Master's Degree in Corporate Finance

Department of Business and Management - Chair of Financial Statement Analysis

Working Capital Management in the Real Estate Industry:

The impact on profitability and firm value for Real Estate Italian firms

SUPERVISOR

Professor Saverio Bozzolan

CO - SUPERVISOR

Professor Francesco Paolone

CANDIDATE

Gianmarco Bartolomucci

705411

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Introduction

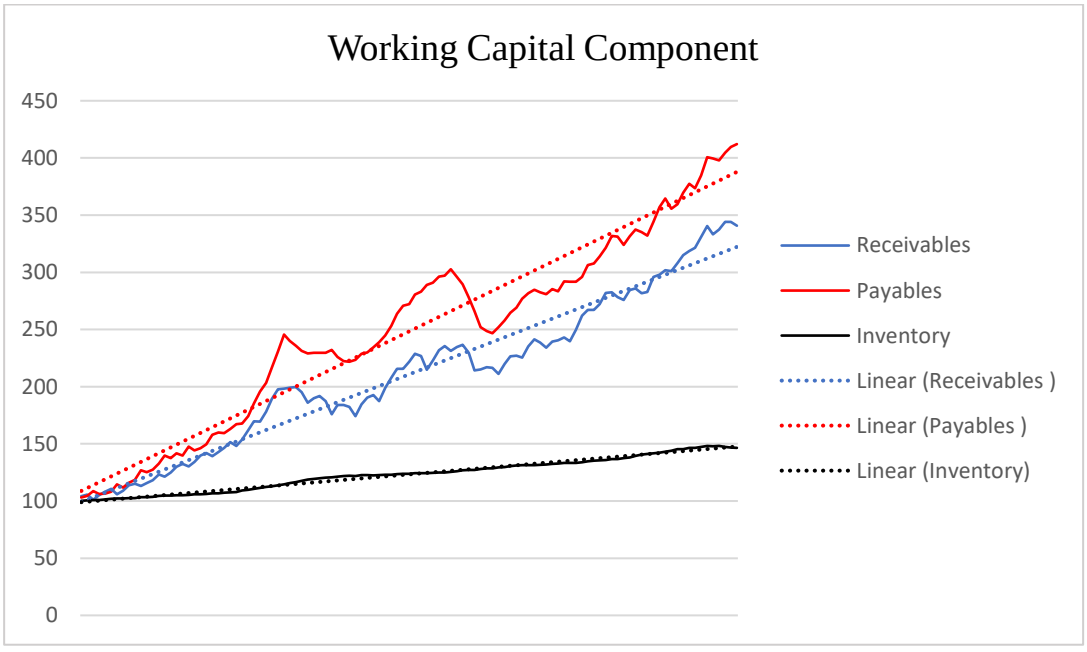
Business always requires working capital to effectively run the operations of the firm. A company needs capital to be invested in plant, machinery, land, inventories, accounts receivables and accounts payables to smoothly increase the efficiency of the firm business. Historically, studies have always focused on long-term financing as capital structure, dividends or particularly investments, but even short-term assets and liabilities are fundamental components that management must care about to run their firms productively. It is always more important to create a cash culture across the business, since sometimes working capital is not immediately associated as a source of value creation and cash. Since most of the companies, rightly focus on profitability, the perspective that is analyzed to assess the financial health of the firm is the profit one. Not considering cash conversion cycle as a source of value, the firm will not be concerned about the big amount of cash tied up unproductively, that could be used to meet short-term financial requirement that will create a more liquid and desirable company. Maybe the reason why has not been taken into account as first solution to increase profitability of a firm, is that is a complex process that comprises several areas of a company, hence it is required an efficient coordination between all the parties involved within the firm. Companies that noticed the importance of working capital are developing technological tools to increase the release of cash effectively as machine learning algorithms. They understood the importance of working capital management and how it has been always more central for the value creation of a firm. Working capital requirement and the way in which it is managed, is different respect to the industry in which the firm operates. The retail sector, for example, that has been object of different studies, manage working capital more closely, having thin margins. They cannot afford to have stacked cash and they want to get their cash flows. The amount of working capital that is provided depends from the nature of the industry and to the attitude to profit and risk. A good balance has to be preserved to maximize firm profitability, considering the trade-off with risk related with it. However, in more traditional industries, working capital is still not faced efficiently as it should be. Real estate business, that has by nature an important percentage of current assets and current liabilities, could increase the management of working capital since the cash converting cycle of most of the real estate firms results

to be very high and inefficient. In situation like this, putting in place the basics will result in an important release of cash inside the business. Therefore, considering the importance of this argument that is growing during years and the extremely practical contribution that could give to nowadays industries, I decided to analyze working capital management more deeply. In the following research I will study the impact of working capital management on profitability and value creation for the firms. I will concentrate about the real estate industry, since has been made not much in previous literature, despite the relevant position of working capital in this business. Going deeply through financial statements of listed Italian real estate firms, I will analyze the single component of working capital and the metrics related with it, in order to assess the impact on firm value and profitability. The objective is first to understand the part in which these companies can be improved, trying to understand some best practices that should be developed. Moreover, I would like to be aware of the impact that these practices have on profitability for an Italian real estate firm. This research could be a starting point for a real estate company, to enhance the efficiency of its businesses simply taking care of working capital practices, that so far have not received the right weight, particularly in this industry.

Chapter I

1.1 Working Capital Management

Most of the firm have a significant part of cash invested in working capital and at the same time use short – term payables as a source of financing. Deloof pointed out how according to the National Bank of Belgium, account receivables and inventories were respectively 17% and 10% of total assets of all Belgian non – financial firms and account payable were 13% of total assets of these firms. According to the Financial Accounts of the United States released by the Board of Governors of Federal Reserve System, pointed out how the level of receivables and inventories were respectively 11% and 5% of total asset, while account payables were 13% of total asset, on average, in the past three years. The importance given to these elements by non – financial firms is increasing all over the year, as we can see from the graph below, that represent how the level of inventories, payables and receivables for non – financial firms in US is increasing all over the years. The graph below represents the percentage increase of receivables, payables, and inventories during the last twenty years, for non-financial firms. The trend is increase for the three variables, in particular for receivables and payables that acquired more relevance during years.



Graph 1. Working Capital Component Source: Board of Governors of the Federal Reserve System (US) fred.stlouis.org

The role of the working capital inside a firm is increasing, so even the way in which is managed requires to be executed in order to maximize the value of the company. The key is to ensure the right trade – off between profit and risk and each firm has an optimal level that grant the maximization of the firm value. On the one hand, large inventory and a generous trade credit policy may lead to higher sales. Larger inventory reduces the risk of a stock-out (Deloof, 2003). Trade credit may stimulate sales because it allows customers to assess product quality before paying (Long, Malitz and Ravid, 1993; and Deloof and Jegers, 1996). Because suppliers may have significant cost advantages over financial institutions in providing credit to their customers, it can also be an inexpensive source of credit for customers (Petersen and Rajan, 1997). On the other hand, in this way the firm is locking up money in working capital. So, it could be useful to resort to payables, that allow the company to have an insurance for the quality of the product bought and to delay payments. The problem with exceeding in using payables is that may be very costly. Working capital can even be represented as the length of time between the cash out that a firm experiences when starts a productions process and the cash in at the end of it. The first step for the firm is to buy raw materials (there are some cases in which they can be even finish goods) from suppliers, in order to increase the inventory level. This expense is typically made on credit, which means that the company will not pay immediately at the time of purchase and this will even allow the firm to test the product in advance. The inventory will remain inside the company for a certain amount of period even if it is in form of finished goods and when is ultimately sold, the firm may extend credit to its customers, delaying when they will receive the cash. This cycle introduces a very important element, to understand properly the working capital management that is the cash cycle. A firm's cash cycle is the length of time between when the firm pays cash to purchase its initial inventory and when it receives cash from the sale of the output produced from that inventory (Berk, 2017). The cash cycle is usually measured with the cash converting cycle, that takes into account receivables, inventory and account payables. For this it is considered a very good measure to assess a good working capital management, but I will go deeply on it later during the research.

For the aim of the study it is important to point out the distinction between *gross working capital* and *net working capital.* The first, is usually referred to the

investment necessary for receivables, inventories, and cash and how a certain part of the investment in working capital is financed by payables. The second, is the difference between current asset and current liabilities, and allow the company to understand how much it must invest of its long – term capital to finance its working capital (Rehn, 2012). Interpreting the Fisher's separation theorem, we can say that is important for a company to avoid confusion between an investment and financing the investment. For this reason, it is possible so say that gross working capital is the investment and net working capital the financing of the working capital. Though, a company has to attend to both these factors when optimizing working capital and maximizing profitability and liquidity (Brealey, Myers and Allen, 2006).

Cash	**Account Payables**
Marketable securities	Current maturities of LT debt
Receivables	Notes Payable
Inventory	Accrued expenses
Prepaids	Taxes payables
Other current assets	Other current liabilities
Total Current Assets	**Total Current Liabilities**

Table 1. Example of working capital in a balance sheet (Strischek, 2001)

Carefully managing the items on this Balance Sheet can significantly impact on the level of net working capital, that might have effect on the efficiency and profitability of the company. In particular, the operational one is the part that can be optimized by the managers of the firm since the other part deal more with financial decision of the company that are not much related with the operations itself. For this reason, in my research I will focus mainly on this part of the working capital.

What is important to understand is what is the right balance that maximize the value of the firm. In this way it is possible for the company to invest in growth, while in the same time is paying back short – term debts, reducing their costs. These two parts are related with a level of risk, that has to be taken into account since we cannot reduce much working capital without incurring in an increase in the level of risk bared by the firm. Hence, is crucial to determine the right amount that fit with the business and with the objectives of the company.

1.2 The main component of Working Capital

The main components of working capital, on which I will going to mainly focus on, are cash, inventory, receivables, and payables. Working capital includes the cash that is needed to run the firm on a day-to-day basis. It does not include excess cash, which is cash that is not required to run the business and can be invested at a market rate (Berk, 2017).

1.2.1 Cash and Inventory management

Cash and Inventory are two very important current asset, that sometimes can be compared since they could be both raw material that the company needs for its own business. Holding cash for a company is always a positive aspect. It can reduce the liquidity risk and avoid raising more capital for short – term needs. At the same time having an excess of cash will result in having too much capital that is not used, facing opportunity cost to not invest them in something profitable like marketable securities. The problem could be to incur in transaction costs that for a small firm might not be sustainable, so a company has to pay attention and find the right balance even for cash management, because not always is a good indicator to hold it in excess.

For what concern inventory, as we will see in section 1.4, the importance is determined by the industry in which the firm operates. It is always important to have the right quantity of inventory in order to be able to respond to the demand of the client but having an excess of inventory will tie up capital, that could be used for something else. Managing properly inventory can be very significant for the cashflow of the company and a key measure to assess how the business is running its inventory turnover, that measure the time between inventories are bought and sold. Is important to specify that we can consider inventory as raw materials, work – in progress goods and finished goods. We can say that there is a direct link between business cashflow and inventory, either positive or negative.

1.2.2 Account Receivables management

To increase the sales and gain more costumers, a company is often required to sell their product on credit. The firm can decide about the terms through which the company will receive cash for their credits and increasing the efficiency in collecting them, it gains significant advantages in working capital. However, the primary

objective of account receivables should not be limited to expansion of sales but should involve maximization of overall returns on investment (Wood, 1953). Obviously increasing too much the quantity of account receivables, increase the level of risk bared by the company. Indeed, a significant part of receivables management involves the proper selection of customers because every credit sale involves the risk of delayed payment or non – payment of the value involved (Hrishikes, 2002). An ineffective management of account receivables will both directly affect the profit and loss account, but even the credit rating from financial institution. Indeed, not collecting receivable will bring the company to borrow funds that will have higher interests, leading to severe liquidity problems. Hence it is important a proper management of account receivables, that differs from business to business, to make the revenues generated by the extra – sales given by the credit policy, higher than the costs.

1.2.3 Account Payable management

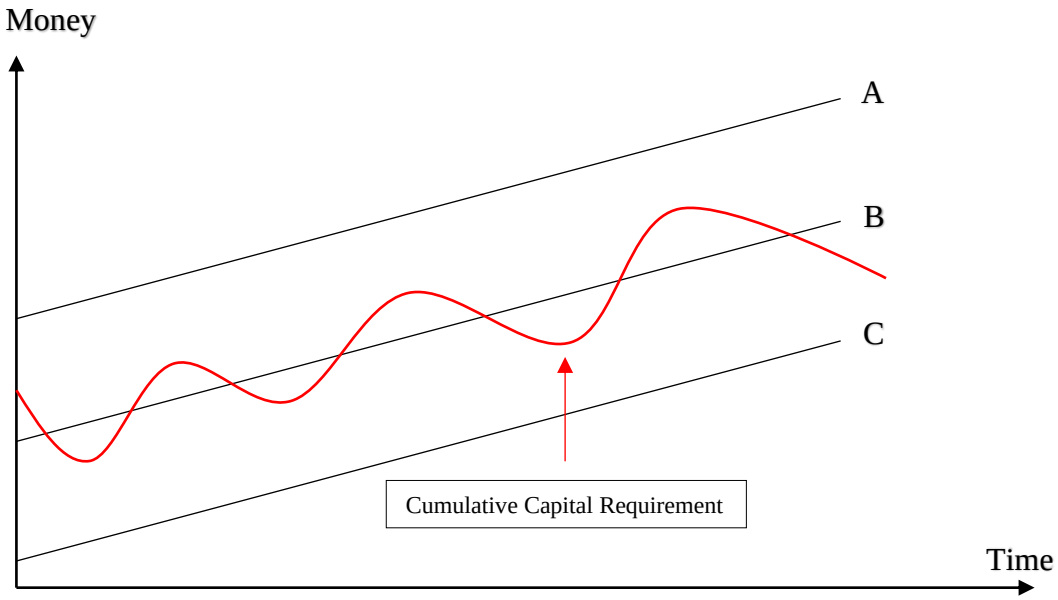
When we talk about working capital optimization, management of payables became crucial. Many companies often use the strategy to increase as much as they can payables, to maximize free cash flows, but this has usually lot of negative sides. The relations with suppliers could be eroded, the delivery time might increase and the possible discount for advance payment cannot be considered in the cost reduction. A proper account payable management is more that procrastinating payables. Considering the nature of the business, the management team has to develop best practices in order to contribute positively to cash flow delaying payments, without incurring in the cost and withdraws of late payments such as penalties, interest charges, lost prompt payment discounts and payment to creditors before collecting from debtors (Olivier and Esker, 2012).

1.3 Different policies for Working Capital Management

There are three main different management policies for working capital and as stated different times, it depends from the kind of business the firm is involved in and from the level of risk aversion that the company has. Hence, it is possible to find the best strategy for a determined industry, but not the best strategy in absolute value. The approaches can be *Conservative*, *Aggressive* and *Hedging*, and they all have a

different level of long- and short-term funds to finance the working capital, bearing themselves a different trade-off between profit and risk.

Considering short-term funds, they have in general lower interest rates and higher profitability respect to long-term funds that have higher interests cost and lower profitability. Moreover, for long-term funds sometimes we might pay interest even in period in which we are not using them to finance the working capital. On the other hand, using short-term fund there is the possibility of incurring in refinancing risk and risk of interest rate fluctuations. These kinds of risk are very less frequent in long-term financing so, they are less profitable, but safer in term of risk. Hence, in case net working capital is positive, is financed with log-term capital such as equity or long-term borrowing. In case net working capital is negative is financed with short-term capital, which can increase the cost of borrowing significantly (Rehn, 2012). It is possible to identify for each company the cost of assets that purchases over time that is called a company *cumulative capital requirement* (Brealey, Myers and Allen, 2006), that deals with the nature of the business and it is irregular. As we stated before the capital requirement can be financed either with long-term fund or with short-term fund, so when the first are not enough, the company requires the second for the operations. The other way around, when the first one is in excess respect to the capital requirement, the firm is in excess of cash. Looking at the graph below we can identify three different strategies.



Graph 2. Cumulative Capital Requirement reproduced from Brealey, Myers and Allen, 2006

The black lines represent the strategies and the irregular red curve is the cumulative capital requirement. The strategy A implies a permanent cash surplus, which can be invested in short-term securities. Strategy C, the opposite, implies a permanent need for short-term borrowing. Considering the strategy B, is the most common one and take into account the seasonality of the business since is a short-term lender during part of the year and a borrower during the rest. There is support for the theory that most financial managers try to match the maturities of their liabilities and assets (Graham and Harvey, 2001), but I am going to go deeply analysing the different strategies pointed out before, but with the awareness that there is no optimal strategy in absolute value.

1.3.1 Conservative Strategy

This strategy, as the name suggest, is the one that bear both a low level of risk and a low level of profitability. The firm will hold a higher level of current asset, having therefore a higher working capital. Here fixed asset, permanent working capital and even part of temporary working capital are financed with long-term funds, while the remaining part of temporary working capital is financed with short-term funds. In this way the company will face a lower liquidity risk. It is possible to recognize this strategy in the line A, in which we have an excess of long-term funds, that will provide to finance the asset of the firm. Hence, there are several advantages for this strategy including no insolvency risk and smoother operations for the company with no stoppage, thanks to the high level of account receivables. On the other hand, we have even some disadvantages. First, as it is shown by the graph, in some period the long-term funds are not used, so the company has an high opportunity cost and they cannot be repaid at will and if paid, they cannot easily come back availed. Second, the high quantity of inventory and account receivable has a significant carrying cost that will impact the profitability.

1.3.2 Hedging Strategy

This strategy is even known as *maturity matching* strategy since managers try to match short-term requirement with short-term debt and long-term requirement with long-term debts. It is possible to identify this strategy with the line B in the graph above, where long-term funds will finance fixed assets and permanent working capital

and short-term funds will finance temporary working capital. The rationale behind this is that the assets will repay the fund themselves with the cash they will generate. The negative side is that this match is quite difficult to happens since we have uncertainty involved. Here we have a situation in which liquidity and risk are balanced, for this is considered a strategy between the aggressive one and the conservative one. In many cases managers apply the hedging strategy, since is considered the one that maintain the preferred balance.

1.3.3 Aggressive Strategy

This strategy is the riskiest one, because is completely focused on the profitability of the company. Here long-term funds finances just fixed asset and part of permanent working capital, while the remaining part of it and the whole part of temporary working capital is financed by short-term funds. The liquidity in this strategy is very low but avoiding the presence of idle funds the firm can save interest cost on them, optimizing profitability. Obviously, the risk of bankruptcy is very high. It is possible to identify this strategy with the line C on the graph above. An aggressive working capital policy is related with a low level of current assets as percentage of total assets and a high level of current liabilities as a percentage of total liabilities. If this strategy did not have all these kinds of risks, included the one to not have cushions or margins to face unexpected shocks, it would be the most effective strategy for working capital management. Indeed, it can be considered highly efficient management when the entire operating cycle lowering financing cost, carrying cost and increasing profitability is run, and the lowest level of working capital is employed.

1.4 Working Capital Requirement

The concept of Working Capital Requirement provides a convenient accounting measure of the amount of capital a firm has tied up in its operating cycle, and may prove to be a better measure of a firm's investment in its operating cycle than the traditional concept of Net Working Capital (Hawawini, 1986). Professor Gabriel Hawawini criticized the conventional definition of working capital, that justified the investments on it with the fact that it was strictly related to firm's operating cycle. But if we consider the component of the net working capital, conventionally defined as the difference between current asset and current liability, we will find some element

not directly related with operations. Specifically, items such cash and marketable securities, as well as overdrafts and notes payable to banks, should be viewed as decision variables which are purely financial in nature and, as such, not directly related to a firm's investment in its current operations (Hawawini, 1986). Hence, he rearranged the formula of the net working capital, defining the Working Capital Requirement as the difference between the sum of accounts receivables and inventories and the sum of account payables and net accruals, while the difference between cash and marketable securities as the Net Liquid Balance.

$$NWC = [(AR + INV) - (AP + NA)] + [C - STB] = WCR + NLB$$

or

$$WCR = NWC - NLB$$

The level of working capital required is strongly related with the level of its component, that depend on some important variables: firm's technology, efficiency in managing the operating cycle and the level of sales. The first variable, firm's technology, means the kind of product that the company produces, and all the process built to create it and deliver it. There are businesses that require an high level of working capital, some businesses that are conducted on a cash basis and other that may have even a negative working capital, collecting a small amount of inventory and collecting the revenues for their product before to pay the suppliers. It is possible, even to have firm with a similar nature and with a similar level of sales but requiring a different amount of working capital. This could be determined by the efficiency of the management on the operating cycle, reducing the investment in working capital being able to control better the level of inventory and receivables. Considering these two elements being equal, what really influence the level of working capital management is the level of sales that a firm generates. If the sales of a company increase, it will have to adjust the investment on working capital that has to increase. Important to specify that this adjustment happens proportionally, so the working capital requirement increase by the same amount as sales. In the same industry, for the competition that there is between the firms, the technology and the management should not be to much different from one another. Indeed, if the nature of the product of a company in not the best one the company will change to the competitors. In the

same way, if the management of the component of the working capital in not efficient and do not satisfy all the stakeholders, they will switch to the competition. For these reasons, the first two variable tend to be equal in the same industry, even the sales part will not differ much across firms in the same industry. An important indicator here is the Working Capital Requirement to Sales ratio, and the average of all the ratios in the same industry will constitute a benchmark. To estimate the working capital requirement for the firm, literature pointed out three different methods: Percentage of Sales method, Regression analysis Method and the Operating Cycle method.

The first one is the oldest and the easier to apply. Consist in estimating the required level of working capital, analysing the history of the company, and using the measures considered in the past. Obviously will be very easy to use, but not as much as precise since the assumption made in the past will not be the same as the one in the present. Moreover, for either a new company or a start-up that has no past, it will be impossible to be applied. The second method is a statistical method that analyses the relationship between working capital and a second variable like for example revenues. In order to estimate the level of working capital requirement is important to be able to calculate the intercept and the slope of the equation in which the slope is the rate of change of working capital with one-unit change in revenue. Intercept is the point where regression line and working capital axis meets. Finally, the third method is the one more reliable, since consider the actual situation of the firm and the business in which is involved. It considers all the component of the working capital, so longer will be the operation cycle, higher will be the working capital requirement. It can be calculated using the following formula:

$$Working\ Capital = COGS * \left(\frac{\#\ Days\ of\ Operating\ Cycle}{365}\right) + Cash\ Balance$$

1.4.1 Industry Effect

Studying previous literature, the concept that working capital requirement change for each kind of business is strongly stressed out. As I pointed out in the previous sections, it depends from different aspects of which is composed, so even the management and the strategies differ depending from the industry. It possible to define the influence that the kind of business has on the working capital requirement as the *Industry Effect.* Firms in different industries have a distinct way and a distinct need to impact credit policy, inventory management and bill-paying activities, for some of them can be convenient to minimize receivables and inventories, while for other can be optimal maximize payables. The study conducted by Filbeck and Krueger, based on the annual rating of working capital management published in CFO magazine, pointed out interesting results. First, underlined how working capital performances and working capital management, change over time and over industries for macroeconomic reasons too. For example, changes in interest rates, rate of innovation and competition may impact working capital management. As interest rates rise, there would be less desire to make payments early, which would stretch accounts payable, accounts receivable, and cash accounts. Second, the ramifications of this study include the finding of distinct levels of working capital management measures for different industries, which tend to be stable over time (Filbeck and Krueger, 2006). Previous scholars did not take into account industry while studying working capital management, avoiding completely the different metrics used for each firm. Hence, to have significant result is important to consider that it is not correct to talk about optimal working capital level in absolute terms, but it is important to do two considerations: the macroeconomic context and the nature of the business, otherwise the result will be a research without much significance and without comparability.

1.5 Working Capital Management in Real Estate Industry

The previous sections underline how working capital is particularly important for firms and its management must be done carefully. However, it is not possible to have common best practices for each industry, since it changes depending on the kind of business. In this research I will focus on the real estate industry, since it became more important to study working capital in a real estate firm, as major part of their balance

sheet constitutes the current assets and liabilities (Bhatia and Barwal,2015). Working capital requirement for real estate firm is related with investments in machinery, land, inventories, account payables that are assets that accumulate their cost during time, and in this cost are comprised both long- and short-term financing. Hence in order to run the firm properly, they require a properly short-term financial planning in order to meet all their temporary demand for cash. In previous studies is possible to observe how working capital management is what makes the difference in term of firm profitability, liquidity, and solvency. The objective is too meet the requires for day-by-day operations, allowing firm to care about operational costs and developing costs in order to sustain the growth of the company. In the real estate industry this assumes a still higher importance since inventories and account receivables constitute the major part of the business model of the firm. Managing properly the current assent and being able to pay the current liabilities is crucial for this kind of industry. Moreover, what resulted from previous studies is that the management of working capital for real estate company is not as efficient as it should be since there is a heavy dependence on only one component of current assets. There is a very high percentage of current asset and major portion of these assets are parked in the inventories (Bhatia and Barwal,2015). On the other hand, it is statistically significant from their studies that profitability is positively correlated with working capital, stating once again the importance of working capital management in this industry. Hence, finding the right balance between profitability, liquidity and risk is particularly crucial in order to avoid bankruptcy of the company. In the real estate industry where, receiving funds is very important, it is not possible to be considered a society that has a high level of risk. It is possible to avoid this kind of bad rating starting from the management of working capital, lowering risk and increasing liquidity. Indeed, many studies arose during years trying to explain the determinants for corporate liquidity underlining how this was particularly related with working capital management. The reason for this is that cash holding level is strongly correlated with profitability. Trinh and May in their research, found out how in their sample of Vietnam real estate firms, the trend comes from the condition of real estate industry, in which profitable firms have a tendency to invest more in cash to grasp opportunity in the future as speculative motive and deal with unexpected events as precautionary motive, but they invest less in working capital because they are capable of negotiating with partners for longer payment terms

and shorter collection period (Trinh and May, 2016). This explain why in other studies resulted a huge disorganization and scares attention on working capital management for real estate firms, even if working capital is one of the principal components of their balance sheet.

Chapter II

2.1 Literature Review

The object of this research, as I will explain in the following sections, is to analyze how working capital management can impact on profitability of firms that operates in the real estate industry. This idea arose since reading the previous literature appeared clear to me how nowadays is crucial for the profitability and survivorship of a firm to have a proper working capital management that fit with the business. Hence is interesting to give a contribution in this field. Moreover, I found many studies about different kind of industries but very few about the real estate one, despite it makes a big usage of working capital for its nature. Even the parameters used to assess the impact through the different firms, changed across researches and this allow me to take the ones that could fit better with my study. Deloof in 2003, decided to study if working capital management affected the profitability of Belgian firms. He took a sample of companies, excluding as the major part of the previous studies, firms in the financial industry. Profitability was measured with the gross operating income (sales minus cost of goods sold) and divided by total assets minus financial assets. When a company has a big amount of financial assets on its balance sheet and they are a significant part of the total asset, its operating activities will contribute little on the overall return on assets. For this reason, Deloof did not consider profitability measures based on stock market valuation, since only a limited number of Belgian firms is listed on a stock exchange (Deloof, 2003). He considered the number of days of accounts receivables, the number of days of inventories and the number of days account payables in order to calculate the Cash Conversion Cycle that Deloof used as a comprehensive measure for working capital management. If it is possible to collect all the proper information, a more accurate version of the cash conversion cycle is the weighted one developed by Gentry, Vaidyanathan and Lee in 1990, which scales the timing by the amount of funds in each step of the cycle. Deloof ran a regression with different control variables as size, sales growth, financial debt ratio and the ratio of fixed assets over total asset. Together with this regression he analysed even the correlation between the variables using Pearson Correlation. What he found was that the amount of cash invested in working capital is huge in each firm and the way in which it is managed has a positive impact on the profitability of the firm. A negative

correlation between gross operating income and the number of days account receivable, inventories and payables arose, so the suggestion for managers to create value was to reduce the number of days for this variable in order to increase profitability. Gill, Bigger and Mathur in their research for the Business and Economics Journal in 2010, studied again the relationship between working capital management and profitability for US firms. They used quite the same variables and the same methodology, isolating the fixed financial asset with a specific parameter (fixed financial asset divided by the total asset) in order to exclude all the financial activity from operating activity that might affect overall profitability. They wanted to associate operating "success" or "failure" with an operating ratio and relate these variables with other operating variables like cash conversion cycle (Gill, Bigger and Mathur, 2010). What they found was that, as for the previous study, slow collection of account receivables is correlated with low profitability. Contrarily to what previous literature found in their studies, they observed negative relationship between profitability and average days of accounts receivable and a positive relation between cash conversion cycle and profitability. Samiloglu and Demirgunes, in the International Journal of Applied Economics and Finance, analysed the same relationship for company from Turkey. The variables used were the same and the objective was to assess the variables that influenced the most profitability. They found negative relationship between account receivable period and profitability, but they even pointed out that cash conversion cycle, size and fixed financial assets, have no statistically significant effect on firm profitability. The interesting point that they underlined, was that their findings conflicted with the notion that trade credits are more profitable short-term investments than marketable securities (Emery, 1948), so it is rational especially for high profit firms that are more liquid , to transfer relatively high amounts of trade credit to their buyers. Moreover, they observed the negative correlation between leverage and firm profitability. Rosyeni Rasyid, studied the same relationship between working capital and profitability for Indonesian firms, pointed out another method, studying the different approaches that can be applied by the firm and that I observed in the previous section, focusing in particular on the Aggressive Working Capital Management Policy. He defined the Aggressive Investment Policy (AIP) and the Aggressive Financing Policy (AFP), that he used again in the 2018, together with Lukman and Adrimas, for another similar research. The two policies

are related to the way in which the managers make investment in their current assets and the way in which they pursue financing policy. They defined the AIP as the ratio between Total Current Assets and Total Assets, while the AFP as the ratio between Total Current Liabilities and Total Assets. Moreover, they used Return on Assets (Net income over Total Assets) to represent firm profitability, while the Tobin's Q to represent firm value. The Tobin's Q is defined as the ratio between the market value of the firm and the book value of the assets. What they found in their studies were that aggressive investment policy has a positive and significant effect on firm profitability (ROA) and aggressive financing policy has a negative and significant effect toward profitability (ROA). On the other hand, AIP has a positive impact on firm value and AFP has a negative impact on firm's value, but both are not significant. Even the control variable size and leverage, that are significant for profitability are not significant for firm's value. Another interesting element analysed by the study of Rasyd, Lukman, Husni and Adrimas, was that when we talk about working capital management it is important to consider the agency problem that can arise between owners and managers. The former, in deciding the right working capital policy may pursue their own economic agenda without any concern for maximising the wealth of the shareholders. Managers must increase profitability by optimizing investment on current asset and by adding the proportion of long-term financing in working capital. In these kinds of studies, they did not take in consideration an important aspect, that I observed in the previous section, that is how working capital management is influenced by the industry in which the firm is operating. Taking big sample of firms together, for sure give us significant result that can be analysed, but they could be more precise if contextualized in their own industry. Filbeck and Krueger in their research, studied the differences across industries using the CFO magazine's annual Working Capital Management Survey. They identified 16 different industries, with about 1000 firms, and studied all the components of working capital with the parameters that the previous studies used. They even used from the survey the Cash Conversion Efficiency (CCE), calculated with the ratio between Cash Flow from Operations and Sales, the Days Working Capital (DWC) and the Overall Ranking calculated as follow:

$$\frac{Highest\ overall\ CCE - Company\ CCE}{Highest\ overall\ CCE - Lowest\ overall\ CCE} \ x \ \frac{Lowest\ overall\ DWC - Company\ DWC}{Lowest\ overall\ DWC - Highest\ overall\ DWC}$$

The survey provided a mean overall CFO ranking of working capital performance and the standard deviation of working capital performance. Their findings provided both important insight for working capital management across time and across industries. Many factors help in explaining the discovery, including macroeconomics elements. The improving economy during the period of the study may have resulted in improved turnover in some industries, while slowing turnover may have been a signal of troubles ahead (Filbeck and Krueger, 2006).

2.2 Literature Review for Real Estate Industry

Regarding previous literature about working capital in real estate industry, as stated before, very few has been done and the existing research are, in particular, made in emerging countries. Al Dalayeen in 2017, analyzed how working capital management impact the profitability of Jordan real estate companies. He took 15 years of secondary data from financial reports of three real estate companies, conducting a regression analysis to assess the impact of working capital on Return on Capital Employed (ROCE), that he used to represent profitability. On the other hand, he used current ratio (CR), inventory turnover ratio (ITR) and Debtor Turnover Ratio (DTR) to represent working capital. What he found was that only debtor turnover ratio and current ratio in case of two firms, were positively related and significant with the profitability. The other variables were found to be positively related, but less, with ROCE. What was positive for all the companies was the very low rate of inventory turnover in all the companies. Bhatia and Barwal instead, in 2015 conducted a study about the effect on profitability of working capital management for companies operating in the real estate Indian sector. They chose six listed real estate firms, that had most of the market share. They apply first a ratio analysis considering more element respect to the research of Al Dalayeen. Thei included current ratio, liquid ratio, current asset to total assets ratio, current liabilities to total assets ratio, debtor's turnover ratio, collection period, debtors to current asset ratio and inventory turnover, working capital turnover ratio and cash to sales ratio. Then they used the method to Person's Correlation to find the possible correlation between two variables, using ROA and Net Profit Margin (NPM) to study profitability. Finally, they apply even a regression analysis to these two indicators of profitability. What they found was that

real estate sector is very unorganized and unpredictable. The industry has a very high percentage of current assets, that are most of them stacked in the inventories. The profitability of the company is related to the working capital of the company, and in particular is significantly related to the current and liquid ratios. Finally, another study conducted by Nobanee, analyzed this relationship for United Arabian Emirates construction companies. He focused more on the size effect and the crisis effect, sustaining that the first variable is crucial in working capital management decision and that this will influence even the exposition of the firm at working capital fluctuations, higher for smaller firms. He took a sample of 122 year-firm observations and reported the average length of net trade cycle of both small and large UAE listed construction firms during the period 2003 – 2013. He also reported the average length of the net trade during the crisis and non-crisis period. The average length of the net trade cycle reflects the efficiency of managing the firm's working capital (Shin and Soenen, 1998; Nobanee and Abraham, 2014). What Nobanee found out was that large construction firms are more efficient in managing their working capital comparing with small construction firms. The results also showed how UAE firms are more efficient in managing their working capital during crisis periods (Nobanee, 2018).

Chapter III

3.1 Objective of the research and Contributions

Working Capital management is a crucial aspect for the success of a firm and must be executed carefully since there is no common practise for each company and each industry. Hence, the management team in order to understand how to handle the component of working capital and to increase the profitability of the firm, is important to study the environment in which the firm operates and apply the best practises arisen from their studies. How profitability and firm value react to change in working capital, depends from the single firms. Thus, the objective of the research is to understand the impact on profitability and firm value of working capital management, considering the effect of the single component and metrics, that I will explain deeply later. In order to focus the study in a precise environment to have more significant results, I decided to apply the analysis to the real estate industry for Italian listed firms. Exploring previous literature, I noticed how most of the studies about working capital placed together different non-financial firms in distinct industries in order to understand the impact of working capital, that in my opinion could give not clear and useful results. Moreover, I observed how very few has been done about real estate industry, even if current asset and liabilities are an important part of the business, and what exists is about emerging countries. Hence, with my research I will provide a general understanding about how the metrics related with working capital affect the profitability and the value of a real estate Italian firm. Moreover, this research will give me an overview of the working capital management practices of the selected firm in the sample.

3.2 Research Methodology

The analysis applied a quantitative approach, collecting secondary data from firms operating in the Italian real estate industry listed on the Milan Stock Exchange. I selected five real estate listed firms representing the major portion of the market and of quite the same size. These firms are Brioschi Sviluppo Immobiliare S.p.A., Compagnia Immobiliare Azionaria S.p.A., Restart Società di Investimento Immobiliare Quotata S.p.A., Immobiliare Grande Distribuzione Siiq S.p.A. and Risanamento S.p.A. I collected data from 2005 to 2019, from financial statement

taken from Thomson Reuters and Orbis from Bureau Van Dijk. I applied three different kinds of analysis in order to have more reliable results. First, I used ratio analysis to estimate all the ratio required to have a complete overview about the working capital metrics, as I observed in previous literature. I calculated each ratio for each year and each firm to study them individually and give them a correct interpretation.

This method was important to understand the working capital practices of the single companies. Second, I computed a correlation analysis, determining Pearson's coefficient in order to study its significance. This helped in understanding whether there was any correlation between the dependent profitability ratio, firm's value ratio and independent working capital ratios. Finally, I ran regression analysis to find out the degree of variation of dependent variable due to independent variable, choosing firm's size and leverage as control variables. The first regression used profitability as dependent variable, while the second considered firm's value. I used respectively Return on Asset and Tobin's Q to represent the two elements, as done by the previous literature.

3.3 Ratio Analysis

To study the working capital practices for the single companies, I estimated and observed the working capital ratios and the ratios related with it, of each single firm. I analysed data from 2005 to 2019 taken by the annual reports of the companies, Thompson Reuters and Orbis. I even estimated Return on Asset and Tobin's Q in order to assess the profitability of each companies and the firm values. Finally, I estimated two ratios, firm size, and leverage, that I will even use later in the regression and allowed me to recognize the presence of either some size effect or leverage effect affecting working capital policies. I will start explaining the dependent variables of the research and later I will go deeply on the independent variables.

3.3.1 Return on Asset

I estimated the Return on Asset (ROA) to represent the profitability of the companies, since studying previous literature I saw how this metric could be the most accurate for my purpose. Return on Asset was estimated considering the ratio between Net Earnings after Taxes and Total Assets as is shown by the formula below.

$$ROA = \frac{Net\ Earnings\ After\ Taxes}{Total\ Assets}$$

It is interesting how on average the management of the investment in total assets could be improved since the ROA is negative on average in many years. It is even clear how after big crisis the ROA dropped and took some years to recover. However, in Real Estate firms, investment in total assets are frequent, hence is quite normal to see negative return on assets if they are followed by positive returns in the following years. There are negative ROAs after crisis and after period of positive Net Earnings, that will be invested to sustain growth generating negative ROAs.

ROA	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
BSI	-0.03	0.08	-0.03	-0.03	-0.01	0.00	-0.04	-0.07	-0.05	-0.02	0.00	0.04	-0.01	0.05	-0.01
CIA	-0.08	-0.03	0.05	-0.04	-0.04	0.00	0.00	0.01	0.03	-0.01	-0.01	0.03	0.01	0.01	0.01
Restart	-0.05	-0.03	-0.02	0.06	0.01	0.09	-0.05	-0.33	-0.04	-0.06	-0.08	-0.29	0.01	0.05	0.03
IGD	0.01	0.02	0.04	0.03	0.02	0.01	0.00	0.00	0.02	0.02	0.01	0.01	0.05	0.10	0.09
Risanamento	-0.03	-0.03	-0.04	-0.04	-0.04	-0.05	-0.05	-0.06	-0.04	-0.03	-0.07	-0.08	-0.03	0.00	0.07
Average	**-3.6%**	**0.2%**	**0.1%**	**-0.3%**	**-1.1%**	**0.9%**	**-2.8%**	**-9%**	**-1.7%**	**-1.9%**	**-2.9%**	**-5.5%**	**0.6%**	**4.2%**	**3.7%**

Table 2. ROA for 5 different firms in Real Estate Industry

3.3.2 Tobin's Q

The Tobin's Q is an estimator to assess the value of the firm and is estimated computing the ratio between the market value of the company and the book value of the assets. I have obtained the market value of the company by multiplying the closing price of the share for each year by the number of shares outstanding with the sum of long plus short-term debt.

$$Tobin's\ Q = \frac{Market\ Value\ of\ Firm}{Book\ Value\ of\ Total\ Assets}$$

Tobin's Q compares the value of a company given by financial markets with the value of a company's assets. A low q (between 0 and 1) means that the cost to replace a firm's assets is greater that the value of its stock and this is the situation that these real estate firms had in recent years. Obviously, this implies that the stock is undervalued. Conversely a high q means that firm's stock is more expensive that replacing the assets of that company and consequently the stock is overvalued. From

data is evident that the q of each company has decreased over time, that suggest that the stock of these real estate firms is undervalued, and the market does not reflect the value of the assets.

Tobin's Q	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
BSI	0.18	0.23	0.12	0.18	0.12	0.17	0.14	0.12	0.12	0.11	0.21				
CIA	0.38	0.37	0.55	0.21	0.28	0.25	0.27	0.25	0.31	0.36	0.49	0.37	1.13	0.86	0.62
Restart		0.18	0.02	0.02	0.03	0.14	0.15	0.26	0.60	1.66	1.88	0.00	0.02	0.04	0.04
IGD	1.02	1.30	1.71	2.01	4.58	6.49	3.58	4.67	4.85	5.38	5.36	9.08	8.17	7.05	10.01
Risanamento				0.01	0.04	0.03	0.01	0.02	0.01	0.01	0.04	0.04	0.30	0.87	0.50
Average	**0.53**	**0.52**	**0.60**	**0.49**	**1.01**	**1.41**	**0.83**	**1.07**	**1.18**	**1.50**	**1.60**	**2.37**	**2.41**	**2.20**	**2.80**

Table 3. Tobin's q, given by the ratio of Market Value and Book Value of the Assets

3.3.3 Current Assets to Total Assets Ratio

This ratio helps in understanding the investment policy of the company, giving a clear view of the amount of current assets used to meet working capital requirement. It is possible to have an aggressive approach, when a company holds a low amount of current asset, resulting in a low current asset to total asset ratio. The other way around, the company will adopt a conservative approach, holding a big amount of current asset.

$$CA/TA = \frac{Total\ Current\ Assets}{Total\ Assets}$$

As is shown by the table below, the quantity of total current assets, in this kind of companies is quite high, reaching in the case of Risanamento Immobiliare S.p.a. even the 90% of total asset. The only company that differ from the other is Immobiliare Grande Distribuzione Siiq S.p.A., that adopted a different policy resulting in a quite low ratio respect to the rest of the industry, and having a current liabilities to total asset ratio higher, as I will show later. Moreover, I observed a negative net working capital for IGD S.p.a. mainly due by the big amount of sales each year of working progress inventory as is shown by the annual reports of the company. Even for the rest of the industry, the increase and decrease of the ratio are usually related to the increase and decrease of the inventory. This reflects the level of working progress of a firm and consequently either the beginning or the end of a project.

CA/TA	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
BSI	0.34	0.37	0.29	0.30	0.31	0.34	0.39	0.35	0.40	0.57	0.55	0.66	0.59	0.43	0.20
CIA	0.36	0.40	0.51	0.34	0.28	0.33	0.28	0.28	0.31	0.11	0.10	0.13	0.24	0.31	0.38
Restart		0.74	0.16	0.19	0.31	0.60	0.53	0.51	0.50	0.52	0.42	0.37	0.45	0.50	0.34
IGD	0.07	0.02	0.03	0.04	0.05	0.05	0.05	0.05	0.06	0.08	0.08	0.09	0.14	0.05	0.12
Risanamento	0.90	0.70	0.70	0.71	0.73	0.78	0.43	0.41	0.43	0.47	0.56	0.54	0.54	0.54	0.70
Average	**41.6%**	**44.5%**	**33.9%**	**31.3%**	**33.5%**	**42.1%**	**33.7%**	**32%**	**33.9%**	**35.0%**	**34.5%**	**35.9%**	**39.2%**	**36.6%**	**34.8%**

Table 4. Current assets to total assets ratios

3.3.4. Total Current Liabilities to Total Assets Ratio

The ratio is estimated using the ratio between current liabilities and total assets. This allow us to understand the financing strategy of the company. A higher level of current liabilities respect to the one of total assets will correspond to a riskier strategy for the firm.

$$CL/TA = \frac{Total\ Current\ Liabilities}{Total\ Assets}$$

For Compagnia Immobiliare Azionaria S.p.a. as well as Immobiliare Grande Distribuzione S.p.a. it is shown a quite high level of current liabilities respect to the one of total assets, respect to the other firms. It is interesting how for this two companies, in particular for IGD S.p.a., the strategy is slightly different in some years, but analysing the annual reports, these ratios are strongly determined by the end of working progress inventories and their relative selling.

CL/TA	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
BSI	0.04	0.15	0.29	0.46	0.13	0.14	0.51	0.37	0.32	0.24	0.21	0.44	0.20	0.08	0.06
CIA	0.47	0.48	0.47	0.35	0.30	0.35	0.33	0.32	0.48	0.56	0.20	0.21	0.18	0.12	0.18
Restart		0.27	0.15	0.14	0.19	0.15	0.20	0.10	0.07	0.09	0.08	0.69	0.29	0.27	0.12
IGD	0.03	0.10	0.05	0.09	0.13	0.06	0.15	0.27	0.13	0.12	0.12	0.15	0.03	0.19	0.12
Risanamento	0.04	0.03	0.47	0.44	0.41	0.48	0.48	0.09	0.07	0.30	0.53	0.29	0.16	0.21	0.26
Average	**14.4%**	**20.7%**	**28.7%**	**29.6%**	**23.3%**	**24.0%**	**33.3%**	**23%**	**21.3%**	**26.3%**	**22.8%**	**35.6%**	**17.0%**	**17.4%**	**14.8%**

Table 5. Current liabilities to total assets ratios

3.3.5 Current Ratio

Here we have the relationship between current asset and current liabilities. It is an indicator of the firm's ability to promptly meet it short term liabilities. A ratio that is quite high, it is consider a sign of financial strength, but when the ratio is too high means that current assets of the firm are financed mainly by long term sourced of funds.

$$Current\ Ratio = \frac{Total\ Current\ Assets}{Total\ Current\ Liabilities}$$

As it is shown in Table 6, the ratio for the companies is quite stable and the mean value is good in each year since a ratio between 1.5 and 2.0 is consider a good ratio. Obviously, we have some exceptions, as it is shown by Risanamento S.p.A. that shows in the last two year an abnormal level of current ratio, due to an incredible drop of the current liabilities. Moreover, as it was predictable from the previous results, IGD S.p.A. has always a ratio lower that 1.0 that indicates a lower level of liquidity. The same for CIA S.p.A. that has anyway a higher ratio, quite acceptable in determined years.

Current Ratio	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**2008**	**2007**	**2006**	**2005**
BSI	2.73	2.41	1.03	0.65	2.41	2.34	0.77	0.96	1.24	2.39	2.69	1.48	2.97	5.75	3.20
CIA	0.76	0.83	1.08	0.96	0.93	0.92	0.85	0.88	0.64	0.19	0.52	0.62	1.37	2.60	2.06
Restart	1.91	2.78	1.06	1.35	1.58	3.95	2.64	4.99	7.48	5.46	5.20	0.55	1.56	1.87	2.94
IGD	1.99	0.22	0.46	0.45	0.41	0.80	0.34	0.19	0.43	0.71	0.71	0.63	4.78	0.24	1.05
Risanamento	23.23	20.28	1.49	1.59	1.76	1.62	0.90	4.55	6.49	1.58	1.05	1.87	3.41	2.54	2.68
Average	**6.12**	**5.31**	**1.03**	**1.00**	**1.42**	**1.93**	**1.10**	**2.31**	**3.26**	**2.07**	**2.03**	**1.03**	**2.82**	**2.60**	**2.38**

Table 6. Current ratio, given by current asset to current liabilities

3.3.6 Quick Ratio

The quick ratio, even known as liquid ratio, is a more precise indicator for liquidity, since consider just the asset with the higher liquidity like cash and debtors, avoiding inventories.

$$Quick\ Ratio = \frac{Current\ Assets\ - Inventory}{Current\ Liabilities}$$

As it shown in the table below the ratio decreases a lot respect to the previous one and this show again how in the real estate firms there is a high presence of inventories. Anyway, the conditions of these firms, except for some cases, can be considered

healthy since the current liabilities are proportionate with the level of current assets and there is not an excess amount of long-term funds for current investments.

Quick Ratio	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
BSI	0.87	0.69	0.28	0.13	0.48	0.62	0.13	0.13	0.14	0.27	0.40	0.16	0.62	5.24	1.95
CIA	0.51	0.57	0.83	0.35	0.23	0.35	0.30	0.34	0.19	0.15	0.45	0.60	1.37	2.60	2.06
Restart		1.55	0.49	0.55	0.99	1.19	0.79	1.39	1.32	1.04	1.89	0.13	0.35	0.78	1.26
IGD	1.61	0.09	0.16	0.15	0.17	0.27	0.09	0.05	0.16	0.42	0.47	0.43	4.78	0.24	0.90
Risanamento	0.51	0.34	0.07	0.05	0.18	0.47	0.07	0.40	0.96	0.24	1.00	0.22	0.40	0.22	2.68
Average	**0.88**	**0.65**	**0.37**	**0.24**	**0.41**	**0.58**	**0.28**	**0.46**	**0.55**	**0.42**	**0.84**	**0.31**	**1.50**	**1.82**	**1.77**

Table 7. Quick ratio, that consider just liquid assets like cash and debtors, living aside the inventories

3.3.7 Debtors Turnover

Debtors turnover indicates the number of times debtors turnover each year. This measure indicates the efficiency of a firm in managing the collection of debts together with the extension of credit. The ratio is measured dividing the credit sales by the average net receivables. Debtors and account receivables are formed when a company makes their sales on credit.

$$Debtors\ Tunover = \frac{Net\ Credit\ Sales}{Average\ Accounts\ Receivables}$$

Generally, the higher the value of debtors turnover the higher is the level of efficiency of the management of receivables by the firm. Indeed, a very low level of debtor turnover will cause a high collection period. CIA S.p.A. has a very low level of debtors turnover, together with its low level of liquidity ratio, while IGD S.p.A. has one of the highest debtors turnover of the companies analysed, showing a very good management of the receivables. The only abnormal value is the ratio for 2008 of Brioschi Sviluppo Immobiliare S.p.A. due to a great increase in the sales level. The companies with a low ratio have to improve their lending policies in order to increase the cash inflow in the business.

Debtors Turnover	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
BSI	1.30	1.00	1.60	1.50	1.70	6.20	1.90	3.30	1.30	1.20	1.80	4.80	0.10	0.50	0.20
CIA	0.40	0.30	0.50	0.90	0.80	0.60	1.10	1.20	2.30	0.60	0.50	0.50	0.70	0.80	0.60
Restart	1.20	0.40	0.30	1.70	0.80	0.70	0.50	0.70	1.60	1.00	0.70	1.20	0.80	2.90	2.10
IGD	10.50	9.90	7.40	7.10	8.70	7.90	7.80	5.90	2.90	3.30	10.30	3.30	2.60	7.00	5.20
Risanamento	2.30	0.10	0.20	0.20	0.10	1.90	0.40	1.70	1.80	3.20		1.00	1.60	3.10	9.80
Average	**3.1**	**2.3**	**2.0**	**2.3**	**2.4**	**3.5**	**2.3**	**2.6**	**2.0**	**1.9**	**3.3**	**2.2**	**1.2**	**2.9**	**3.6**

Table 8. Debtors Turnover Ratio

3.3.8. Inventory Turnover

This ratio indicates the ability of the firm to convert its inventory in revenues, producing and selling the products. The metric is estimated dividing the cost of goods sold by the average inventory and indicates the number of times the inventory has been converted into sales during the period.

$$Inventory\ Turnover = \frac{Cost\ of\ Goods\ Sold}{Average\ Inventory}$$

The inventory turnover that result in Table 10 is extremely low respect to an efficient value that could be considered around 4.0. This means that inventories are not converted into sales much during year, so are not productive for the firm. The reason of this low turnover ratio can be explained by the significant number of projects during this time, having a high amount of capital working progress inventories are not ready to be converted. For the other companies it is shown a very low ratio, that reflect the difficulty of these firm to effectively manage inventories. What I observed studying previous literature is that this is typical for real estate firms, indeed in the studies that I analysed the inventory turnover ratios, except as in this case for some exception, was usually very low and around zero as in this case. This obviously results in a huge amount of days of inventory turnover period.

Inventory Turnover	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
BSI	-0.10	0.0	0.10	0.10	0.10	0.50	0.00	0.20	0.10	-0.10	-0.10	-0.30	0.00	0.40	0.00
CIA	0.50	0.50	0.30	0.10	0.20	0.10	0.30	0.30	1.20	1.40	3.80	15.70			
Restart	0.90	0.10	0.10	0.50	0.20	0.10	0.00	0.30	0.20	0.10	0.20	0.40	0.10	0.90	0.30
IGD	0.40	0.50	0.30	0.20	0.20	0.30	0.30	0.20	0.30	0.40	0.50	1.20		8.10	1.70
Risanamento	0.02	0.00	0.00	0.01	0.00	0.11	0.02	0.09	0.09	0.93	1.36	0.07	0.10	0.17	
Average	**0.3**	**0.2**	**0.2**	**0.2**	**0.1**	**0.2**	**0.1**	**0.2**	**0.4**	**0.5**	**1.2**	**3.4**	**0.1**	**2.4**	**0.7**

Table 10. Inventory Turnover

3.3.9 Inventory to Current Assets

In order to understand the amount of inventory respect to current asset, I computed this ratio that, as it is shown by the table below, is very high for each firm. It is possible to see again the importance of inventories for real estate firms and this help us to explain the previous ratio and the difficulty of the companies to manage this element of the working capital.

Invetory to CA	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
BSI	0.91	0.71	0.72	0.81	0.80	0.73	0.83	0.87	0.89	0.89	0.85	0.89	0.79	0.09	0.39
CIA	0.33	0.32	0.23	0.64	0.76	0.62	0.64	0.61	0.70	0.22	0.12	0.03	0.00	0.00	0.00
Restart	0.00	0.44	0.53	0.59	0.37	0.70	0.70	0.72	0.82	0.80	0.63	0.75	0.78	0.58	0.57
IGD	0.19	0.59	0.66	0.67	0.57	0.67	0.72	0.75	0.63	0.40	0.34	0.31	0.00	0.00	0.15
Risanamento	0.98	0.98	0.95	0.97	0.90	0.71	0.92	0.91	0.85	0.85	0.05	0.88	0.88	0.91	0.00
Average	**48%**	**61%**	**62%**	**73%**	**68%**	**69%**	**76%**	**77%**	**78%**	**63%**	**40%**	**57%**	**49%**	**32%**	**22%**

Table 10. The percentage of inventories in current assets

3.3.10 Cash Converting Cycle

After having estimated all these ratios that gave me a better understanding about working capital management in the real estate industry, it is fundamental to concentrate on cash converting cycle, that gave a precise understanding of the efficiency of the firm about working capital management. CCC is composed by the three-fundamental element of working considering their relative turnover.

First there is Days Sales Outstanding, that measures the number of days required for a company to collect payment after a sale has been executed. It is measured computing the ratio between account receivables and sales multiplied by 365 days.

$$Days\ Sales\ Outstanding = \frac{Account\ Receivables}{Sale} x365$$

In the companies analysed the number of days in very high, except for Immobiliare Grande Distribuzione S.p.A. meaning that the others require an optimization of the collecting process, together with a review of the management of the credit policy. It must be something used to increase sales and to incentivize costumers, that after a determined amount of days, usually 30 days, must pay their debts. The second element is Days Payable Outstanding, that measure the number of days a company takes to pay back their bills. This number is estimated computing the ratio between account payable and cost of goods sold multiplied by 365 days.

$$Days\ Payables\ Outstanding = \frac{Account\ Payables}{Cost\ of\ Goods\ Solds} x365$$

The higher is this value the better is for the company, since it will have more days in order to use money for other projects and postpone the payments for suppliers.

However, it is crucial to have an appropriate management for these values since increasing much the days account payable, could lead with bad relationships with suppliers, that will incentivize late in the delivery of the products, affecting the whole production cycle. Again, these values are very high for the considered firms.
The last element is Days Inventory Outstanding and measure the ability of the firm to convert inventory into sales. The value is given by days of inventory outstanding, in terms of cost of goods sold.

$$Days\ Inventory\ Outstanding = \frac{Inventory}{Cost\ of\ Good\ Sold} x365$$

The companies must decrease the number in which they convert inventories into sales, in order to avoid having too much money stocked in working progress projects.
For real estate industry in general this number is usually very high, as we can see from our results, but we have a negative exception represented by Risanamento S.p.A. with an extremely high level of days inventory outstanding, due to the huge decreasing of the COGS. This reduction was mainly due to maintenance and property management costs, administrative performance, corporate and auditing as explained in the annual report. If these metrics are combined, the Cash Converting Cycle is obtained. The CCC is a very good management measure, since measures the time in which a company can convert the cash it holds in a higher amount of cash. In other words, how many days it takes from the purchase of raw materials to collect the receivables of the finished product. It is generated by adding together days inventory outstanding, with days sales outstanding, subtracting them days payables outstanding (CCC = DIO + DSO – DPO). The lower is the level of cash converting cycle, the more efficient is the management of the company. This value is even a good measure to analyse comparable in the same industry and understand the ones with the best efficiency and management.

CCC	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
BSI	-2163	6838	2180	3525	3649	631	-5593	1401	6052	-2508	-1915	-914	-20924	1338	-19133
CIA	732	940	1179	1859	1478	2406	1160	974	264	97	334	327			
Restart		1445	3012	742	1890	3785	7756	1792	2385	3061	2592	1039	2599	485	1290
IGD	541	500	753	1378	1613	969	1067	1293	1130	717	441	204		18	146
Risanamento	160	3020	1571	1763	4374	194	997	213	202			382	2581	2563	774
Average	**-182.6**	**2548.5**	**1739.0**	**1853.3**	**2600.6**	**1596.8**	**1077.3**	**1134.5**	**2006.7**	**342.0**	**362.9**	**207.3**	**-5248**	**1101**	**-4231**

Table 11. Cash Converting Cycle

As is it shown in Table 11, the level of the CCC for the selected firms is very high. Having a negative cash converting cycle is a very good sign, since it means that the company can easily generate cash from its operation. Brioschi Sviluppo Immobiliare S.p.A. seems to be the more efficient having negative CCC most of the year. Obviously, the best results are correlated with the years in which the values of Days Inventory Outstanding, Days Sales Outstanding and Days Payables Outstanding were at their best level.

3.3.11 Firm Size and Leverage

In previous literature a common practise was to apply some control variables in order to have an opposite analysis of working capital management on the profitability of the firm and on its firm value. I decided to choose firm size and financial leverage as control variables for my research.

Size (Total Asset)	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
BSI	12.6	12.6	12.8	12.8	12.8	12.9	13.1	13.1	13.2	13.3	13.2	13.1	12.7	12.6	12.3
CIA	10.3	10.2	10.3	11.2	11.2	11.4	11.4	11.4	11.2	11.2	11.0	10.9	10.2	10.0	10.1
Restart	0.0	10.3	13.3	13.1	13.1	13.0	13.2	13.2	13.7	13.8	13.8	13.8	14.0	13.9	13.8
IGD		11.8	12.0	7.2	6.4	7.3	9.4	9.5	9.9	9.7	9.8	9.5	9.3	10.9	10.8
Risanamento	14.8	14.7	14.6	14.6	14.6	14.5	14.5	14.5	14.5	14.5	14.5	14.3	14.1	13.8	13.6
Risanamento	13.5	13.8	13.8	13.8	13.9	14.1	14.4	14.5	14.5	14.6	15.0	15.0	15.0	14.8	14.6
Average	**10.2**	**12.2**	**12.8**	**12.1**	**12.0**	**12.2**	**12.7**	**12.7**	**12.8**	**12.9**	**12.9**	**12.8**	**12.6**	**12.7**	**12.5**

The first has been calculated computing the logarithm of its total assets, as the original large value of total assets may disturb the analysis and the second was estimated thorough the debt-equity ratio.

Leverage	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
BSI	2.16	1.93	2.98	2.75	2.57	2.69	3.18	2.63	2.03	1.74	1.45	1.13	0.44	0.29	0.39
CIA	1.30	1.43	1.35	7.82	6.61	7.45	7.38	7.37	16.51	31.94	25.65	15.59	8.99	8.15	8.87
Restart		1.03	0.88	0.69	0.77	0.90	18.36	16.06	2.34	2.23	1.65		2.96	2.20	1.84
IGD	1.15	0.97	1.04	1.11	1.13	1.14	1.60	1.69	1.66	1.56	1.57	1.25	0.84	0.78	0.46
Risanamento	3.98	5.68	4.83	4.28	3.22	3.17							7.40	4.63	3.27
Average	2.15	2.21	2.21	3.33	2.86	3.07	7.63	6.94	5.63	9.37	7.58	5.99	4.13	3.21	2.97

3.4 Pearson's Correlation Analysis

After having computed ratio analysis, that gave me a full understanding about the variables that impact the working capital management, with their related interpretation, next step was to assess the impact on firm profitability and firm value of working capital management. However, I decided to have a more clear and meaningful analysis, to check the correlation between the variables on which the research is built.

To see the relationships between variables I used two Pearson's Correlation matrices, the first including Return on Asset (ROA) and the second including Tobin's Q, that as I stated before I used to represent respectively firm's profitability and firm's value, according to previous literature. In Table 12 is represented Pearson's Correlation with ROA and all the other variables stated before. The numbers with "*" are significant at the 0.05 level, while the numbers with "**" are significant at the 0.01 level.

Going deeply in the analysis appears always more evident how it is important to compute an industry-wise research, in order to have significant results, because each industry is characterized from peculiarities that originate particular results, that differ for each sector and can be explained in a customized way.

It is clear how the current asset over total assets ratio is positively correlated with profitability, meaning that an aggressive investment policy contributes to reduce return on assets. On the other hand, current liabilities over total assets ratio is negatively correlated with profitability of the industry, that tell how an aggressive financing policy is negatively correlated with return on assets.

It was foreseeable a positive correlation for Net Working Capital Turnover and Return on Assets, since the higher is the first variable and more a company is considered able in making new cash from existing cash, carefully managing the working capital.

For what concern cash converting cycle, it impacts negatively Return on Assets, since higher is the value of CCC and higher is the length of time in which companies have inventories stocked and receivables from sales. So, the objective of the firm is to reduce as much as it can this level in order to convert more cash from its investments.

However, is important to specify that for the nature of the business the numbers are justified, since are very common in all the industry. DSO, DIO and DPO are not much significant, and this means that alone these three metrics are not enough to explain the correlation, but together pointed out a significant result. This could be explained

from the quantity of data that maybe is not sufficient, but this is a starting point for future studies. If the variables that compose the CCC were significant, the surprising result could be explained in different ways, always related to the kind of industry. First, it should be a good practise having a look at the control variables, assuming that working capital does not impact profitability. However, in this particular case it is shown how the leverage component significantly impact the profitability of the firm. The second hypothesis could be that the industry itself might be of a character where not much working capital is bound in operations, and that is actually can make money of its working capital such as the airline industry (Hawawini,Viallet and Vora, 1986). By looking at the data collected, as stated before, this is not the case since working capital is quite high in this industry. As we can observe from the table below, sustaining again the impact of working capital on return on assets, quick ratio significantly affects profitability. This tell how managing working capital in order to increase the level of liquid asset can help to improve the performance of the company in order to affect positively profitability, since it is able to meet it short-term financial liabilities. Moreover, sustaining this argument, it is shown how a higher level of inventories respect to the total current assets, significantly impact profitability of the industry, decreasing its value.

	ROA	*CA/TA*	*CL/TA*	*CR*	*QR*	*DT*	*IT*	*Inv/CA*	*DSO*	*DIO*	*DPO*	*CCC*	*NWC T*	*Size*	*Leverage*
ROA	1														
CA/TA	0.241	1													
CL/TA	-0.412	-0.419	1												
Current Ratio	0.026	0.701**	-0.691**	1											
Quick Ratio	0.622*	0.261	-0.771**	0.312	1										
Debtors Turnover	0.157	0.154	-0.314	0.153	0.269	1									
Inventory Turnover	-0.039	-0.036	0.231	-0.182	0.195	0.113	1								
Inventory to CA	-0.531*	-0.223	0.571*	-0.223	-0.854	-0.432	-0.405	1							
Days Sales Outstanding	0.363	0.350	-0.283	0.180	0.358	-0.396	-0.258	-0.307	1						
Days Inventories Outstanding	0.052	0.261	0.159	0.220	-0.422	-0.141	-0.267	0.347	0.186	1					
Days Payables Outstanding	0.254	0.290	-0.002	0.203	-0.211	-0.180	-0.294	0.172	0.472	0.893**	1				
CCC	-0.510*	-0.106	0.434	-0.082	-0.675	0.059	-0.032	0.610*	-0.513	0.64*	0.394	1			
NWC Turnover	0.652**	0.032	-0.360	0.024	0.609	0.150	0.126	-0.701*	0.532*	-0.154	0.123	-0.490	1		
Size	0.052	-0.457	0.405	-0.631*	-0.030	-0.308	0.245	0.075	0.061	-0.154	-0.079	-0.016	0.069	1	
Leverage	-0.53*	-0.430	0.423	-0.337	-0.301*	-0.208	0.153	0.258	-0.407	-0.420	-0.615*	-0.005	-0.402	0.522*	1

Table 12. Person's Correlations Matrix with ROA estimated with SPSS Software from IBM

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

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

In Table 13, is represented Pearson's Correlation with Tobin's Q and all the other variables stated before. With this second part of correlations analysis I assessed the impact of the previous metrics on firm value, instead of profitability.

First, is interesting how both current asset over total assets and current liabilities over total assets are negatively correlated with Tobin's Q. This means that an aggressive investing policy and an aggressive financing policy negatively affect the firm's value. For firm's value, is even more evident how working capital management is crucial for a correct optimization. Indeed, we have a significant Quick Ratio that affect positively the Tobin's Q, meaning that higher is the level of liquid current asset and higher will be the value of the firm. It is possible so observe the same result from Inventory to Current Assets ratio, that is significantly negative correlated with the Tobin's Q, meaning that higher is the level of inventory respect to current assets and lower is the value of the company, since the firm has products stacked, that are not sold. Sustaining this theory, it is shown in Table 13, how Inventory Turnover is significantly highly correlated with firm's value. Hence, increasing the turnover of inventories is something that for sure impact positively the firm's value. In this second case, even more respect to the previous analysis on return on assets, the working capital management is crucial to increase the value of the company and is confirmed by the results over the Cash Converting Cycle. The variable is significant and negatively correlated with Tobin's Q, meaning that decreasing the CCC the firm will acquire more value, confirming the initial theory. Here it is shown significance even for what concern Days Inventory Outstanding that are negatively correlated with Tobin's Q, as it was foreseeable from previous results. Again, despite this significance in DIO the three variables alone are not enough to significantly explain the relationship between Cash Converting Cycle and Firms' Value.

	Tobin's Q	*CA/TA*	*CL/TA*	*CR*	*QR*	*DT*	*IT*	*Inv/CA*	*DSO*	*DIO*	*DPO*	*CCC*	*NWC T*	*Size*	*Leverage*
Tobin's Q	1														
CA/TA	-0.014	1													
CL/TA	-0.232	-0.419	1												
Current Ratio	-0.206	0.709**	-0.694**	1											
Quick Ratio	0.675**	0.261	-0.773**	0.312	1										
Debtors Turnover	0.087	0.154	-0.314	0.153	0.269	1									
Inventory Turnover	0.559*	-0.036	0.231	-0.182	0.195	0.113	1								
Inventory to CA	-0.654**	-0.223	0.578*	-0.223	-0.854**	-0.432	-0.405	1							
Days Sales Outstanding	0.145	0.350	-0.283	0.180	0.358	-0.396	-0.258	-0.307	1						
Days Inventories Outstanding	-0.677**	0.261	0.159	0.220	-0.422	-0.141	-0.267	0.347	0.186	1					
Days Payables Outstanding	-0.491	0.290	-0.002	0.203	-0.211	-0.180	-0.294	0.172	0.472	0.893	1				
CCC	-0.71**	-0.106	0.434	-0.082	-0.675**	0.059	-0.032	0.609*	-0.513	0.640	0.394	1			
NWC Turnover	0.444	0.032	-0.360	0.024	0.609*	0.150	0.126	-0.708**	0.525*	-0.154	0.123	-0.490	1		
Size	0.397	-0.457	0.405	-0.634*	-0.032	-0.308	0.245	0.075	0.061	-0.154	-0.079	-0.016	0.069	1	
Leverage	0.150	-0.430	0.423	-0.337	-0.306	-0.208	0.153	0.258	-0.407	-0.420	-0.615*	-0.005	-0.402	0.522*	1

Table 13. Person's Correlations Matrix with Tobin's Q estimated with SPSS Software from IBM

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

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

3.5 Regression Analysis

In the previous section, correlation analysis observed the correlation between the working capital ratios and both profitability and firm value. It has shown how working capital management, in real estate industry, impact these two elements since are crucial component of this business. In this section about regression analysis, I would like to quantify the impact of working capital management on profitability and firm value. I run two separate linear regression, the first between Return on Assets and the working capital ratios and the second between Tobin's Q and the working capital ratios. In Table 14 are reported the results of the first regression.

The coefficients that have the "*" are the ones with 0.1 level of significance.

The first result that is observed is the impact of the current assets over total assets on ROA, showing how an aggressive investment policy negatively affect profitability of the firm. On the other hand, increasing the ratio between current liabilities and total assets decrease the level of return on assets for the firm. It is clear from the table that the inventory component is crucial for the optimization of working capital management. Indeed, inventory to current assets ratio has a negative impact on profitability, lowering its level with the increase of the inventory amount.

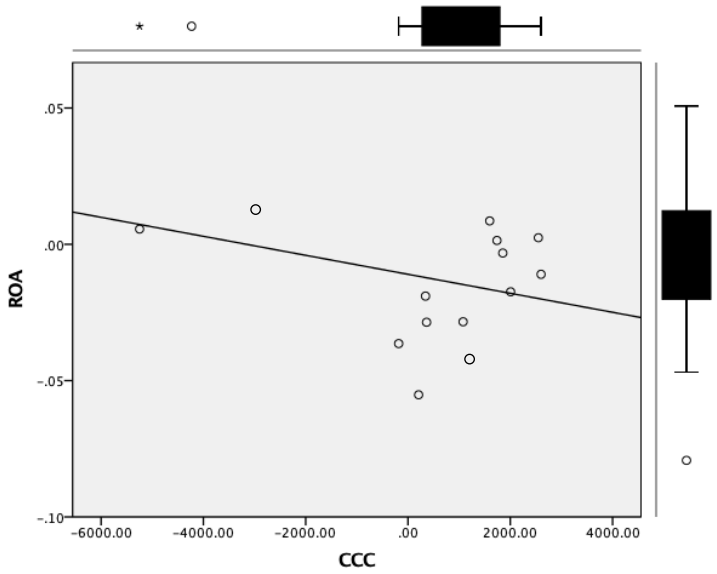
Moreover, inventory turnover is statistically significant and positively affect the profitability of the companies. Increasing the number of times in which inventories change during a year, help the firm in being more profitable.

Looking at the component of cash converting cycle, there is significance just in one, days sales outstanding. As I can expect, increase this value will negatively impact return on assets, demonstrating again how working capital management affect profitability of a firm. The two other components are not statistically significant, given the amount of data used, but as I stated before, this research wants to be an input for future researches having a higher availability of data.

	Coefficients	*Standard Error*	*t Stat*	*P-value*
CA/TA	0.36331	0.40107	0.93678	0.51866
CL/TA	-0.34518	0.41038	-0.84113	0.55480
Current Ratio	0.01263	0.01115	1.13253	0.46049
Quick Ratio	0.06498	0.06589	0.98613	0.50445
Debtors Turnover	-0.04264	0.02387	-1.78684	0.32482
Inventory Turnover	0.03539*	0.01789	1.97804	0.29799
Inventory to CA	-0.21349	0.21007	-1.01631	0.49485
Days Sales Outstanding	-0.00017*	0.00008	-2.13203	0.27920
Days Inventories Outstanding	0.00000	0.00000	-0.58885	0.66120
Days Payables Outstanding	0.00008	0.00009	0.85772	0.54866
CCC	-0.55879*	0.20153	2.03245	0.29774
NWC Turnover	0.00929	0.01030	0.90189	0.53281
Size	-0.00309	0.02419	-0.12776	0.91911
Leverage	-0.00187	0.01032	-0.18156	0.88566

Table 14. Regression Analysis with ROA as dependent variable

If the three elements alone are not sufficient to be significant, together with the Cash Converting Cycle they are statistically significant with a negative impact on ROA as I can expect. Increasing the days in which the firm can convert its investment into cash, will clearly decrease profitability in the industry. Hence, for a real estate firm is fundamental to properly handle the working capital management if it wants to increase the level of its profitability.



Graph 3. Regression Variable Plot of ROA against CCC

Graph 3 represent the regression variable plot of return on assets against cash converting cycle, showing the negative impact of the latter on the first and even a quite significant R squared, as it is shown by the fil line.

The second part of regression analysis had the aim to assess the impact on firm value of working capital ratio, so I run a second analysis as we can see from Table 15. Here I marked the variable with 0.1 level of significance with "*", variables with 0.05 level of significance with "**" and variables with 0.01 level of significance with "***".

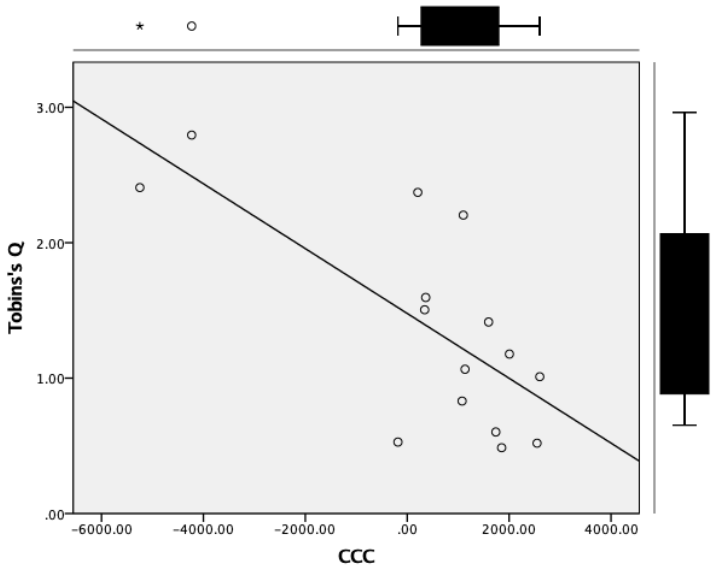
Here the degree of significance is higher and is immediately evident how current asset over total assets has a significant positive impact over Tobin's q. Increasing the percentage of current assets respect to total asset, increase the firm's value, hence an aggressive investing policy has a negative impact on firm's value. Looking at current liabilities over total assets ratio, what is clear is a strongly significant negative impact over Tobin's q. If the company decide to proceed with an aggressive financing policy, increasing together with current liabilities, the level of risk for the firm, will have a significant negative impact over firm's value. Even in this second regression the inventory turnover is statistically significant and indicate a positive impact over Tobin's q, as I can expect from previous results. Looking at the table below, it is possible to find another significant variable that positively affect the firm's value that is Net Working Capital Turnover, assessing again how working capital management is fundamental for a real estate firm. Similarly, to what happened in Table 14, the

three variables composing Cash Converting Cycle, are not statistically significant, probably for the not sufficient amount of data available, but I found significance summing them together in CCC variable.

	Coefficients	*Standard Error*	*t Stat*	*P-value*
CA/TA	7.80124**	3.02338	2.58030	0.23538
CL/TA	-12.67180***	4.12109	-3.07487	0.20017
Current Ratio	-0.47844***	0.11196	-4.27322	0.14635
Quick Ratio	0.03790	0.66168	0.05727	0.96358
Debtors Turnover	0.08917	0.23966	0.37205	0.77325
Inventory Turnover	0.66324***	0.17967	3.69137	0.16842
Inventory to CA	3.01315	2.10951	1.42837	0.38884
Days Sales Outstanding	-0.00081	0.00084	-0.96810	0.51032
Days Inventories Outstanding	0.00003	0.00002	1.11556	0.46526
Days Payables Outstanding	0.00015	0.00092	0.15928	0.89944
CCC	-0.00030***	0.00008	-3.99048	0.15632
NWC Turnover	0.18967*	0.10341	1.83417	0.31777
Size	-0.01276	0.24292	-0.05254	0.96658
Leverage	0.12858	0.10364	1.24070	0.43187

Table 15. Regression Analysis with Tobin's Q as dependent variable

Cash Converting Cycle is significantly positive correlated with Tobin's Q, confirming the initial hypothesis that increasing the level of CCC will negatively impact the value of the firm. Respect to previous regression here is even more evident how managing carefully working capital, is crucial if management wants to increase the value of the firm they are running. Working capital for real estate firm is key element if the objective is to impact the value of the firm.



Graph 4. Regression Variable Plot of Tobin's Q against CCC

Graph 4 represent the regression variable plot of firm's value against cash converting cycle, that show the extremely negative impact that the working capital measure has on Tobin's q and the significant R squared, since quite all the points are near to the line.

Conclusions

The present research has analysed the impact of working capital on profitability and firm's value for Italian real estate companies, trying to understand the aspects on which the industry should improve its metrics to enhance its performances. In the first part of the study I decomposed the component of working capital to understand how they worked and the relevance of each of them. As I expected in this particular industry the amount of current assets and current liabilities was significant respect to the total amount of currents assets, pointing out the importance of taking care about working capital management for real estate business. Inventories, as it was predictable, are the components that cover the higher portion of working capital for real estate. The metrics that influence working capital the most, should be improved in order to increase the efficiency of the companies. Cash Converting Cycle, together with its components, do not respect the optimal levels, reaching very un-appropriate values, that are common inside real estate business anyway. I observed very low inventory turnover, together with debtor's turnover, that contribute to increase significantly the cash converting cycle. What stressed the importance to be able to convert old cash into new one, were the liquidity ratios, that in these cases were very low respect to the ones of different industries. An exception that respect the best practices for most of the parameters were Immobiliare Grande Distribuzione S.p.a., that sometimes improved the average of the companies in the sample. Going deeply into the research, I observed the impact of working capital over profitability and firm's value, since not frequently as it should, these elements are considered correlated. I used correlation analysis and regression analysis over Return on Assets and Tobin's Q, and I could study how a well-managed working capital can impact the two metrics. For what concern profitability, higher is the cash converting cycle and lower is the level of profitability. Together with it, the inventory turnover impact positively returns on assets, suggesting to increase the efficiency in which working capital support sales inside the company. Another interesting result is to see how an aggressive investing policy positively affect profitability, while an aggressive financing policy negatively affect profitability for real estate firms. Hence, increasing much the level of risk at which they are exposed is not profitable and a good balance has to be found. Even more significant is the impact that working capital has on firm's

value, that is positively affected from an efficient working capital management. Tobin's Q is negatively affected from cash converting cycle and here is even more evident the importance of liquidity for firm's value. Obviously, the research has some restrictions since I decided to focus on five Italian listed companies, avoiding the non-listed ones for a matter of data. Hence, I must specify that not all the results found with this research are significant, since a higher amount of data were required. Anyway, this could be a good starting point for future research. Indeed, the analysis highlights how working capital management could be a resource that firms should use to improve their performances more than what has been done in the past. I decided to focus on real estate industry because has always been considered a sector so mature, that the common thinking is that there is not enough space for either innovation or improvement. With this study instead, I showed how there are a lot of areas where managers should do better and how these actions could lead to a higher profitability and a higher value for the firm. Hence, this research together with the contribution given in assessing whether effective working capital management can improve corporate profitability, gave a specific focus on real estate industry. This influences the significance of the analysis, since working capital requirement change from business to business, together with giving further contribution about real estate industry.

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Summary

This research aims at highlighting and analysing the role of working capital management inside Italian real estate firms. The function of working capital is always more important for a company and I wanted to empirically test the impact on profitability and firm value through a deep analysis. The role of working capital inside a firm is increasing, so the way in which is managed requires to be executed to maximize the value of the company. Hence, the primary objective of the paper is to assess if there is a significant impact on firm's profitability and firm's value for Italian real estate firms. Moreover, I tried to understand some best practises that should be applied to improve performances of real estate business, that is commonly considered a traditional business that is difficult to innovate. Real estate business by nature has an important percentage of current assets and current liabilities, which constitute very high and inefficient cash converting cycle that with a good working capital management, could be improved.

Companies have a large amount of cash invested in working capital and at the same time use short – term payables as a source of financing. A company needs capital to be invested in plant, machinery, land, inventories, accounts receivables and accounts payables to smoothly increase the efficiency of the firm business. Previous studies have always focused on long-term financing as capital structure, dividends or particularly investments, but even short-term assets and liabilities are fundamental components that management must care about to run their firms productively. Obviously working capital management practices change respect to the kind of industry in which the firm operates and the kind of attitude that they have toward risk. The key is to ensure the right trade – off between profit and risk, reaching the optimal level that grant at each firm the maximization of the firm value. In order to preserve this balance, is important to carefully analyse the main component of working capital that are inventory, payables and receivables. Inventory is a very important current asset, that sometimes is compared with cash since they could be both raw material that the company needs for its own business. Holding cash for a company is always a positive aspect. It can reduce the liquidity risk and avoid raising more capital for short – term needs. At the same time having an excess of cash will result in having too

much capital that is not used, facing opportunity cost to not invest them in something profitable like marketable securities. It is important for a firm to manage inventory to increase the level of inventory turnover. Regarding account receivables, they are conventionally used to increase the sale and gain more costumers, even if their primary objective should involve the maximization of overall returns on investments. Increasing too much the quantity of account receivables, increase the level of risk bared by the company, hence is crucial a proper management, that differs from business to business, to make the revenues generated by the extra – sales given by the credit policy, higher than the costs. For what concern payables usually, companies tend to increase them as much as they can, to maximize free cash flows. This strategy could coincide with some negative outcomes, since the relations with suppliers could be eroded, the delivery time might increase and the possible discount for advance payment cannot be considered in the cost reduction. Management team has to develop best practices in order to contribute positively to cash flow delaying payments, without incurring in the cost and withdraws of late payments such as penalties, interest charges, lost prompt payment discounts and payment to creditors before collecting from debtors. These three elements are the component of the cash converting cycle, that is considered one of the best estimators to assess a good working capital management. A company can approach three different strategies, Conservative, Aggressive and Hedging. The first, is the one that bear both a low level of risk and a low level of profitability. The firm will hold a higher level of current asset, having therefore a higher working capital. In this way the company will face a lower liquidity risk. This is even known as maturity matching strategy since managers try to match short-term requirement with short-term debt and long-term requirement with long-term debts. Finally, the third is the riskiest one, because is completely focused on the profitability of the company. Here long-term funds finances just fixed asset and part of permanent working capital, while the remaining part of it and the whole part of temporary working capital is financed by short-term funds. The liquidity in this strategy is very low but avoiding the presence of idle funds the firm can save interest cost on them, optimizing profitability. Another important aspect to consider is the so-called industry effect, that is the influence that the kind of business has on the working capital requirement. Firms in different industries have a distinct way and a distinct need to impact credit policy, inventory management and bill-paying

activities, for some of them can be convenient to minimize receivables and inventories, while for other can be optimal maximize payables. This is the reason why I decided to focus on a single industry. I focused on real estate one since major part of the balance sheet of the companies is constituted by current assets and current liabilities. Working capital requirement for real estate firm is related with investments in machinery, land, inventories and account payables, that are assets that accumulate their cost during time, and in this costs are comprised both long- and short-term financing. Hence, to run the firm properly, they require a properly short-term financial planning in order to meet all their temporary demand for cash. Moreover, what resulted from previous studies is that the management of working capital for real estate company is not as efficient as it should be since there is a heavy dependence on only one component of current assets. There is a very high percentage of current asset and major portion of these assets are parked in the inventories.

Going deeply into the research, the objective is to understand the impact on profitability and firm value of working capital management, considering the effect of the single component and metrics, trying to point out some best practices for real estate firms. The analysis applied a quantitative approach, collecting secondary data from firms operating in the Italian real estate industry listed on the Milan Stock Exchange. I selected five real estate listed firms representing the major portion of the market with the same size. These firms are Brioschi Sviluppo Immobiliare S.p.A., Compagnia Immobiliare Azionaria S.p.A., Restart Società di Investimento Immobiliare Quotata S.p.A., Immobiliare Grande Distribuzione Siiq S.p.A. and Risanamento S.p.A. I collected data from 2005 to 2019, from financial statement taken from Thomson Reuters and Orbis from Bureau Van Dijk. I applied three different kinds of analysis in order to have more reliable results. First, I used ratio analysis in order to estimate all the ratio required to have a complete overview about the working capital metrics, as I observed in previous literature. I calculated each ratio for each year and each firm to study them individually and give them a correct interpretation. This method was important to understand the working capital practices of the single companies. Second, I computed a correlation analysis, determining Pearson's coefficient to study its significance. This helped in understanding whether there was any correlation between the dependent profitability ratio, firm's value ratio and independent working capital ratios. Finally, I ran regression analysis to find out

the degree of variation of dependent variable due to independent variable, choosing firm's size and leverage as control variables. The first regression used profitability as dependent variable, while the second considered firm's value. I used respectively Return on Asset and Tobin's Q to represent the two elements, as done by the previous literature. Going through the Ratio Analysis I computed first Current Asset to Total Assets ratio and Current Liabilities to Total Assets ratio in order to understand the investment policies of the firms. , the quantity of total current assets, in this kind of companies is quite high, reaching in the case of Risanamento Immobiliare S.p.a. even the 90% of total asset. The only company that differs from the other is Immobiliare Grande Distribuzione Siiq S.p.A., that adopted a different policy resulting in a quite low ratio respect to the rest of the industry and having a higher current liability to total asset ratio. Indeed, for I.G.D. S.p.a. as well as for Compagnia Immobiliare Azionaria S.p.a. it is shown a quite high level of current liabilities respect to the one of total assets, respect to the other firms. To assess the liquidity of the companies I used two indicators, Current Ratio and Quick Ratio. A ratio that is quite high, it is consider a sign of financial strength, but when the ratio is too high means that current assets of the firm are financed mainly by long term sourced of funds. However looking at the firs ratio we can notify values between 1.5 and 2.0, that are considered good, in the second one, taking into account inventories, the ratio decreases a lot, underling again the strong presence of inventories in real estate firms. Finally, I estimated all the ratio required to compute the metric that gave me the best understanding about working capital management that is the cash converting cycle. The CCC is a very good management measure, since measures the time in which a company can convert the cash it holds in a higher amount of cash. In other words, how many days it takes from the purchase of raw materials to collect the receivables of the finished product. It is generated by adding together days inventory outstanding, with days sales outstanding, subtracting them days payables outstanding (CCC = DIO + DSO – DPO). The lower is the level of cash converting cycle, the more efficient is the management of the company.

CCC	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
BSI	-2163	6838	2180	3525	3649	631	-5593	1401	6052	-2508	-1915	-914	-20924	1338	-19133
CIA	732	940	1179	1859	1478	2406	1160	974	264	97	334	327			
Restart		1445	3012	742	1890	3785	7756	1792	2385	3061	2592	1039	2599	485	1290
IGD	541	500	753	1378	1613	969	1067	1293	1130	717	441	204		18	146
Risanamento	160	3020	1571	1763	4374	194	997	213	202			382	2581	2563	774
Average	**-182.6**	**2548.5**	**1739.0**	**1853.3**	**2600.6**	**1596.8**	**1077.3**	**1134.5**	**2006.7**	**342.0**	**362.9**	**207.3**	**-5248**	**1101**	**-4231**

Table 11. Cash Converting Cycle

As it is shown in Table 11, the level of the CCC for the selected firms is very high. Having a negative cash converting cycle is a very good sign, since it means that the company can easily generate cash from its operation. Brioschi Sviluppo Immobiliare S.p.A. seems to be the more efficient having negative CCC most of the year. Obviously, the best results are correlated with the years in which the values of Days Inventory Outstanding, Days Sales Outstanding and Days Payables Outstanding were at their best level. After having computed ratio analysis, that gave me a full understanding about the variables that impact the working capital management, with their related interpretation, next step was to assess the impact on firm profitability and firm value of working capital management. Hence, I decided to have a more clear and meaningful analysis, to check the correlation between the variables on which the research is built. To see the relationships between variables I used two Pearson's Correlation matrices, the first including Return on Asset (ROA) and the second including Tobin's Q.

	ROA	*CA/TA*	*CL/TA*	*CR*	*QR*	*DT*	*IT*	*Inv/CA*	*DSO*	*DIO*	*DPO*	*CCC*	*NWC T*	*Size*	*Leverage*
ROA	1														
CA/TA	0.241	1													
CL/TA	-0.412	-0.419	1												
Current Ratio	0.026	0.701**	-0.691**	1											
Quick Ratio	0.622*	0.261	-0.771**	0.312	1										
Debtors Turnover	0.157	0.154	-0.314	0.153	0.269	1									
Inventory Turnover	-0.039	-0.036	0.231	-0.182	0.195	0.113	1								
Inventory to CA	-0.531*	-0.223	0.571*	-0.223	-0.854	-0.432	-0.405	1							
Days Sales Outstanding	0.363	0.350	-0.283	0.180	0.358	-0.396	-0.258	-0.307	1						
Days Inventories Outstanding	0.052	0.261	0.159	0.220	-0.422	-0.141	-0.267	0.347	0.186	1					
Days Payables Outstanding	0.254	0.290	-0.002	0.203	-0.211	-0.180	-0.294	0.172	0.472	0.893**	1				
CCC	-0.510*	-0.106	0.434	-0.082	-0.675	0.059	-0.032	0.610*	-0.513	0.64*	0.394	1			
NWC Turnover	0.652**	0.032	-0.360	0.024	0.609	0.150	0.126	-0.701*	0.532*	-0.154	0.123	-0.490	1		
Size	0.052	-0.457	0.405	-0.631*	-0.030	-0.308	0.245	0.075	0.061	-0.154	-0.079	-0.016	0.069	1	
Leverage	-0.53*	-0.430	0.423	-0.337	-0.301*	-0.208	0.153	0.258	-0.407	-0.420	-0.615*	-0.005	-0.402	0.522*	1

Table 12. Person's Correlations Matrix with ROA estimated with SPSS Software from IBM

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

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

As it is shown in the table, tt was foreseeable a positive correlation for Net Working Capital Turnover and Return on Assets, since the higher is the first variable, the more a company is considered able in making new cash from existing cash, carefully

managing the working capital. For what concern cash converting cycle, it impacts negatively Return on Assets, since higher is the value of CCC and higher is the length of time in which companies have inventories stocked and receivables from sales. It is important to specify that for the nature of the business the numbers are justified, since are very common in all the industry. DSO, DIO and DPO are not much significant, and this means that alone these three metrics are not enough to explain the correlation, but together pointed out a significant result. This could be explained from the quantity of data that maybe is not sufficient, but this is a starting point for future studies.

	Tobin's Q	*CA/TA*	*CL/TA*	*CR*	*QR*	*DT*	*IT*	*Inv/CA*	*DSO*	*DIO*	*DPO*	*CCC*	*NWC T*	*Size*	*Leverage*
Tobin's Q	1														
CA/TA	-0.014	1													
CL/TA	-0.232	-0.419	1												
Current Ratio	-0.206	0.709**	-0.694**	1											
Quick Ratio	0.675**	0.261	-0.773**	0.312	1										
Debtors Turnover	0.087	0.154	-0.314	0.153	0.269	1									
Inventory Turnover	0.559*	-0.036	0.231	-0.182	0.195	0.113	1								
Inventory to CA	-0.654**	-0.223	0.578*	-0.223	-0.854**	-0.432	-0.405	1							
Days Sales Outstanding	0.145	0.350	-0.283	0.180	0.358	-0.396	-0.258	-0.307	1						
Days Inventories Outstanding	-0.677**	0.261	0.159	0.220	-0.422	-0.141	-0.267	0.347	0.186	1					
Days Payables Outstanding	-0.491	0.290	-0.002	0.203	-0.211	-0.180	-0.294	0.172	0.472	0.893	1				
CCC	-0.71**	-0.106	0.434	-0.082	-0.675**	0.059	-0.032	0.609*	-0.513	0.640	0.394	1			
NWC Turnover	0.444	0.032	-0.360	0.024	0.609*	0.150	0.126	-0.708**	0.525*	-0.154	0.123	-0.490	1		
Size	0.397	-0.457	0.405	-0.634*	-0.032	-0.308	0.245	0.075	0.061	-0.154	-0.079	-0.016	0.069	1	
Leverage	0.150	-0.430	0.423	-0.337	-0.306	-0.208	0.153	0.258	-0.407	-0.420	-0.615*	-0.005	-0.402	0.522*	1

Table 13. Person's Correlations Matrix with Tobin's Q estimated with SPSS Software from IBM

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

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

For Firm's Value, is interesting how both current asset over total assets and current liabilities over total assets are negatively correlated with Tobin's Q. Here is even more evident how working capital management is crucial for a correct optimization. Indeed, we have a significant Quick Ratio that affects positively the Tobin's Q, meaning that higher is the level of liquid current asset and higher will be the value of the firm. In this second case, even more respect to the previous analysis on return on assets, the working capital management is crucial to increase the value of the company and is confirmed by the results over the Cash Converting Cycle. The variable is significant and negatively correlated with Tobin's Q, meaning that decreasing the CCC the firm will acquire more value, confirming the initial theory. Finally, to quantify the impact of working capital management on profitability and firm value I computed a Regression Analysis. I run two separate linear regression, the first between Return on Assets and the working capital ratios and the second between Tobin's Q and the working capital ratios. The first result that is observed is the impact of the current

assets over total assets on ROA, showing how an aggressive investment policy negatively affect profitability of the firm. On the other hand, increasing the ratio between current liabilities and total assets decreases the level of return on assets for the firm. It is clear from the table that the inventory component is crucial for the optimization of working capital management. Indeed, inventory to current assets ratio has a negative impact on profitability, lowering its level with the increase of the inventory amount. Moreover, inventory turnover is statistically significant and positively affect the profitability of the companies. Increasing the number of times in which inventories change during a year, help the firm in being more profitable. Looking at the component of cash converting cycle, there is significance just in one, days sales outstanding. As I can expect, increase this value will negatively impact return on assets, demonstrating again how working capital management affect profitability of a firm.

	Coefficients	*Standard Error*	*t Stat*	*P-value*
CA/TA	0.36331	0.40107	0.93678	0.51866
CL/TA	-0.34518	0.41038	-0.84113	0.55480
Current Ratio	0.01263	0.01115	1.13253	0.46049
Quick Ratio	0.06498	0.06589	0.98613	0.50445
Debtors Turnover	-0.04264	0.02387	-1.78684	0.32482
Inventory Turnover	0.03539*	0.01789	1.97804	0.29799
Inventory to CA	-0.21349	0.21007	-1.01631	0.49485
Days Sales Outstanding	-0.00017*	0.00008	-2.13203	0.27920
Days Inventories Outstanding	0.00000	0.00000	-0.58885	0.66120
Days Payables Outstanding	0.00008	0.00009	0.85772	0.54866
CCC	-0.55879*	0.20153	2.03245	0.29774
NWC Turnover	0.00929	0.01030	0.90189	0.53281
Size	-0.00309	0.02419	-0.12776	0.91911
Leverage	-0.00187	0.01032	-0.18156	0.88566

Table 14. Regression Analysis with ROA as dependent variable

The second part of regression analysis had the aim to assess the impact on firm value of working capital ratio, so I ran a second analysis as we can see from Table 15. Here the degree of significance is higher and is immediately evident how current asset over total assets has a significant positive impact over Tobin's q. Increasing the percentage of current assets respect to total asset, increase the firm's value, hence an aggressive investing policy has a negative impact on firm's value. Looking at current liabilities over total assets ratio, what is clear is a strongly significant negative impact over Tobin's q. If the company decide to proceed with an aggressive financing policy,

increasing together with current liabilities, the level of risk for the firm, will have a significant negative impact over firm's value. Even in this second regression the inventory turnover is statistically significant and indicate a positive impact over Tobin's q, as I can expect from previous results. Cash Converting Cycle is significantly positive correlated with Tobin's Q, confirming the initial hypothesis that increasing the level of CCC will negatively impact the value of the firm. Respect to previous regression here is even more evident how managing carefully working capital, is crucial if management wants to increase the value of the firm they are running.

	Coefficients	*Standard Error*	*t Stat*	*P-value*
CA/TA	0.36331	0.40107	0.93678	0.51866
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Leverage	-0.00187	0.01032	-0.18156	0.88566

Table 14. Regression Analysis with ROA as dependent variable

Observing the results, the analysis highlighted how working capital management could be a resource that firms should use to improve their performances more than what has been done in the past. I decided to focus on real estate industry because has always been considered a sector so mature, where the common thinking is that there is not enough space for either innovation or improvement. With this study instead, I showed how there are a lot of areas where managers should do better and how these actions could lead to a higher profitability and a higher value for the firm. Hence, this research together with the contribution given in assessing whether effective working capital management can improve corporate profitability, gave a specific focus on real estate industry. This influences the significance of the analysis, since working capital

requirement change from business to business, together with giving further contribution about real estate industry.