DIGITALES ARCHIV

Dacosta, Louie

Article

Testing the Pecking Order Theory of capital structure in FTSE 350 food producers firms in United Kingdom between 2001 and 2005

Provided in Cooperation with:
Expert journal of finance

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

Louie DACOSTA[1] and Charles ADUSEI[2*]

[1]MBA (Finance) and FCCA, London, England
[2]Garden City University College, Ghana

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

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 minimise. 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 have 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 adjust 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 has 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, Diary 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 involve 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 (ΔD) and its relationship with financing deficit (DEF). Also, change in debt and Equity dividend (DIV), investments (INV), change in working capital (ΔW) and internal cash flows (C).

(ΔD_{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)
(ΔW_{it}): change in working capital for firm (i) at time t [i.e. ΔW = 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;

Total gearing (D_{it}) = total debt / 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.

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.

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).

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

Firm size (LS$_{it}$): 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.

$$Firm\ size = Ln\ (sales)$$

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:

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

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

$$\Delta D_{it} = \alpha + \beta DEF_{it} + \varepsilon_{it} \qquad\qquad Equation\ 1$$
$$\Delta D_{it} = \alpha + \beta_1 DIV_{it} + \beta_2 INV_{it} + \beta_3 \Delta W_{it} - \beta_4 C_{it} + \varepsilon_{it} \qquad\qquad Equation\ 2$$

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

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

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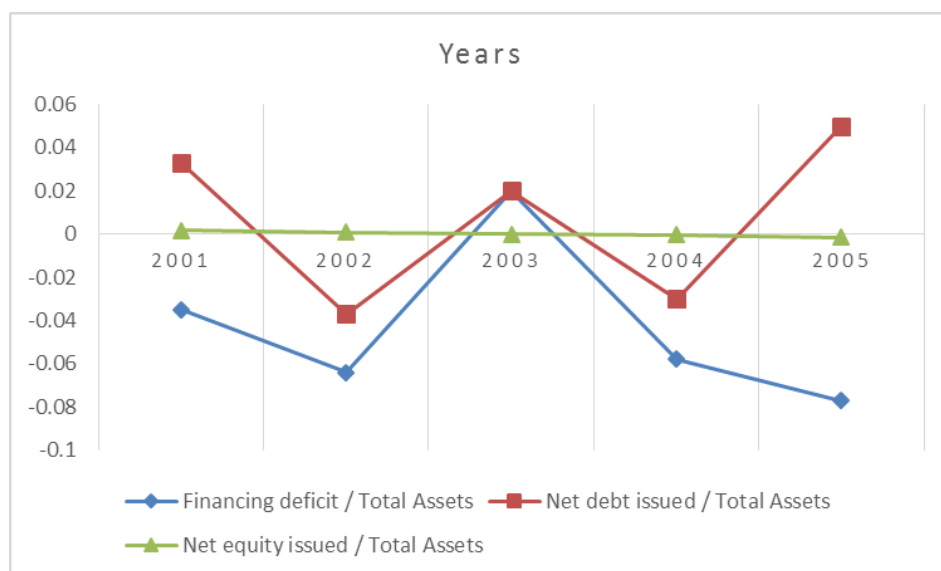
Figure 1a. Year-on-year trend in financing pattern
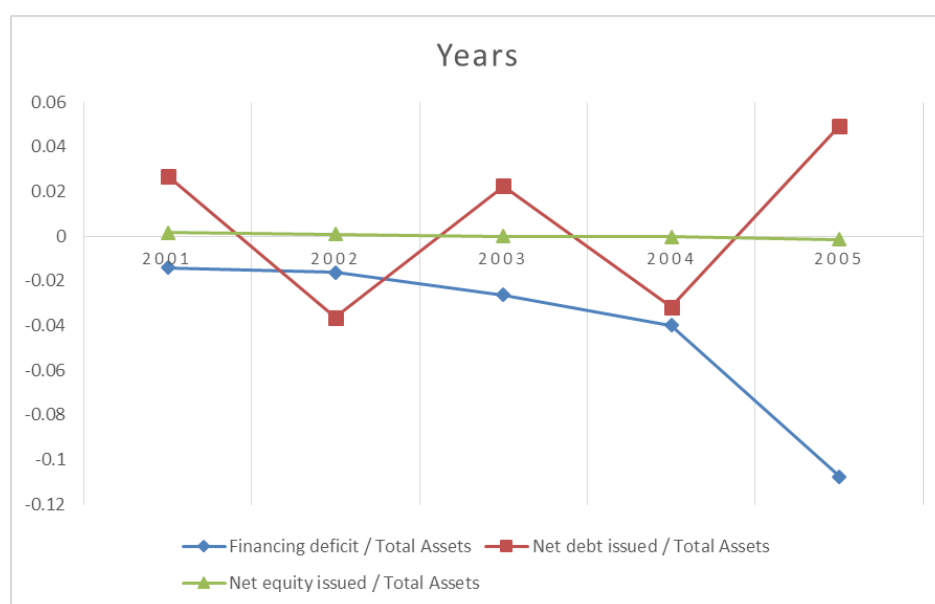
Figure 1b. Year-on-year trend in financing pattern

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 Figure1a 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 Figure1b 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 (ΔD) described in the previous chapter is tested using data from FTSE 350 UK Food producer sector firms as follows:

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

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

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

[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 (ΔD_{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 (ΔW_{it}) and Internal cash flow (C_{it}) are the independent variables in the disaggregate model.

4.2.1. Regression Analysis: Change in Debt (ΔD) 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 (β) should be equal to 1 when the intercept (α) is 0.

However, debt capacity and other factors may force firms to issue some amount of equity. In such cases it is expected that β be less than, but close to, 1 (semi-strong form) and α 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 (β) 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: α =0 shows that (β) is -0.031 and the R^2 is 0.003 implying that when α is fixed at 0, the coefficient of DEF is not 1 as predicted by POT.

The results obtained for H_0: α ≠ 0 shows that β is 0.143 with an R^2 of 0.022, when α 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. α) is not equal to zero, the coefficient of financing deficit (β) should be less than but close to 1.

The regression results prove otherwise. The R^2 of 0.003 when α is fixed at 0 and 0.022 obtained when α 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 β of -0.310 and an R^2 of 0.230 was obtained for the fixed H_0: α=0. On the other hand, a β of -0.531 and an R^2 is 0.291 was obtained for the random H_0: α ≠ 0. Therefore, one can state that for fixed α =0 and random α ≠ 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: α = 0 and H_0: α ≠ 0, even when investments are lagged by one year (see Table 2b), the coefficient (β) 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

	Explanatory Variable	Coefficients
$H_0: \alpha = 0$ [Evaluating coefficient of DEF when α is equal to 0]	DEF	-0.031*
		(0.303)
	R^2	0.003
	N	5
$H_0: \alpha \neq 0$ [Evaluating the coefficient of DEF when α is not equal to zero]	DEF	0.143*
		(0.551)
	Constant	0.013*
		(0.032)
	R^2	0.022
	N	5

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

	Explanatory Variable	Coefficients
$H_0: \alpha = 0$ [Evaluating the coefficient of DEF when $\alpha = 0$]	DEF	-0.310*
		(0.284)
	R^2	0.230
	N	5
$H_0: \alpha \neq 0$ [Evaluating the coefficient of DEF when $\alpha \neq 0$]	DEF	-0.531*
		(0.479)
	Constant	-0.015*
		(0.026)
	R^2	0.291
	N	5

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

4.2.2. Regression Analysis: Change in Debt (ΔD) 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 (ΔD) 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

	Variable	Coefficients
$H_0: \alpha = 0$ [Relationship between change in debt and components of financing deficit when α is equal to zero]	DIV	-6.493*
		(0.737)
	INV	0.536*
		(0.143)
	ΔW	2.833*
		(0.420)
	C	2.077*
		(0.253)
	R^2	0.988
	N	5
$H_0: \alpha \neq 0$ [Relationship between change in debt and components of financing deficit when α is not equal to zero]	DIV	-8.695*
		(0)
	INV	0.629*
		(0)
	ΔW	3.975*
		(0)
	C	4.220*
		(0)
$H_0: \alpha \neq 0$	Constant	-0.144*
		(0)

R^2	1	
N	5	

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

Explanatory Variables	Expected Signs		Actual signs obtained	
	Trade-off Theory	Pecking order Theory	$H_0: \alpha = 0$	$H_0: \alpha \neq 0$
DIV	-	+	-	-
I	+	+	+	+
ΔW	+	+	+	+
C	+	-	+	+

Based on the POT predictions, a positive relationship is expected between dividend payments (DIV) and change in debt (ΔD). 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 (ΔW) and change in debt (ΔD). 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 (ΔD) 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 $H_0: \alpha = 0$ shows a negative relationship between change in debt and dividend paid, the signal obtained for $H_0: \alpha \neq 0$ 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 α 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^2 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
$H_0: \alpha = 0$ [Relationship between change in debt and components of financing deficit when $\alpha = 0$]	DIV	-3.825*
		(2.711)
	INV	-0.734*
		(0.688)
	ΔW	1.619*
		(1.402)
	C	1.631*
		(0.777)
$H_0: \alpha = 0$	R^2	0.916
	N	5
$H_0: \alpha \neq 0$ [Relationship between change in debt and components of financing deficit when $\alpha \neq 0$]	DIV	2.225*
		(0)
	INV	-1.057*
		(0)

	ΔW	-1.474*
		(0)
	C	-3.800*
		(0)
	Constant	0.354*
		(0)
	R^2	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$_0$: α =0	H$_0$:α ≠ 0
DIV	-	+	-	+
I	+	+	+	+
ΔW	+	+	+	+
C	+	-	+	-

Notes: The dependent variable is ΔD = change in debt/net debt issued; DIV= dividend payments; INV = investments; ΔW = 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:

$$D_{it} = α + β_{TAN}TAN_{it} + β_{MBV}MBV_{it} + β_{LS}LS_{it} + β_{PRF}PRF_{it} + ε_{it} \qquad Equation\ 3$$

(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 α is taken to be equal to zero and when α 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
	TAN	0.141*
		(0.136)
	MBV	-0.734*
		-0.032*
H$_0$: α = 0 [Evaluating the coefficient (β) of the firm specific factors when α is equal to zero]	LS	0.014*
		(0.004)
	PRF.	0.726*
		(0.118)
	R^2	0.999
	N	5

	TAN	2.254*	
		(0)	
	MBV	-0.041*	
		(0)	
H_0: $\alpha \neq 0$ [Evaluation the coefficient (β) of the firm specific factors when α is not equal to zero]	LS	0.094*	
		(0)	
	PRF.	0.826*	
		(0)	
	Constant	-1.259*	
		(0)	
	R^2	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 (α) 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 (α) 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^2 of 99.99% and 100% obtained for when α is zero and when α 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.

References

Associated British Foods Plc., 2001. *Associated British Foods Plc. - Annual Report and Accounts 2001* [online] Available at: https://bib.kuleuven.be/files/ebib/jaarverslagen/ABF_2001.pdf [Accessed on 16 January 2016].

Associated British Foods Plc., 2002. *Associated British Foods Plc. - Annual Report and Accounts 2002* [online] Available at: https://bib.kuleuven.be/files/ebib/jaarverslagen/ABF_2002.pdf [Accessed on 16 January 2016].

Associated British Foods Plc., 2003. *Associated British Foods Plc. - Annual Report and Accounts 2003* [online] Available at: https://bib.kuleuven.be/files/ebib/jaarverslagen/ABF_2003.pdf [Accessed on 16 January 2016].

Associated British Foods Plc., 2004. *Associated British Foods Plc. - Annual Report and Accounts 2004* [online] Available at: https://bib.kuleuven.be/files/ebib/jaarverslagen/ABF_2004.pdf [Accessed on 16 January 2016].

Associated British Foods Plc., 2005. *Associated British Foods Plc. - Annual Report and Accounts 2005* [online] Available at: https://bib.kuleuven.be/files/ebib/jaarverslagen/ABF_2005.pdf [Accessed on 16 January 2016].

Bancel, F. and Mittoo, U.R., 2004. Cross-country determinants of capital structure choice: A survey of European firms. *Financial Management, 33(4),* pp.103-132.

Barclay, M.J., Morllec, E. and Smith, C.W., 2001. *On the debt capacity of growth options*. Unpublished working paper. University of Rochester, New York, USA. [online] Available at: http://papers.ssrn.com/abstract=271949 [Accessed on 16 January 2016].

Barclay, M.J. and Smith, C.W., 1996. On financial Architecture: Leverage, Maturity and Priority. *Journal of Applied Corporate* Finance, 8, pp.4-17.

Bhaduri, S.N., 2002. Determinants of Capital Structure Choice: A study of Indian Corporate Sector. *Applied Financial Economics,* 12 (9), pp.655-665.

Bradley, M., Jarrel, G. and Kim, E., 1984. On the Existence of an Optimal Capital Structure: Theory and Evidence. *Journal of Finance, 39,* pp.857-878.

Cadbury Schweppes Plc., 2001. *Cadbury Schweppes Plc. - Annual Report and Accounts 2001* [online] Available at: https://ddd.uab.cat/pub/infanu/118597/iaCADSCHa2001ieng.pdf [Accessed on 16 January 2016].

Cadbury Schweppes Plc., 2002. *Cadbury Schweppes Plc. - Annual Report and Accounts 2002* [online] Available at: http://ddd.uab.cat/pub/infanu/118597/iaCADSCHa2002ieng.pdf [Accessed on 16 January 2016].

Cadbury Schweppes Plc., 2003. *Cadbury Schweppes Plc. - Annual Report and Accounts 2003* [online] Available at: https://ddd.uab.cat/pub/infanu/118597/iaCADSCHa2003ieng.pdf [Accessed on 16 January 2016].

Cadbury Schweppes Plc., 2004. *Cadbury Schweppes Plc. - Annual Report and Accounts 2004* [online] Available at: http://ddd.uab.cat/pub/infanu/118597/iaCADSCHa2004ieng.pdf [Accessed on 16 January 2016].

Cadbury Schweppes Plc., 2005. *Cadbury Schweppes Plc. - Annual Report and Accounts 2005* [online] Available at: http://ddd.uab.cat/pub/infanu/118597/iaCADSCHa2005ieng.pdf [Accessed on 16 January 2016].

Chen, J. J., 2004. Determinants of capital structure of Chinese-listed companies. *Journal of Business Research, 57,* pp.1341-1351.

Chung, K.H., 1993. Assets characteristics and corporate debt policy: an empirical investigation. *Journal of Business Finance and Accounting, 20,* pp.83-98.

Dairy Crest Plc., 2001. *Dairy Crest Plc. - Annual Report and Accounts 2001* [online] Available at: http://www.dairycrest.co.uk/~/media/Files/D/Dairy-Crest-Group/reports-and-presentations/archive/dairycrest-annual-report-2001.pdf [Accessed on 16 January 2016].

Dairy Crest Plc., 2002. *Dairy Crest Plc. - Annual Report and Accounts 2002* [online] Available at: http://www.dairycrest.co.uk/~/media/Files/D/Dairy-Crest-Group/reports-and-presentations/archive/dairycrest-annual-report-2002.pdf [Accessed on 16 January 2016].

Dairy Crest Plc., 2003. *Dairy Crest Plc. - Annual Report and Accounts 2003* [online] Available at: http://www.dairycrest.co.uk/~/media/Files/D/Dairy-Crest-Group/reports-and-presentations/archive/dairycrest-annual-report-2003.pdf [Accessed on 16 January 2016].

Dairy Crest Plc., 2004. *Dairy Crest Plc. - Annual Report and Accounts 2004* [online] Available at: http://www.dairycrest.co.uk/~/media/Files/D/Dairy-Crest-Group/reports-and-presentations/archive/dairycrest-annual-report-2004.pdf [Accessed on 16 January 2016].

Dairy Crest Plc., 2005. *Dairy Crest Plc. - Annual Report and Accounts 2005* [online] Available at: http://www.dairycrest.co.uk/~/media/Files/D/Dairy-Crest-Group/reports-and-presentations/archive/dairycrest-annual-report-2005.pdf [Accessed on 16 January 2016].

Denscombe, M., 2007. *The Good Research Guide for small-scale social research projects (3*rd Edition). Maidenhead: Open University Press.

Fama, E.F. and French, K.R., 2002. Testing Trade-off and Pecking Order Predictions about Dividends and Debt. *Review of Financial Studies, 15(1)*, pp.1-33.

Flannery, M.J. and Rangan, K.P., 2006. Partial Adjustment toward Target Capital Structures. *Journal of Financial Economics, 79(3),* pp.469-506.

Frank, M.Z. and Goyal, V.K., 2003. Testing the pecking order theory of capital structure. *Journal of Financial Economics,* 67(2), pp.217-248.

Frank, M.Z. and Goyal, V.K., 2009. Capital structure decisions: Which factors are reliably important?. *Financial Management, 38(1),* pp.1-37.

Graham, J.R., 2003. Taxes and corporate finance: A review. *Review of Financial Studies, 16(4),* pp.1075-1129.

Gurcharan, S., 2010. A review of optimal capital structure determinant of selected Asian countries. *International Research Journal of Finance and Economics, 47,* pp.31-41.

Hancock, D.R. and Algozzine, B., 2006. *Doing Case Study Research: A Practical Guide for Beginning Researchers.* New York: Teachers College Press.

Harris, M. and Raviv, R., (1991. The Theory of Capital Structure. *Journal of Finance, 46,* pp.297-356

Hovakimian, A., Optler, T. and Titman, S., 2001. The Debt-Equity Choice. *Journal of Financial and Quantitative Analysis, 36,* pp.1-24.

Hovakimian, A., Hovakimian, G. and Tehranian, H., 2004. Determinants of target capital structure: The case of dual debt and equity issues. *Journal of Financial Economics, 71(3),* pp.517-540.

Investor's Champion Shares, 2007. *Investor's Champion Shares 9*. Issue 21, 24-30 May 2007, pp.48-49.

FTSE 350, 2007. *Investors Chronicle - FTSE 350 Review.* 12-18 February 2007, p.30.

Jalilvand, A. and Harris, R.S., 1984. Corporate Behaviour in Adjusting to Capital Structure and Dividend Targets: An Econometric Study. *Journal of Finance,* 39, pp.127-145.

Jensen, M., Solberg, D. and Zorn, T., 1992. Simultaneous Determination of Insider Ownership, Debt and Dividend Policies, *Journal of Financial and Quantitative Analysis,* 27, pp.247-261

Loof, H., 2004), "Dynamic Optimal Capital Structure and Technical Change", *Structural Change and Economic Dynamics,* 25, pp.449-468

Lumby, S. and Jones, C., (2011. *Corporate Finance: Theory & Practice*, 8th Edition. South-Western CENCAGE Learning. Hampshire.

Marsh, P., 1982. The Choice between Equity and Debt. *Journal of Finance.* 37, pp.121-144

Michaelas, N. Chittenden, F. and Poutziouris, P., 1999. Financial policy and capital structure choice in UK SMEs: Empirical evidence from company panel data. *Small Business Economics, 12*, pp.113-130.

Mitchell, M. and Jolley, J. M., 2013. *Research Design Explained* (8th Edition). New York: Wadsworth Cengage Learning.

Miguel, A.D. and Pindado, J., 2001. Determinants of Capital Structure: New Evidence from Spanish Panel Data. *Journal of Corporate Finance, 7*, pp.77-99.

Miller, H.M., 1997. Debt and taxes. *Journal of Finance, 32(2),* pp.261-275.

Myers, S.C., 1984. The Capital Structure Puzzle. *Journal of Finance, 39(3),* pp.575-592.

Myers, S.C. and Majluf, N., 1984. Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have. *Journal of Financial Economics, 13,* pp.187-221.

Northern Foods Plc., 2001. *Northern Foods Plc. - Annual Report and Accounts 2001.*

Northern Foods Plc., 2002. *Northern Foods Plc. - Annual Report and Accounts 2002.*

Northern Foods Plc., 2003. *Northern Foods Plc. - Annual Report and Accounts 2003.*

Northern Foods Plc., 2004. *Northern Foods Plc. - Annual Report and Accounts 2004.*

Northern Foods Plc., 2005. *Northern Foods Plc. - Annual Report and Accounts 2005.*

Nor, F.M., Haron, R., Ibrahim, K., Ibrahim, I. and Norazlan, A., 2011. Determinants of target capital structure: Evidence on South East Asia countries. *Journal of Business and Policy Research, 6(3),* pp.39-61.

Ozkan, A., 2001. Determinants of Capital Structure and Adjustment to Long Run Target: Evidence from UK Company Panel Data. *Journal of Business Finance and Accounting, 28(1-2),* pp.175-198.

Rao, N.V., Al-Yahyaee, K.H.M. and Syed, L.A.M., 2007. Capital structure and financial performance: Evidence from Oman. *Indian Journal of Economics and Business, 6(1),* pp.45-64.

Rajan, R.G. and Zingales, L., 1995. What do we know about Capital Structure? Some Evidence from the International Data. *Journal of Finance, 50,* pp.1421-1460.

Shyam-Sunder L., Myers, S.C., 1999. Testing static trade-off against pecking order models of capital structure, *Journal of Financial Economics, 51,* pp.219-244.

Smith, C.W., and Watts, R.L., 1992. The investment opportunity set and corporate financing, dividend and compensation policies. *Journal of Financial Economics, 32,* pp.263-292.

Taggart, R.A., 1977. A Model of Corporate Financing Decisions. *Journal of Finance, 32,* pp.1467-1484.

Tate and Lyle Plc., 2001. *Tate and Lyle Plc. - Annual Report and Accounts 2001* [online] Available at: http://www.tateandlyle.com/InvestorRelations/Documents/Annual%20Reports/Annual%20Report%202001.pdf [Accessed on 16 January 2016].

Tate and Lyle Plc., 2002. *Tate and Lyle Plc. - Annual Report and Accounts 2002* [online] Available at: http://www.tateandlyle.com/InvestorRelations/Documents/Annual%20Reports/Annual%20Report%202002.pdf [Accessed on 16 January 2016].

Tate and Lyle Plc., 2003. *Tate and Lyle Plc. - Annual Report and Accounts 2003* [online] Available at: http://www.tateandlyle.com/InvestorRelations/Documents/Annual%20Reports/Annual%20Report%202003.pdf [Accessed on 16 January 2016].

Tate and Lyle Plc., 2004. *Tate and Lyle Plc. - Annual Report and Accounts 2004* [online] Available at: http://www.tateandlyle.com/InvestorRelations/Documents/Annual%20Reports/Annual%20Report%202004.pdf [Accessed on 16 January 2016].

Tate and Lyle Plc., 2005. *Tate and Lyle Plc. - Annual Report and Accounts 2005* [online] Available at: http://www.tateandlyle.com/InvestorRelations/Documents/Annual%20Reports/Annual%20Report%202005.pdf [Accessed on 16 January 2016].

Titman, S. and Wessels, R., 1988. The Determinants of Capital Structure Choice. *Journal of Finance, 43,* pp.1-19.

Unilever Plc., 2001. *Unilever Plc. - Annual Report and Accounts 2001* [online] Available at: https://www.unilever.com/Images/2001-ara-en_tcm244-424099_en.pdf [Accessed on 16 January 2016].

Unilever Plc., 2002. *Unilever Plc. - Annual Report and Accounts 2002* [online] Available at: https://www.unilever.com/Images/2002-ara-english_tcm244-424092_en.pdf [Accessed on 16 January 2016].

Unilever Plc., 2003. *Unilever Plc. - Annual Report and Accounts 2003* [online] Available at: https://www.unilever.com/Images/2003-annual-report-english_tcm244-424086_1_en.pdf [Accessed on 16 January 2016].

Unilever Plc., 2004. *Unilever Plc. - Annual Report and Accounts 2004* [online] Available at: https://www.unilever.com/Images/annual-report-and-accounts-2004-english_tcm244-424241_en.pdf [Accessed on 16 January 2016].

Unilever Plc., 2005. *Unilever Plc. - Annual Report and Accounts 2005* [online] Available at: https://www.unilever.com/Images/2005-annual-review-english_tcm244-424082_en.pdf [Accessed on 16 January 2016].

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 1year

	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 SCHWEPPES 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 1year

	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)
ΔWorking 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: Diary 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
ΔWorking 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
Total Assets	**32870**	**28977**	**26753**	**23663**	**27056**

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

Appendix B. Computation of aggregate corporate cash flows

Table1. 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
Average Cash Dividend	**218.13**	**248.05**	**282.95**	**286.4**	**92.12**

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
Average Investments	**54.47**	**220.93**	**604.63**	**229.3**	**335.3**

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
Average investments lagged by 1year	**220.93**	**604.63**	**229.3**	**335.3**	**103.65**

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)
Average change in working capital	**36.53**	**(156.05)**	**42.08**	**(81.98)**	**(279.08)**

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
Average Internal Cash Flow	**589.93**	**819.92**	**756.57**	**821.13**	**765.38**

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
Average net debt issued	**219.43**	**(276.68)**	**172.9**	**(223.17)**	**390.55**

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)
Aggregate Net Equity Issued	**14**	**7.03**	**0,17**	**(1.68)**	**(11.73)**

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
Average total assets	**8156.52**	**7624.2**	**7704.38**	**7055.62**	**7897.15**

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

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

Notes:
a. Gearing = ratio of total debt to total assets
b. Data for computing total gearing is obtained from data stream, Fame database and Standard and Poors compustat
c. Total debt =Total of all long and short term debt
d. 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
Average total gearing	**0.3234**	**0.3295**	**0.3378**	**0.3357**	**0.3218**

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 = 0.4885	(£2.966 - £1.096 + £1.101888) / £2.966 = 1.0020	-£0.019 / £2.966 = -0.0064	Ln (3667000) = 15.1149
2002	£1.303 / £2.688 = 0.4847	(£2.688 - £1.028 + £1.687674) / £2.688 = 1.2454	£0.352 / £2.688 = 0.1310	Ln (2989000) = 14.9104
2003	£1.176 / £2.417 = 0.4866	(£2.417 – £0.982 + £1.440770) / £2.417 = 1.1898	£0.325 / £2.417 = 0.1345	Ln (2758000) = 14.8300
2004	£1.062 / £2.178 = 0.4876	(£2.178 - £0.949 + £1.435317) / £2.178 = 1.2233	£0.341 / £2.178 = 0.1566	Ln (2874000) = 14.8712
2005	£1.111 / £2.577 = 0.4311	(£2.577 - £1.016 + £2.585595) / £2.577 = 1.6091	£0.343 / £2.577 = 0.1331	Ln (3001000) = 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 = 0.3577	(£3.905 - £2.869 + £3.576386) / £3.905 = 1.1811	£0.534 / £3.905 = 0.1367	Ln(4418000) = 15.3012
2002	£1.421 / £4.377 = 0.3247	(£4.377 - £2.979 + £4.670875) / £4.377 = 1.3865	£0.602 / £4.377 = 0.1375	Ln(4545000) = 15.3295
2003	£1.406 / £4.710 = 0.2985	(£4.710 - £3.261 + £4.235453) / £4.710 = 1.2069	£0.664 / £4.710 = 0.1410	Ln(4909000) = 15.4066
2004	£1.459 / £4.913 = 0.2970	(£4.913 - £3.467 + £5.205253) /£4.913 = 1.3538	£0.691 / £4.913 = 0.1406	Ln(5165000) = 15.4574
2005	£2.252 / £5.813 = 0.3874	(£5.813 -£3.694 + £6.570890) / £5.813 = 1.4949	£0.742 / £5.813 = 0.1276	Ln(5622000) = 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 = 0.6497	(£0.9892-£0.3144 +£0.731378) / £0.9892 = 1.4215	£0.1773 / £0.9892 = 0.1792	Ln (1372700) = 14.1323
2002	£0.6959 / £1.0633 = 0.6545	(£1.0633-£0.2806 +£0.974938) / £1.0633 = 1.6530	£0.1742 / £1.0633 = 0.1638	Ln (1459200) = 14.1934
2003	£0.6706 / £1.0683 = 0.6277	(£1.0683-£0.3601 + £0.646152) /£1.0683 = 1.2678	£0.1901 / £1.0683 = 0.1779	Ln (1421200) = 14.1670
2004	£0.6724 / £1.0948 = 0.6142	(£1.0948-£0.3563 + £0.808478) / £1.0948 = 1.4130	£0.1663 / £1.0948 = 0.1519	Ln (1542100) = 142487
2005	£0.6178 / £1.0461 = 0.5906	(£1.0461-£0.3261 + £0.750123) / £1.0462 = 1.4053	£0.0958 / £1.0461 = 0.0916	Ln (1448800) = 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 = 0.1683	(£7.185-£2.64 + £9.153492) / £7.185 = 1.9065	£1.151 / £7.185 = 0.1602	Ln (5519000) = 15.5237
2002	£1.351 / £7.641 = 0.1768	(£7.641-£2.794 + £7.839085) / £7.641 = 1.6603	£1.159 / £7.641 = 0.1517	Ln (5298000) = 15.4828
2003	£1.633 / £10.195 = 0.1602	(£10.195 - £2.735 +£8.413726) / £10.195 = 1.5570	£1.091 / £10.195 = 0.1070	Ln (6441000) = 15.6782
2004	£1.613 / £7.433 = 0.2170	(£7.433 - £2.071 + £15.30174) / £7.433 =2.7800	£1.261 / £7.433 = 0.1696	Ln (6738000) = 15.7233
2005	£1.613 /£9.736 = 0.1657	(£9.736 - £2.859 + £10.049190) / £9.736 = 1.7385	£1.217 / £9.736 = 0.1250	Ln (6738000) = 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 = 0.4545	(£0.7014 -£0.1916 +£0.277527) / £0.7014 = 1.1225	£0.0836 / £0.7014 = 0.1192	Ln (1227900) = 14.0208
2002	£0.3237 / £0.7348 = 0.4405	(£0.7348-£0.1992 + £0.5814) / £0.7348 = 1.5201	£0.0861 / £0.7348 = 0.1172	Ln (1286300) = 14.0673
2003	£0.3451 / £0.8165 = 0.4227	(£0.8165-£0.2177 + £0.406021) / £0.8165 = 1.2306	£0.1064 / £0.8165 = 0.1303	Ln (1246500) = 14.0359
2004	£0.3212 / £0.7608 = 0.4222	(£0.7608-£0.2339 + £0.494043) / £0.7608 = 1.3419	£0.1113 / £0.7608 = 0.1463	Ln (1271200) = 14.0555
2005	£0.3227 / £0.7556 = 0.4271	(£0.7556-£0.2625 + £0.578666) / £0.7556 = 1.4148	£0.1259 / £0.7556 = 0.1666	Ln (1260600) = 14.0471

Table 6. Unilever (UK) PLC

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

Notes:
a. Source of data: Data stream database, Fame database, Perfect Analyse database, The Pinsent Mansons Company Guide, Annual Reports and Accounts
b. MV = This is the overall value of a company, i.e. the price that one must pay to buy the entire company.
c. EBITDA =The earnings if the company before all interest expense, depreciation, amortisation and provision
d. TA =The total net tangible fixed assets after deduction of accumulated depreciation
e. ECR =Equity share capital and reserves of the company
f. 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
Average TAN	**0.38315**	**0.37548**	**0.36236**	**0.37143**	**0.3622**

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
Average PRF	**0.12453**	**0.14503**	**0.14830**	**0.15408**	**0.13457**

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
Average LS	**15.22923**	**15.20175**	**15.2196**	**15.24603**	**15.25487**

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
Average MBV	**15.22923**	**15.20175**	**15.2196**	**15.24603**	**15.25487**

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