

Working capital
versus capital
expenditure
management finance
essay



The purpose of this research is to investigate the impact of firms' capital expenditure on their working capital management. Net Liquidity Balance and Working Capital Requirement for determination of working capital requirement and developed multiple regression models. The empirical research found that organisation's capital expenditure has a significant impact on working capital management. The study

also found that the firms' operating cash flow, which was recognized as a control variable, has a significant relationship with working capital management.

Capital forecasting in a downturn environment where change is rapid. Incorporating dynamic forecasting to measure the impact of key uncertainties and risks on the portfolio of projects is crucial.

The findings increase the knowledge base of working capital management and will help companies manage working capital efficiently in growing conditions associated with capital expenditure.

1. 1 Working capital for accountants, investors and managers is the short-term health of a company. Working capital equals current assets minus current liabilities. Current accounts are accounts that the company collects or are due in the next year. Making a capital expenditure will have several effects on the company's working capital, depending on the transaction. However, in certain cases, there may be no impact; it is important to understand why.

Corporate finance basically deals with three decisions:

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- A) capital structure decisions,
- B) capital budgeting decisions, and
- C) working capital management decisions.

Working capital management is a very important component of corporate finance since it affects the profitability and liquidity of a company. It deals with current assets and current liabilities. The decision-making process on the level of different working capital components has become frequent, repetitive, and time-consuming.

Working capital management is recognized as an important concern of the financial manager due to many reasons. For one thing, a typical manufacturing firm's current assets account for over half of its total assets. For a distribution company, they account for even more. The maintenance of excessive levels of current assets can easily result in a substandard return on a firm's investment.

However, firms with inadequate levels of current assets may incur shortages and have difficulties in smoothly maintaining day-to-day operations. Efficient working capital management involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet due short term obligations on one hand and avoids excessive investment in these assets on the other hand.

Capital forecasting in a downturn environment where change is rapid.

Incorporating dynamic forecasting to measure the impact of key

uncertainties and risks on the portfolio of projects is crucial. Analyzing and
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quantifying the impact of risks and delays at project and portfolio level.

Governance and control over capital expenditures, Portfolio prioritization.

Determining the optimal decision making level for capital allocation decision (corporate level vs business unit level vs hybrid model).

1. 2 Working Capital Estimates

The analysis includes estimates of all investments required for a project. The project may require increases (or decreases) in cash, accounts receivable, accounts payable, or inventory.

2. 1 Capital expenditure

Whenever we make an expenditure that generates a cash flow benefit for more than one year, this is a capital expenditure. Examples include the purchase of new equipment, expansion of production facilities, buying another company, acquiring new technologies, launching a research & development program, etc., etc., etc. Capital expenditures often involve large cash outlays with major implications on the future values of the company. Additionally, once we commit to making a capital expenditure it is sometimes difficult to back-out.

It has been found that managers spend a considerable time on day-to-day working of capital decisions since current assets are short-lived investments that are

continually being converted into other asset types (Rao, 1989). In the case of current liabilities, the firm is responsible for paying obligations mentioned

under current liabilities on a timely basis. Liquidity for the on-going firm is reliant, rather, on the operating cash flows generated by the firm's assets.

Corporations are looking for new ways to stimulate growth, improve financial performance, and reduce risk in today's challenging economic climate. Funds tied up in working capital can be seen as hidden reserves that can be used to fund growth strategies, such as capital expansion. Cash flows locked in stock and receivables can be freed up by understanding the determinants of working capital. Many organizations that have earned profits over the years have shown the efficient management of working capital (WCM).

Broadly, industry characteristics, firm-specific characteristics, and the financial environment are recognized as determining factors of both capital expenditure and working capital. In addition to the growth, leverage, and the size of a company, type, and size of expenditures, such as finance and operating and capital expenditures, have different impacts on capital expenditure and working capital.

2. 2 Portfolio Approach in Capital Budgeting

Portfolio approach to achieve capital efficiency and organisational alignment can yield immediate positive cash-flow results for companies. Typically companies view capital expenditures through a cost and benefits filter that focuses largely on ROI and IRR type

measures. Whilst these measures are relevant, companies that do so often do not necessarily link these to the strategy of the company. They also do not prioritise capital expenditures in terms of their effect on strategy and

shareholder value. We believe that by using a portfolio approach companies could:

- Increase returns on invested capital by understanding which projects contribute most

to shareholder value and lie on the project efficiency frontier

- Have a holistic portfolio view of the return of the capital of the entire company

- Improve the strategic and organizational alignment of projects

- Make informed decisions on where to invest scarce cash resources.

2. 3 Capital Budgeting Decisions:

Stage 1: Decision Analysis

Decision-making is increasingly more complex today because of uncertainty. Additionally, most capital projects will involve numerous variables and possible outcomes. For example, estimating cash flows associated with a project involves working capital requirements, project risk, tax considerations, expected rates of inflation, and disposal values. We have to understand existing markets to forecast project revenues, assess competitive impacts of the project, and determine the life cycle of the project. If our capital project involves production, we have to understand operating costs, additional overheads, capacity utilization, and start-up costs. Consequently, we can not manage capital projects by simply looking at the numbers; i. e. discounted cash flows. We must look at the entire

decision and assess all relevant variables and outcomes within an analytical hierarchy.

This analytical hierarchy is known as the Multiple Attribute Decision Model (MADM). Multiple attributes are involved in capital projects and each determinant in the decision needs to be weighed differently and their relationship with each other determined.

Several techniques are available to arrive at a financial decision regarding a capital expenditure project. These include:

the net present value method. This method discounts all cash flows to the present using a predetermined minimum acceptable rate of return as the discount rate. If the net present value is positive, the financial return on the project is greater than this minimum acceptable rate and indicates the project is economically acceptable. If the net present value is negative, the project is not acceptable on economic grounds.

the internal rate of return method. The internal rate of return is defined as the discount rate that makes the net present value of a project equal to zero. It is the highest rate of interest that a company could incur to obtain funds without losing money on the project.

the equivalent annual cost method. When considering alternative proposals, it may be that only costs are involved. In such situations, a choice of alternatives can be made by determining which has the lowest equivalent annual cost. Under this method, capital expenditures are converted to their "equivalent annual cost" and added to the annual "operating" costs.

Equivalent annual cost is the annual amount that would repay the capital over the life of the project at a specified discount rate. It is similar to an annual, level repayment schedule for a mortgage. The alternative with the lowest total cost would be the most attractive (ignoring intangibles).

the payback method. This method estimates the time taken to recover the original investment outlay. The estimated net cash flows from a proposal for each year are added until they total the original investment. The time required to recoup the investment is called the payback period. Projects with a shorter payback period are preferred to those with longer periods.

the discounted payback method. The discounted payback period is the number of years for which cash inflows are required to (a) recover the amount of the investment and also (b) earn the required rate of return on the investment during that period. In this method, each year's cash inflow is discounted at the required rate of return, and these present values are cumulated by year until, their sum equals, the amount invested. Projects with a shorter discounted payback period are preferable to those with longer periods.

the accounting rate of return method. The accounting rate of return is a measure of the average annual income after tax over the life of a project divided by the initial investment or the average investment required to generate the income. It is important to note that this method assesses net income and not cash flows which are used in the other methods.

Stage 2: Option pricing

In financial management, consideration of options within capital budgeting is called contingent claims analysis or option pricing. For example, suppose you have a choice between two boiler units for your factory. Boiler A uses oil and Boiler B can use either oil or natural gas. Based on traditional approaches to capital budgeting, the least costs boiler was selected for purchase, namely Boiler A. However, if we consider option pricing Boiler B may be the best choice because we have a choice or option on what fuel we can use.

Suppose we expect rising oil prices in the next five years. This will result in higher operating costs for Boiler A, but Boiler B can switch to a second fuel to better control operating costs. Consequently, we want to assess the options of capital projects.

Stage3: Discounted Cash Flow (DCF)

Discounting refers to taking a future amount and finding its value today.

Future values differ from present values because of the time value of money.

Financial management recognizes the time value of money because:

Inflation reduces values over time; i. e. Rs. 1, 000 today will have less value five years from now due to rising prices (inflation).

Uncertainty in the future; i. e. we think we will receive Rs. 1, 000 five years from now, but a lot can happen over the next five years.

Opportunity Costs of money; Rs. 1, 000 today is worth more to us than five years from now because we can invest Rs 1, 000 today and earn a return.

3. 1 Quantitative Analysis and Estimates :

The foundations for good capital planning are reliable forecasts of the following parameters like competitive technology, marketing opportunities, likely actions by competitors and governments, sales volumes, selling prices, operating costs, changes in working capital, taxes payable and capital costs of equipment. Effective management of capital expenditure decisions, therefore, requires that controls be designed and operated to ensure that projections are realistic at the time decisions are made. Reliable estimates and forecasts are vital to the capital investment decision.

The degree of precision necessary for the estimates related to the capital expenditure decision depends on:

the stage of evaluation of the project (i. e., in early stages less precision is needed),

the sensitivity of the project's economics to the level of accuracy and timing of each of the elements within the estimates, and

the similarity of the project to others already undertaken.

3. 2 Planning Horizon of a project:

It is often difficult to estimate the life of a project (i. e., its planning horizon).

The criterion is the continued ability to generate satisfactory cash flows or other intangible benefits. The economic life of a project is the lesser of its physical life, technological life or product-market life.

Physical Life of Project

Technical life of the Project

Market life of the product to be manufactured depends upon:

Detailed Market Research/Study

Competitive Factors

Price Estimation and Determination

Organisation Market Position

Maintenance

Property related costs

Depreciation

Plant Administration, Service Department Costs

4. 1 Research Objectives

Overall objective. The overall objective of this research study is to investigate capital expenditure on a project and consequently working capital requirement and their relationship. Working capital measured in terms of net liquidity balance and working capital requirement (WCR).

Specific objectives. are to

- Investigate whether there is a relationship and type of relationship between capital expenditure and the firm's working capital (W. C.).

- Describe the relationship between the nature of expenditure and the working capital.

To investigate the impact of different factors affecting the working capital on net

liquidity balance and working capital requirement.

- Investigate the existing literature on working capital management to highlight the

recent trends.

- Understand the applicability of NLB and WCR as a measure of working capital

management.

- Investigate the relationship between corporate performance and working capital

management.

4. 2 Literature Review

The chief financial officers of most companies spend most of their time and effort on day-to-day working capital management. Still, due to the inability of financial managers to properly plan and control the current assets and current liabilities of their companies, the failure of a large number of businesses can be attributed to the inefficient working capital management.

Working capital is the most crucial input and the success or failure of an

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organization can be rightly attributed to the quality and efficiency in the management of working capital (WC) or net current assets (NCA).

Account receivable management models and inventory management models were used in approximately 65 % of companies. The management of the working capital, stresses the need for the development of a viable system with the dual finance goals of profitability and liquidity, only such models will assist practicing financial managers in their day-to-day decision-making.

Over the years, many researchers have focused on determining the optimal level of each

component of working capital. It was found that the working capital literature is rather limited and that the management of short term resources is not understood too well.

Thus, the consensus in academia seems to recognize the paucity of theory concerning the management of financial resources due to the inherent difficulties in the

development of a working capital decision model, while accepting the normative needs for a more critical examination. The tendency of firms with low levels of current ratios to have low levels of current liabilities.

5. 1 Methodology

The purpose of this paper is to contribute to a very important aspect of financial

management known as working capital management. The study will show the relationship of capital expenditure on firms' working capital management and its impact. This chapter of the research deals with the analytical framework of data analysis, which describes the firms and variables included in the study, the distribution patterns of data, and applied statistical techniques in investigating the relationship between working capital management and capital expenditure.

6. 1 Data Collection

Since the study is based on financial data, the main source of data was financial statements, such as income statements, balance sheets, and cash flow statements of listed companies for the period from 2000 to 2005. The reason for restricting the time period to six years was that the latest data for the study was available for these years. In addition, annual reports of companies have been used in order to understand the company background and industry.

6. 2 Sample Selection

The study uses secondary data of listed companies in the stock exchange. Companies with missing data are excluded from the study. The study also excludes the financial

and securities sector companies, as their financial characteristics and use of leverage

are substantially different from other manufacturing companies. The working capital requirements and capital expenditure of a manufacturing

organization is widely different from trading, financial and securities sector companies.

6.3 Variables

In addition to identifying capital expenditure, the study undertakes the issue of identifying all factors that affect the working capital management. Most of the determinants identified in the investigation have been taken from the existing literature on working capital management.

The study takes into account of all the variables discussed below. Variables, which include dependent, independent, and control variables, have been used to investigate the test hypothesis.

6.4 Independent Variables

Capital expenditure (CAPEX) is identified as one of the independent variables and includes expenditures incurred by firms for acquisition and upgrading/renovating

physical assets, such as land, buildings, machinery, vehicles, and equipments. Capital

expenditures are added to assets account and depreciated against profits over their economic life as Deferred Revenue expenditure(DEFEREX).

Capital expenditure is incurred by a company when buying new, fixed assets or in adding value to existing assets to increase their economic lives. Capital expenditure includes buying the value of assets, carriage inwards, insurance, legal costs, and all costs needed for acquiring assets ready for use.

Managers pay careful attention to capital expenditure decisions, since they are very costly and irreversible. Operating expenditure (OPEX) is the cost of ongoing operations, product or system. Unlike CAPEX, firms meet OPEX continuously. Operating expenditures are written off against profit for the period. They are Revenue expenditure (REVEX) which includes salaries, wages and facilities expenses, such as rent, rates, electricity, etc. Finance expenditure (FIEX) is cost incurred on debt capital. Interest incurred on debentures, bank loan and other long term liabilities are recognized as finance expenditures.

6. 5 Dependent Variables

$NLB = (\text{cash and cash equivalents} + \text{short-term investment}) - (\text{short-term debt} + \text{commercial paper payable} + \text{long-term debt a year term})$. These are considerations of the financial decisions of a company, regardless of the operation cycle. Thus, it is called as net liquid balance.

$WCR = (\text{accounts receivable} + \text{inventories}) - (\text{accounts payable} + \text{accrued expenses}$

$+ \text{other payable})$, which relate to the working cycle and are called working capital

requirements.

6. 6 Control Variables

In addition, firms' operating cash flow (OPCASH), extracted cash flow statement, growth

(GRO) of the firm measured by sales, leverage measured by total long-term debt capital and divided by equity (D/E). All the above variables have relationships that affect working capital management. These relationships might vary over variables, companies and industries based on business strategy, economic environment, and financial environment.

7.1 Hypotheses Development

Working capital management is traditionally rated by current ratio, quick ratio, and net

working capital.

According to Shulman and Cox (1985), these traditional ratios don't consider the going concern of the company and net working capital does not measure the correct value of liquidity. They classify net working capital into working capital requirement (WCR) and net liquidity balance (NLB) in order to predict the financial crisis of a company. WCR is measured in order to evaluate the management of working capital, and NLB is considered with the capability of raising and allocating capital respectively.

NLB is better than traditional indicators in terms of predicting crisis and liquidity

of a company.

The basic purpose of this study on working capital management to evaluate the impact of capital expenditure on working capital. Thus, this study will

categorize expenditure of a firm into three types: a) Operating expenditure, b) Capital (investment) expenditure, and c) Finance expenditure.

However, except capital expenditure, operating and finance expenditures will be considered on accrual basis, not on the cash basis, because incurred expenditure will determine working capital management of the company.

When a company has growth opportunities, it needs to acquire fixed assets (pay capital expenditure) relevant to future growth plans. Thus, incurred or expected capital expenditure is positively correlated with NLB. With growth opportunity, a company can increase the holding cash, since it manages working capital efficiently. Under such circumstances, terms to pay operation-related liabilities are lengthened and operation-related receivables can be accelerated in collection, causing less demand on working capital.

Expected capital expenditure is negatively related to WCR, and firms with a higher growth rate pay more attention on the management of capital expenditure.

Hypotheses A- Capital expenditure is positively related to NLB

Hypotheses B- Capital expenditure is negatively related to WCR

8. 1 Model Specification

This study uses panel data regression analysis of cross-sectional in order to test the hypothesis.

A use the pooled regression type of panel data analysis. The pooled regression, which is also called the constant coefficients model, is one in which both intercepts and slopes are constant, where the cross section from a data and time series data are pooled together in a single column, assuming that there are no significant cross section or temporal effects. The general forms of our models are: t

NLB Decrease in WCR

$$H1a = NLB_{it} = \hat{\beta}_0 + \hat{\beta}_1 X_{it} + \hat{\mu}_i \quad (1)$$

$$H1b = WCR_{it} = \hat{\beta}_0 + \hat{\beta}_1 X_{it} + \hat{\mu}_i \quad (2)$$

WCR: working capital requirement of firm i at time t ; $i = 1, 2, \dots$ no. of firms

NLB it : net liquidity balance of firm i at time t ; $i = 1, 2, \dots$ no. of firms

$\hat{\beta}_0$: the intercept of equation $\hat{\beta}_i$: coefficients of X_{it} variables

X_{it} : the different independent variables for working capital management of firm i at

time t

t : time = 1, 2, ..., 6 years.

$\hat{\mu}_i$: the error term

Specifically, when I convert the above general least squares model into my specified

$$NLB_i = \hat{\beta}_1 OPEX_i + \hat{\beta}_2 FIEX_i + \hat{\beta}_3 CAEX_i + \hat{\beta}_4 M/B_i + \hat{\beta}_5 Gt_i + \hat{\beta}_6 D/E_i + \hat{\beta}_7 OCASH_i + \hat{\mu} \quad (3)$$

$$WCR_i = \hat{\beta}_1 OPEX_i + \hat{\beta}_2 FIEX_i + \hat{\beta}_3 CAEX_i + \hat{\beta}_4 M/B_i + \hat{\beta}_5 Gt_i + \hat{\beta}_6 D/E_i + \hat{\beta}_7 OCASH_i + \hat{\mu} \quad (4)$$

Where:

NLB = (cash & cash equivalents + short term investments) - (short term debt + commercial paper payable + Long term debt year term)

WCR = (accounts receivable + inventories) - (accounts payable + other payable).

WCR equals net working capital - NLB.

$\hat{\beta}$ = coefficient of regression,

OPEX = operating expenditure

FIEX = financial expenditure

CAEX = capital expenditure

M/B = market to book value ratio

D/E = total debt to total assets

Gt = sales growth

OCASH = operating cash flow in firm

$\hat{\mu}$ = the error term

These findings are consistent with hypothesis H1b.

Operating expenditure and interest expenditure also have a positive significant relationship with working capital requirement.

9. 1 Conclusions and Recommendations

Working capital management attracts less attention of the management than capital budget and expenditure, capital structure in financial management in the ordinary course of business.

Working capital management relates to the findings of sources of short term finance and investments in short term assets.

Working capital management deals with profitability and the risk of the company.

Inefficient working capital management results in over investment in working capital and reduces the profitability of the firm. On the other hand, inefficient management of working capital leads to an insufficient amount of working capital and results in financial difficulty, putting the company at risk.

The optimal level of working capital, which is a trade off between risk and profitability, can be affected by both internal organizational characteristics and various outside factors.

Existing literature has paid little attention to many factors that determine the working capital.

This research investigated some of the factors such as capital expenditure, operating expenditure, finance expenditure, leverage, performance and operating cash flow.

This research paper uses NLB and WCR as proxies for working capital in order to assess working capital management with capital expenditure and other influencing factors.

Empirical results show that capital expenditure has a significant effect on working capital management. This finding will help a company's management manage working capital efficiently.

The findings can be used as a benchmark for managing working capital and evaluating performance. Through this paper it was able to find out that operating cash flow has a significant impact on a company's working capital management, consistent with conclusions in previous research/literature.

By conducting the same study on each business sector separately, managers can understand specific behavior of a company's working capital in relationship with capital expenditure.

Since the model is a general model, it might not be able to be applied or might not give the same findings in specific business sectors. Moreover, further research can be conducted on the same topic in different countries.

Working capital management policies can be compared between developing and

developed countries in order to determine the correct management policies.

14) Capital expenditure decisions are very crucial and not easily reversible.

Substantial amount of money is blocked in capital expenditure decisions.

Hence such decisions have to be taken very carefully with a lot of deliberations.