



## ADVANCE SOCIAL SCIENCE ARCHIVE JOURNAL

Available Online: <https://assajournal.com>

Vol. 5 No. 01 Jan-Mar 2026. Page#. 8077-8089

Print ISSN: [3006-2497](#) Online ISSN: [3006-2500](#)

Platform &amp; Workflow by: Open Journal System



## Working Capital Management and Firm Profitability: Evidence from Non-Financial Firms Listed on the Pakistan Stock Exchange

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### Abstract

*Non-financial listed entities on the Pakistan Stock Exchange (PSX) have a situation where working capital falls between liquidity and profit and this study tries to investigate the relationship between working capital and accounting profitability within non-financial listed entities on the PSX. The design is a firm year panel of non-financial companies from 2015 to 2024, but excludes banks, insurance companies, and other financial intermediaries, since these companies' current assets are operating assets of other types. Return on assets and return on equity are measures of profitability. Cash conversion cycle and its three components, day's sales outstanding, day's inventory outstanding, day's payable outstanding are measures of working capital management. The following are included as controls: firm size, leverage, sales growth, and the current ratio. The potential effects of time-invariant sector and governance differences are captured by firm fixed effects, while year effects capture common macroeconomic shocks. The findings indicate that there exists a negative relationship between the Cash conversion cycle and ROA and ROE. Most of that association is due to slower collection and slower inventory turnover. The longer the payable period, the better, but not very. More profitable companies tend to be larger and less profitable companies are more leveraged. There is evidence in support of a practical claim. The managers of non-financial firms on the Pakistan Stock Exchange can safeguard the profitability by reducing the operating cycle i.e. by reducing the time lag between the receipt of the investment and the payment of the payables without treating the payables as a costless source of finance.*

**Keyword:** Working Capital Management, Cash Conversion Cycle, Profitability, Pakistan Stock Exchange, Non-Financial Firms

### Introduction

Working capital is the amount of cash that goes into the operating cycle. A firm purchases materials, has an inventory, sells on credit, and has to wait to be paid; until the cash comes back, the firm has to finance the difference. A gap as long as bank credit, when it comes to buying and selling, isn't a blip on the computer screen. It is a participation in the common trade, a funding decision. The non-financial companies listed on the Pakistan Stock Exchange have to deal with that decision on a quarterly basis. Managers and shareholders must determine whether receivables and inventory that turn over more than one season of sales are the price of growth or a drain on profits, especially at textile mills, cement plants, food processors and chemical companies. The cash conversion cycle assigns a number to the question. It incorporates the day's receivables outstanding with days inventory is held and then deducts the days payables outstanding (Richards & Laughlin, 1980). A smaller cycle translates to quicker cash returns. A longer cycle results in increased capital in use. Indeed, preliminary research in large firms in

developed countries has revealed that a shorter cycle is linked to an increase in operating profit (Shin & Soenen, 1998; Deloof, 2003). The same trend can be observed in the case of Pakistan, given the onset of serious firm level work on the Karachi market (Raheman & Nasr, 2007). The financing constraint is easily recognizable in Pakistan. Bank credit is substituted by trade credit when it is costly or scarce (Petersen & Rajan, 1997). Non-financial firms still rely on supplier credit and provide credit to customers that may be subject to delayed payment. An efficient policy in a deep capital market may fail in the event of late payments by customers and high lending costs by the banks. The Pakistan Stock Exchange also devotes a significant enough amount of time to formal corporate activity, so that the panel of non-financial listings tell us about the companies that establish the model for formal working capital activity.

The same days are a concern to shareholders because of different reasons. The “listed firm that ties up money in a slow debtor book” is a firm that can be brought to the market, or to their bank, for money that they should have returned. When new equity rarely comes to market, and when rights issues are interpreted as a signal of trouble, the low-key approach is to extend the time of the cycle and then borrow the balance. That alternative is assumed to be visible in the accounts in the article. If the additional assets cannot generate profits, the ROA will decline. If the operating gain is less than the additional cost of the debt, the return on equity will be lowered. The ratios are not market prices and the article does not make a claim of share price effect. It argues that the direction of the moves made by the accounting profit that the shareholders are shown are the ones that warrant a line in the board pack.

It's also important to keep in mind the timing of the study. Listed non-financial firms in Pakistan went through boom-bust, pandemic, a sudden jump in policy rates, and several bouts of rupee pressure in the period between 2015 and 2024. Each of those episodes alters the cost of a day of receivables and cost of a day of stock. When credit is cheap a cycle that was tolerable is an expensive one when the interest rate for a short loan is high and the imported inputs have to be paid before the customer pays. The article doesn't assume that the decade was a tranquil one. The association after year effects removes the common shock and the association that remains is the within firm movement of the cycle against the within firm movement of profit. It is the comparison that a finance director can recognize; it is the comparison between a firm and the recent years of the firm, not a comparison between a cement plant and a food processor.

This study investigates whether working capital management has a relationship with firm profitability with controls for firm and year effects. It breaks down the cash conversion cycle into its components as there may be more than one way to achieve the shorter cycle. Faster and less stock and later is a different choice. Accelerating collection and stock turnover typically free up cash and does not harm the supply relationship. If you pay late, you'll be un-ravishing that relationship and releasing cash. The design thus approximates the cycle and the components side by side. It is locally provided and practical. Much of the international literature estimates the relation on Belgian, Greek, American, or multi country samples (Deloof, 2003; Lazaridis & Tryfonidis, 2006; Aktas et al., 2015). The negative cycle impact has been confirmed by Pakistani studies on previous listings of Karachi (Raheman & Nasr, 2007; Nazir & Afza, 2009). This article brings that evidence up to date for the Pakistan Stock Exchange in non-financial firms and provides managers with the component results that they can take action on during the past decade. The claim is an associational claim. A panel of annual accounts can't show that a shorter accounting cycle leads to the profit. It can indicate if the firms that shorten the cycle are also the firms that are more profitable on a size/leverage basis.

## Literature Review

### The cash conversion cycle and profitability

Working capital management is the administration of current assets and current liabilities so that the firm can meet near term obligations and still earn on the capital employed. The cash conversion cycle is the standard summary of that administration for a non-financial firm. It measures the net days between paying for inputs and collecting from customers (Gitman, 1974; Richards & Laughlin, 1980). A positive cycle is financed by the firm. A negative cycle is financed by suppliers. Most manufacturing firms run a positive cycle. Large sample evidence points in one direction. Among American firms, a shorter net trade cycle is associated with higher operating returns (Shin & Soenen, 1998). Among Belgian non-financial firms, fewer days of receivables and fewer days of inventory are associated with higher gross operating income, and less profitable firms wait longer to pay (Deloof, 2003). Among firms listed in Athens, the cash conversion cycle, receivables days, and inventory days are negatively related to profitability (Lazaridis & Tryfonidis, 2006). The pattern is not confined to one accounting system or one legal family. The Pakistani evidence agrees on the cycle and disagrees, in places, on the parts. A sample of 94 firms listed on the Karachi Stock Exchange from 1999 to 2004 showed a strong negative relation between the cash conversion cycle and net operating profitability, a negative relation between liquidity and profitability, a positive relation with size, and a negative relation with debt (Raheman & Nasr, 2007).

Later policy work on Pakistani firms found that an aggressive investment policy in working capital is not automatically value creating, and that a conservative stance toward working capital investment can protect profitability (Nazir & Afza, 2009). The two answers may be placed side by side. Reducing waste in the cycle can increase profitability. If the cycle is reduced below ground level to provide service, then it is destroyed. The latter is the leading qualification in the recent international literature. The optimal level of working capital is evident in the United States data, and companies that strive to reach this level of working capital can enhance company performance in both the operating and stock markets (Aktas et al., 2015). Further evidence in Spain confirms the concave relationship between working capital and performance, and that financial constraints alter the optimum level of working capital (Baños-Caballero et al., 2014). The negative cash conversion cycle coefficient is therefore a good average. It's not a license to do the cycle to nothing. The present study approximates the average linear association and comments on the best as a boundary of the managerial claim.

The early Pakistani result is also good to be added in the sample and not just in the sign. Ninety four firms and six years is a good start, and not the market as it is now. Listings have been changed, sector reclassified and the cost of day of working capital has been adjusted to the policy rate. The repetition of the sign on a subsequent window does not mean that the prior window's sign was refused. It's a test whether the sign lived through the change of the sample, and the change of price of credit. A sign that still exists is much more valuable to a modern finance director than a sign that was in use only in the late nineties. A sign reversion would have made it an even more interesting story and the article is written so a reversion could have been reported. Another line of literature questions the fact that the cycle outcome is an accounting identity. A larger cycle makes operating income over total assets smaller, even if the income statement doesn't change, because receivables and inventory become part of the total assets. The identity does exist and it's not the entire outcome. Studies that use gross operating income scaled by sales, or that lag the cycle, still find a negative association, which suggests that the cycle is related to the margin as well as to the asset base (Deloof, 2003; Shin & Soenen, 1998). The present design maintains the ROA as the key ratio as boards read ROA in Pakistan and also reports ROE not just

because of the denominator “assets”. If a result comes up in both ratios, it is more difficult to chalk this up to the mechanical effect of a higher ratio of current assets.

### **Components, trade credit, and financing constraints**

Receivables constitute a loan to customers. Day's sales outstanding can inflate sales, as well as mask poor collections and bad debt. Inventory days are to delay the production and ensure an order can be met. They also purchase out-of-date products, storage expenses and money that can be utilized elsewhere. The days payable are loans given by the suppliers. Stretching them is a low-cost option until their supplier increases price, reduces terms or cuts back on supply (Petersen & Rajan, 1997). The cycle coefficient combines these three decisions, which is why it is important to estimate the components. The financial aspect alters the price of a long cycle. Retained cash and/or suppliers will be the only sources of funding for receivables and inventory for firms which have a difficult time obtaining financing. After that, working capital fights with fixed investment for its share of the internal funds (Fazzari & Petersen, 1993). There, a long cycle is more than just an operating preference. It is an assertion of the funds that otherwise would be used for plant. Competition exists in normal years, and is even more pronounced during credit crunch, for ordinary years Pakistani non-financial firms, especially in working capital-intensive industries, such as textiles, are facing. Pay off also varies with the business cycle. Working capital management is more profitable in some business cycles than in others, stressing the need to not assume one coefficient is constant over time (Enqvist et al., 2014). The state dependency of shareholder wealth effects of working capital investment is also valid, as is a reduction of value as a result of excess investment in net operating working capital (Kieschnik et al., 2013). A decade panel with expansion years and stress years is more informative than one single cross section and year effects are the least that you should protect yourself from identifying a common shock as a working capital effect. The relationship is likely to be more pronounced in smaller, younger companies, as they have less margin for error. In the case of Mauritian small manufacturing units, managers were able to observe a relationship between working capital trends and the performance in the accounts (Padachi, 2006). The findings also support the argument that listed firms in the United States have similar points of view as regards the cycle and gross operating profit (Gill et al., 2010). Size is a control and a potential heterogeneity reason, therefore. The following is not intended to suggest that a cement major and a listed food processor should be operated in the same cycle using the present design.

Here's one of the payable results that you'll find in the component literature somewhere but it's a measurement caution. The cost of sales is not purchases and is used as the denominator in Days payable outstanding. If a firm adds to stock, they will have a day count that is different than the "age of the supplier book. The reverse will be true of a company that suffers from stock burn. The bias is typically small over ten years, and it is a factor that the collection coefficient is used more sparingly. The flow for collection days is sales, the flow which generated the receivable. Inventory days use cost of sales that is the stock that has been relieved from the flow. Payable days are the loudest of the three, and a bad payable coefficient is considered to be a bad coefficient, not that supplier terms are irrelevant.

The component split gets a face with Sector practice on Pakistan Stock Exchange. The textile companies generally have long chains of receivables as export orders and wholesale orders are slow to be paid and they have stocks of cotton and yarn which cannot be accounted for to zero without stopping the loom. Food companies increase their stock turnover and provide their distributors with credit. Spare parts and fuel held by the cement and chemical companies are not like finished goods. This is the case for a single inventory coefficient, which averages these practices. It still provides information since the coefficient is being estimated in years when the

firm had more or less stock than is normal. It is a more stringent test than a pooled comparison of textiles and food, and the reason for using a firm-effect as opposed to the sector dummy.

### **Theoretical Framework**

The test is contained in three accounts. The first one is the liquidity profitability trade off. Cash and near cash assets shield the firm from missed payments, and they return a lower rate of return on the investment than operating assets do. The longer the cycle, the more low return assets there will be. If assets are not matched by sales or margin (Smith, 1980) then profit measured on assets should decline. This account forecasts a negative coefficient of cash conversion cycle in a regression of ROA. The other is trade credit as joint production and finance. Buyers can borrow from suppliers because they have information and an interest in the buyer's survival (Petersen & Rajan, 1997). Customers want credit because they are late to get their own money. A company which collects slowly and pays rapidly is lending money to its customers and denying the loan they offer their suppliers. A company that collects in a timely and timely fashion is utilizing the cycle as a tool and not as a liability. These are separated by component regressions. Day's sales outstanding and Days inventory outstanding should be negative. DPO can go up if the additional days are in the relationship, but down if they are a warning of trouble. The next one is the financing constraint. Working capital absorbs its share of the resources, leaving internal funds as a "free pool" (Fazzari & Petersen, 1993). According to Pecking order theory, firms like to use internal funds before debt before equity (Myers 1984). However, a long cycle uses up internal funds, and forces the company to rely on debt, which as it turns out, is linked with reduced profitability in the Pakistani evidence (Raheman & Nasr, 2007). There's another warning to take into account, as far as agency reasoning is concerned. Free cash that is not paid out can be wasted (Jensen, 1986). Working capital may be the repository of waste slow stock and loose credit. The leverage and size controls are provided to prevent this financing channel from being confused with an operating effect. Of the three accounts, the optimum is the one that qualifies the literature. Working capital has a positive impact on sales below the optimum. On top of that, there is slacker in working capital (Aktas et al., 2015; Baños-Caballero et al., 2014). A linear model approximates the average slope in the range of values observed. The average slope will be negative, if most of the non-financial firms listed in Pakistan are among those that are running above optimum. That is the hypothesis that is carried to the data.

A fourth idea is in the background, but not covered in a separate regression. Product market power can be used to reduce cycle time at no managerial effort. A company can impose cash or almost cash terms if it has a brand, or a limited capacity or a switching cost. A firm selling a normal commodity in a competitive wholesale market will not be able to. The permanent portion of that power is absorbed by the firm effects. They don't benefit from a year of power transition such as a capacity addition or a major customer loss. The remaining association is thus a blend of administration and of power that's being shifted. For that reason, it is called an association by the article. The phrase "pure management effect" is too sweeping of a claim to make, given the annual accounts.

This suggests that the three accounts make a different point about management, and that is why the article doesn't end there. With the liquidity trade off, the answer is to liquidate the slow assets. The answer with trade credit is to reprise the relationship and collect sooner and pay later. A solution to the financing constraint account is to view a rising cycle as an internal funds use, which is in competition with maintenance and with debt service. This company will not catch all three of these by only looking at the current ratio. A firm that is on the ball regarding collection days, inventory days and payable days will be able to determine which account is binding for a

particular year. The regressions are designed to make that distinction clear, and it is brought to the fore when the coefficients have been obtained.

### **Problem Statement**

Managers don't have an up-to-date panel estimate of NCC, which breaks it down into cash conversion cycle, inventory days and payable days, and these firms are those that publish the raw material of a working capital decision once a year on the PSX. The negative cycle result from older Karachi data was also confirmed over the samples that were taken prior to the current market conditions and before 10 years of currency stress, rate hikes and supply shortages. Policy evidence stated that "aggression" is not the same thing as "efficiency". Both results do not provide any information for a finance director whether a short cycle is still associated with a higher return on assets after firm and year effects are subtracted. The issue is not just an empirical one, it is a practical one too. A firm can reduce the cycle by collecting more difficult, cutting stock and/or pushing suppliers. The first two typically provide cash that is the property of the company. The third one takes it. That distinction is concealed in a single cycle coefficient, and there is a variety of practice, since the terms are different for a textile company and a food company. Pooled estimate without firm identity will give a management effect to the sector. The study remedies both issues using a component split and firm fixed effects. The credit officers and company secretaries already calculate these today, but without an up-to-date perception of how the days correlate with profitability when the company is compared to itself. Published records, too, do not convey whether a longer book is growth, slip or delay and the study does not make a comprehensive assessment of the quality of balances.

### **Objectives**

1. To determine whether the cash conversion cycle is negatively associated with return on assets among non-financial firms listed on the Pakistan Stock Exchange.
2. To determine whether the cash conversion cycle is negatively associated with return on equity in the same firms.
3. To determine whether days sales outstanding and days inventory outstanding are negatively associated with return on assets, and whether days payable outstanding has a distinct association.
4. To determine whether firm size, leverage, sales growth, and the current ratio retain significant associations with profitability after working capital measures are included.

### **Research Questions**

1. To what extent is the cash conversion cycle associated with return on assets among non-financial firms listed on the Pakistan Stock Exchange?
2. To what extent is the cash conversion cycle associated with return on equity among the same firms?
3. To what extent are days sales outstanding, days inventory outstanding, and days payable outstanding associated with return on assets?
4. To what extent are firm size, leverage, sales growth, and the current ratio associated with profitability after working capital measures are held constant?

### **Methodology**

#### **Sample and data**

The population is non-financial firms listed on the Pakistan Stock Exchange. Financial firms are excluded because loans, deposits, and investments are not inventory and receivables in the operating sense used here. Firms with missing sales, total assets, or the items needed to compute the cycle are dropped. The window is 2015 to 2024. The resulting panel is unbalanced. Extreme values of ratios are winsorized at the first and ninety ninth percentiles so that a single

restatement does not dominate a coefficient. Accounts are taken from published annual reports and from the exchange filings that reproduce those accounts. Table 1 records the design.

*Table 1. Sample and estimation design.*

| Element                  | Specification                                                                                       |
|--------------------------|-----------------------------------------------------------------------------------------------------|
| Population               | Non-financial firms listed on the Pakistan Stock Exchange                                           |
| Window                   | 2015 to 2024                                                                                        |
| Exclusions               | Banks, insurers, and firms with incomplete cycle items                                              |
| Dependent variables      | Return on assets and return on equity                                                               |
| Working capital measures | Cash conversion cycle, days sales outstanding, days inventory outstanding, days payable outstanding |
| Controls                 | Firm size, leverage, sales growth, current ratio                                                    |
| Estimator                | Firm and year fixed effects, robust standard errors                                                 |
| Outliers                 | Winsorized at the 1st and 99th percentiles                                                          |

### Measures and model

Return on assets is operating income divided by total assets. Return on equity is net income divided by book equity. Day's sales outstanding is receivables divided by sales, multiplied by 365. Day's inventory outstanding is inventory divided by cost of sales, multiplied by 365. Day's payable outstanding is payables divided by cost of sales, multiplied by 365. The cash conversion cycle is day's sales outstanding plus day's inventory outstanding minus day's payable outstanding. Size is the natural log of total assets. Leverage is total debt divided by total assets. Sales growth is the annual percentage change in sales. The current ratio is current assets divided by current liabilities. The return on assets model regresses profitability on the cash conversion cycle, size, leverage, growth, and the current ratio, with firm effects and year effects. A second model replaces the cycle with its three components. The return on equity models repeat the same right hand side. Standard errors are robust to heteroskedasticity. The cash conversion cycle is scaled in tens of days in the reported coefficients so that a one unit change is a ten day change, which is a movement a manager can recognise. Significance is read at the five percent level.

The scaling of the cycle in tens of days is a reporting option and not a change of models. One day's coefficient would be one-tenth of the coefficient reported, and a mean cycle of about 80 days would make it more difficult to read. Ten days is also similar to what a collection drive or a stock review would yield within a year. For this reason the article is presented in ten day units in the text and tables. It is okay for a reader to shift the decimal with a 1 day unit. That rescaling is not significant to the significance level. 5 per cent line is the criterion for calling a coefficient significant, and 1 per cent results are not rounded down to a star.

There are two options of estimating that warrant brief explanation. The advantage of using a firm effects model over a random effects model is that the omitted characteristics that influence both the cycle and profit, such as sector and ownership, are likely to be correlated with the cycle itself, as is the lasting quality of the customer book. That would be considered zero correlation by a random effects estimator. A time trend is less preferred over year effects as the shocks in this decade were not smooth. A pandemic year, a rate increase and a move in the currency are not on a line. Strong standard errors resolve the issue of unequal spread of profitability between large and small firms. They don't answer a residual that is correlated in a firm at the same time after the firm effect is explained, and the article is not more accurate than the design can achieve.

### Findings

The findings follow the four questions. Descriptive figures come first, then the cycle regressions, then the component regression, then the control pattern. Coefficients are reported with robust standard errors. A firm and year fixed effects estimator is used throughout. Table 2 summarises

the estimation sample. Mean return on assets is 6.42 percent and mean return on equity is 11.18 percent, which sits in the range reported for listed industrial firms in Pakistan. The mean cash conversion cycle is 78.4 days. Collection takes 52.6 days on average, inventory is held for 71.8 days, and payables run for 46.0 days. The cycle is therefore a receivables and inventory phenomenon more than a payables phenomenon. Size and leverage vary widely, which is why both enter the regressions. The pairwise correlations in Table 3 match the sign pattern the fixed effects models then estimate. The cash conversion cycle is negatively correlated with return on assets ( $r = -.31$ ) and with return on equity ( $r = -.24$ ). Days sales outstanding and days inventory outstanding carry the same sign. Days payable outstanding is weakly positive. Leverage is negatively correlated with both profit measures, and size is positively correlated with return on assets. The correlations are moderate. They do not by themselves justify a regression claim.

One reading of the tables should be refused at the outset. The within R squared values, 0.28 for return on assets and 0.21 for return on equity, do not mean that working capital explains a quarter of profit. Firm and year effects have already taken the permanent firm level and the common year. The remaining fit is the fit of within firm changes. A good deal of profit still moves for reasons the model does not name, including price, energy cost, and a one off gain or loss. The working capital coefficients are estimates of a partial association inside that remainder. They are large enough to report. They are not a claim that the cycle is the main driver of profit for a listed non-financial firm.

The descriptive pattern is worth reading before the coefficients, because the coefficients are movements around these levels. A mean cycle of 78.4 days, with collection near 53 days and inventory near 72 days, means that the typical non-financial listing is financing more than two months of the operating cycle after payables are subtracted. The spread is wide. Some firm years run a negative cycle, and some run beyond 200 days. The regressions are therefore not a comparison of a tight cluster of firms. They are a comparison across a range in which a ten day movement is ordinary. That is why a coefficient on a ten day change is a useful unit. It is a change that appears in the sample, not a change that only a crisis would produce.

*Table 2. Descriptive statistics for the estimation sample.*

| Variable                     | Mean  | SD    | Minimum | Maximum |
|------------------------------|-------|-------|---------|---------|
| Return on assets (%)         | 6.42  | 7.85  | -18.40  | 28.60   |
| Return on equity (%)         | 11.18 | 14.62 | -34.20  | 46.80   |
| Cash conversion cycle (days) | 78.40 | 46.15 | -12.30  | 214.60  |
| Days sales outstanding       | 52.60 | 28.40 | 8.20    | 148.50  |
| Days inventory outstanding   | 71.80 | 39.70 | 11.40   | 186.20  |
| Days payable outstanding     | 46.00 | 24.90 | 7.60    | 132.40  |
| Size (log assets)            | 16.84 | 1.52  | 13.10   | 20.40   |
| Leverage                     | 0.49  | 0.21  | 0.06    | 0.88    |
| Sales growth                 | 0.09  | 0.22  | -0.41   | 0.74    |
| Current ratio                | 1.46  | 0.72  | 0.42    | 4.10    |

*Table 3. Selected pairwise correlations.*

| Pair                                            | Correlation |
|-------------------------------------------------|-------------|
| Cash conversion cycle and return on assets      | -.31        |
| Cash conversion cycle and return on equity      | -.24        |
| Days sales outstanding and return on assets     | -.27        |
| Days inventory outstanding and return on assets | -.22        |
| Days payable outstanding and return on assets   | .09         |

|                               |      |
|-------------------------------|------|
| Size and return on assets     | .18  |
| Leverage and return on assets | -.29 |
| Leverage and return on equity | -.21 |

A longer cash conversion cycle is associated with lower return on assets and with lower return on equity. In the firm and year fixed effects model, a ten day increase in the cycle is associated with a 0.41 percentage point decline in return on assets, significant at the one percent level, and with a 0.63 percentage point decline in return on equity. Size enters positively, leverage enters negatively, sales growth enters positively, and the current ratio enters negatively, which is the liquidity profitability trade off in coefficient form. The equity coefficient is larger in absolute value because equity is a smaller base than assets, and the within R squared is lower because return on equity also absorbs interest and one off items. Research questions 1 and 2 are answered in the negative direction predicted by the cycle literature (Deloof, 2003; Raheman & Nasr, 2007). Tables 4 and 5 report the two models.

*Table 4. Cash conversion cycle and return on assets.*

| Variable                        | Coefficient | Robust SE | p      |
|---------------------------------|-------------|-----------|--------|
| Cash conversion cycle (10 days) | -0.41       | 0.11      | .001   |
| Size                            | 1.12        | 0.38      | .004   |
| Leverage                        | -6.84       | 1.46      | < .001 |
| Sales growth                    | 2.37        | 0.72      | .001   |
| Current ratio                   | -0.86       | 0.34      | .012   |
| Firm effects                    | Yes         |           |        |
| Year effects                    | Yes         |           |        |
| Within R squared                | 0.28        |           |        |

*Table 5. Cash conversion cycle and return on equity.*

| Variable                        | Coefficient | Robust SE | p      |
|---------------------------------|-------------|-----------|--------|
| Cash conversion cycle (10 days) | -0.63       | 0.19      | .001   |
| Size                            | 1.54        | 0.61      | .012   |
| Leverage                        | -8.42       | 2.18      | < .001 |
| Sales growth                    | 3.05        | 1.14      | .008   |
| Current ratio                   | -1.12       | 0.55      | .043   |
| Firm effects                    | Yes         |           |        |
| Year effects                    | Yes         |           |        |
| Within R squared                | 0.21        |           |        |

The component model shows where the cycle result comes from, and the controls show what remains once that result is held constant. Days sales outstanding and days inventory outstanding are both negatively associated with return on assets. A ten day increase in collection time is associated with a 0.28 percentage point decline in return on assets. A ten day increase in inventory time is associated with a 0.19 percentage point decline. Days payable outstanding is positive and smaller, a 0.11 percentage point increase in return on assets for a ten day increase, and it is significant only at the ten percent level. Research question 3 is answered by that split. Collection and stock, not supplier delay, carry the profitability association. Larger firms are more profitable in every specification, which matches the size result in the earlier Karachi panel (Raheman & Nasr, 2007). More leveraged firms are less profitable, and the coefficient is the largest in absolute terms among the controls. Sales growth is positive. The current ratio is

negative once the cycle is included, so extra balance sheet liquidity is not a substitute for a shorter operating cycle. Research question 4 is answered by that control pattern. Tables 6 and 7 report the component model and the alignment of questions with findings.

*Table 6. Cycle components and return on assets.*

| Variable                             | Coefficient | Robust SE | p      |
|--------------------------------------|-------------|-----------|--------|
| Days sales outstanding (10 days)     | -0.28       | 0.09      | .002   |
| Days inventory outstanding (10 days) | -0.19       | 0.08      | .016   |
| Days payable outstanding (10 days)   | 0.11        | 0.06      | .078   |
| Size                                 | 1.06        | 0.37      | .005   |
| Leverage                             | -6.51       | 1.44      | < .001 |
| Sales growth                         | 2.22        | 0.71      | .002   |
| Current ratio                        | -0.74       | 0.33      | .026   |
| Firm effects                         | Yes         |           |        |
| Year effects                         | Yes         |           |        |
| Within R squared                     | 0.31        |           |        |

*Table 7. Alignment of questions and findings.*

| Question                      | Result                                                        | Reading                              |
|-------------------------------|---------------------------------------------------------------|--------------------------------------|
| 1. Cycle and return on assets | Negative, significant                                         | Longer cycle, lower return on assets |
| 2. Cycle and return on equity | Negative, significant                                         | Longer cycle, lower return on equity |
| 3. Components                 | Collection and inventory negative; payables weak positive     | Operating days carry the result      |
| 4. Controls                   | Size and growth positive; leverage and current ratio negative | Financing and liquidity still matter |

## Discussion

The design had predicted the outcome for the cycle which is only the one that the Pakistani and international literature had predicted. Companies with higher cash in the operating cycle will have lower return on assets and lower earnings on equity. This 10 days' movement is not a change in the business and the return on assets (ROA) is less than half a percent. If repeated over 10 years, and compared to a 6.42 percent average return on assets, it is big enough to be a concern for a finance committee. This finding is consistent with Belgian non-financial evidence as well as with the previous Karachi evidence (Deloof, 2003; Raheman & Nasr, 2007). The component split is the one that can be used to get from the result manager. There is a negative association with collection days and inventory days. Payable days have no significant effect on profitability. That pattern is inconsistent with a policy which sees supplier delay as the primary working capital policy. Trade credit is a relationship, not a loan and it has its limits (Petersen & Rajan, 1997). The tactical side of the order is to sell sooner, keep the inventory on the books needed to fulfil the order, and pay the suppliers when due and not when it is most convenient for the relationship. The negative current ratio coefficient doesn't contradict the cycle result. After the operating cycle has been added to the model, any extra current assets compared with current liabilities appear as slack. This is the multivariate liquidity-profitability trade off (Smith, 1980). It's also why the aggressive current ratio is a lousy slogan. A firm can appear "liquid" when they have an abundant supply of inventory. The cycle is why this inventory rotating or not rotating is. The leverage result should come into the same discussion. The profitability is also negatively linked to debt for the same reason as in the earlier Pakistani panel (Raheman & Nasr, 2007). The high debt ratio can be accentuated by a long cycle. The firm obtains internal funds

and borrows to replace it (Fazzari & Petersen, 1993). It is then not just an operating choice but a financing choice as well. It isn't meant to be used as an excuse to overlook the debt cost.

In addition to the operating one, there is a governance reading which is in parallel with it. This same cycle, which extends over several years, is an issue for the auditors as well as for the finance director. Wherever the debtor ageing and the stock provision occur, a longer cycle is a debtor ageing and stock provision policy question, not just a recognition question. Those ageing cannot be seen by the article. It can say the published day counts have published profit, so why wait until a committee has given it a qualified opinion? This question may be addressed from the working capital note.

The size of the coefficient does not need to be interpreted simply as against statistical significance, but also against the cost of the action. It may take ten days longer and might come with a discount, a tight credit limit and a real wage staff member. A ten day reduction in stock could increase the likelihood that you will end up losing an order. Gross association is about four tenths of a percentage point based on the return on assets; it is not the net gain after those costs. The figure can be used as a screen, even by a finance director. When the cost of picking up the speed isn't much more than four tenths of a percentage point of assets, the screen says to look harder at the debtor book. When the cost comes up, the screen will say stop, if it's a lost customer. The regression does not make any commercial judgement. It informs the director if the association is a size to warrant the judgment.

The best education yet remains. If the average slope is negative, it doesn't necessarily mean that all firms need to shorten their cycle by the same amount of days. For companies with lower level of service to customers, reducing service further would result in lost sales (Aktas et al., 2015; Baños-Caballero et al., 2014). The policy evidence in Pakistan did already state that there is no connection between aggression and efficiency (Nazir & Afza, 2009). The managerial implication from this research is narrower. For non-financial listings, at least within the range observed, higher profit is related to shorter collection and shorter inventory. The coefficient is a signal to action for firms that are not already running a tight cycle, but ones that are "sitting well above their own cycle. There is a place for alternative readings. Profitable is not necessarily a cause of a short cycle. A profit-making company may have the negotiating strength to be able to obtain early payment. The removal of the permanent difference in that power does not include a year to year reverse path. The estimates are an association. A downturn can potentially extend the cycle and reduce profit at the same time, which is why the year effects are used; and why a single year of crisis is not be interpreted as a working capital law (Enqvist et al., 2014). Within the firm effect, the sector composition also plays a role, as a firm mostly does not change its sector.

## Conclusion

The average over the period of the study clearly reveals the pattern of working capital of non-financial firms listed on the Pakistan Stock Exchange. Cash conversion cycle is negatively correlated with that of both ROA and ROE. Most of the association is collection days or inventory days. Whether paying by days is a strong or a weak offset is uncertain. Profitability goes up with the size and growth of the companies. More leveraged firms, and firms that have higher current ratios (when the cycle is held constant), are less profitable. The ordinary and specific are the practical implications. It is not enough for finance directors to simply keep an eye on the current ratio; they must also monitor the cycle in days. They should first concentrate on collection and second, on stock which matches the order book. They should not use the strategy of paying suppliers late as the primary means to reduce the net cycle. There are some do's and don'ts for boards to keep in mind when reading a rising cycle as a claim on internal funds, particularly when there is high leverage. The estimates used are associational and linear. They don't pinpoint the

best firm-specific credit terms, and they don't follow the cash after a forced credit terms change. A subsequent study can include a quadratic term, a constraint split and a within sector comparison. The average result will suffice for practice until then. This market is a market where cash remains for a longer time in the operating cycle, which is a market where cash is seen as having less profitability.

The last practical note will be for the firm already within the sample range. The time of a cycle around the sample mean of about eighty days is not a goal. It's a description. A firm at 40 days may already be tight, and the subsequent reduction might result in lost sales. The operating cycle company is 100 days ahead by one month compared to the sample mean, and the association estimated here indicates that this additional month has coincided with poor profits in the other listed non-financial companies. The article makes that comparison but it's not a rule. The rule (if there is one) is to know the firm's own days and to ask why they moved.

This study is as specific as what the article asks the finance director. The following estimate should be flexible to bend the slope so the optimum is evident and not assumed. It ought to separate borrowers from non-borrowers of businesses, since the expense to the borrowers is not the same as the price to the non-borrowers. It should be focused not just on the pooled non-financial list, but also on the textiles, food, cement and chemicals groups. Those extensions would indicate to a manager if the average result in this article is the result of that manager's sector. They would not take off the mean of the results. The analysis that follows the evidence, suggests that a longer operating cycle is accompanied by weak-profitability of non-financial firms in Pakistan Stock Exchange.

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