

Impact of Working Capital on firm's Profitability and Value

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Abstract:

The main purpose of my research is to studying the relationship/Association between the Working capital and Profitability/Value. The Efficient working capital is the important tool to measure the profitability of the business. This research have been done on the secondary data by understanding the result of studies that have already done. This study results shows that there is variant behavior of profitability in terms of working capital, as on some points business shows negative relation and sometimes it shows positive relation with the independent variable. It also depends on the size of the firm and the market condition as well. There is a significant relationship between working capital and profitability and value of the firm. With the better management of working capital, any firm can develop value for shareholders. This goal can be achieved by managing the components of working capital, by decreasing the number of days for accounts receivable, using the method JIT (just in time) for inventory and by using the money of Accounts payable for investment in profitable purposes. Further investment in working capital can help to increase the profitability.

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1. Introduction:

The recent global financial crisis and the collapse of colossal organizations such as General Motors, Lehman Brothers, Bear Stearns, among others, brought to the forefront of capital markets research the importance of management of organizational resources, especially Working capital management. Working capital can be describe as the capital available to meet the day to day operations, and depending on the related industry, it could be a relatively high percentage of the total assets of the organization. (Melita Stephanou Charitou, 2016)

Generally, working capital is a measure of operational liquidity in the business. The traditional definition is that working capital consist of current assets minus current liabilities. Current assets consist of the company's most liquid assets and receivables due within a year. The working capital is directly linked with the company's daily operations. (Kydland & Fjeldså, 2014)

Working capital deals with current assets and liabilities. Due to many reasons the management of working capital is very important. Working capital is the result of the time lag between the expenditure for the purchase of raw materials and the collection from the sale of finished goods. As such, it involves many different aspects of corporate operational management: management of receivables, management of inventories, management and use of trade credit, etc. (Kieschnick, Laplante, & Moussawi, 2006).

The working Capital is undesirable in that it constitutes a drag on financial performance. Current assets that do not contribute to return on equity, hinder the performance of the company and may hide obsolete inventory that may not be salable and receivables that may not be collectible. The concept of working capital as a hindrance to financial performance is a complete change in attitude from earlier conventional wisdom. (Sagner, 2014)

Access to finance for trade and working capital is crucial for the competitiveness of small and medium size enterprises SMEs. However, the scale and risk profiles of SMEs mean that the barriers they face in accessing finance are particularly high. If information of the credit riskiness of enterprises were shared among concerned parties, then these parties and other enterprises could in turn access trade and working capital financing at more competitive terms. (Paulo, 2004)

Working capital management have been approached in numerous ways. Some researchers studied the impact of optimum inventory management while other authors studied the management of accounts receivables in an optimum way that leads to profit maximization. (Lazaridis & Tryfonidis, 2006). According to (Deloof, 2003) the way that working capital is managed has a significant impact on profitability of firms. This indicates that there is a certain level of working capital requirements which potentially increase returns.

The Norwegian shipping and offshore industry has not been very profitable in terms of net profit margin over the past few years. There have been varying opinions amongst industry, financial and capital markets, and shareholders about the reasons behind this lack of profitability. Size is a major influence on performance. Therefore, the industry must consider consolidating, cooperating in joint ventures or establishing commercial pools. Meanwhile Companies must enhance their focus on cash and working capital management because it can improve

profitability, reduce risk, and enable growth. The performance variance within the Norwegian shipping industry regarding cash and working capital management are substantial. This research has shown that an enhanced focus on working capital and cash management can significantly improve performance and free up capital to finance growth, which is key variable in influencing profitability. Keep in mind the need for improving cash and working capital management, which are built around using big data and predictive analytics to enhance accuracy and precision, which can prove beneficial for the Norwegian shipping and offshore industry. (Lars Løyning, 2015)

The purpose of this study is to examine the impact of working capital management on firm's profitability in maritime sector in Norway. Some variables that are related to working capital management that might be significantly related or responsible for the profitability of firms can be found in the literature. My study contributes to the literature on the relationship between the working capital management and the firm's profitability. Hence, the main research Question is: Impact of working capital management on the firm's profitability within maritime sector of Norway?

Accordingly, this study focuses on the Norwegian maritime sector, although only limited research has been conducted in this sector recently. This study validates some findings of previous authors by examining the relationship between working capital management and the profitability of the firms. Working capital management is vital to ensure the sustainability of the companies in order to keep growing and to be a competitor in the market.

1.1 Thesis Organization:

This thesis is organized as follow: Chapter 2 of the thesis reviews the academic literature on the topic within two sections, in the first section it emphasizes on the working capital and its

management. In this regard, a summary on previous and recent studies on working capital management is highlighted. The second section of the chapter describe the academic literature about the impact of working capital Management on the firm's profitability. Chapter 3 is addresses the applied methodology and describe the indicator approach for management of working capital to enhance the profitability. Chapter 4 describe the association of working capital management and profitability with the help of formulas/Models. Chapter 5 deals with the discussion and extends for the limitation of the study. At the end, Chapter 6 draws on the conclusion of the thesis.

2. Literature Review:

As described earlier the object of this master thesis is to relate the effect of working capital management on profitability and Value. A lot of work has been done previously in topics related to this field for both local Norwegian companies as well as in more international settings. A review of the work that has already been done and that can be used as a base line for further research is provided in this section.

Starting from the viewpoint of Norwegian Companies, only 0.1% are said to employ more than 250 personnel which classifies them as Small Medium Enterprises (SMEs). As most of the Norwegian economy is oil based, in the present times when it is apparent that Norway will have to diversify its economy these SMEs are said to be major players.

(Lyngstadaas & Berg, 2016) have done a study to investigate the effect of WCM on a firm's profitability and if it can be used to make certain of their longevity. Many different ways have been used previously to measure the profitability. In the most recent studies, Return on Assets (ROA) and Return on Invested Capital (ROIC) have been used by (Pais & Gama, 2015) as well as (Juan García-Teruel & Martínez-Solano, 2007) and ROIC has also been used by (Lyngstadaas & Berg, 2016). In the said study working capital has been measured using Account Receivables, Cash Conversion Cycle, Account payables and Inventories.

The researchers used relevant data from 21,075 SMEs between a periods of three years. The result obtained from their studies showed that the Working Capital Management does in fact effect the profitability of a company. The authors suggest that reducing the Inventory, time spent on receivables and accounts payable will increase the profitability. Higher levels of inventories are said to be connected to increased sales and reducing transaction costs (Petersen & Rajan,

1997). On the other hand, holding more inventory may increase the probability of goods not being sold, and expenses related to maintaining the inventory. In contrast to this, buying inventory to the minimum required level, raises the risk of the firm running out of stock and losing customers and goodwill. An inverse relation between inventory and profitability has also been showed in some studies (Juan García-Teruel & Martínez-Solano, 2007) and (Pais & Gama, 2015). Working capital has been effectively described by (Eljelly, 2004) as the planning as well as handling of current assets and liabilities to reduce the chances of a firm being unable to settle its debts on time.

(Mias & Retno, 2016) have in their work investigated which factors affect the working capital of a firm. They provide a definition for working capital as the portion of funds that is spent by the companies to maintain daily operations and meeting the agendas of the firm on a daily basis. The factors that the authors have put out to study are company size, leverage, the company's growth, cash flow, profitability, capital expenditure and GDP. The working capital management is said to be reflected in most part by cash conversion cycle (CCC) which mainly focuses on the length of the period needed by a company to provide payment and when it receives cash inflow (Shaista & Veeri Chettiar, 2013). The shorter the CCC the better, indicating good liquidity. The authors use a model developed by (Fatemeh, 2014) As per the analysis presented in the paper the authors report that the independent variables namely, firm growth, profitability and cash flow have negative direction and have a significant influence on working capital management while the independent variables like firm size, leverage, capital expenditure and GDP have a positive influence and both leverage and capital expenditure have a positive influence but it is not very significant as reflected by CCC (Shaista & Veeri Chettiar, 2013).

As with the study presented above for Norwegian firms there are several such studies for other countries as well. (Deloof, 2003) has investigated the effect of WCM on profitability for Belgian firms between a period of four years. The author characterized trade credit and inventory policy by accounts receivable, accounts payable and inventories, and as is the case in other studies the CCC was used as the reflection of WCM. The author used a sample containing the financial statements of 2000 of the most important Belgian firms. The measures used for profitability were net operating income and gross operating income. From the analysis the author reported a negative relation between gross operating income and the number of days accounts receivable, inventories and accounts payable of Belgian Firms. The negative relation between profitability and inventory can be accounted to a decline in sales, which may cause lower profits and higher inventory while the negative relation between accounts payable and profitability can be attributed to the firms waiting longer to pay their bills (Deloof, 2003)

The firms who have longer cash cycle, Cash cycle is the length of time between when the firm pays cash to purchase its initial inventory and on the other hand when receiving cash for selling it out which is produced from that inventory, they have more working capital, and more cash to conduct the daily operations of the firm. Working capital levels may vary significantly, it depends on the characteristics of the different industries. Working capital can increase the firm value, any fund that company has from investors need to earn an opportunity cost of capital for those investors. Value of the firm is the present value of its free cash flows. Efficiently managing of working capital will increase those free cash flows, this allows a manager to maximize firm value. Therefore it is necessary for a firm to manage the working capital related accounts like trade credit. Managing float, receivable and payable management, inventory and cash management. (Berk, DeMarzo, & Harford, 2012b)

Management of working capital is an important element of corporate financial management, because it directly impacts the profitability of the firm. Many researches have studied working capital management in different ways. Out of these studies some studied about the impact of proper or optimal inventory management, others studied the management of accounts receivables trying to postulate an optimal policy which leads to maximization of the profit for firms. According to (Deloof, 2003) the way a firm is managing its working capital has a significant impact on profitability of firms. Such factors indicates that every firm requires certain level of working capital that can maximize the returns. (Gill, Biger, & Mathur, 2010)

The effect of WCM on profitability of Spanish SMEs has been studied by (Baños-Caballero, García-Teruel, & Martínez-Solano, 2012). The authors report that according to their results that there is an optimal level of WCM that balances costs and benefits and maximizes their profitability and that the firms' profitability decreases when they move away from their optimal working capital level. The findings of this paper further stress the importance of a good working capital management for firms (Baños-Caballero et al., 2012).

(Sharma & Kumar, 2011) investigated the effect of WCM on firm profitability on a data sample of 263 companies from India and found a negative relationship between size, leverage, growth and inventory with returns on assets. On the other hand, the size and growth were reported to have a negative correlation with profitability in Indian companies which is contrary to the findings in other international reports where these variables have a positive relationship. Their regression results indicate that in Indian company's reduction in number of days of inventory will contribute to the profitability of the companies. They also report the current ratio to be positively related with the return on assets. From another set of results, it is also deduced that the current ratio is negatively related to the profitability of the firm meaning that the lower

the current ratio of the company the higher the profitability. Their studies revealed that in Indian companies the managers can improve the profitability by increasing the credit period granted to their customers.

It is also conducted the same study on the two samples one of SME and medium sized companies and the other of large non-financial firms listed in Karachi Stock Exchange. The authors reported the receivable Collection Period to be negatively related with the Return on Assets for both samples. And a strong negative association between the Receivable Collection Period and OPS. Although as a final result they report that the WCM has a larger impact on the profitability of the larger companies than on the SMEs listed in KSE. (Sumaira, Bilal, & Javaria, 2013)

3. Methodology:

This study tries to find the effect of working capital on the profitability and value of the firms. In this research working capital (components of working capital) are independent variables and profitability and value are the dependent variables.

There are two hypothesis are develop to accept or reject the theory.

Hypothesis 1: Do the relationship between working capital and profitability and Value of the firm will be significant?

Hypothesis 2: Does efficient working capital can help the firm to increase the profitability or Value?

The working capital have impact on profitability, this have been observed through previous studies. Hence there are two hypothesis are available to identify the behavior of profitability and Value association with the working capital.

3.1 Selected Variables:

3.1.1 Working capital Efficiency (Independent Variables):

The cash conversion cycle enables comparison of WCM efficiency between firms (Mauboussin & Callahan, 2014). There CCC, AR, AP and Inventory control are some common components to measures Working capital efficiency. CCC can be calculated as Days of sales outstanding plus Days of sales inventory minus Days of payable outstanding and for accounts payables and receivables it depends how many days a firm take to settle these accounts. For Inventory control firms need to use the JIT approach to increase the efficiency.

The Cash conversion cycle is the comprehensive measure of Working capital management (Enqvist, Graham, & Nikkinen, 2014). The cash conversion cycle is the important element to measure the efficiency of working capital, because it includes the information from the firm's income statement as well from the balance sheets. In addition it is added by the (Talonpoika, Monto, Pirttilä, & Kärri, 2014) that cash conversion cycle constitutes of operational activities. Therefore CCC is important because of all these parts together can influence profitability and also the market value of the firm (Kieschnick, Laplante, & Moussawi, 2013) (Baños-Caballero et al., 2012).

Furthermore, it is claimed that it is important to investigate which component of the working capital impact significantly on the firm performance and up to what extent, and the study that only use the aggregate approach can measure only the speculate (Jędrzejczak-Gas, 2017). This study examine the association between working capital and profitability of the firm and to help them in increasing the efficiency of the firms.

One problem with working capital as a proxy for firm profitability is the time horizon, profitability is not affected by future potential. A firm can implement a lucrative investment with a positive NPV that does not improve profitability the first year. The market value is rather affected by future activities, and thus estimates more accurately the return on investment. (Blomdahl & Andersson, 2017)

3.1.2 Firm's Value (Dependent Variable):

Value is the worth of an asset, goods, services or a Firm. It can be in term of monetary material or assessed. Firm value is a term through which a firm can measure the credibility of the

firm. Through value a firm can attract more investors and usually investor make the decision of investment by examining the credibility of the firm. (Aktas, Croci, & Petmezas, 2015)

There is a ratio Price-to-book, a firm's book value is different as compared to market value. This ratio is calculated by calculated the Market capital/ total equity at the end of each year. The measurement of the market value of the firm is similar to the Tobin's Q ratio used by (Afrifa, 2016) and (Baños-Caballero et al., 2012) which is :

$$= \frac{\text{Market value of Equity} + \text{Book value of Debt}}{\text{Book vlaue of Assets}}$$

Firm's value is different from the book value as the investors predict more profit because of the worth of the business. So they are willing to pay higher price than the book value of equity.

3.1.3 Profitability (Dependent Variable):

Profitability is the second dependent variable in this study. The most commonly used measure of profitability in this field of study is return on assets (ROA). Return on assets include both financial and operating activities. Return on Assets indicates the overall profitability of the business. So Return on assets can be considered here as a measure of profitability to study the Working capital management. (Blomdahl & Andersson, 2017)

$$\text{Profitability or Return on Assets} = \frac{\text{Net Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Net Fixed assets} + \text{Working capital}}$$

or it can be expressed as:

$$= \frac{\text{Sales} - \text{cost of goods sold}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Net fixed Aseets} + \text{working capital}}$$

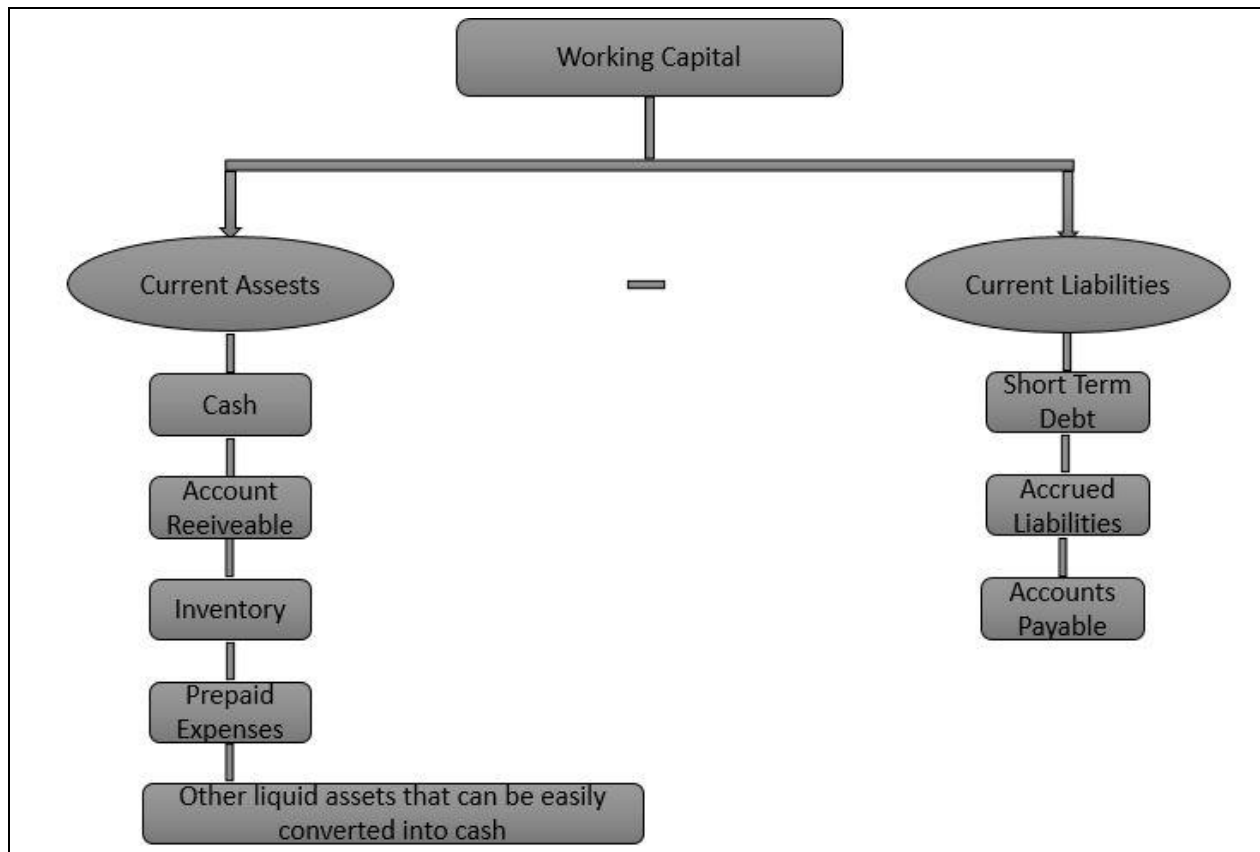
This formula has been used in the research to measure the firm's profitability. Net Profit of the firm can be increased if cost of goods sold can be reduced. The increase in sales is linked with increase in the variable cost. (KEOWN, MARTIN, PETTY, & DAVID F. SCOTT, 2006)

4. Association of Working Capital Management and Profitability/Value

Firms invest in the net working capital just to fulfill the requirements of most projects. Working capital is defined as current assets minus current liabilities. The main components of net working capital are cash, inventory, receivables and payables. Cash component of working capital is needed to run the firm on day to day basis. It is important to understand that routine business activities either generate or consume working capital. There are opportunity costs associated with investing in inventories and accounts receivable, and from holding cash. Excess funds invested in these accounts could instead be used to pay debt or returned to shareholders in the form of a dividend or share repurchase. This chapter focuses on the tools firms use to manage their working capital efficiently and thereby minimize these opportunity costs. The main purpose of the working capital management is to ensure that a firm is generating sufficient and positive working capital from current business activities to continually fund both debt payments and operating expenses. (Haq, Sohail, *, & Alam, 2011)

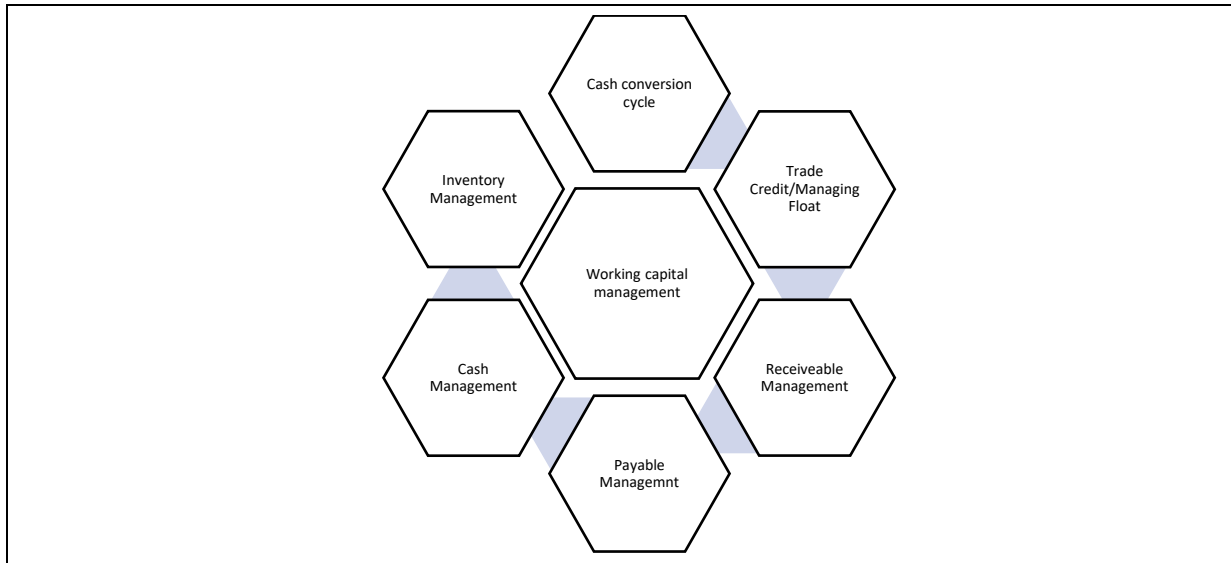
Working Capital= Current Assets – Current Liabilities

Figure 1: Working Capital Components



Working capital management components are considered to be crucial in determining the financial performance of an organization. The components of working capital ensure that a company has enough cash to fulfill the requirements of business in terms of short term debts and operating expenses. Through the efficient management of the components of working capital, it will contribute to the high final performance. There are opportunity costs associated with investing in inventories, accounts receivable, and from holding cash. (WANGUU, 2015)

Figure 2: Working Capital Management Components



Source: (Berk et al., 2012b)

4.1 Cash Conversion Cycle:

Cash conversion cycle is an important component in the management of working capital, because the efficiency of working capital management's components can be determined through the cash conversion cycle. The extent to which working capital influences the financial performance of the trading firms, it has a strong significant relationship between the components of working capital management and profitability. Working capital management's components are essential to all firms operating in both developed or under developed countries. (Mathuva, 2015)

Working capital management policy making and practices are important for the firm in decision making of financial investment. These policies are important not only for accounting profitability but also for market performance. Successful management of resources leads to corporate profitability. Working capital management success is measured by market, efficient management can bring more shareholders market value to the firm. (KEOWN et al., 2006)

The Cash conversion cycle is used as a comprehensive measure of working capital as it shows the time lag between expenditure for the purchasing of raw material and the collection of sales of finished goods. Day to day management of the firm's short term debts and credits plays a vital role in the success of the business. Liquidity management is important for growing long term prospects of the business.

Table 1: Definition of cash conversion cycle by various authors:

Description	Definition	Source
Cash cycle time	The number of days between the date the firm must start to pay cash to its supplier and the date it begins to receive cash from its customers.	(Gray, Merton, & Bodie, 2007)
Cash conversion cycle	The sum of days of sales outstanding average collection period and days of sales in inventory less days of payable outstanding.	(KEOWN et al., 2006)
Cash cycle	The number of days that pass before we collect the cash from sale, measured from when we actually pay for the inventory.	(Ross, Westerfield, & Jaffe, 2010)
Cash gap	It measures the length of time between actual cash expenditures on productive resources and actual cash receipts from the sale of products or services.	(Eljelly, 2004)

Cash conversion cycle= Days of sales outstanding + Days of sales inventory – (Days of payables outstanding)

From the above formulas, the dependencies of cash conversion cycle are defined as follows:

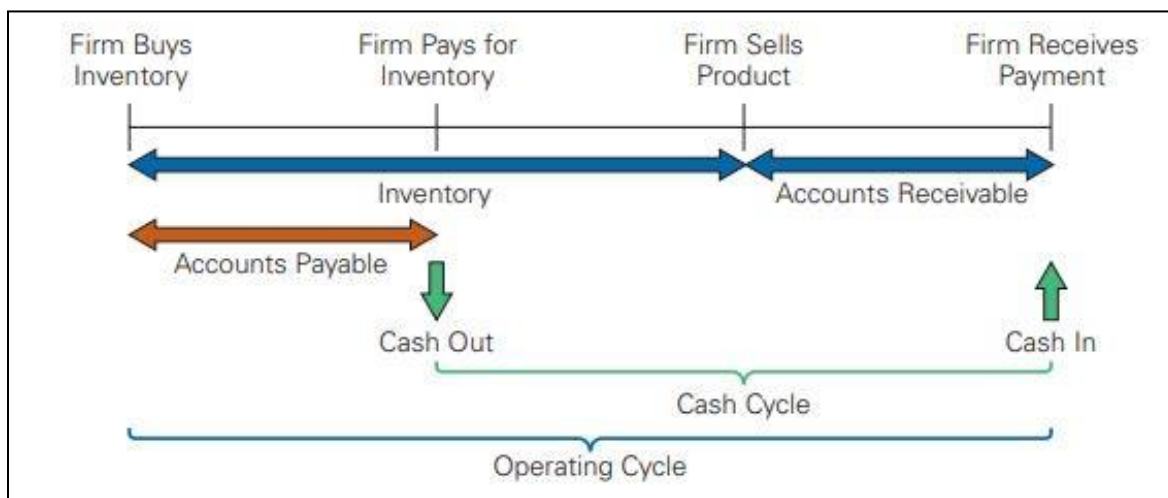
$$\text{Days of sales outstanding} = \text{Account receivables} / (\text{Sales}/365)$$

$$\text{Days of Sales in inventory} = \text{Inventories} / (\text{cost of goods sold}/365)$$

$$\text{Days of Payables outstanding} = \text{Accounts payables} / (\text{cost of goods sold}/365)$$

(Uyar, 2009)

Figure 3: Cash Conversion Cycle



Source: (Berk et al., 2012b)

Cash conversion cycle can be negative as well as positive. In case of positive result it indicates that the number of days a company must borrow or tie up capital while awaiting payment from a customer. A negative result predict that number of days a company has received cash from sales before it must pay its supplier. (Uyar, 2009)

Cash conversion cycle is a standard of liquidity between the related customer and supplier who are working with each other to increase profitability, these all stakeholders are working on a balance between the number of days of collection, inventory and payables. The lower index number of days of collection give companies an opportunity to reinvest which

improves cash flow for companies and increases the chances of the company to pay its obligations. (Al-Shubiri & Aburumman, 2013)

Cash conversion cycle is important for every manufacturing company. It helps to figure out the inventory holding period as reflected by the total number of days the cash of a company remains blocked in to the business operations cycle starting from the manufacturing of inventory till selling of that inventory. A firm can examine through cash cycle that how well managed the working capital is. There is an inverse and significant association of cash conversion cycle with profitability of manufacturing companies, hence it can be concluded that cash conversion cycle has an opposite effect on return on assets and return on equity; so cash conversion cycle in manufacturing firms is negatively related to the profitability of the firms. It depicts that shorter cash conversion cycle period of firms will leads towards increased profitability of the manufacturing firms. Firms must strive to enhance their profit by putting more efforts to bring cash conversion cycle at optimum level to increase profitability. It means higher cash conversion cycle will lead to higher profitability of the firm and vice versa. (Raheem Anser & Malik, 2013)

4.2 Trade credit:

Trade credit is an important source of finance for firms, especially in the time when it is difficult for a firm to obtain external investment via credit institutions. Trade credit is usually provided when there is a delay between the delivery of goods and services and the payment for them. Trade credit of a firm is a twofold process in which a firm can receive trade credit from its suppliers and in return can extend trade credit to its customers. Accounts payable and receivable are both related to firm performance. It is just not the two accounts that matter, but the sum of two, which works as a credit channel of trade. (Ferrando & Mulier, 2012)

Norway's general public gross domestic debt increased by 6.1 percent year on year to NOK 5,487 billion at the end of January 2018, as compared to an upwardly revised 6.4 percent increase in the prior month and below market expectations of 6.2 percent. As well the Non-financial corporations' debt rose by 6.4 percent to NOK 1,714 billion (vs 6.7 percent in December 2017) and households domestic debt went up by 6.2 percent to NOK 3,287 billion (vs 6.4 percent in December 2017). (economics, 2018)

Figure 4: Norway Credit Indicator



Source:(economics, 2018)

The Loan growth in Norway averaged 7.37 percent form 1986 until 2018, reaching an all-time high of 24.20 percent in February 1987 and a record low of -4.40 percent in October of 1992.

Table 2: Norway Loan Growth (1986-2018)

Actual	Previous	Highest	Lowest	Dated	Unit	Frequency	
6.30	5.80	24.20	-4.40	1986-2017	Percent	Monthly	NSA

Source :(economics, 2018)

Trade credit is preferred to other sources of short term funds. There are primarily three reasons for this. First, they are easily available without any formal negotiation or arrangement, except in cases of firms that are financially weak. Secondly these credits are highly flexible. Their size increases or decreases in conformity with the level of operation. When sale increases, the purchases also increase and the volume trade credit expands. When there is less sale of services or goods, trade credit directly shrinks. Lastly trade credit have fewer restrictions. In case of trade credit supplier can facilitate their customer with foregoing discount. Sometimes when supplier provides no discount the credit terms is simply net 30 or net 60, in this case there is no foregoing discount. Similarly, the cost does not exist when the terms of the credit are 2/10 net 30 and the buyer makes the payment within 10 days. But the cost does however exist when buyer does not avail the discount and makes the payment within 30 days. This is because buyer is not only paying the principle amount but also the discounted amount. In other words buyer is borrowing the principal amount for 20 days and willing to pay interest on the principle amount. Let's suppose the principal amount is kr. 98 and buyer is paying kr. 2 for interest to use the principle amount for more than 20 days. In this case as the principle amount, discount rate and the number of days are known, so the simple effective annual interest rate can be calculated with the help of formula. (sharan, 2009)

$$K = \{CD / (100\% - CD)\} \times 365 / N$$

K = Effective annual interest rate

CD = Cash Discount

N = Number of days for which payment can be delayed by giving up the cash discount.

Again, based on the compound interest rate method, the effective annual interest rate, the effective annual interest rate in trade credit can be expressed as follows:

$$K = [1 + \{(discount \% / 100 - discount \%)\}]^{\{365 / (days\ to\ pay - discount\ period)\}} - 1$$

(sharan, 2009)

4.3 Receivable management:

Firms typically sell merchandise/services on credit rather than requiring immediate cash payment. Such credit sales generate accounts receivable. In order to manage the credit in an efficient way firms define their accounts receivable management policies. It is important to recognize the five functions which must be performed in the credit-administration process: credit-risk assessment, credit granting, account receivable financing credit collection, and credit risk bearing. Efficient management of these processes can lead towards quick recovery of credit and also it can enhance the profitability of the firm. (Mian & Smith, 1992)

Accounts receivable can be used for evaluating investments, this is consistent with a wealth maximization objective. The net present value approach permits an explicit specification of the exact timing of cash inflows and cash disbursements associated with particular credit sales. Equally important, the discounted net cash flow approach does not arbitrarily separate the pricing decision with respect to goods sold or services from the credit decision. It is conceptually incorrect to analyze credit programs in isolation of pricing schemes. The optimal pricing policy and the optimal credit strategy from a wealth maximization perspectives are functionally interdependent. (Kim & Atkins, 1978)

A long term issue of a business is delayed payments by their customers. In general companies buy materials, pay employees' wages, pay contributions to insurance companies, pay value added tax on goods and services and also pay income tax with in due date as provided by

the authorities, while the income from the sales of goods and services is delayed by customers some times. Unpaid receivable can be adjust by the companies by creating value adjustments to the unpaid receivables. With this adjustment companies can only temporarily exclude a part of the outstanding debts from the achieved profit and form the taxable income. But receivables are still unpaid and they cause negative impact on the profitability of the firm. The relationship between net operating profitability and the average collection period can be negative or positive. The profitability will increase if the number of days of collection from debtor decrease. (Suhányiová, Suhányi, Mokrišová, & Horváthová, 2015)

4.4 Payable management:

Today, companies around the world are focusing on cash flow. Accounts payable department of a company can help in improving the cash position, not only by taking the advantages of early payment discount, but by approaching a number of Accounts Payable initiatives with care. The result will be less cash going out, which positively affects the profitability of the company. Accounts payable is not about the discussion of the cash management. In this area Accounts Payable manager not only can make a difference, but with the management of cash they can improve the efficiency of the working capital. (Schaeffer, 2004)

When it comes to working capital optimization, however, increasing payables should be a core strategy. Many businesses work with this strategy of extending payables as long as possible to maximize free cash flow. Sometimes delay in payments can erode supplier goodwill, which results in slower delivery times, less willingness to fix defects, slower response to queries and more onerous payment terms. Whereas paying early can sometimes yield substantial benefits in situation where suppliers offer discount or rebate for early payment. Accounts payable

management emphasizes the importance of optimizing payables and freeing up working capital to fuel growth. (Deloitte)

Working capital management is an integral part of financial management of the firms and most of the firms make huge investment in their working capital. Accounts payable of the business have a positive impact on the profitability, because firm can use these payables for the benefit of the business to increase their turnover. Firm holds payables for a longer time before the maturity date so they can use the investment for a longer time. Whereas there is a positive relation between gross profit margin and the number of days accounts payables. (Shah & Sana, 2005)

4.5 Cash Management:

Cash flow statement or cash management tell us exactly how much cash company paid in or out during the period, where the cash that was spent came from, and where it went. It is always important to have enough cash in hand. The cash flow statement is in many respects similar to the income statement, but it deals strictly with cash payments, excluding certain items such a depreciation which are not actually paid in cash. It is the general principle of financial accounting in shipping, whether the company has 40 ships or 400 ships the operating activities are about increasing revenues and squeezing costs to generate income; the financing activities are about managing funds. Cash flow of the business does not make a good business, but well managed cash flow certainly smooths the way for good business. (stopford, 2009)

Real world cash flows are neither completely certain, uniform and continuous nor they are completely unpredictable. The day to day operations and flow of cash are generally not independent. Most firms do forecast for their cash flows, but uncertainty is always the part of forecast. Thus a firm's net daily cash flow is lumpy, discontinuous, and partially known

forecastable and stochastic as well. Cash flow can be positive at one day and negative the next day; it may have a net drift. (Stone, 1972)

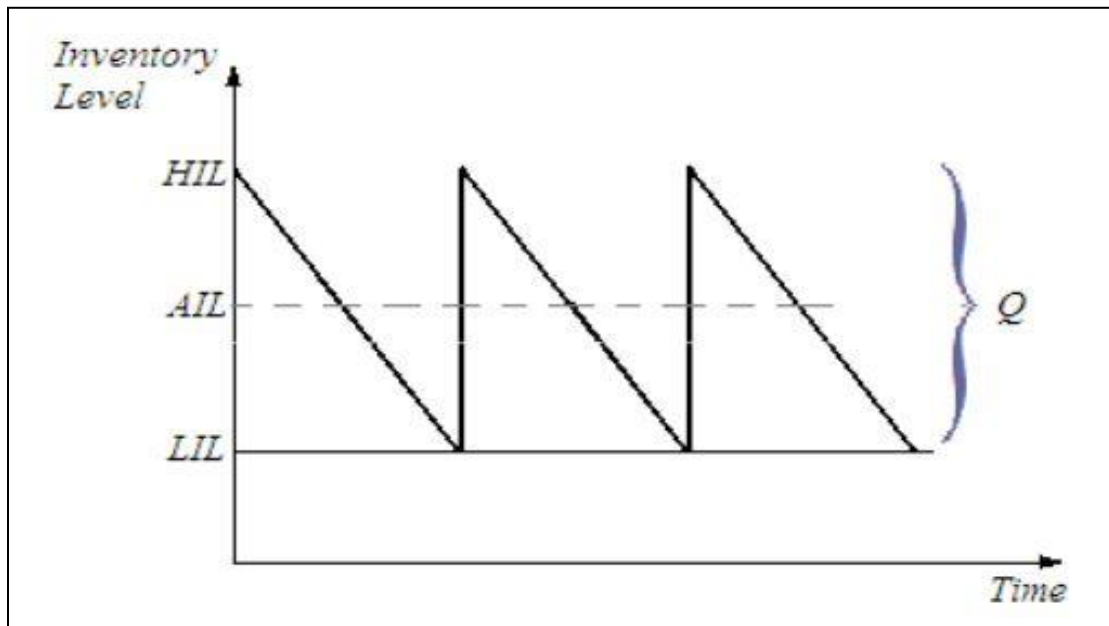
Cash flow management is a complex and important problem faced by companies in different sizes, it depends on the nature and complexity of the operations. It includes the management of short term investment, loans, expenses and cash income. Cash management policies are dependent to regulatory restrictions and the rules of the financial markets, complexities also arise from the business environment in which the company operates. Financial stress is the part of the business, even when a firm is not facing financial stress, proper cash flow management plays a strategic role. Manager can increase firm value by managing their cash balance as buffer stock. These buffer stocks allow the firms to maintain the financing of investment even when internally generated funds temporarily fall short. (Barbosa & Pimentel, 2001)

4.6 Inventory management:

Inventory is one of the required factors of production. In a perfect market condition firms would not need payables or receivables. Interest rates on trade credit would be competitive, and firms could use alternative sources of financing. Therefore even in perfect market condition firms still need inventory to meet the requirement of production. Firm's manager must arrange for the financing necessary to support the firm's inventory policy and who is responsible for ensuring the firm's overall profitability. The role of inventory manager is to balance the costs and benefits associated with inventory. Because excessive inventory uses cash, efficient management of inventory increase firm's value. (Berk et al., 2012b)

The economic order quantity model of inventory management is used to mark the optimum size of delivery and to choose the cheapest deliverer. Both of these choices should guarantee minimization of total cost of investments in inventories.

Figure 5: Economic order quantity model for inventory management



Source: (Michalski, 2013)

Where: LIL – Low inventory level. AIL – Average inventory level, HIL – High inventory level, Q – Order Quantity. Whereas $Q = \mathbf{HIL - LIL}$

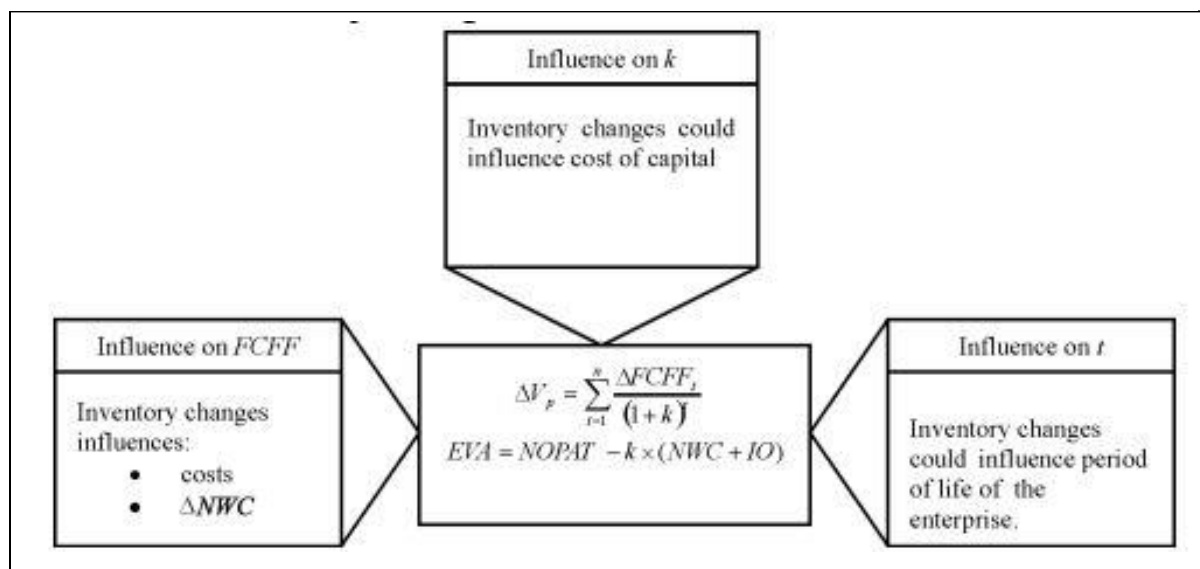
In above figure it is shown the way the EOQ model works. Q could be calculated as:

$$EOQ = Q_{opt} = \sqrt{\frac{2 * P * K_z}{C_a * v}} = \sqrt{\frac{2 * P * K_z}{K_u}}$$

In the above formula EOQ is target order quantity or Economic order quantity. P - yearly demand for optimized inventories, K_z – creating inventories cost or fixed cost of one order, K_u – operating cost of maintaining inventories, C_a – percentage rate of operating cost of maintaining inventories, V – unit cost of order inventories. (Michalski, 2009)

The inventory management decisions, create the new inventory level in a firm. It has the influence of the firm value. It is the result of opportunity costs of money tied in with inventory and generally of costs of inventory managing. These both results involve modification of future free cash flows, and in consequences the firm value changes. Inventory management have influence on the firm value. These decisions change the future free cash flows (FFCF). Inventory management have also influence on the life of the firm (t), and rate of the cost of capital financing the firm (k). The changes in all these components have influence on the creation of the firm value (ΔV_p).

Figure 6: Influence of inventory on Firm Value



Source:(Michalski, 2013)

Where: FCFF = free cash flows to firm; Δ NWC = change in net working capital growth; k = cost of the capital financing the firm; and t = the lifetime of the firm and time to generate single FCFF. (Michalski, 2013)

There can be a significant positive or negative relationship between net operating profitability and the inventory conversion period in days. It specifies that in case of the firm shortening the number of days of inventories turnover it can maximize the firm profitability and hence create shareholder wealth and vice versa. (S, M, TK, A, & KT, 2017)

4.7 Association:

In modern financial management, administration of working capital is an important and challenging task due to high portion of working capital in business. The management of current assets and current liabilities and the interrelationship that exist between them may be termed as working capital management. Excessive level of current assets may have a negative effect on the firm's profitability whereas a low level of current assets may lead to lower level of liquidity and stock outs resulting in difficulty in maintaining smooth operations. (Eljelly, 2004)

Liquidity and profitability are two important and major aspects of corporate business life. Liquidity and profit are associated with each other as a result if we increase the profit at cost of liquidity it can bring serious problems to the firm. Therefore, there must be a trade-off between liquidity and profitability of firms. One objective should not be at the cost of other as they have their own importance in the firm. If a firm does not care about profit, it cannot survive in the market for longer time. On the other hand if a firm does not care about its liquidity, then the firm can be insolvent or it may lead to bankruptcy. With the effective management of the working capital management firm can ultimately achieve maximum profitability and can maintain adequate liquidity. (Mengesha, 2014)

Efficient working capital management improves the operating performance of the business concern and it helps to meet the short term liquidity. Therefore firms try to keep an optimal level of working capital that maximizes their value. The main objective of working capital management is to reach optimal balance between working capital management components. Large inventory and generous trade credit policy may lead to high sales. Large inventory also reduces the risk of a stock out. Trade credit may stimulate sales because it allows a firm to access product quality before paying. (Raheman & Nasr, 2007)

According to working capital management two types of theories have been adopted, which are trade-off theory and pecking order theory. The trade-off theory implies that firms with high level of liquidity may potentially encounter low profitability problem. In other words, there is a plausibility of negative relationship between liquidity and profitability. When the firms are liquid, the firms generate huge amount of net working capital, followed by diminishing level of profitability. The pecking order theory implies that there is an opposite relationship between the levels of debt and profitability. It shows that firm with higher level of debt ratio, those firm would have low or decreasing profitability and vice versa. According to pecking theory firms should rather use the internal fund instead of the required external fund or debt to finance their operation in order to overcome the problem which will potentially affect the firm's value. (S et al., 2017)

Figure 7: Working Capital Theories

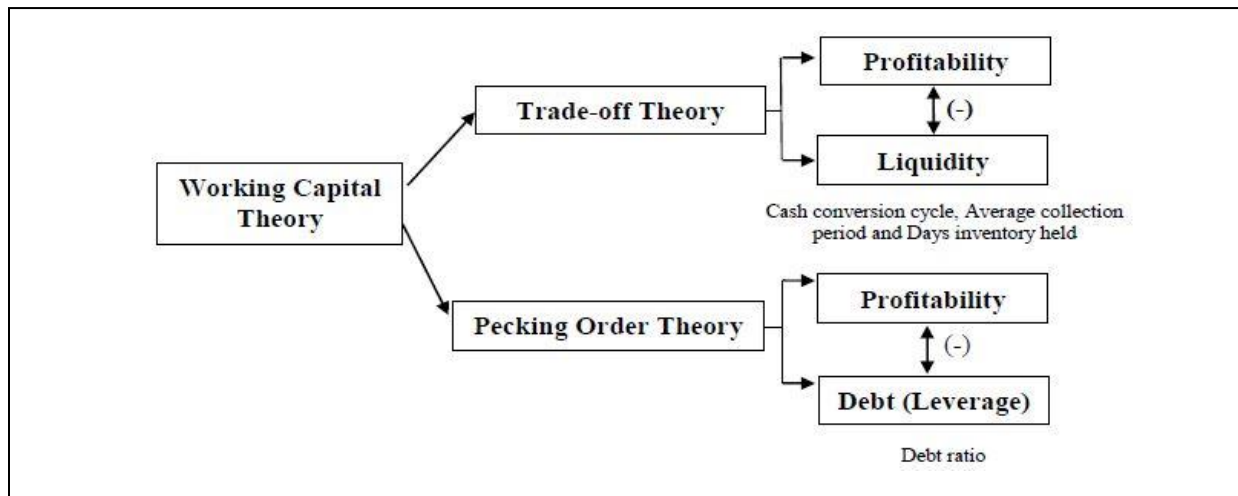
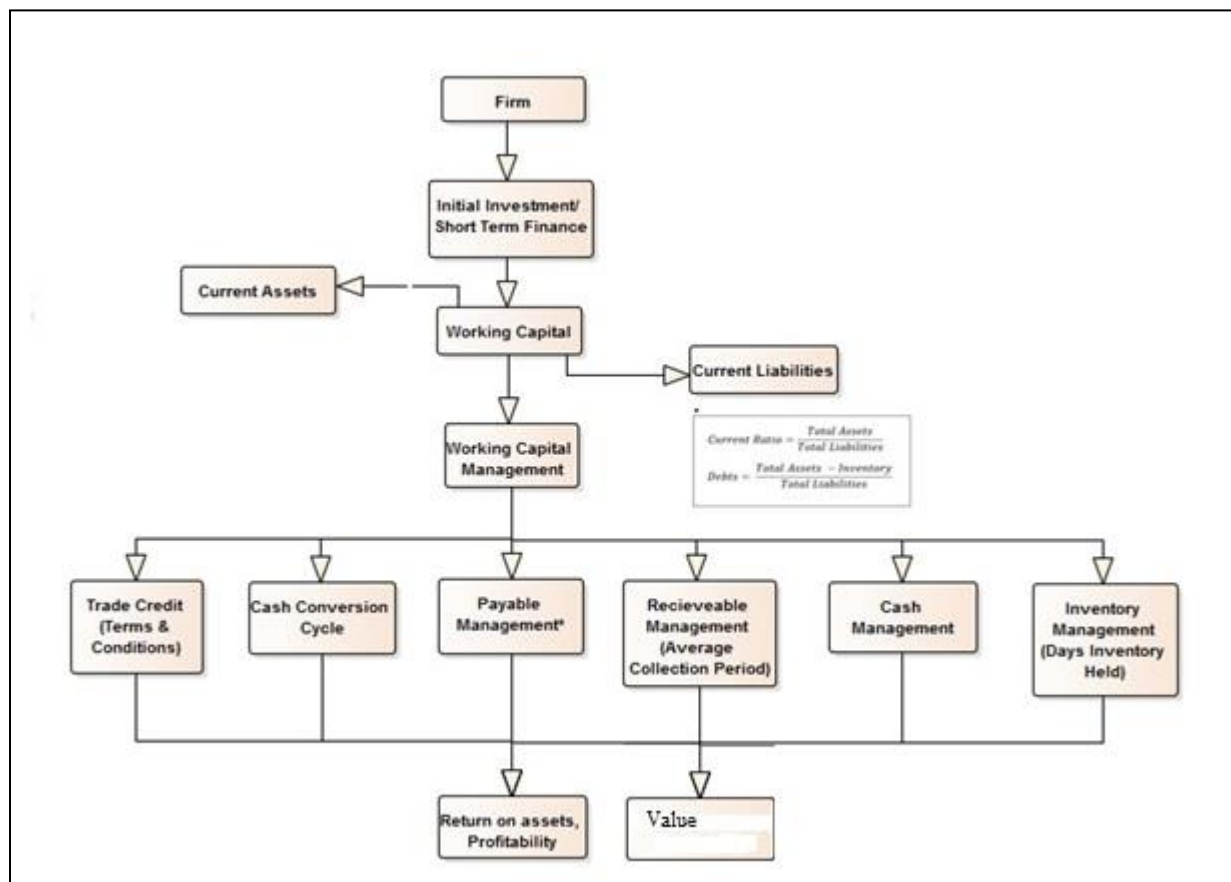


Figure 8: Association of Working Capital and Profitability



Source: (S et al., 2017)

The working capital of a firm has influence of its performance and liquidity. There are different type of strategies to be adopted to determine the level of investment in working capital. Typically there are two type of approaches either aggressive strategy by reducing the investment in working capital or alternatively by adopting conservative working capital policy. In the aggressive approach of WCM will lead to reduction in both accounts receivable and inventory holding. When there is a reduction in inventory it will lead the firm to improvement of its performance by minimizing inventory holding cost which includes ware house storage cost, insurance costs and cost of spoilage and theft of inventory. With this if a firm also a reduction in accounts receivable will increase the performance of the firm because it will increase the available cash flow. Another aggressive approach in which firm can also increase its performance by delaying payment to suppliers. The longer a firms make delays in its payment to the suppliers, the higher cash flow it reserves and used to improve performance. If a firm try to ask for more credit form supplier after holding payments for longer time it may hinder firm performance. (Afrifa, 2016)

Networking capital can be defined as:

$$\text{NWC} = \text{Current Assests} - \text{Current Liabilities}$$

or

$$\text{NWC} = \text{Account Receivable} + \text{Inventories} + \text{Cash} - \text{Accounts payable}$$

Less NWC means a lower level of investment in working capital, while a higher NWC indicates that higher investment in working capital. When a company have a higher net working capital it may help in improve the performance of firms because it can stimulate the sales, prevent production interruptions, strengthen a firm's long-term relationship with customers. It

can also be the cause for the bankruptcy of firm because of higher investment in net working capital. Because these investment has just locked into the business otherwise this money can be used for the profitable opportunities. (Afrifa, 2016)

Value is the worth of an asset, goods, services or a Firm, whether it can be in monetary, material or assessed. Firm value is the term through which a firm can know about the credibility of the firm, where the firm is standing in the market. Firm Value Mostly used by the investors to know about the firm credibility to make the investment decision. The firm value can be calculated in with the Gordon Formula as it is assumed to be applicable for discounting free cash flows to a present value at the end of the explicit forecast period. By the Gordon Formula:

$$V_t = \frac{FCF_{T+1}}{WACC - C}$$

Apparently, FCF_{T+1} is free cash flow at the end of year T+1, and WACC is the Weighted average cost of Capital. The last year of explicit forecast period is indexed by T, and T+1 is the first year of the post-horizon period. The nominal growth rate is donated by c. where WACC can be express as:

$$WACC = \frac{E}{D + E} (r_e) + \frac{D}{D + E} (r_d)(1 - t)$$

Where:

D= market value of Debt

E= market value of equity

t= corporate tax rate

r_e = cost of equity

r_d =cost of debt

The value of the company's operations at the end of year T is denoted by V_t , whereas free cash flow is equal to net operating profit less adjusted taxes (NOPLAT) minus the increase in invested capital (INVCAP). In other words,

$$FCF_{T+1} = NOPLAT_{T+1} - (INVCAP_{T+1} - INVCAP_T) \text{ (Aktas et al., 2015)}$$

Firm Value is important in the market. As investors decide to invest in a firm with the good market value. Although it is a difficult decision for the investors to examine the value of the firm as sometimes a firm free cash flow can be in negative and on the other hand the value of the firm is still increasing as the firm in investing the cash in the business. Free cash flow is a cash flow from operations minus cash invested in the business. Firm invest in the business to increase the value, but free cash flow of the business treats that investment as a negative. This is perverse as Value adding firms generate cash but they also consume cash to do so. (Penman, 2013)

The profitability of a firm is represented by the rate of return on its capital employed.

This can be measured as:

$$\text{Profitability/Return on Capital employed} = \frac{\text{Net Profit}}{\text{Capital Employed}}$$

It can be expressed as:

$$= \frac{\text{Net profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Capital Employed}}$$

The Capital employed is equal to: Net Fixed assets + Working capital

$$= \frac{\text{Net Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Net Fixed assets+Working capital}}$$

The fixed assets of the firm are fixed so its scope is limited as it is much of the outcome of scale of production, a firm's profitability mainly depends on the efficient and effective management of working capital.

While Net Profit is equal to: *Sales – cost of goods sold*

So the formula for profitability can be expressed as:

$$= \frac{\text{Sales} - \text{cost of goods sold}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Net fixed Assets} + \text{working capital}}$$

Net profit of the business can be increased if a firm reduce the cost of goods sold.

Reduction in the cost of goods sold is possible if the firm is able to manage its working capital in an efficient way. Through formula we can see that increase in the sales is associated with increase in the variable cost. To increase in the sale the optimum use of working capital can ensure increase in profitability by increasing the sale.

The profitability index is a different thing and it helps in the business to find out the net present value of the business (NPV). Through profitability index method a firm can measure the return on investment (Capital Employed). While calculating the Net present value of the business, the purchase price is subtracted from the asset's present value of future cash flow. If the number is positive or zero, so the business have exceeded or equaled the rate of return that is required (your discount rate). The profitability index can be measured as:

$$\text{Profitability Index} = \frac{\text{PV of Future cash flows}}{\text{Initial Cash Investment}}$$

This example presented here to show the association of working capital and profitability. This show the relation between net working capital and profitability how they behave towards each other. It tracks the cash flow associated with changes in net operating working capital. The

cash flow is used to recognize revenues when cash form sales is received and recognizes cost when cash for material and other costs is paid. There will be discrepancies between the calculations of cash flow, which can be reconciled by noting that changes in levels of working capital. The main point of the example is to make explicitly clear, why the working capital must be accounted for in firm value and profitability and exactly why and how changes in working capital affect project cash flows.

Suppose a firm is considering the purchase of a machine for NOK 400,000. The firm plans to use this machine for four years. For the depreciation of the machine firm will use the straight line method for four years. Revenue from this project will be NOK 250,000 in first year, NOK 275,000 in year two and three each, and it will decrease to NOK 250,000 in year 4. Let's suppose that the forecast production costs will be 50 percent of forecast sales. The firm tax rate is 40 %. Other costs are mentioned in the tables:

Table 3: New firm operating cash flow for 4 years

	Years				
	0	1	2	3	4
Ship Purchased	400000				
Revenue		250000	275000	275000	250000
Costs:					
Material		-50000	-62500	-62500	-50000
Labor		-50000	-62500	-62500	-50000
Depreciation		-100000	-100000	-100000	-100000
Earning before tax		30000	60000	60000	30000
Tax		-12000	-24000	-24000	-12000
Net Income		18000	36000	36000	18000

In the above table operating cash flow defined as the net income plus depreciation. The connection between cash flows and changes in working capital is often lost so to get the better

understand the link between working capital and final project cash flows in the above table through the increase in the operating cash flow it can be seen that working capital for this example is supposed that the firm's costs are composed of labor and materials, with equal amounts spent on each. Let's suppose that the firm purchases half material for one period's production. So for the next period we will add this purchased material in its raw materials inventory to use this in the next financial period.

Working capital different levels also depend on the firm's collection and payment patterns. In this example we are saying that the firm is paying all the labor cost for the given period during the period when it is used. For the material purchased, the firm is paying 70 percent of the cost during the current period and 30 percent will be paid in the next period. The firm collects 50 percent of the cash of its sales during the period the sale is done and the remaining amount collects in the next periodic time. Let's suppose here the average cash balance maintained by the firm is NOK30000 during this project life. Returning the use at the end of the project's life.

Given the firm's revenues, costs and payment patterns, we can forecast the firm's current assets and current liabilities, and working capital balance. ‘

Net Operating Working Capital = Operating Current Assets – Operating Current Liabilities

Or

= (Cash + Inventories + Accounts receivable) – (Accruals + Accounts Payables)

Table 4: Net Operating Working capital and Cash flow

	Years				
	0	1	2	3	4
Cash	30000	30000	30000	30000	0
Inventory	25000	31250	31250	25000	0
Accounts Receivable	0	125000	137500	137500	0
Accounts payable	7500	16875	18750	16875	0
NOWC	47500	169375	180000	175625	0
Changes in NOWC	47500	121875	10625	-4375	-175625
Cash flow form changes in NOWC	-47500	-121875	-10625	4375	175625

In the above table as it is shown that net operating working capital (NOWC) is the difference between the current assets and current liabilities. The project has four year of life so in the last year there is no operating working capital has been invested. Changes in net operating working capital is the difference between them year by year. The table shows each component of NOWC for each period of the project's life, as well as changes in cash flow from changes in working capital. At the end of the project working capital is recovered completely. It also shows cash flows from changes in working capital levels. Increase in working capital correspond with negative cash flows, as more cash is required to achieve the higher level of working capital, while decrease in working capital correspond with positive cash flows. To obtain the final cash flow from the object are the changes in working capital and they are combined with the operating cash flows.

Table 5: Project Cash flow from changes in NOWC

	Years				
	0	1	2	3	4
Ship Cost	-400000				
OCF		118000	136000	136000	118000
Cash flow form changes in NOWC	-47500	-121875	-10625	4375	175625
Net Project Cash flow	-447500	-3875	125375	140375	293625

Above table shows project cash flows, which in year consist of the sum of the cash flow from purchase of the machine in other years, consisting of the sum of operating cash flows and cash flows from changes in net operating working capital. (Turner, 2013)

If the project have negative cash flow as shown in the above table then business is not in profit. As after one year the outgoing of cash flow is in less than the first year of the project. Meanwhile in the reaming years of projects the positive cash flow indicates that business is in profit. In the start of the project as firm purchased some assets to start the business that reduce the cash flow of the business as cash is going out and it also reducing the available working capital as the available cash of current assets would be reduced. However if this firm is purchasing the inventory than it will cause the negative impact on cash flow as cash in moving out. On the other hand it will not reduce the working capital as on the one side cash is decreasing but simultaneously on other side inventory is adding in the working capital as the part of current assets.

This Research aims to examine the impact of working capital on profitability of firm. A Norwegian Maritime company BW Offshore have been selected and track down to examine the data. Company deliver the efficient offshore production. BW offshore consistently provides record-breaking technology and world-class leading production uptime. With over 30 years of

experience, BW offshore has long record of excellence in project execution and manages a fleet of 15 FPSOs and FSO

The required data were collected from financial statement of the selected company, therefore examine the data by adding up and by accounts related to variables.

Figure 9: Summary of Applied Variables

	Variable	Code	Variable type	Definition	Formula
WCM efficiency	Cash conversion cycle	CCC	Independent	Time interval of converting purchased material to cash	$DRO + DIO - DPO$
	Days receivables outstanding	DRO	Independent	Time interval of receiving payments from customer for sold products	$\text{Accounts Receivables} / (\text{Sales}/365)$
	Days inventory outstanding	DIO	Independent	Time to turnover the inventory	$\text{Inventory} / (\text{COGS}/365)$
	Days payable outstanding	DPO	Independent	Time interval of payment to suppliers for purchased material and products	$\text{Accounts Payables} / (\text{Purchase}/365)$
Firm performance	Market value	PB	Dependent	How the market values firms' equity compared with the booked value of equity	$\text{Market value of equity} / \text{booked value of equity}$
	Profitability	RNOA	Dependent	Is generated by profit margin and asset turnover, does only consider operating activities	$\text{OI (after tax)} / (\text{OA}-\text{OL})$

Source: (Blomdahl & Andersson, 2017)

Working capital of a firm is the difference between the current assets and Liabilities. As working capital is the part of the financial statement of the business, so it have some impact on the profitability and value of the firm.

Working capital is the short-term capital of the firm that is needed by a firm to finance its daily operations. It includes current assets and current liabilities. These assets have a short life span and can be convert into cash easily. (Singhania & Mehta, 2017)

$$\text{Net working capital} = \text{Current Assets} - \text{Current Liabilities}$$

All use amounts are in USD Million in the Calculations:

Table 6: Calculation of Net Working Capital

Year	2017	2016
Current Assets	423.8	596.6
Current Liabilities	521.4	438.4
Net Working Capital	-97.6	158.2

Figure 8 demonstrate the association between working capital and Profitability/Value of the firm. Working capital components are plays a vital role to manage the efficiency of working capital. Value of the firm is calculated by the Gordons formula (Aktas et al., 2015)

In the above table of net working capital calculation it is clear that firm have the ability to pay its debts. In 2017 net working capital is in negative because firm pays the outstanding payments. Still firm is conducting the business because firm have some value and in last year firm got excessive networking capital to meet the balance of the firm. There is a decrease in receivables in 2017 that why the frim have negative net working capital. But firm still have free cash flow at the end of the year respectively to run the operation of the business.

In 2017:

$$V_t = \frac{FCF_{T+1}}{WACC - C}$$

Here is weighted Average cost of capital:

$$WACC = \frac{E}{D + E} (r_e) + \frac{D}{D + E} (r_d)(1 - t)$$

$$= \frac{1259.4}{2163.4 + 1259.4} (13\%) + \frac{2163.4}{2163.4 + 1259.4} (7.5\%)(1 - .053)$$

$$= 9.27\%$$

$$V_t = \frac{FCF_{T+1}}{WACC - C}$$

$$= \frac{145.5}{9.27\% - 5\%} = 3405.54 \text{ Million USD}$$

In 2016:

$$WACC = \frac{919.9}{2448 + 919.9} (13\%) + \frac{2448}{919.9 + 2448} (7.5\%)(1 - .053)$$

$$= 13.05\%$$

$$V_t = \frac{FCF_{T+1}}{WACC - C}$$

$$= \frac{106.9}{8.71\% - 5\%} = 2878.82.73 \text{ Million USD}$$

Efficient working capital can help in increasing the profitability of the business. As per the financial reports, working capital may be classified as a cash working capital or Balance sheet working capital. While the Cash working capital can be derived from the profit and loss account of firm and Balance sheet working capital is interpreted from the balance sheet. In the above calculation it is shown that firm value in 2016 is less than 2017 because of availability of free cash flow is more in 2017 as compared to 2016. As business operations increase in 2017 so business used more working capital to conduct their operations. Increase in working capital is not only a key to conduct the operation of the business but also it is important to maintain the assets and liabilities of the business to check on them.

Working capital of the business can be termed as a temporary or permanent working capital based on variability. Temporary working capital also called seasonal working capital, it represent additional capital required to maintain business operations during certain special or festive seasons. (Berk, DeMarzo, & Harford, 2012a)

There are many factors that influence the profitability of the firm. For instance working capital is needed for the business operations. An adequate amount of capital must be invested in the working capital to ensure the requirement to carrying out the operations. For running a business smoothly and efficiently, a firm need to maintain adequate amount of working capital to optimize its profitability. Hence my research tries to showcase the association that exist between working capital and profitability.

The profitability of a firm is represented by the rate of return on its capital employed.

This can be measured as:

$$\text{Profitability/Return on Capital employed} = \frac{\text{Net Profit}}{\text{Capital Employed}}$$

It can be expressed as:

$$= \frac{\text{Net profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Capital Employed}}$$

The Capital employed is equal to: Net Fixed assets + Working capital

$$= \frac{\text{Net Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Net Fixed assets} + \text{Working capital}}$$

The fixed assets of the firm are fixed so its scope is limited as it is much of the outcome of scale of production, a firm's profitability mainly depends on the efficient and effective management of working capital.

While Net Profit is equal to: *Sales – cost of goods sold*

So the formula for profitability can be expressed as:

$$= \frac{\text{Sales} - \text{cost of goods sold}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Net fixed Aseets} + \text{working capital}}$$

2017:

$$= \frac{626 - 18}{626} \times \frac{626}{2772.5 + (-97.6)}$$

$$= 22.73\%$$

2016:

$$= \frac{844.7 - 7.5}{844.7} \times \frac{844.7}{2535.5 + 158.2}$$

$$= 31.08\%$$

Profitability is measured using return on investment (RIO). These measures have a different perspective on profitability because RIO is calculated by using the information from the income statement and balance sheet of BW offshore company.

Profitability of a business is closely related to the profit, but profitability is a different thing in the business term as profitability is used to determine the scope of the firm's profit in relation to the size of the business. Profitability is the measurement of efficiency of the business and investors make their decision for the investment on after knowing ultimately the success or failure of the firm.

In the above calculation of Profitability of the BW offshore company it is clearly shown that profitability of the business can be expressed as relative not an absolute amount. In 2017 the profitability is 22.73% while in 2016 profitability is 31.08% relatively higher than the next year.

Although so many factors involve here to measure the profitability of the business along the working capital but it plays an important role calculating the profitability of the business. In every business sales considered as the main factor to measure the profitability but in this study as we are examining the impact of working capital on the profitability. If we remove the working capital from the formula in 2017 then there is decrease of .80% in the profitability. BW offshore is a company with value of 3405.54 Million USD, with this huge value a small percentage can impact the company in the long term. There is a huge difference in the profitability in two years as it goes down from 31.08% to 22.73%. This is not just because of the decrease in sale of increase in the net fixed assets, working capital is involved in the measurement of the profitability. As working capital was negative in 2017 with 97.6 Million USD so it takes part to make increase or decrease in the profitability.

In Figure 6 it is shown that inventory can influence the value of the firm. Inventory management is an important tool in the business to manage the production and sales. Inventory can influence the cost of goods sold of the company as cost of goods sold involved the inventory to measure the cost. Neither the cost of goods sold, inventory can also cause the changes in net working capital of the business by influencing the free cash flow.

Other components are also plays some role in the management of working capital as if business manage the cash conversion cycle than it will helps in increasing the profit. Cash conversion cycle is the component of the net working capital and its helps in the operation of the business. Accounts payable needs to prolong close to the due date, so business can use the available resource for the investment purpose to earn some gain. Firms need to define their trade credit policy to set some standards for their debtors, these standards can help the business to decrease the accounts receivable days. Inventory management can be done in this way that

customers need can be meet. Overall these component plays their role on their own specific field but their end result have impact on the firm profitability, whether it is directly or indirectly.

5. Discussion:

The purpose of my study was to that how working capital and profitability of a firm is associated to each other, also to find out the effectiveness of working capital management in improving the profitability. The study also elaborate that which component of the working capital can affected profitability more. This study shows that there is a significant effect of working capital on profitability and firm value. The components of working capital were used as a determinants of working capital management efficiency. The result of the study also yield that there are differences impact on profitability form component to component in terms of working capital. A healthy conclusion could be made here that firms can use their investment in working capital to actually increase profitability. In some cases there is a negative relation between the working capital and profitability. This indicates that effectively managing the working capital could help in increase the profitability.

According to my findings there are some differences as well some findings are similar in prior researches. My findings are along the line of (Haq et al., 2011), (Raheman & Nasr, 2007), (S et al., 2017). In some studies it is find that firm which earn more profit use to pay their debts with in short period of time as compared to other less profitable firms. The previous studies in this regards have not made any diligence contribution within the maritime filed which my study has made. Also, I have specifically chosen the maritime field to ensure that the firms should know the effective contribution of working capital in the business to improve the profitability.

Although I have tried my best to take into consideration the maximum variables for the research, somewhat results are restricted. There were not many studies available on this topic so

it was difficult for me to find the relevant data. In the maritime field firm should focus to increase the efficiency of working capital as this lead to the fact that this will improve profitability of the firm and this is obvious to match the investors' expectations. Also, some other variables have not been used here which may impact on the profitability. The profitability of the firm is not be able to define by the chosen variables. So because of the lack of time and limited available study material it was not completely possible to take into account the all variables which affect profitability and firm value.

During this study there were many other areas which are identified for further studies. Optimal investment of working capital is one of the main concern in this regard as optimization of working capital can help the firms to optimize their capital mix to provide the firm with the ensured of availability of maximum current asses to meet the short term requirements of the business. It will helps in improving the liquidity of the business and will help in reducing the risk factor involved in the financing of working capital. Optimal financing of working capital not only improve the liquidity of the firm but also it can help in decreasing the liabilities and interests on it.

6. Conclusion:

This paper have examines the association between working capital management and its components with the profitability of the firm with in Norway. The different perspectives of study have examine the critical practices of the business to identify the areas of improvement. Because of these improvement in working capital it can influence the profitability/value of the firm. This study suggest that Return on Assets (ROA) can be affected by the working capital, where firms invest too much or too less in inventory, payables or receivables.

Every business need working capital to operate the business. Free cash flow of the business helps to increase the value by taking part in the measurement of firm's value. Free cash flow is the part of the working capital as company may get more free cash flow by managing the working capital. Working capital needs of a firm change over time accordingly as the cash conversion cycle of the business changed periodically. The business with shorter cash conversion cycle indicates that frim is growing fast and sales are increasing, frim is getting accounts receivable on time and paying the debts within time vice versa. For the better management of working capital firms should make a better synchronization between its assets and liabilities, firm should be able to pay its debts on time and assets should be more than the liabilities. Further firms should adopt the discount or hold the payment until the due date. Firms can make the decision on these basis, if firm is getting more discount than the holding period benefit then firm should better go for discount by making payment within the time limit. Firms with the credit policy and term are good in management of working capital. Firms who adopts JIT just in time inventory approach have advantage of not holding inventory for longer time and material can be process quickly.

So far it is observed that there is a negative relationship between profitability and working capital. Therefore it is clear here that operational profitability dictates how managers or owners of the business will act to manage the working capital. The lower gross operating profit is directly associated with an increase in the number days of accounts payables. This can lead to the conclusion that firms with the less profit wait longer to pay their bills, in order to take advantage of credit period offered by suppliers. The negative relationship between accounts receivables and firm's profitability suggests that firms with less profit will pursue a decrease of their accounts receivables in an attempt to reduce their cash gap in the cash conversion cycle. Likewise the negative relationship between number of days in inventory and corporate profitability suggests that if there is a sudden drop in sales accompanied with a mismanagement of inventory will lead to tying up excess capital of the business at the expense of profitable operations. Therefore managers can create profits for their companies by handling correctly the each different component (Cash conversion cycle, accounts receivables, accounts payables, inventory) to an optimum level.

Further studies for the management of working capital in different industries will be helpful as it gives better understanding of the association between the working capital management and profitability. As the present study could only consider the one maritime company's data to measure the impact of working capital on profitability and value, a complete study of measuring the behavior of different companies is needed for future research. In this way, an overtime profitability and value of 5-year basis maybe more significant. Additionally, a broader and more comprehensive approach to measure the profitably/value is proposed as to include the different perspectives.

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Appendices:

Financial statement of BW offshore Company for the year 2017:

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Consolidated Statement of Income

USD MILLION (Year ended 31 December)	Note	2017	2016
Charter hire	5,6	617.2	639.8
Lease interest	5,6	7.9	9.2
Other income	5	0.9	195.7
Total revenues		626.0	844.7
Operating expenses vessels	7,8	(244.9)	(311.3)
Other expenses	7	(12.6)	(95.8)
Administrative expenses	7,8	(33.2)	(14.8)
Total expenses		(290.7)	(421.9)
Share of profit/ (loss) of associated companies	13	0.9	0.6
Operating profit before depreciation, amortisation and sale of assets (EBITDA)		336.2	423.4
Depreciation and amortisation	10,11,12	(228.6)	(227.4)
Impairment and disposal	10,11	(27.4)	(231.0)
Operating profit/ (loss) (EBIT)		80.2	(35.0)
Interest income		1.8	1.7
Interest expense		(39.6)	(46.2)
Fair value gain/ (loss) on financial instruments		31.7	(11.9)
Net currency gain/ (loss)		(28.0)	(6.3)
Other financial items		(2.6)	(2.5)
Net financial items		(36.7)	(65.2)
Profit/ (loss) before tax		43.5	(100.2)
Income tax expense	9	(2.3)	(32.7)
Net profit/ (loss) for the year		41.2	(132.9)
Net profit/ (loss) for the year attributable to			
Shareholders of the parent		39.8	(132.9)
Non-controlling interests		1.4	-
Net profit/ (loss) for the year		41.2	(132.9)
Basic and diluted earnings/ (loss) per share net	22	0.22	(1.47)

The notes on pages 48-87 are an integral part of these consolidated financial statements.

Consolidated Statement of Comprehensive Income

USD MILLION (Year ended 31 December)	Note	2017	2016
Profit/ (loss) for the year		41.2	(132.9)
Other comprehensive income			
Items to be reclassified to profit or loss:			
Currency translation differences		(0.8)	(0.6)
Cash flow hedges	18	6.9	23.0
Reclassification during the year to profit/ (loss) of cash flow hedges	18	6.4	(9.7)
Net items to be reclassified to profit or loss:		12.5	12.7
Items not to be reclassified to profit or loss:			
Actuarial gains/ (losses) on defined benefit plans	19	(0.5)	(0.6)
Net items not to be reclassified to profit or loss:		(0.5)	(0.6)
Other comprehensive income, net of tax		12.0	12.1
Total comprehensive income for the year		53.2	(120.8)
Total comprehensive income for the year attributable to			
Shareholders of the parent		51.8	(120.8)
Non-controlling interests		1.4	-
Total comprehensive income for the year		53.2	(120.8)

The notes on pages 48-87 are an integral part of these consolidated financial statements.

Consolidated Statement of Financial Position

USD MILLION (As at 31 December)	Notes	2017	2016
ASSETS			
Vessels	5,10	2,808.4	2,639.5
Property and other equipment	11	10.1	10.2
Oil and gas tangible assets	11	63.3	-
Intangible assets	12	6.7	3.7
Finance lease receivables	6	77.5	96.2
Deferred tax assets	9	11.5	2.6
Pension assets	19	0.5	1.8
Investments in associates and joint ventures	13,21	7.9	7.8
Derivatives	18	7.7	7.1
Other non-current assets		5.4	2.4
Total non-current assets		2,999.0	2,771.3
Inventories	16	31.8	13.9
Trade and other receivables	17	226.3	458.4
Finance lease receivables	6	18.7	17.3
Derivatives	18	1.5	0.1
Cash and cash equivalents	14	145.5	106.9
Total current assets		423.8	596.6
Total assets		3,422.8	3,367.9
EQUITY			
Share capital	15	92.5	92.5
Share premium	15	1,095.5	1,095.5
Other equity		(216.5)	(268.1)
Total equity attributable to shareholders of the parent		971.5	919.9
Non-controlling interests	23	287.9	-
Total equity		1,259.4	919.9
LIABILITIES			
Interest-bearing long-term debt	18,20	1,198.0	1,567.4
Pension obligations	19	4.2	3.6
Deferred tax liabilities	9	0.3	3.1
Other non-current liabilities	26	337.6	293.1
Derivatives	18	101.9	142.4
Total non-current liabilities		1,642.0	2,009.6
Trade and other payables	26	287.8	227.9
Derivatives	18	1.1	10.8
Interest-bearing short-term debt	18,20	222.8	174.4
Current tax liabilities	9	9.7	25.3
Total current liabilities		521.4	438.4
Total equity and liabilities		3,422.8	3,367.9

The notes on pages 48-87 are an integral part of these consolidated financial statements.

Consolidated Statement of Changes in Equity

USD MILLION	Note	Share capital	Share premium	Treasury shares	Currency translation reserve	Cash flow hedges	Other elements	Shareholders' equity	Non-controlling interests	Total equity
Equity at 1 January 2016		6.9	1,085.1	(9.1)	(15.3)	(31.2)	(92.0)	944.4	-	944.4
Issue of share capital	15	85.6	14.4	-	-	-	-	100.0	-	100.0
Transaction costs on issue of shares	15	-	(4.0)	-	-	-	-	(4.0)	-	(4.0)
Share-based payments	8	-	-	-	-	-	0.3	0.3	-	0.3
Profit/ (loss) for the period		-	-	-	-	-	(132.9)	(132.9)	-	(132.9)
Other comprehensive income		-	-	-	(0.6)	13.3	(0.6)	12.1	-	12.1
Total equity at 31 December 2016		92.5	1,095.5	(9.1)	(15.9)	(17.9)	(225.2)	919.9	-	919.9
Equity at 1 January 2017		92.5	1,095.5	(9.1)	(15.9)	(17.9)	(225.2)	919.9	-	919.9
Share-based payments	8	-	-	0.1	-	-	0.1	0.2	-	0.2
Profit/ (loss) for the period		-	-	-	-	-	39.8	39.8	1.4	41.2
Other comprehensive income		-	-	-	(0.8)	13.3	(0.5)	12.0	-	12.0
Other equity transactions		-	-	6.1	-	-	(6.5)	(0.4)	-	(0.4)
Transactions with non-controlling interests	23	-	-	-	-	-	-	-	286.5	286.5
Total equity at 31 December 2017		92.5	1,095.5	(2.9)	(16.7)	(4.6)	(192.3)	971.5	287.9	1,259.4

The notes on pages 48-87 are an integral part of these consolidated financial statements.

Consolidated Statement of Cash Flow

USD MILLION (Year ended 31 December)	Note	2017	2016
Operating activities			
Profit/ (loss) before tax		43.5	(100.2)
Taxes paid	9	(28.0)	(31.1)
Fair value change on financial instruments		(31.7)	11.9
Share of loss/ (profit) of associated companies	13	(0.9)	(0.6)
Currency exchange differences		28.0	6.3
Depreciation and amortisation	10,11,12	228.6	227.4
Impairment	10	27.4	231.0
Add back of net interest expense		37.8	44.5
Instalment on financial lease	6	18.7	17.3
Other changes		20.2	8.2
Changes in working capital		315.9	(27.2)
Net cash flows from operating activities		659.5	387.5
Investing activities			
Investment in operating fixed assets and intangible assets	10,11,12	(443.0)	(401.4)
Cash transfer from non-controlling interests ¹⁾	27	(35.4)	-
Interest received		1.8	1.7
Net cash flows used in investing activities		(476.6)	(399.7)
Financing activities			
Proceeds from new interest-bearing debt	20	374.0	415.0
Repayment of long-term debt	20	(725.9)	(421.4)
Proceeds from share issue	15	-	100.0
Transaction costs on issue of shares		-	(4.0)
Cash transfer from non-controlling interests	23	294.9	-
Interest paid		(87.3)	(92.3)
Net cash flows used in financing activities		(144.3)	(2.7)
Net change in cash and cash equivalents		38.6	(14.9)
Cash and cash equivalents at 1 January		106.9	121.8
Cash and cash equivalents at 31 December	14	145.5	106.9

1) Cash transfer from non-controlling interests includes equity investment and loan

The notes on pages 48-87 are an integral part of these consolidated financial statements.