AN EMPIRICAL INVESTIGATION INTO THE DETERMINANTS OF CORPORATE CASH HOLDINGS: THE CASE OF KENYAN QUOTED COMPANIES

BY

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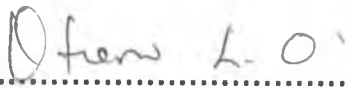
NOVEMBER, 2003

DECLARATION

THIS RESEARCH PROJECT IS MY ORIGINAL WORK AND HAS NOT BEEN
PRESENTED FOR A DEGREE IN ANY OTHER UNIVERSITY.

SIGNED:...

DATE:.....7TH November 2003.................

THIS PROJECT HAS BEEN SUBMITTED FOR EXAMINATION WITH MY APPROVAL
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DATE:.........7-11-2003.........................

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DEDICATION

This research project is dedicated to Stella my wife, my daughters Wairimu and Neema and to my immediate family; My Mum Wairimu Muriithi, Ruheni, Wacera, Kiama, Muthui, Nyawira and my dear departed brother, Munyari.

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Last but not least to my daughter Nimu for allowing daddy to sit at the corner of the room to complete his assignments in peace! For Neema Ningala my new-born daughter, you can attempt to cry all night (if you wish), as daddy is now available to sing you a lullaby.

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ABBREVIATIONS

NSE	-	Nairobi Stock Exchange
CFLOW		CASHFLOWS
LIQ		LIQUIDITY
LEV		LEVERAGE
SIZE		SIZE
VAR		VARIABILITY
MAT		MATURITY
CASH		CASH

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ABSTRACT

Relatively few empirical studies have been carried out to establish the determinants of corporate cash holdings. The few carried out e.g. Ozkan (2000) were carried out in the developed markets and their applicability in developing markets such as Kenya is not known. Therefore, the purpose of this study was to finding out how specific firm-characteristics affect level of cash held in firms.

This study empirically examines the determinants of corporate cash holding for Kenyan companies. Finance and economic literature give three motives why firms and individuals hold cash as; the transaction motive, the precautionary motive and the speculative motive. Weston (1998)

Our sample is based on 28 firms in the three non-financial sectors of the Nairobi Stock Exchange (NSE). The firms in the financial sector were excluded from the sample since their cash balances are dictated by law, most significantly the Kenyan Banking Act.

On constructing industry-wide cash-holding models, we find that Growth, cashflow variability, profits, size and maturity structure of long-term debt have significant influence on corporate cashholding. However, liquidity; leverage and cashflows have no significance in determining cashflows.

We have also developed firm-specific cash-holding models for each of the 28 firms and find that the firm specific characteristics are very important in determining the best cash holding models. However, impact of these factors in different across the firms. We find that at firm level, the influence of debt maturity structure is not significant for cash-holdings decisions. This mirrors the finding by Ozkan (2001) who was carrying out a study on UK firms. The insignificance of maturity structure of long-term debt may be because Kenyan firms are mainly financed using internally generated funds and short term bank overdrafts.

Further, we did not find evidence-supporting liquidity as an important factor in determining the levels of cash-holding decisions.

Our findings also reveal that unobserved firm heterogeneity, as reflected in the firm-specific fixed effects, is significant in affecting cash holding decisions of firms.

The implications of our findings are that firms need to identify the characteristics that have the greatest impact on their cashholding behaviour and the appropriate cash levels should thus be determined using the appropriate firm-specific models.

CHAPTER 1

1.0 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

There are several of reasons why firms hold cash; these include transactional and precautionary as well as speculative reasons. The reasons why firms hold particular amounts of cash have recently been subjected to some empirical testing.

Ouma (2001) reports that Kenyan firms finance their cash balance entirely, either through short-term borrowing, combination of short and long-term borrowing or from sales. Cash from internal sources such as receipts from sales are preferable and are cheaper than borrowed funds. Borrowed founds should only be used when receipts from sales are uncertain.

Ozkan (2000) finds evidence that provides strong support for the hypothesis that growth options, size and cash flows of firms exert a positive impact on firms' cash holding decisions and that firms with other liquid assets tend to hold less cash. However, there is less support for the view that firms use high debt capacity as a substitute for cash holdings. Further, he finds that that maturity structure of debt does not play a significant role in firms' cash-holding decisions whereas source of debt matters. Finally, he suggests that unobserved firm heterogeneity and endogeneity problems are crucial in analysing firms' cash holding decisions.

The level of cash holding can be an indicator of the success or failure of the firm. Kiragu (1991) on the other hand finds that most firms in Kenya fail due to poor funds management and unwise debt policies and the implications are that firms must maintain sufficient liquidity to avoid insolvency problems.

Ouma (2001) who conducted a survey of the cash management approaches used by companies quoted at the Nairobi Stock Exchange finds that these firms have specific cash-management approaches. Finance theory provides various models for determining level of cash balances, these include, the traditional cash budget, the Baumol Model, the Miller-Orr

model, Lockyer's Models and the Beranek model. Ouma did not find evidence of the companies using any of these models exclusively but rather, a combination of two or more. Ouma (2001) also finds that sales trends are the most important factor in determining cash levels to hold.

We therefore intend to investigate the determinants of cash holding for Kenyan firms. Our sample will be the companies quoted on the Nairobi Stock Exchange between 1992 and 2001. We shall specifically analyse the effect of the following factors on cash holding: Size, profitability, cashflow, liquidity, leverage, cashflow variability, growth options and the maturity structure of debt.

1.2 CONCEPTS AND TERMS

1.2.1 Cash and other marketable securities

Nikolai (1980) defines cash as coins and currency notes on hand, deposits in checking, savings accounts, and cheques that have been received but not yet deposited. Marketable securities are investments in capital stocks, bonds or commercial paper that are readily saleable. For the purpose of this study, we shall use the term cash to mean both cash and marketable securities.

For our empirical testing, we shall take the ratio of cash and cash equivalent items to total assets to be a proxy for cash holding. The cash-equivalents have been included in the definition because these represent assets that can be converted into cash within the shortest time and the minimum cost.

1.2.2 Liquidity

Cash and marketable securities are the liquid assets of a company. Liquidity is the measure of the time in which the asset will be converted into cash. Therefore, cash-in is the ultimate form that all the current assets will eventually take. This is also true about fixed assets during company liquidation. Conventional accounting define liquidity as the difference between current assets and current liabilities . For our study, we shall take Liquidity to be the ratio of net current assets minus cash and cash equivalents to total assets.

1.2.3 Cashflow

Cashflow is operating income plus depreciation and amortisation minus interest expenses minus taxes minus dividends. For the purpose of this study, we shall take the ratio of pretax profits plus deprecation plus amortisation to total assets to be the proxy for cashflow.

1.2.4 Best – Fit Model

We shall be developing our cash-holding model using the multiple regression analysis. We shall start with the "original model" which will be the model incorporating all the 8 predictor variables i.e. Cashflows, Profitability, Size, growth, Cashflow variability, Leverage, liquidity and maturity structure of debt.

As expected some of these eight variables may not have a significant effect on the model and there will thus be dropped from the regression. The best-fit model will thus be the regression with a significant F-value and significant t-statistics for the regressor coefficients.

1.3 STATEMENT OF THE PROBLEM

Empirical studies to establish the determinants of corporate cash holdings e.g. Ozkan (2000) were carried out in the developed markets and their applicability in emerging markets such as Kenya is not known.

Prior research in Kenya such as (Kiragu 1991 have found out that cash is a very important component of the internally generated funds that firms in Kenya rely on heavily for financing. The levels of cash holdings may thus determine the success of a company and conversely lack of cash may lead to the company being placed under receivership or forced into liquidation. Tilles (1963) also reports that cash is one of the safest source of funds and companies that wish to reduce their short-run risk will therefore attempt to accumulate as much cash as they can. Consequently, the subject of corporate cash holdings requires special attention.

Warren et al (1962) reports that one of the major post world war II developments was the increased interest in cash management. Factors such as rapid growth, which was putting

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serious strain on cashflow, made company treasurers engage in aggressive cash management.

Donaldson (1962) observes that management tends to focus on the effects of various actions on cashflow, particularly those in the immediate future. He says that there are circumstances whereby an increase in corporate cashflow retained for internal use may be obtained only at some sacrifice of growth in the property values as measured by the market price.

Ouma (2001) also finds that Kenyan companies consider sales trends as the most important factor in determining cash levels to hold.

There are studies examining the impact of large cash holdings on corporate performance, which have produced mixed findings. For example, Opler et al. (1999) provides evidence that large cash holdings enhance corporate performance.

Ouma (2001) also reports that proper investment of excess cash yield extra profits for such firms and the subsequent need to attain an optimum level of cash holding can not be over-emphasised.

1.4   HYPOTHESIS

The following hypothesis will be tested:
H_0 Size, Growth Options, Cashflows, Cashflow variability, Leverage and maturity structure of long-term debt **do not** influence the level of cash cash-holding.

H_1 Size, Growth Options, Cashflows, Cashflow variability, Leverage and maturity structure of long-term debt influence the level of cash holding.

1.5   OBJECTIVES OF THE STUDY

i)   To determine how the following firm-specific characteristics affect the level of cash holding in firms: Maturity structure of long-term debt, Growth Opportunities, Size, Cashflow variability, Leverage, Liquidity

ii)   Highlight the differences in cash holding practices for the different sectors.

iii)   To document the cash-holding practices of Kenyan companies.

iv)   Document other significant characteristic of firms quoted on the Nairobi stock exchange.

1.6   IMPORTANCE OF THE STUDY

The study is considered important because of the following purposes:

a)   Finance and Treasury Managers

This study will help finance officers and treasury managers to develop the optimum cash holding levels based on the individual firm circumstances.

b)   Investment Practitioners

This study should be of use to security analysts, stockbrokers, investors and other parties whose knowledge of the relationship between cash holding and other factors to analyse specific firms.

c)   Academicians and Researchers

This study is meant to be a base for further research and as a point of reference; for both academics and researchers for it will provide insight into the characters of the firms quoted on the NSE.

1.7   OVERVIEW OF THE REPORT

The report of this project divided into five chapters. Chapter 1 is the introduction and it covers the background information, statement of the problem and the importance of the study.

Chapter 2 is the literature review and sets out the available theoretical and empirical evidence to the subject of corporate cash holding. This literature specifically looks as the importance of the following factors to corporate cash holding: Firm size, liquidity, profitability, maturity structure of long-term debt, cash flow variability, growth and leverage

The third chapter covers the research design and methodology. It covers the population of interest, the data collection method and the data analysis tools. This study is empirical in nature and analysis will mainly be though multiple regression analysis.

Chapter four sets out the analysis of the data collect interpretation and discussion of the findings.

The final chapter is number five, which provides a summary of findings and conclusions together with recommendations. It also highlights the limitations of the study and gives suggestions for further study.

CHAPTER 2

2.0 LITERATURE REVIEW

2.1 WHY FIRMS HOLD CASH

One of the major explanations given as why firms hold cash and marketable securities is that these assets provide low cost financing for firms. This is importantly so in Kenya and other developing markets where the financial markets are underdeveloped and hence a poor source of external financing. (Kiragu 1991) The problems of under-investment and asset substitution (Myers, 1977) make external financing unattractive. Managers trying to minimise the costs associated with external financing may find it optimal to maintain sufficient internal financial flexibility.

Finance and economic literature give three motives why firms and individuals hold cash. Weston(1998) suggests three reasons for holding cash; the transaction motive, the precautionary motive and the speculative motive.

2.1.1 The transaction motive is to enable the firm to conduct its ordinary business – making purchases and sales. This is the most basic reason why firms hold cash. Cash is the most widely accepted form of settling transaction because other modes such as batter suffer from many disadvantages. One of the major explanations given as why firms hold cash and marketable securities is that these assets provide low cost financing for firms. The transaction motive predicts that firms with higher transactional demand will hold relatively less readily available cash. (Deloof, 1998)

2.1.2 The precautionary motive relates to the predictability of cash inflows and outflows. If the predictability is high then less cash must be held against an emergency or any other contingency. Kim et al. (1998) finds that firms that face higher external financing costs, that have more volatile earnings, and those having lower returns on physical assets relative to those on financial securities tend to have significantly larger proportions of liquid assets to total assets. This is perhaps to ensure such firms have more of cash, which is a more secure and cheap source of financing.

The precautionary motive for holding cash is based on the firms inability to raise funds. In particular, while firms may have access to capital markets to raise the necessary financing, they may not want to do so at a particular point in time because the securities they are planning to issue are undervalued. Myers and Majluf (1984) argue that firms can overcome this problem by building up financial slack, which they define as cash, cash equivalents, and unused risk-free borrowing capacity.

2.1.3   Companies also hold cash with a speculative motive. This is to enable the company to take up any profit-making opportunities arising. For large corporations with huge daily inflows of cash, such cash is invested in short term bank deposits or is even lent to other companies or banks for overnight lending.

2.2   **EMPIRICAL EVIDENCE ON CASH HOLDING**

Almeida (2001) contends that cash holdings are valuable because they increase the likelihood that the firm will be able to fund new investments. However, increasing cash may be costly for a firm if it decreases the quantity of current investments that the firm can make. Cash yields a lower return than that associated with the firm's physical investments whenever the firm foregoes current positive NPV projects in order to hold cash. In contrast to a firm facing constrained access to capital markets, an unconstrained firm (i.e., a firm that invests in all of its positive NPV projects) has no use for cash, but faces no cost of holding cash.

Another potential adverse effect of cash holdings is agency conflicts existing between shareholders and managers which can be most severe when firms have large free cash flows (Jensen, 1986). Managers pursue their own interests at the expense of shareholders and cash serves more the interests of managers than those of shareholders in this respect. Furthermore, large holdings of cash reduce disciplinary pressure on managers.

Dittmar et al (2002) tested whether financially unconstrained firms whose managers are likely to have little or no incentives to adopt value-maximising policies (e.g., have low ownership) manage firm liquidity as if they were financially constrained. Dittmar et al finds weak evidence in support of the agency view of corporate liquidity management.

Opler et al (1999) report that the short-run impacts of excess cash holding on the capital expenditures, acquisition spending and payouts to shareholders is small. Further, the main

reason that firms experience large changes in excess cash is the occurrence of operating losses. There is however, no evidence that risk management and cash holdings are substitutes.

Schure (1998) finds that cross sectional regressions that suggest that cash-holdings be positively correlated with proxies for agency problems and those firms can not borrow easily. This forces the firms to hold cash stocks as a precaution to prevent shortfalls in cashflows from impinging on investments.

Almeida et al (2002) looked at agency problems associated with over-investment by managers. Previous studies have argued that, to the extent that ownership is not perfectly set, managers with lower ownership could be more prone to value-destroying over-investment. Accordingly, increases in ownership might lead to sub-optimal managerial behaviour, which translates into a decreased propensity to save cashflows.

Blanchard, Lopez-de-Silanes, and Shleifer (1994) present evidence that large cash holdings affect firm behaviour. They looked at 11 firms that received cash windfalls over the period 1980-1986 without affecting their investment opportunity set. Generally, they find that these firms do not return the funds to equity-holders or debt-holders, but use it for endeavours that are not value creating, on average.

2.3 DETERMINING THE TARGET CASH BALANCE
2.3.0 INTRODUCTION

Finance literature has shown that firms must have some target cash. This is the preferable level of cash that the firm holds to meet its day to day liquidity needs. Any decisions made aims at ensuring that the target cash ratio is achieved at all times.

2.3.1 THE TRADITIONAL CASH BUDGET.

The traditional cash budget is used to determine the expected cash inflows and outflows of cash for a specific period. These are usually done on a monthly and annual basis. Excess cash and cash deficiencies are identified early and planning is thus initiated either to utilise the excess cash or to seek for sources to cover cash deficits.

2.3.2 THE BAUMOL MODEL

The Baumol model may be used for determining the target cash balance. It assumes a constant flow of cash disbursements and assumes that the firm only receives cash at the end of a specified period. It assumes that the timing for inflows is at the end of the period. With the inflows and outflow patterns determined, then the firm is able to set an average cash balance which is the target cash (Ross, 1990).
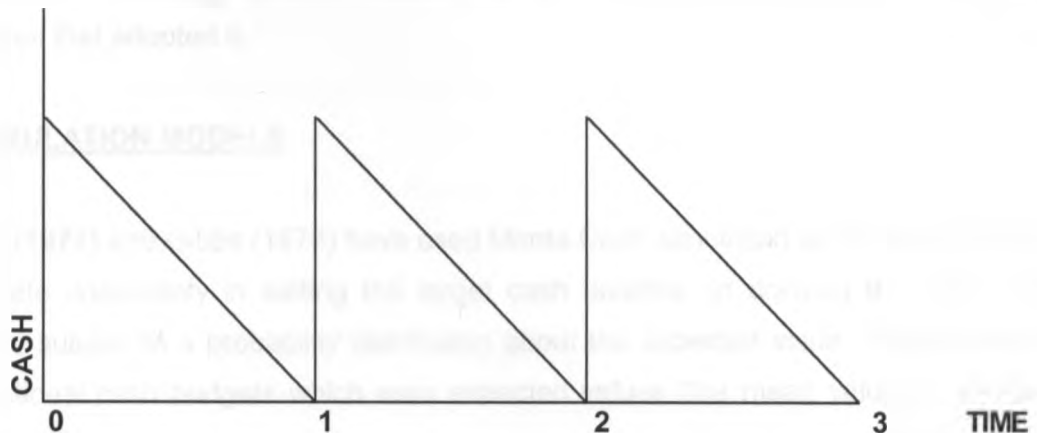
Graph 1: The Baumol Cash holding model (Weston 1998)

2.3.3 LOCKYER'S MODEL

Lockyer (1973) developed Baumol model further by bringing in the idea of bank overdrafts. He however like Baumol assumed that receipts are instantaneously converted into interest earning assets. This model considers the availability of overdraft facility as an extra source of cash. The minimum cost of financing would thus be determined by comparing overdraft interest against any short-term interest income. One of the drawback of the model is that it assumed the availability of overdrafts while in fact the firm has no control over the facility since the bank can recall it at anytime.

2.3.4 THE MILLER-ORR MODEL

The essence of the Miller-Orr Model assumes that firms set a lower limit on cash-holdings based on the likelihood of a cash shortfall and the firms' willingness to tolerate the risk of a shortfall, then an upper limit is set by applying the model. This is a better model than the Baumol model because it recognises the fact that cashflows are uncertain. This model is also advantageous in that it can be adjusted for seasonal trends by construction of cashflow distributions that take into account probabilities of increases and decreases in the cash balance. Chastain (1987) reports that the model performed extremely well in companies that adopted it.

2.3.5 THE SIMULATION MODELS

Archers (1972) and Gibbs (1976) have used Monte Carlo simulation to develop models that incorporate uncertainty in setting the target cash balance. In drawing the cash budget, sales are subject to a probability distribution about the expected value. This contrast with the traditional cash budgets which uses expected values (the mean values of probability distribution for sale). The greater uncertainty faced by an enterprise means the greater is the risks of running out of cash and a higher cash balance. Archers model incorporates precautionary balances and calls for the plotting of the cash inflows and outflows on a graph to be able to determine the minimum cash and maximum cash required. Gibbs (1976) suggested that the pattern of determination of optimal cash balances involve a combination of investment and financial decisions.

2.3.6 OZKAN'S DYNAMIC CASH-HOLDING MODEL

The above three models are static in that they assume that firms can instantaneously adjust towards their target cash structure after changes in firm-specific characteristics. Ozkan (2000) proposes a dynamic cash holding model, which recognises the fact that firms can not in reality automatically adjust their cash holding, instead there will be time lags between the event and the actual cash-holding adjustment. In this case then the target cash changes over time and across firms.

2.3.7 COMMENT ON THE MODELS

Ouma (2001) finds that firms in Kenya use a combination of any of the above models discussed to determine the cash-holding levels. She did not find evidence of any single firm using purely a single model.

We shall not be investigating the models in use in Kenya but we shall use the static cash-holding model as used by Ozkan (2000) to determine the significance of specific firm characteristics in the cashholding decision for Kenyan companies.

2.4 FACTORS INFLUENCING CASH-HOLDING

In this section, we provide a brief review of the firm-specific characteristics identified by theory as relevant in determining firms' cash-holding policies.

2.4.1 MATURITY STRUCTURE OF LONG-TERM DEBT

The face value long-term debt can be either be repaid as a lumpsum at the end of the loan period or it can be settled in periodic instalments. Bond covenants will give different maturity structure depending on the agreement between the borrower and lender.

There are several reasons why maturity structure and sources of debt financing might exert influence on the firm's cash holding decision. For example, it is argued that short-term debt is riskier than long-term debt because it creates a liquidity risk (Kiragu (1991). Firms with higher debt of shorter maturity facing liquidity risk would then be expected to hold more cash than those with debt of longer maturity.

One element of risk of borrowing is the risk that the firm's cash inflows will not be sufficient to cover the fixed outflows necessary to service the debt. One way in which to attempt to deal with this risk is to follow a hedging policy whereby the maturity of debt is chosen to approximately equal the life of the asset. This assumes that the cashflows generated by the asset will be sufficient to service and retire the debt.

Maturity is thus the ratio of the debt that matures in more than one year to total debt and we thus expect a negative correlation between maturity structure of long-term debt to cash holding.

2.4.2 GROWTH OPPORTUNITIES

The main purpose of firms is to create wealth for the shareholders. For firms to continuously meet this objective they must identify and seize growth opportunities. A firm can grow organically through expansion of existing products or it might increase its size and revenue streams by acquiring other existing firms, through acquisitions or mergers.

It is predicted that there is a positive relation between holdings of cash and marketable securities and growth opportunities of firms. This prediction is based on the view that external financing is more costly for firms with greater growth opportunities and, in order to avoid costly external financing, these growth firms accumulate more cash.

Hitt et al (2001) reports that in the 1970's cash was a very popular medium of financing acquisitions. However, in the 1980's the emphasis was placed debt as a primary means of such financing. However, due to the high cost for financing the use of debt dramatically reduced in the 1990's to be replaced by use of stock. However a mix of debt, cash and stocks was being used in the late 1990, for instance the Swiss drug maker Roche agreed to pay about $ 1.1 billion to acquire Corange, the parent company of the German company Boehringer Mannheim GmbH, the number two diagnostic company in the world then. This was paid in cash since Roche had a cash balance of 5 Billion Swiss Francs (3.54 Billion US).

Opler et al. (1999) provides evidence that firms hold liquid assets to ensure that they will able to keep investing when cashflows is too low relative to planned investment and when outside funds are expensive.

In addition, since firms with high growth opportunities have a higher appetite for cash, they subsequently face more costly external financing to fund the opportunities. They thus exhibit higher agency costs. It can also be argued that firms with greater growth opportunities are expected to incur higher bankruptcy costs. This is because although growth opportunities are capital assets, which add value to a firm, they cannot be collateralized and do not generate current income. They are intangible in nature and their value will fall precipitously in financial distress and bankruptcy. Larger expected bankruptcy costs would imply that firms with greater growth opportunities have larger cash holdings to avoid financial distress and bankruptcy.

Myers (1977) finds that firms with risky debt pass some of these valuable investment opportunities. In addition, firms with greater investment opportunities would hold greater amounts of cash in attempts to ensure that they do not give up valuable investment opportunities due to lack of cash.

Dittmar et al (2002) finds that manufacturing firms from industrial sectors that need more outside financing benefit more from developed capital markets. They also find that firms in industries with more dependence on external finance have more cash. Interestingly, this effect weakens significantly in countries with poor shareholder protection. This lack of concern for external financing needs is further evidence of the agency motive for cash holdings. If firms simply held cash because it is more difficult to raise outside financing when shareholder protection is weak, we would have expected the opposite effect.

To proxy for growth opportunities of firms the past studies use the market-to-book ratio defined as the ratio of book value of total assets minus the book value of equity plus the market value of equity to book value of assets. Due to unavailability of information, this study will use the year on year increase in total assets to proxy for growth. Another method to proxy for growth would be to take the year on year increase in turnover.

We thus take the position that growth itself is manifested by increase in total assets or sales of the firm. Beltz (1996) finds that sales or by total corporate assets can be used interchangeably to account for size of the firm.

2.4.3 SIZE

In finance the size of the firm is depicted by the value of the assets and the size of It annual revenues.

Opler et al. (1999) report that large firms with greater access to the capital markets and those with high credit ratings tend to hold lower amounts of cash. They also argue that there could be economies of scale in cash management that are related to firm size.

It is argued that larger firms are more likely to be diversified and thus less likely to experience financial distress. Conversely, smaller firms are more likely to be liquidated

when they are in financial distress. (Titman and Wessels, 1988). The above argument suggests a negative relationship between size and cash holdings of firms.

Faulkender (2003) also finds that that small, non—rated firms and firms with strong investment opportunities and riskier cash flows hold more cash.

Beltz (1996) reports that firm size by itself, whether measured by sales or by total corporate assets, does a remarkably good job of accounting for corporate cash positions. Larger firms hold a lower proportion of their assets in the form of cash. There is good evidence of economies of scale in firm size. This relationship is highly stable across years. He also finds that distinguishing between sales and total assets as measures of firm size is difficult since they seem to play very much the same role in accounting for corporate cash holdings.

We use the logarithm of total assets for every year to proxy for the size of firms.

2.4.4 CASHFLOW

Myers and Majluf (1984) argue that in the presence of asymmetric information and signalling problems associated with external funding, firms tend to follow a hierarchy in their financing policies. Thus, firms have a preference for internal over external finance, and for debt over equity.

Myers and Majluf (1984) is also supported by Ouma (2001) who finds that limited number of Kenyan firms use long-term debt to finance their cash position. Therefore, such firms with high cash flows are therefore expected to have higher cash for possible use to finance any growth options. In either way, one would expect a positive relation between cash flow and cash holdings.

On the other hand, cashflow might exert a negative impact on cash-holdings of firms. Kim et al. (1998) argues that cash flow provides a ready source of liquidity for investment and maturing liabilities. Furthermore, the risk of having to pass up valuable investment opportunities and facing financial distress is lower for firms with higher cash flows. Accordingly, such firms can afford to have lower cash holdings.

We measure cash flows as the ratio of "cash-flows from operations" to total assets. We use "cashflows from operation" as computed in accordance with International Accounting Standards (IAS) Standard Number 8.

2.4.5 PROFITABILITY

Profit is measured as the net of all income after all expenses for one year before taxes. Profit is an accounting measure. Although this measure has been criticised as to be subjective and subject to the manipulations of the management of firms, we intend to check the effect of profitability to cashflows because of the following reasons.

The period we shall be looking at is 10 years across 28 firms (therefore 280 observations), Whereas management may "window dress" their results, they may not do so for 10 years.

The reason for considering profitability as one of the firm-specific variables affecting cash-holding is that profit announcements convey to the market credit worthiness of the firm. It also gives the indication of the growth prospects of the firm.

We thus hypothesise that profitable firms would be in a better position to attract financing for their cash needs and hence do not need high levels of cash holdings.

The converse is also true, whereby lenders and banks may not be willing to lend cash to firms making losses. In addition, prolonged loss making increase the risk of insolvency and such firms may want to preserve cash to pay maturing debts and trade credits to avoid being put into receivership.

We take profitability to be the ration between profits before tax divided by total assets.

2.4.6 CASH FLOW VARIABILITY

Firms are able to predict and forecast the cashflows overtime. Cashflows variability is thus the difference between the actual cashflows and the expected cashflows.

Perhaps the single most important type of risk for the corporate treasurer is due to fluctuations in the operating cash flows. The treasurer needs to ensure that the company has money available when and where it is needed, and yet needs to ensure that the firm's

financial resources are not being under-utilised. The greater the firm's cash flow variability, the greater the number of states of nature in which the firm will be short of liquid assets. As mentioned earlier, it may be costly to be short of cash and marketable securities if the firm has to pass up valuable investment opportunities. There is evidence that firms with cash shortfalls do indeed fail to take up some of the valuable growth opportunities. For example, Pinkowitz (2001) show that firms with higher cash flow volatility permanently forgo investment rather than reacting to cashflow shortfalls by changing the discretionary investment timing.

Firms with better investment opportunities are expected to hold more cash because the opportunity cost of lost investment is larger for these companies. Similarly, firms with more volatile cash flows are expected to hold more cash to protect against the higher likelihood of cash shortfalls. (Dittmar et al 2001).

The measure we use for cashflow variability is: the standard deviation of the first difference in cash flows scaled by the average book value of total assets for 4 years prior to the current year.

2.4.7 LEVERAGE

The impact of leverage on cash-holdings decisions of firms is not clear-cut. On the one hand, to the extent that leverage ratio acts as a proxy for the ability of firms to issue debt one would expect a negative relation between leverage and cash holdings. This is because firms can use borrowing as a substitute for holding high levels of cash and marketable securities. Moreover, Baskin (1987) argues that the cost of funds used to invest in liquidity increases as the ratio of debt financing increases. This, in turn, implies a reduction in cash holdings with increased debt in capital structure.

However, one should note that higher debt levels could increase the likelihood of financial distress. In that case, one would expect a firm with a high debt ratio to increase its cash holdings to decrease the likelihood of a financial distress. This would induce a positive relation between leverage and cash holdings. Leverage is measured by the ratio of total debt to total assets.

2.4.8 LIQUIDITY

An alternative idea about corporate liquidity was recently suggested by Chrysler Chairman Robert Eaton. Chrysler's main shareholder Kirk Kerkorian claimed that Chrysler was holding too much cash. He therefore tried to force management to reduce the cash position by increasing the payouts to shareholders. However, Mr. Eaton argued that next time there would be a downturn in the auto industry, Chrysler would be much better off due to having built up its cash position. Had it not done so, it would face the risk of bankruptcy. (Beltz 1996).

We predict that there is a negative relation between the firm's cash holdings and its liquid assets. To the extent that firms can use other liquid assets besides cash when they have cash shortfalls, these assets can be seen as substitutes for cash holdings. We use the ratio of net working capital, minus cash to total assets as a proxy for liquid asset substitutes.

2.4.9 SALES

Ouma (2001) finds that sales trends are the most significant factors in setting the highest cash balance levels that quoted companies should hold. Next in importance are expected investments and the variability of cash sizes.

We have not considered sales trends as a predictor in our model as we are using cashflows from operations, which is a better predictor of cash balances than sales.

2.4.10 OWNERSHIP STRUCTURE

Ownership structure can be a proxy for agency problems and thus closely held firms have lesser agency costs as the owners are able enforce stricter monitoring to the managers. One way the shareholder may control agency costs is to leave less cash in the firm. However, the effect of concentrated ownership may go either direction. Larger ownership stakes by the largest shareholder may give him more power, which he uses to remove the

temptation of free cash from within the firm by lowering cash balances. Faulkender (2003) finds that firms with more shareholders have more cash, which can be interpreted as less monitoring due to the greater diffusion of ownership leading to leaving more cash in the firm. However, the finding is also consistent with firms that have had greater access to capital in the past having higher observed cash holdings. While ownership, structure is certainly relevant, whether that effect is due to the impact of agency costs or the availability of capital is uncertain.

2.4.11 AGENCY THEORY

Dittmar et al (2002) finds that agency problems are an important determinant of corporate liquidity. For a sample of more than 11000 firms from 45 countries, he find that corporations in countries where shareholders rights are not well protected hold up to twice as much cash as corporations in countries with good shareholder protection. In addition, when shareholder protection is poor, factors that generally drives the need for liquidity, such as investment opportunities and asymmetric information, actually become less important. These results strengthen after controlling for capital market development. In fact, consistent with the importance of agency costs, we find that managers actually hold larger cash balances when it is easier to access capital markets. Our evidence indicates that investors in countries with poor shareholder protection cannot force managers to disgorge excessive cash balances.

We shall not be building this firm-specific factor into our model, as we want to limit the model into more manageable variables.

2.4.12 OTHER FACTORS

The factors in 2.4.1 to 2.4.6 are the firm-specific factors that will be subject to our analysis. However, we note that the cash-holding behaviour of firms may also be influenced by other factors beyond the control of the firm. Such factors are general macro economic conditions prevailing in the country.

Macroeconomic aggregates could be an important determinant of firms' cash–holding behaviour. As such volatility in macroeconomic conditions would affect managers' determination of the appropriate level of liquid asset holdings. Hence, a firm facing higher

uncertainty in its cash flows may find it optimal to accumulate liquid assets, in the form of cash, in order to offset the adverse effects of negative cash flow shocks.

Given that all managers will face this choice to a greater or lesser degree, we expect that changes in macroeconomic stability will trigger adjustments in firms' liquid assets holdings as managers react to volatile economic conditions. Naturally, this would thus generate variations in the cross–sectional distribution of corporate cash holdings. Baum C F et all (2003) reports that large firms, durable–goods makers, high–growth firms and financially constrained firms make larger adjustments in their cash holdings in response to macroeconomic volatility than will smaller or more slowly growing firms, those producing non–durable goods, or those who do not face financial constraints.

We now consider some these factors here.

2.4.12.1 Interest rates

Beltz (1996) finds that the transactions theory as in Miller and Orr (1966) makes successful predictions about economies of scale in corporate cash demand, and interest rate effects. He finds that in years with high volatility of short-term interest rates corporate cash holdings are elevated. He gives an example of the 1987 stock market crash in the US that induced a doubling of corporate cash holdings, as firms moved out of other short-term investments.

Corporate treasurers react to changes in the term structure of interest rates, by altering the mix of cash and short-term investments in the company portfolio. Second, beyond that theory major factors determining corporate demand for liquid assets including money, are the risks faced by the firm. Beltz thus concludes that holding money appears to be an important element of how companies manage risk. This is true for firms of all sizes, but of particular importance for smaller firms.

2.4.12.2 The power of Banks

The power of bank to levy interest and to decide the levels of interest to charge are determined by the competitive environment as well as the government regulations on the banking sector. The relative power can thus be looked at on a country to country basis. Loan covenants entered into by bank and the customers can determine the power that the bank can exert on such customers. Pinkowitz and Williamson (2001) focus on the large

cash holdings in Japan. They argue these holdings derive from the power exerted by the strong Japanese banks and they find that these holdings decline as bank power weakened over time.

2.4.12.3   Price changes and Taxation

Korir (2001) finds evidence to support that cash flows of firms in the Oil Sector in Kenya are significantly influenced by changes in the values of tax rates, fuel prices and exchange rates.

2.4.12.4   Technology

James Gleick describes cash as flows: "Cash is dirty... cash is heavy...cash is inequitable...cash is quaint, technologically speaking, cash is expensive.... cash is obsolete. Thus, the prediction that cash would be replaced by more advanced electronic transfers and e-moneys of assorted varieties. This has however not happened and the impact of the non-cash payment systems is yet to significantly replace cash. Goodhart (2002).

CHAPTER 3

3. RESEARCH METHODOLOGY

3.1 RESEARCH DESIGN

This research is an empirical study based on data recorded at the Nairobi Stock Exchange. The NSE has 52 quoted companies, of which 18 are on the banking and financial sector. Since the cash holding for firms in the banking and financial sector are controlled by the Banking Act, these firms have thus been excluded from our study. The non-financial firms were thus 34 firms of which we could not get data for 6 firms leaving us with 28 firms in the other sectors namely; Agricultural, Industrial and commercial and allied Sector.

3.2 POPULATION AND SAMPLE

The study is restricted to quoted companies because of the difficulties that would be experienced in getting data from private companies. The sample is the set of all firms for which data are available from the NSE database. The panel data set for this study will be constructed as follows. Firms in the banking and the financial sector are excluded because their levels of cash holding is determined by the Banking Acts as well as other rules regulating banks and financial institutions. Second, missing firm-year observations for any variable in the model during the sample period will be dropped. This criterion is designed to provide us with sufficient pool of companies to carry out the research.

From the above procedure, we end up with 28 firms for study. These are listed in appendix II

3.3 DATA COLLECTION

The data collected was secondary data obtained from the NSE secretariat. This was extracted from the companies' annual financial statements.

3.4   DATA ANALYSIS: INFORMATION

Thus to come up with a valid empirical evidence of the determinants of corporate cash holdings, the information was sought and analysed. The dependent variable is cash.

TABLE 3.1 Summary of independent variables and expected coefficient sign

	Information / Independent Variable	Abbreviation	Expected Correlation	Definition
(a)	CASHFLOWS	CFLOW	Positive	Is the ratio of pretax profits plus depreciation to total assets. A positive correlation is expected because an increase in cashflows results in an increase in cash balances
(b)	LIQUIDITY	LIQ	Negative	Liquidity is the ratio of net current assets (less cash and cash equivalents) to total assets. The expected correlation between cash and liquidity is negative because firms can use their liquidity, (i.e. net working capital, minus cash) as substitute to cash holdings.
(c)	LEVERAGE	LEV	Negative	Leverage is the ratio of total debt to total assets. A firm with debt requires more cash to settle periodic interest payments and the par value of debt. This exerts negative pressure in the levels of cash held.
(d)	SIZE	SIZE	Negative	Size Is the log of total assets. We Expect larger firms to have easier access to the capital markets compared to smaller firms.
(e)	VARIABILITY	VAR	Positive	Variability is the standard deviation of ($CASG_t$ - $CASH_{t-1}$), divided by average total assets for 5 years before the current year (At least 6 years if the data is missing). Basing on the argument that firms require to keep some precautionary cash, the higher the variability of inflows, the more cash the firms needs to keep to cater for the periodic outflows.

	Information / Independent Variable	Abbreviation	Expected Correlation	Definition
(f)	MATURITY	MAT	Negative	This will be the ratio of the debt that matures in more than one year to total debt The expected correlation is negative meaning that the more long-term debt a firm holds, the less cash they need to keep.
(g)	CASH	CASH	Not Applicable	Is the ratio of cash and cash equivalents to total assets. *This is the dependent variable and the variables 1 –6 above will be use to explain the variations in the variable.*

TABLE 2

Table 2 below shows other information that is crucial in the computation of the independent variables.

	Information	Abrev.	Definition
1.	TOTAL DEBT	-	This is the total long-term debt plus the current portion of long-term debt.
2.	TIME	T	Time dummies will be included in all the regressions
3.	NUMBER OF FIRMS	N	28 In Number as quoted on the Nairobi stock Exchange, excluding the firms in the banking and financial sector

3.5 JUSTIFICATION OF THE DATA ANALYSIS METHOD

A static cash-holding model derived using multiple regression has been used.
The independent variables will be the six firm-characteristics as shown in table 1 above. The cash holding will be the dependent variable. We shall also carry our significance tests to ensure that observed relationships are significant and not spurious.

The reason for adopting this static model is that the data available is annual. In addition for the predictor variables were are taken the previous three years average to predict the

current year cash. We can therefore safely assume that the observed cash is explained by the movements in the predictor variables over the preceding three years.

Averaging over three years also enable use to take care of any unusual fluctuations and extreme values.

3.6 THE STATIC CASH-HOLDING MODEL

3.6.1 Definition

Ozkan(2000) utilises the static cash holding model assumes that firms can instantaneously adjust towards their target cash structures after changes in firm-specific characteristics. This model implies that the actual cash holdings of firms revert towards a target.

It thus takes the general form:

$$CASH_{lt} = \beta_1 CFLOW + \beta_2 LIQ + \beta_3 LEV + \beta_4 PROF + \beta_5 SIZE + \beta_6 VAR + \beta_7 MAT + \beta_8 GR + \alpha_i + \alpha_t + E_{lt}$$

Where: $\beta_1....\beta_5 =$ Coefficient for each variable 1 – 5 respectively

   $i. =$ 1...N = Number of Firms

   $t. =$ 1...T = Time periods, in our case in years.

   $\alpha_i =$ It is assume that firm specific effects are not observable but have significant effects on the level of cash holdings.

   $\alpha_t =$ The are economy wide factors, such as prices, interest rates, exchange rates etc that are outside the control on the firms. Our model assumes that their impact will be uniform across the firms.

   $E_{lt} =$ The error term

We determine the coefficient for each independent variable (Beta) by way of multiple regressions.

3.6.2 Test of Robustness

To ensure the robustness we have calculated three different estimates for the above model:

a)   Run a cross sectional regression for each of the 10 years (1992- 2001). Here we shall measure the cash holdings (dependent variable) in each of years and compare with hypothesized results.

b) Estimate the cross sectional model using the average values of each of the firms characteristics, over 4 years to take care of extreme vales and short-term fluctuations.

c) Estimate the static cash holding model for each of the 28 companies to highlight the differences in cash holding for each of the firms. This will be done by constructing a "best-ft" model for each of the company. Here all variables with insignificant t-statistics will be dropped to ensure that the best fit model's equation has a significant F-score and each of the relevant variables has a significant t-statistic.

CHAPTER 4

4. DATA ANALYSIS, INTERPRETATIONS OF FINDINGS AND DISCUSSIONS

4.0 INTRODUCTION

In this chapter the results of the research are analysed and discussed. The data collected from the population under study has been analysed as follows: For the cross-sectional analyses, we have used the population averages for the 10 years. The results are summarised in 4.1 and 4.2.

Since we expect variations on a firm by firm basis, we have run "best-fit" regression models for each of the 28 firms and the interpretations are in 4.2.

4.1 INDUSTRY CORRELATION

The table below shows the correlation coefficient between cash and independent variables. These correlation are interpreted in paragraph 4.4 to 4.10

Table 4.1 Cross-section industry correlation 1992-2001

	Cash(Y)	Cashflow	Growth	Leverage	Liquidity	Profits	Size	Variability
Cash(Y)	1.0000							
Cashflow	-0.5083	1.0000						
Growth	-0.4045	0.9243	1.0000					
Leverage	0.0787	-0.6668	-0.5365	1.0000				
Liquidity	-0.4715	0.8334	0.7431	-0.8583	1.0000			
Profits	-0.6629	0.9553	0.9194	-0.5265	0.7857	1.0000		
Size	0.5717	-0.2114	-0.2608	-0.5394	0.1698	-0.4003	1.0000	
Variability	-0.1797	0.8904	0.8850	-0.6110	0.6355	0.8389	-0.1750	1.0000

With respect to cash, we find a negative correlation between cash and cashflow. This is per prediction meaning that firms with healthy cash flows need not keep a lot of stock of cash. Growth also has a negative correlation to cash indicating that growth exert negative

pressure on cashflows. This is especially so for Kenyan firms that are mainly funded internally (Kiragu, 1991). Leverage although not significant is also positive are predicted meaning that as firms become more levered they need to retain some cash to cater for interest payments and maturing debt obligation.

Liquidity is also negatively correlated to cash meaning that liquid firms need not keep huge cash since the other liquid assets can easily be converted into cash.

Contrary to our expectation however we find that the bigger the firm the grater the amount of cash held. This could be explained by the fact that firms are not able to utilise their excess cash holding efficiently. In addition, the predicted economies of scale in utilisation of cash may not be achieved.

Variability was also expected to be positive but we have it as a negative coefficient, which is insignificant.

4.2   AVERAGE CROSS-SECTIONAL REGRESSIONS

We have carried out a regression of the average variables for the total population for the ten years.

Cash = 2.901-0.74**Liq**-0.381**CF**-0.437**Mat**-4.132**Pr**+0.567**Gr**-0.293**Sz**+0.229**V**-3.122**Lev.**

Definition:

Liq – Liquidity
CF – Cashflows
Mat – Maturity Structure of long-term debt.
Pr – Profitability
Gr. – Growth
Sz – Size
Lev - Leverage

The R^2 for the model is 97.6%, with an F value of 5.17 (Critical F is 238.9 at 0.05,8,1 df. Therefore, the model is not significant in explaining the variations in cash caused by the eight independent variables. The coefficients with their associated standard errors and t-statistics are summarised below in table 4.2

Table 4.2 Results of cross-section industry regression 1992-2001 (Original Model with all predictor variables)

	B Coefficient	Standard Error	t Stat	5% Conf. Level	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%	Absolute t	Comment
Intercept	2.901	2.396	1.211	1.860	-27.542	33.345	-27.542	33.345	1.211	NOT SIGNIFICANT
Liquidity	-0.740	0.821	-0.901	1.860	-11.170	9.691	-11.170	9.691	0.901	NOT SIGNIFICANT
Cashflow	-0.381	0.764	-0.498	1.860	-10.090	9.328	-10.090	9.328	0.498	NOT SIGNIFICANT
Maturity	-0.437	0.363	-1.206	1.860	-5.046	4.172	-5.046	4.172	1.206	NOT SIGNIFICANT
Profits	-4.132	2.687	-1.538	1.860	-38.270	30.005	-38.270	30.005	1.538	NOT SIGNIFICANT
Growth	0.567	0.285	1.990	1.860	-3.052	4.185	-3.052	4.185	1.990	SIGNIFICANT
Size	-0.293	0.234	-1.253	1.860	-3.263	2.677	-3.263	2.677	1.253	NOT SIGNIFICANT
Variability	0.229	0.216	1.061	1.860	-2.515	2.973	-2.515	2.973	1.061	NOT SIGNIFICANT
Leverage	-3.122	3.789	-0.824	1.860	-51.271	45.027	-51.271	45.027	0.824	NOT SIGNIFICANT

Further analysis also shows that the t-statistics of the model are all insignificant apart for growth whose t-statistic is 1.990.

The best-fit model at industry level excludes Leverage, Liquidity and Cashflow and hence the function becomes:

CASH = 0.8050 - 0.3737**Mat**-1.9061**Pr**+0.3250**Gr**-0.0870**Sz**+0.3512**Va**

This model has a R2 of 97.5% and an F statistics of 15.42%, which is highly significant, based on a critical F of 6.256 at the 95% confidence level.

Table 4.3: Summary of the coefficients and t-statistics for the total population best-fit model

THE INDUSTRY BEST FIT MODEL						
	Beta Coefficients	Standard Error	t Stat	Absolute t Stat	Critical T	Comment
Intercept	0.8050	0.3025	2.6611	2.6611	1.8125	SIGNIFICANT
Maturity	-0.3737	0.2089	-1.7889	1.7889	1.8125	NOT SIGNIFICANT
Profits	-1.9061	0.2990	-6.3750	6.3750	1.8125	SIGNIFICANT
Growth	0.3250	0.0858	3.7894	3.7894	1.8125	SIGNIFICANT
Size	-0.0870	0.0390	-2.2294	2.2294	1.8125	SIGNIFICANT
Variability	0.3512	0.1205	2.9145	2.9145	1.8125	SIGNIFICANT

As shown in Table 4.4 above the best-fit model results in significant t-statistics for each on the coefficients apart from maturity, which is at 1.7889 against the critical F of 1.8125.

4.2.1 Cross-sectional Dropped off variables

The variables of Liquidity, leverage and cashflows have been dropped of from the original to come up with the best-fit model. These we dropped off because the had insignificant t-statistics (See the original model with all the independent variables on table 4.2 above.

From theory, the correlation between leverage and cash holding is not clear-cut. One of the contesting views was that higher debt levels could increase the likelihood of financial distress. In that case, one would expect a firm with a high debt ratio to increase its cash holdings to decrease the likelihood of a financial distress. This would induce a positive relation between leverage and cash holdings. The other alternative view was that highly levered firms are sending a message to the market that they have good credit rating and can obtain credit easily. Therefore such firms would attract financing at short notice when they cash reserves go down and hence do not need to hold a lot of cash.

We had predicted a negative relationship between cashflows and the cash balances In addition, as the expected cashflows improved the lesser the cash balances that the firms need to keep.

The liquidity coefficient in the regression is negative at -0.740 (see Table 4.2 above), as we had hypothesised, meaning that highly liquid firms need not hold too much cash since the cash needs can easily be met by cash generated from operations. Further dis-aggregation by running yearly regression showed that majority of the yearly observations indicated a negative relationship.

4.2.2 Cross-sectional Constant / Intercept

The constant in the regression model be interpreted to mean the average cash holding by the entire market at for the period under study. The predicted sign would go any way. For all the years, the intercept value was positive except for 1992. This indicates that the average cash held by the companies was positive.

4.2.3 Cross-sectional Growth

The predicted coefficient for growth to cash balances is negative, suggesting that Kenyan companies utilise their internally generated funds for growth (Kiragu 1991). Therefore, firms experiencing growth suffer negative pressure on their cash balances. The correlation coefficient between cash and growth is -0.4045 (See table 4.1) confirming the hypothesis. We however find that the average coefficient in the model is +0.3250. This predictor variable had a standard error of +0.0858 and a t-statistics of +3.7894, (See table 4.3) which was significant at the 95% confidence interval.

4.2.4 Cross-sectional Profits

We had hypothesised a negative correlation between cash and profitability based on the premise that profitable companies need not keep high levels of cash. There are adequate positive cashflows generated from operations and in case of cash shortage, profitable firms can easily get short-term or long-term financing of their cash needs from the banks or other lenders. This view is adequately supported by our negative correlation coefficient of Profits -0.6629 (See table 4.1) and predictor variables of -1.9061, with a significant t-statistic of -6.3750 (See table 4.3).

4.2.5 Cross-sectional Size

Our expectation is that larger firms are able to manage their cash balances better and are able to obtain economies of scale in handling of cash. Due to this implied efficiency, the bigger the firm, then the lesser the amount of cash they would hold. Our results support the above expectation and are in line with the findings of Ozkan (2000) who finds that size has a negative coefficient. The predictor shows a negative coefficient of -0.0870. It is significant at the 95% confidence level. (See table 4.3)

4.2.6 Cross-sectional Variability

Variability relates to the ease of a firm predicating it cashflow. Firms experiencing unpredictable cashflows opt to keep more cash to cater for their day to day cash requirements. Therefore the higher the variability, the higher the cashholding.

We however find a negative correlation coefficient of -0.0864 between cashflow variability and cash holding. The predictor coefficient is positive at 0.2646 with a standard error of +0.2369. This is also low and not significant.

Further dis-aggregation shows that out of the 10 yearly regression run only one had a negative predictor variable and all the other nine had positive correlation coefficient.

4.2.7   Cross-sectional Maturity structure of debt

Of the 29 firms under study, only 7 firms had long-term debts in their balance sheets confirming Kiragu's, (1991) finding that most for the Kenyan firms are mainly financed using internally generated funds.

We had hypothesized a negative correlation between maturity structure of long-term debt and cash holding. This hypothesis is supported at the average cross-sectional level with a -0.3737 coefficient, which is significant at the 95% confidence level.

4.3   INDIVIDUAL COMPANY REGRESSION

The cross-sectional model described in 4.2 above averages the observations over the entire population and assumes that the firm specific differences are the same across the time or that factors common across firms exist.

After running the 28 regressions, we find that of the eight original variables not all were applicable to all the firms. This was based on the fact that some of the variables had little influence in the model (hence had an insignificant t-statistic). See the details in the "original model" in table 4.4 below.

Table 4.4: Summary of signs and t-statistics for individual models based on all the 7-predictor variables.

		Expected Sign		T –Statistics	
		As predicted	Unusual	Significant	Insignificant
Intercept	N/A	N/A	N/A	14	14
Cashflow	-	14	14	14	14
Growth	-	18	10	8	20
Leverage	+	10	16	12	14
Liquidity	-	9	19	15	13
Profits		12	16	10	18
Size	-	11	17	14	14
Variability	+	12	16	8	20

In this table, the column "No of firms applicable" shows the frequency of each of the variables in the "best fit model" for each of the firms" The coefficients signs shows the frequency of the coefficients vis a vis the predicted and the "t-statistic" shows the frequency of the significant observations for each of the predictor variable.

We therefore went ahead to run the "best-fit" regressions for each of the 28 firms under study. This was to eliminate the variables that were not applicable to specific firms. The table below shows the frequency of the applicable instances for each of the variables and goes further to prove that the global model may not be to all individual companies because of the unobserved firms specific characteristics.

Table 4.5   Summary of the result of the best-fit model for individual firms

BEST FIT MODELS							
	No of firms that the variable is Applicable		Expected Sign			Significance in Best Fit model	
	No of firms applicable	No of firms N/A	Predicted	As predicted	Unusual	Significant	Insignificant
Intercept	28	N/A	N/A	N/A	N/A	24	4
Cashflow	19	9	-	11	8	13	6
Growth	17	11	-	9	8	13	4
Leverage	23	5	+	8	15	19	4
Liquidity	24	4	-	7	17	20	4
Maturity	5	23	-	3	2	5	0
Profits	20	8		12	8	17	3
Size	20	8	-	9	11	19	1
Variability	12	16	+	4	8	11	1

The above together with tables X4 on appendix IV confirms that each firm has is own internal characteristics that make a only particular model only suitable for it. Therefore, we

may not use the market cross-sectional model developed in 4.2 above to predicted that cash holding level for a specific firm.

From the table above, the frequencies indicate that the most significant factors at firm level in determining the cashholding are Liquidity, Leverage, Size, Profitability and Cashflows in that order. The predicted signs for the coefficients at firm level also showed mixed results:

4.3.1 Cashflows

Of the 19 firms with "cashflows" as a predictor in their best-fit model 11 had a negative coefficient whereas eight had a positive predictor. We had hypothesised that the coefficient would be negative meaning that as cashflows increased the firm reduced its cash balance.

For the eight firms with a positive cashflow coefficient, three firms had insignificant coefficients and five show significant coefficients.

4.3.2 Growth

For growth, we had predicted negative coefficient in the model. Meaning that growth exerts negative pressure on cash holding. Our finding is that out of the 17 firms, 13 have the predicted sign and only four showed a positive growth-coefficient.

4.3.3 Leverage

The expected relation between leverage and cashholding was not clear-cut. Our results confirm that this varies from firm to firm. Of the 23 firms that had leverage as a significant variable in their best fir models, eight had a positive coefficient while 15 had a negative coefficient. This evidence thus suggests that leverage exert negative pressure on cash. This would be interpreted to mean that those firms that are able to obtain debts to finance their operations need not keep higher levels of cash.

This could be true for Kenya whereby long-term debts are hard to come by and are only given to "blue chip" firms.

4.3.4 Liquidity

The expected relationship between liquidity and cash holdings was negative. We had hypothesised that firms experiencing positive cashflows need not keep huge cash balances and vice versa.

Of the 24 firms 17 showed a positive coefficient and only seven had the predicted negative coefficient.

It therefore means that liquidity exerts positive pressure on cashflows. This could be an indicator that, firms experiencing huge positive cashflows are not able to reinvest that money and hence end up with huge cash balances. This trend was noted in the cash-rich firms in table 4.6 below:

Table 4.6:   Firms with positive Liquidity coefficient as related to cash holding

#	Company	Coefficients	t Stat	Sign. Not	Actual Sign	Expected Sign	Average Cash	Industry AV.
20	EA Portland Cement	4.838	12.554	SIGNIFICANT	+	-	15.6%	4.6%
26	Kenya Power & Lig.	1.363	5.063	SIGNIFICANT	+	-	14.7%	4.6%
21	East African Breweries	0.619	4.909	SIGNIFICANT	+	-	11.7%	4.6%
16	BOC Kenya	1.856	2.414	SIGNIFICANT	+	-	8.6%	4.6%
13	Nation Media Group	1.670	2.416	SIGNIFICANT	+	-	7.5%	4.6%
6	Limuru Tea Co	1.801	4.391	SIGNIFICANT	+	-	7.2%	4.6%

This table shows that most of the firms that exhibited a positive liquidity coefficient were the cash-rich firms, indicating a possibility of inefficient use of excess cash.

4.3.5 Maturity structure of long-term debt

Here we expected a negative relation between maturity structure and cash holding. This was based on the premise that as debts mature companies would need to keep more cash to settle them. Maturity is taken to be the ration between long term debt and total debt.

Of the 28 firms in the original sample only 5 had maturity as variable making the "best-fit model. Of these five, three had the predicted relationship whereas two showed a positive confidant for the growth model.

Due to the limited observation on this variable, we are not able to make a straight up conclusion, but it is a pointer that the variable might not be useful in predicting cash balances.

4.3.6 Profits

We had hypothesised a negative correlation between cash and profitability based on the premise that profitable companies need not keep high levels of cash. Our argument is that a profitable firms is able to attract financing from outside and hence does not need to keep large cash holding and vice versa.

Our results support the above view that profits exert a negative pressure on cashflows. Of the 28 firms in the original sample, the profits variable was dropped off in eight to remain with two observations. Of the 20 observations, 12 returned a negative coefficient while the balance had a positive one. And this supports our cross-sectional finding see paragraph 4.2.4 above that profits generally exert negative pressure on firm cash-holdings.

4.3.7 Size

We had predicted a negative coefficient for size meaning that as firms grow bigger they need to keep less cash. This is based on the argument that as firms grow bigger the get better access to other sources of funds such as loans. Our results indicate that of the original 28 firms, the size variable was dropped of in 8 firms to remain with 20 firms of which 11 had a positive coefficient while only nine had the predicted negative coefficient. Since both the negative and positive coefficients are significant at the 95% confidence level, this indicates impact of the firms-specific characteristics across differences firms.

4.3.8 Variability

According to finance theory, firms experiencing huge variability in their cashflows keep larger cash balances to cater for periods with little or no inflows. Firms experiencing extreme variations in cashflows include firms in the construction sector, which had specific payments for completed pieces of work at specified internals yet their outflows are constant for the entire project period. We did not have any of such firms in our sample.

Our results indicate that of the 12 firms, which had, Variability as a factor in their best fit only four firms had a positive coefficient and the other eight showed a negative coefficient. Note that the remaining 16 firms did not have variability as a significant factor in the best- fit model. This also confirms our observations at the cross sectional model at industry level.

This therefore means that firm to do not specifically plan their cashflows around variability. This is supported by Ouma (2001) who finds that although most of the Kenyan firms have specified cash balances that they consider as optimal, very few of them keep buffer cash due to availability of overdraft facilities.

4.4 UNUSUAL FINDINGS (NON-CONFORMING FIRMS)

Our procedure for constructing the "best-fit model" entailed dropping off all insignificant variables from the multiple regression until all the remaining variables are significant. We however noted that for some of the companies the eight predictor variables of Cashflow Growth, Leverage, Liquidity, Maturity, Profits, Size and variability were not applicable at all. Meaning that this regression model developed did not help to explain the changes in cash holding. This phenomenon was noted in two firms, Brooke Bond and Kenya National Mills (See table X4 on Appendix IV). Brooke Bond is in the agricultural sector and has been profit making whereas Kenyan National Mills is in the Industrial sector and loss making. Their average cash holding for the period under review was 4.2% and 3.3% respectively. Further analysis of their cashholding pattern does not reveal any apparent similarities or peculiarities common to both firms. See analysis of cash holding below

Table 4.7: **Summary of cash-holding characteristics of the two firms which the Static cash-holding model is not applicable**

Statistic	Brooke Bond	Kenya National National Mills
Mean	0.042	0.033
Standard Error	0.009	0.011
Median	0.034	0.020
Standard Deviation	0.029	0.034
Sample Variance	0.001	0.001
Kurtosis	-1.619	3.727
Skewness	0.260	1.802
Range	0.082	0.115
Sum	0.418	0.333
Count	10	10
Hypothesized Mean Difference	0	
Df	18	
t Stat	-0.597	
P(T<=t) one-tail	0.279	
t Critical one-tail	1.734	
P(T<=t) two-tail	0.558	
t Critical two-tail	2.101	

The above confirms our assertion that unobserved firm characteristics and heterogeneity factors are very important in explaining individual firms cash-holdings. The cash-holding model for these two firms would have to incorporate other firm-specific factors not considered in this study.

4.5   SECTORAL DIFFERENCES

One of our other objectives was to identify any other cashholding differences between the three market sectors namely: agricultural, industrial and commercial.

The motivation for this was to see if there were any significant differences when the firms were grouped into their specific sectors. We thus calculated the average regressions for each of the sectors and found the following.

Table 4.8   Summary of Sectoral coefficients, standard errors and the Related t-statistics

Predictor Variable	Expected Sign	Industrial Sector			Commercial Sector			Agricultural Sector		
		Coefficients	Standard Error	t Stat	Coefficients	Standard Error	t Stat	Coefficients	Standard Error	t Stat
Intercept	N/A	-2.1317	0.4833	-4.4109	0.5503	0.1340	4.1069	-0.1283	0.0502	-2.5570
Liquidity	-	0.2450	0.0390	6.2771	0.7075	0.2836	2.4943	-0.3476	0.1811	-1.9196
Maturity	+	0.3300	0.1975	1.6710	-0.2926	0.0714	-4.0965	-0.0373	0.0184	-2.0200
Profits	-	0.3073	0.0684	4.4903	-1.7109	0.3509	-4.8761	0.2535	0.0590	4.2979
Size	-	0.3415	0.0657	5.1941	-0.0865	0.0209	-4.1348	0.0295	0.0071	4.1614
Growth	+	0.1478	0.0342	4.3159	N/A	N/A	N/A	-0.0269	0.0150	-1.7933
Variability	-	-2.1675	0.3447	-6.2884	2.0861	0.2448	8.5215	N/A	N/A	N/A
Cflow	-	N/A	N/A	N/A	-0.7018	0.1266	-5.5447	N/A	N/A	N/A

As observed earlier in the individual firm regressions, the entire market regression may not be appropriate to describe the "best-fit" model for each of the industry model. We thus observe that none of the sectors resulted in a best-fit model inclusive of all the seven-predictor variables.   For instance for the industrial sector, Cashflows are not a significant determinant of cashflows. The same case for the agricultural sector. Cashflows however seem to be a significant factor in the commercial sector.

Variability is also not a significant factor in determining cashflows for firms in the agricultural sector.

We also note that the expected coefficient signs also vary across the sectors. For instance, the coefficient for liquidity is positive for industrial and commercial sectors whereas it is negative for the agricultural sector. This indicates that there are significant differences between the three sectors cash holding behaviour.

4.6 DESCRIPTIVE STATISTICS

Table 4.9 Table of Market Descriptive statistics

Cash(Y)	Cash	Liquidity	Cashflow	Maturity	Profits	Growth	Size	Variability	Leverage
Mean	0.046	0.167	0.169	0.336	0.120	0.205	5.927	0.097	0.141
Standard Error	0.005	0.013	0.008	0.011	0.008	0.036	0.070	0.011	0.006
Median	0.042	0.162	0.162	0.342	0.120	0.197	5.962	0.085	0.140
Standard Deviation	0.017	0.040	0.025	0.036	0.027	0.112	0.222	0.034	0.018
Kurtosis	7.820	-1.617	-1.628	-1.701	-0.336	-1.839	-1.572	-0.785	-1.130
Skewness	2.682	-0.044	0.087	-0.266	-0.515	0.195	-0.295	0.758	0.263
Range	0.059	0.108	0.067	0.093	0.084	0.271	0.597	0.097	0.052
Minimum	0.034	0.107	0.134	0.288	0.070	0.078	5.595	0.062	0.117
Maximum	0.093	0.215	0.200	0.380	0.153	0.349	6.193	0.158	0.169
Sum	0.459	1.666	1.685	3.357	1.196	2.048	59.270	0.974	1.409
Count	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000
Confidence (95%)	0.012	0.029	0.018	0.026	0.019	0.080	0.159	0.024	0.013

One of the other objectives of this study was to document the cash-holding behaviour of Kenyan companies. One of the key features noted was the deterioration in profitability of the Kenyan companies. See Graph 2 below: The poor economy in Kenyan had very adverse effects on the firms performance.

The graph also shows the cashholding trends of the firms under study. Over the years the firms in the Commercial sectors and those in Commercial sector tend to hold less cash as opposed to the firm in the Agricultural sector which hold more of the assets as cash. The reason for this would be due to the depreciation of the Kenyan shilling which lead to more cash inflows for the agricultural firms that are more export oriented.

The average cash held by each sector over the period was as follows: 3.3%, 3,9% and 7.7% for the commercial, Agricultural and industrial sectors respectively. The reason why the industrial sector had the highest cash holding may be explained by the lodger time that firms in this sector take to convert their inputs into final products and sales.

Table 4.10 **Holding in Developed world - Japan, Germany and US**
Source: Bank Power and Cash Holdings: Evidence from Japan

Period: 1974 – 1995	As % of Net Assets	As % of Gross Assets
Japan	19%	15.61%
Germany	12%	10.85%
US	18%	15.28%
Kenyan	5%	4.60%

Cash holding in the developed world has been computed as cash/(total assets-cash). As in our definition, the cash includes marketable securities. The Kenyan period is 1991-2002.

One of the explanation for the low levels of cash holding is that Kenyan firms rely heavily on bank overdrafts to finance their cash needs (Ouma, 2001)

Graph 2 Sectoral and Industry Cash and Profitability 1992- 2001

SECTORAL AND INDUSTRY CASH AND PROFITABILITY
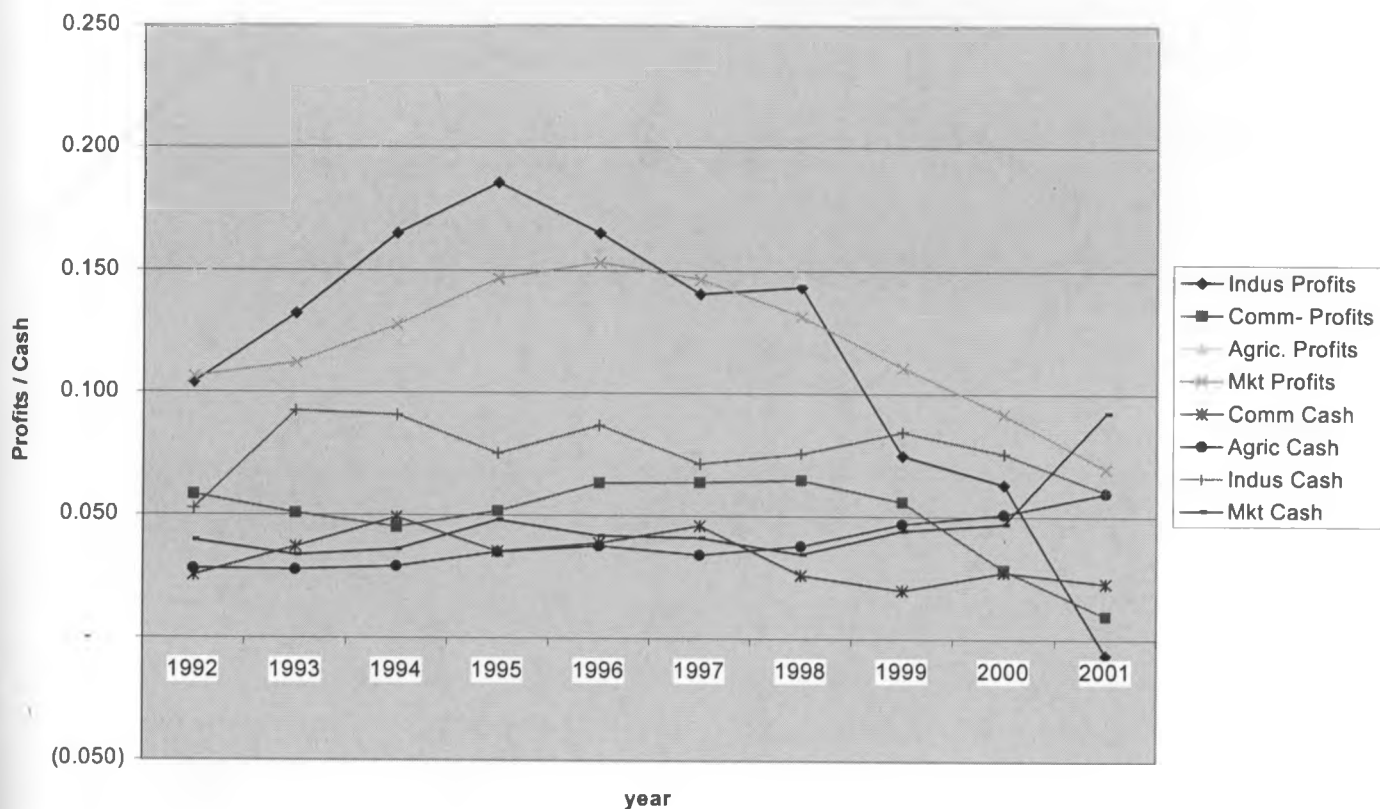
4.7 <u>**CONCLUDING REMARKS**</u>

The outputs for this section included a market cross section regression model as set out in paragraph 4.2. We also noted that due to firm heterogeneity problems, this market-wide regression model might not yield accurate results in predicting a model for the individual firm. We therefore went ahead in section 4.3 to develop best-fit models for each of the 28 firms.

Section 4.4 highlighted some unusual findings whereby for two firms the entire model was not applicable in explaining changes in cash-holdings.

Section 4.5 looked at the differences between firms in difference sectors and attempted to get a reason for these differences.

Section 4.6 has looked at other characteristic observed and the variance in the cashholding levels between Kenyan firms and firms in the developed world forms a basis for future research.

CHAPTER 5

5. SUMMARY, CONCLUSIONS, RECOMMENDATIONS, LIMITATIONS OF THE STUDY AND SUGGESTION FOR FURTHER RESEARCH

5.1 SUMMARY, CONCLUSION AND RECOMMENDATIONS.

The purpose of this empirical study was to investigate the empirical determinants of the firm's decision to hold cash and cash equivalents by using a panel of Kenyan firms in the 1992-2001 period. Our analysis reveals that there are significant dynamic effects in the determination of firms cash holdings. The results suggest that firms adjust their cash holdings towards their target holdings. This supports Ouma (2001) finding that Kenyan Firms have a specified minimum cash levels which cash balances are not allowed to fall beyond.

From our cross sectional analysis we provide strong evidence that growth and variability positive impact on cash holdings decisions of firms. In addition, there is significant support for the negative impact of, Maturity, profits and size.

Moreover, our results suggest that higher cash holdings are associated with lower levels of debt in firms' capital structure.

However, the influence of debt maturity structure is not significant for cash holdings decisions. This mirrors the finding on UK by Ozkan (2001). Further, we did not find evidence-supporting liquidity as an important aspect for firms determining the levels of cash-holding decisions.

Our findings reveal that unobserved firm heterogeneity, as reflected in the firm-specific fixed effects, is significant in affecting cash holding decisions of firms. This is because each of the 28 firms studied had different "best-fit models. The impact of any variable of the individual firm was thus difference across the firms. We have developed best-fit models, which the each of the 28 firms can use to individual plan their cash balances.

We looked at the differences in cash-holding behaviour across the three sectors of the firms quoted in the NSE. These were divided into firms in the agricultural sector, firms in commercial sector (mainly trading and distribution firms) and firms in the industrials sector (firms mainly in manufacturing). We find that the firms in the manufacturing sector seem to hold more cash than those in the other sectors. One of the reasons could be due to the longer time that it takes to convert inputs (raw materials) into products, to sales and finally to cash inflows. The best fit models for each of the industries are also different confirming that the firms heterogeneity also extends to industry level.

Our other objective was to document on any notable cashholding behaviour for the firm under study. We find that cash rich firms were inefficient in the use of the excess cash.

In conclusion, therefore we find that the factors of liquidity, cashflow variability, firm size, profitability, cashflows, and growth play a significant role in the determination of the firms cashholding levels. However, there was no strong support for maturity structure of debt. This could be because relatively few firms were using long-term debt for financing.

Therefore, firms should use these firm-specific factors in determining their optimum cash levels.

5.2   LIMITATIONS OF THE STUDY

One of the limitations of the study was in controlling for the firm specific variables and in the general model. Newer techniques such as Generalised Method of Movements (GMM) may be used to cater for these.

Another estimation problem arises because the firm-specific variables are unlikely to be strictly exogenous. That is, shocks affecting cash structure choices of firms are also likely to affect some of the regressors such as liquidity, and leverage. For example, if cash holdings of a firm increase one could then observe a positive relation between the firm's cash position and liquidity. Moreover, it is likely that some of the regressors may be correlated with the past and current values of the idiosyncratic component of disturbances.

Also we the used accounting information may be a limitations by itself in that companies may wish to report a specific position to the shareholders. Such intentions may lead to manipulation of the year end figures that we used as our primary data.

5.3   SUGGESTIONS FOR FURTHER RESEARCH

This study provides a good ground for researcher to develop the firms specific models further. One of the added benefit would be to research as to why specific variables behave in a specific manner in specific firms.

Once the firm-specific model is developed, researchers can also look at the best cash-management models such as The Baumol Model, or Lockyer's that best fits the model.

Our original model had picked eight variables to explain changes in cashholding. We noted two peculiar cases where the entire model did not yield significant explanation of changes in cash holding. This meant that other factors may be at play and thus this model can be extended to include other firm specific factors.

Another interesting observation was the low levels of cash holding by Kenyan firms. Further analysis of this compared with firms in the developed may help establish the reasons for such significant differences in the cashholding behaviour between Kenyan forms and those in the developed world.

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APPENDIX 1

Table X1
LIST OF QUOTED COMPANIES STUDIED

Code	Company	Sector
1	Brooke Bond	Agricultural Sector
2	Egaads	Agricultural Sector
3	George Williamson Kenya	Agricultural Sector
4	Kakuzi	Agricultural Sector
5	Kapchorua Tea Co	Agricultural Sector
6	Limuru Tea Co	Agricultural Sector
7	Sasini Tea & Coffee	Agricultural Sector
8	A.Baumann & Co	Commercial Sector
9	Car & General	Commercial Sector
10	CMC Holdings	Commercial Sector
11	Express	Commercial Sector
12	Marshalls	Commercial Sector
13	Nation Media Group.	Commercial Sector
14	Standard Newspaper Group.	Commercial Sector
15	Bamburi Cement.	Industrial Sector
16	BOC Kenya.	Industrial Sector
17	British American Tobacco	Industrial Sector
18	Carbacid Investments.	Industrial Sector
19	Dunlop Kenya	Industrial Sector
20	EA Portland Cement.	Industrial Sector
21	East African Breweries	Industrial Sector
22	East African Cables	Industrial Sector
23	East African Packaging	Industrial Sector
24	Kenya National Mills.	Industrial Sector
25	Kenya Oil Company.	Industrial Sector
26	Kenya Power & Lighting.	Industrial Sector
27	Total Kenya.	Industrial Sector
28	Unga Group.	Industrial Sector

Appendix ll

Table X2: Actual coefficients compared with the predicted signs for the y

model containing all the 7-predictor variables

	Predictor	Predicted	Individual Year			Average
			As predicted	Unusual	Total	
1.	Constant	N/A	9 (Positive)	1 Negative	10	No Applica
2.	Cashflows	-	4	6	10	As predict
3.	Growth	-	7	3	10	As predict
4.	Leverage	+	8	2	10	Unusual
5.	Liquidity	-	6	4	10	As predict
6.	Profitability	-	1	9	10	As predict
7.	Size	-	7	3	10	As predict
8.	Variability	+	8	2	10	As predict

This table is a summary of each of the 10-year cross-sectional regressions compared to the hypothesize
shows the Results of the population average regression Vis a Vis the predicted "sign" of each predictor var

Table X3: Summary of cross section regression for each year for the best-fit mod

| Key Cross Sectional Results – Individual Years | | | | | | Regression | | | | | Resi |
Year	Multiple R	R Square	Adjusted R Square	Standard Error	Observat ions	df	SS	MS	F	Critical F	df
1992	68.7%	47.2%	26.7%	6.9%	26	7	7.6%	0.0109	2.2980	2.5770	18
1993	42.0%	17.7%	-12.7%	10.5%	27	7	4.5%	0.0064	0.5823	2.5440	19
1994	41.9%	17.6%	-11.2%	10.3%	28	7	4.5%	0.0065	0.6101	2.4470	20
1995	55.6%	30.9%	6.7%	7.4%	28	7	4.8%	0.0069	1.2757	2.4470	20
1996	49.8%	24.8%	-1.5%	9.3%	28	7	5.8%	0.0082	0.9436	2.4470	20
1997	53.6%	28.8%	3.8%	8.9%	28	7	6.3%	0.0090	1.1535	2.4470	20
1998	69.2%	47.9%	29.7%	8.0%	28	7	11.7%	0.0166	2.6320	2.4470	20
1999	24.9%	6.2%	-26.6%	11.7%	28	7	1.8%	0.0026	0.1894	2.4470	20
2000	79.9%	63.8%	51.1%	7.5%	28	7	19.9%	0.0284	5.0298	2.4470	20
2001	51.8%	26.9%	1.3%	6.1%	28	7	2.7%	0.0039	1.0502	2.4470	20

Key:

MS = Mean Squares

SS – Standard Error

F = (Mean Squares due to regression) / (Mean Squares due to Residual)

APPENDIX IV
TABLE X4
Individual company regressions (The best fit mode,) for each company, showing all the significan

#	Company	Variable	Coefficient	Standard Error	"t" Statistic	Absolute t	Critical t	Lower 95%
1	Brooke Bond	A-Intercept	0.035	0.046	0.764	0.764	1.701	-0.083
1	Brooke Bond	Cashflow	0.776	0.600	1.294	1.294	1.701	-0.766
1	Brooke Bond	Growth	N/A	N/A	N/A	N/A	1.701	N/A
1	Brooke Bond	Leverage	0.661	0.609	1.084	1.084	1.701	-0.906
1	Brooke Bond	Liquidity	1.178	0.678	1.738	1.738	1.701	-0.565
1	Brooke Bond	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
1	Brooke Bond	Profits	N/A	N/A	N/A	N/A	1.701	N/A
1	Brooke Bond	Size	N/A	N/A	N/A	N/A	1.701	N/A
1	Brooke Bond	Variability	-1.936	1.446	-1.339	1.339	1.701	-5.652
2	Egaads	A-Intercept	-8.631	3.800	-2.271	2.271	1.701	-19.182
2	Egaads	Cashflow	N/A	N/A	N/A	N/A	1.701	N/A
2	Egaads	Growth	0.608	0.339	1.794	1.794	1.701	-0.333
2	Egaads	Leverage	-3.897	3.033	-1.285	1.285	1.701	-12.317
2	Egaads	Liquidity	2.018	1.279	1.578	1.578	1.701	-1.533
2	Egaads	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
2	Egaads	Profits	-5.719	2.919	-1.959	1.959	1.701	-13.825
2	Egaads	Size	1.819	0.792	2.298	2.298	1.701	-0.379
2	Egaads	Variability	N/A	N/A	N/A	N/A	1.701	N/A
3	George Williamson K	A-Intercept	-1.784	0.392	-4.547	4.547	1.701	-2.873
3	George Williamson Kenya	Cashflow	-2.683	0.609	-4.404	4.404	1.701	-4.374
3	George Williamson Kenya	Growth	-0.234	0.053	-4.420	4.420	1.701	-0.382
3	George Williamson Kenya	Leverage	0.519	0.217	2.389	2.389	1.701	-0.084
3	George Williamson Kenya	Liquidity	1.572	0.504	3.119	3.119	1.701	0.173
3	George Williamson Kenya	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
3	George Williamson Kenya	Profits	N/A	N/A	N/A	N/A	1.701	N/A
3	George Williamson Kenya	Size	0.338	0.072	4.718	4.718	1.701	0.139
3	George Williamson Kenya	Variability	N/A	N/A	N/A	N/A	1.701	N/A
4	Kakuzi	A-Intercept	-0.665	0.365	-1.822	1.822	1.701	-2.234
4	Kakuzi	Cashflow	-2.499	0.682	-3.663	3.663	1.701	-5.434
4	Kakuzi	Growth	-0.109	0.024	-4.486	4.486	1.701	-0.213
4	Kakuzi	Leverage	0.871	0.200	4.345	4.345	1.701	0.009
4	Kakuzi	Liquidity	-0.667	0.214	-3.116	3.116	1.701	-1.587
4	Kakuzi	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
4	Kakuzi	Profits	3.278	0.785	4.174	4.174	1.701	-0.101
4	Kakuzi	Size	0.122	0.064	1.904	1.904	1.701	-0.154
4	Kakuzi	Variability	-0.150	0.081	-1.854	1.854	1.701	-0.499

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APPENDIX IV

TABLE X4

Individual company regressions (The best fit mode,) for each company, showing all the significant

#	Company	Variable	Coefficient	Standard Error	"t" Statistic	Absolute t	Critical t	Lower 95%
5	Kapchorua Tea Co	A-Intercept	-4.639	0.790	-5.872	5.872	1.701	-6.670
5	Kapchorua Tea Co	Cashflow	-3.547	0.613	-5.785	5.785	1.701	-5.124
5	Kapchorua Tea Co	Growth	N/A	N/A	N/A	N/A	1.701	N/A
5	Kapchorua Tea Co	Leverage	N/A	N/A	N/A	N/A	1.701	N/A
5	Kapchorua Tea Co	Liquidity	-3.156	0.524	-6.023	6.023	1.701	-4.503
5	Kapchorua Tea Co	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
5	Kapchorua Tea Co	Profits	N/A	N/A	N/A	N/A	1.701	N/A
5	Kapchorua Tea Co	Size	0.988	0.167	5.922	5.922	1.701	0.559
5	Kapchorua Tea Co	Variability	-1.147	0.409	-2.807	2.807	1.701	-2.197
6	Limuru Tea Co	A-Intercept	0.103	0.096	1.071	1.071	1.701	-0.132
6	Limuru Tea Co	Cashflow	-0.129	0.178	-0.724	0.724	1.701	-0.563
6	Limuru Tea Co	Growth	N/A	N/A	N/A	N/A	1.701	N/A
6	Limuru Tea Co	Leverage	N/A	N/A	N/A	N/A	1.701	N/A
6	Limuru Tea Co	Liquidity	1.801	0.410	4.391	4.391	1.701	0.798
6	Limuru Tea Co	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
6	Limuru Tea Co	Profits	N/A	N/A	N/A	N/A	1.701	N/A
6	Limuru Tea Co	Size	N/A	N/A	N/A	N/A	1.701	N/A
6	Limuru Tea Co	Variability	-0.577	0.178	-3.242	3.242	1.701	-1.012
7	Sasini Tea & Coffee	A-Intercept	0.107	0.023	4.627	4.627	1.701	0.043
7	Sasini Tea & Coffee	Cashflow	N/A	N/A	N/A	N/A	1.701	N/A
7	Sasini Tea & Coffee	Growth	-0.132	0.049	-2.677	2.677	1.701	-0.268
7	Sasini Tea & Coffee	Leverage	-18.084	6.253	-2.892	2.892	1.701	-35.446
7	Sasini Tea & Coffee	Liquidity	2.011	0.720	2.791	2.791	1.701	0.011
7	Sasini Tea & Coffee	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
7	Sasini Tea & Coffee	Profits	-0.848	0.397	-2.135	2.135	1.701	-1.951
7	Sasini Tea & Coffee	Size	N/A	N/A	N/A	N/A	1.701	N/A
7	Sasini Tea & Coffee	Variability	-0.901	0.360	-2.506	2.506	1.701	-1.899
8	Abaumann & Co	A-Intercept	1.377	0.275	5.017	5.017	1.701	0.671
8	Abaumann & Co	Cashflow	0.936	0.897	1.044	1.044	1.701	-1.369
8	ABaumann & Co	Growth	N/A	N/A	N/A	N/A	1.701	N/A
8	Abaumann & Co	Leverage	-0.554	0.455	-1.218	1.218	1.701	-1.724
8	ABaumann & Co	Liquidity	N/A	N/A	N/A	N/A	1.701	N/A
8	ABaumann & Co	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
8	ABaumann & Co	Profits	-0.260	0.395	-0.659	0.659	1.701	-1.275
8	ABaumann & Co	Size	-0.228	0.047	-4.820	4.820	1.701	-0.350
8	ABaumann & Co	Variability	N/A	N/A	N/A	N/A	1.701	N/A
9	Car & General	A-Intercept	3.498	0.047	74.098	74.098	1.701	2.898

TABLE X4

Individual company regressions (The best fit mode,) for each company, showing all the significan

#	Company	Variable	Coefficient	Standard Error	"t" Statistic	Absolute t	Critical t	Lower 95%
9	Car & General	Cashflow	0.644	0.015	42.879	42.879	1.701	0.453
9	Car & General	Growth	-0.041	0.001	-36.160	36.160	1.701	-0.055
9	Car & General	Leverage	-1.341	0.019	-70.889	70.889	1.701	-1.581
9	Car & General	Liquidity	0.858	0.019	44.347	44.347	1.701	0.612
9	Car & General	Maturity	0.428	0.010	41.426	41.426	1.701	0.297
9	Car & General	Profits	-1.107	0.019	-57.659	57.659	1.701	-1.351
9	Car & General	Size	-0.578	0.008	-73.129	73.129	1.701	-0.678
9	Car & General	Variability	1.533	0.030	51.857	51.857	1.701	1.157
10	CMC Holdings	A-Intercept	-0.014	0.004	-3.218	3.218	1.701	-0.026
10	CMC Holdings	Cashflow	0.098	0.017	5.781	5.781	1.701	0.051
10	CMC Holdings	Growth	0.020	0.005	4.242	4.242	1.701	0.007
10	CMC Holdings	Leverage	0.127	0.023	5.546	5.546	1.701	0.063
10	CMC Holdings	Liquidity	N/A	N/A	N/A	N/A	1.701	N/A
10	CMC Holdings	Maturity	-0.199	0.040	-4.941	4.941	1.701	-0.311
10	CMC Holdings	Profits	-0.042	0.032	-1.306	1.306	1.701	-0.130
10	CMC Holdings	Size	N/A	N/A	N/A	N/A	1.701	N/A
10	CMC Holdings	Variability	N/A	N/A	N/A	N/A	1.701	N/A
11	Express	A-Intercept	2.653	1.313	2.021	2.021	1.701	-0.721
11	Express	Cashflow	-0.382	0.231	-1.653	1.653	1.701	-0.977
11	Express	Growth	N/A	N/A	N/A	N/A	1.701	N/A
11	Express	Leverage	-1.126	0.537	-2.097	2.097	1.701	-2.506
11	Express	Liquidity	N/A	N/A	N/A	N/A	1.701	N/A
11	Express	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
11	Express	Profits	-1.162	0.591	-1.967	1.967	1.701	-2.680
11	Express	Size	-0.405	0.202	-2.006	2.006	1.701	-0.924
11	Express	Variability	N/A	N/A	N/A	N/A	1.701	N/A
12	Marshalls	A-Intercept	-3.475	1.555	-2.235	2.235	1.701	0.112
12	Marshalls	Cashflow	-9.093	3.215	-2.828	2.828	1.701	0.066
12	Marshalls	Growth	-1.500	0.689	-2.178	2.178	1.701	0.118
12	Marshalls	Leverage	-10.764	3.175	-3.390	3.390	1.701	0.043
12	Marshalls	Liquidity	-15.729	4.458	-3.529	3.529	1.701	0.039
12	Marshalls	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
12	Marshalls	Profits	13.963	4.569	3.056	3.056	1.701	0.055
12	Marshalls	Size	1.259	0.408	3.083	3.083	1.701	0.054
12	Marshalls	Variability	N/A	N/A	N/A	N/A	1.701	N/A
13	Nation Media	A-Intercept	-2.176	0.410	-5.310	5.310	1.701	-3.314
13	Nation Media Group	Cashflow	-1.715	0.636	-2.697	2.697	1.701	-3.480

APPENDIX IV

TABLE X4

Individual company regressions (The best fit mode,) for each company, showing all the significant

#	Company	Variable	Coefficient	Standard Error	"t" Statistic	Absolute t	Critical t	Lower 95%
13	Nation Media Group	Growth	0.574	0.264	2.172	2.172	1.701	-0.160
13	Nation Media Group	Leverage	N/A	N/A	N/A	N/A	1.701	N/A
13	Nation Media Group	Liquidity	1.670	0.691	2.417	2.417	1.701	-0.249
13	Nation Media Group	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
13	Nation Media Group	Profits	-0.873	0.755	-1.156	1.156	1.701	-2.970
13	Nation Media Group	Size	0.422	0.083	5.066	5.066	1.701	0.191
13	Nation Media Group	Variability	N/A	N/A	N/A	N/A	1.701	N/A
14	Standard Newspaper	A-Intercept	0.183	0.036	5.051	5.051	1.701	0.090
14	Standard Newspaper	Cashflow	-0.203	0.108	-1.878	1.878	1.701	-0.481
14	Standard Newspaper	Growth	-0.074	0.044	-1.704	1.704	1.701	-0.186
14	Standard Newspaper	Leverage	-0.455	0.103	-4.415	4.415	1.701	-0.720
14	Standard Newspaper	Liquidity	-0.536	0.168	-3.186	3.186	1.701	-0.968
14	Standard Newspaper	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
14	Standard Newspaper	Profits	N/A	N/A	N/A	N/A	1.701	N/A
14	Standard Newspaper	Size	N/A	N/A	N/A	N/A	1.701	N/A
14	Standard Newspaper	Variability	N/A	N/A	N/A	N/A	1.701	N/A
15	Bamburi Cement	A-Intercept	-1.603	0.470	-3.408	3.408	1.701	-2.909
15	Bamburi Cement	Cashflow	N/A	N/A	N/A	N/A	1.701	N/A
15	Bamburi Cement	Growth	0.124	0.056	2.219	2.219	1.701	-0.031
15	Bamburi Cement	Leverage	-3.601	1.818	-1.981	1.981	1.701	-8.648
15	Bamburi Cement	Liquidity	4.273	1.066	4.010	4.010	1.701	1.314
15	Bamburi Cement	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
15	Bamburi Cement	Profits	-5.987	2.282	-2.624	2.624	1.701	-12.323
15	Bamburi Cement	Size	0.269	0.086	3.150	3.150	1.701	0.032
15	Bamburi Cement	Variability	N/A	N/A	N/A	N/A	1.701	N/A
16	BOC Kenya	A-Intercept	-0.279	0.124	-2.245	2.245	1.701	-0.599
16	BOC Kenya	Cashflow	-4.241	0.840	-5.051	5.051	1.701	-6.400
16	BOC Kenya	Growth	N/A	N/A	N/A	N/A	1.701	N/A
16	BOC Kenya	Leverage	-10.272	4.055	-2.533	2.533	1.701	-20.695
16	BOC Kenya	Liquidity	1.856	0.769	2.414	2.414	1.701	-0.120
16	BOC Kenya	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
16	BOC Kenya	Profits	5.214	1.867	2.793	2.793	1.701	0.416
16	BOC Kenya	Size	N/A	N/A	N/A	N/A	1.701	N/A
16	BOC Kenya	Variability	N/A	N/A	N/A	N/A	1.701	N/A
17	British American Tobacco	A-Intercept	5.478	0.841	6.514	6.514	1.701	2.801
17	British American Tobacco	Cashflow	1.123	0.290	3.871	3.871	1.701	0.200
17	British American Tobacco	Growth	N/A	N/A	N/A	N/A	1.701	N/A

APPENDIX IV
TABLE X4

Individual company regressions (The best fit mode,) for each company, showing all the significan

#	Company	Variable	Coefficient	Standard Error	"t" Statistic	Absolute t	Critical t	Lower 95%
17	British American Tobacco	Leverage	1.185	0.524	2.259	2.259	1.701	-0.484
17	British American Tobacco	Liquidity	1.490	0.228	6.537	6.537	1.701	0.764
17	British American Tobacco	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
17	British American Tobacco	Profits	0.816	0.373	2.185	2.185	1.701	-0.372
17	British American Tobacco	Size	-0.898	0.148	-6.081	6.081	1.701	-1.367
17	British American Tobacco	Variability	-0.553	0.223	-2.477	2.477	1.701	-1.264
18	Carbacid Investments	A-Intercept	-1.076	0.286	-3.762	3.762	1.701	-1.811
18	Carbacid Investments	Cashflow	N/A	N/A	N/A	N/A	1.701	N/A
18	Carbacid Investments	Growth	0.155	0.131	1.183	1.183	1.701	-0.182
18	Carbacid Investments	Leverage	N/A	N/A	N/A	N/A	1.701	N/A
18	Carbacid Investments	Liquidity	N/A	N/A	N/A	N/A	1.701	N/A
18	Carbacid Investments	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
18	Carbacid Investments	Profits	-1.082	0.515	-2.101	2.101	1.701	-2.407
18	Carbacid Investments	Size	0.214	0.063	3.417	3.417	1.701	0.053
18	Carbacid Investments	Variability	1.437	0.437	3.293	3.293	1.701	0.315
19	Dunlop Kenya	A-Intercept	19.320	5.071	3.810	3.810	1.701	5.241
19	Dunlop Kenya	Cashflow	-1.635	0.984	-1.662	1.662	1.701	-4.368
19	Dunlop Kenya	Growth	5.918	1.986	2.980	2.980	1.701	0.404
19	Dunlop Kenya	Leverage	18.111	5.462	3.316	3.316	1.701	2.947
19	Dunlop Kenya	Liquidity	11.874	3.187	3.725	3.725	1.701	3.024
19	Dunlop Kenya	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
19	Dunlop Kenya	Profits	N/A	N/A	N/A	N/A	1.701	N/A
19	Dunlop Kenya	Size	-4.737	1.244	-3.808	3.808	1.701	-8.191
19	Dunlop Kenya	Variability	N/A	N/A	N/A	N/A	1.701	N/A
20	EA Portland Cement	A-Intercept	-14.351	1.137	-12.618	12.618	1.701	-28.802
20	EA Portland Cement	Cashflow	4.541	0.859	5.285	5.285	1.701	-6.376
20	EA Portland Cement	Growth	0.197	0.035	5.622	5.622	1.701	-0.248
20	EA Portland Cement	Leverage	-2.867	0.300	-9.573	9.573	1.701	-6.672
20	EA Portland Cement	Liquidity	4.839	0.385	12.554	12.554	1.701	-0.059
20	EA Portland Cement	Maturity	3.170	0.416	7.617	7.617	1.701	-2.118
20	EA Portland Cement	Profits	-4.572	0.919	-4.975	4.975	1.701	-16.247
20	EA Portland Cement	Size	2.251	0.131	17.256	17.256	1.701	0.594
20	EA Portland Cement	Variability	-2.262	0.158	-14.353	14.353	1.701	-4.264
21	East African Breweries	A-Intercept	1.193	0.316	3.778	3.778	1.701	0.420
21	East African Breweries	Cashflow	N/A	N/A	N/A	N/A	1.701	N/A
21	East African Breweries	Growth	N/A	N/A	N/A	N/A	1.701	N/A
21	East African Breweries	Leverage	-0.373	0.121	-3.083	3.083	1.701	-0.669

APPENDIX IV

TABLE X4

Individual company regressions (The best fit mode,) for each company, showing all the significan

#	Company	Variable	Coefficient	Standard Error	"t" Statistic	Absolute t	Critical t	Lower 95%
21	East African Breweries	Liquidity	0.620	0.126	4.910	4.910	1.701	0.311
21	East African Breweries	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
21	East African Breweries	Profits	N/A	N/A	N/A	N/A	1.701	N/A
21	East African Breweries	Size	-0.160	0.043	-3.745	3.745	1.701	-0.264
21	East African Breweries	Variability	N/A	N/A	N/A	N/A	1.701	N/A
22	East African Cables	A-Intercept	6.646	1.635	4.064	4.064	1.701	2.645
22	East African Cables	Cashflow	N/A	N/A	N/A	N/A	1.701	N/A
22	East African Cables	Growth	N/A	N/A	N/A	N/A	1.701	N/A
22	East African Cables	Leverage	N/A	N/A	N/A	N/A	1.701	N/A
22	East African Cables	Liquidity	2.797	1.152	2.429	2.429	1.701	-0.021
22	East African Cables	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
22	East African Cables	Profits	1.247	0.449	2.777	2.777	1.701	0.148
22	East African Cables	Size	-1.395	0.350	-3.993	3.993	1.701	-2.250
22	East African Cables	Variability	N/A	N/A	N/A	N/A	1.701	N/A
23	East African Packaging.	A-Intercept	3.788	0.532	7.120	7.120	1.701	2.095
23	East African Packaging	Cashflow	N/A	N/A	N/A	N/A	1.701	N/A
23	East African Packaging	Growth	-0.343	0.045	-7.650	7.650	1.701	-0.486
23	East African Packaging	Leverage	-0.583	0.083	-7.039	7.039	1.701	-0.847
23	East African Packaging	Liquidity	-0.649	0.080	-8.159	8.159	1.701	-0.902
23	East African Packaging	Maturity	-0.931	0.124	-7.480	7.480	1.701	-1.327
23	East African Packaging	Profits	N/A	N/A	N/A	N/A	1.701	N/A
23	East African Packaging	Size	-0.604	0.087	-6.952	6.952	1.701	-0.880
23	East African Packaging	Variability	0.426	0.050	8.457	8.457	1.701	0.266
24	Kenya National Mills	A-Intercept	-3.943	3.425	-1.151	1.151	1.701	-14.844
24	Kenya National Mills	Cashflow	0.293	0.532	0.551	0.551	1.701	-1.401
24	Kenya National Mills	Growth	0.079	0.174	0.451	0.451	1.701	-0.476
24	Kenya National Mills	Leverage	0.832	0.690	1.206	1.206	1.701	-1.364
24	Kenya National Mills	Liquidity	-0.013	0.060	-0.223	0.223	1.701	-0.205
24	Kenya National Mills	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
24	Kenya National Mills	Profits	0.438	0.384	1.141	1.141	1.701	-0.783
24	Kenya National Mills	Size	0.577	0.494	1.169	1.169	1.701	-0.995
24	Kenya National Mills	Variability	N/A	N/A	N/A	N/A	1.701	N/A
25	Kenya Oil Company	A-Intercept	4.297	0.741	5.801	5.801	1.701	1.110
25	Kenya Oil Company	Cashflow	-1.644	0.347	-4.734	4.734	1.701	-3.139
25	Kenya Oil Company	Growth	-2.778	0.743	-3.741	3.741	1.701	-5.974
25	Kenya Oil Company	Leverage	-2.850	0.561	-5.078	5.078	1.701	-5.265
25	Kenya Oil Company	Liquidity	1.933	0.305	6.341	6.341	1.701	0.622

APPENDIX IV
TABLE X4

Individual company regressions (The best fit mode,) for each company, showing all the significa

#	Company	Variable	Coefficient	Standard Error	"t" Statistic	Absolute t	Critical t	Lower 95%
25	Kenya Oil Company	Maturity	-3.563	0.749	-4.757	4.757	1.701	-6.786
25	Kenya Oil Company	Profits	-3.716	0.487	-7.628	7.628	1.701	-5.813
25	Kenya Oil Company	Size	N/A	N/A	N/A	N/A	1.701	N/A
25	Kenya Oil Company	Variability	-1.958	0.501	-3.911	3.911	1.701	-4.112
26	Kenya Power & Lighting.	A-Intercept	9.672	2.480	3.900	3.900	1.701	3.296
26	Kenya Power & Lighting	Cashflow	N/A	N/A	N/A	N/A	1.701	N/A
26	Kenya Power & Lighting	Growth	N/A	N/A	N/A	N/A	1.701	N/A
26	Kenya Power & Lighting	Leverage	-4.881	1.201	-4.064	4.064	1.701	-7.969
26	Kenya Power & Lighting	Liquidity	1.363	0.269	5.064	5.064	1.701	0.671
26	Kenya Power & Lighting	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
26	Kenya Power & Lighting	Profits	-7.894	1.870	-4.222	4.222	1.701	-12.700
26	Kenya Power & Lighting	Size	-1.124	0.294	-3.827	3.827	1.701	-1.879
26	Kenya Power & Lighting	Variability	N/A	N/A	N/A	N/A	1.701	N/A
27	Total Kenya	A-Intercept	-0.390	0.132	-2.949	2.949	1.701	-0.730
27	Total Kenya	Cashflow	0.583	0.101	5.751	5.751	1.701	0.322
27	Total Kenya	Growth	N/A	N/A	N/A	N/A	1.701	N/A
27	Total Kenya	Leverage	0.239	0.090	2.665	2.665	1.701	0.008
27	Total Kenya	Liquidity	0.595	0.330	1.802	1.802	1.701	-0.254
27	Total Kenya	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
27	Total Kenya	Profits	0.920	0.136	6.775	6.775	1.701	0.571
27	Total Kenya	Size	N/A	N/A	N/A	N/A	1.701	N/A
27	Total Kenya	Variability	N/A	N/A	N/A	N/A	1.701	N/A
28	Unga Group	A-Intercept	-4.766	1.012	-4.712	4.712	1.701	-7.985
28	Unga Group	Cashflow	N/A	N/A	N/A	N/A	1.701	N/A
28	Unga Group	Growth	-0.112	0.033	-3.438	3.438	1.701	-0.216
28	Unga Group	Leverage	-0.309	0.137	-2.260	2.260	1.701	-0.745
28	Unga Group	Liquidity	-2.202	0.229	-9.616	9.616	1.701	-2.930
28	Unga Group	Maturity	N/A	N/A	N/A	N/A	1.701	N/A
28	Unga Group	Profits	2.417	0.235	10.289	10.289	1.701	1.669
28	Unga Group	Size	0.732	0.156	4.706	4.706	1.701	0.237
28	Unga Group	Variability	1.960	0.273	7.176	7.176	1.701	1.091

TABLE X5

Analysis of cash-holding that the Static model attempts to explain 1992 - 2001

Code	Company	2001 Cash	2000 Cash	1999 Cash	1998 Cash	1997 Cash	1996 Cash	
1	Brooke Bond	2.7%	7.3%	6.0%	1.4%	0.3%	1.7%	
2	Egaads	11.5%	12.1%	21.1%	37.6%	23.6%	4.0%	
3	George Williamson Kenya	5.7%	2.5%	0.7%	3.9%	0.8%	0.5%	
4	Kakuzi	0.5%	1.7%	0.2%	0.3%	0.3%	0.5%	
5	Kapchorua Tea Co	4.1%	0.5%	5.3%	4.8%	6.0%	1.0%	12
6	Limuru Tea Co	11.5%	50.1%	1.6%	3.1%	0.3%	1.3%	
7	Sasini Tea & Coffee	5.9%	9.7%	5.6%	7.5%	3.3%	0.5%	
8	ABaumann & Co	0.7%	0.6%	0.7%	1.1%	3.6%	7.6%	9
9	Car & General	1.2%	1.3%	0.9%	2.8%	0.9%	1.4%	
10	CMC Holdings	0.4%	0.2%	0.2%	0.4%	0.2%	0.4%	
11	Express	0.7%	1.9%	1.9%	0.3%	0.3%	3.6%	
12	Marshalls	0.3%	0.2%	0.1%	0.6%	3.1%	0.2%	
13	Nation Media Group	10.8%	12.4%	8.4%	8.4%	17.0%	9.5%	
14	Standard Newspaper Group	1.8%	2.6%	1.7%	4.5%	7.2%	4.6%	
15	Bamburi Cement	2.1%	2.9%	2.7%	5.7%	5.5%	14.6%	13
16	BOC Kenya	25.6%	25.0%	28.0%	0.7%	0.8%	1.5%	
17	British American Tobacco	7.4%	8.5%	5.9%	4.9%	2.6%	1.4%	
18	Carbacid Investments	1.8%	1.5%	5.6%	12.2%	3.0%	1.3%	
19	Dunlop Kenya	0.6%	1.2%	0.7%	12.3%	39.2%	36.2%	23
20	EA Portland Cement	10.6%	7.1%	5.2%	1.5%	0.3%	9.0%	
21	East African Breweries	2.7%	1.6%	2.7%	3.2%	1.4%	1.1%	
22	East African Cables	4.4%	2.9%	0.0%	38.0%	20.9%	34.8%	33
23	East African Packaging	2.0%	0.3%	0.0%	0.0%	0.0%	0.0%	
24	Kenya National Mills	2.0%	11.7%	5.1%	5.0%	2.0%	1.5%	
25	Kenya Oil Company	19.5%	25.4%	48.1%	9.7%	3.0%	3.3%	
26	Kenya Power & Lighting	2.2%	1.1%	1.9%	1.4%	7.7%	1.5%	
27	Total Kenya	2.1%	8.5%	9.7%	6.8%	11.6%	12.6%	12
28	Unga Group	1.3%	8.4%	2.7%	4.5%	2.0%	2.7%	
40	Average Cross Sectional	9.3%	4.7%	4.4%	3.5%	4.1%	4.2%	

*The table shows the cashholding for the period under review. The highlighted ones relate to those
could not be used to explain changes cash.*