MAF016 The Determinants of corporate cash holding levels: Evidence from selected South African retail firms

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Abstract

With corporate cash holding on the rise, there is a need to know at what levels does cash holdings become detrimental to corporate value. Studies have identified the following as determinants of corporate cash holdings; firm size, growth opportunities, liquid asset substitutes, capital expenditure, leverage, cash flows and dividend payments, little literature are available especially from the context of South African retail industry. Hence, this study undertakes to investigate the determinants of corporate cash holding in the South African retail industry. The paper uses panel data to test the relationship between cash holding level and its determinants. This study intends to extend existing financial literature by adding empirical evidence from a growth geared African country into the ongoing discussion of corporate cash holdings.

Keywords: pecking order theory; trade-off theory, free cash flow theory; precautionary motives, speculative motives and transaction motives.

INTRODUCTION

There has been a notable increase in corporate cash holding levels with recent reports showing that Apple and GM Motors were each holding more cash than the US treasury. But just how much cash is too much and what informs the decision on how much cash a firm should hold. This study undertakes to investigate what determines the levels of corporate cash holdings. A majority of literature on corporate cash holdings has also focussed on the determinants of corporate cash holdings. For instance, Kim, Mauer and Sherman (1998) studied the determinants of cash holdings for some US companies and found that firms with higher costs of external financing, firms with unstable earnings, together with firms with relatively lower returns on assets hold larger cash reserves. Opler, Pinkowitz, Stulz and Williamson (1999) also show that small firms and firms with good growth opportunities and volatile cash flows hold huge amounts of cash. The majority of these studies, however, have mainly focussed on western countries with a few studies focusing in Asia ((Pinkowitz, Stulz and Williamson, 2014; Fischer, Marsh and Brown, 2014; Uyar and Kuzey, 2013; Horioka and Terada, 2013; Islam, 2012). Little or no research has been done in African countries especially South Africa. The purpose of this study is to investigate the determinants of cash holdings of the JSE listed non-financial companies.

But why do companies hold cash? Several studies in the US, and of late, in Europe, Asia and a few developing countries have focused on corporate cash holdings based on the following theories; the trade-off theory (Myers, 1977), the pecking order theory (Myers and Majluf,

1984) and the free cash flow theory. Although there has been a number of cash holding studies (Kim et al., 1998; Pinkowitz and Williamson, 2001; Opler et al., 1999; Bates et al., 2009; Ferreira and Vilela, 2004 and Hardin et al., 2009), we are not aware of any study targeting cash-holding determinants in Africa, a continent with high growth potential. This study attempts to address that gap and to encourage further research on the determinants of cash holdings for the firms operating in this developing continent albeit in South Africa. This study should extend existing financial literature by adding empirical evidence from a growth geared African country into the ongoing discussion of corporate cash holdings.

PROBLEM STATEMENT

Corporate policies regarding cash and cash equivalents such as marketable securities have significant importance in the finance theory and applied corporate world (Ali and Yousaf, 2013). Managers are expected to hold an optimal level of cash that will enhance shareholder value. With corporate cash holding on the rise, there is a need to know at what levels does cash holdings become detrimental to corporate value. Users of financial information should be able to understand the reasons why a particular firm is holding cash and whether it is in the best interest of the shareholders or not. Studies in the US, Europe and Asia had identified the following as determinants of corporate cash holdings; firm size, growth opportunities, liquid asset substitutes, capital expenditure, leverage, cash flows and dividend payments (Pinkowitz, Stulz and Williamson, 2014; Fischer, Marsh and Brown, 2014; Uyar and Kuzey, 2013; Horioka and Terada, 2013; Islam, 2012). Although much study has been done on the determinants of corporate cash holding, little literature are available especially from the context of South African retail industry. Hence, this study undertakes to investigate the determinants of corporate cash holding in the South African retail industry.

AIM OF STUDY

The aim of this study is to evaluate the determinants of corporate cash holdings among South African Retail Firms.

RESEARCH HYPOTHESIS

1. Hypothesis 1: Cash holdings are negatively related to firm size
2. Hypothesis 2: Cash holdings are negatively related to leverage
3. Hypothesis 3: Cash holdings are positively related to Investment opportunities
4. Hypothesis 4: Cash holdings are negatively related to liquid asset substitutes
5. Hypothesis 5: Cash holdings are negatively related to capital expenditure

LITERATURE REVIEW

Introduction

Recent studies (Faulkender and Wang, 2006; Dittmar and Mahrt-Smith, 2007) have confirmed the Jensen (1986)'s free cash flow hypothesis that an additional dollar that a firm holds is actually less than one dollar. Daher (2010) argues that underlying these finding is the assumption that excess cash conceals the benefits of externally sourced funds as the monitoring tool as well as allowing managers to extract personal benefits. Be that as it may, recent studies have provided empirical evidence of an increasing trend in the cash holdings

for US firms (Bates, Kahle and Stulz, 2009) and for European Union (EU) firms (Ferreira and Vilela, 2004).

In perfect markets with no information asymmetry, taxes and agency and/or transaction costs, companies have no need to hold cash as there are no benefits or costs of allocating cash. When internal cash held by the firm is not sufficient to meet the needs, the firm can obtain external financing at fair prices that do not compromise growth and investment (Gomes, 2012). In such a frictionless world, cash holding would have no effect on firm value () nor on shareholder wealth (Opler et al., 2001). Markets are however imperfect and these imperfections cause external financing to be more expensive than internal resources. Therefore in the real world of imperfect markets, corporate cash holding is a strategic component of the corporate capital structure.

As highlighted by Gomes, 2012, empirical literature has focused greatly on the determinants of corporate cash holdings. These include US firms (Dittmar and Mahrt-Smith, 2007; D'Mello, Krishnaswami and Larkin, 2008; Foley, Hartzell, Titman and Twite 2007; Harford, Mansi and Maxwell, 2008; Opler, Pimkowitz, Stulz and Williamson, 1999); UK setting (Ozkan and Ozkan, 2004; Al-Najjar and Belghitar, 2011); European single countries (Bigelli and Sanchez-Vidal, 2012 - Italian firms; Bruinshoofd and Kool, 2004 - Dutch firms; Deloof 2001 - Belgian firms; Drobetz and Gruninger, 2007 - Swiss non-financial firms; Garcia-Teruel and Martinez Solano, 2008 – Spanish firms); EU firms (Ferreira and Vilela, 2004; Pal and Ferrando, 2010) and cross-country comparisons (Al-Najjar, 2012; Dittmar, Mahrt-Smith and Servaes, 2003; Guney, Ozkan and Ozkan, 2007; Pinkowitz and Williamson 2001; Ramirez and Tadesse, 2009). Studies have examined the trade-off theory, perking order theory, the agency theory and motives of holding cash in trying to gauge the optimal level of cash holding.

In the next section, we begin to expound the three theories of cash holdings that have been used to explain the pattern of cash holdings across various industries. The same theories are expected to be relevant even to the retail industry.

THEORETICAL GROUNDING

Trade off theory
According to Afza & Adna (2007), management with a focus to maximise shareholder wealth should aim to achieve an optimal cash holding level by weighting the marginal benefits and marginal costs of holding cash. Opler et al. (1999) as well as Ferreira and Vilela (2004) explains two fundamental motives that make cash-holding beneficial. Firstly, the transaction motive reasons that firms will retain cash in order to minimise the transaction costs that are normally incurred in raising funds as well as to avoid having to liquidate assets to make payments. The cash held becomes a buffer between the company's sources of and uses of funds and this reduces costs (Ferreira and Vilela, 2004). Lastly, the precautionary motive is when a firm hoards cash in anticipation of turbulent times, when financial markets may not be an attractive source of funding for growth (Myers and Majluf, 2004). This motive pushes

smaller firms that have riskier cash flows and firms with good opportunities for investment and growth to hold more cash (Kim, Kim and Woods, 2010). Holding more cash, however, comes with a price as firms have to pay a liquidity premium in the form of the lower rate of return generated by these stored liquid assets. Shah (2012) posits that the main cost of holding cash is the opportunity cost of capital invested in liquid assets. Firms that hold cash incur opportunity costs, such as forfeited profitable investments (Ferreira and Vilela, 2004).

The Pecking order theory
The pecking order theory of Myers and Majluf (1984) refutes the existence of an optimal cash level. Rather they envisage that the existence of asymmetric information between firms and capital markets makes external funds more expensive for firms and thus incentivizes the holding of cash. To avoid these costs, firms will opt to use internal resources to finance investments before tuning to safe debt and risky debt and lastly, if needs be, equity (Ferreira and Vilela, 2004). This order of financing was also found in the survey by Myers (2003) and is supported Demir, Seref Kalayci and Ismail Celik (2007), and Chikashi Tjuji (2011). Key to this theory is the presence of asymmetric information which implies that management has more information that the external stakeholders. This makes external financing more expensive than internal sources as the less informed stakeholders would want to be compensated for the risk of not having equal information. Against this backdrop, managers with a mandate to increase shareholder wealth would prefer to finance their new investment projects in this order, firstly with internal resources, secondly with cheap debt and lastly with equity. Cash holding is thus a result of the different financing and investment decisions suggested by the pecking order of finance (Dittmar, Mahrt-Smith and Servaes, 2003).

The Free cash flow theory
In financial management, the agency theory addresses the problems that often arise between the principal (shareholders) and the agent (management). The agent has the duty to act and conduct the firm's business in a way that maximises shareholders' wealth. Researchers have found that among other things, there is often a conflict between maximising shareholders' wealth and maximising management remuneration. Another conflict arises when the principal and the agent have contrasting risk outlooks (Thieu and Ngoc, 2013). "In the first case, conflicts occur when actual decisions of managers are out of control of shareholders because they are difficult and expensive to verify. In the second situation, when judgements of risk are diverse seriously, shareholders and managers cannot be unanimous how to settle the problem, conflicts arise unavoidably." (Thieu and Ngoc, 2013:7). Hence Daher (2010)'s conclusion that as regarding corporate cash holdings, the agency theory include two suppositions: a) the free cash flow hypothesis b) the risk-reduction hypothesis.

Free cash flow hypothesis
The free cash flow hypothesis by Jensen (1986) objects to the existence of a target cash level. According to Harford (1999), corporate cash holdings are perceived as free cash flows since they can be used to serve management's own interests at the expense of the shareholders. The free cash flow hypothesis thus envisages that managers are more inclined to stock up cash as it increases the amount of assets under their control. This in turn affords them more

unrestricted investment prerogative. With a stockpile of cash, managers can easily avoid the capital markets and do not have to comply with their transparency requirements regarding possible investments (Ferreira and Vilela, 2004). "Managers' selfish behaviours can include lavish spending on luxurious offices and unjustifiable mergers and acquisitions. Hence, excess cash can create overinvestment problems because they may be used to fund negative NPV projects." (Thanatawee, 2011:53). This agrees with Dittmar and Mahrt-Smith (2007)'s notion that shareholders ascribe an inferior value to a marginal dollar of cash reserves when there is a greater probability for agency problems in a firm.

Risk-reduction hypothesis
While the free cash flow hypothesis has received fear coverage in the agency theory literature, only a few researchers have focussed on the risk reduction hypothesis namely Opler et al. (1999), and Zhenxu Tong (2006). The risk reduction hypothesis addresses the conflict that might occur when management and the shareholders have different risk attitudes. "Since corporate cash holdings can be viewed as risk-free investments, a risk-averse and self-interested CEO can allocate more firm assets to corporate cash holdings to reduce firm risk at the expense of giving up some positive NPV but risky projects, which is not beneficial to shareholders." (Tong, 2006:3). In his study, Tong (2006) investigates how the CEO's risk incentives influence the level of a firm's cash holding where the CEO's risk incentive is measured by "the sensitivity of the value of executive stock options (ESO) to the volatility of stock returns ESO risk incentives." (Tong, 2006:4). His findings were that firms with lower ESO risk incentives were holding more cash reserves confirming the hypothesis that risk-averse and self-seeking managers will channel company assets to cash holdings with the effect of reducing firm risk in a fashion that is detrimental to the shareholders.

MOTIVES OF HOLDING CASH

Further to the above theories, there are various other motives that influence firms to hold cash. The most outstanding, in literature, of these are the transaction motive, the precautionary motive and the tax motive. These are discussed below.

The transaction motive
The transaction motive is a classic model for optimal demand for cash which gained popularity in the 60s with the major proponents being Miller and Orr (1966).The reasoning behind this motive is that in a case where a firm does not have cash to meet its financial obligations or to invest in lucrative projects, the firm either has to approach the financial markets or dispose noncash financial assets to raise the finance needed. The cash needed to make these payments is the optimal demand for cash. Unfortunately, these fund-raising transactions oftentimes incur significant costs (Bates et al., 2009). Saddour (2006), states that in a world of imperfect markets a firm can circumvent transaction costs by increasing its cash holding.

The precautionary motive

Firms tend to retain more cash if they anticipate future cash flows to be volatile and access to capital markets to be costly (Bates et al, 2009). According to Mikkelson and Patch (2003), if future cash flows are expected to be volatile firms will increase their cash holding as a way of hedging against the future uncertainty. These differential cash holdings are known in literature as precautionary cash holdings. Evidence by Almeida, Campello and Weisbach (2004) suggest that the precautionary motive is largely relevant to financially distressed firms than to their unstressed peers. "Financially unconstrained firms have no use for cash, but also face no cost of holding cash (i.e., their cash policies are indeterminate)." (Almeida, Campello and Weisbach, 2004: 1778). Ham and Qui (2006) extend the study of Almeda et al (2004) by investigating how firms' precautionary cash holdings, cash flow uncertainty and financial constraints influence one another. Their study bases on the findings that firms, "whose primary aim is to maximise the present value of dividend pay-outs to investors," are often short of ways of diversifying from future cash flows uncertainty and have to choose between current and future investments (i.e. there is an intertemporal trade-off between current investments and future investments). Thus the limitation in diversifying from future cash flows uncertainty and the resulting intertemporal trade-off between present and future investments are seen as the drivers of precautionary cash holdings. Han and Qui (2007) concur with the findings of Almeida et al. (2004) in that financially unconstrained firms do not have precautionary motives of holding cash. Rather they find that distressed firms are unable to commit to future investments without cutting back on current investments as they have depleted their external financing resources. Therefore the precautionary motive of cash holding results in a direct relationship between cash flow volatility and cash holdings and an inverse relationship between "current investments and cash flow volatility for financially constrained firms." (Han and Qui, 2007:3). Lastly, a model by Acharya, Almeida and Campello (2007) posited that if there is a low correlation between operating income and growth opportunities, firms would rather hoard more cash than to pay off debt.

The tax motive

While the transaction motives and the precautionary motives have largely been cited in empirical literature to be driving corporate cash holdings, Hartzell, Titman and Twite (2005) found evidence that the cash holdings by US transnational firms were in part influenced by the repatriation taxes. The US imposes taxes on the income earned by the foreign operations of local firms, although they award tax credits for the foreign taxes paid by the foreign operations. In this study, Hartzell et al. found that US firms with foreign subsidiaries tend to hold the cash earned in the foreign subsidiaries to avoid taxes upon repatriation. These overseas subsidiaries will use their earnings to invest in profitable projects with the remainder of the earnings being kept as cash reserves. Foley, Hartzell, Titman and Twite (2007) found that firms exposed to greater tax burdens on repatriated earnings will hold more cash. While Hartzell et al. (2005)'s and Foley et al. (2007)'s findings apply to the US and many other countries, the South African tax laws are different.

RESEARCH HYPOTHESIS: THE DETERMINANTS OF CASH HOLDING

Firm size

Larger firms are more likely to hold less cash than smaller firms as they have easier and cheaper access to capital markets and as such minimal borrowing constraints when compared to smaller firms (Ozkan and Ozkan, 2004). This agrees with the trade-off theory that predicts a negative relationship between firm size and the corporate cash holding.

There is considerable literature that upholds this negative relationship between firm size and cash-holding level. In a study focussing on spin-offs D'Mello., Krishnaswami, S., Larkin, P.J. (2008) found the same negative relationship, as did Harford et al. (2008) and Bates et al. (2009). Based on these theoretical and empirical findings, we hypothesize a negative relationship between size and cash holdings. In this study, firm size is measured using the natural logarithm of total assets (TA). The logarithm is chosen in order to reduce the significant asset variance across the retail firms (J. Kim et al., 2011).

H1: Cash holdings are negatively related to firm size

Leverage

Both the trade-off and the pecking order theories envisage a negative relationship between cash holdings and leverage. Bates et al. (2009) and Ferreira & Vilela (2004) concur with Opler et al. 1999) that firms with high debt ratios have low cash reserves as they have to pay out their outstanding debts. Highly levered firms are likely to hold less cash as they are more subject to monitoring by the capital markets to prevent unfettered management discretion Ferreira and Vilela (2004). This negative relationship has been supported by Bates et al. (2009), D'Mello et al. (2008) and Hardin et al. (2009). On the strength of these theoretical and empirical findings, we hypothesize a negative relationship between cash holding level and leverage.

H2: Cash holdings are negatively related to leverage

Investment opportunities

Pinkowitz and Williamson (2007) found that cash is more valuable for firms with greater and more volatile investment opportunities. As such firms with valuable growth opportunities are more likely to demand greater funds in the future to finance these investments (D'Mello et al., 2008). Unfortunately these firms operate in opaque informational environments and this asymmetry pushes up the cost of external funding. While the escalation of the cost of external financing increases the probability of missing out on profitable investment opportunities, holding liquid assets , like cash, allows firms to exploit profitable opportunities whenever they arise (Hardin et al., 2009). Consequently, firms with higher investment opportunities will hold larger amounts of cash to reduce the likelihood of giving up on these lucrative opportunities. The precautionary motive theory also supports the notion that there is a positive relationship between investment opportunities and cash holdings as firms with more investment opportunities will hold onto more cash because adverse shocks and financial

distress are dearer to them than to firms with fewer investment opportunities (Bates et al., 2009). Complimentary arguments of this relationship were raised by Ozkan and Ozkan (2004), while empirical studies (Bates et al., 2009; Ferreira and Vilela, 2004; Hardin et al., 2009) confirm the positive relationship between investment opportunities and cash holdings. We thus hypothesize a positive relationship between investment opportunities and cash holdings in restaurant firms.

Market-to –book value ratio is used as a proxy for retail firm's investment opportunities.

> H3: There is a positive relationship between cash holdings and investment opportunities

Liquid asset substitute

While the pecking order theory posits that there is no relationship between cash holding levels and liquid asset substitutes, the trade-off theory predicts a negative relationship between two variables. Liquid asset substitute can easily be turned into cash more cheaply than any other asset (Ozkan and Ozkan, 2004), hence the more liquid asset substitutes a firm has the lower its cash reserves. Essentially these non-cash liquid assets can be treated as substitutes for cash (Bates et al., 2009) and firms with plenty of these liquid asset substitutes can rely on them instead of capital markets (Ozkan and Ozkan, 2004). J Kim et al. (2011), Hardin et al. (2009) and Ferreira and Vilela, (2004) provide empirical evidence that liquid asset substitutes have a negative relationship with firm's cash holding levels. We therefore hypothesize that there is a negative relationship between liquidity and cash holdings of retail firms in South Africa. Like previous studies (J. Kim et al. (2011), Hardin et al. (2009) and Ozkan and Ozkan (2004), this study uses the ratio of net working capital minus cash to total assets to quantify a retail firm's degree of liquid asset substitutes.

> H4: There is negative relationship between cash holdings and liquid asset substitutes

Capital expenditure

Kim et al. (2011) found that firms with greater capital expenditures hold less cash. Bates et al. (2009) argued that an increase in capital expenditures leads to lower cash holdings as improvements made through the capital expenditures can be used as collateral when borrowing. This negative relationship concurs with the pecking order theory that says capital spending consumes firm's cash. The trade-off theory however suggest a positive relationship since firms with high capital expenditure are likely to hold cash as a buffer against transaction costs that arise from using external capital. Taking sides with the perking order theory as well as empirical findings a negative relationship between cash holding level and capital expenditure is hypothesized. Again this study like Bates et al. (2009) and Kim et al. (2011) measures a retail firm's capital expenditure using the ratio of capital expenditure to total assets.

> H5: There is a negative relationship between cash holdings and capital expenditure

METHODOLOGY

Research design
In order to understand the determinants of corporate cash holding from theoretical and empirical evidence, this study used a quantitative research method. Like other studies before (J. Kim et al., 2010; Ozkan and Ozkan, 2004 and Ferreira and Vilela, 2004) we use panel data analyses to test the relationship between cash holding level and its determinants.

Population and Sampling
The population of this study is made up of the retail firms listed on the Johannesburg Stock Exchange (JSE). There are 26 listed retail firms. The sample consists of 10 randomly selected retail firms of the 26 listed retail firms on the Johannesburg Stock Exchange (JSE). As the 10 firms were a random sample of the retail firms listed on the JSE, it can be assumed that they are representative of the entire population.

Data Collection
The data for the variables used in the study were collected from annual reports available on the selected firms' websites. Data on market to book ratio, the measure for growth opportunities, was collected from Inet BFA. A panel data of year 2009-2014 was used for the empirical testing of the hypothesis discussed under the literature review section.

Data Analysis
Following Shah (2012) and Islam (2012), the study used the multiple regression analysis to conduct data analysis.

ANALYSIS AND DISCUSSION

Multiple Regression Analysis
Multiple regression analysis was utilised to measure the influence of the explanatory variables on the dependent variables (see Appendix 1 and 2). The results are presented in table 4.1 below.

Table 4.1

	Coefficient	Std. Error	t-ratio	p-value	
Const	1.0275	0.340755	3.0154	0.00421	***
Size	-0.225124	0.0933331	-2.4120	0.02000	**
Lev	-0.00573302	0.0259686	-0.2208	0.82627	
MTV	-0.00882373	0.00887469	-0.9943	0.32541	
Liqasset	-0.00920737	0.0731819	-0.1258	0.90044	
Capex	0.0142554	0.0191407	0.7448	0.46028	

Table 4.1 shows that of all the explanatory variables, only Size has a significant influence on Cash holding. The hypothesised relationships are found to be valid for Size, Lev and Liqasset but an opposite relationship is found for MTV and Capex.

The observed relationship can be expressed as:

$$Cash = 1.028 - 0.225 Size - 0.006 Lev - 0.009 MTV - 0.009 LiqAst + 0.014 Capex + 0.34$$

Table 4.2

Mean dependent var	0.135341	S.D. dependent var	0.116899
Sum squared resid	0.263887	S.E. of regression	0.076578
R-squared	0.672700	Adjusted R-squared	0.570873
F(14, 45)	6.606310	P-value(F)	5.45e-07
Log-likelihood	77.66106	Akaike criterion	-125.3221
Schwarz criterion	-93.90696	Hannan-Quinn	-113.0339
Rho	0.046411	Durbin-Watson	1.661991

Test for differing group intercepts -
Null hypothesis: The groups have a common intercept
Test statistic: $F(9, 45) = 5.84965$
with p-value = $P(F(9, 45) > 5.84965) = 2.28132e-005$

Test for normality of residual -
Null hypothesis: error is normally distributed
Test statistic: Chi-square (2) = 1.1866
with p-value = 0.552501

The adjusted R-squared value shows that about 57% variation in cash holding levels is explained by the variations in the five variables; firm size, leverage, investment opportunities, liquid asset substitutes and capital expenditure.

The analysis find that only firm size had a significant negative relationship with cash holdings confirming the trade-off theory as well as Ozkan and Ozkan (2004) who posits that larger firms have easier and cheaper access to capital markets and as such faces minimal borrowing constraints. These larger firms will thus hold less cash than smaller firms as they can get cash easily and cheaply elsewhere. Leverage, Investment opportunities, liquid asset substitutes and capital expenditure have no significant influence on cash holding levels.

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

Conclusion
This study concludes that the major determinant of corporate cash holding in the JSE listed retail firms is firm size. The other four variables (leverage, investment opportunities, liquid asset substitutes and capital expenditure) do not show any significant influence on cash holdings. The studied variables explain 57% of the variation in cash holdings, while the remaining 43% variation is owing to unknown factors that were not studied in this study.

The study seems to support the trade-off theory of holding cash since smaller firms will hold more cash either as a precautionary and transaction motive.

Limitations
This study only focuses on a sample of South African retail firms and such the findings can only be generalised to retail firms similar to the ones used in the study. The sample size of 10 firms is also very small.

Recommendations
Future research should look at other sectors other than the retail industry.

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Appendix 1

Advtech

	Total Assets	Cash	Net Working Capital	Fixed Assets	Dep and Amor
2014	1960	114	-717	1646	84
2013	337	98	-9	1398	70
2012	287	58	-35	1132	68
2011	1155	-24	-225	976	62
2010	985	38	-175	853	66
2009	928	40	-177	788	59
2008	799				

Cashbld

	Total Assets	Cash	Net Working Capital	Fixed Assets	Dep and Amor
2014	2616	704	466	873	101
2013	2069	124	520	693	82
2012	1926	488	494	583	65
2011	2137	721	367	552	56
2010	1861	542	358	463	49
2009	1718	348	309	378	42
2008	1605				

Clicks

	Total Assets	Cash	Net Working Capital	Fixed Assets	Dep and Amor
2014	6192	196	81	1772	220
2013	5445	92	371	1602	200
2012	4773	25	345	1505	183
2011	4235	18	170	1415	158
2010	4111	152	172	1384	128
2009	4181	410	81	1362	114
2008	3585				

CMH

	Total Assets	Cash	Net Working Capital	Fixed Assets	Dep and Amor
2014	2574	308	660	214	28
2013	2494	335	594	191	40
2012	2483	395	511	403	25
2011	2177	313	463	391	26
2010	2005	253	433	370	117
2009	1968	212	400	388	101
2008	2248				

JD

	Total Assets	Cash	Net Working Capital	Fixed Assets	Dep and Amor
2014	6852	890	45	6852	488

			Net Working		
2013	9903	791	5669	9903	489
2012	5663	1523	7680	5663	307
2011	4682	1486	5805	4682	229
2010	9281	757	4628	9281	187
2009	8926	725	4526	8926	197
2008	8673				

Mr Price

	Total Assets	Cash	Net Working Capital	Fixed Assets	Dep and Amor
2014	6563	2252	3005	1137	215
2013	4898	1150	2588	927	216
2012	4296	1201	2228	744	190
2011	3861	1369	1965	608	197
2010	3610	1171	1595	686	180
2009	3271	661	1096	893	157
2008	2792				

PicknPay

	Total Assets	Cash	Net Working Capital	Fixed Assets	Dep and Amor
2014	14105	870	-1253	5740	948
2013	13022	-270	-1301	3918	896
2012	11819	1272	-1088	5098	808
2011	11101	-432	-538	4079	733
2010	11199	1055	-1313	4849	735
2009	10576	1073	-1297	4336	616
2008	4258				

Shoprite

	Total Assets	Cash	Net Working Capital	Fixed Assets	Dep and Amor
2014	40533	8100	6924	15730	1525
2013	33480	6114	6738	13304	1336
2012	30906	7916	6361	11095	1090
2011	20704	-81	1092	9288	934
2010	17992	1345	-570	7549	839
2009	16739	2811	-258	6049	754
2008	14854				

Spar

	Total Assets	Cash	Net Working Capital	Fixed Assets	Dep and Amor
2014	16946	-533	391	5692	184
2013	9787	1	582	2382	146
2012	9899	842	852	2226	125
2011	8302	-19	1022	2124	123
2010	7529	-446	286	2006	108
2009	6540	-283	294	1856	92
2008	5834				

Woolies

	Total Assets	Cash	Net Working Capital	Fixed Assets	Dep and Amor
2014	22269	1666	678	8192	872
2013	12203	1582	991	6773	755
2012	10069	2145	738	5015	606
2011	9065	2293	1438	4115	513
2010	9010	2917	1182	3663	442
2009	8305	2391	1978	3436	401
2008	11257				

Appendix 2

Advtech

	Cash	Size	Leverage	Investment Opportunity Market to book value	Liquid asset substitute	Capex
2014	0.058163	3.292256	1.11	4.06	-0.42398	5.065282
2013	0.290801	2.52763	0.91	3.22	-0.31751	0.418118
2012	0.202091	2.457882	0.68	3.06	-0.32404	-0.69264
2011	-0.02078	3.062582	0.54	3.45	-0.17403	0.235533
2010	0.038579	2.993436	0.45	3.54	-0.21624	0.132543
2009	0.043103	2.967548	0.52	3.29	-0.23384	0.235294

Cashbuild

	Cash	Size	Leverage	Market to book value	Liquid asset substitute	Capex
2014	0.269113	3.417638	1.04	2.47	-0.09098	0.313195
2013	0.059932	3.31576	0.78	2.53	0.191397	0.116822
2012	0.253375	3.284656	0.87	3.18	0.003115	-0.06832
2011	0.337389	3.329805	1.56	2.72	-0.16565	0.178399
2010	0.291241	3.269746	1.49	2.33	-0.09887	0.111758
2009	0.202561	3.235023	1.77	2.58	-0.0227	0.096573

Clicks

	Cash	Size	Leverage	Market to book value	Liquid asset substitute	Capex
2014	0.031654	3.791831	2.77	10.24	-0.01857	0.177594
2013	0.016896	3.735998	2.78	10.25	0.05124	0.182694
2012	0.005238	3.678791	2.33	10.42	0.067044	0.170248
2011	0.00425	3.626853	3.14	10.36	0.035891	0.068596
2010	0.036974	3.613947	2.36	8.26	0.004865	0.013872
2009	0.098063	3.62128	2.47	4.86	-0.07869	0.198047

CMH

	Cash	Size	Leverage	Market to book value	Liquid asset substitute	Capex
2014	0.119658	3.410609	3.55	2.11	0.136752	0.043304
2013	0.134322	3.396896	2.42	1.81	0.103849	0.02054
2012	0.159082	3.394977	2.69	1.6	0.046718	0.152044
2011	0.143776	3.337858	2.68	2.53	0.068902	0.098753
2010	0.126185	3.302114	2.98	1.93	0.089776	0.078252
2009	0.107724	3.294025	3.31	1.15	0.095528	-0.07963

JD Group

	Cash	Size	Leverage	Market to book value	Liquid asset substitute	Capex
2014	0.129889	3.835817	1.61	0.87	-0.12332	-0.25881
2013	0.079875	3.995767	1.48	0.78	0.492578	0.83507
2012	0.268939	3.753047	1.12	1.05	1.087233	0.275096
2011	0.317386	3.670431	0.98	1.05	0.922469	-0.47085
2010	0.081564	3.967595	0.83	1.42	0.417089	0.060721
2009	0.081223	3.950657	0.8	1.52	0.425835	0.051885

Mr Price

	Cash	Size	Leverage	Market to book value	Liquid asset substitute	Capex
2014	0.343136	3.817102	0.66	9.06	0.114734	0.38383
2013	0.23479	3.690019	0.47	8.21	0.293589	0.19041
2012	0.279562	3.633064	0.54	8.15	0.23906	0.161875
2011	0.354571	3.5867	0.61	6.27	0.154364	0.1241
2010	0.324377	3.557507	0.73	4.9	0.117452	0.158667
2009	0.202079	3.514681	0.81	3.3	0.132987	0.227794

PicknPay

	Cash	Size	Leverage	Market to book value	Liquid asset substitute	Capex
2014	0.06168	4.149373	3.83	7.87	-0.15051	0.155967
2013	-0.02073	4.114678	4.01	9.28	-0.07917	0.177595
2012	0.107623	4.072581	3.57	8.82	-0.19968	0.137465
2011	-0.03892	4.045362	3.79	9.72	-0.00955	0.056701
2010	0.094205	4.049179	3.89	8.9	-0.21145	0.128404
2009	0.101456	4.024321	4.84	8.98	-0.22409	1.628464
		3.629206				

Shoprite

	Cash	Size	Leverage	Market to book value	Liquid asset substitute	Capex
2014	0.199837	4.607809	1.28	4.89	-0.02901	0.256213
2013	0.182616	4.524785	1.13	6.13	0.018638	0.126513
2012	0.256131	4.490043	1.34	6.18	-0.05031	0.545402
2011	-0.00391	4.316054	1.76	6.97	0.056656	0.202646
2010	0.074755	4.255079	1.86	7.03	-0.10644	0.124978
2009	0.167931	4.22373	2.21	5.59	-0.18334	0.177663

Spar

	Cash	Size	Leverage	Market to book value	Liquid asset substitute	Capex
2014	-0.03145	4.229067	4.42	7.26	0.054526	0.750281
2013	0.000102	3.99065	2.01	6.55	0.059364	0.003435
2012	0.085059	3.995591	2.4	7.65	0.00101	0.20742
2011	-0.00229	3.919183	2.25	6.56	0.125391	0.119007
2010	-0.05924	3.876737	2.35	6.77	0.097224	0.167737

	Cash	Size	Leverage	Market to book value	Liquid asset substitute	Capex
2009	-0.04327	3.815578	2.26	5.56	0.088226	0.136784

Woolies

	Cash	Size	Leverage	Market to book value	Liquid asset substitute	Capex
2014	0.074813	4.347701	2.12	8.82	-0.04437	0.896337
2013	0.12964	4.086467	0.9	8.62	-0.04843	0.28692
2012	0.21303	4.002986	0.97	8.36	-0.13974	0.177606
2011	0.252951	3.957368	1	5.54	-0.09432	0.063041
2010	0.323751	3.954725	1.39	5.48	-0.19256	0.13811
2009	0.287899	3.91934	1.46	3.17	-0.04973	-0.22661