets                     | 3916 | 4387  | 4719 | 4855 | 5813 |

Sources: Annual reports and accounts, Fame database, Data steam, Perfect Analysis, \* Investments are lagged by one year.

### NORTHERN FOODS PLC

**Table 1A. Corporate Cash Flows: Northern Foods Plc**

|                                   | 2001  | 2002   | 2003    | 2004   | 2005   |
|-----------------------------------|-------|--------|---------|--------|--------|
|                                   | £m    | £m     | £m      | £m     | £m     |
| Cash Dividend (a)                 | 42.9  | 43.3   | 45.1    | 44.9   | 43.8   |
| Investments (b)                   | 68.7  | 117.4  | (64.6)  | 56.9   | 10.6   |
| Δ Working Capital (c)             | 3.8   | 14.4   | (1)     | (13.8) | 16.4   |
| Internal Cash flow (d)            | 105.5 | 89.0   | 123.6   | 132.5  | 74.6   |
| Financing Deficit [a + b + c - d] | 9.9   | 86.1   | (144.1) | (44.5) | (3.8)  |
| Net debt issued (e)               | 54.2  | 126.3  | (92.9)  | 55.5   | 0.5    |
| Net equity issued (f)             | (6.2) | (7.2)  | (55.0)  | (33.7) | (21.4) |
| Net External Financing [e + f]    | 48    | 119.1  | (147.9) | 21.8   | (20.9) |
| Total Assets                      | 997.6 | 1070.9 | 1074.3  | 1099.2 | 1046.3 |

**Table 1B. Northern Foods Plc Corporate cash Flows with Investments lagged by 1 year**

|                                   | 2001  | 2002   | 2003    | 2004   | 2005   |
|-----------------------------------|-------|--------|---------|--------|--------|
|                                   | £m    | £m     | £m      | £m     | £m     |
| Cash Dividend (a)                 | 42.9  | 43.3   | 45.1    | 44.9   | 43.8   |
| Investments* (b)                  | 117.4 | (64.6) | 56.9    | 10.6   | 47.3   |
| Δ Working Capital (c)             | 3.8   | 14.4   | (1)     | (13.8) | 16.4   |
| Internal cash flow (d)            | 105.5 | 89     | 123.6   | 132.5  | 74.6   |
| Financing Deficit [a + b + c - d] | 58.6  | (95.9) | (22.6)  | (90.8) | 32.9   |
| Net Debt Issued (e)               | 54.2  | 126.3  | (92.9)  | 55.5   | 0.5    |
| Net Equity issued (f)             | (6.2) | (7.2)  | (55)    | (33.7) | (21.4) |
| Net External Financing [e + f]    | 48    | 119.1  | (147.9) | 21.8   | (20.9) |
| Total Assets                      | 997.6 | 1070.9 | 1074.3  | 1099.2 | 1046.3 |

Sources: Annual reports and Accounts, Fame database, Perfect analysis; \*Investments lagged by one year

### CADBURY SCHWEPPE'S PLC

**Table 1A. Corporate Cash Flows: Cadbury Schweppes plc**

|                                   | 2001 | 2002 | 2003  | 2004  | 2005  |
|-----------------------------------|------|------|-------|-------|-------|
|                                   | £m   | £m   | £m    | £m    | £m    |
| Cash Dividend (a)                 | 214  | 223  | 234   | 246   | 261   |
| Investments (b)                   | 1033 | 861  | 3027  | 309   | 327   |
| Δ Working Capital (c)             | 30   | 14   | 186   | 89    | (11)  |
| Internal Cash Flow (d)            | 806  | 763  | 673   | 734   | 751   |
| Financing Deficit [a + b + c - d] | 471  | 335  | 2774  | (90)  | (174) |
| Net Debt Issued (e)               | 408  | 209  | 2365  | (341) | 63    |
| Net Equity Issued (f)             | 18   | 26   | 19    | 25    | 37    |
| Net External Financing [e + f]    | 426  | 235  | 2384  | (316) | 100   |
| Total Assets                      | 7425 | 7867 | 10410 | 9736  | 10047 |

**Table 1B. Cadbury Schweppes Plc Corporate cash Flows with investment lagged by 1 year**

|                                   | 2001 | 2002 | 2003  | 2004  | 2005   |
|-----------------------------------|------|------|-------|-------|--------|
|                                   | £m   | £m   | £m    | £m    | £m     |
| Cash Dividend (a)                 | 214  | 223  | 234   | 246   | 261    |
| Investments* (b)                  | 861  | 3027 | 309   | 327   | (604)  |
| Δ Working Capital (c)             | 30   | 14   | 186   | 89    | (11)   |
| Internal Cash Flows (d)           | 806  | 763  | 673   | 734   | 751    |
| Financing Deficit [a + b + c - d] | 299  | 2501 | 56    | (72)  | (1105) |
| Net Debt issued (e)               | 408  | 209  | 2365  | (341) | 63     |
| Net equity Issued (f)             | 18   | 26   | 19    | 25    | 37     |
| Net External Financing [e + f]    | 426  | 235  | 2384  | (316) | 100    |
| Total Assets                      | 7425 | 7867 | 10410 | 9736  | 10047  |

Sources: Annual reports and accounts, Fame database, Perfect analysis database. \*Investments lagged by one year

## DAIRY CREST PLC

**Table 1A. Corporate Cash Flow: Dairy Crest Plc**

|                                   | 2001  | 2002  | 2003  | 2004   | 2005   |
|-----------------------------------|-------|-------|-------|--------|--------|
|                                   | £m    | £m    | £m    | £m     | £m     |
| Cash Dividend (a)                 | 14.9  | 17    | 18.6  | 20.5   | 23.9   |
| Investments (b)                   | 262.1 | 51.2  | 120.4 | 22.9   | 39.2   |
| Δ Working Capital (c)             | 75.4  | 37.3  | 12.5  | (19.1) | 14.1   |
| Internal Cash Flow (d)            | 79.1  | 24.5  | 78.8  | 107.3  | 112.7  |
| Financing Deficit [a + b + c - d] | 273.3 | 81    | 72.7  | (83)   | (35.5) |
| Net debt Issued (e)               | 198.4 | 38.6  | 60.3  | (65.5) | (52.2) |
| Net Equity Issued (f)             | 12.2  | 4.4   | 1     | 0.6    | 0      |
| Net external financing [e + f]    | 210.6 | 43    | 61.3  | (64.9) | (52.2) |
| Total Assets                      | 709.5 | 742.3 | 825   | 764.6  | 755.6  |

**Table 1B. Dairy Crest Plc corporate cash flows with investment lagged by 1 year**

|                                   | 2001  | 2002  | 2003   | 2004   | 2005   |
|-----------------------------------|-------|-------|--------|--------|--------|
|                                   | £m    | £m    | £m     | £m     | £m     |
| Cash Dividend (a)                 | 14.9  | 17    | 18.6   | 20.5   | 23.9   |
| Investments * (b)                 | 51.2  | 120.4 | 22.9   | 39.2   | 78.6   |
| Δ Working Capital (c)             | 75.4  | 37.3  | 12.5   | (19.1) | 14.1   |
| Internal Cash Flow (d)            | 79.1  | 24.5  | 78.8   | 107.3  | 112.7  |
| Financing Deficit [a + b + c - d] | 62.4  | 150.2 | (24.8) | (66.7) | 3.9    |
| Net Debt issued (e)               | 198.4 | 38.6  | 60.3   | (65.5) | (52.2) |
| Net Equity Issued (f)             | 12.2  | 4.4   | 1      | 0.6    | 0      |
| Net External Financing [e + f]    | 210.6 | 43    | 61.3   | (64.9) | (52.2) |
| Total Assets                      | 709.5 | 742.3 | 825    | 764.6  | 755.6  |

Sources: Fame database, Annual reports and accounts and financial reviews, Perfect analysis database, \*Investments lagged by one year

## UNILEVER (UK) PLC

**Table 1A. Corporate Cash Flow; Unilever (UK) Plc**

|                                   | 2001   | 2002   | 2003   | 2004   | 2005   |
|-----------------------------------|--------|--------|--------|--------|--------|
|                                   | £m     | £m     | £m     | £m     | £m     |
| Cash Dividends (a)                | 881    | 1027   | 1208   | 1201   | -      |
| Investments (b)                   | (1315) | (32)   | 284    | 508    | -      |
| Δ Working capital (c)             | 122    | (875)  | 75     | (576)  | (1811) |
| Internal Cash flow (d)            | 2164   | 3094   | 2979   | 3302   | 2991   |
| Financing deficit [a + b + c - d] | (2476) | (2974) | (1412) | (2169) | (4802) |
| Net debt issued (e)               | 628    | (2219) | (1228) | (931)  | 1517   |
| Net Equity issued (f)             | (9)    | 19     | 35     | (4)    | (96)   |
| Net external Financing [e + f]    | 619    | (2200) | (1193) | (935)  | 1421   |
| Total Asset                       | 32870  | 28977  | 26753  | 23663  | 27056  |

**Table 1B. Unilever (UK) Corporate cash flow with investments lagged by 1 year**

|                                | 2001         | 2002         | 2003         | 2004         | 2005         |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|
|                                | £m           | £m           | £m           | £m           | £m           |
| Cash dividend (a)              | 881          | 1027         | 1208         | 1201         | 0            |
| Investments * (b)              | (32)         | 284          | 508          | 0            | 0            |
| Δ Working capital (c)          | 122          | (875)        | 75           | (576)        | (1811)       |
| Internal Cash flow (d)         | 2164         | 3094         | 2979         | 3302         | 2991         |
| Financing deficit [a+ b + c-d] | (1193)       | (2658)       | (1188)       | (2677)       | (4802)       |
| Net Debt issued (e)            | 628          | (2219)       | (1228)       | (931)        | 1517         |
| Net Equity issued (f)          | (9)          | 19           | 35           | (4)          | (96)         |
| Net External Financing [e + f] | 619          | (2200)       | (1193)       | (935)        | 1421         |
| <b>Total Assets</b>            | <b>32870</b> | <b>28977</b> | <b>26753</b> | <b>23663</b> | <b>27056</b> |

Sources: Annual reports, Data stream database, Perfect Analysis, Fame Database, \*Investments lagged by one year.

## Appendix B. Computation of aggregate corporate cash flows

*Table 1. Cash dividends*

|                              | 2001          | 2002          | 2003          | 2004         | 2005         |
|------------------------------|---------------|---------------|---------------|--------------|--------------|
|                              | £m            | £m            | £m            | £m           | £m           |
| Tate & Lyle Plc              | 68            | 85            | 84            | 87           | 89           |
| Associated British Foods Plc | 88            | 93            | 108           | 119          | 135          |
| Northern Foods Plc           | 42.9          | 43.3          | 45.1          | 44.9         | 43.8         |
| Cadbury Schweppes Plc        | 214           | 223           | 234           | 246          | 261          |
| Dairy Crest Plc              | 14.9          | 17            | 18.6          | 20.5         | 23.9         |
| Unilever (UK)                | 881           | 1027          | 1208          | 1201         | 0            |
| Total                        | 1308.8        | 1488.3        | 1697.7        | 1718.4       | 552.7        |
| <b>Average Cash Dividend</b> | <b>218.13</b> | <b>248.05</b> | <b>282.95</b> | <b>286.4</b> | <b>92.12</b> |

*Table 2a. Investments*

|                              | 2001         | 2002          | 2003          | 2004         | 2005         |
|------------------------------|--------------|---------------|---------------|--------------|--------------|
|                              | £m           | £m            | £m            | £m           | £m           |
| Tate & Lyle Plc              | 132          | (48)          | 30            | 81           | 182          |
| Associated British Foods Plc | 146          | 376           | 231           | 398          | 1453         |
| Northern Foods Plc           | 68.7         | 117.4         | (64.6)        | 56.9         | 10.6         |
| Cadbury Schweppes Plc        | 1033         | 861           | 3027          | 309          | 327          |
| Dairy Crest Plc              | 262.1        | 51.2          | 120.4         | 22.9         | 39.2         |
| Unilever (UK)                | (1315)       | (32)          | 284           | 508          | 0            |
| Total                        | 326.8        | 1325.6        | 3627.8        | 1375.8       | 2011.8       |
| <b>Average Investments</b>   | <b>54.47</b> | <b>220.93</b> | <b>604.63</b> | <b>229.3</b> | <b>335.3</b> |

*Table 2b. Investments lagged by 1 year*

|                                             | 2001          | 2002          | 2003         | 2004         | 2005          |
|---------------------------------------------|---------------|---------------|--------------|--------------|---------------|
|                                             | £m            | £m            | £m           | £m           | £m            |
| Tate & Lyle                                 | (48)          | 30            | 81           | 182          | 340           |
| Associated British Foods                    | 376           | 231           | 398          | 1453         | 760           |
| Northern Foods                              | 117.4         | (64.6)        | 56.9         | 10.6         | 47.3          |
| Cadbury Schweppes                           | 861           | 3027          | 309          | 327          | (604)         |
| Dairy Crest                                 | 51.2          | 120.4         | 22.9         | 39.2         | 78.6          |
| Unilever (UK)                               | (32)          | 284           | 508          | 0            | 0             |
| Total                                       | 1325.6        | 3627.8        | 1375.8       | 2011.8       | 621.9         |
| <b>Average investments lagged by 1 year</b> | <b>220.93</b> | <b>604.63</b> | <b>229.3</b> | <b>335.3</b> | <b>103.65</b> |

*Table 3. Change in working capital*

|                                          | 2001         | 2002            | 2003         | 2004           | 2005            |
|------------------------------------------|--------------|-----------------|--------------|----------------|-----------------|
|                                          | £m           | £m              | £m           | £m             | £m              |
| Tate & Lyle Plc                          | 69           | (143)           | 6            | 31             | 35              |
| Associated British Foods Plc             | (81)         | 16              | (26)         | (3)            | 82              |
| Northern Foods Plc                       | 3.8          | 14.4            | (1)          | (13.8)         | 16.4            |
| Cadbury Schweppes Plc                    | 30           | 14              | 186          | 89             | (11)            |
| Dairy Crest Plc                          | 75.4         | 37.3            | 12.5         | (19.1)         | 14.1            |
| Unilever (UK) Plc                        | 122          | (875)           | 75           | (576)          | (1811)          |
| Total                                    | 219.2        | (936.3)         | 252.5        | (491.9)        | (1674.5)        |
| <b>Average change in working capital</b> | <b>36.53</b> | <b>(156.05)</b> | <b>42.08</b> | <b>(81.98)</b> | <b>(279.08)</b> |

*Table 4. Internal Cash flow*

|                                   | 2001          | 2002          | 2003          | 2004          | 2005          |
|-----------------------------------|---------------|---------------|---------------|---------------|---------------|
|                                   | £m            | £m            | £m            | £m            | £m            |
| Tate & Lyle Plc                   | 117           | 348           | 293           | 179           | 168           |
| Associated British Foods Plc      | 268           | 501           | 392           | 472           | 495           |
| Northern Foods Plc                | 105.5         | 89            | 123.6         | 132.5         | 74.6          |
| Cadbury Schweppes Plc             | 806           | 763           | 673           | 734           | 751           |
| Dairy Crest Plc                   | 79.1          | 24.5          | 78.8          | 107.3         | 112.7         |
| Unilever (UK) Plc                 | 2164          | 3094          | 2979          | 3302          | 2991          |
| Total                             | 3539.6        | 4919.5        | 4539.4        | 4926.8        | 4592.3        |
| <b>Average Internal Cash Flow</b> | <b>589.93</b> | <b>819.92</b> | <b>756.57</b> | <b>821.13</b> | <b>765.38</b> |

**Table 5. Net Debt Issued**

|                                | 2001          | 2002            | 2003         | 2004            | 2005          |
|--------------------------------|---------------|-----------------|--------------|-----------------|---------------|
|                                | £m            | £m              | £m           | £m              | £m            |
| Tate & Lyle Plc                | 22            | (31)            | (80)         | (31)            | 271           |
| Associated British Foods Plc   | 6             | 216             | 13           | (26)            | 544           |
| Northern Foods Plc             | 54.2          | 126.3           | (92.9)       | 55.5            | 0.5           |
| Cadbury Schweppes Plc          | 408           | 209             | 2365         | (341)           | 63            |
| Dairy Crest Plc                | 198.4         | 38.6            | 60.3         | (65.5)          | (52.2)        |
| Unilever (UK) Plc              | 628           | (2219)          | (1228)       | (931)           | 1517          |
| Total                          | 1316.6        | (1660.1)        | 1037.4       | (1339)          | 2343.3        |
| <b>Average net debt issued</b> | <b>219.43</b> | <b>(276.68)</b> | <b>172.9</b> | <b>(223.17)</b> | <b>390.55</b> |

**Table 6. Net Equity Issued**

|                                    | 2001      | 2002        | 2003        | 2004          | 2005           |
|------------------------------------|-----------|-------------|-------------|---------------|----------------|
|                                    | £m        | £m          | £m          | £m            | £m             |
| Tate & Lyle Plc                    | 69        | 0           | 1           | 2             | 10             |
| Associated British Foods Plc       | 0         | 0           | 0           | 0             | 0              |
| Northern Foods Plc                 | (6.2)     | (7.2)       | (55)        | (33.7)        | (21.4)         |
| Cadbury Schweppes Plc              | 18        | 26          | 19          | 25            | 37             |
| Dairy Crest Plc                    | 12.2      | 4.4         | 1           | 0.6           | 0              |
| Unilever UK Plc                    | (9)       | 19          | 35          | (4)           | (96)           |
| Total                              | 84        | 42.2        | 1           | (10.1)        | (70.4)         |
| <b>Aggregate Net Equity Issued</b> | <b>14</b> | <b>7.03</b> | <b>0.17</b> | <b>(1.68)</b> | <b>(11.73)</b> |

**Table 7. Aggregate Total Assets (Book Value)**

|                             | 2001           | 2002          | 2003           | 2004           | 2005           |
|-----------------------------|----------------|---------------|----------------|----------------|----------------|
|                             | £m             | £m            | £m             | £m             | £m             |
| Tate & Lyle Plc             | 3021           | 2701          | 2445           | 2216           | 2665           |
| ABF Plc                     | 3916           | 4387          | 4719           | 4855           | 5813           |
| Northern Foods Plc          | 997.6          | 1070.9        | 1074.3         | 1099.2         | 1046.3         |
| Cadbury Schweppes Plc       | 7425           | 7867          | 10410          | 9736           | 10047          |
| Dairy Crest Plc             | 709.5          | 742.3         | 825            | 764.5          | 755.6          |
| Unilever (UK) Plc           | 32870          | 28977         | 26753          | 23663          | 27056          |
| Total                       | 48937.1        | 45745.2       | 46226.3        | 42333.7        | 47382.9        |
| <b>Average total assets</b> | <b>8156.52</b> | <b>7624.2</b> | <b>7704.38</b> | <b>7055.62</b> | <b>7897.15</b> |

Notes: The above data are from; Annual reports and accounts (2001-2005) of the companies in the sample, Fame data base, Perfect Analysis, Data stream data.

### Appendix C. Total Gearing

**Table 1A. Computation of total gearing**

|                          | 2001                              | 2002                              | 2003                               | 2004                              | 2005                              |
|--------------------------|-----------------------------------|-----------------------------------|------------------------------------|-----------------------------------|-----------------------------------|
| Tate & Lyle              | £1080000 /<br>£2966000<br>=0.3641 | £774000 /<br>£2688000<br>=0.2879  | £643000 /<br>£2417000<br>=0.2660   | £542000 /<br>£2178000<br>=0.2489  | £806000 /<br>£2577000<br>=0.3128  |
| Associated British Foods | £239000 /<br>£3905000<br>= 0.0612 | £451000 /<br>£4377000<br>= 0.1030 | £474000 /<br>£4710000<br>=0.1006   | £425000 /<br>£4913000<br>=0.0865  | £974000 /<br>£5813000<br>=0.1676  |
| Northern Foods           | £364200 /<br>£989200<br>=0.3682   | £445700 /<br>£1063300<br>=0.4192  | £367700 /<br>£1068300<br>=0.3442   | £382300 /<br>£1094800<br>=0.3492  | £368600 /<br>£1046100<br>=0.3524  |
| Dairy crest              | £251200 /<br>£701400<br>=0.3581   | £287500 /<br>£734800<br>=0.3913   | £355000 /<br>£816500<br>=0.4348    | £296300 /<br>£760800<br>=0.3895   | £254700 /<br>£755600<br>=0.3371   |
| Cadbury Schweppes        | £2094000 /<br>£7185000<br>=0.2914 | £2318000 /<br>£7641000<br>=0.3034 | £4644000 /<br>£10195000<br>=0.4555 | £4216000 /<br>£7433000<br>=0.5672 | £4216000 /<br>£9736000<br>=0.4330 |

|               |                                     |                                     |                                     |                                    |                                    |
|---------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------------------|------------------------------------|
| Unilever (UK) | £15580500 /<br>£31337570<br>=0.4972 | £13309040 /<br>£28192190<br>=0.4721 | £11257200 /<br>£26430340<br>=0.4259 | £8670835 /<br>£23258420<br>=0.3728 | £8574508 /<br>£26156640<br>=0.3278 |
|---------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------------------|------------------------------------|

Notes:

- Gearing = ratio of total debt to total assets
- Data for computing total gearing is obtained from data stream, Fame database and Standard and Poors compustat
- Total debt = Total of all long and short term debt
- Total Assets = sum of tangible and intangible fixed assets plus investments and current assets

**Table 1B. Average total gearing**

|                              | 2001          | 2002          | 2003          | 2004          | 2005          |
|------------------------------|---------------|---------------|---------------|---------------|---------------|
| Tate & Lyle                  | 0.3641        | 0.2879        | 0.2660        | 0.2489        | 0.3128        |
| ABF                          | 0.0612        | 0.1030        | 0.1006        | 0.0865        | 0.1676        |
| Northern Foods               | 0.3682        | 0.4192        | 0.3442        | 0.3492        | 0.3524        |
| Dairy Crest                  | 0.3581        | 0.3913        | 0.4348        | 0.3895        | 0.3371        |
| Cadbury Schweppes            | 0.2914        | 0.3034        | 0.4555        | 0.5672        | 0.4330        |
| Unilever (UK)                | 0.4972        | 0.4721        | 0.4259        | 0.3728        | 0.3278        |
| Total                        | 1.9402        | 1.9769        | 2.0270        | 2.0141        | 1.9307        |
| <b>Average total gearing</b> | <b>0.3234</b> | <b>0.3295</b> | <b>0.3378</b> | <b>0.3357</b> | <b>0.3218</b> |

#### Appendix D. Computation of determinants of capital structure

**Table 1. Tate & Lyle PLC**

| Years | Tangibility                 | Market-to-book ratio                               | Profitability                 | Firm size                |
|-------|-----------------------------|----------------------------------------------------|-------------------------------|--------------------------|
|       | FA / TA (£m)                | (TA - ECR + MV) / TA (£m)                          | EBITDA / TA (£m)              | Ln (£sales)              |
| 2001  | £1.449 / £2.966<br>= 0.4885 | (£2.966 - £1.096 + £1.101888) / £2.966<br>= 1.0020 | -£0.019 / £2.966<br>= -0.0064 | Ln(3667000)<br>= 15.1149 |
| 2002  | £1.303 / £2.688<br>= 0.4847 | (£2.688 - £1.028 + £1.687674) / £2.688<br>= 1.2454 | £0.352 / £2.688<br>= 0.1310   | Ln(2989000)<br>= 14.9104 |
| 2003  | £1.176 / £2.417<br>= 0.4866 | (£2.417 - £0.982 + £1.440770) / £2.417<br>= 1.1898 | £0.325 / £2.417<br>= 0.1345   | Ln(2758000)<br>= 14.8300 |
| 2004  | £1.062 / £2.178<br>= 0.4876 | (£2.178 - £0.949 + £1.435317) / £2.178<br>= 1.2233 | £0.341 / £2.178<br>= 0.1566   | Ln(2874000)<br>= 14.8712 |
| 2005  | £1.111 / £2.577<br>= 0.4311 | (£2.577 - £1.016 + £2.585595) / £2.577<br>= 1.6091 | £0.343 / £2.577<br>= 0.1331   | Ln(3001000)<br>= 14.9145 |

**Table 2. Associated British Foods PLC**

| Years | Tangibility                 | Market-to-book ratio                               | Profitability               | Firm size                |
|-------|-----------------------------|----------------------------------------------------|-----------------------------|--------------------------|
|       | FA / TA (£m)                | (TA - ECR + MV) / TA (£m)                          | EBITDA / TA (£m)            | Ln (£sales)              |
| 2001  | £1.397 / £3.905<br>= 0.3577 | (£3.905 - £2.869 + £3.576386) / £3.905<br>= 1.1811 | £0.534 / £3.905<br>= 0.1367 | Ln(4418000)<br>= 15.3012 |
| 2002  | £1.421 / £4.377<br>= 0.3247 | (£4.377 - £2.979 + £4.670875) / £4.377<br>= 1.3865 | £0.602 / £4.377<br>= 0.1375 | Ln(4545000)<br>= 15.3295 |
| 2003  | £1.406 / £4.710<br>= 0.2985 | (£4.710 - £3.261 + £4.235453) / £4.710<br>= 1.2069 | £0.664 / £4.710<br>= 0.1410 | Ln(4909000)<br>= 15.4066 |
| 2004  | £1.459 / £4.913<br>= 0.2970 | (£4.913 - £3.467 + £5.205253) / £4.913<br>= 1.3538 | £0.691 / £4.913<br>= 0.1406 | Ln(5165000)<br>= 15.4574 |
| 2005  | £2.252 / £5.813<br>= 0.3874 | (£5.813 - £3.694 + £6.570890) / £5.813<br>= 1.4949 | £0.742 / £5.813<br>= 0.1276 | Ln(5622000)<br>= 15.5422 |



**Table 3. Northern Foods PLC**

| Years | Tangibility                   | Market-to-book ratio                                | Profitability                 | Firm size                 |
|-------|-------------------------------|-----------------------------------------------------|-------------------------------|---------------------------|
|       | FA / TA (£m)                  | (TA – ECR + MV) / TA (£m)                           | EBITDA / TA (£m)              | Ln (£sales)               |
| 2001  | £0.6427 / £0.9892<br>= 0.6497 | (£0.9892-£0.3144 +£0.731378) / £0.9892<br>= 1.4215  | £0.1773 / £0.9892<br>= 0.1792 | Ln (1372700)<br>= 14.1323 |
| 2002  | £0.6959 / £1.0633<br>= 0.6545 | (£1.0633-£0.2806 +£0.974938) / £1.0633<br>= 1.6530  | £0.1742 / £1.0633<br>= 0.1638 | Ln (1459200)<br>= 14.1934 |
| 2003  | £0.6706 / £1.0683<br>= 0.6277 | (£1.0683-£0.3601 + £0.646152) / £1.0683<br>= 1.2678 | £0.1901 / £1.0683<br>= 0.1779 | Ln (1421200)<br>= 14.1670 |
| 2004  | £0.6724 / £1.0948<br>= 0.6142 | (£1.0948-£0.3563 + £0.808478) / £1.0948<br>= 1.4130 | £0.1663 / £1.0948<br>= 0.1519 | Ln (1542100)<br>= 14.2487 |
| 2005  | £0.6178 / £1.0461<br>= 0.5906 | (£1.0461-£0.3261 + £0.750123) / £1.0462<br>= 1.4053 | £0.0958 / £1.0461<br>= 0.0916 | Ln (1448800)<br>= 14.1862 |

**Table 4. Cadbury Schweppes PLC**

| Years | Tangibility                  | Market-to-book ratio                                | Profitability                | Firm size                 |
|-------|------------------------------|-----------------------------------------------------|------------------------------|---------------------------|
|       | FA / TA (£m)                 | (TA – ECR + MV) / TA (£m)                           | EBITDA / TA (£m)             | Ln (£sales)               |
| 2001  | £1.209 / £7.185<br>= 0.1683  | (£7.185-£2.64 + £9.153492) / £7.185<br>= 1.9065     | £1.151 / £7.185<br>= 0.1602  | Ln (5519000)<br>= 15.5237 |
| 2002  | £1.351 / £7.641<br>= 0.1768  | (£7.641-£2.794 + £7.839085) / £7.641<br>= 1.6603    | £1.159 / £7.641 =<br>0.1517  | Ln (5298000)<br>= 15.4828 |
| 2003  | £1.633 / £10.195<br>= 0.1602 | (£10.195 - £2.735 +£8.413726) / £10.195<br>= 1.5570 | £1.091 / £10.195<br>= 0.1070 | Ln (6441000)<br>= 15.6782 |
| 2004  | £1.613 / £7.433<br>= 0.2170  | (£7.433 - £2.071 + £15.30174) / £7.433<br>=2.7800   | £1.261 / £7.433<br>= 0.1696  | Ln (6738000)<br>= 15.7233 |
| 2005  | £1.613 / £9.736<br>= 0.1657  | (£9.736 - £2.859 + £10.049190) / £9.736<br>= 1.7385 | £1.217 / £9.736<br>= 0.1250  | Ln (6738000)<br>= 15.7233 |

**Table 5. Dairy Crest PLC**

| Years | Tangibility                   | Market-to-book ratio                                | Profitability                 | Firm size                 |
|-------|-------------------------------|-----------------------------------------------------|-------------------------------|---------------------------|
|       | FA / TA (£m)                  | (TA – ECR + MV) / TA (£m)                           | EBITDA / TA (£m)              | Ln (£sales)               |
| 2001  | £0.3188 / £0.7014<br>= 0.4545 | (£0.7014 -£0.1916 +£0.277527) / £0.7014<br>= 1.1225 | £0.0836 / £0.7014<br>= 0.1192 | Ln (1227900)<br>= 14.0208 |
| 2002  | £0.3237 / £0.7348<br>= 0.4405 | (£0.7348-£0.1992 + £0.5814) / £0.7348<br>= 1.5201   | £0.0861 / £0.7348<br>= 0.1172 | Ln (1286300)<br>= 14.0673 |
| 2003  | £0.3451 / £0.8165<br>= 0.4227 | (£0.8165-£0.2177 + £0.406021) / £0.8165<br>= 1.2306 | £0.1064 / £0.8165<br>= 0.1303 | Ln (1246500)<br>= 14.0359 |
| 2004  | £0.3212 / £0.7608<br>= 0.4222 | (£0.7608-£0.2339 + £0.494043) / £0.7608<br>= 1.3419 | £0.1113 / £0.7608<br>= 0.1463 | Ln (1271200)<br>= 14.0555 |
| 2005  | £0.3227 / £0.7556<br>= 0.4271 | (£0.7556-£0.2625 + £0.578666) / £0.7556<br>= 1.4148 | £0.1259 / £0.7556<br>= 0.1666 | Ln (1260600)<br>= 14.0471 |

**Table 6. Unilever (UK) PLC**

| Years | Tangibility                           | Market-to-book ratio                                          | Profitability                         | Firm size                  |
|-------|---------------------------------------|---------------------------------------------------------------|---------------------------------------|----------------------------|
|       | FA / TA<br>(£m)                       | (TA – ECR + MV) / TA<br>(£m)                                  | EBITDA / TA<br>(£m)                   | Ln (£sales)                |
| 2001  | £5.645640 /<br>£31.337570<br>= 0.1802 | (£31.337570-£3.478423+£16.420620) /<br>£31.337570<br>= 1.4130 | £4.960450 /<br>£31.337570<br>= 0.1583 | Ln (32041700)<br>= 17.2825 |
| 2002  | £4.840836 /<br>£28.192190<br>= 0.1717 | (£28.192190-£2.841615+£17.206700) /<br>£28.192190<br>= 1.5095 | £4.763380 /<br>£28.192190<br>= 0.1690 | Ln (30313550)<br>= 17.2271 |
| 2003  | £4.711740 /<br>£26.430340<br>= 0.1782 | (£26.430340-£3.127944+£15.161410) /<br>£26.430340<br>= 1.4553 | £5.263347 /<br>£26.430340<br>= 0.1991 | Ln (29500850)<br>= 17.1999 |
| 2004  | £4.432969 /<br>£23.258420<br>= 0.1906 | (£23.258420-£2.850220+£14.892110) /<br>£23.258420<br>= 1.5177 | £3.710563 /<br>£23.258420<br>= 0.1595 | Ln (27238590)<br>= 17.1201 |
| 2005  | £4.481505 /<br>£26.156640<br>= 0.1713 | (£26.156640-£5.738990+£16.636500) /<br>£26.156640<br>= 1.4166 | £4.275859 /<br>£26.156640<br>= 0.1635 | Ln (27123740)<br>= 17.1159 |

Notes:

- Source of data: Data stream database, Fame database, Perfect Analyse database, The Pinsent Mansons Company Guide, Annual Reports and Accounts
- MV = This is the overall value of a company, i.e. the price that one must pay to buy the entire company.
- EBITDA =The earnings if the company before all interest expense, depreciation, amortisation and provision
- TA =The total net tangible fixed assets after deduction of accumulated depreciation
- ECR =Equity share capital and reserves of the company
- TA= sum of tangible and intangible fixed assets plus investments and current assets

#### Appendix D1. Average determinants of capital structure

**Table 1. Average Tangibility (TAN)**

|                    | 2001           | 2002           | 2003           | 2004           | 2005          |
|--------------------|----------------|----------------|----------------|----------------|---------------|
| Tate & Lyle        | 0.4885         | 0.4847         | 0.4866         | 0.4876         | 0.4311        |
| ABF                | 0.3577         | 0.3247         | 0.2985         | 0.2970         | 0.3874        |
| Northern Foods     | 0.6497         | 0.6545         | 0.6277         | 0.6142         | 0.5906        |
| Cadbury Schweppes  | 0.1683         | 0.1768         | 0.1602         | 0.2170         | 0.1657        |
| Dairy Crest        | 0.4545         | 0.4405         | 0.4227         | 0.4222         | 0.4271        |
| Unilever (UK)      | 0.1802         | 0.1717         | 0.1782         | 0.1906         | 0.1713        |
| Total              | 2.2989         | 2.2529         | 2.1739         | 2.2286         | 2.1732        |
| <b>Average TAN</b> | <b>0.38315</b> | <b>0.37548</b> | <b>0.36236</b> | <b>0.37143</b> | <b>0.3622</b> |

**Table 2. Average Profitability (PRF)**

|                    | 2001           | 2002           | 2003           | 2004           | 2005           |
|--------------------|----------------|----------------|----------------|----------------|----------------|
| Tate & Lyle        | -0.0064        | 0.1310         | 0.1345         | 0.1566         | 0.1331         |
| ABF                | 0.1367         | 0.1375         | 0.1410         | 0.1406         | 0.1276         |
| Northern Foods     | 0.1792         | 0.1638         | 0.1779         | 0.1519         | 0.0916         |
| Cadbury Schweppes  | 0.1602         | 0.1517         | 0.1070         | 0.1696         | 0.1250         |
| Dairy Crest        | 0.1192         | 0.1172         | 0.1303         | 0.1463         | 0.1666         |
| Unilever (UK)      | 0.1583         | 0.1690         | 0.1991         | 0.1595         | 0.1635         |
| Total              | 0.7472         | 0.8702         | 0.8898         | 0.9245         | 0.8074         |
| <b>Average PRF</b> | <b>0.12453</b> | <b>0.14503</b> | <b>0.14830</b> | <b>0.15408</b> | <b>0.13457</b> |

**Table 3. Average Firm size (LS)**

|                   | 2001    | 2002    | 2003    | 2004    | 2005    |
|-------------------|---------|---------|---------|---------|---------|
| Tate & Lyle       | 15.1149 | 14.9104 | 14.8300 | 14.8712 | 14.9145 |
| ABF               | 15.3012 | 15.3295 | 15.4066 | 15.4574 | 15.5422 |
| Northern Foods    | 14.1323 | 14.1934 | 14.1670 | 14.2487 | 14.1862 |
| Cadbury Schweppes | 15.5237 | 15.4828 | 15.6782 | 15.7233 | 15.7233 |
| Dairy Crest       | 14.0208 | 14.0673 | 14.0359 | 14.0555 | 14.0471 |

|                   | 2001            | 2002            | 2003           | 2004            | 2005            |
|-------------------|-----------------|-----------------|----------------|-----------------|-----------------|
| Unilever (UK)     | 17.2825         | 17.2271         | 17.1999        | 17.1201         | 17.1159         |
| Total             | 91.3754         | 91.2105         | 91.3176        | 91.4762         | 91.5292         |
| <b>Average LS</b> | <b>15.22923</b> | <b>15.20175</b> | <b>15.2196</b> | <b>15.24603</b> | <b>15.25487</b> |

*Table 4. Average Market-to-book ratio (MBV)*

|                    | 2001            | 2002            | 2003           | 2004            | 2005            |
|--------------------|-----------------|-----------------|----------------|-----------------|-----------------|
| Tate & Lyle        | 1.0020          | 1.2454          | 1.1898         | 1.2233          | 1.6091          |
| ABF                | 1.1811          | 1.3865          | 1.2069         | 1.3538          | 1.4949          |
| Northern Foods     | 1.4215          | 1.6530          | 1.2678         | 1.4130          | 1.4053          |
| Cadbury Schweppes  | 1.9065          | 1.6603          | 1.5570         | 2.7800          | 1.7385          |
| Dairy Crest        | 1.1225          | 1.5201          | 1.2306         | 1.3419          | 1.4184          |
| Unilever (UK)      | 1.4130          | 1.5095          | 1.4553         | 1.5177          | 1.4166          |
| Total              | 8.0466          | 8.9748          | 7.9074         | 9.6297          | 9.0828          |
| <b>Average MBV</b> | <b>15.22923</b> | <b>15.20175</b> | <b>15.2196</b> | <b>15.24603</b> | <b>15.25487</b> |

*Table 5. Summary table - average determinants of capital structure*

|                            | 2001    | 2002    | 2003    | 2004    | 2005    |
|----------------------------|---------|---------|---------|---------|---------|
| Tangibility (TAN)          | 0.3832  | 0.3755  | 0.3624  | 0.3714  | 0.3622  |
| Market-to-book Ratio (MBV) | 1.3411  | 1.4958  | 1.3179  | 1.6050  | 1.5138  |
| Profitability (PRF)        | 0.1245  | 0.1450  | 0.1483  | 0.1541  | 0.1346  |
| Firm Size (LS)             | 15.2292 | 15.2018 | 15.2196 | 15.2460 | 15.2549 |





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