

The relationship between the management of payables and the return to investors

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Abstract

Effective working capital management assists a firm in achieving improved liquidity through the management of the components of receivables, inventory and payables. Previous studies have established that changes in working capital have a strong positive correlation to profitability and that whilst changes to receivables and inventory have a positive correlation to profitability, changes in payables have an inverse relationship. The inverse correlation of payables and profitability is contrary to the theory that advocates extending payment terms as a means of managing working capital and improving liquidity.

We apply a style-based test to an extensive database of Johannesburg Stock Exchange (JSE) listed South African companies over the period 1986 – 2014. We find that for those companies in industries that have a significant investment in payables, there is a significant positive association between payable days and shareholder return, which supports the general theory of working capital management.

Keywords: working capital management, accounts payable,

Introduction

The theory of working capital management is well established in various textbooks and studies, and in particular, an improvement (i.e. reduction) in working capital is postulated as being beneficial to shareholders (Ward & Price (2006), Nazir & Afza (2009), Graham & Winfield (2010) and Nobanee, Abdullatif & Al Hajjar, (2011)). Of the three major constituents of working capital (cash and securities, accounts receivable and accounts payable), there is more ambiguity related to the management and benefit of payables than cash or receivables. Furthermore, many studies use accounting metrics (profit margin, return on equity etc.) as the dependent variable and not market related measures such as returns to investors.

Accordingly, this study focuses on the relationship between the return to investors and the management of accounts payable.

Literature review

To date, empirical studies of working capital management have generally confirmed a negative association between the working capital cycle¹ and profitability (Deloof (2003), Lazaridis & Tryfonidis (2006), Filbeck & Krueger (2005), Erasmus (2010), Bagchi and Khamrui (2012), Sabri (2012)).

However, as indicated above, the relationship between payables and profitability is less certain. Several researchers have noted a negative association between payable days and profitability, contradicting theory, which advises extending payables days in order to retain the cash for a longer period and use it to fund the activities of the business including re-investment or acquisition.

Deloof (2003) states that “[t]he negative relationship between accounts payable and profitability is consistent with the view that less profitable entities wait longer to pay their bills” and “in that case, profitability affects accounts payable policy, and not vice versa”

¹ The working capital cycle measures the average number of days' worth of sales which is invested in net working capital. This is typically calculated as $= ((\text{cash} + \text{marketable securities}) / \text{sales} * 365) + ((\text{accounts receivable}) / (\text{sales}) * 365) - ((\text{accounts payable}) / (\text{cost of sales}) * 365)$.

(p 585). Deloof suggests that it is the inability of firms in distress to generate enough cash to pay their payables that results in extending payables days. This is not a management choice but a forced reaction and as a result, it distorts the results.

Deloof (2003) also suggests an alternate explanation for this relationship: “[s]peeding up payments to suppliers might increase profitability because Belgian entities often receive a substantial discount for prompt payment” (p 580). The result is that companies choose to pay earlier to receive a discount, rather than keep the cash in the business and as a result they do not adopt a policy of increasing payables balances.

Sabri (2012) concurs and adds a further reason, “the inverse relation is that when an entity delays the payment of accounts payable, this may expose them to a fine of delay and harm their reputation and may lead to loss of cash discount and then reduce their return on equity” (p 59).

Lazaridis & Tryfonidis (2006) however, are surprised with the results of these studies. They observe that “[t]his result is highly significant and does not make economic sense, since the longer a firm delays its payments, the higher the level of working capital it reserves in order to increase profitability” (p 31). The issue therefore cannot be constrained in terms of profitability, but must be examined within the wider domain of return on capital or return to shareholders.

Given the contradiction to theory and the counter-intuitive economic arguments presented above, there exists significant justification to warrant studying this specific component of working capital.

Payables management forms a critical component of the supply chain, under the area of procurement. As companies have become more aware of the competitive advantages of supply chain management from cost efficiency, product differentiation and value-added services (Randall and Farris, 2009), so too has the task of managing the relationship between payables and suppliers become fundamentally important (Walters, 2004).

A number of methodological issues are also pertinent. Many of the studies mentioned above have focused on the correlation between payable days and profitability. Polakow (2010) warns of the error of assuming stationarity in time-series’ which are auto-

correlated. To counter this, it is recommended that the correlation between the change in payables days and change in return be examined.

Furthermore, Ani, Okwo & Ugwunta (2007) emphasise the differences in investment in different industries. They explain that “[f]or one thing, the current assets of a typical manufacturing firm account for over half of its total assets” (p. 966) and this will be very different for a retailer (say). Filbeck and Krueger (2005) analysed the working capital management policies amongst 32 non-financial industries in the US and found that there were significant differences amongst the industries in their working capital policies. Nazir and Afza (2009) also discovered that working capital policies are industry specific and that different industries have different working capital needs.

Finally, Rafuse (1996) postulates that “[a]n improvement of working capital by delaying payment to payables is an inefficient and ultimately damaging practice, both to its practitioners and to the economy as a whole” (p 59).

For this reason, long-term studies are more suited to evaluating working capital strategies. Schilling (1996) argues that return on investment is the more appropriate measure of profitability, compared with other profitability measures as an investment in working capital is essentially a capital investment decision.

Hypotheses

The study examines South African Listed companies from 1986 to 2014, whose market capitalisation comprise the top 99% of the JSE main board and postulates, in accordance with the literature, that the change in payables days has a negative relationship on the investors’ return. We do however explore a number of related aspects:

H1₀: There is a negative relationship between absolute payables days and return to investors.

H1_A: There is positive relationship between absolute payables days and return to investors.

H2₀: There is a negative relationship between the change in payables days and return to investors.

H2_A: There is positive relationship between the change in payables days and return to investors.

Research Methodology

The population was all entities that were listed on the JSE main board over the period 1986 to 2014. The sample was the top 160 companies, representing 99% of the market capitalisation. The sample was then further stratified into industries and the sample restricted to those industries that traditionally have significant investments in payables. Thus the following industries were removed from the sample due to their low relative investment in payables: Oil and Gas, Basic Materials, Telecommunications, Utilities and Financials. The following industries were included due to their material investment in payables: Industrials, Consumer Goods, Health Care, Consumer Services and Technology.

The main research design was a quasi-experimental time-series based buy-and-hold portfolio analysis as discussed below. The general idea is to compare the performance over many years for investors who purchase a portfolio of companies on the basis of (say) low payable days versus high payable days.

We use the “Style Engine” of Muller and Ward (2013). In essence, the approach is to construct five equal weighted portfolios at the start of each quarter, from 31 December 1986, after ranking the sample in terms of a particular style score (i.e. payables). The return for each share is calculated (including any dividends) daily in each portfolio, and the value of each of the five portfolios, from a base of 1.0 in 1986, is calculated. On the last day of each quarter, the value of each portfolio is retained. This process is then repeated quarterly, with a revised sample of the top 160 companies. The style score (payables) is recalculated using the updated (but out-of-sample prior data) and the five equally weighted portfolios are reconstituted, as described above. This approach is continued for each quarter, accumulating the value of each portfolio until 31 August 2014. The resulting portfolio performance can then be analysed and viewed graphically over the time-series.

Muller and Ward (2013) also construct a “price-relative” by dividing the value of the highest ranked portfolio by that of the lowest portfolio on each day, and plot this on the a second Y axis. “In effect, the price-relative compares the difference between the best and worst portfolios and is akin to the excess return of an investor who holds the shares in the highest ranked portfolio over those of the lowest portfolio. Importantly, the slope of the price-relative also reveals those time periods over which the highest ranked portfolio style out-performs the lowest portfolio. In the periods when the slope of the price-relative is upwards, the highest ranked portfolio is out-performing the benchmark, and vice-versa. If the slope of the price-relative is flat for any period of time, then no out-performance is occurring, and there is no difference between the performances of the portfolios over this period” (p. 4).

Results

Between 1986 and 2014 the number of companies, in any particular year, in the Top 160 companies within the specific industries mentioned above (viz: Industrials, Consumer Goods, Health Care, Consumer services and Technology), increased from around 40 to 80² companies, peaking at 92 in 2004. To cater for this variation, we equally distributed the number of companies in each quintile, starting with 8 each in 1986 and ending with 16 in 2014.

The average level of payable days in the sample increased slightly over the analysis period, from 58 days to 69 days, showing that companies, on average, have been steadily stretching their payables over the past 35 years. Table 1 below shows the average level of payable days in each quintile over the entire time-series, and shows the range of annual change in quintile 1 and quintile 5.

² In total 210 different companies were included in the analysis, reflecting new listings and de-listings.

| Table 1: Portfolio Statistics using data from 1986 - 2014 | | |
|---|----------------------|---------------------------------------|
| Portfolio | Average Payable Days | Average annual change in Payable Days |
| 1 | 108 | 91% |
| 2 | 69 | |
| 3 | 56 | |
| 4 | 45 | |
| 5 | 27 | -33% |

For our initial analysis we examine the performance of the quintile portfolios ranked by payable days. At the start of each quarter we rank each company in the sample, and construct quintiles, ensuring that each company is equal weighted at the start of the quarter. We track the daily total returns of each quintile, rebalancing quarterly until September 2014. The results are shown in figure 1.

Figure 1: Quintile performance of ranked payable days



Figure 1 shows very little difference between quintiles 1 to 4, all of which out-perform the All Share total return index (J203T). Quintile 5 (those companies with the shortest payable days) significantly under-performs the others and the benchmark. This result appears to be in contrast to Deloof (2003), who finds that: “[c]onsistent with the hypothesis that less profitable firms wait longer to pay their bills, the number of days of accounts payable is much higher for the lowest income deciles than for the other income deciles” (p. 584). It should be noted however, that income (profit margin) is a construct of competitiveness within industries and is not associated with shareholder returns.

Our findings clearly indicate that firms with low levels of accounts payable under-perform. It is possible that this could be a result of companies taking advantage of settlement discounts and reducing payable days with the resulting negative impact on long-term return as a consequence of lower cash resources to otherwise invest. A more likely reason relates to the power within industries (Porter, 2008). Buyers with more power do not pay suppliers early (and benefit) whereas buyers with less power are forced to pay sooner (and suffer).

However, the two (green) price-relatives indicate that the under-performance occurs in the first half of the time-series. When compared with Quintile 1 (for example) it can be observed that the price relative is stationary between 2000 and 2014, and therefore Quintile 5 achieves similar returns to Quintile 1 over the last 14 years.

We then repeat the analysis, but this time ranking on annual change in payable days. The results are shown in figure 2 below:

Figure 2: Quintile performance of ranked annual change in payable days



Figure 2 shows that there is little difference between quintiles 1 to 3, all of which out-perform the Benchmark (J203T) by approximately 3% per annum. Quintile 4 achieves an annualised return of 18%, marginally better than the J203T whilst quintile 5 significantly under-performs at only 13.4% pa. The fact that the final ranking is approximately ordered (portfolios 1 to 3, then 4 then 5) indicates that the style is consistent.

Table 1 shows that on average the companies in Quintile 5 reduced their payable days by about one third over the previous year. As a result, they significantly under-perform the rest of the sample, and it would appear that there is a positive association between payable days and return; increasing payable days benefits shareholders. As observed earlier, it may be that the companies in Quintile 5 took advantage of discounts, or that supplier pressure forced quicker payments. On either count the result was under-performance.

Once again however, the (green) price relatives show no difference in the performance between Quintile 1 and Quintile 5 post 2000. All the out-performance occurs in the first half of the time-series, which may indicate that market factors have changed.

The third step in our analysis is an attempt to control for momentum effects, which have been shown to be a strong underlying determinant of performance (Muller & Ward, 2013). Accordingly, we split the sample by ranking all the companies in the sample by their prior 12 month momentum. We do this on a quarterly basis, and use only the top 40% of the sample by momentum and the bottom 40%, rejecting those ranked between the 40th and 60th deciles.

Then using only the companies with high momentum (top 40%) we re-run our style analysis on the basis of change in payable days. Figure 3 shows the result.

Figure 3: Quintile performance of ranked annual change in payable days for the high momentum sample.

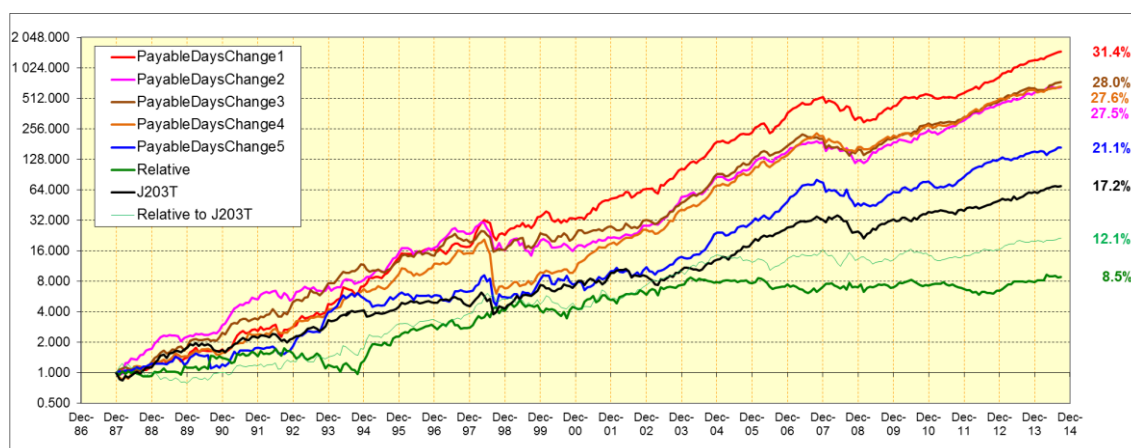
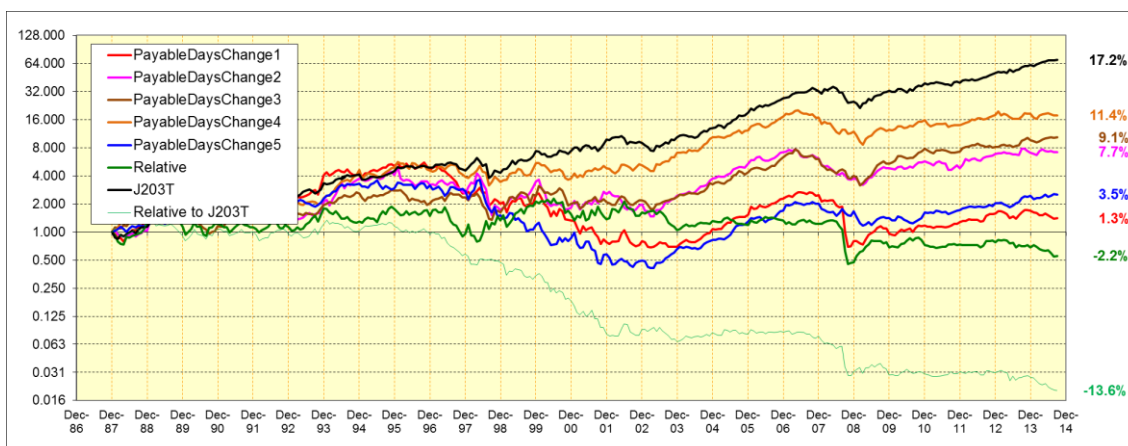


Figure 3 shows that the order of the quintiles is systematic, with quintile 1 showing significant out-performance of 31.4% pa. Quintiles 2, 3 and 4 are essentially the same, at about 28% pa and quintile 5 is at 21% pa. All five portfolios out-perform the J203T benchmark (17.2% pa) which supports the findings that momentum is positively associated with performance (Muller & Ward, 2013). However, since the style used in this analysis is change in payable days, we conclude as follows: within the high momentum cluster, increasing payable days is positively associated with performance. In particular, quintile 1 significantly out-performs quintiles 2, 3 and 4 whereas quintile 5 significantly under-performs. As observed earlier, most of the effect occurs in the first part of the time-series.

Finally, we repeat the above analysis with the low momentum companies. The results are shown in figure 4 below:

Figure 4: Quintile performance of ranked annual change in payable days for the low momentum sample.



As expected, figure 4 shows all the portfolios under-perform the benchmark J203T. This confirms the positive association between momentum and returns. However, within the low momentum cluster, we observe that quintiles 1 and 5 both significantly under-perform quintiles 4, 3 and 2 (in that order). This is a different result to what we observed in the high momentum sample, in that Quintile 1 is the worst performer, and that the order across the quintiles is inconsistent. We note therefore, that for shares which are under-performing, there is no clear association between payable days and shareholder returns.

Conclusions

The style-based analysis results revealed a positive relationship between payable days and shareholder returns for those companies in industries that have a significant investment in payables; Industrials, Consumer Goods, Health Care, Consumer Services and Technology. This positive association was equally evident when using change in payable days as the independent variable.

Furthermore, we find that this association is particularly evident amongst companies which showed strong recent appreciation in their share price (i.e. positive momentum). We did not observe the same result in companies with low momentum.

One important caveat to our findings is that the relationships we observe are generally only observable in the earlier half of our data; i.e. prior to 2000. In the latter half of the time-series we find no association between payable days and shareholder returns.

In contrast to several other studies (Deloof (2003), Sabri (2012) and Lazaridis & Tryfonidis (2006)) these results support the general theory of working capital management, which proposes a negative association between returns and inventory days and receivable days and a positive association with payable days (Ward & Price (2006), Nazir & Afza (2009), Graham & Winfield (2010) and Nobanee, Abdullatif & Al Hajjar, (2011)).

One main reason is presented in the literature which supports the early payment of suppliers, namely discounts on purchases. Although our data did not permit us to examine in detail the reasons why companies reduced their levels of accounts payable from one year to the next, in general terms we find that reducing payable days negatively impacts shareholders. This would appear to support Michael Porter's (2008) theory relating to the relative power within industries. In this instance, suppliers with greater power are able to force later payment and vice versa, buyers with less power are forced to make early payments.

We would argue that these findings have more gravitas than many earlier studies for two main reasons. Firstly, we examine the relationship between change in payable days (as opposed to absolute payable days); secondly we use a market related dependent variable, shareholder return (as opposed to profit margin or ROE), and

finally because we use style analysis which provides us with a long-term buy-and-hold analysis of the issue.

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