AN INVESTIGATION INTO THE RELATIONSHIP BETWEEN CASH CONVERSION CYCLE AND THE CORPORATE PROFITABILITY OF COMPANIES LISTED IN PHILIPPINES STOCK EXCHANGE

By

HUI XIAN

A Thesis submitted in partial fulfillment
of the requirements for the degree of

Master of Business Administration

Graduate School of Business
Assumption University
Bangkok, Thailand

September 2004

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ABSTRACT

This research aimed to investigate the relationship between the profitability measures and management of ongoing liquidity needs for the listed companies in the Philippine Stock Exchange (PSE). Furthermore, this research tried to find out how cash conversion cycle and each component of cash conversion cycle affect the corporate profitability in the PSE.

There are four profitability predictors involved in this research, namely: inventory conversion period, receivable collections period, payables deferral period, and cash conversion cycle (CCC). The rate of return on assets (ROA) and the rate of return on equity (ROE) ratios were chosen as indicators of the corporate profitability. The data for this research are all secondary data, which are collected from the annual report of those listed companies in the Philippines Stock Exchange (PSE) covering a time period from 1997 to 2001. 66 companies from the PSE finally were selected to conduct this research.

The Partial Correlation analysis of SPSS program was used to examine the relationship between the profitability predictors and the corporate profitability in forms of ROA and ROE ratios under the control of firm size. The results showed that all the profitability predictors were negatively related to the corporate profitability. However the payables deferral period predictor was not as expected to be positively related to the corporate profitability. Unfortunately, in most cases, the cash conversion cycle (CCC) was not statistically significant at .05 level.

The researcher also used the Pearson Correlation to analyze how industry classification affects the relationship between the cash conversion cycle (CCC) and the corporate profitability. The findings showed that among the five selected industries, only the Food & Beverage & Tobacco and Holding Firms got the significant inverse relationship, whereas, other industries in PSE did not prove the expected relation. Anyway, the industry wise analysis shows us the different relationships among industries between the CCC – ROA and CCC – ROE for the Philippines Stock Exchange.

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CHAPTER I

GENERALITIES OF THE STUDY

1.1 Background of the Study

Many managers are responsible for making investment and financing decisions on behalf of the shareholders of a firm. One example of such an important decision is deciding the amount of working capital to be maintained. Although the investment community is primarily interested in corporate profitability, one still cannot ignore or neglect the importance of liquidity management.

A useful way of assessing the liquidity of firms is to test the cash conversion cycle (CCC). The CCC can be defined as the duration between a firm's purchase of inventory and the collection of accounts receivable from the sale of that inventory. Therefore, it measures the time a firm has funds invested in working capital. The firm's goal should be to shorten the CCC as much as possible without hurting operations; this improves profits because the longer CCC results in, the greater is the need for costly external financing. That is why, by reducing the time that funds are tied up in working capital, a firm can operate more economically.

The lower CCC reflects the lower amount of inventory and account receivables. Both of them result in lower amount of total assets. Lower total assets in turn can increase the profitability of the company in terms of total assets.

Lower levels of receivables will result in less bad debt expenses and less collection expenses. Again, lower levels of inventory can lead to reduction in covering costs as well as wastage. At the same time, lower working capital and lower account receivables will reduce the level of working capital, which in turn can decrease the interest expenses. Finally, reduced bad debt expenses, collection expenses, collection costs, and wastage coupled with less interest expenses contribute to higher profit.

The flow concept of the CCC is different from traditional measures of liquidity. The traditional measures, such as the current ratio and quick ratio, focus on static balance sheet values. While usefully assessing the firm's ability to pay its bills on time, traditional measures of liquidity are lacking accuracy in measuring the firm's overall ability to manage cash. Moreover, the CCC reveals to the business owner what must be done to reduce the amount of cash invested in current assets, and thereby, improve the liquidity of the firm from the standpoint of an ongoing concern.

The cash conversion cycle is viewed as an additive measure of the number of days funds are committed to inventories and receivables less the number of days payments are deferred to suppliers. If a firm has larger sales with a generous credit policy, which can extend the cash cycle, the longer cash conversion cycle can result in lower profitability. In a short, efficient liquidity management is an integral part of the overall corporate strategy, which can not only improve the cash flow position of the firm, but can create shareholders' value.

1.1.1 Background of the Philippines Stock Exchange, Inc.

The Philippines Stock Exchange, Inc. (PSE or Exchange) "is a private organization that provides and ensures a fair, efficient, transparent and orderly market for the buying and selling of securities". (www.pse.org.ph 2000)

"The Philippines Stock Exchange (PSE) traces its roots from the country's two former bourses: the Manila Stock Exchange (MSE) and the Makati Stock Exchange (MkSE). The emergence of the Philippines Stock Exchange comes from the vision to establish a single unified exchange in the Philippines that aims to contribute to the development of the Philippines capital market. While trading the same listed securities, the two bourses remained as separate entities for almost thirty years. December 23, 1992 marked a milestone for the Philippines capital market when the MSE and MkSE joined forces and metamorphosed into what PSE is known today". (www.pse.org.ph 2000)

Since the establishment of the Philippines Stock Exchange (PSE) is based on the emergence of the Manila Stock Exchange (MSE) and the Makati Stock Exchange (MkSE), it is very essential to briefly introduce the two former stock exchanges respectively.

Manila Stock Exchange (MSE), on a historical perspective, was established on 8 August, 1927 by five American businessmen, namely: W. Eric Little, Gordon W. Mackay, John J. Russell, Frank W. Wakefield and W.P.G. Elliot. Their vision was: "...to serve the public, to maintain high standards of commercial honor and integrity among its members

and to promote and inculcate just and equitable principles of trade and business." (www.pse.org.ph 2000)

Makati Stock Exchange (MkSE), was organized on 27 May, 1963 by five businessmen, namely: Hermenegildo B. Reyes, Bernard Gaberman, Eduardo Ortigas,Aristeo Lat and Miguel Campos. Due to several difficulties encountered from those who opposed its creation, operations started only on 16 November, 1965. (www.pse.org.ph 2000)

The Role of the Philippines Stock Exchange (PSE)

The PSE brings together companies which aim to raise capital through the issue of new securities. Through the listing of their shares in the stock exchange, companies can have easier access to funds. Raising new capital through an additional public offering is easier and less expensive when the company is already listed in the exchange. Therefore, the PSE plays a vital role in the financing of productive enterprises that use the funds for growth and expansion of new jobs. It is therefore essential to the growth of the Philippine economy.

Furthermore, the PSE facilitates the selling and buying of the issued stocks and warrants. It provides a suitable market for the trading of securities to individuals and organizations seeking to invest their saving or excess funds through the purchase of securities. The PSE has committed itself to (a) protecting the interest of the investing public; and (b) developing and maintaining an efficient, fair, orderly and transparent market. (Knowing the Philippines Stock Exchange- A guide for investors, 1999)

In June 1998, the Securities and Exchange Commission (SEC) granted PSE a Self-Regulatory Organization (SRO) status, allowing it to impose rules as well as implement penalties on erring trading participants and listed companies.

A year after the enactment of the Securities Regulation Code in the year 2000 calling for the Exchange's conversion into a stock corporation, PSE was transformed from a non-stock, member-governed organization into a shareholder-based, revenue-earning company. Along with this rebirth comes the separation of the Exchange's ownership and trading rights, opening the doors for new market players. This development as well as the subsequent listing of its own shares and ventures into new products such as debt securities are set to establish PSE as a more competitive organization with stable revenues and cutting-edge products and services.

In this study, the Philippines Stock Exchange has been chosen for four reasons. First, Philippines is one of the neighboring countries of Thailand. It is noteworthy that during the period 1987 to1995, the Philippines stock market was one of the emerging markets in the world, where the mean annual returns in dollar terms exceeded 35%. Those emerging markets were: Argentina (61%), Brazil (39%), Chile (51%), Colombia (48%), Mexico (39%), Philippines (66%), Thailand (36%), Turkey (88%) and Venezuela (52%) (Diacogiannis and Segredakis, 1996). The Philippines market actual returns was around 66%, but the returns in Thailand market was only 36%. This result obviously reflected that the returns in the Philippines stock market was around 50% higher than the returns in the Thailand stock market during that period of time. Thus the Philippines stock market is known that a market has a lot of space for growing in ASEAN area. The

final findings not only can be compared with the Thai market, but can provide some valuable suggestions and proof for the Thai market. Second, Philippines as a developing country and an initial member of the ASEAN, similar to Thailand was also financially disturbed by the economic crisis in 1997. The economic crisis made the development of the Philippines stock market slow down, but after the economic crisis, the country tried her best to rebuild up the stock market, and the Philippines stock exchange was transformed from a non-stock, member-governed organization into a shareholder-based, revenue-earning company. Since then, PSE started its fast development with its new status. Shortly speaking, PSE is a new but very potential stock market in the ASEAN. Third, although some researchers have ever conducted similar investigations in terms of the relationship between the cash conversion cycle and the corporate profitability in some other regions, this kind of research is the first time attempted for the Philippines stock market. As Lakonishok and Smidt (1988) suggested, skepticism concerning a same theory or concept is likely to persist until confirmatory evidence is provided from different data sets over different periods of time and different markets. Therefore, to find out whether the same inverse relationship between the cash conversion cycle and the corporate profitability also exists in the Philippines stock market, this research is a must step. Fourth, as far as the researcher has browsed, there is no previous study focused on the Philippines market relating to the association of CCC and the corporate profitability. Therefore, the findings of this study can be used to compare with those findings focused on Thai market, if any, and also can be used as reference for future study.

1.2 Statement of the Problem

Cash is regarded as the lifeline for any company, so if this lifeline has problems, accordingly, the company's ability to fund operations, reinvest, meet capital requirements and payments will be devitalized. The cash conversion cycle is the actual time length between cash outflows and cash inflows. An increase in the CCC would indicate a worsening of the firms' liquidity, and a decrease would indicate an improvement in the firms' liquidity. However, new findings indicate CCC as a factor contributing to the profitability of a firm. Relating CCC to profitability is a controversial concept among financial analysts, especially for conservative ones. Therefore, there are specific questions for which this study seeks answers:

1. Do the predictors of inventory conversion period, receivables collection period, payables deferral period and cash conversion cycle provide better liquidity information to predict the corporate profitability?
2. How does the changing of cash conversion cycle and each component of cash conversion cycle affect the corporate profitability?

1.3 Research Objectives

The objectives of this study are as follows:

1. To find out the relationship between cash conversion cycle as well as each component of cash conversion cycle and corporate profitability.

2. To analyze the relationship between cash conversion cycle as well as each component of cash conversion cycle and corporate profitability.

1.4 Scope of the Research

. This study focuses on the relationship between the cash conversion (CCC) and the corporate profitability. The data of this study are taken from conventional income statement and balance sheet of listed companies within the *Corporate Handbook---listed companies on the Philippines Stock Exchange (PSE)* and all the sample firms of this study must be sensitive to the operating cycle. The time period in this study is based on the data from 1997 to 2001. Eight sectors of the companies are employed in the empirical study as follows:

1. Construction and Other Related Products 2. Food, Beverage & Tobacco 3. Holding Firms 4. Hotel, Recreation & Other Services 5. Manufacturing, Distribution & Trading 6. Mining 7. Oil 8. Power & Energy

1.5 Limitations of the Research

1. This study only focuses on examining the relationships between management of ongoing liquidity and the corporate profitability. Some other measures are excluded to this study, such as: current ratio, quick ratio, etc.

2. This study utilizes the accounting data taken from the listed companies' income statements and balance sheets. Although these statements have been audited, some companies' "Window-dressing" intention still can not be eliminated.
3. This study will be applicable for those firms that have a high proportion of account receivables and inventories in total assets.
4. This study ignores the role of cash and cash equivalents, prepaid expenses, advance paid, and short-term interests.
5. PSE was formally established in 2000, as a new stock market and with a short time history, PSE's product development program does not proceed as quickly as Thailand or other stock markets, which are with longtime histories. The researcher employing the secondary data from the time period from1997 to 2001 in this study, just wants to examine the framework, to test the hypotheses, and to prove the relationship between CCC and the corporate profitability. Therefore, all the data may not very update, but the earlier or later timing data is not the most important factor for this research.
6. Samples involved in this study solely come from the Philippines Stock Exchange (PSE), and at the same time this study is conducted during a specific time period, therefore, the findings can not be generalized for other countries and for other times.

1.6 Significance of the Study

When a business continues to improve the wealth of its shareholders, it is able to attract additional resources from lenders and investors more readily than its competition. Thus, the company is not only increasing its chances of survival, but in the long term, is creating the opportunity for continued growth consistent with overall corporate business goals.

A business can be viewed as a process of converting cash to assets and back to cash. The primary role that corporate finance performs in this process is ensuring that the financial resources necessary to fund the achievement of company business goals are available when they are needed and at the lowest cost of funds. Closely related to this activity is the evaluation of resource deployment, such as: investment decisions and the efficient management of these resource investments once they have been made.

In the real world, normally, every corporation wants to increase its profitability, but can not ignore or neglect the importance of liquidity management. The proper management of the cash conversion cycle can not only improve the cash flow position of the firm but bring more profit to the firm. The findings of this study will be directly beneficial to:

1. Financial managers. The key responsibility of senior management is to ensure that available resources are deployed in a manner that will yield the greatest economic benefit. Therefore by carefully monitoring both the timing and magnitude of cash flows, they can minimize loan draws or generate cash for investment purposes and therefore lessen net interest expenses.

2. Investors. Because the cash conversion cycle is closely related to issue of firm evaluation, therefore, they can maximize their investment returns through making better investment decisions by examining the firm's cash flow position.

3. Other academics researchers. There is previously no similar study focusing on Philippines Stock Exchange in terms of liquidity management.

1.7 Definition of Terms

The terms commonly used in this study are defined as follows:

1. Cash Conversion Cycle: This is the length of time for cash to complete the operating cycle, after incorporating payment deferrals. It is also called cash cycle. Anthouy, Hawkins, and Merchan ,1999

2. Corporate Profitability: A company's ability to generate revenues in excess of the costs incurred in producing those revenues.
www.sanrafaelvolunteers.org

3. Days Collection Period: Estimates number of days a company is able to collect current receivables from debtors. It is calculated as: (360 days/(Revenue/Receivables)).
Corporate Handbook-Listed companies on the Philippine Stock Exchange, 2002)

4. **Days Inventory Aging:** Estimates number of days before inventory is sold within a year. It is applicable to manufacturing companies, which is calculated as: (360 days/(Cost of Sales/Inventories)).

   Corporate Handbook-Listed companies on the Philippine Stock Exchange, 2002

5. **Days Payment Period:** Estimates number of days a company is able to pay current suppliers credit preferable should be longer than collection period for optimum fund utilization. It is calculated as: ((Payables and Accruals/Cost of Sales + Operating Expenses)) x 360 days

   Corporate Handbook-Listed companies on the Philippine Stock Exchange, 2002

6. **Inventory:** Inventory can be either raw materials, finished items already available for sale, or goods in the process of being manufactured. Inventory is recorded as an asset on a company's balance sheet.

   http://www.investopedia.com

7. **Inventory Conversion Period:** A measure of the average time required to convert materials into finished goods and then to sell those goods.

   Brigham and Ehrhardt, 2002

7. **Liquidity:** The ability to convert an asset to cash quickly

   http://www.investopedia.com

8. **Listed Company:** A company whose shares are listed for trading on the stock exchange.

   http://www.investopedia.com

9. **Operating Cycle:** Time span during which cash is paid for goods and services, which are then sold to customers from whom the business collects cash.

   Horngren, Harrison, and Bamber, 2002

10. **Payables Deferral Period:** A measure of the length of time between the purchase of materials and labor and the payment of cash for them. It is calculated by dividing payables by purchase per day.

    Brigham and Ehrhardt, 2002

11. **Philippines Stock Exchange (PSE):** is a private non-profit and non-stock organization created to provide and maintain a fair, efficient, transparent and orderly market for the purchase and sale of securities such as stocks, warrants, bounds, options and others.

    Knowing the Philippines Stock Exchange- A guide for investors, 1999

12. **Profitability:** A general term referring to the ability of a company to generate profits. It can be measured by return on total assets or return on equity of a firm.

    http://www.ivey.uwo.ca

13. **Receivables Collection Period:** A measure of the average length of time required to convert the firm's receivables into cash, that is, to collect cash following a sale.

    Brigham and Ehrhardt, 2002

14. **Revenue:** A measure of the total amount of money received by a firm from sales of its products and/or services, gains from the sales or exchange of assets, interest and dividends earned on investments, and other increases in the owner's equity

except those arising from capital adjustments. It is the "top line" figure from which costs are subtracted to determine net income.

http://www.energybuyer.org

15. **ROA:** A useful indicator of how profitable a company is relative to its total assets. It is calculated by dividing a company's annual earnings by its total assets, ROA is displayed as a percentage. Sometimes this is referred to as Return on Investment.

    http://www.investopedia.com

16. **ROE:** A measure of a corporation's profitability, calculated by dividing a company's net income by its shareholder's equity. The ROE is useful in comparing the profitability of a company to other firms in the same industry.

    http://www.investopedia.com

17. **Window-dressing:** A strategy used by mutual fund and portfolio managers near the year or quarter end to improve the appearance of the portfolio/fund performance before presenting it to clients or shareholders.

    http://www.investopedia.com

18. **Working Capital:** It is widely used to measure ability to pay current liabilities with current assets. In general, the larger the working capital, the better able the business is to pay its debt.

    Horngren, Harrison, Bamber , 2002

1.8 Summary of the Chapter

In this chapter the researcher has presented about the cash conversion cycle, the Philippines stock exchange, statement of the problem, research objectives, scope of the research, limitation of the research, significance of the study, and definition of terms.

In the next chapter, key concepts of the study, theories and studies related to this study, and comparison of previous empirical studies will be presented.

CHAPTER 2

REVIEW OF THE LITERATURE AND RELATED STUDIES

In the previous chapter, the objective of the study, statement of the problem, limitation of the research, significance of the research, and definitions of commonly used terms are explained. Now, this chapter presents a review of literature and research related to the study. It includes the explanation of the key concepts, previous studies supported to this study, and finally the summary of literature reviewed.

2.1 Key Concepts of the Study

Financial statement analysis involves three main characteristics of a company: its liquidity, its profitability and its solvency. A short-term creditor, such as a bank is primarily interested in the ability to pay obligations when they come due. The liquidity of the borrower is extremely important in evaluating the safety of a loan. A long-term creditor such as a bondholder or a stockholder looks to profitability and solvency measures that indicate the company's ability to survive over a long period of time. Long-term creditors consider the company's ability to meet interest payment or dividends.

Financial ratio analysis is the primary method used to analyze a company's financial statements by both internal and external users. The ratio analysis expresses the relationship among selected items of financial statement data. It can be used to evaluate a company's liquidity, profitability and solvency situation. Therefore, both internal and external users

can get their needed information and make decisions depending on checking the company's financial ratios.

2.1.1 Cash Conversion Cycle

The cash conversion cycle (CCC), is a measure of ongoing liquidity management. It, by reflecting the net time interval between actual cash expenditures on a firm's purchase of productive resources and the ultimate recovery of cash receipts from product sales, establishes the period of time required to convert a dollar of cash disbursements back into a dollar of cash inflows from a firm's regular course of operations.

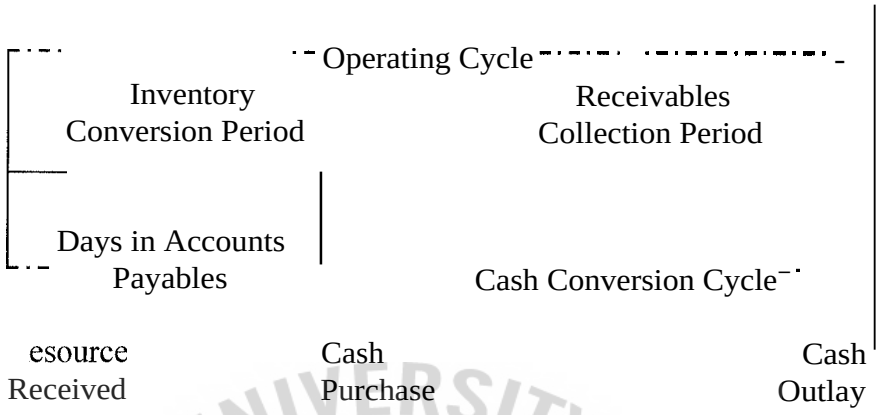
In one way, a business can be viewed as a process of converting cash to assets and back to cash. The firm's goal should be to shorten its CCC as much as possible without hurting operations. This may improve profits since the shorter the CCC, the lesser the need for costly external financing. Therefore, by reducing the time that funds are tied up in working capital, a firm can operate more economically. The cash conversion cycle is defined as the total of inventory conversion period and receivables collection period, as reduced by payables deferral period. It can be expressed by the following equation:

Cash		*Inventory*		*Receivables*		*Payables*
Conversion	=	*Conversion*	+	*Collection*	-	*Deferral*
Cycle		*Period*		*Period*		*Period*

Anthony, Hawkins, and Merchant, 1999, PP 401

This equation can be illustrated by the following cycle:

Figure 2.1: Cash Conversion Cycle



Jose, Lancaster, and Stevens, 1996, PP 33-46

The inventory conversion period estimates the efficiency of inventory management by measuring the length of time that goods are held in stock before they are sold. The inventory conversion period is calculated as:

$$Inventory\ conversion\ period = \frac{Inventory}{Cost\ of\ Sales\ 1360}$$

Anthony, Hawkins, and Merchant, 1999

The receivables collection period estimates the efficiency of the credit and collections aspect of the firm. It measures the length of time required for customers to pay for purchased goods. The receivables collection period is also called the days sales outstanding (DSO), and it is calculated as:

$$\text{Re}ceivables\ collection\ period = \frac{\overline{\text{Re}ceivables}}{Sales\ 1360}$$

Anthony, Hawkins, and Merchant, 1999

The payables deferral period shows the length of time from when goods are purchased on credit to when payment is made in cash. It measures the efficiency of payable management by the firm. The payables deferral period can be calculated as:

$$Payables\ deferral\ period = \frac{Payables}{Purchases\ per\ day}$$

Anthony, Hawkins, and Merchant, 1999

2.1.2 Corporate Profitability

Corporate profitability can be measured in different ways, such as: net income to sales, gross margin percentage, rate of return on stockholders' equity, and rate of return on assets. Here, the rate of return on assets (ROA) and the rate of return on equity (ROE) are taken as the profitability measures because of their comprehensiveness.

Return on assets (ROA) is a measure of a company's profitability. This ratio measures the success a company has in using its assets to earn income for persons who finance the business. It is expressed as a percentage. Return on assets (ROA) is calculated as:

$$\text{Re}turn\ on\quad Assets(ROA) = \frac{Net\ Income + Interest\ Expense}{Average\ Total\ Assets}$$

Average Total Assets = (Beginning Total Assets + Ending Total Assets) / 2

Horngren, Harrison, and Bamber, 2002

Return on Equity (ROE)

Return on equity (ROE) is a measure of how well a company used reinvested earnings to generate additional earnings, equal to a fiscal year's after-tax income (after preferred stock dividends but before common stock dividends) divided by book value, expressed as a percentage. It is used as a general indication of the company's efficiency; in other words, how much profit it is able to generate given the resources provided by its stockholders. Investors usually look for companies with returns on equity that are high and growing.

$$\text{Return on Equity}(ROE) = \frac{\text{Net Income}}{\text{Average Stockholders' Equity}}$$

Anthony, Hawkins, and Merchant, 1999

Financial statement analysis identifies the aspects of financial data that are relevant to investment decisions. In using the information on the financial statements, the decision-makers are mostly concerned with evaluating the current situation of the company and predicting what is going on.

All the above ratios can be computed from the reports of the respective corporations. Of the various reports those corporations issued to their stockholders, the annual report is probably the most important. Philippine Stock Exchange (PSE) as

presented in chapter one is the institution, selected companies of which are units to be examined in this study. The annual report on PSE database offers two basic financial statements - the balance sheet and the income statement. The balance sheet may be thought of as a snapshot of the firm's financial position at a point in time. The income statement reports on operations over a period of time.

In the analysis of financial statements, analysts have available a variety of tools as viewed from the point of view of specific user groups, and they can choose the best suited to their specific purpose.

This study focuses on the Working Capital Management (WCM), that involves managing the process of converting investments in inventories and accounts receivable into cash, which the firm can use to pay its bills as investments mature. Maintaining an adequate WC is not just important in the short-term. Sufficient liquidity must be maintained in order to ensure the survival of the business in the long-term as well. Even a profitable business may fail if it does not have adequate cash flow to meet its liabilities as they fall due. WCM is at the very heart of the firm's day-to-day operating environment. Good WCM reflects efficient cash management or its relative liquidity. In looking at the future, we would not put our trust in past expenditures that have been incurred in the past, will not have to be incurred in the future, and we must put our trust in future receipts.

Working capital is all about timing: cash flow timing. If it gets wrong and suppliers will withhold deliveries, staff cannot be paid and sales would dry up as you cannot produce your goods and services. There is a number of steps that can be taken to ensure

sufficient cash flow at crucial times: inventory conversion period, receivables collection period, and payables deferral period reflecting in cash conversion cycle.

2.2 Theories and Studies Related to This Study

It is generally accepted that the cash conversion cycle management can have a significant impact on both liquidity and profitability of the company. It, by reflecting the net time interval between actual cash expenditures on a firm's purchase of productive resources and the ultimate recovery of cash receipts from product sales, thereby establishes the period of time required to convert a dollar of cash disbursements back into a dollar of cash inflow from a firm's regular course of operations. Therefore, managing the cash conversion cycle in a proper way can significantly improve the earnings of the company.

There are a large number of previous studies and findings on the relationship between cash conversion cycle and the corporate profitability which are discussed as follows:

Firstly, Moss and Stine (1993) proposed to examine the relationship between the length of the cash conversion cycle (CCC) and the size of retail firms, the relationship between the length of the CCC and cash flows, and finally the relationship between the CCC and other measures of liquidity in form of current and quick ratios. The researchers analyzed the annual data for retailing firms with a total of 1,717 observations covering time periods from 1971 to 1990, by using the regression analysis methodology. The variables used in the research are:

1. $Firm\ Size = Total\ Assets$

2. $Firm\ Size = Net\ Sales$

3. $Inventory\ conversion\ period = \frac{Inventory}{Cost\ of\ Goods\ Sold\ 1360}$

4. $Receivables\ collection\ period = \frac{\text{Re}ceivables}{Net\ Sales/360}$

5. $Payables\ deferral\ period = \frac{Accounts\ Payable + Accrued\ Expenses}{Cash\ Operating\ Expenditures\ 1360}$

6. $CCC = \underset{Period}{Inventory\ Conversion} + \underset{Period}{Receivable\ Conversion} + \underset{Period}{Payables\ Deferral}$

7. $Value\ for\ Cash\ Flow = \frac{Cash\ Flow}{Value\ of\ Assets}$

8. *Current Ratio*

9. *Quick Ratio*

The researchers found that larger retail firms had shorter cash conversion cycles in contrast to small retail firms; the length of the cash conversion cycle is inversely related to cash flows to the firm; and the length of the cash conversion cycle is significantly and positively related to the current and quick ratios.

Secondly, Soenen (1993) conducted a solo research to test the association between the cash conversion cycle and corporate profitability. The research investigated 20 industries in the United States during the period 1970 to 1989 with a total of 2,795 observations. The Chi-square test was used as the methodology in the study. The significant variables in this study are:

1. *CCC = Days in Inventories + Days in Receivables— Days in Payables*
2. *Corporate Profitability = ROA Ratio*

The researcher found that there is a negative relationship between a firm's net trade cycle and its profitability. The results demonstrate that shorter net trade cycles are most commonly associated with higher profitability and vice versa. However, since the level of the association to this finding varies among different industries, the relationship should depend on the type of industry. In aggregate, the net trade cycle does not have a substantial impact on the corporate profitability.

Soenen qualified his findings that the relationship was not found to be very strong. His findings have shown that at least in some industries, a shortening of the net trade cycle coincided with increased profitability. It is to be noted that his study was made at the time the U.S. interest rates were still running high. His period of study includes pre-oil shock (Before 1973, 1974) and post-oil shock years. As the profitability may be affected by oil shock, he should have made distinction between two periods.

However, according to Deloof (2003) quoting Shin and Soenen's (1998) study, there was a strong negative relation between the cash conversion cycle and the corporate profitability for a large sample of listed American firms for the time period from 1975 to 1994. The writer of this thesis observes that the period stated with the beginning impact of the first oil shock in the U.S. Moreover, the listed American firms significantly rely on borrowing also.

In addition, Kargar and Blumenthal (1994) conducted an empirical study that tried to investigate the leverage impact on working capital. A cash conversion cycle approach to working capital management was used to determine the maximum level of sales a small business could make without running out of cash. In their study, working capital was defined as the difference between current assets and current liabilities. The researchers claimed that about 40 percent of the typical small business capital was invested in current assets, therefore, efficient working capital management was vitally important to the business' profitability. And there are only five basic ways a company can make a profit: (1) increase sales, keep expenses the same; (2) increase sales, increase expenses less; (3) increase sales, decrease expense; (4) net sales remain the same, decrease expenses; (5) decrease sales, decrease expenses more. For a small business, its goal should be to shorten the cash conversion cycle as much as possible without hurting its operations. This would improve working capital turnover and the profits, because the longer the cash conversion cycle, the less turnover, and the greater the need for external financing---and such financing has a cost.

The researchers further proposed that many small businesses were able to make sales and produce profits, but still failed to survive simply because they were unable to generate enough cash to make their day-to-day operations work. There would be two basic problems that can occur with working capital management. First, a business may not have enough working capital; and second, the business may have slow turnover of working capital.

To solve the first problem, the researchers suggested a few alternatives to increase the working capital: (1) Re-invest the profits from operations in the company. As long as profit is reinvested in cash, accounts receivable, or inventory, it adds to the company's working capital, because it can increase current assets. (2) Sell new equity of the business. This move will add to the owner's equity and the cash account, thereby increasing working capital. (3) Get a long-term loan with at least one-or two-year grace period from repayment and interest. In this way, the company could increase the current assets (cash), with no change in the current liabilities, thereby increasing the working capital. (4) Sell some fixed assets. This reduces long-term assets and increases current assets (cash) with no change in current liabilities, thereby increasing working capital.

If the company has the second problem, which means that a business' working capital does not travel fast enough, to solve it, the company should (1) Reduce the inventory conversion period, that is, by processing and selling goods more quickly. (2) Reduce the accounts receivable collection period, that is, by speeding up collections. (3) Lengthen the payable deferral period, that is, by slowing down payments to suppliers.

Again, Jose, Lancaster, and Stevens (1996)'s empirical study examined the relationship between profitability measures and management of ongoing liquidity needs for a large sample of firms, which are taken from the annual Compustat tapes, covering a twenty-year time period from 1974 to 1993. Complete data exist for seven industries, namely Natural Resources, Construction, Manufacturing, Service, Retail/Wholesale, Financial Services, and Professional Services, with a totally 2,718 firms. The researchers employed Pearson correlation and cross sectional regression methodologies to do the analysis. Four variables were used in the study as follows:

1. $ROA = \frac{EBIT}{TA}$

2. $ROE = \frac{EBIT}{EQUITY}$

3. $CCC = Days\ in\ Inventories + Days\ in\ Receivables — Days\ in\ Payables$

3.(a) $Days\ in\ Inventories = \frac{Inventories}{Cost\ of\ Goods\ Sold\ 1365}$

3.(b) $Days\ in\ \text{Re}ceivables = \frac{Account\ \text{Re}ceivables}{Sales\ 1365}$

3.(c) $Days\ in\ Payables = \frac{Account\ Payables}{Cost\ of\ Goods\ Sold\ /365}$

4. Size= Log (sales)

In their formula for ROA and ROE ratios, the same numerator "EBIT" is used. In most cases, interest expense is added back to compute ROA, whereas not added back to compute ROE. However, using the same numerator enables the users to understand two kinds of profitability easily.

The researchers found that more aggressive liquidity management (Lower CCC) is associated with higher profitability for several industries, including Natural Resources, Manufacturing, Service, Retail/Wholesale, and Professional Services. For these industries, there is a statistically significant inverse relationship between CCC and corporate profitability and this relationship is not driven by the firm size.

Seven years after his first research, Soenen jointly conducted a research work with Hyun-Han Shin (2000) to examine the relationship between the firm's Net Trade Cycle (NTC) and its profitability. The researchers collected the sample firms from the Compustat tapes covering the period 1975 through 1994; totally 9,145 U.S manufacturing firms were selected in their study, correlation and regression analyses were used to examine the relationship. The five variables are:

1. $Net\ Trade\ Cycle = \frac{(Inventory + Accounts\ Receivable - Accounts\ Payable)}{Sales} \times 365$

2. $Current\ Ratio = \frac{Current\ Assets}{Current\ Liabilities}$

3. $Sales\ Growth = \frac{This\ Year's\ Sales}{Previous\ Year's\ Sales} - 1$

4. $Debt\ Ratio = \frac{Total\ Debt}{Total\ Assets}$

5. $Profitability = \frac{Operating\ Income\ before\ Depreciation}{Total\ Assets}$

The researchers found strong evidence of an inverse relationship between the lengths of the firm's NTC and its profitability. Substantial reductions in the NTC were associated with significant increases in profitability and vice versa. There was also a negative association between the NTC and corporate liquidity. A firm with a relatively short NTC last year would make more profit the next year. However, profitability is significantly, positively related to this year's current ratio but not with last year's current ratio.

The researchers finally suggested that the NTC was considered a more appropriate measure of liquidity management. Since liquidity and profitability are strongly inversely related, reducing the efficiency of liquidity management pays off in terms of increased operating income for the whole sample. So, reducing the firm's NTC may be one possible way for the firm to create additional shareholder value.

While their findings are not disputed, there is some inconsistency in constructing the formula of NTC. In their formula, inventory and accounts payable have cost basis, whereas accounts receivable and sales have selling price basis.

The profitability formula used by researchers excludes the effect of depreciation. In other words, their concept of profitability is cash profitability rather than accrual-basis profitability. The test of profitability is not affected by the size of investment.

Finally, Deloof (2003) investigated the relationship between working capital management (WCM) and the corporate profitability for a sample of 1,009 large Belgian non-financial firms covering the time period through 1992 to 1996. The researcher employed the correlation and regression methodology. The variables involved in the research are:

1. $Gross\ Operating\ Income = \frac{Sales - Cost\ of\ Sales + Deprecation \quad \& Amortisation}{Total\ Assets - Financial\ Assets}$

2. $No.\ of\ Days\ Accounts \quad \text{Re}ceivable - \frac{Accounts \quad \text{Re}ceivable \text{ x } 365}{Sales}$

3. $No.\ of\ Days\ Inventories = \frac{Inventories \times 365}{Cost\ of\ Sales}$

4. $No.\ of\ Days\ Accounts\ Payable = \frac{Accounts\ Payable \times 365}{Purchases}$

5. $CCC = \begin{matrix} No. \\ of \\ Days \\ Accounts \\ Receivable \end{matrix} + \begin{matrix} No. \\ of \\ Days \\ Inventories \end{matrix} - \begin{matrix} No. \\ of \\ Days \\ Accounts \\ Payable \end{matrix}$

6. *Firm Size= Lon (sales) (Sales is expressed in thousands of Belgian Francs)*

7. $Sales\ growth = \frac{This\ Year's\ Sales - Previous\ Year's\ Sales}{Previous\ Year's\ Sales}$

8. $Financial\ Debt = \frac{Financial\ Debt}{Total\ Sales}$

9. $Fixed\ Financial\ Assets = \frac{Fixed\ Financial\ Assets}{Total\ Assets}$

The researcher found that there was a significant negative relation between gross operating income and the number of days accounts receivable and inventories reduced by those of accounts payable of Belgian firms. The results suggested managers can create value for their shareholders by reducing the number of days accounts receivable and inventories to a reasonable minimum.

However, Deloof pointed out alternative concepts relying on finance based models that highly profitable firms allow more accounts receivable (longer receivable collection period), and less profitable firms wait longer to pay their bills. In other words, high

profitability leads to longer receivable collection period (the positive relationship) and low profitability leads to longer payable deferral period (the positive relationship).

2.3 Comparison of Previous Empirical Studies

The six studies mentioned in the previous section are compared as regards to objectives, variables and findings in Table 2.1. Next, a comparison of their research sample and methods are illustrated in Table 2.2.

Table 2.1 Compared Previous Empirical Studies about Objective, Variables and Empirical Finding

Researcher(s)	Objective	Independent Variables Identified	Dependent Variables Identified	Empirical Finding
oss, Jimm D. d Sti e, B rt (1993)	To a i e re.atio ip bc ee the lngt cf the CC a d tho e cf ta l firms, he re atio ip be e. he e s of the CC a d casl o o finally the relatio s p be the CC d oth r ieas e of li y i fc cu e t d q ick at s.	Hcua. ss t N t Sa.e	In Co si Per Re es Co c.c P icd, Pa fe. I rio Ca rs C c e, a C s o C atio, ird i k at	T e rse rche s fo o a a g r reta. fi s ha. s' ort ca.' co e i n c cle compare d ith ' reta fi s; the gth of t e cas co rsio vcle is ir e.el re ied to as. o s o the fi ; a e ength of e cas con rsio c cle s sig ific ' p siti e relate N the c e a d q ' 1 rat s.

Table 2.1 Compared Previous Empirical Studies about Objective, Variables and Empirical Finding (Cont.)

Researcher(s)	Objective	Independent Variables Identified	Dependent Variables Identified	Empirical Finding
Soe e (199[illegible]	To test the association between the cash conversion cycle and corporate profitability.	Cash Conversion Cycle	Corporate Profitability as measured by: ROA Ratio	There is a negative relationship between a firm's net trade cycle and its profitability.(Based on 20 industries in U.S. during 1970-1989).
argar, a an[illegible] B ient' l, obert 1994	To demonstrate an analytical framework for investigating the Leverage impact on working capital.			To keep enough working capital and speed up turnover of working capital can make small businesses get more profits.
Jose, n r anc ster, a d ev s, e a 199	To examine the relationship between profitability measures and management of ongoing liquidity needs for a large sample of firms.	Cash Conversion Cycle Firm size	R atio F DE Ratio	There is a statistically significant inverse relationship betweenCCC and corporate profitability and this relationship is not driven by the firm size. (Based on 7 industries in U.S. during 1974-7993).

Table 2.1 Compared Previous Empirical Studies about Objective, Variables and Empirical Finding (Cont.)

Researcher(s)	Objective	Independent Variables Identified	Dependent Variables Identified	Empirical Finding
S i H S e ıer c '20	To examine the relationship between the firm's Net Trade Cycle (NTC) and its profitability.	N Trade C c e	fita i c: :a: ed ' v p at i co e b f d-pre iat on r a:ed o tot .ı ıss 4.	There is a strong evidence of an inverse relationship between the length of the firm'sNTC and its profitability (Based on 9145 U.S. manufacturing firms during 1975-1994).
of, c 20 3	To i e aat th relatio sl ıp be. e n C a d ne o ate profi b	No. of Days cou 4 eceivable No. of ays I to.ies No. of D ccounts Paya and Ca: C o v ıo Cyc	ss Ope ati g I c e	The researcher found that there is a significant negative relation between gross operating income and the number of days accounts receivable, inventories and accounts payable (Based on over 1000 Belgian firms during 1991-1996).

Table 2.2 Compared Previous Empirical Studies about Research Sample and Methods

Researcher(s)	Research Sample Used	Methods
Moss, Jimmy D. and Stine, Bert (1993)	Totally 1,717 retailing firms covered time periods from 1971 to1990	Regression Analysis
Soenen, Luc A (1993)	20 industries during the period from 1970 to 1989 with a total of 2,795 U.S observations	Chi-square Test
Kargar, Javad and Blumenthal, Robert A (1994)	-----	To demonstrate an analytical framework for investigating the Leverage impact on working capital.

Table 2.2 Compared Previous Empirical Studies about Research Sample and Methods (Cont.)

Researcher(s)	Research Sample Used	Methods
Jose, Manuel L. Lancaster, Carol and Stevens , Jerry L. (1996)	Large sample size with totally 2,718 U.S firms in seven industries covering the time period from 1974 to 1993	Pearson Correlation Analysis and Cross Sectional Regression Analysis
Shin, Hyun-Han Luc A. Soenen (2000)	Totally 9,145 U.S manufacturing firms covering the time period 1975 through 1994	Correlation Analysis, Regression Analysis
Deloof , Marc (2003)	1,009 large Belgian non-financial firms covered the time period through 1992 to 1996	Correlation Analysis, Regression Analysis

2.4 Alternative Concepts on the Relationship

After examining Deloof (2003) research, the writer of this study observes alternative concepts on the relationship of the receivable collection period and the payable deferral period with the corporate profitability. To display the opposing views, the following table is illustrated.

Table 2.3 Alternative Concepts on the Relationship

	Popular Concept	**Alternative Concept**
Receivable Collection Period		
Concept	The receivable collection period has the negative relationship with the corporate profitability.	The receivable collection period has the positive relationship with the corporate profitability.
Explanation	Faster collection results in stronger working capital and less financial charges.	Profitable firms can afford to allow longer collection period.
Payable Deferral Period		
Concept	Payable deferral period has the positive relationship with the corporate profitability.	Payable deferral period has the negative relationship with the corporate profitability.
Explanation	Slower payments can ease financial burden and reduce interest charges.	Profitable firms can afford to pay faster to creditors.

2.5 Summary

As early as 1980, Richards and Laughlin have ever suggested: "Inattention to the liquidity management process may cause severe difficulties and losses due to adverse short-run developments even for the firm with favorable long-run prospects." (Richard and Laughlin, 1980) One can tell from their suggestion how important it is the liquidity management for a firm. A useful way of assessing liquidity of firms is the cash conversion cycle. The cash conversion cycle adds the cash flow concept that makes it different from traditional measures of liquidity. After reviewing several literatures related to the CCC, one can find that the dynamic analysis has attracted more and more attention by financial analysts. Although those financial analysts with different backgrounds, also employed the CCC approach to different regions and industries, most of them got the same conclusion: the CCC is closely associated with the corporate profitability and the issue of firm valuation.

Based on the above literature review, chapter 3 will present the theoretical framework and the conceptual framework. Both independent variables and dependent variables will be discussed and operationalization of those variables will be explained.

CHAPTER 3

RESEARCH FRAMEWORKS

This chapter presents the research framework, which consists of four parts. The first part describes the theoretical framework; the second part presents the conceptual framework; the third part is the statement of research hypotheses; in the final part the operationalization of the independent and dependent variables used in this study will be introduced.

3.1 Theoretical Framework

For this theoretical framework, cash conversion cycle is used as the key indicator of a corporation's profitability position. In this study, the research study of Soenen, (1993) is selected to be used as a main theoretical framework to measure Philippine corporations' profitability. The researcher proposed a cash conversion cycle approach to liquidity analysis.

Soenen (1993) suggested that the most commonly employed measures of corporate liquidity are the current ratio and the quick ratio. However, because of the static nature of financial ratios, their ability to measure liquidity adequately is always questioned. Therefore, liquidity for the on-going firm is not really dependent on the liquidation value of its assets but rather on the operating cash flow generated by those assets.

The cash conversion cycle, by reflecting the net time interval between actual cash expenditures for the purchase of productive resources and the ultimate collection of receipts for product sales, offers a valid alternative for measuring corporate profitability.

The cash conversion cycle concept also matches the principle of cash management well, such as: to collect cash as quickly as possible, to postpone cash outflow as long as possible and to put available cash to the best use when the firm has it. Thereby, shorter conversion cycle generates higher profitability to a corporation.

3.2 Conceptual Framework

The conceptual framework of this research presents independent variable: the cash conversion cycle. The dependent variable is corporate profitability, which is measured by ROA ratio and ROE ratio. The researcher selects the firm size as the control variable, which is measured by the company's revenue, in order to test how the firm size affects the relationship between the independent and dependent variables.

This study examines the association between the cash conversion cycle and corporate profitability. Therefore, this research aims to focus on the variables of cash conversion cycle by respective time intervals, derived from a firm's typical receivables conversion period, inventory conversion period, and payables deferral period. The management can use the cash conversion cycle analysis to adjust and improve their operating cycle.

The conceptual framework is shown in Figure 3.1.

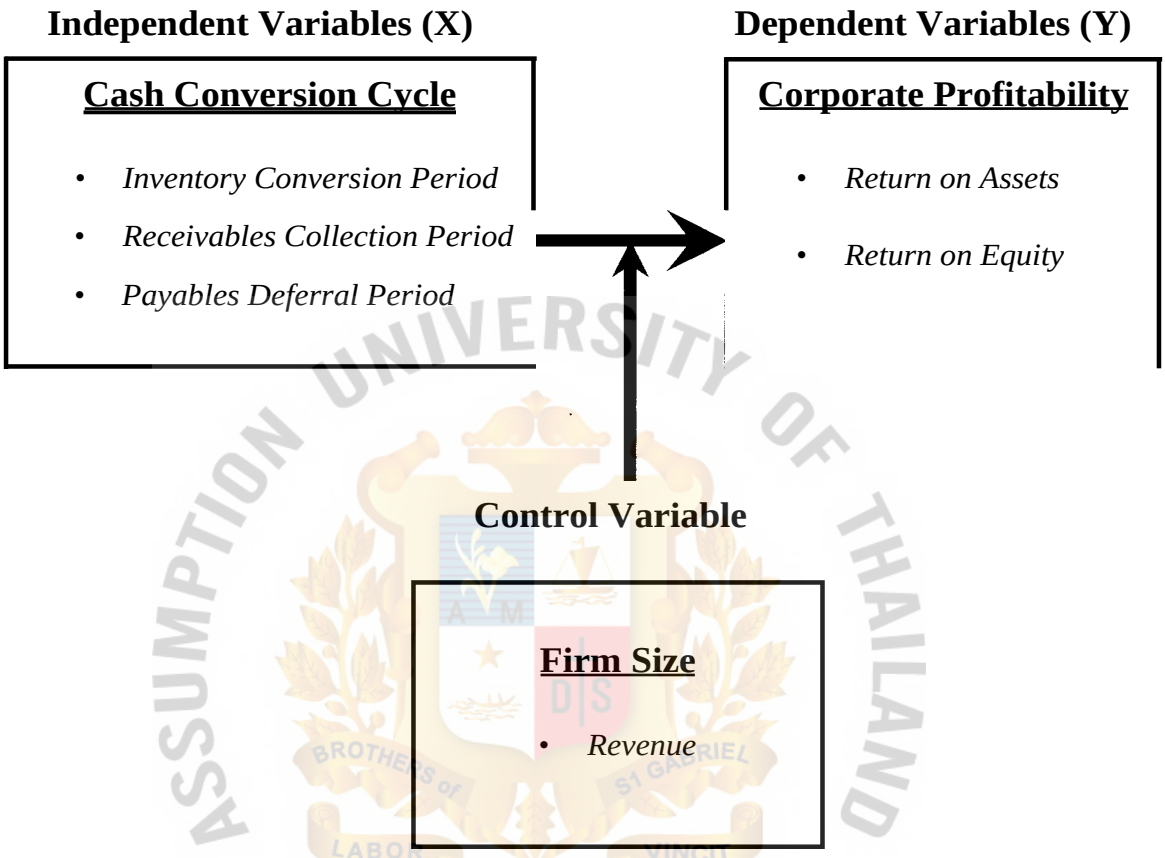


Figure 3.1: Conceptual Framework

3.3 Operational Definitions of the Independent and Dependent Variable

3.3.1 Operational Definition of Independent Variables

A cash conversion cycle is the length of time between a firm's purchase of inventory and the receipt of cash from accounts receivable. The cash conversion cycle consists of three parts: inventory conversion period, receivables collection period, and payable deferral period.

Cash		*Inventory*	*Receivables*	*Payables*
Conversion	=	*Conversion*	+ *Collection*	- *Deferral*
Cycle		*Period*	*Period*	*Period*

Anthony, Hawkins, and Merchant, 1999, PP 401

According to Anthony, Hawkins, and Merchant (1999), the cash conversion cycle consists of three parts: inventory conversion period, receivables collection period, and payable deferral period.

Inventory Conversion Period

The inventory conversion period estimates the efficiency of inventory management by measuring the length of time that goods are held in stock before they are sold.

$$Inventory\ conversion\ period = \frac{Inventory}{Cost\ of\ Sales / 360}$$

Receivables Collection Period

The receivables collection period estimates the efficiency of the credit and collections aspect of the firm. It measures the length of time required for customers to pay for purchased goods.

$$\text{Re}\,ceivables\ collection\ period = \frac{\overline{\text{Re}\,ceivables}}{Sales\ 1360}$$

Payables Deferral Period

The payables deferral period shows the length of time from when goods are purchased on credit to when payment is made in cash. It measures the efficiency of payable management by the firm.

$$Payables\ deferral\ period = \frac{Payables}{Purchases\ per\ day}$$

3.3.2 Operational Definition of Dependent Variables

The liquidity management affects the firm's debt structure since it involves both asset and liability management. A lower CCC reduces the need for lines of credit and adds to the firm's debt capacity.

Measures of both return on assets (ROA) and return on equity (ROE) are used as the dependent variables in this study to separate asset management and financing influences on profitability.

Return on Assets (ROA)

Return on assets (ROA) is a measure of a company's profitability, equal to a fiscal year's earnings divided by its average total assets, expressed as a percentage. It is calculated as follows:

$$\text{Return on Assets}(ROA) = \frac{\text{Net Income} + \text{Interest Expense}}{\text{Average Total Assets}}$$

Anthony, Hawkins, and Merchant, 1999

Return on Equity (ROE)

Return on equity (ROE) is a measure of how well a company used reinvested earnings to generate additional earnings, equal to a fiscal year's after-tax income (after preferred stock dividends but before common stock dividends) divided by book value, expressed as a percentage. It is used as a general indication of the company's efficiency; in other words, how much profit it is able to generate given the resources provided by its stockholders. Investors usually look for companies with returns on equity that are high and growing.

$$\text{Return on Equity}(ROE) = \frac{\text{Net Income}}{\text{Average Stockholders' Equity}}$$

Anthony, Hawkins, and Merchant, 1999

3.3.3 **Operational Definition of Control Variable**

To show how the firm size affects the relationship between the cash conversion cycle and the corporate profitability, in this research, the researcher chooses the revenue item from the income statement as the measurement, because revenue is also an important criterion of company's profit.

Revenue is a measure of the total amount of money received by a firm from sales of its products and/or services, gains from the sales or exchange of assets, interest and dividends earned on investments, and other increases in the owner's equity except those arising from capital adjustments. It is the "top line" figure from which costs are subtracted to determine net income.

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Table 3.1 Operationalization of the Independent and Dependent Variables

Independent and Dependent Variables	Operational Definition	Measurement Scale	Expectation
Inventory Conversion Period	An estimation of the efficiency of inventory management. It measures the length of time that goods are held in stock before they are sold.	Ratio Scale	Negatively related with the corporate profitability
Receivables Collection Period	An estimation of the efficiency of the credit and collections aspect of the firm. It measures the length of time required for customers to pay for purchased goods.	Ratio Scale	Negatively related with the corporate profitability

Independent and Dependent Variables	Operational Definition	Measurement Scale	Expectation
Payables Deferral Period	An estimation of the efficiency of payable management by the firm. It is shows the length of time when between goods are purchased on credit and when payment is made in cash.	Ratio Scale	Positively related with the corporate profitability
Cash Conversion Cycle	A measure of the length of time between a firm's purchase of inventory and the receipt of cash from accounts receivable.	Ratio Scale	Negatively related to income from operation and cash conversion cycle.
Return on Assets (ROA)	A measure of a company's profitability.	Ratio Scale	Negatively related to the cash conversion cycle.
Return on Equity (ROE)	A measure of a company's profitability.	Ratio Scale	Negatively related to the cash conversion cycle.

3.4 Research Hypotheses

The hypotheses of the study are as follows:

Ho_1: Inventory conversion period has no relationship with the corporate profitability under the control of firm size.

Hai: Inventory conversion period has a relationship with the corporate profitability under the control of firm size.

Hoz: Receivables collection period has no relationship with the corporate profitability under the control of firm size.

Hat: Receivables collection period has a relationship with the corporate profitability under the control of firm size.

Ho3: Payables deferral period has no relationship with the corporate profitability under the control of firm size.

Ha_i: Payables deferral period has a relationship with the corporate profitability under the control of firm size.

Ho4: Cash conversion cycle has no relationship with the corporate profitability under the control of firm size.

Ha_4: Cash conversion cycle has a relationship with the corporate profitability under the control of firm size.

3.5 Expected Outcome

The anticipated outcome of this study is that the length of the cash conversion cycle and the corporate profitability are inversely related.

As regard to sub-variables, the length of the inventory conversion period and receivables collection period are inversely related to the corporate profitability, whereas payable deferral period is positively related to the corporate profitability.

3.6 Summary

In this chapter, the researcher has presented a conceptual framework showing the relationship between the cash conversion cycle as the independent variable and the corporate profitability as the dependent variable. Next, definitions of independent variables (with sub-variables) and dependent variable are given. Finally both independent variables and dependent variable are operationalized with measurement scale and expectation. Based on this conceptual framework a research methodology will be proposed in chapter 4.

CHAPTER 4

RESEARCH METHODOLOGY

This chapter presents the methodology used to conduct the research, which consists of three parts, including: 1) Research data source and collection procedure; 2) Respondent and sampling procedure; 3) Statistical treatment of data. It will explain the statistical techniques used in this research and how the techniques will be used for interpretation of the collected data and the hypothesis testing procedure.

4.1 Research Data Source and Collection

This research uses the secondary data as a source of information. All the secondary data are collected from many sources including the World Wide Web, PSE database, and the "Corporate Handbook-Listed companies on the Philippine Stock Exchange" published by CEIC Data.Com Ltd, (2002). The financial data for calculating the cash conversion cycle, ROA ratio and the ROE ratio are available in the annual reports of the listed companies to stockholders. Each of the data is matched with the fiscal year ending on December 31. Further more, all the selected companies, whose shares are listed for trading on the stock exchange and must be qualified by the PSE and abide by the Listing Agreement. The time period of this research covers the years from 1997 to 2001.

4.2 Respondent and Sampling Procedure

This study will focus on the listed companies from the Philippine Stock Exchange (PSE). All selected companies provide their continuous financial data within their financial statements to the public during the time period from 1997 to 2001. Financial statements consist of the balance sheet, the income statement, and cash-flows statement. Furthermore, all sample firms should have a clear reflection of cash conversion cycle period, therefore, only those sectors that have natural characteristics were selected, especially those concentrating on the inventory cycle.

The unit of analysis in this study is the population of listed companies in the Philippine Stock Exchange (PSE). All the listed companies are divided into 14 sectors that are identified in Table 4.1.

Table 4.1

Sectors and Numbers of Listed Companies within PSE

Serial No.	Sectors	Numbers of Companies
1	Communication	17
2	Construction & Other related products	11
3	Food, Beverage & Tobacco	13
4	Holding Firms	68
5	Hotel, Recreation & Other Services	9
6	Manufacturing, Distribution & Trading	22
7	Mining	13
8	Oil	**9**
9	Power & Energy	4
10	Property	28
11	Bank & Finance Services	28
12	Small & Medium Enterprise	3
13	Transportation Services	6
14	Others	2
	Total	**233**

However, in this study, the populations of companies selected are only 66 companies, which have the full information that is necessarily required to be involved in the research. The communication, property, bank & finance services, small & medium enterprise, transportation services, and others sectors are deleted due to the absence of sufficient information. These firms are settled by the same standard. They are identified in Table 4.2.

Table 4.2

Numbers of Selected Companies

Serial No.	Sectors	Numbers of Companies
1	Construction & Other related products	7
2	Food, Beverage & Tobacco	8
3	Holding Firms	24
4	Hotel, Recreation & Other Services	2
5	Manufacturing, Distribution & Trading	18
6	Power & Energy	1
7	Mining	4
8	Oil	2
	Total	**66**

4.3 Statistical Treatment of Data

This research will employ the stepwise descriptive statistics and Partial Correlation analysis and Pearson Correlation measuring a set of samples within the eight sectors from the listed companies. The Statistical Package for Social Science (SPSS) program is an application software that provides techniques for statistical data analysis.

Descriptive statistics are used as the first step of data analysis to describe, or summarize the data. They permit the researcher to describe meaningfully a set of data consisting of many figures with a small number of indices. (Gay and Diehl, 1992)

Thus, descriptive statistics is used to describe general data, including frequency distribution, minimum, maximum, mean, and standard deviation, etc.

Partial Correlation is a measure of partial correlation coefficients that describes the linear relationship between two variables while controlling the effects of one or more additional variables. It is common when there is only one control variable.

Partial Correlation is commonly used in "causal" modeling of small models (3 - 5 variables). For instance, $R_{12.3}$ is the correlation of variables 1 and 2, and controlling for variable 3. The researcher compares the controlled correlation (ex., $R_{12.3)}$ with the original correlation R_{12}. If there is no difference, the inference is that the control variable has no effect. If the partial correlation approaches 0, the inference is that the original correlation is spurious - there is no direct causal link between the two original variables.

Partial correlation still requires meeting all the usual assumptions of Pearson correlation: linearity of relationships, the same level of relationship throughout the range of the independent variable, interval or near-interval data, and data whose range must be continuous. Therefore, the hypothesis test should be performed and interpreted same as for the Pearson Correlation.

Pearson Correlation is a measure of the strength and direction of the linear relationship between two variables. The correlation coefficient (r) ranges from + 1.0 to – 1.0. If two variables are perfectly negatively correlated, then the value of r is —1.0. If two variables are perfect positively correlated, the value of r is +1.0. If two variables are totally uncorrelated, then the value r = 0.

Pearson Correlation is the most commonly used technique for correlation especially when both variables to be correlated are expressed as interval data or ratio data. Since it results in the most reliable estimate of correlation, it is preferred even when other methods are applicable. It is also the most stable measure of correlation (Gay and Diehle, 1992).

Since the firm size is selected as the control variable in this research to further test the original correlation between the cash conversion cycle and the corporate profitability, thus, the Partial Correlation technique is the most appropriate methodology to analyze the framework and the hypothesis. To check the hypotheses concerning relationship, a 2-tailed statistical significant test is used. Statistical significance shows if obtained coefficient is really different from zero, which reflects a true relationship and not a chance relationship. By using this test, a hypothesis concerning relationship or no relationship can be supported or not supported.

In the methodology, the researcher decides not to find out the casual relationship between the dependent variables and the independent variables, because the casual relationship is indirect, and sometimes appears to be the reverse as indicated by alternative concepts. Moreover, the objectives of this study do not intend to make forecasts or projections of these variables, thus, regression analysis is not used here.

Chapter 5 Data Analysis

This chapter presents the data analysis and the findings. The secondary data is collected from 66 companies in the Philippines Stock Exchange covering the time period from 1997 to 2001. This chapter is divided into three main sections. The first section explains the descriptive statistics of both independent and dependent variables. The second section is the hypotheses testing between dependent and independent variables. The last section discusses the results and presents the summary of hypotheses.

5.1 Descriptive Statistic Analysis

The descriptive statistic analysis refers to the transformation of the raw data into a form that can make them easily be understood and interpreted. The table below shows the general data of each variable for the selected samples.

Table 5.1: Descriptive Statistic

Variables	N	Unit	Minimum	Maximum	Median	Mean	Standard Deviation
Inventory	330	Days	11	148	85	80	28.82
Receivable	330	Days	1	121	84	77	25.89
Payable	330	Days	8	367	87	87	34.17
CCC	330	Days	-206	169	76	69	43.07
ROA	330	Percent	-133	126	30	-2	14.35
ROE	330	Percent	-189	34	2	-2	19.26

Descriptive statistics are used to describe or summarize information about a population or sample. (Zikmund, 1997). It is a branch of statistics that provide researches with summary measures for data in their samples.

In this study, descriptive statistics are used to summarize the general information for each the dependent variables: ROA and ROE, and the independent variables: inventory conversion period, receivables collection period, payables deferral period and the cash conversion cycle during the time period from 1997 to 2001 in the Philippines Stock Exchange.

The above table shows that the minimum inventory conversion period is 11 days, maximum is 148 days; the minimum receivables collection period is only 1 day, the maximum receivables collection period needs 121 days; the minimum payables deferral period is 8 days, but the maximum payable deferral period needs 367 days; the minimum cash conversion cycle requires -206 days, the maximum needs 169 days.

The result shows that there is a big gap between the maximum value and the minimum value, which may be caused by the different types of industry or different firm sizes. Furthermore, the standard deviation for each variable is almost 30% different from the mean value; this point also proves the above mentioned reason.

For the dependent variables, the corporate profitability: return on asset (ROA) and return on equity (ROE), the same phenomenon like the independent variables also exists. The distribution of the corporate returns is highly uneven.

The negative figure of minimum CCC (i.e. -206 days) represents that the payables deferral period is much longer than inventory conversion period and

receivable collection period in the most extreme cases. The negative figure of ROA and ROE reflect the loss making companies at the bottom.

For the inventory conversion period and accounts receivable collection period, that show a median higher than the mean, the distribution is skewed to the left side. For payables deferral period, mean and median are the same, which indicates that the distribution is even.

The negative figure of mean of ROA and ROE reflects that the loss making companies outweighed the profit making companies, a sad phenomenon during the period under observation; much greater than ROE in median and maximum figures. Even the mean figures of ROA and ROE are equal. The standing of their figures indicates that during the period under review listed Philippine companies did not have advantage of financial leverage. Normally, ROE is greater than ROA reflecting the advantage to the equity holders due to the financial leverage.

5.2 Partial Correlation Analysis

In this section, the association between the independent variables and the dependent variables are examined by using SPSS program. The correlation is employed to find out the relationship between the independent and the dependent variables. The appropriate form of assessing the strength of relationship in this research is partial correlation.

Hypothesis 1: To test the relationship between the inventory conversion period and the corporate profitability under the control of firm size.

Ho_1: Inventory conversion period has no relationship with the corporate profitability under the control of firm size.

Hai: Inventory conversion period has a relationship with the corporate profitability under the control of firm size.

Table 5.2: Correlation between the inventory conversion period and the corporate profitability--- ROA

Controlling for: Firm Size		Inventory Conversion Period	ROA
Inventory	Correlation	1.0000	-.1820
	Sig. (2- tailed)		.001
	N	0	327
ROA	Correlation	-.1820	1.0000
	Sig. (2- tailed)	.001	
	N	327	0

Significant level (2-tailed) is 0.001, which is less than 0.05, reflecting that there is a relationship between the Inventory conversion period the corporate profitability under the control of firm size. So the null hypothesis is rejected and the alternative hypothesis is accepted.

Correlation coefficient The fact that ROA is -0.1820 when inventory conversion period is 1, which means there is a negative relationship between inventory conversion period and ROA, but the degree of the relationship is weak.

Table 5.3: Correlation between the inventory conversion period and the corporate profitability--- ROE

Controlling for: Firm Size		Inventory Conversion Period	ROE
Inventory	Correlation	1.0000	-.1777
	Sig. (2- tailed)		.001
	N	0	327
ROE	Correlation	-.1777	1.0000
	Sig. (2- tailed)	.001	
	N	327	0

Significant level (2-tailed) is 0.001, which is less than 0.05. It proves that there is a relationship between the two variables. Thus, the null hypothesis is rejected and the alternative hypothesis is accepted.

Correlation coefficient: The fact is that the coefficient between the inventory conversion period and ROE is -0.1773. It means there is a negative relationship between the inventory conversion period and the corporate profitability in terms of ROE. But the degree of the relationship is still not strong.

Hypothesis 2: To test the relationship between the receivables collection period and the corporate profitability under the control of firm size.

Hoe: Receivables collection period has no relationship with the corporate profitability under the control of firm size.

Ha_2: Receivables collection period has a relationship with the corporate profitability under the control of firm size.

Table 5.4: Correlation between the receivables collection period and the corporate profitability--- ROA

Controlling for: Firm Size		Receivables Collection Period	ROA
Receivables	Correlation	1.0000	-.1142
	Sig. (2- tailed)		.038
	N	0	327
ROA	Correlation	-.1142	1.0000
	Sig. (2- tailed)	.038	.
	N	327	0

Significant level (2-tailed) is 0.038, which is less than 0.05, reflecting that there is a relationship between the receivables collection period the corporate profitability under the control of firm size. So the null hypothesis should be rejected and the alternative hypothesis is accepted.

Correlation coefficient: The fact is that the coefficient between the receivables collection period and the ROA is -0.1142, which indicates there is a negative relationship between the receivables collection period and the corporate profitability in term of ROA. However, the degree of the relationship is low.

Table 5.5: Correlation between the receivables collection period and the corporate profitability--- ROE

Controlling for: Firm Size		Receivables Collection Period	ROE
Receivables	Correlation	1.0000	-.1134
	Sig. (2- tailed)		.040
	N	0	327
ROE	Correlation	-.1134	1.0000
	Sig. (2- tailed)	.040	.
	N	327	0

Significant level (2-tailed) is 0.040, which is less than 0.05, reflecting that there is a relationship between the two variables; therefore, the null hypothesis should be rejected and the alternative hypothesis is accepted.

Correlation coefficient: The fact is that the coefficient between the receivables collection period and the ROE is -0.1134, which indicates there is a negative relationship between the receivable collection period and the corporate profitability in terms of ROE. But the degree of this relationship is not strong as well.

Hypothesis 3: To test the relationship between the payables deferral period and the corporate profitability under the control of firm size.

Ho_3: Payables deferral period has no relationship with the corporate profitability under the control of firm size.

Ha_i: Payables deferral period has a relationship with the corporate profitability under the control of firm size.

Table 5.6: Correlation between the payables deferral period and the corporate profitability--- ROA

Controlling for: Firm Size		Payables Deferral Period	ROA
Payables	Correlation	1.0000	-.1826
	Sig. (2- tailed)		.001
	N	0	327
ROA	Correlation	-.1826	1.0000
	Sig. (2- tailed)	.001	.
	N	327	0

Significant level (2-tailed) is 0.001, which is less than 0.05, reflecting that there is a relationship between the payables deferral period and corporate profitability, so the null hypothesis has to be rejected and the alternative hypothesis is accepted.

Correlation coefficient: The fact is that the coefficient between the payables deferral period and the ROA is -0.1826. It indicates there is a negative relationship between the payables deferral period and the corporate profitability in terms of ROA. However the degree of the relationship is quite weak.

The findings in this analysis runs reverse to the general concept that payables deferral period have positive relationship with the corporate profitability. This general concept derives from the assumption that by deferring payments firms can reduce their borrowings, thereby resulting in less interest expense. Deloof (2003) suggested that the negative relation between the payables deferral period and corporate profitability is consistent with the view that less profitable firms wait longer to pay their bills.

Table 5.7: Correlation between the payables deferral period and the corporate profitability--- ROE

Controlling for: Firm Size		Payables Deferral Period	ROE
Payables	Correlation	1.0000	-.1613
	Sig. (2- tailed)		.003
	N	0	327
ROE	Correlation	-.1613	1.0000
	Sig. (2- tailed)	.003	
	N	327	0

Significant level (2-tailed) is 0.003, which is less than 0.05. It reflects there is a relationship between the two variables. Therefore, the null hypothesis should be rejected and the alternative hypothesis is accepted.

Correlation coefficient: The fact is that the coefficient between the payables deferral period and the ROE is -0.1613, which indicates there is a negative relationship between the payables deferral period and the corporate profitability in terms of ROE. However, the degree of this relationship is not strong.

Hypothesis 4: To test the relationship between the cash conversion cycle and the corporate profitability under the control of firm size.

Ho_4: Cash conversion cycle has no relationship with the corporate profitability under the control of firm size.

Ha_4: Cash conversion cycle has a relationship with the corporate profitability under the control of firm size.

Table 5.8: Correlation between the cash conversion cycle and the corporate profitability--- ROA

Controlling for: Firm Size		CCC	ROA
CCC	Correlation	1.0000	-.0466
	Sig. (2- tailed)	.	.40
	N	0	327
ROA	Correlation	-.0466	1.0000
	Sig. (2- tailed)	.40	.
	N	327	0

Significant level (2-tailed) is 0.40, which is many times higher than 0.05. The relationship is not proven, so the null hypothesis should be accepted and the alternative hypothesis has to be rejected.

Correlation coefficient is -0.0466, it indicates there is a negative relationship between the cash conversion cycle and the corporate profitability in terms of ROA. Again, the degree of relationship is very weak.

Table 5.9: Correlation between the cash conversion cycle and the corporate profitability--- ROE

Controlling for: Firm Size		CCC	ROE
CCC	Correlation	1.0000	-.0599
	Sig. (2- tailed)	.	.279
	N	0	327
ROE	Correlation	-.0599	1.0000
	Sig. (2- tailed)	.279	.
	N	327	0

Significant level (2-tailed) is 0.279, which is many times higher than 0.05. The relationship is not proven, so the null hypothesis should be accepted and the alternative hypothesis is rejected.

Correlation coefficient is -0.0599, it indicates there is still an inverse relationship between the cash conversion cycle and the corporate profitability in terms of ROE. However, the degree of the relationship is very weak.

When testing the relationship between the cash conversion cycle and the corporate profitability, although the result is in the significant level no matter whether the CCC to ROA or the CCC to ROE exceeds the 0.05 level, which can not prove the true relationship, the correlation between the two variables are still negative, which means the relationship between the CCC and the corporate profitability is still inversely existing, so the shorter the CCC, still could produce the more corporate profitability.

5.3 Summary of Hypotheses Testing

Based on the results of above hypotheses testing, the researcher summarizes the findings in Table 5.10:

Table 5.10: Summary of Hypotheses Testing

Hypotheses	Analysis	
	Accept	Reject
Ho_1: Inventory conversion period has no relationship with the corporate profitability. Ha_i: Inventory conversion period has a relationship with the corporate profitability.	Accept	Reject
Ho_e: Receivables collection period has no relationship with the corporate profitability. Ha_t: Receivables collection period has a relationship with the corporate profitability.	Accept	Reject
Ho3: Payables deferral period has no relationship with the corporate profitability. Ha_i: Payables deferral period has a relationship with the corporate profitability.	Accept	Reject
Ho4: Cash conversion cycle has no relationship with the corporate profitability. Ha_4: Cash conversion cycle has a relationship with the corporate profitability.	Accept	Reject

5.4 Supplemental Study

Much of the variation in CCC measures among companies is due to fundamental differences in products, services and markets. To control these differences, industry factor is also considered in this study. The researcher chooses five industries in the Philippines Stock Exchange. Those industries comparatively have more listed companies. The five industries namely are: Construction, Food & Beverage & Tobacco, Holding Firms, Manufacturing Distribution & Trading, and Mining.

The Pearson Correlation analysis is employed to test the relationship between the CCC and the corporate profitability in terms of ROA and ROE in each industry. The summary statistics for the relationship between CCC and ROA and ROE measuring by the industry factor are provided in the following table.

Table 5.11
Pearson Correlation Coefficients for the CCC, ROA and ROE Relationships by Industry Classification

	N	CCC-ROA	CCC-ROE
Construction	35	-.08 (.650)	-.148 (.397)
Food & Beverage & Tobacco	35	-.538** (.001)	-.633 (.000)
Holding Firms	120	-.207* (.023)	-.164 (.074)
Manufacturing Distribution & Trading	90	.072 (.497)	.029 (.784)
Mining	20	.304 (.192)	.316 (.175)

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The correlation results suggest that the CCC-ROA and CCC-ROE relationship are not very strong to most of the industries in the Philippines Stock Exchange.

Only the Food & Beverage & Tobacco and Holding Firms' two industries present a kind of correlation between the CCC and ROA and ROE, when the industry factor was involved in the analysis.

For the Construction industry, the coefficients for the CCC-ROA and CCC-ROE are all negatively related, but the degree of the significance for the CCC-ROA and CCC-ROE both exceeded 0.05 level.

The Manufacturing Distribution & Trading and Mining industries, no matter the position of their coefficients, the degree of the significance for the CCC-ROA and CCC-ROE are all beyond the reasonable level. Therefore, the relationship between the CCC and ROA and ROE in these two industries can not be proved. Moreover, the relationships are positive.

The industry wise analysis for the Philippines Stock Exchange, as a whole, can also be considered as a factor when measuring the relationship between the cash conversion cycle (CCC) and the corporate profitability. The analysis, however, has proved that both the CCC-ROA and CCC- ROE relationships are different to the industry factors. This phenomenon is properly caused by the capital intensity, product durability, production process, channels of marketing and competitive forces.

Anyway, the industry wise analysis shows us the different relationships among industries between the CCC- ROA and CCC- ROE for the Philippines Stock Exchange.

By this supplementary study, we can conclude that although overall relationship between CCC against ROA and ROE cannot be established, the relationship is found to be strong in Food & Beverage & Tobacco industry. Significant test also supports this relationship even with the Holding Firms group, the relationship between CCC and ROA is supported by significant test.

Chapter 6 Conclusion and Recommendation

This chapter provides a conclusion of the research. The first section states the major findings of this research. The second section gives the conclusion for this research. The third section gives the recommendations of this study. The last section is the suggestions for further research.

6.1 Summary of the Major Findings of the Study

Based on the objectives of this research, the aim was to examine how the inventory conversion period, receivables collection period, payables deferral period, and cash conversion cycle affects the corporate profitability in the Philippines Stock Exchange (PSE). And then, the research tries to find out the true relationship between those dependent variables and independent variables.

In this study, all the data are secondary data, which are obtained from the annual report of listed companies in the PSE. The researcher set up the research framework, and then by using the SPSS program including the Descriptive Statistics, Partial Correlations, and Pearson Correlation to evaluate all the data, the hypotheses and find out the true association between the dependent variables and independent variables.

The results of this study show that, as expected, the independent variables including the inventory conversion period, receivables collection period, payables deferral period, and cash conversion cycle are all negatively related to the corporate profitability in terms of ROA and ROE under the control of the firm size. But the degree of these relationships are all not quite strong.

Among independent variables, the inventory conversion period, receivables collection period, and payables deferral period are statistically significant. It means that these three independent variables have true relationships with the ROA and ROE in the Philippines Stock Exchange (PSE).

Another independent variable; cash conversion cycle (CCC) turns out that it does not continue to be statistically significant at a .05 level, which is holding for both ROA ($0.40 > 0.05$) and ROE ($0.279 > 0.05$). It means that cash conversion cycle's relationship with profitability measures of the ROA and ROE is not supported by the significant test. For this reason the null hypothesis should be accepted.

In addition, the researcher tested how the cash conversion cycle (CCC) affects the corporate profitability measures of ROA and ROE when the industry wise analysis is introduced in the Philippines Stock Exchange (PSE). The results show that the expected negative relationship between the dependent variables and independent variables can not be proved by most of individual industries in the Philippines Stock Exchange (PSE). Only in the Food & Beverage& Tobacco industry the negative relationship for both of CCC – ROA and CCC – ROE, and the negative relationship of CCC – ROA in the Holding Firms industry are significant at the .05 level. The rest of industries, for instance, the Construction sector, Manufacturing Distribution & Trading industry, and Mining industry presented an insignificant relationship between the cash conversion cycle (CCC) and the corporate profitability. This finding indicates that the industry classification could be a main factor when investigating the relationship between the CCC and the corporate profitability in forms of ROA and ROE in the Philippines Stock Exchange (PSE). This result may be caused by many reasons such as: capital intensity, product durability, production process, channel of

marketing, and so on. Also, the factor of small sample size on each sector in this research can not be ignored.

6.2 Conclusion of the Study

Inventory conversion period, receivables collection period, and payables deferral period are the three components of the cash conversion cycle. They are also used as independent variables in this study. In the empirical findings of this paper, the three variables are sensitive to the measure of profitability employed. The key findings hold for both ROA and ROE ratios. The findings reveal that the relationship between each of the three variables and both of the profitability measures of ROA and ROE ratios is inversely correlated. Meanwhile, the findings prove that there is an evidence of statistically significant relationship between the three measurements and the corporate profitability in the form of ROA and ROE ratios at the .05 level.

However, another independent variable and summary of three previous mentioned variables in this study---the cash conversion cycle (CCC), the researcher finds that there is no evidence of true relationship between the cash conversion cycle (CCC) and the ROA and ROE ratios at the .05 level within the sample size. But the relationship still has a negative sign, which means the inverse correlation also exists between the dependent and independent variables.

Lastly, as an effort to investigate deeper, the researcher investigates the relationship between the cash conversion cycle (CCC) and the profitability measures of ROA and ROE ratios when the industry classification is considered. The researcher chooses five main industries in the Philippines Stock Exchange (PSE) in the analysis, namely: Construction, Food & Beverage & Tobacco, Holding Firms, Manufacturing

Distribution & Trading, and Mining sector. When the results of this paper are taken as a whole, a strong case can be made that more aggressive liquidity management (lower CCC) is associated with higher profitability (both ROA and ROE) only for Food & Beverage & Tobacco industry, and for Holding Firms industry in terms of the relationship of CCC – ROA. In the Construction industry where there is no evidence of a significant relationship between CCC and profitability (both ROA and ROE) at the .05 level, the same finding also exists in the Holding Firm industry in terms of the CCC – ROE relationship, but these relationships still have a negative sign. There is a statistically significant inverse relationship between CCC and the profitability measures of both ROA and ROE ratios at the .05 level in the Food & Beverage & Tobacco industry. On the other side, the relationship between CCC and the corporate profitability measures of ROA and ROE is not significant at the .05 level in the Manufacturing Distribution & Trading, and Mining industries.

Ideally, a firm would like to have a negative cash conversion cycle (CCC). According to Gitman (1991), while occurrence is likely to be rare, non-manufacturing firms are more likely than manufacturing firms to have a negative CCC. Non-manufacturers generally carry smaller and faster selling inventories and often sell their products or services for cash. As a result, these firms would have a shorter CCC. The findings of this study just come up to the above theory; the Manufacturing Distribution & Trading and Mining industries in the Philippines Stock Exchange (PSE) got a longer CCC than the others industries.

6.3 Recommendations of the Study

Table 6.1: Conclusion of Empirical Results

Research Hypotheses	Results
There is no relationship between the inventory conversion period and the corporate profitability.	Reject H_0
There is no relationship between the receivables collection period and the corporate profitability.	Reject Ho
There is no relationship between the payables deferral period and the corporate profitability.	Reject Ho
There is no relationship between the cash conversion cycle and the corporate profitability.	Accept Ho

Based upon the framework of the study, the cash conversion cycle is computed for each observation using the equation, which is presented as:

CCC = Inventory Conversion Period + Receivables Collection Period

– Payables Deferral Period

As can readily been seen, cash conversion cycle (CCC) is influenced by changes in either direction of the three measures --- inventory conversion period, receivables collection period, or payables deferral period. Clearly, the length of the cash conversion cycle can be changed in a number of ways.

It was stated in an earlier paragraph that, a firm would like to have a negative cash conversion cycle (CCC). A negative CCC means that the payables deferral

period is longer than the operating cycles. According to the results of this study, the four independent variables --- the inventory conversion period, receivables collection period, payables deferral period, and the cash conversion cycle (CCC), as expected, all got a negative sign. (Except that the CCC is not statistically significant at the .05 level). Therefore, the implications of the findings are that companies can improve their cash flow by shortening the length of the CCC. This reduction can be accomplished in one of three ways: (1) reduce the inventory conversion period, (2) reduce the receivables collection period, and / or (3) increase the payables deferral period.

(1) *Reduce the inventory conversion period.*

A reduction in the inventory conversion period may be accomplished by turning over inventory as quickly as possible while avoiding depletions of stocks. The best way to reduce the size of safety stocks is to locate alternate supply sources and establish trade relationships with each one. By diversifying supply sources, a firm can develop contingency plans for ordering when problems occur with one of the suppliers. Firms might also look for better inventory management model and systems. Such as: the Just-in-time inventory system and the just-in-time production system. These two systems could reduce the inventory conversion period to the minimum.

(2) *Reduce the receivables collection period.*

To reduce the receivables collection period, a firm may want to offer incentives for early payment. Incentives, such as cash discounts for early payment, are often used as inducements for customer to pay early. Earlier

payments result in the quicker receipt of cash and, thus, a shorter CCC. The situation permits, selling on cash could eliminate the collection period. CCC can be reduced by factoring but related costs or commission should be considered.

(3) *Increase the payables deferral period.*

This tactic can be practiced if the supplier is very big and there has been longtime loyal relationship with the suppliers. Another alternative is to choose the supplier who can allow longer credit periods.

In the statement of the problem there are two specific questions for which this study seeks to answer.

1. Do the predictors of inventory conversion period, receivables collection period, payables deferral period and cash conversion cycle (CCC) provide better liquidity information to predict the corporate profitability?

2. How does the changing of cash conversion cycle and each component of cash conversion cycle affect the corporate profitability?

Answer (1)

As the relationship between cash conversion cycle (CCC) and the corporate profitability could not be established, cash conversion cycle (CCC) could not be used for predicting the corporate profitability, at least in the Philippines Stock Exchange (PSE).

This answer supports Soenen's solo finding in his 1993 research (PP24). Soenen found out that the net trade cycle, equivalent term for cash conversion cycle (CCC), in aggregate, did not have a substantial impact on the corporate profitability.

However, the sub-variables: inventory conversion period, receivables collection period, and payables deferral period still can affect corporate profitability individually, therefore, their relationship with corporate profitability cannot be ignored.

Answer (2)

In fact, the cash conversion cycle (CCC) affects the corporate profitability in indirect ways, that's why their degree of association is very weak.

Finally, the researcher also wants to give some suggestions to financial managers and investors.

CCC is a very important factor to be considered for any kind of financial managers or for any other investors, when they are monitoring or watching a firm's cash flows.

At the time a financial manager tries to make investment or financing decisions for the company, he/she has to look up at cash flows status of the company, to ascertain the amount of working capital to be maintained. However, he/she can not solely check the cash conversion cycle (CCC), but has to carefully examine each of the components of the CCC respectively. Only in this way, he/she could make more accurate financing decisions on behalf of the company.

For investors, before they decide to make investments in a company, one of the most important steps they have to take properly is to evaluate the company's cash flows situation. The best way is not only to examine the CCC, but also each individual component of CCC. The more information they obtained, the more reasonable decisions they will make, and finally the more profit they may earn.

6.4 Suggestions for Further Research

Just like other researches, this study also possesses some limitations that happen to be beyond the scope of the study. Thus, these issues are presented as suggestions to provide for other researchers' further studies on this topic.

First, in this research, the researcher emphasizes on the investigation of how the cash conversion cycle (CCC) affects the corporate profitability. The result is that the CCC has insignificant relationship with the corporate profitability in forms of ROA and ROE. Therefore, further research should look for other efficient measurements to predict the corporate profitability.

Second, this study just used five years data of the listed companies on the Philippines Stock Exchange (PSE). These years were dominated by post-1997 financial crisis. Further study can extend the time period and expand the sample size, in order to confirm or reject the relationship between CCC and the profitability. In making this suggestion, it is noted that emerging stock markets, like the Philippines Stock Exchange (PSE), are limited by a small number of listed companies and by a few number of trading years.

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